Applicant (A)

A1 – Alaska Gasline Development Corporation

ALASKA LNG

AKLNG-6020-REG-COR-REC-00202

October 3, 2019

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE
Washington, D.C. 20426

RE: OEP/DG2E/Gas 3
Alaska Gasline Development Corporation – Alaska LNG Project
Docket No. CP17-178-000
§ 375.308(x)

Dear Ms. Bose:

On June 28, 2019, the Federal Energy Regulatory Commission's (FERC) Office of Energy Projects (OEP) issued the Draft Environmental Impact Statement FERC/EIS-0296D (DEIS) for the Alaska LNG Project application pending in the referenced proceedings.

We commend OEP staff for their work to verify and distill the voluminous research and studies associated with this project. To further strengthen the EIS, enclosed for filing and consideration are the Alaska Gasline Development Corporation's (AGDC) comments on the DEIS, including:

- Attachment 1 – AGDC's comments in a table format that: (1) identifies the applicable section of the DEIS; (2) provides an excerpt of the relevant DEIS text; (3) provides AGDC's comment and rationale; and (4) suggests text changes and/or provides suggested corrections for consideration in resolving the comment;
- Attachment 2 – Attachments such as study reports, suggested table corrections, and other supporting documents referenced in Attachment 1. The attachments are organized in the order they are referenced in Attachment 1; and
- Attachment 3 – AGDC's affirmations of and/or comments to the 214 staff recommended mitigation measures in Section 5.2 of the DEIS. Filed previously were AGDC's responses to the 28 mitigation measures that were required to be addressed before the end of the DEIS comment period.

As noted in our detailed comments, there are several resources that deserve additional consideration in light of studies conducted in Alaska and to be consistent with legal requirements and defined regulatory agency jurisdictions. This is particularly true for the contextual assessment of potential caribou, air quality, permafrost, and wetland impacts. Unlike most of the resource areas assessed in the DEIS, assessments of permafrost and wetlands in particular would benefit from additional consideration of the context component of impact assessment. As outlined in CEQ regulations (40 CFR 1508.27), assessment of significance are to include consideration of both intensity and context. AGDC's comments provide additional context for consideration. A1-1

Alaska Gasline Development Corporation
3201 C Street, Suite 201, Anchorage, Alaska 99503
Tel. 907-330-6300 | Fax 907-330-6309 | www.agdc.us

CC-983

A1-1 We conducted an independent analysis of the information provided throughout the environmental review process and made our own conclusions based on that information. See our responses specific to comments below.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC recognizes the significant work effort of the OEP team and appreciates the opportunity to submit comments for consideration. Further, we welcome any additional questions on the attached materials.

Respectfully submitted,

Frank T. Richards, P.E.
Senior Vice President, Program Management

Attachments:

1. AGDC's Comment Response Table to the June 2019 DEIS
2. Supporting Documents to the Comment Response Table
3. AGDC's Response to FERC Staff Recommended Mitigations

cc:
All Parties

A1 – Alaska Gasline Development Corporation (cont'd)

ALASKA LNG

AKLNG-6020-REG-COR-REC-00202

ATTACHMENT 1
AGDC's Comment Response Table to the June 2019 DEIS

Alaska Gasline Development Corporation
3201 C Street, Suite 201, Anchorage, Alaska 99503
Tel. 907-330-6300 | Fax 907-330-6309 | www.agdc.us

CC-985

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
The indication of 'significant' in this Executive Summary does not provide context for the impacts, including wetland impacts.	AGDC respectfully suggests adding context to the Executive Summary regarding impacts to wetlands and permafrost relative to the total acreage in Alaska.	Review/incorporate the information noted by AGDC. In particular, consider inserting text to the Executive Summary to provide context for the impacts, such as: "The Project would result in significant long-term to permanent impacts on thaw sensitive permafrost (about 6,377 acres), thaw stable permafrost (about 3,415 acres), and forest (about 12,474 acres); and convert about 4,162 acres of wetland to upland. To put the wetland impacts into perspective, the project would impact less than 0.01% of the total wetlands in each sub-watershed. The permafrost impacts are less than 0.003% of the permafrost found in the State of Alaska."	A1-2
The DEIS text indicating emissions from the aboveground facilities could exceed thresholds is inconsistent with the description in same paragraph that says "...would not cause or contribute to exceedance..." Also see extensive notes in technical air quality sections.	AGDC respectfully suggests modification of the Executive Summary, and other related text, to clarify these impacts are not considered significant adverse impacts due to the case-specific circumstances.	Review/incorporate the information noted by AGDC. In particular, consider modifying the Executive Summary as follows: "Operational emissions from the aboveground facilities could exceed initial screening thresholds for nitrogen and sulfur deposition ~~thresholds~~ and visibility ~~thresholds~~ at nearby Class I ~~and II~~ nationally designated protected areas. However, these impacts are not considered significant adverse impacts due to the case-specific circumstances."	A1-3
The visual resource analysis concluded that visual impacts at two of seven key observation points in DNPP would be high after construction (one other would be moderate, all others would be low) but that those impacts would be sufficiently mitigated, reducing the visual impact to low and moderate impacts after reclamation. AGDC compared the visual impacts of the Rev C2 Route to the impacts of the Denali Alternate Route and determined that overall, the visual impact would be less for the Denali Alternate Route. Three KOPs in DNPP have a Scenic Inventory Value of High or Very High but have a low potential impact after reclamation. This information is available in AGDC response RFI-528-FERC-216-1 (Accession No. 20180815-5078(33055742)). Cumulative impacts are defined as the "the impact on the environment which results from the incremental impact of the action [being studied] when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time" (CEQ, 2017). There are no reasonably foreseeable future actions that have been identified near DNPP.	AGDC respectfully requests expanding the information on visual resource impacts in the Executive Summary to take into account the Key Observation Point information in AGDC response RFI-528-FERC-216-1 (Accession No. 20180815-5078(33055742)), and the lower visual impact from use of the Denali Alternate Route.	Review/incorporate the information noted by AGDC. In particular, consider expanding the information on visual resource impacts in the Executive Summary to take into account the Key Observation Point information in AGDC response RFI-528-FERC-216-1 (Accession No. 20180815-5078(33055742)), and the lower visual impact from use of the Denali Alternate Route as follows: "~~While Project effects on visual resources overall would be less than significant, v~~Visual impacts at key observation points near the DNPP would be high, but those impacts would be mitigated, reducing the visual impact to low and moderate impacts after reclamation. ~~so a~~Any additional impacts on these same areas from other projects would contribute to cumulative visual effects, which could be significant, however, there are no known reasonably foreseeable projects near DNPP that would impact the visual resources from these	A1-4

A1-2 See the response to comment A1-1.

A1-3 The Executive Summary of the final EIS has been updated to address this comment.

A1-4 The Executive Summary has been updated to address the visual impacts of the current proposed route (which includes the former Denali Route Alternative).

CC-986

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		KOPs. The Denali Alternate Route would have less of an impact after construction and less of an impact after reclamation, particularly for those KOPs with High or Very High Scenic Inventory Value."	
The assessment of wetland and permafrost impacts as 'significant' does not take into account context of the impact relative to the wetland and permafrost acreage in Alaska. Also, the wetland impacts are evaluated without consideration of compensatory mitigation that will be required and taken into consideration by the U.S. Army Corps of Engineers in their 404 wetland permitting process.	AGDC respectfully suggests adding context for the wetlands and permafrost areas, including percentage impacted out of the total. When context is considered, labeling of impacts as 'significant' does not appear appropriate.	Review/incorporate the information noted by AGDC. In particular, consider revising the Executive Summary to provide context for the impact descriptions as follows: We conclude that constructing the Project would have ~~significant~~ impacts on permafrost due to granular fill placement (less than 0.003% of permafrost in the state) ~~, particularly for the Mainline Pipeline facilities~~. The Project would have ~~significant~~ adverse impacts on wetlands from granular fill placement resulting in ~~substantial~~ conversions of wetlands to uplands for 0.01% of wetlands within each watershed impacted. The impacts to permafrost represent less than 0.003% of the permafrost found in the State of Alaska; resulting in insignificant impacts to permafrost as a result of the Alaska LNG Project.	A1-5
The text in section 1.2.7; p. 1-8, 4th paragraph, improperly cites the CAA as the authority for establishing Sensitive Class II areas and protecting AQRVs at such areas. The paragraph also improperly cites 42 USC 7475(c) as the authority to consult with EPA on "industrial" facilities rather than "major emitting" facilities. See more detailed comments attached. See also attached letter from DOI to FERC dated 7-17-18, attached.	AGDC respectfully suggests modification of the description in section 1.2.7; p. 1-8 to be consistent with legal authorities for management of air quality issues. Since there is no statutory authority, any reference to "Sensitive Class II" areas should be removed from the EIS. The fourth paragraph of this section states that EPA/ADEC must consult with the FLMs to determine whether "proposed industrial facilities would have an adverse impact" on certain air quality related values. This statement is not correct. The requirement per 42 USC 7472(d)(1) is to consult on each permit application relating to a major emitting facility. Not every industrial facility is a major emitting facility and not every major emitting facility is an industrial facility.	Please see attached letter from DOI regarding this issue. Also consider modifying Section 1.2, as follows: ~~The USFWS has a role as a federal land manager under the CAA.~~ Under the CAA, Federal land managers are charged with direct responsibility to protect air quality and related values (including visibility) of Class I ~~and Sensitive Class II~~ lands and to consider, in consultation with the EPA, whether proposed ~~industrial~~ major emitting facilities would have an adverse impact on these values (42 USC 7475~~(e)~~(d)(2)). The Tuxedni Wilderness within the Alaska Maritime National Wildlife Refuge (NWR) is designated a Class I area~~, and the Arctic, Kanuti, Yukon Flats, Koyukuk, Selawik, Nowitna, Kenai, and Alaska Maritime NWRs are considered sensitive Class II air quality areas~~. The USFWS is responsible for land management within ~~all of these NWRs~~the Tuxedni Wilderness, ~~a portion of~~ which would be within 186.4 miles (300 kilometers [km]) of Project facilities.[5] File Name: 5_Ltr from DOI to FERC - 7-17-18	A1-6

A1-5 See the response to comment A1-1.

A1-6 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 text in section 1.2.8; p. 1-9, 1st paragraph improperly cites the CAA as the authority for establishing Sensitive Class II areas. Such authority is not defined in the CAA. See also letter from DOI to FERC dated 7-17-18.	AGDC respectfully suggests modification of section 1.2.8; p. 1-9 to be consistent with statutory authorities for regulatory agencies.	Please see attached letter from DOI regarding this issue. Also consider modifying section 1.2 and other related portions of the EIS as follows: The NPS has a role as a federal land manager under the CAA to protect designated Class I areas. The DNPP is designated a Class I area~~,~~ ~~while Lake Clark, Kenai Fjords, and Gates of the Arctic are designated as sensitive Class II areas.~~ File Name: 5_Ltr from DOI to FERC - 7-17-18	A1-7
Table 1.6-1 suggests that minor construction permits for permanent facilities are required for the GTP and Liquefaction Facility. However, GTP and the Liquefaction Facility require PSD major construction permits from ADEC, and both applications have been submitted. For completeness, a line item should be added to the table for PSD permits. For accuracy, the anticipated application submittals for minor permits for the GTP and Liquefaction Facility should be deleted.	AGDC respectfully suggests addition of a line in Table 1.6-1 to reflect the required PSD Construction Permits for Permanent Facilities and deletion of reference to those facilities in the Minor Construction Permit row.	Review/incorporate the information noted by AGDC. In particular, consider attached suggested edits to Table 1.6-1. File Name: 7_Table 1.6-1	A1-8
Several of the permits and approvals in Table 1.6-1 have moved forward since the table was developed, and the table includes two permits determined not to apply to the project (as stated elsewhere in the DEIS).	AGDC respectfully requests deletion of these two permits from Table 1.6-1 as they are not applicable to the project, as stated in the DEIS and in materials provided by AGDC: 1. USACE: Sections 102 and 103 Ocean Disposal Site Designation permit under the MPRSA. 2. EPA: Sections 102 and 103 Ocean Disposal Site Designation permit under the MPRSA	Review/incorporate the information noted by AGDC. In particular, consider deleting these two permits from Table 1.6-1 as they are not applicable to the project, as stated in the DEIS and in materials provided by AGDC: 1. USACE: Sections 102 and 103 Ocean Disposal Site Designation permit under the MPRSA. 2. EPA: Sections 102 and 103 Ocean Disposal Site Designation permit under the MPRSA	A1-9
The Marine Protection, Research, and Sanctuaries Act is not applicable to the Project. As noted in the Resource Reports, the Alaska LNG project will not be disposing of dredged materials in federal waters in either Cook Inlet or Prudhoe Bay, and disposal of dredged materials in federal waters is required to trigger this permit. EPA was in agreement with this when we reviewed the disposal locations and how far away the federal waters line was to both ends of the project.	AGDC respectfully requests modification of section 1.6.12 to indicate the Marine Protection, Research, and Sanctuaries Act is not applicable to the Project based on the Project design and agency input. The project will not be disposing of dredged materials in federal waters in either Cook Inlet or Prudhoe Bay. Disposal of dredged materials in federal waters is required to trigger this permit. Alaska LNG clearly stated in the Resource Reports that dredged materials will not be disposed in Federal waters. EPA was in agreement with this when we reviewed the disposal locations and how far away the federal waters line was to both ends of the project.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 1.6.12 to indicate the Marine Protection, Research and Sanctuaries Act is not applicable to the Project based on the Project design and agency input.	A1-10
The 118 acres of impact is inconsistent with information filed in RFI-465_RR01-25 (Accession No. 20171101-5227(32500925)) on December 1, 2017. Widening of most of the causeway only adds 40 to 60 feet of impact. The resultant impacts should be 25.8 acres (5,000 feet of road widened to 125 feet; 8,300 feet widened by 60 feet). The acreage shown in the table and text for 13,300 feet of road would be 386 feet wide, which is incorrect.	AGDC respectfully requests modification of section 2.1.3.2 acreage impacts for West Dock Causeway consistent with RFI-465_RR01-25 (Accession No. 20171101-5227(32500925)).	Review/incorporate the information noted by AGDC. In particular, consider modifying Table 2.1.2-1 and text in Section 2.1.3 for GTP to be consistent with RFI-465-RR01-25 (Accession No. 20171101-5227(32500925)), as follows:	A1-11

A1-7 See the response to comment A1-1.

A1-8 Table 1.6-1 of the final EIS has been updated to reflect the required PSD construction permits for permanent facilities. The reference to the GTP and Liquefaction Facilities for the Minor Construction Permits for Permanent Facilities has been removed; however, it should be noted that the information in the draft EIS for that permit was provided by AGDC in its permit table filed with FERC on May 31, 2019 (20190531-5299_RFI-561-FERC-001-1).

A1-9 Table 1.6-1 of the final EIS has been revised to remove the Sections 102 and 103 Ocean Disposal Site Designation permits under the MPRSA.

A1-10 Section 1.6.12 of the final EIS has been updated to address this comment.

A1-11 Comment noted.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		Widening existing segments of West Dock Causeway through the placement of granular fill to a width of 125 feet, Portions of the existing causeway will be widened by 60 feet (8,300 feet) and 125 feet (5,000 feet) resulting in approximately 25.8 acres of impact.~~about 800 feet from land to Dock Head 2 and about 4,500 feet from Dock Head 2 to Dock Head 3, and filling a parallel 125-foot-wide roadway from Dock Head 3 to Dock Head 4, for 118 acres of impact.~~	A1-11
Although FERC's definition of collocation requires a proposed pipeline to be within or adjacent to an existing ROW, there are unique circumstances in Alaska that require new utilities to fall within the already designated "Utility Corridor" established by the BLM. By placing the Alaska LNG pipeline within the designated Utility Corridor, in essence, the Project has collocated with other linear infra-structure for a considerably longer length than depicted in the DEIS. Whether or not the Mainline is within or adjacent to existing ROWs, for this circumstance in Alaska, the Mainline is collocated for 289.6 miles as indicated in Resource Report No. 1, Table 1.3.2-2.	AGDC respectfully requests modification of section 2.1.4.1 to show the collocated portion of the project as 289.6 miles (instead of 161.4), or about 36.6 (rather than 20) percent of its total length, inclusive of siting the pipeline within the BLM-designated utility corridor.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 2.1.4.1 to show the collocated portion of the project as 289.6 miles, or about 36.6 percent of its total length, inclusive of siting the pipeline within the BLM-designated utility corridor as shown below: "Portions of the Mainline Pipeline would be collocated with existing linear corridor infrastructure. The Mainline Pipeline would be parallel to and within 100 feet of an existing pipeline, roadway, and/or electric transmission utility right-of-way for about ~~161.4~~ 289.6 miles or about ~~20~~ 36.6 percent of its total length, inclusive of siting the pipeline within the BLM designated utility corridor. AGDC identified fiber optic lines, TAPS, TAPS fuel gas line, Dalton Highway, George Parks Highway (Parks Highway), and overhead power lines as existing adjacent rights-of-way. Table C-2 in appendix C provides detailed milepost (MP) locations where the Mainline Pipeline would be collocated with or adjacent to existing rights-of-way."	A1-12
Figure inserted for 2.1.4-1 is incorrect. It is for the Liquefaction facility MOF, not the Mainline MOF.	AGDC respectfully requests replacement of figure 2.1.4-1 because the text indicates it is for the Mainline MOF but the figure is for the Liquefaction facility MOF.	Review/incorporate the information noted by AGDC. In particular, consider replacing the current figure 2.1.4-1 with one of the attached figures, so it correctly depicts the Mainline MOF. File Names: 12a_RR1 App A1 Mainline Topo_Rev C2_MOF 12b_RR1 App A2 Mainline Aerial_Rev C2_MOF	A1-13
The number of new access roads should be 491 (621-130=491), not 463 as depicted in the DEIS.	In section 2.1.4.3, Access Roads, AGDC respectfully requests correction of the number of new access roads from 463 to 491 (621-130=491).	Review/incorporate the information noted by AGDC. In particular, consider correcting section 2.1.4.3 to show the correct calculation for the number of roads, as follows:	A1-14

A1-12 Section 2.1.4.1 of the final EIS has been updated to address this comment.

A1-13 Figure 2.1.4-1 of the final EIS has been updated to address this comment.

A1-14 Section 2.1.4.3 of the final EIS has been updated to address this comment. Also see the updated list of access roads provided in table C-1 in appendix C.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		"AGDC would require the use of 621 roads to access construction workspace (see tables C-1 in appendix C). Of the 621 access roads, 130 are existing roads. AGDC would improve 28 of the existing roads and build ~~463~~ 491 new roads."	A1-14
Recommend acknowledging in 2.1.4.3 that there may be some cases where the landowner requires reclamation, and there may also be cases where material sites have wetland values after use.	AGDC respectfully requests modification of section DEIS text in 2.1.4.3, Material Sites, to acknowledge that some of the material sites will go through reclamation and there may also be cases where material sites have wetland values after use.	Review/incorporate the information noted by AGDC. In particular, consider modifying section DEIS text in 2.1.4.3, Material Sites, as follows: "Land associated with material sites would be permanently affected by the Project except in cases where the landowner requires reclamation of the sites. In addition, some materials sites may have wetland values after use."	A1-15
The paragraph in Section 2.1.4.3 titled "Disposal Sites" mixes the media of ROW material disposal and solid waste disposal. As presented, this is confusing to the reader and leads the reader to assume the Alaska LNG Project will dispose of solid waste at 109 locations. The term "disposal site" in the Alaska LNG Project refers to specific locations where unsuitable soils excavated along the right-of-way (ROW), including thaw sensitive permafrost soils and soils with fines content greater than 45%, are to be hauled ROW for disposal.	AGDC respectfully requests clarification of section 2.1.4.3, titled "Disposal Sites", because that section mixes the media of ROW material disposal and solid waste disposal. As presented, this is confusing to the reader and leads the reader to assume the Alaska LNG Project will dispose solid waste, such as garbage, at 109 locations. Please clarify that the term "disposal site" in this part of the DEIS refers to specific locations where unsuitable soils excavated along the right-of-way (ROW), including thaw sensitive permafrost soils and soils with fines content greater than 45%, are to be hauled for disposal. Other waste (garbage, etc.) will be disposed at permitted disposal sites in accordance with legal requirements.	Review/incorporate the information noted by AGDC. In particular, consider clarifying section 2.1.4.3, as outlined below, that the term "disposal site" in this part of the DEIS refers to specific locations where unsuitable soils excavated along the right-of-way (ROW), including thaw sensitive permafrost soils and soils with fines content greater than 45%, are to be placed. Other waste (garbage, etc.) will be disposed at permitted disposal sites in accordance with legal requirements. "Waste material generated during construction includes construction wastes from packing of material and supplies, camp refuse, sanitary waste, and excavated material such as stumps, blast rock, acid rock drainage material, and slash. Wastes from packing materials, supplies, camp refuse, and other garbage will be disposed at permitted disposal sites in accordance with legal requirements. Materials such as unsuitable soils excavated along the right-of-way (ROW), including thaw sensitive permafrost soils and soils with fines content greater than 45%, are to be hauled for disposal. Disposal sites for such material would require about 230 acres at 109 locations with 31 sites on Spread 1, 44 sites on Spread 2, 20 sites on Spread 3, and 14 sites on Spread 4. A summary of wastes and estimated quantities during construction is provided in the Project Waste Management Plan (see section 2.2 for how to access this plan). Land associated with disposal sites would be permanently affected by the	A1-16

A1-15 Section 2.1.4.3 of the final EIS has been updated to address this comment.

A1-16 Section 2.1.4.3 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	
		Project. Table C-7 in appendix C identifies the disposal sites proposed by AGDC by spread."	
The heavy haul road acreage is included in the 902 acres for the LNG Plant site, and should not be added to the total acreage as depicted in Table 2.1.2-1. See figures 2.1.5-1 and 2.1.5-2 that show the heavy haul road as part of the LNG plant site, 902 acres.	AGDC respectfully requests deletion of "Heavy Haul Road" as a category of acreage impact within the LNG Plant. It is already included in the 902 acres.	Review/incorporate the information noted by AGDC. In particular, consider deleting "Heavy Haul Road" as a category of acreage impact within the LNG Plant in Table 2.1.2-1, as those acres are already included in the 902 acres of the LNG Plant site.	A1-17
The construction camp is not a permanent impact. The camp will be removed and the land reclaimed in accordance with landowner requirements after use.	AGDC respectfully requests modification of section 2.1.5.3 and Table 2.1.2-1 to recognize the construction camp is not a permanent impact.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 2.1.5.3 and Table 2.1.2-1 to recognize the construction camp would have a temporary impact as follows: "A construction camp would be used to accommodate the workforce required to build the Liquefaction Facilities and would include dormitories, a cafeteria, recreation rooms, and other amenities. The construction camp would be on about 81 acres of land adjacent to the LNG Plant. The construction camp would have a design life of about 6 years, and its installation would be one of the first on-site activities. After construction, the camp site would be reclaimed per landowner requirements. Table 2.1.2-1 depicts the construction camp as having a ~~permanent~~ temporary impact of 81 acres."	A1-18
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 suggests clarifications and updates to section 2.2.2.2; P. 2-67 to identify and be consistent with the PHMSA submittals.	Since 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, AGDC requests deletion of the statement: "PHMSA has not yet confirmed that the concrete coating and other design factors proposed by AGDC are consistent with CFR 192.327(f)(2)." In addition, we request replacement of the reference to, "PHMSA has requested that AGDC provide a complete technical analysis of pipeline integrity threats..." 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 provided in RFI-561-FERC-034-2 (Accession No.20190524-5248). Redline suggestions for this changes are shown below: "In a March 2017 letter to AGDC, PHMSA said that a pipeline crossing of Cook Inlet—whether installed below the natural bottom or	A1-19

A1-17 Table 2.1.2-1 of the final EIS has been updated to address this comment.

A1-18 Impacts from construction camps are considered permanent due to the placement of granular fill.

A1-19 See the updates to sections 2.2.2.2 and 4.3.3.1 of the final EIS.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		supported by stanchions and held in place by anchors or concrete coating, as described by CFR 192.327(f)(2)—would need to meet applicable crossing and depth of cover standards. ~~PHMSA has not yet confirmed that the concrete coating and other design factors proposed by AGDC are consistent with CFR 192.327(f)(2).~~ AGDC provided a comprehensive data request response to PHMSA and FERC on the Cook Inlet Crossing on May 24, 2019, which is provided in RFI-561-FERC-034-2 (Accession No.20190524-5248). ~~PHMSA has requested that AGDC provide a complete technical analysis of pipeline integrity threats to substantiate AGDC's proposed use of 3.5 inches of concrete coating for the offshore pipeline.~~ If it is determined that additional or different construction measures are required in order to be consistent with CFR 192.327(f)(2), additional environmental analysis by FERC and other permitting agencies would be required."	A1-19
This paragraph in Section 2.2.2.5 mixes together the topic of Dredged Disposal Sites (offshore placement of dredged material associated with the construction of the LNG/Marine facilities), with the development of onshore material sites and the potential for encountering naturally occurring asbestos.	AGDC respectfully requests relabeling of the subtitle of section 2.2.2.5 as "Construction Debris Disposal Sites" and clarification that the sites are for materials that are removed from the ROW during construction and not solid or liquid wastes generated during construction. Also, there is a need to distinguish between offshore placement of dredged material associated with the construction of the LNG/Marine facilities (which would not require asbestos testing), and the development of onshore material sites and the potential for encountering naturally occurring asbestos.	Review/incorporate the information noted by AGDC. In particular, consider relabeling the subtitle of section 2.2.5 as ""Construction Debris Disposal Sites" and define these as materials removed from the ROW during construction and not solid or liquid wastes generated during construction. In addition, consider distinguishing between offshore placement of dredged material associated with the construction of the LNG/Marine facilities (which would not require asbestos testing), with the development of onshore material sites and the potential for encountering naturally occurring asbestos as follows: "For the development of new dredged material disposal sites, each site would be surveyed and staked, trees and brush would be cleared, and an access road would be constructed. ~~The~~ Onshore sites would be evaluated for asbestos and other contamination, if required. Existing material sites that have already been evaluated for asbestos and other contaminants would not require further evaluation. The material disposal sites would be developed in accordance with any permit requirements related to site preparation.	A1-20

A1-20 Section 2.2.2.5 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	
		AGDC would use to identify naturally occurring asbestos at onshore material sites, construction areas, and existing roads and pads proposed for use. A sampling and testing plan conducted in accordance with 17 AAC 97.020 would be implemented for onshore areas with potential to contain naturally occurring asbestos. If a material test is determined to have an asbestos content equal to or greater than 0.25 percent using the bulk test method, a site-specific monitoring and mitigation plan would be developed and submitted to the ADOT&PF for approval."	A1-20
There is only one camp for the Liquefaction facilities.	AGDC respectfully requests modification of section 2.3.3 to indicate there is just one construction camp expected for the Liquefaction facilities.	Review/incorporate the information noted by AGDC. In particular, consider modifying text to read: "Workers for the Gas Treatment and Mainline Facilities would be housed at construction camps; workers for the Liquefaction Facilities would be housed ~~in~~ at a construction camp~~s~~ or live in close proximity to the work site."	A1-21
The Operation, Maintenance and Safety Procedures portion of the DEIS for the Mainline Pipeline (section 2.5.2.1) does not mention special permit work AGDC has done with PHMSA for the mainline pipeline. The LNG special permits are mentioned in 2.5.3 for the LNG facilities, so for consistency please consider adding them in 2.5.2.1 for the mainline pipeline.	AGDC respectfully requests the addition of a reference in 2.5.2.1 to the fact that ADGC has received PHMSA special permits for the mainline pipeline.	Review/incorporate the information noted by AGDC. In particular, consider inserting the following to section 2.5.2.1 Mainline Pipeline: "The pipelines and related aboveground facilities would be designed, constructed, operated, and maintained in accordance with standards that comply with regulations defined in 49 CFR Part 192 and any applicable Special Permits, which would follow 49 C.F.R. § 190.341. AGDC has received Special Permits for the following: exemption from the requirements of 49 CFR § 192.103 in regions of discontinuous permafrost to allow Strain-Based Design of select segments of the pipeline; relief from 49 C.F.R. § 192.179 for Mainline Block Valve (MLBV) and crack arrestor spacing in Class 1 locations; and exemption from 49 CFR § 192.112(f)(1) in pipeline segments that are built to comply with the Alternative Maximum Allowable Operation Pressure (Alternative MAOP) to utilize a three layer polyethylene (3LPE) coating. As required by 49 CFR 192.615, a Pipeline Operation and Maintenance Plan and an emergency plan would be prepared that	A1-22

A1-21 Section 2.3.3 of the final EIS has been updated to address this comment.

A1-22 Sections 2.5.2.1 and 4.18.10.3 of the final EIS have 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	
		includes procedures to minimize the hazards in a natural gas pipeline emergency. As a part of pipeline operation and maintenance, regular patrols would inspect the Mainline Pipeline right-of-way. The patrol program would include periodic aerial and ground patrols of the Mainline Facilities to survey surface conditions on and adjacent to the pipeline right-of-way. The search would identify evidence of leaks, unauthorized excavation activities, erosion and washout areas, sparse vegetation, damage to permanent erosion control devices, exposed pipe, missing markers and signs, new residential developments, and other conditions that might affect the safety or operation of the pipeline."	A-22
The 225 acre site estimate for the GTP is not fully consistent with the current design. In AGDC's response to FERC's July 4, 2017 Data Request RFI-465-RR10-013 (20171201-5163(32556350)), AGCD clarified that the size of the initial siting of the GTP facility was 205 acres and that the size was subsequently increased to 284 acres in the current design. The change is the result of the requirement for the Operations Center to be on a separate pad due to process safety and dispersion demonstrated through modeling. In addition, it was noted that the Alaska Pipeline Project's (APP's) GTP consisted of a footprint of 234 acres.	AGDC respectfully requests correction of the size of the GTP site based on submitted information RFI-465-RR10-013 (Accession No. 20171201-5163(32556350)). In that response, it was clarified that the size of AGDC's initial siting of the GTP facility showing 205 acres had been increased to 284 acres in the current design. This change in acreage results from the requirement for the Operations Center to be on a separate pad due to process safety and dispersion issues evaluated by modeling.	Review/incorporate the information noted by AGDC. In particular, consider correcting section 3.3, Page 3-5, relative to the GTP as follows: "Based on the proposed design, the size of site should be at least ~~225~~ 284 acres."	A1-23
Additional rationale can be added for why the facility needs to be on the North Slope. As noted in Section 10.5 of Resource Report No. 10, additional factors include: • Impracticalities of siting a high-pressure untreated gas pipeline along primary road infrastructure that is critical to the state; • Inability to inject the byproducts into geological formations in the Nikiski area; • Increased emissions along the Mainline due to higher fuel usage for compression, and fuel gas potentially containing hydrogen sulfide (H2S); • Higher risks associated with a leak from the Mainline due to the potential presence of H2S in the gas. Spacing between the pipeline and any residential or community development would need to consider wind speed and direction, as well as evacuation routes and the ability to quickly move people from an area if a rupture or leak occurred; • Loss of ability to supply the GTP Byproduct stream (primarily CO2) to the PBU for its use; • • In-state deliveries of natural gas would require extensive treatment facilities as part of any third-party gas interconnection point facilities to remove byproducts and have the ability to store and transport those byproducts for disposal.	AGDC respectfully suggests adding more rationale supporting why the GTP facility needs to be on the North Slope. As noted in Section 10.5 of Resource Report No. 10, additional factors include: • Impracticalities of siting a high-pressure untreated gas pipeline along primary road infrastructure that is critical to the state; • Inability to inject the byproducts into geological formations in the Nikiski area; • Increased emissions along the Mainline due to higher fuel usage for compression, and fuel gas potentially containing hydrogen sulfide (H2S); • Higher risks associated with a leak from the Mainline due to the potential presence of H2S in the gas. Spacing between the pipeline and any residential or community development would need to consider wind speed and direction, as well as evacuation routes and the ability to quickly move	Review/incorporate the information noted by AGDC. In particular, consider adding rationale to 3.3, as follows: "We received feedback during interagency meetings recommending that our analysis explain why the GTP site could not instead be sited away from the North Slope. Locating the GTP site at the pipeline terminus at or near the Liquefaction Facilities would not meet the Project objective, because the in-state gas interconnections along the Mainline Pipeline would not receive pipeline-quality gas. Therefore, to meet the Project objective, an alternative GTP site off the North Slope would need to be positioned upstream of the first gas interconnection. Raw gas is typically treated before entering transmission pipeline systems to remove impurities that cause internal corrosion, thereby minimizing the exposure of the pipe to corrosive forces. In addition:	A1-24

A1-23 Section 3.3 of the final EIS has been updated to address this comment.

A1-24 Section 3.3 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	
	people from an area if a rupture or leak occurred; • Loss of ability to supply the GTP Byproduct stream (primarily CO2) to the PBU for its use; • • In-state deliveries of natural gas would require extensive treatment facilities as part of any third-party gas interconnection point facilities to remove byproducts and have the ability to store and transport those byproducts for disposal.	• Impracticalities of siting a high-pressure untreated gas pipeline along primary road infrastructure that is critical to the state; • Inability to inject the byproducts into geological formations in the Nikiski area; • Increased emissions along the Mainline due to higher fuel usage for compression, and fuel gas potentially containing hydrogen sulfide (H2S); • Higher risks associated with a leak from the Mainline due to the potential presence of H2S in the gas. Spacing between the pipeline and any residential or community development would need to consider wind speed and direction, as well as evacuation routes and the ability to quickly move people from an area if a rupture or leak occurred; • Loss of ability to supply the GTP Byproduct stream (primarily CO2) to the PBU for its use; • In-state deliveries of natural gas would require extensive treatment facilities as part of any third-party gas interconnection point facilities to remove byproducts and have the ability to store and transport those byproducts for disposal."	A1-24
AGDC has eminent domain authority granted by the Alaska Legislature.	AGDC respectfully suggests adding to section 3.3 GTP Alternatives to note that AGDC has eminent domain authority granted by the Alaska Legislature in 2013 under Alaska Statute 31.25.080(a)(4).	Review/incorporate the information noted by AGDC. In particular, consider modifying section 3.3, as follows: "It should be noted that unlike a pipeline under Section 7 of the NGA, an authorization granted under Section 3 of the NGA does not grant the applicant eminent domain. However, AGDC was granted eminent domain authority by the Alaska Legislature in 2013 under Alaska Statute 31.25.080(a)(4). ~~Therefore, ideally, there would need to be at least some potential that the property could be acquired, although our ability to verify this is limited unless the landowner announces the property is available for purchase or lease.~~"	A1-25
The conclusion that the impacts to wetlands is greater is not supported by the statistics presented in Table 3.3.1-1 of the DEIS. The alternative sites have the same amount of NWI wetland impacts as the proposed site.	AGDC respectfully suggests revising section 3.3.1 to be consistent with Table 3.3.1-1 by removing the statement that there is a difference between alternatives regarding impacts to wetlands.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 3.3.1, page 3-6, as follows: "Both the North of Put-23 Site and the Northwest of CGF Site compare closely to the	A1-26

A1-25 Section 3.3 of the final EIS has been updated to address this comment.

A1-26 Section 3.3.1 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	
		proposed site in most criteria. Both alternative sites are farther from the PBU CGF and have longer haul distances than the proposed site. Both alternative sites have the same wetland impacts~~would affect a slightly greater acreage of wetlands~~."	A1-26
The conclusion that the Northwest of the CGF Site would have a longer haul distance is not supported by the statistics presented in Table 3.3.1-1, if this was meant to refer to the module delivery route. Section 10.5.3.1.5 in RR10 noted that the haul road length to the granular material site would be longer for the Northwest of the CGF Site, AGDC assumes this is what is meant in the DEIS and suggests the text should be clarified.	AGDC respectfully suggests revising section 3.3.1 to clarify the haul distance information in the text and table. The conclusion on Page 3-6 that the Northwest of CGF Site would have a longer haul distance is not supported by the statistics presented in Table 3.3.1-1 if this is based on the module delivery route. However, the distance of the road to/from the granular material site would be longer for the Northwest of the CGF Site.	Review/incorporate the information noted by AGDC. In particular, consider clarifying the information in section 3.3.1, page 3-6 by adding a row for the "road to/from the granular material site" to Table 3.3.1-1, as indicated on the attached. In addition, consider modifying the text on page 3-6 to: "Both the North of Put-23 Site and the Northwest of CGF Site compare closely to the proposed site in most criteria. ~~Both alternative sites are farther from the PBU CGF and have longer haul distances than the proposed site.~~ The North of Put-23 Site is farther from the PBU CGF and has a longer module delivery route length and longer haul length to/from the granular material site than the proposed site. The Northwest of CGF Site is farther from the PBU CGF and has a longer haul length to/from the granular material site." File Name: 26_Table 3.3.1-1	A1-27
The pad size for the Northwest of PBU CGF Site is the same as the preferred alternative site. However, in Table 10.5.3-1 of RR10, it was noted that this pad might need to have a 5 percent increase in size for pressure drop mitigation.	AGDC respectfully suggests adding the 5 percent footprint increase for the Northwest of PBU CGF Site as a footnote to Table 3.3.1-1.	Review/incorporate the information noted by AGDC. In particular, consider adding a footnote to Table 3.3.1-1, as indicated on the attached, for the 5 percent footprint increase for the Northwest of PBU CGF Site. File Name: 27_Revised Table 3.3.1-1	A1-28
It is not clear what the "Distance from PBU/PBTL Pipeline" criteria is in Table 3.3.1-1. Based on the text, it appears that this should be listed as the distance to the PBU CGF.	AGDC respectfully suggests correcting Table 3.3.1-1 "Distance from PBU/PBTL pipeline (miles)" to "Distance to the PBU CGF".	Review/incorporate the information noted by AGDC. In particular, consider correcting Table 3.3.1-1 "Distance from PBU/PBTL pipeline (miles)" to "Distance to the PBU CGF", as shown on the attached. File Name: 27_Revised Table 3.3.1-1	A1-29
Table 3.3.4-1 uses AGDC's dredge estimates for the different alternative sites provided in Table 1 of RFI-528-FERC-040 (Accession No. 20180511-5130(32881579)); however, it does not list all of the same depths that were provided for the alternative dock sites. The AGDC dredge estimates were based on estimated depths.	AGDC respectfully suggests revising Table 3.3.4-1 to include the depths provided in Table 1 of RFI-528-FERC-040 (Accession No. 20180511-5130(32881579)) including: West Dock: 12 to 13, East Dock: 5,	Review/incorporate the information noted by AGDC. In particular, consider updating Table 3.3.4-1, as shown in the attached redline and consistent with RFI-528-FERC-040 (Accession No. 20180511-5130).	A1-30

A1-27 Section 3.3.1 of the final EIS has been updated to address this comment.

A1-28 See the response to comment A1-1.

A1-29 Table 3.3.1-1 of the final EIS has been updated to address this comment.

A1-30 Table 3.3.4-1 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	
	Endicott: 6, Oliktok Dock: 8, Badami Dock: 6, Point Thomson Dock: 6.	File Name: 29_Table 3.3.4-1	
The alternative of trucking of water is not discussed in this section. Any of the alternative sites would result in increased fuel use, traffic concerns, road deterioration, and related emissions during operations. As a qualitative factor in the alternatives analysis it is an important point to make in the text of the DEIS. Several agencies wanted reductions in road use, traffic impacts, and air emissions from transportation.	AGDC respectfully requests that the following text from Resource Report No. 10 be added to Section 3.3.7: AGDC evaluated obtaining water by trucking it to the site. Trucking of the required volume of water would require multiple daily deliveries to the GTP, based on an estimated truck capacity of 300 barrels (i.e., 12,600 gallons), resulting in increased fuel use, traffic concerns, road deterioration, and related emissions during operations. Additionally, the reduced reliability (e.g., weather) of this supply option is unacceptable for such a critical resource. Therefore, this is not a technically practical alternative nor does it provide a significant environmental advantage over the proposed water supply system.	Review/incorporate the information noted by AGDC. In particular, consider adding the following text to Section 3.3.7: "AGDC evaluated obtaining water by trucking it to the site. Trucking of the required volume of water would require multiple daily deliveries to the GTP, based on an estimated truck capacity of 300 barrels (i.e., 12,600 gallons), resulting in increased fuel use, traffic concerns, road deterioration, and related emissions during operations. Additionally, the reduced reliability (e.g., weather) of this supply option is unacceptable for such a critical resource. Therefore, this is not a technically practical alternative nor does it provide a significant environmental advantage over the proposed water supply system."	A1-31
The number of route revisions reviewed should be 134. Table 10.4.4-4 in the June 14, 2016 Draft included 39 revisions from the Route Revision A (Rev A) corridor to create Route Revision B (Rev B). Further, Table 10.4.4-4 in RR10 of the Application included 95 additional revisions from the Rev B Corridor to create Route Revision C2 (Rev C2), the proposed route.	AGDC respectfully requests modification of section 3.6, Page 3-16, to reflect the correct number of evaluated route revisions.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 3.6, Page 3-16, to read: "Prior to filing its application, AGDC evaluated and incorporated ~~96~~ 134 route variations into the proposed route to avoid or reduce effects on environmental or other resources, resolve engineering or constructability issues, or address stakeholder concerns. We evaluated these ~~96~~ 134 route variations during the pre-filing period and found them to be acceptable."	A1-32
The footnotes are missing from Table 3.6.1-1. Without the footnotes the reviewer would not be able to understand how the calculations were completed or what the assumptions were that were used in the table.	AGDC respectfully requests that the footnotes a and b be added into Table 3.6.1-1.	Review/incorporate the information noted by AGDC. In particular, consider adding in footnotes a and b into Table 3.6.1-1.	A1-33
The values listed for existing current velocity range are reversed for the Proposed Route and East Alternative route. The correct information is shown in Table 10.4.3-3 of RR10.	AGDC respectfully requests that the current velocity ranges in Table 3.6.1-1 be modified to reflect the information measured by Alaska LNG's monitoring data as found in Table 10.4.3-3 of RR10.	Review/incorporate the information noted by AGDC. In particular, consider corrections shown in the attached Table 3.6.1-1. File Name: 33_Table 3.6.1-1 Corrections	A1-34
In Table 2 of the response to RFI-528-FERC-216-1 (Accession No. 20180815-5078) and in the text of RFI-561-FERC-155 (Accession No. 20181022-5218), the potential impact of the proposed route after reclamation to the Government Hill KOP was listed as "low"; however in Table 3.6.2-2 it is listed as "moderate".	AGDC respectfully requests modification of KOP significance ratings in Table 3.6.2-2 to be consistent with the information in Table 2 of the response to RFI-528-FERC-216-1 (Accession No. 20180815-5078) and the text of RFI-561-FERC-155 (Accession No. 20181022-5218).	Review/incorporate the information noted by AGDC. In particular, consider correcting Table 3.6.2-2, as shown on the attached, to be consistent with Table 2 of the response to RFI-528-FERC-216-1 (Accession No. 20180815-5078) and the text of RFI-561-FERC-155 (Accession No. 20181022-5218).	A1-35

A1-31 Section 3.3.7 of the final EIS has been updated to address this comment.

A1-32 Section 3.6 of the final EIS has been updated to address this comment.

A1-33 See the response to comment A1-1.

A1-34 Table 3.6.1-1 of the final EIS has been updated to address this comment.

A1-35 Table 3.6.1-2 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	
		File Name: 34_Table 3.6.2-2	
Table 10.4.4-2 of RR10 indicated that the proposed route crosses 5.12 miles of wetlands/open water; however, Table 3.6.3-1 states that 23.5 miles are crossed. The Fairbank Alternative segment value for wetlands/open water is consistent with Table 10.4.4-2 of RR10 at 29.3 miles. Therefore, it isn't clear where this difference is coming from for the proposed route when the Fairbank Alternative crossing lengths (i.e., analysis) are consistent with RR10.	AGDC respectfully requests that Table 3.6.3-1 be modified to reflect the correct number of evaluated wetlands crossed for the proposed route.	Review/incorporate the information noted by AGDC. In particular, consider changing the values in Table 3.6.3-1 as per the attached red-line corrections. File Name: 35_Table 3.6.3-1	A1-36
DEIS indicates, "The Beaufort Sea is shallow near the shoreline and does not reach the minimum water depth (60 feet) necessary to accommodate the draft of LNG carriers until about 10 miles offshore." However, Section 10.3.2.1 of RR10 states that the distance to 60 feet deep is 20 miles.	AGDC respectfully requests modification of section text on Page 3-31 to replace '10 miles offshore' with '20 miles offshore'.	Review/incorporate the information noted by AGDC. In particular, consider modifying text on Page 3-31, as follows: "The Beaufort Sea is shallow near the shoreline and does not reach the minimum water depth (60 feet) necessary to accommodate the draft of LNG carriers until about ~~10~~ 20 miles offshore."	A1-37
With the buffers, the site size evaluated is approximately 586 acres total; however, some the acreage extends offshore depending on the site location. The constraint along the shoreline was placement of the tanks a set distance from the shoreline. The text should be modified to reflect what was described in RFI-528-FERC-022 (Accession No. 20180511-5130).	AGDC respectfully suggests modification of section Liquefaction Facility Site Alternative DEIS text to clarify that the minimum size for the facility site was refined to add a 1,500-foot buffer for the LNG trains, LNG tanks, and refrigerant storage, as well as a 500-foot buffer for the ground flares as described in RFI-528-FERC-022 (Accession No. 20180511-5130).	Review/incorporate the information noted by AGDC. In particular, consider modifying section 3.8.1, Page 3-31, as follows: "AGDC subsequently reduced the minimum site sizes for the alternative site locations to 400 acres, based on design work done for the proposed site at Nikiski and the need to account for a 1,500-foot buffer separating the LNG processing trains, LNG storage tanks, and hydrocarbon refrigerant storage from the property boundary and a 500-foot safety zone placed around the ground flares. ~~Based on the proposed design, the size of the waterfront site should be at least 400 acres to accommodate the liquefaction trains, storage tanks, and vessel loading facilities.~~"	A1-38
A disadvantage not discussed for the Anderson Bay site is its lack of existing over-the-land site access. Development of the site would require construction of a new access road, an approximate 3.5-mile straight-line distance, through forested areas of which the majority of land surrounding the site is within the Chugach National Forest. Alternatively, without road construction, use of the site would require using marine access for transportation of all materials, supplies, and personnel.	AGDC respectfully suggests adding to the discussion on disadvantages of Anderson Bay in the Alternatives assessment.	Review/incorporate the information noted by AGDC. In particular, consider adding to the discussion on disadvantages of Anderson Bay in the Alternatives assessment as follows: "Another disadvantage for the Anderson Bay site is its lack of existing over-land site access. Development of the site would require construction of a new access road, an approximate 3.5-mile straight-line distance, through forested areas of which the majority of land surrounding the site is within the Chugach National Forest. Alternatively, without road construction, use of the site would require	A1-39

A1-36 Table 3.6.3-1 of the final EIS has been updated to reflect current NWI wetland data.

A1-37 Section 3.8 of the final EIS has been updated to address this comment.

A1-38 Section 3.8.1 of the final EIS has been updated to address this comment.

A1-39 Section 3.1.8.1 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	
		using marine access for transportation of all materials, supplies, and personnel."	
The number of displaced industries/commercial facilities in Table 1 of RFI-528-FERC-022 (Accession No. 20180511-5130) for Seward was 15 and not 16.	AGDC respectfully suggests modification of the number of displaced industries/commercial facilities from 16 to 15 on page 3-34, Table 3.8.1-1.	Review/incorporate the information noted by AGDC. In particular, consider modifying the number of displaced industries/commercial facilities from 16 to 15 on page 3-34, Table 3.8.1-1.	A1-40
The table does not reflect that planned industrial/commercial facilities would be displaced at Port MacKenzie as discussed in RFI-528-FERC-020 (Accession No. 20180713-5057).	AGDC respectfully requests adding to Table 3.8.1-1 to indicate that future, planned development would be affected and/or displaced at the Port MacKenzie site.	Review/incorporate the information noted by AGDC. In particular, consider adding to Table 3.8.1-1 to indicate that future, planned development would be affected and/or displaced at the Port MacKenzie site.	A1-41
The table does not reflect an assumed pipeline lateral length to the Kenai Peninsula, the third interconnect identified by the project. This should be added similar to the assumed pipeline lateral length to Fairbanks and Anchorage. As noted in Section 3.8.1.3 (Page 3-37) of the DEIS, the mainline pipeline to the Port MacKenzie site would not allow for a future interconnect with an existing ENSTAR pipeline at the southern end of the system near MP 806 for gas delivery nearer to the Kenai Peninsula area.	AGDC respectfully requests adding the length of the lateral pipeline to the Kenai Peninsula in the Alternatives section, Table 3.8.1-1.	Review/incorporate the information noted by AGDC. In particular, consider adding the length of the lateral pipeline to the Kenai Peninsula in the Alternatives section, Table 3.8.1-1.	A1-42
Based on information provided in RFI-528-FERC-020 (Accession No. 20180713-5057) the length of the pipeline route to Port MacKenzie is 747 miles and not 749 as listed in Table 3.8.1-1.	AGDC respectfully requests modification of Table 3.8.1-1 to address a discrepancy in length of the pipeline route to Port MacKenzie based on information provided in RFI-528-FERC-020 (Accession No. 20180713-5057).	Review/incorporate the information noted by AGDC. In particular, consider modifying section Table 3.8.1-1 to show the length of the pipeline route to Port MacKenzie as 747 miles rather than 749, based on information provided in RFI-528-FERC-020 (Accession No. 20180713-5057).	A1-43
The pipeline distance through Beluga whale CHA 2 in Table 3.8.1-1 is different for Kasilof South than the other sites on the Kenai Peninsula. Since it is the same pipeline route across Cook Inlet for all alternative LNG sites on the Kenai peninsula, the values should match.	AGDC respectfully requests that the Kasilof South pipeline distance through Beluga Whale CHA 2 in Table 3.8.1-1 should be the same as the other sites on the Kenai Peninsula.	Consider making the distance crossed of Beluga whale CHA2 for the Kasilof site to be the same as the other Kenai peninsula alternative LNG sites.	A1-44
The dredging estimate in Table 3.8.1-1 for Port Mackenzie is 1,258,000 [650,000 cubic yards (south face); 80,000 cubic yards (east face) barge dock; 700,000 cubic yards/year for 1 year (Knik Shoal)] which was the estimate in RFI-528-FERC-020 (Accession No. 20180713-5057). However, in the analysis presented in RFI-561-FERC-052-1 (Accession No. 20181120-5161), based on site-specific bathymetry provided by Matanuska-Susitna Borough, the estimated value was reduced. The estimate for initial dredging for expansion to the north and south is approximately 289,910 cubic yards. A similar value of 290,000 cubic yards is provided in the text in Section 3.8.1.3 on Page 3-37 of the DEIS. To reflect this change, the dredging estimate in Table 3.8.1-1 should be revised to 990,000 cubic yards.	AGDC respectfully requests that the dredging estimate in Table 3.8.1-1 be modified to 990,000 cubic yards instead of 1,258,000 cubic yards to keep the analysis consistent with the information provided.	Review/incorporate the information noted by AGDC. In particular, consider changing the dredging estimate in Table 3.8.1-1 from 1,258,000 to 990,000 cubic yards.	A1-45

A1-40 Table 3.8.1-1 of the final EIS has been updated to address this comment.

A1-41 Table 3.8.1-1 of the final EIS identifies displacements of existing industrial/commercial facilities.

A1-42 See the response to comment A1-1.

A1-43 Table 3.8.1-1 of the final EIS has been updated to address this comment.

A1-44 Table 3.8.1-1 of the final EIS has been updated to address this comment.

A1-45 Table 3.8.1-1 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	
As noted in RFI-561-FERC-052-1 (Accession No. 20181120-5161), adding another LO/LO berth face would still not address that 46 percent of the modules would arrive from the Ro-Ro berth.	AGDC respectfully requests modification of 3.8.1.3, Page 3-38, so it doesn't indicate the issue with RO-RO deliveries would be addressed by adding a LO/LO berth.	Review/incorporate the information noted by AGDC. In particular, consider revising 3.8.1.3, Page 3-38 to read: "The risk of construction delays could be mitigated to some extent by utilizing ice class module characters, if available~~, or by adding another LO/LO berth, which would increase the footprint of marine construction~~."	A1-46
Construction of the Port MacKenzie Alternative would also result in potential beluga whale impacts due to facility demolition and new facility construction.	Revise text on Page 3-39 as shown, to indicate construction of the Port MacKenzie Alternative would also result in potential beluga whale impacts due to facility demolition and new facility construction.	Review/incorporate the information noted by AGDC. In particular, consider revising 3.8.1.3, Page 3-39 to read: "The proposed Project is superior in certain other respects to the Port MacKenzie Alternative. Beluga whale impacts associated with demolition and construction of a new MOF and operation of the liquefaction facilities would be greater with the Port MacKenzie Alternative, and ~~these~~ operations impacts would persist for the life of the Project, as opposed to the short-term impact presented by the Cook Inlet pipeline construction for the proposed route."	A1-47
This should reflect the language in Section 2.1.5.3 of the DEIS. In that the open-water disposal location would be about 4 miles west of the MOF. Dredged material transport and placement would require a total of 1,200 acres. The disposal site itself is 230 acres.	AGDC respectfully suggests modification of section 3.8.2 to match section 2.1.5.3 relative to dredged material transport and placement.	Review/incorporate the information noted by AGDC. In particular, consider modifying text in 3.8.2, page 3-41 to read: "One open-water disposal location would be about 4 miles west of Beluga. An alternative open water disposal location would be in deeper water. Dredged material transport and placement would require a total of approximately 1,200 acres with the disposal area itself being an estimated 230 acres~~, about 149 acres~~."	A1-48
The complete technical analysis of PHMSA pipeline integrity threats for the offshore crossing of Cook Inlet was provided in data response RFI-561-FERC-034-2 (Accession No. 20190524-5248(33592663)) filed 5/24/2019.	AGDC respectfully requests use of the information provided to PHMSA and FERC regarding bottom stability from data response RFI-561-FERC-034-2 (Accession No. 20190524-5248(33592663)) filed 5/24/2019.		A1-49

A1-46 Section 3.8.1.3 of the final EIS has been updated to address this comment.

A1-47 Section 3.8.1.3 of the final EIS has been updated to address this comment.

A1-48 Section 3.8.2 of the final EIS has been updated to address this comment.

A1-49 See the updates to sections 2.2.2.2, 4.2.3.2, and 4.3.3.1 of the final EIS.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
Tables 4.2.4.4-1, 4.2.4.4-2, and 4.2.4.4-3 have incorrect total acreage for the PTTL Pipeline. The total acres shown in the DEIS text are 1,696 (construction) and 609 (operations) while the AGDC submission on 11/2018 (Accession No. 20181119-5181(33244530)) had total PTTL Pipeline acreage as 1,727 (construction) and 614 (operations). The PTTL ROW value for Table 4.2.4-1 should be corrected to show a total 1,727 acres for soils with revegetation concerns for construction and 614 for revegetation concerns for operations. The PTTL ROW value for Table 4.2.4-2 should be corrected to show a total 1,727 acres for thaw sensitive soils for construction and 614 for operations. The PTTL ROW value for Table 4.2.4-3 should be corrected to show a total 1,727 acres for continuous permafrost for construction and 614 for operations.	AGDC respectfully requests correction of Tables 4.2.4.4-1, 4.2.4.4-2, and 4.2.4.4-3 with values from Accession No. 20181119-5181(33244530), as shown on the attached, or explain the differences.	Review/incorporate the information noted by AGDC. In particular, consider the attached suggested redline changes to Tables 4.2.4-1, 4.2.4-2, and 4.2.4-3 File Name: 49_Tables 4.2.4-1, 4.2.4-2, and 4.2.4-3	A1-50
Adding additional fines to the gravel would degrade the strength and capability of the roads/pads to handle the heavier loads used for pipeline construction. It would also lead to increased run-off sedimentation and dust impacts along the access roads and around pads. 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. In addition, fines in granular fill for the surface course will decrease load capacities. 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 4.2.4 and 5.2 Staff Recommendation 26.	AGDC respectfully requests deletion of this requirement for use of fines in granular fill for the surface course on all construction workspaces. 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. In addition, fines in granular fill for the surface course will decrease load capacities. 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 4.2.4 and 5.2 Staff Recommendation 26.	Review/incorporate the information noted by AGDC. In particular, consider removing this recommendation in 4.2.4 and 5.2 Staff Recommendation 26. 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. In addition, fines in granular fill for the surface course will decrease load capacities. 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.	A1-51
Travel lanes (20 feet) would be located on the outside of the primary work area would be added in few selected areas where additional space may be required. Since these areas have yet to be identified and associated with any mode of construction, it is not practical to predict long term compounded impacts from travel lanes and granular work pads. AGDC has also committed to re-contouring gravel left in place, including creating cross-drainage allowances to limit potential for ponding.	AGDC respectfully requests modification of section 4.2.4, P. 4-86 to recognize that management practices can limit potential for these impacts, and to describe AGDC's commitment to provide for drainage to avoid this issue.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.2.4 p. 4-86 as follows, to clarify expectations and commitments: ~~"As currently proposed, the granular work pads and travel lanes would create a continuous linear granular fill feature that would intercept natural drainage, resulting in ponding that could thicken the active layer and cause thermokarst.~~Linear granular fill features have the potential to develop if travel lanes and granular work pads are built in close proximity to one another. The linear granular fill features	A1-52

A1-50 See the response to comment A1-1.

A1-51 This comment is addressed in section 4.2.4 of the final EIS. See also the response to comment A1-1.

A1-52 Section 4.2.4 of the final EIS has been updated to address this comment.

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC
		would have the potential to intercept natural drainage, resulting in ponding that could thicken the active layer and cause thermokarst. However, AGDC has indicated they would install cross-drainage after construction and re-contour the gravel to allow surface drainage to occur."
Asserting that the mixing of soil horizons will lead to permanent impacts from permafrost thaw, soil erosion, and other hazards incorrectly assumes the soils in question have typical features found in older soils with defined layers and distinct horizons. This statement does not take into account the significant amount of "young" soils crossed by the Project which have yet to develop distinct soil horizons and layers. This statement also ignores the formation process of cryoturbation - the mixing of soil horizons due to freeze/thaw cycles. The cryogenic process affects permafrost soils extensively through the subduction of carbon rich organic topsoils into deeper layers of the soil profile. This major soil formation process is primarily responsible for the distribution of organic material within permafrost soils. As stated on p. 4-69 of the DEIS, soils classified under the suborder Turbels not only show evidence of cryoturbation in the form of broken, irregular, or distorted horizon boundaries, but are also the largest class of thaw-sensitive permafrost soils and account for over 13,000 acres of soils crossed by the Project.	AGDC respectfully requests addition to 4.2.4 p. 95 to indicate AGDC intends to segregate the surface layer from the underlying mineral soils in areas of uplands that are planned for summer grading/excavation where practicable...In areas where the surface organic layer would not be segregated, soils would be inter-mixed with subsurface soils similar to natural pedogenic processes such as cryoturbation, in which organic material is incorporated into deeper mineral soil, including the upper part of the permafrost.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.2.4 p. 95 to include segregation where practicable as follows: "In areas where the surface organic layer would not be segregated, the organic layer would be mixed with subsoil layers during stockpiling and soils would not be put back into the trench in the same order as they were removed, thereby causing permanent impacts on permafrost. By not segregating and saving the surface organic layer along a large portion of the Mainline Pipeline right-of-way, erosion and permafrost thaw related impacts ~~would~~ could be significantly increased. However, AGDC intends to segregate the surface layer from the underlying mineral soils where practicable, in areas of uplands that are planned for summer grading/excavation (where terrain and existing conditions permit). In areas where the surface organic layer would not be segregated, soils would be inter-mixed with subsurface soils similar to natural pedogenic processes such as cryoturbation, in which organic material is incorporated into deeper mineral soil, including the upper part of the permafrost."
Pre-clearing of vegetation will occur one to one and a half (1-1.5) years ahead of construction, not three (3) years. The longer timeframe was incorrectly provided in a previous data request response and has since been corrected by AGDC. In addition, pre-clearing would include only the overstory vegetation while understory and organic mat would stay in place until construction.	AGDC respectfully requests modification of section 4.25.2 p. 4-94 to indicate overstory vegetation removal would occur 1 - 1.5 years ahead of construction as needed, and the understory and organic mat would stay in place until active construction.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.2.5.2 p. 4-94 to read: "While limiting pre-clearing to the winter would reduce effects on permafrost, permanent impacts would still occur as the ~~protective~~ overstory vegetation would be removed within the right-of-way for ~~up to 3 years~~1 to 1.5 years prior to active construction. ~~To date, AGDC has not provided sufficient justification for the proposed pre-clearing schedule given the potential for increased long-term impacts on permafrost.~~ Impacts to permafrost would further be minimized by leaving the understory and the organic mats in place until the time of active construction."

A1-52

A1-53

A1-54

A1-53 While many of the soils crossed by the Project have limited development of distinct soil horizons and layers, the natural structure of those soils (including a surface organic matter layer) are important for providing insulation to permafrost. Cryoturbation is a natural process that occurs over time versus the impacts of construction, which would be rapid and directly affect soils in the trenchline. There would be a distinct boundary of soils affected by construction and those where natural cryoturbation would occur.

A1-54 Section 4.2.5.2 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 proposed clearing window in this portions of the DEIS is based on an erroneous submittal by AGDC and has since been corrected to clarify that the proposed vegetation clearing window is between 1 and 1.5 years (rather than up to 3 years). In addition, as described in AGDC's response to FERC 's February 2018 data request No. 67 (RFI-528-FERC-067, Accession No, 20180427-5256), the vast majority of the extremely thin surface layer along the pipeline ROW is defined by physical and chemical characteristics that tend to be naturally limiting and may become unstable if transported.	AGDC respectfully requests modification of section 4.2.5.2 p. 4-105 to change advance clearing from between 1 and 3 years to between 1 and 1.5 years. Also, consider adding information on the fact that in areas where the surface organic layer would not be segregated, soils would be inter-mixed with subsurface soils similar to natural pedogenic processes such as cryoturbation, in which organic material is incorporated into deeper mineral soil, including the upper part of the permafrost.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.2.5.2 p. 4-105 to read: "AGDC is proposing to clear trees and brush between 1 and ~~3~~1.5 years prior to construction. Clearing vegetation in thaw-sensitive permafrost areas prior to placing granular work pads would increase the potential for permafrost thaw and the creation of thermokarst. Additionally, AGDC has proposed to segregate the surface layer of the Mainline Pipeline for about 186 of the 806.6 miles. In areas where the surface organic layer would not be segregated, soils would be mixed, thereby causing permanent impacts on permafrost. By not segregating and saving the surface organic layer, erosion and permafrost thaw related impacts would be significantly increased. In areas where the surface organic layer would not be segregated, soils would be inter-mixed with subsurface soils similar to natural pedogenic processes such as cryoturbation, in which organic material is incorporated into deeper mineral soil, including the upper part of the permafrost."	A1-55
DEIS numbers for impact acreage associated with West Dock Causeway and Dock Head 4 are larger than reflected in plans for those areas because some of the fill placement is on top of existing fill, and the screeding is only during construction (i.e. a temporary not a permanent impact).	AGDC respectfully requests that a modification of the permanent impact acreage at West Dock be updated to reflect current plans. Some fill is associated with placement of new granular material onto some areas of existing fill and therefore is not new impact acreage. This results in less than "118 acres of new impacts to marine habitat" and also affects the 166 acre impact total. In addition, the 14 acres of screeding is temporary and during construction only, not a "permanent" impact. The acreage of permanent loss should be approximately 67 acres. Total impacts including short-term, long-term temporary and permanent would be approximately 112 acres which includes fill on fill, new areas of fill, temporary barge bridge and screeding.	Review/incorporate the information noted by AGDC. In particular, consider correcting acreage in section 4.3.3.3: "~~11~~837 acres of fill would be required to expand the West Dock Causeway..." p. 4-188 "...the permanent loss of about ~~166~~67 acres of open water marine habitat from the expansion of the West Dock Causeway and construction of Dock Head 4..." pp. 4-188-190.	A1-56
Response to RFI-528-FERC-088 (Accession No. 20180330-5172 (32778816)), includes correct figure and "Cook Inlet (19020800)" to Table 4.3.2-1.	AGDC respectfully requests addition of "Cook Inlet (19020800)" to list of HUC-8 Sub-watersheds in Table 4.3.2-1 and use of information from a previous submittal to correct figure 4.3.2-1 (delete "Talkeetna Sub-watershed", add "Cook Inlet Sub-watershed").	Review/incorporate the information noted by AGDC. In particular, consider modifying for Figure 4.3.2-1. Delete Talkeetna sub-watershed and add in the Cook Inlet sub-watershed to the figure. See attached response to RFI-528-FERC-	A1-57

A1-55 Section 4.2.5.2 of the final EIS has been updated to address this comment. Also, see the response to comment A1-53.

A1-56 Section 4.3.3.3 of the final EIS has been updated to address this comment.

A1-57 Section 4.3.2.1 and figure 4.3.2-1 of the final EIS have 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	
	See response to RFI-528-FERC-088, Accession No. 20180330-5172 (32778816), attached.	088 (Accession No. 20180330-5172 (32778816)). File Name: 56_RFI-528-FERC-088_PUBLIC	A1-57
The DEIS does not appear to put the wetland impacts into context. This comment also addresses the use of the term "significant" in sub-sections 4.4.3.2 and 4.4.5.	AGDC respectfully requests modification of Table 4.4.2-2 to include two additional columns of information as shown on the attached, consistent with the USACE application, to help bring the Project's permanent wetland impacts into context. The table shows the permanent Project impacts to wetlands as a percentage of the total wetlands within the affected HUC-8 sub-watersheds. The Project would impact less than .01% of the total wetlands in each sub-watershed.	Review/incorporate the information noted by AGDC. In particular, consider modifying Table 4.4.2-2, as attached. File Name: 57_Table 4.4.2-2.	A1-58
Depicting the permanent impacts to PFO wetlands as a percentage of the total PFO wetlands across all HUC-8 Sub-watersheds will put these impacts in proper context. "Significance" should consider both severity of the impact as well as the context.	AGDC respectfully requests modification of 4.4.5 to provide context for the wetland conversion numbers.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.4.5, as follows: "Conversion of PFO wetlands to PEM and/or PSS wetlands would create an additional ~~significant~~ permanent impact due to the time needed for restoration. However, the conversion of PFO wetlands to PEM/PSS wetlands will only impact 0.01 percent of the total PFO wetlands in the HUC-8 sub-watersheds affected by the Project as indicated in Table 4.4.2-2."	A1-59
The DEIS uses percentage of total vegetation communities for herbaceous and scrub-shrub, but uses the large number of acres of impacts to forest communities to make a determination of "significant impact". This comment also applies to sub-section 4.5.9. Without context, the term "significant" is erroneous.	AGDC respectfully requests addition of context to 4.5.3.2 to better depict the impact of the Project on forest communities as a percentage of the total.	Review/incorporate the information noted by AGDC. In particular, consider adding context to section 4.5.3.2 to better depict the impact of the Project on forest communities as a percentage of the total, such as: "Impacts on forest communities would be significant based on the quantity and duration of these impacts along with additional impacts from construction clearing. However, in context of the amount of forested land within the watershed, it would be less than 1% (0.6%) of the total acreage of forest communities, which would not be significant."	A1-60
The phrase, "although potential impacts could still be significant." is not logical based on the discussion of mitigation measures that Alaska LNG will undertake to protect areas from spreading invasive species and/or increasing known populations in the portion of the sentence preceding this phrase.	AGDC respectfully requests that the last portion of the sentence be stricken since it does not align with the rest of the sentence.	Review/incorporate the information noted by AGDC. In particular, consider modifying, as follows: "Based on AGDC's adherence to its Project Invasive Plan, ISPMP, and Revegetation Plan during construction and operation, and its implementation of our recommendations, we	A1-61

A1-58 See the response to comment A1-1.

A1-59 See the response to comment A1-1.

A1-60 See the response to comment A1-1.

A1-61 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	
		conclude that AGDC's measures to minimize the potential establishment and spread of NNIS to be acceptable. ~~although potential impacts could still be significant.~~	A1-61
According to RFI-561-FERC-099 (Accession no. 20181022-5218(33207156)) mainline facilities would impact only 300.3 acres of wetlands in Minto Flats SGR.	AGDC respectfully requests revision of section 4.6.1.1 to align with the information provided in RFI-561-FERC-099 (Accession No. 20181022-5218(33207156)), as Mainline facilities only impact 300.3 acres of wetlands in the Minto Flats SGR.	Review/incorporate the information noted by AGDC. In particular, consider revising 4.6.1.1 to align with the information provided in 10/22/2018 in RFI-561-FERC-099 (Accession No. 20181022-5218(33207156)), as follows: "Minto Flats - The Mainline Facilities would affect about 632 acres of the SGR, of which about ~~350~~ 300 acres are wetland habitats. This constitutes less than 1 percent of the total SGR acreage."	A1-62
DEIS text indicates construction of the Liquefaction Facilities would impact about 700 acres, but as FERC noted in Table 2.1.2-1, the onshore LNG Plant is 902 acres.	AGDC respectfully suggests correction of LNG Plant acreage from 700 to 902 acres.	Review/incorporate the information noted by AGDC. In particular, consider correcting text: "Construction of the Liquefaction Facilities would affect about ~~700~~ 902 acres of land."	A1-63
Table 3.4.10-6 in Resource Report No. 3 provides acreages of impacted sensitive bear habitats. It appears the totals for General, Berry, and Spring Habitats in table 3.4.10-6 in RR03 were added together. However, those numbers are not additive because some of the habitat types overlap, and therefore the impacts should total 10,809 acres instead of 12,573 acres. Miles crossed of bear habitat should be 620.27 not 652.3. The attachment provides suggested changes to Table 4.6.1-5 and corresponding text.	AGDC respectfully suggests correction of text below TABLE 4.6.1-5 Bear Habitat Crossed by the Project to read "Impacts on sensitive bear habitat would include general construction disturbance and permanent changes to vegetation. Constructing the Project would affect a total of about 10,809 acres of general habitat and 690 acres of berry habitat, and 776 acres of spring habitat."	Review/incorporate the information noted by AGDC. In particular, consider correcting bear habitat information, as attached, and correcting of text below the table to indicate: ""Impacts on sensitive bear habitat would include general construction disturbance and permanent changes to vegetation. Constructing the Project would affect a total of about ~~12,573~~10,809 acres of general habitat and ~~1,466~~650 acres of berry habitat, and 776 acres of spring habitat." File Name: 63_Table 4.6.1-5	A1-64
According to our GIS analysis (Table 3.4.10-6 of Resource Report No. 3), the Project would affect 690 acres of berry habitat and 10,809 of general habitat. It appears Berry -Summer and Fall Habitat were added to the Spring Habitat but the areas have some overlap.	AGDC respectfully requests correction of bear impact acreage, as it appears some of the habitat numbers were added together when there is overlap in acreage types.	Review/incorporate the information noted by AGDC. In particular, consider modifying 4.6.1.2 to be consistent calculated bear habitat impacts as follows:: "Constructing the Project would affect a total of about 10,809 ~~12,573~~ acres of general habitat and ~~1,466~~690 acres of berry habitat."	A1-65
The DEIS text indicates construction noise could cause mortality of terrestrial wildlife. Construction sound is not expected to result in any mortalities of terrestrial wildlife. Literature and research results supplied to FERC in the application and subsequent data requests: RFI-528-FERC-159 (Accession No.: 20180427-5256(32852129)), RFI-467-RR03-003 (Accession No. 20180102-5212(32605640)), RFI-467-RR03-108 (Accession No. 20180102-5212(32605684)), RFI-467-RR03-207 (Accession No. 20180102-	AGDC respectfully suggests removal of "and mortality" from bullet point in 4.6.1.2, since noise impacts causing mortality are not expected from the Project.	Review/incorporate the information noted by AGDC. In particular, consider modifying bullet item in 4.6.1.2 Noise to be consistent with the expectation that mortality is not expected from the project, as follows:	A1-66

A1-62 Based on wetland data provided by AGDC, we concluded that approximately 350 acres of wetland would be impacted within the Minto Flats State Game Refuge.

A1-63 Section 4.6.1.2 of the final EIS has been updated to address this comment.

A1-64 Section 4.6.1.3 and table 4.6.1-5 of the final EIS have been updated to address this comment.

A1-65 See the updates to section 4.6.1.2 of the final EIS.

A1-66 See the updates to section 4.6.1.2 of the final EIS.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
5212(32605734)) and RFI-467-RR03-212 (Accession No. 20180102-5212(32605738)), indicates such impacts are extremely unlikely. It is possible that wildlife mortalities could result from blasting; however, these types of pressure or shock waves are not generally lumped in with the effects of sound.		"Potential impacts on terrestrial wildlife from noise would include: -hearing damage ~~and mortality~~;"	A1-66
Since winter construction does not remove or disturb the ROW vegetation, the reference to a need for revegetation is not accurate. Also, the PTTL does not result in permanent habitat impacts. It is along an existing pipeline route and is elevated 7 feet aboveground, which has been shown is high enough to accommodate caribou crossings as noted in the DEIS (pg. 4-297, also referencing BLM, 2006).	AGDC respectfully suggests modifying section 4.6.1.3, page 4-297, to clarify the PTTL work will be done in winter off ice roads and is an elevated pipeline. Disturbance of the vegetation is not expected so revegetation would not be needed. In addition, clarify only the GTP (not the PTTL) would result in permanent habitat impacts.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.6.1.3 as follows: "For the Gas Treatment Facilities, which includes the PTTL that would be elevated 7 feet aboveground, disturbances to these habitats from Project GTP operation would be permanent. At the same time, some impacts of the GTP would likely be positive for caribou by providing insect relief habitat as seen in existing North Slope development. The PTTL is elevated, follows existing elevated pipelines for most of its length, and would not result in permanent impacts to habitat. Being built in the winter off of ice pads, there is no vegetation disturbance or reseeding/reclamation required. ~~including the change in the landscape created by the PTTL; however, the right-of-way would be allowed to naturally revegetate or seeded to promote revegetation.~~"	A1-67
DEIS assessment of impacts on the CAH are overstated. A CAH-specific specific analysis of Project footprints indicates that most temporary impacts would occur when CAH caribou are not present and would ameliorate before the annual arrival of CAH caribou. Permanent Project footprint represents a very small portion of the available habitat. Additionally, the scientific literature indicates that caribou use areas in and around oilfield infrastructure and that the CAH has increased in size since oilfield development began on the North Slope. For these reasons, Project impacts on CAH caribou would not be expected to be significant. Please see the attached detailed analysis.	AGDC respectfully requests reconsideration of the assessment of potential CAH impacts based on the scientific information and references provided.	Review/incorporate the information noted by AGDC. In particular, consider modifying the potential CAH impacts as discussed in section 4.6.1.3 per the attached comments and redline, and as supported by scientific literature. File Name: 67_Comment Redline	A1-68

A1-67 See the updates to section 4.6.1.3 of the final EIS. Vegetation impacts on the Beaufort Coastal Plain Subregion are discussed in section 4.5.3.1. Also, see the response to comment SA2-6.

A1-68 Review of available literature (e.g., Cameron et al., 2005 and Cronin, 2019) supports variability in the size of the Central Arctic Herd population between 1975 and 2016. Also, see the responses to comments SA2-6 and SA2-171.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC
Consistent with other comments related to caribou impacts, and the FERC condition requiring caribou monitoring during operations, the potential impact assessment needs to be corrected to better reflect scientific data on elevated pipelines and habituation of caribou to oil and gas facilities.	AGDC respectfully suggests modifying text in Table 4.6.1-6 related to the Central Arctic Herd Group Impacts to better consider scientific data on elevated pipelines and habituation of caribou to oil and gas facilities.	Review/incorporate the information noted by AGDC. In particular, consider modifying Table 4.6.16, Page 4-300 as shown in the attached redline table. File Name: 68_Table 4.6.16 Caribou Herd Impacts Redline

A1-68

A1-69

A1-69 See the updates to section 4.6.1.3 of the final EIS. Also, see the response to comment SA2-6 and A1-1.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
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 and therefore it would be difficult to parse out impacts of the PTTL from the existing parallel lines. In addition, the Point Thomson Project did not require permit or EIS stipulated caribou monitoring. The GTP facility is sited in the Prudhoe Bay Unit (PBU), which is an industrial area designated for oil and gas development. This area has numerous oil and gas facilities, roads, mine sites, and activity that would make it impracticable to parse out impacts of the GTP separate from the existing facilities relative to caribou movements. Lawhead, B. E., J. P. Parrett, A. K. Prichard, and D. A. Yokel. 2006. A literature review and synthesis on the effect of pipeline height on caribou crossing success. BLM Alaska Open-File Report 106, U.S. Department of the Interior, Bureau of Land Management, Fairbanks. 96 pp. (see attached) Lawhead, B. E., and A. K. Prichard. 2009. Data report for Alpine pipeline caribou surveys, 2009. Letter report to ConocoPhillips Alaska, Inc., Anchorage, by ABR, Inc., Fairbanks. (see attached)	AGDC respectfully suggests modifying section 4.6.1.3 to delete the requirement for seasonal caribou monitoring. Literature does not support an expectation for impacts. Further, the area has numerous oil and gas facilities, roads, mine sites, and activity that would make it impracticable to parse out impacts of the GTP separate from the existing facilities relative to caribou movements.	Review/incorporate the information noted by AGDC, particularly the attached scientific studies of caribou (i.e., Lawland et. al, 2006 and 2009 studies). In addition, consider modifying section 4.6.1.2 to delete the requirement for seasonal caribou monitoring based on implementation of BMPs, scientific studies cited, and collocation of project infrastructure with existing facilities. File Names: 69a_Lawhead et al 2006. Caribou Lit Review Pipelines Reduced 69b_2009 Alpine Pipelines Caribou Surveys Final Report	A1-70
Our analysis provided in the Resource Reports indicates there is only one material site located in Galbraith Lake ACEC.	AGDC respectfully requests revision of section 4.6.1.3 pg 4-304 to be consistent with the Resource Report showing there is only one material site in the Galbraith Lake ACEC. For the Dall Sheep assessment, modify text to be consistent with the Resource Report showing there is only one material site in the Galbraith Lake ACEC.	Review/incorporate the information noted by AGDC. In particular, consider revising Dall sheep habitat information in section 4.6.1.3 p. 4-304 to indicate there is only one material site in the Galbraith Lake ACEC, as follows: "Four construction camps would be within 1 mile of Dall sheep habitat, one of which would be in the area of the Galbraith Lake ACEC. Eight access roads and two material sites would be within the Toolik Lake RNA; 14 access roads, ~~two~~ one material site~~s~~, and one airstrip would be within the Galbraith Lake ACEC."	A1-71
Since the Project falls within the BLM Utility corridor and parallels the Dalton highway and TAPs pipeline north of the Brooks range on state land, almost half of the Project falls within disturbed rather than "pristine" or "roadless" areas. Because of colocation with other utilities for much of the route, the fragmentation and disturbance issue noted in the DEIS for this Project is more limited. Impacts to wolverines and their habitat are overstated as	AGDC respectfully requests modification of the wolverine impact assessment in 4.6.1, Wolverines, p. 4-310 based on fact that much of the pipeline corridor will be within the BLM Utility corridor, parallel to the Dalton highway or parallel to TAPS.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.6.1, page 4-310 to indicate: "Wolverines would likely be particularly sensitive to any Project construction that would reduce patch size, particularly in areas	A1-72

A1-70 See the updates to section 4.6.1.3 of the final EIS and the response to comment SA2-6.

A1-71 Section 4.6.1.3 of the final EIS has been updated to address this comment.

A1-72 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	
"moderate" based on these facts, and are more likely to be 'minor'.		that were previously pristine or roadless. These effects would be experienced in areas of the Project that would not be collocated with other linear features (see table C-2 in appendix C). Since wolverines are sensitive to fragmentation and disturbance, their range would be permanently reduced or altered in these areas. However, these areas are restricted to the lower third of the Project where it is not within the BLM Utility corridor nor parallel with TAPS and the Dalton highway. This results in a minor, ~~resulting in a moderate~~ impact on wolverines and their habitats."	A1-72
Marine waters at and near the Liquefaction Facilities / Marine Terminal are in an area of industrialization and are not particularly important avian habitats. The shoreline is very straight and unremarkable with no protected embayments, river outlets, islands, reefs, or submerged vegetation that would be attractive to birds.	AGDC respectfully suggests adding to the description in section 4.6.2, Pg. 4-318 to recognize that marine waters at and near the Liquefaction Facilities / Marine Terminal are in an area of industrialization and are not particularly important avian habitats. The shoreline is very straight and unremarkable with no protected embayments, river outlets, islands, reefs, or submerged vegetation that would be attractive to birds.	Review/incorporate the information noted by AGDC. In particular, consider adding to the text in section 4.6.2, P. 4-318 following "(TNC, 2003)" to say: "The offshore areas where components of the Liquefaction Facilities would be constructed are in an industrialized area with a relatively straight shoreline and no embayments, or other unique habitat for avian use."	A1-73
Grouse and ptarmigan are not migratory birds under MBTA as described in section 4.6.2.2.	AGDC respectfully requests modification of section 4.6.2.2 to indicate grouse and ptarmigan are not migratory birds under MBTA as described.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.6.2.2, as follows: "Upland birds include grouse and ptarmigan. Alaska is home to four species of grouse including ruffed, sharp-tailed (*Tympanuchus phasianellus*), spruce (*Falcipennis canadensis*), and sooty (*Dendragapus fuliginosus*). Grouse and ptarmigan are not migratory birds under the MBTA but are included here as general avian resources."	A1-74
Table 4.6.2-2 indicates 21 species, but 2 species are footnoted stating they are not expected in the Project area. The DEIS text in section 4.6.2.2, p4-321, indicates there are 21 bird species and subspecies in the Project area that are designated BCC. Table 4.6.2-2 lists 21 species but 2 species are footnoted stating they are not expected in the Project area.	AGDC respectfully requests modification of section 4.6.2.2, p4-321 to be consistent with Table 4.6.2.2 showing two of the 21 species are not expected in the Project area.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.6.2.2, p4-321 to be consistent with Table 4.6.2.2 as follows: "~~Twenty-one~~Nineteen bird species and subspecies in the Project area are designated BCC in these regions (see table 4.6.2-2)."	A1-75
AGDC's GIS analysis indicates approximately 43 miles of the Mainline route being located in interior IBAs identified in the DEIS as opposed to 119 miles cited in the DEIS. The lengths should be reduced to the following:	AGDC respectfully suggests correcting the total length of Mainline centerline or ROW within interior IBAs from 119 miles to 44 miles. The lengths should be reduced to the following:	Review/incorporate the information noted by AGDC. In particular, consider modifying 4.6.2.5, pg. 4-342 to read:	A1-76

A1-73 See the update to section 4.6.2.1 of the final EIS. Several sources characterize this area as a hotspot for birds.

A1-74 Grouse and ptarmigan are managed by the State of Alaska under the ADF&G's small game hunting program. See the updates to section 4.6.2.2.

A1-75 Section 4.6.2.2 of the final EIS has been updated to address this comment.

A1-76 Section 4.6.2.5 of the final EIS has been updated to address this comment.

CC-1009

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
Susitna Flats IBA 10 miles Alaska Range Foothills IBA 7 miles Minto Flats Potential IBA 27 miles	Susitna Flats IBA 10 miles Alaska Range Foothills IBA 7 miles Minto Flats Potential IBA 27 miles	About ~~119~~ 44 miles (~~15~~ percent) of the Mainline Pipeline route would be within interior IBA boundaries. Clearing and granular material placement would occur in the summer along about 59 of those miles, with the remaining miles planned for winter construction.	A1-76
Table 4.6.3-1 indicates that the northern fur seal, ribbon seal, Baird's beaked whale, Stejneger's beaked whale, minke whale, and Dall's porpoise occur in the Project Area within the Beaufort Sea. However, it is extremely unlikely that these species would occur in the West Dock area during Project construction or operation. The central Beaufort is far outside the published range maps for these species as shown by industry and agency survey data and the DEIS maps. Further, potential occurrence along routes to be traveled by vessels to West Dock are covered by the "Vessel Routes" column in the table. Marine construction, pile driving, and screeding should likewise not be indicated as Project activities potentially affecting ribbon seals, minke whales, or gray whales because the work will be done well outside their ranges. This is again evidenced by the range maps in the DEIS, the Project IHA for West Dock work, the ITR Petition for Cook Inlet work, and other NMFS documents. The Project ITR and IHA documents have been prepared with input from NMFS, and indicate no exposures from the marine work for these species.	AGDC respectfully suggests modification of Table 4.6.3-1, to better reflect distribution of northern fur seal, ribbon seal, Baird's beaked whale, Stejneger's beaked whale, minke whale, and Dall's porpoise, as it is extremely unlikely that these species would occur in the West Dock area during Project construction or operation.	Review/incorporate the information noted by AGDC. In particular, consider attached suggested edits to Table 4.6.3-1, p. 4-344. File Name: 76_Table 4.6.3-1	A1-77
Table 4.6.3-2 indicates there are potential Project effects on marine mammals from Project air traffic associated with GTP operation. No air travel associated with operation of the GTP would occur over marine waters or near enough to affect marine mammals.	AGDC respectfully requests modification of Table 4.6.3-2 to align species presence with NMFS information and DEIS range maps for each species and Project activities.	Review/incorporate the information noted by AGDC. In particular, consider the attached suggested corrections to Table 4.6.3-2 to align species presence, using NMFS information and DEIS range maps, for each species with Project activities. File Name: 77_Table 4.6.3-2	A1-78
Ribbon seals are unlikely to occur near West Dock during the summer and even less likely to occur there during the winter. They are extralimital in this portion of the Beaufort Sea as evidenced by the provided range map and the more detailed range map provided by USFWS at https://cdn2.webdamdb.com/1280_evvjpMZnJrWL.jpg?1509474036.	AGDC respectfully requests modification of section 4.6.3.2 to better reflect the known distribution of ribbon seals. They are extralimital in this portion of the Beaufort Sea as evidenced by the DEIS range map and the more detailed range map provided by USFWS at https://cdn2.webdamdb.com/1280_evvjpMZnJrWL.jpg?1509474036.	Review/incorporate the information noted by AGDC. In particular, consider revising section 4.6.3.2, as follows: "Ribbon seals are unlikely to occur along the sealift route through the Bering, Chukchi, and Beaufort Seas because the seals remain near the ice edge during the summer shipping season. Ribbon seals could occur along shipping routes where vessels transit near the ice edge. Ribbon seals are unlikely to occur ~~near the West Dock Causeway in summer, but could occur during winter months as the seals move with the sea ice edge as it extends southwards~~ in or near Prudhoe Bay and the West Dock Causeway."	A1-79

A1-77 Based on our analysis of information provided by AGDC and other sources, we have included these species as potentially occurring within the Project area, which includes vessel routes as shown in Figures 4.6.3-1 through 4.6.3-15 of the final EIS. Section 4.6.3.1 of the final EIS addresses the likelihood of occurrence for each species near Project related activities. See the response to comment A1-1.

A1-78 Our analysis in section 4.6.3.2 of the final EIS notes that aircraft noise could reach 0.2 mile from the source. AGDC has said that each mainline valve would have an adjacent helipad, and there would be a mainline valve near Point Thomson about 0.2 mile from the coast. In addition, in response to question 4 of our EIR dated November 22, 2019 (Accession No. 20191203-5031), AGDC stated that spotter aircraft would accompany sealift vessels, which could affect marine mammals off the coast.

A1-79 Section 4.6.3.2 of the final EIS acknowledges that ribbon seals are unlikely to occur in the area, but could be present incidentally.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC
AGDC has worked closely with NMFS in developing a Petition for ITRs in Cook Inlet and an application for an IHA at West Dock. The ITR Petition is now at the point where NMFS has published a Proposed Rule. The Proposed Rule contains requirements on establishing Level A and Level B shutdown zones for Cook Inlet, and the requirements 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 final IHA application has been submitted (copy attached to this comment), although a proposed IHA has not yet been published by NMFS. NMFS does not consider the sound pressure levels generated by the dredging and screeding to rise to the level of takes and has not requested exclusion or harassment zones, or PSOs related to those activities. Similarly, AGDC has requested no takes for these activities. Distances to Level A and Level B isopleths are not provided for the West Dock work in the DEIS Appendix L tables. The attached IHA application submitted to and reviewed by NMFS provides those distances.	AGDC respectfully requests modification of section 4.6.3.2, pg. 4-377 to note that harassment and shutdown zones need to be consistent with the Final Rule for the Project ITRs in Cook Inlet and the IHA for work at West Dock. Since the proposed ITR for Cook Inlet has been published, and the Prudhoe Bay IHA application and Marine Mammal Monitoring and Mitigation Plan has been turned in, those document can be referenced with a note that any changes to those documents that occur with the published final ITR and IHA will be incorporated into the Project.	See the attached Prudhoe Bay IHA application and the Cook Inlet proposed ITR. Also consider replacing section 4.6.3.2, pg. 4-377 and Staff Recommended Mitigation 50 to be consistent with those authorizations as follows: "Prior to construction, AGDC shall file with the Secretary, for the review and written approval of the Director of the OEP, revised shutdown distances and harassment zones for underwater noise generating activities consistent with issued ITR and IHA authorizations. 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." File Names: 79a_Prudhoe Bay IHA App_Rev 2 79b_NMFS Cook Inlet ITR

A1-80

A1-80 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	
			A1-80
The identified marine mammal species (harbor seals, killer whales, minke whales, harbor porpoises, Dall's porpoises, and Pacific white-sided dolphins) may all occur on occasion in lower Cook Inlet; however, with regards to vessel docking at Project facilities (Marine Terminal, MOF), the occurrence of these species (with the exception of harbor seals and harbor porpoise) in upper Cook Inlet in the area of Project facilities would be unexpected and extralimital. AGDC has worked closely with NMFS in preparation of its petition for ITRs in Cook Inlet to cover construction of marine components of the Project, and NMFS has not expressed concern	AGDC respectfully suggests modifying section 4.6.3.2 to further distinguish between marine mammal species in various portions of Cook Inlet.	Review/incorporate the information noted by AGDC. In particular, consider revising section 4.6.3.2 to further distinguish between marine mammal species in various portions of Cook Inlet, as follows: "Harbor seals, killer whales, minke whales, harbor porpoises, Dall's porpoises, and Pacific white-sided dolphins could all occur in Lower Cook Inlet during spring, summer, and fall	A1-81

A1-81 Based on our analysis of information provided by AGDC and other sources, we concluded that these species may occur in Cook Inlet near Project facilities and/or within vessels routes. Section 4.6.3.1 of the final EIS addresses the likelihood of occurrence for each species near Project related activities.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
regarding potential exposures of minke whales, Dall's porpoises, or Pacific white sided dolphins or indicated that Level B harassment of those species might occur. Project activities at the Marine Terminal or Mainline crossing of Cook Inlet during construction or operation should not be considered to have reasonable potential to impact these species.		seasons; and harbor seals, killer whales, harbor porpoises, and Dall's porpoises could all occur during the winter season. Harbor seals, harbor porpoises, and killer whales also occur in Upper Cook Inlet. LNG carriers would transit Lower Cook Inlet to visit the Marine Terminal year-round. Construction of the Mainline crossing, the Mainline MOF, and the Marine Terminal would occur in Upper Cook Inlet. Some vessels could generate noise that has potential to cause Level B harassment (disturbance) of marine mammals. Vessel noise could cause marine mammals to avoid the area near the transiting vessel, but vessels not in transit (e.g., pipelay, anchor handling, and positioning vessels) could also cause Level B harassment (disturbance) as discussed below."	A1-81
As indicated on Federal Register (FR) 84 FR 30995, in the Proposed Rule published in response to the Alaska LNG ITR Petition for the Cook Inlet work, NMFS does consider the sound generated by the proposed dredging would result in Level B harassment takes of marine mammals. NMFS specifically indicated, "However, due to the low activity level and source levels from dredging, we do not consider there would be take of marine mammals. Therefore, dredging is not further analyzed in this document."	AGDC respectfully suggests modifying section 4.6.3.2 Pg. 4-373, to align with the NMFS's conclusions that the potential impact of noise from dredging would not result in Level B harassment for this project.	Review/incorporate the information noted by AGDC. In particular, consider revising section 4.6.3.2 P. 4-373, to align with the NMFS's conclusion on dredging and Level B harassment, as follows: "Maintenance dredging at the Marine Terminal MOF would occur during construction Years 3 and 7. Although some dredging equipment could generate noise levels slightly above Level B harassment thresholds, NMFS concluded that the proposed maintenance dredging would not result in Level B harassment of marine mammals due to the low source levels and activity levels."	A1-82
Any occurrences of minke whales in areas that would be ensonified by Marine Terminal construction of pipelay across Cook Inlet would be extralimital and extraordinary. The likelihood is low enough that potential impacts should not be discussed. Minke whale occurrence in Cook Inlet and the Beaufort Sea (Prudhoe Bay) were reviewed in preparation of the Project IHA application and ITR Petition and no takes are expected. NMFS cooperated in development of these documents and reviewed them prior to submission.	AGDC respectfully suggests modifying section 4.6.3.2 to remove reference to minke whale impacts in Cook Inlet since any occurrences of minke whales in areas that would be ensonified by the Mainline Crossing of Cook Inlet would be extralimital and extraordinary.	Review/incorporate the information noted by AGDC. In particular, consider revising section 4.6.3.2, as follows: "Additional details on Mainline Pipeline installation in Cook Inlet can be found in sections 2.2.2 and 4.3.3. Excavation activities would generate continuous and intermittent noise levels that could reach Level A and B harassment (see Tables 4.6.3-3 and 4.6.3-4). Harbor seals, killer whales, ~~minke whales,~~ and harbor porpoises could experience harassment from excavation noise in Cook Inlet during Mainline Pipeline installation (see table 4.6.3-2)."	A1-83

A1-82 Based on our consultations with NMFS staff, we concluded that noise from dredging could potentially affect marine mammals. See the U.S. Army Corps of Engineers, Alaska District Consultation for Transitional and Maintenance Dredging of the Anchorage Harbor, Knik Arm, NMFS PCTS # AKR-2017-9682.

A1-83 Based on information provided during traditional knowledge workshops and our analysis of data provided by AGDC, minke whales could occur near the Marine Terminal and Mainline Facilities in Cook Inlet though they would not likely be abundant or common in this area.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
Underwater sound levels generated by the tug and barge during screeding may exceed the underwater non-impulsive threshold, but are considered transient (the vessel is moving) and NMFS does not consider transiting vessel sound to rise to the level of "take." Screeding was therefore not included in the acoustic harassment exposure evaluation provided in the IHA application submitted to and reviewed by NMFS. Additionally, ribbon seals are unlikely to occur near West Dock. They are extralimital in this portion of the Beaufort Sea as evidenced by the range map in the DEIS.	AGDC respectfully requests modification of section 4.6.3.2, Pg. 4-372 to delete ribbon seals from the list of species potentially impacted during screeding.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.6.3.2, Pg. 4-372 to reflect ribbon seal distributions and to be consistent with NMFS transient sound level assessments, as follows: "Screeding would occur at the West Dock Causeway to accommodate barges and vessels. Noise from screeding activities could reach levels above disturbance thresholds established by NMFS (see appendix L-1). ~~Ribbon seal,~~ ~~s~~Spotted seal~~s~~, and beluga whale~~s~~ within 330 feet of screeding could be exposed to these sound levels; however NMFS does not consider these transient sounds to result in Level B harassment (disturbance). ~~experience Level B harassment (disturbance).~~"	A1-84
Much of the pile driving associated with the Marine Terminal MOF and a portion of the pipe driving for the PLF at the Marine Terminal would also be driven in dry conditions being either in fill (MOF) or in the intertidal area when the tide is out. In fact, the Proposed Rule from USFWS for Project ITRs for sea otters in Cook Inlet has as a mitigation measure requiring, "All in-water work along the shoreline shall be conducted during low tide when the site is dewatered to the maximum extent practicable."	AGDC respectfully suggests modifying section 4.6.3.2, Pg. 4-372, to include 'as well as a portion of the PLF' as noted.	Review/incorporate the information noted by AGDC. In particular, consider revising section 4.6.3.2, Pg. 4-372, as follows, to recognize work that will be done in dry conditions and as specified by the USFWS: "About half of the pile driving for the Mainline MOF, as well as a portion of the PLF, would occur when the tide is out, which would minimize underwater noise impacts on marine mammals for that portion of the sheet piling installation."	A1-85
Any minke whale occurrence in the work areas that may be ensonified at West Dock and upper Cook Inlet would be extralimital. See range map Figure 4.3.6-11 in the DEIS. This is supported by agency surveys that have been completed over 20-30 years in the Beaufort Sea (BWASP / ASAMM surveys) and Cook Inlet (beluga whale surveys), as well as industry reports. AGDC has reviewed their occurrence in preparation of an IHA application for the West Dock work and the ITR Petition for the Cook Inlet work, and has predicted/estimated there would be no minke whale exposures, and has requested no takes of minke whales. NMFS has reviewed and commented on the applications and has at least tacitly agreed that minke whale exposures should not be expected.	AGDC respectfully requests deletion of references in section 4.6.3.2, Pg. 4-371, to minke whale impacts at Dock head 4 as that species is not expected in the area per agency surveys completed over the past 20-30 years in the Beaufort Sea.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.6.3.2, Pg. 4-371, to delete references to minke whales as follows: "AGDC would install piles and sheet piling for Dock Head 4 using an impact hammer between June and August of one season, with the pile driving expected to take 112 days. The pile driving noise would generate intermittent noise levels that could reach Level A and B harassment and could affect spotted seals and beluga, and killer~~, and minke~~ whales if present near West Dock Causeway during this activity (see tables 4.6.3-3 and 4.6.3-4). Continuous vibratory and impact pile driving methods would be used to install piles and sheet piling for the Mainline MOF, Marine Terminal MOF, and PLF. Appendix L-1 provides the number of piles that AGDC would install in Cook Inlet. The pile driving would occur between about May	A1-86

A1-84 See the responses to comments A1-1 and A1-79.

A1-85 The proposed rule is not final and AGDC has not committed to implementing this mitigation measure.

A1-86 See the response to comment A1-83.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		through October during the ice-free seasonal window over a 5-year period. AGDC would remove the Marine Terminal MOF piles with a vibratory hammer. As indicated in table 4.6.3-2 harbor seals, killer whales, ~~minke whales,~~ and harbor porpoises could all occur in Cook Inlet during the ice-free season during pile driving activities."	A1-86
The Level A impact areas (ensonified areas) for the pile driving in Prudhoe Bay provided in Table 4.6.3-3 do not match the respective values provided in Appendix L Tables L-1.1-3 and L-1.1-4 for the same activities. This is apparently due to rounding of some values and not others. More importantly, the values in Tables L-1.1-3 and L-1.1-4 do not match the values in the latest IHA application to NMFS (see comments on Appendix L).	AGDC respectfully requests modification of Table 4.6.3-3, pg. 4-370 to align the Level A impact areas (esonified areas) for pile driving in Prudhoe Bay with the respective values provided in Appendix L Tables L-1.1-3 and L-1.1-4 (as updated to match the values in the latest IHA application to NMFS) for the same activities.	Review/incorporate the information noted by AGDC. In particular, consider modifying Table 4.6.3-3, pg. 4-370 to align the Level A impact areas (esonified areas) for pile driving in Prudhoe Bay with the respective values provided in Appendix L Tables L-1.1-3 and L-1.1-4 for the same activities. AGDC suggested changes to those tables are included in the comments on Appendix L.	A1-87
While the stated increase in potential whale strikes may be mathematically correct based upon the assumptions, one cannot strike a portion of a whale. Furthermore, the expected increase is for the vessel traffic as a whole - not for Project vessels. Ship strikes are not necessarily spread evenly across all vessels due to vessel size and speed, and mitigation measures. The conclusion should be that future vessel traffic in the region, with the addition of projected vessel traffic associated with construction of the Project, is unlikely to result in additional whale strikes based solely on the number of vessel trips.	AGDC respectfully suggests modifying section 4.6.3.2, Pg. 4-380, to note that projected vessel traffic associated with construction of the Project is unlikely to result in additional whale strikes based solely on the number of vessel trips. Further, vessel strike potentials modelled to be less than one animal should be translated to no strikes, not to a strike of a portion of a whale.	Review/incorporate the information noted by AGDC. In particular, consider revising section 4.6.3.2, Pg. 4-380, as follows: "Based on the ratio of reported strikes and past vessel traffic, future vessel traffic in the GOA and Cook Inlet with the addition of projected vessel traffic associated with construction and operation of the Project is unlikely to result in additional strikes of minke whales and Cuvier's beaked whales based solely on the number of vessel trips. ~~For construction vessel traffic in Cook Inlet and the GOA, an estimated 0.1 Cuvier's beaked whale and 0.04 minke whale would be struck during the construction phase of the Project. For LNG carrier traffic in Cook Inlet and the GOA during Project operation, an estimated 0.5 Cuvier's beaked whale and 0.2 minke whale would be struck during the life of the Project.~~"	A1-88
Minke whales, northern fur seals, and the three beaked whales are not found in the Beaufort Sea per published range maps included in the DEIS and agency and industry survey reports. Their occurrence in the Prudhoe Bay area is of sufficiently low probability that potential impacts would not be expected.	AGDC respectfully requests modification of section 4.6.3.2, Pg. 4-381, references to minke whales, northern fur seals, and the three beaked whales as they would not be expected in the Beaufort Sea project area per published range maps in the DEIS.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.6.3.2, Pg. 4-381, as follows: "Potential effects on marine mammals from vessel traffic at West Dock Causeway could include displacement of spotted seals and potential collisions...Beluga, gray, ~~minke~~ and killer whales could occur in vessel traffic areas approaching West Dock Causeway. Northern fur seals and spotted seals could be in the area	A1-89

A1-87 The Level A impact areas provided in appendix L-1 of the final EIS have been updated based on AGDC"s Prudhoe Bay IHA application.

A1-88 Section 4.6.3.2 of the final EIS has been updated to address this comment.

A1-89 Section 4.6.3.2 of the final EIS has been updated to address this comment.

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		for breeding, and the three beaked whale species, beluga whales, killer whales, and minke whales could be feeding and moving through the Bering ~~Beaufort~~ and Chukchi Seas at the time the sealifts move through. Vessel traffic could have temporary and minor behavioral effects on marine mammals and could strike individual animals in transit." A1-89	
The minke whale is extralimital in the upper Cook Inlet, per range maps such as those in the DEIS, results of 20 years of beluga surveys (e.g. Shelden et al. 2013) in the Cook Inlet, and the proposed ITR rules developed by NMFS. Impacts to minke whales should therefore not be expected with the Mainline crossing. Shelden, K. E. W., D. J. Rugh, K. T. Goetz, C. L. Sims, L. Vate Brattström, J. A. Mocklin, B. A. Mahoney, B. K. Smith, and R. C. Hobbs. 2013. Aerial surveys of beluga whales, Delphinapterus leucas, in Cook Inlet, Alaska, June 2005 to 2012. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-263, 122 p.	AGDC respectfully suggests modifying section 4.6.3.2, Pg. 4-382 to recognize impacts to minke whales are not expected with the Mainline crossing. Minke whales are extralimital in the upper Cook Inlet per 20 years of beluga surveys (e.g. Shelden et al. 2013) in the Cook Inlet, and the review provided in the proposed ITR rules developed by NMFS. Impacts to minke whales should therefore not be expected with the Mainline crossing. See Shelden, K. E. W., D. J. Rugh, K. T. Goetz, C. L. Sims, L. Vate Brattström, J. A. Mocklin, B. A. Mahoney, B. K. Smith, and R. C. Hobbs. 2013. Aerial surveys of beluga whales, Delphinapterus leucas, in Cook Inlet, Alaska, June 2005 to 2012. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-263, 122 p.	Review/incorporate the information noted by AGDC. In particular, consider revising section 4.6.3.2, Pg. 4-382 as follows, to delete the reference to minke whales since they are not expected in the area: "Marine mammals~~, particularly baleen whales such as minke whales,~~ could become entangled in buoy and anchor lines used to install the Mainline Pipeline (James, 2013), but whales would likely avoid the pipelay activities area due to the increased disturbance caused by construction activities." A1-90	
Minke whales do not occur with any regularity in upper Cook Inlet (see other comments filed on this issue). Harbor seals are found throughout Cook Inlet but most major haulouts are in lower Cook Inlet. They have been observed hauled out on mud flats in the Susitna delta, but reported occurrences of hauled out harbor seals in the Susitna River delta have generally been north of the Beluga River, which is 7 miles north of the Mainline MOF location. We are unaware of any known haulouts near the Mainline MOF. See discussion in the Project ITR Petition.	AGDC respectfully suggests modifying section 4.6.3.2, Pg. 4-385, to better reflect the fact that minke whales do not occur with any regularity in upper Cook Inlet, and harbor seals are found throughout Cook Inlet but most major haulouts are in lower Cook Inlet.	Review/incorporate the information noted by AGDC. In particular, consider revising section 4.6.3.2, Pg. 4-382, to better reflect the fact that minke whales do not occur with any regularity in upper Cook Inlet, and harbor seals are found throughout Cook Inlet but most major haulouts are in lower Cook Inlet. "Harbor seals, killer whales, ~~minke whales,~~ and harbor porpoises could avoid the area where active Mainline Pipeline construction is occurring due to the presence of human activity onshore and in the water. Harbor seals ~~haul out~~ A1-91	

A1-90 See the response to comment A1-83.

A1-91 See the responses to comments A1-1 and A1-83. As discussed in section 4.6.3.1 of the final EIS, harbor seal haulouts occur near the Beluga and Susitna River deltas.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		are known to haul out on mud flats ~~near~~ in the Susitna delta several miles north of the Mainline MOF ~~(near the Susitna River delta area), and could be disturbed by the additional construction activity there.~~ The repeated and regular presence of human activity in these areas during operations could cause marine mammals to avoid using those areas ~~for hauling out.~~"	A1-91
Project wetland impact data indicate that a total of less than 65 acres of marine / estuarine habitat would be impacted due to causeway modifications (widening) and DH4 construction. The Mainline crossing would have a much smaller permanent impact on benthic habitat than indicated in the DEIS. The permanent ROW along the pipeline would be approximately 330 acres, but the only permanent impact would be where the pipeline lays on the seafloor surface. Approximately 11 acres of Cook Inlet seafloor would be covered by the concrete coated pipe. The value of 20 acres for the Marine Terminal is the area of seafloor that would be shaded by the PLF; however the permanent impact to the seafloor would be only the area at the base of the pilings that would support the PLF trestle - a much smaller value. Context is missing in the assessment of this habitat, especially in light of the amount of habitat found in both Cook Inlet and Prudhoe Bay that is available to marine mammals.	AGDC respectfully suggests modification of 4.6.3.2 to correct benthic habitat numbers and provide context for the impact assessment.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.6.3.2, as follows: "Project facilities would cause permanent habitat loss in Prudhoe Bay and Cook Inlet. The West Dock Causeway and Dock Head 4 would cause a loss of approximately ~~152~~ 65 acres of marine/estuarine benthic habitat. The Marine Terminal would permanently shade approximately 20 acres of marine benthic habitat; the pilings would occupy a much smaller area of seafloor. Marine mammals ~~could~~ may also avoid the area immediately adjacent to the Marine Terminal due to the additional disturbance from vessel traffic and human presence. ~~and the Marine Terminal would cause.~~ There would be a permanent loss of about ~~20~~ 14 acres of benthic habitat from placement of the Mainline Pipeline on the bottom of Cook Inlet. This could represent a loss of harbor seal foraging habitat; ~~There would be a permanent loss of about 330 acres of foraging habitat for harbor seals from placement of the Mainline Pipeline on the bottom of Cook Inlet.~~ however, harbor seals typically dive to depths less than 65 feet, and a large percentage of the ~~330~~ 14 acres ~~is~~ would be in deeper waters (ADF&G, 2018h). The Mainline MOF would be left in place after use by this Project, causing a loss of 6 acres of benthic habitat. Taken in context with the amount of habitat in both Cook Inlet and Prudhoe Bay, the amount of habitat lost is minor." A1-92	A1-92
The table indicates there are potential Project effects on Baird's beaked whale, Cuvier's beaked whale, and Stejneger's beaked whale from Project air traffic associated with GTP construction and operation. The sealifts to West Dock may be supported by spotting aircraft; however, range maps (including those in the DEIS) and habitat / distribution information from NMFS indicate	AGDC respectfully suggests modification of Table 4.6.3-2 (p4-368). That table shows Seasonal Presence of Non-ESA Listed Marine Mammals Potentially Affected by Project Construction and Operation, and indicates there are potential Project effects on Baird's	Review/incorporate the information noted by AGDC. In particular, consider attached suggested edits to Table 4.6.3-2, p. 4-368 to delete Baird's beaked whale, Cuvier's beaked whale, and Stejneger's beaked whale from the row titled "Air traffic" (throughout	A1-93

A1-92 See the updates to section 4.6.3.2 of the final EIS.

A1-93 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-1017

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
these species are not found where this air traffic associated with the Project would occur (eastern Bering, Chuckhi and Beaufort seas). These species are generally found in waters beyond the continental shelf or well south or west of any identified Project aircraft traffic - other than normal high-altitude commercial air travel that might be utilized.	beaked whale, Cuvier's beaked whale, and Stejneger's beaked whale from Project air traffic associated with GTP construction and operation. The sealifts to West Dock may be supported by spotting aircraft; however, range maps (including those in the DEIS) and habitat / distribution information from NMFS indicate these species are not found where this air traffic associated with the Project would occur (eastern Bering, Chuckhi and Beaufort seas). These species are generally found in waters beyond the continental shelf or well south or west of any identified Project aircraft traffic - other than normal high-altitude commercial air travel that might be utilized.	construction) since they are not expected to be in the air traffic route area. File Name: 77_Table 4.6.3-2	A1-93
Ribbon seals are unlikely to occur near West Dock during the summer and even less likely to occur there during the winter. They are extralimital in this portion of the Beaufort Sea as evidenced by the DEIS range map (Figure 4.6.3-4) and the more detailed range map provided by USFWS at https://cdn2.webdamdb.com/1280_evvjpMZnJrWL.jpg?1509474036.	AGDC respectfully requests modification of section 4.6.3.2 to delete reference to ribbon seals, since they are extralimital in this portion of the Beaufort Sea as evidenced by the DEIS range map and the more detailed range map provided by USFWS at https://cdn2.webdamdb.com/1280_evvjpMZnJrWL.jpg?1509474036.	Review/incorporate the information noted by AGDC. In particular, consider revising section 4.6.3.2, as follows: "Airborne noise from general construction activities on land or over water would reach NMFS disturbance levels for several species, including ~~ribbon and~~ spotted seals within about 0.2 mile of West Dock Causeway; harbor seals within about 0.4 mile of the Liquefaction Facilities; and, harbor seals within about 180 feet of the Mainline Pipeline shoreline excavation in Cook Inlet (see appendix L-1)."	A1-94
Table 4.6.3-2 indicates there are potential Project effects on minke whales from Project activities associated with GTP construction at West Dock (causeway modifications, seabed preparation), Mainline construction (trenching, pipelay, Mainline MOF), and Liquefaction Facilities construction (Marine Terminal MOF, dredging, MOF removal) and operation. These work areas are outside the known range of the species are evidenced by published range maps (including those in the DEIS), and industry and agency surveys (NOAA 2019, Shelden et al. 2013). Any occurrence of minke whales at these locations would be extralimital and extraordinary. AGDC has filed a Petition for ITRs with NMFS for the work in Cook Inlet and has filed an application for an IHA with NMFS for the proposed work at West Dock. These applications have been reviewed by NMFS. In both AGDC's preparation of the applications and NMFS subsequent reviews, the potential occurrence of minke whales was determined to be extremely low and their presence was not included in the requests for takes. Shelden, K. E. W., D. J. Rugh, K. T. Goetz, C. L. Sims, L. Vate Brattström, J. A. Mocklin, B. A. Mahoney, B. K. Smith, and R. C. Hobbs. 2013. Aerial surveys of beluga whales, Delphinapterus	AGDC respectfully suggests minke whale continue to be discussed in the EIS; however, discussion of potential effects should be limited to vessel traffic and aircraft traffic outside of the work areas for West Dock modifications, Mainline pipelay across Cook Inlet, and Marine Terminal construction, and operations of GTP and the Marine Terminal. Such discussions should be limited to aircraft and vessel traffic in Lower Cook Inlet, Gulf of Alaska, and the Bering and Chukchi Seas.	Review/incorporate the information noted by AGDC. In particular, consider modifying Table 4.6.3-2 as shown in the attached redline to reflect the distribution of minke whales relative to Project activities. File Name: 77_Table 4.6.3-2	A1-95

A1-94 See the response to comment A1-79.

A1-95 See the response to comment A1-83.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
leucas, in Cook Inlet, Alaska, June 2005 to 2012. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-263, 122 p. NOAA Fisheries. 2019. Aerial Surveys of Arctic Marine Mammals at https://www.afsc.noaa.gov/nmml/cetacean/bwasp/.			
Align the EIS text with NMFS requirements for marine mammals. AGDC has had significant interaction with NMFS to meet marine mammal protection requirements and develop mitigation procedures in a Petition for ITRs in Cook Inlet and an application for an IHA at West Dock. NMFS has published a Proposed Rule for Cook Inlet that contains requirements for PSOs and PSO placement. The Proposed Rule can be seen at https://www.fisheries.noaa.gov/action/incidental-take-authorization-alaska-gasline-development-corporation-liquefied-natural-gas. In addition, NMFS is reviewing the Prudhoe Bay IHA application, including offered mitigation. NMFS does not consider the sound pressure levels generated by the dredging and screeding to rise to the level of take and has not requested exclusion or harassment zones, and therefore no PSOs are required for dredging or screeding. AGDC has volunteered to have a PSO on the screeding barge at West Dock.	AGDC respectfully requests modification of section 4.6.3.2, and Staff Recommended Mitigation 51 in 5.2, to reference and require consistency with NMFS requirements. Since the proposed ITR for Cook Inlet has been published, and the Prudhoe Bay IHA application and Marine Mammal Monitoring and Mitigation Plan has been turned in, those document can be referenced with a note that any changes to those documents that occur with the published final ITR and IHA will be incorporated into the Project.	See the attached Prudhoe Bay IHA application and the Cook Inlet proposed ITR. Also consider replacing section 4.6.3.2, and Staff Recommended Mitigation 51 in section 5.2, requirements for PSOs to be consistent with NMFS authorizations, as follows: "Requirements regarding numbers and locations of PSOs will be established by NMFS in the Final Rule for the Project ITRs in Cook Inlet and in the final IHA for the Prudhoe Bay work. After those requirements are promulgated by NMFS, and prior to construction, AGDC will file with the Secretary, for the review and written approval of the Director of the OEP, a revised PSO deployment plan with PSO numbers and locations as required and authorized by NMFS." File Names: 79a_Prudhoe Bay IHA App_Rev 2 79b_NMFS Cook Inlet ITR	A1-96
Neither the Mainline MOF nor the Mainline crossing of Cook Inlet are in the Susitna Flats SGR, and both are south of the area the cited source (Gill and Tibbitts 1999) considered to be Susitna Flats. The cited study surveyed / assessed shorebirds in Susitna Flats embayments. There are no embayments at or near these Project components.	AGDC respectfully requests modification of section 4.6.2.3 for consistency with the cited survey source and with the fact that there are no embayments at or near the Mainline MOF or the Mainline crossing of Cook Inlet.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.6.2.3 for consistency with the cited survey source, and with the fact that there are no embayments at or near the Mainline MOF or the Mainline crossing of Cook Inlet, as follows: "The Mainline MOF near Beluga Landing and the Mainline Pipeline across Cook Inlet between the area south of Shorty Creek (also referred to as Beluga Landing South Shore Approach) near Tyonek and the area near Boulder Point could affect shorebirds during energetically stressed periods. The Susitna Flats area ~~This area (which is included in the Susitna Flats)~~ is important to western sandpipers during spring migration, as well as various other shorebird species (Gill and Tibbitts, 1999). The Upper Cook Inlet region is also the primary wintering range of the rock sandpiper subspecies (*Calidris ptilocnemis ptilocnemis*)	A1-97

A1-96 See the responses to comments A1-1 and A1-85. We have determined, using the NMFS *Technical Guidance for Underwater Noise*, that dredging and screeding could affect marine mammals.

A1-97 Section 4.6.2.3 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
		(Ruthrauff et al., 2013; Gill and Tibbitts, 1999). Gill and Tibbitts (1999) determined that the Susitna Flats accounted for 82 percent of shorebird use during the winter. Cook Inlet has wetland sites important to the conservation of shorebirds. The proposed location of the Mainline MOF is south of the Susitna Flats area studied by Gill and Tibbitts (1999) and contains no embayments but may be used by shorebirds including these sandpipers. Construction of the Mainline MOF would occur in April and May, when western sandpipers would be using this area during migration. These activities could affect ~~large numbers of~~ sandpipers if concurrent with energetically demanding periods."
Gull Island is 5 miles to the north and east of West Dock, which is too far for any effects from an equipment release. Howe Island is 0.5 miles from PTTL but PTTL is on land with very limited opportunities for a release to reach a river and then Prudhoe Bay and then the island. Neither of these locations are along identified vessel transit routes.	AGDC respectfully suggests modification of 4.6.2.3 to add distance considerations.	Review/incorporate the information noted by AGDC. In particular, consider modifying 4.6.2.3 to add distance considerations, since Gull Island is 5 miles to the north and east of West Dock, which is too far for any effects from an equipment release. Howe Island is 0.5 miles from PTTL but PTTL is on land with very limited opportunities for a release to reach a river and then Prudhoe Bay and then the island. Neither of these locations are along identified vessel transit routes. "Threats to avian species increase when spills occur near or within areas of high bird concentration such as large nesting colonies, winter foraging areas, and migratory stopovers (NOAA, 2018d). Examples of these locations include waterfowl nesting/brood rearing concentrations overlapping portions of the Gas Treatment Facilities, Mainline Facilities, and Liquefaction Facilities (ADF&G, 2001a; NOAA, 2018a). Snow geese nesting concentrations on Howe Island near the Sagavanirktok River delta are about 0.5 mile north of the PTTL (Johnson, 1998; Stickney et al., 2011; Sullender, 2017), and seabird colonies numbering up to 10,000 birds on Gull Island in Prudhoe Bay; however these locations are removed sufficiently from Project work areas and vessel routes to minimize potential for effects from a release [ADF&G, 2001a]. ~~Additionally, snow geese nesting concentrations on Howe Island near the Sagavanirktok River delta are about 0.5 mile north of the PTTL (Johnson, 1998; Stickney et~~

A1-97

A1-98

A1-98 Section 4.6.2.3 of the final EIS has been updated to address this comment.

CC-1020

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		~~al., 2011; Sullender, 2017), and seabird colonies numbering up to 10,000 birds on Gull Island in Prudhoe Bay overlap marine vessel transportation routes (ADF&G, 2001a).~~"	A1-98
This conclusion that the area would become uninhabitable is not supported by the cited reference. Habib et al (2007) reported a significant decrease in pairing success of one bird species - not areal abandonment. Modeling indicates that sound levels expected offsite at Project compressor stations would not exceed the threshold sound levels reported in that study. See data request response RFI-528-FWS-049 (Accession No. 20180427-5256(32852177)).	AGDC respectfully suggests modification of 4.6.2.3 to better reflect expectations for potential sound impacts. In particular, there is potential for less productivity rather than abandonment of areas, as noted in technical references.	Review/incorporate the information noted by AGDC. In particular, consider modifying 4.6.2.3 to reflect modeling of expected compressor station noise as discussed in response RFI-528-FWS-049 (Accession No. 20180427-5256(32852177)), as follows: "Given that communication is through singing, continuous noise could make finding mates more difficult. Due to the additional continuous operational noise, habitat surrounding aboveground facilities could less productive, as reproductive success could be reduced (Habib et al., 2007; Ortega, 2012). Modeling indicates, however, that sound levels likely to have such effects would not extend off the compressor station sites become uninhabitable by birds, as they would avoid these areas (Habib et al., 2007; Ortega, 2012)."	A1-99
There are very few migratory birds on the North Slope during winter when darkness is close to 24 hours/day and FERC indicates that lighting would have the greatest effect.	AGDC respectfully suggests modification of DEIS text to note that there are very few migratory birds on the North Slope during winter when darkness is close to 24 hours/day.	Review/incorporate the information noted by AGDC. In particular, consider modifying text to indicate: "Birds could be particularly susceptible to impacts from lighting during months when little to no daylight is present within the North Slope and on overcast days (e.g., fog and inclement weather); however relatively few birds remain on the North Slope during winter.. Conversely, lighting during summer months when birds are more abundant could be less of an issue for birds since day length is greater than 20 hours along portions of the Project."	A1-100
According to RFI-561-FERC-083 Attachment 1, Accession No. 20181126-5017(33254024), there are only 6 (not 24) waterbodies with known fish presence (6 are AWC, not 17), that would be used as water sources for PTTL construction. Waterbodies contain 9 (not 12) different species and only two of the five (not all 5) Pacific salmon species that would be used for construction water withdrawals for the PTTL.	AGDC respectfully suggests modification of section 4.7.1.6, pg 4-408, as noted in the attached redline as well as updated text as noted.	Review/incorporate the information noted by AGDC. In particular, consider modifying the text as indicated below and in the attached redline table. "~~Twenty four~~Six waterbodies with known fish populations (~~17~~ six of which are listed as AWC) would be used as water sources for PTTL construction. Waterbodies containing ~~12~~ nine different species (which includes two of the five Pacific salmon species) would be used for construction water withdrawals for the PTTL."	A1-101

A1-99 Comment noted.

A1-100 Some species of migratory birds, such as ravens, gyrfalcons, and snowy owls, may be present on the North Slope year-round, depending on the abundance of prey.

A1-101 Section 4.7.1.6 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	
		See attachment table for "Potential Freshwater Sources for PTTL Construction" with corresponding fish presence. File Name: 100_AWC Water Withdrawal Sites PTTL	A1-101
According to the numbers provided to FERC in RFI-467-RR03-036 (Accession No. 20171201-5235(32556737) the total discharges for hydrostatic testing would be 0.00002 percent of the volume of Cook Inlet, not 0.02 percent (52 million gallons represents 0.00002% of the Cook Inlet volume which is 270,544,000,000,000 gallons).	AGDC respectfully suggests modification of section 4.7.1.6, pg 4-408 to correct discharge percentages as described in in RFI-467-RR03-036 (Accession No. 20171201-5235(32556737).	Review/incorporate the information noted by AGDC. In particular, consider correcting discharge percentages, as follows: "Project-wide hydrostatic test water withdrawn from surface freshwater sources and Cook Inlet would be discharged either back to the source or to an upland or wetland location according to federal and state permit requirements. Discharges to Cook Inlet would be insignificant due to the large water volume in the inlet; discharges would be about 0.00002 ~~0.02~~ percent of the volume of Cook Inlet."	A1-102
The DEIS discusses the results of the 2015 Project benthic survey. An additional survey was performed and samples were collected in 2016, and that information can be added to the DEIS. The sampling program was conducted at the Marine Terminal site for the Project in 2016, and included collection and analysis of ten samples for each proposed dredge disposal site and five samples from the Marine Terminal MOF site. The report from the additional survey is attached, as are suggested edits to section 4.7.2.2, Pg. 4-438 on the abundance and diversity of the benthic community reflecting sample results.	AGDC respectfully requests updating of section 4.7.2.2, Pg. 4-438, to include 2016 benthic survey information, attached.	Review/incorporate the information noted by AGDC. In particular, consider updating section 4.7.2.2, Pg. 4-438, to include the additional Project benthic survey information as shown below (see attached report: "AGDC conducted benthic surveys and a macroinvertebrate species bioassessment as part of dredging studies at the Marine Terminal MOF on the eastern shore of Cook Inlet in September 2015. The sampling effort of five grab samples from two test pit sites identified 186 individuals of 37 taxa, primarily of Annelida (54 percent of individual abundance) and Crustacea (25 percent of individual abundance) (see table 4.7.2-1). The benthic infauna sampled near the Marine Terminal MOF was low in species abundance and diversity, which is not uncommon in Arctic environments. Strong tidal currents, low salinity, and high turbidity result in a local environment with low total organic carbon and a high proportion of fine sediment, placing a high level of stress on the infauna communities, presumably limiting abundance and diversity (CH2M Hill, 2016a). In addition, 15 species were found outside their typical range and 17 potentially undescribed species were documented, despite the low sample size collected for the Project. In addition, a second benthic infauna sampling program was conducted in the Marine Terminal	A1-103

A1-102 Section 4.7.1.6 of the final EIS has been updated to address this comment.

A1-103 Section 4.7.2.2 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	
		area (MOF dredge area) for the Project in 2016. Results were similar to those reported from the 2015 study, with relatively low abundance (mean of 22 organisms / 0.1 m2) and species richness (19 taxa), with annelids and crustaceans providing most of the abundance in the samples." File Name: 102_Benthic Survey 2016	A1-103
Installation of the pipeline across the Cook Inlet would only result in approximately 11 acres of permanent impact where the unburied portion of the pipe lays on the seafloor. The proposed site for the Mainline MOF is not in the Susitna Flats SGR, or the area cited (Gill and Tibbitts 1999) in 4.6.3 that is considered to be Susitna Flats. The cited study surveyed / assessed shorebirds in Susitna Flats embayments north of the Mainline MOF site. The other cited study for Baltic clams (Ruthrauff et al 2013) was also conducted in protected embayments 7 miles to the north of the Project. There are no embayments at or near these Project components. The site is not in an area known for high densities of Baltic clams. See suggested edits in the attached document.	AGDC respectfully suggests modification of the benthic habitat descriptions in 4.7.2.3, Pg. 4-446 to focus on the project area for the Cook Inlet shore crossing.	Review/incorporate the information noted by AGDC. In particular, consider correcting the characterization of impacts to the benthic habitat at the Cook Inlet shore crossing. File Name: 84_Comment Redline	A1-104

A1-104 Sections 4.6.2.3 and 4.7.2.4 of the final EIS have been updated to address this comment. With regard to the updates in section 4.6.3.2, studies such as Gill and Tibbitts (1999) and Ruthrauff et al. (2013) indicate that the area of the Mainline MOF in Cook Inlet has an abundance of shorebirds, particularly rock sandpipers. Figure 1 of the Ruthrauff et al. (2013) study depicts primary survey sites of Cook Inlet, which includes areas where benthic sampling was conducted. One area for sampling was near the Beluga River. Each of the benthic sampling locations documented high *Macom* densities, which is the primary diet of rock sandpipers in this area during the winter.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
			A1-104
The numbers of piles do not match the NMFS Proposed Rule. This would affect the impact area calculations. See suggested edits to this table (attached) Table L-1.1-6 (attached) Appendix L.	AGDC respectfully suggests modification of Section 4.7.2.3, Pg. 4-444 Table 4.7.2-2 and Table L-1.1-6 of Appendix L to align the impacts with the recently published proposed ITR rule from NMFS.	Review/incorporate the information noted by AGDC. In particular, consider modifying Table 4.7.2-2 and Table L-1.1-6 of Appendix L to align the impacts with the recently published proposed ITR rule from NMFS. File Name: 104_Table 4.7.2-2 and Table L-1.1-6	A1-105
There are no boulder patches near the West Dock improvements and there are no footprint or impacts outside of West Dock that will occur as a result of this Project. Surveys in the area of West Dock construction indicate no hard bottom is present. Boulder patches are much farther offshore and not in the Project area.	AGDC respectfully requests deletion of references to boulder patches near the West Dock improvements because boulder patches are much farther offshore and not in the Project area.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.7.2.3, Page 4-443 to delete this sentence regarding boulder patches: "~~In Prudhoe Bay, there could be small boulder patches near construction areas, which would likely be disturbed or destroyed during construction and would constitute a greater Project impact.~~"	A1-106
Project wetland impact data indicate that a total of less than 67 acres of marine / estuarine habitat would be lost due to causeway modifications (widening) and DH4 construction, not 152 as reported (see RFI-467_RR03-089 (Accession No. 20171201-5235(32556760)) filed 12/1/2017). Additionally the statement that dredging and screeding have been conducted routinely at West Dock should be considered along with the annual ice gouging when assessing Project impacts on infauna / epifauna.	AGDC respectfully suggests modification of Section 4.7.2.3, Pg. 4-440 to fix the acreage number and recognize maintenance dredging and screeding in the area have occurred periodically.	Review/incorporate the information noted by AGDC. In particular, consider modifying Section 4.7.2.3, Pg. 4-440, as follows: "Maintenance dredging and screeding has occurred periodically since the 1990s along the West Dock approach channel, at Dock Heads 2 and 3, and at the Prudhoe Saltwater Treatment Plant intake. Additional Project activities would affect about ~~152~~ 67 acres of marine benthic habitat in Prudhoe Bay for Dock Head 4 and the West Dock Causeway expansion."	A1-107
Much study and work has been done in the West Dock area and no hard bottoms have been discovered. See Appendices R2, R3, R4, and R5 in Resource Report No 2. Additionally, the West Dock area is subject to maintenance dredging and annual ice gouging with benthic communities consisting of organisms that can quickly recolonize.	AGDC respectfully suggests modification of section 4.7.2.3, Pg. 441, to incorporate study work done in the West Dock area and the fact that the area is subject to maintenance dredging and annual ice gouging.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.7.2.3, p 4-441 to address lack of hard bottoms near West Dock: "Nearshore benthic communities associated with soft sediments, as described in section 4.7.2.1, would be directly affected by construction and operation of the West Dock Causeway, including the temporary barge	A1-108

A1-105 Section 4.7.2.3 and table 4.7.2-2 of the final EIS have been updated to address this comment.

A1-106 Recent studies have documented boulder habitat in Prudhoe Bay as discussed in section 4.7.2.3 of the final EIS.

A1-107 Section 4.7.2.3 of the final EIS has been updated to address this comment. Additional discussion of ice gouging is provided in section 4.7.2.1 of the final EIS.

A1-108 Recent studies have documented hard bottom habitat in Prudhoe Bay as discussed in section 4.7.2.3 of the final EIS.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		bridge and Dock Head 4 in Prudhoe Bay, and by Marine Terminal MOF construction and maintenance in Cook Inlet. Due to slow community recovery, these impacts would be long term but temporary as organisms would recolonize the disturbed habitats as they do after each ice gouging event. Hard-bottom habitat is not expected to occur in Cook Inlet nor near West Dock in Prudhoe Bay. ~~If hard-bottom habitat is affected, the impact could be a permanent alteration from hard bottom to soft bottom habitat. Hard-bottom habitat is not expected to occur in Cook Inlet, but this unique habitat has been found scattered in Prudhoe Bay, and the community it supports is more diverse than the ubiquitous soft-bottom habitat.~~"	A1-108
The predicted maximum and cumulative thicknesses of sedimentation provided here (17.6 and 7.4 inches) were revised based on a revised modeling report submitted to FERC with data request response RFI-561_FERC-089 (Accession No. 20181022-5218(33207146) filed October 22, 2018). In the revised report, predicted cumulative thicknesses were 9.52 cm and 4.03 cm.	AGDC respectfully suggests modification of 4.7.2.4, Pg. 4-336, to be consistent with the updated sediment transport modeling reports submitted to FERC.	Review/incorporate the information noted by AGDC. In particular, consider revising section 4.7.2.4, Pg. 4-336, to be consistent with the updated modeling reports, as follows: "Sediment transport modeling conducted for the Project predicted sedimentation thicknesses of about 1.1 inches in the Marine Terminal MOF area with disposal at either of the options (DP1 or DP2) for a disposal site. Sedimentation thicknesses were predicted to be ~~17.6~~ 3.7 inches in the DP1 disposal site and ~~7.4~~ 1.6 inches in the DP2 disposal site."	A1-109
AGDC has also filed an application for an IHA for NMFS species in Prudhoe Bay for work associated with West Dock.	AGDC respectfully requests modification of section 4.8.1 to include the fact that AGDC has also applied for Incidental Take Authorizations for construction activities in Prudhoe Bay for NMFS species.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.8.1, as follows: "AGDC has applied for Incidental Take Authorizations for construction activities in Cook Inlet for takes of marine mammals and Prudhoe Bay for NMFS species. As discussed in section 4.6.3, the Project would be covered under the USFWS 2016-2021 Programmatic Beaufort Sea ITR for construction activities in Prudhoe Bay that may affect Pacific walrus and polar bears."	A1-110

A1-109 Section 4.7.2.4 of the final EIS has been updated to address this comment.

A1-110 Section 4.8.1 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	
It is worth noting that sea otters on the east side of the Cook Inlet are considered to be the non-listed South Central DPS. The stock delineations were based on phylogenetic and genotypic evidence, and this evidence along with the movement patterns (restrictions) of individual otters indicates that any mixing of these two stocks are and were historically rare (Gorbics and Bodkin 2001). This fact should be considered in subsequent impact assessments made in the DEIS and BA.	AGDC respectfully suggests modifying section 4.8.1 to indicate that sea otters on the east side of the Cook Inlet are considered to be the non-listed South Central DPS. The stock delineations were based on phylogenetic and genotypic evidence, and this evidence along with the movement patterns (restrictions) of individual otters indicates that any mixing of these two stocks are and were historically rare (Gorbics and Bodkin 2001). Please consider this fact in subsequent impact assessments made in the DEIS and BA.	Review/incorporate the information noted by AGDC. In particular, consider revising section 4.8.1, Pg. 4-471, to clarify that sea otters on the east side of Cook Inlet are the non-listed South Central DPS. "Northern sea otters from either the Southwest Alaska DPS or the non-listed South-Central Alaska DPS may occur in the action area; these populations may both occur in Lower Cook Inlet (USFWS, 2012d). Sea otters on the east side of Cook Inlet are considered to belong to the non-listed South-Central Alaska DPS."	A1-111
Potential impacts to polar bear habitat were analyzed in response to Recommendation 59. The results indicate the impact estimates in Section 4.8.1.1 are incorrect and the impact estimates associated with operations in particular are too high. See attachment for suggested edits to the DEIS text and supporting impact table.	AGDC respectfully suggests modification of 4.8.1.1, Pg. 4-473 as noted in the attached comments and supporting table of impacts, to describe impacts to critical polar bear habitat.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.8.1.1, Pg. 4-473, and the supporting table of impact acreages. File Name: 111_Table 2 - Polar Bear	A1-112
Table 4.8.1-2 indicates that construction or operation of PBTL and PTTL would result in habitat loss for bearded and ringed seals but these are terrestrial pipelines so no such impacts would occur. The pipelines would be constructed in winter when eiders are not there or nesting, so nests could not be destroyed. See suggested edits in attached document.	AGDC respectfully requests modification of Table 4.8.1-2 indications that construction or operation of PBTL and PTTL would result in habitat loss for bearded and ringed seals because these are terrestrial pipelines so no such impacts would occur.	Review/incorporate the information noted by AGDC. In particular, consider the attached modifications to Table 4.8.1-2. File Name: 112_Table 4.8.1-2	A1-113
The calculation of humpback whale strikes is over estimated by inclusion of historical strike information that is outside the Project area. Also see related comments and additional detail on historic vs. current strike data in AGDC comments regarding Appendix O (Biological Assessment) 7.7.2.2, Pg. 0-119. AGDC analysis using historical information within the Project area shows the risk it is not high.	AGDC respectfully requests modification of Table 4.8.1-5 to remove the word 'high', since the current calculation of humpback whale strikes is over estimated by inclusion of historical strike information that is outside the Project area.	Review/incorporate the information noted by AGDC. In particular, consider modifying Table 4.8.1-5, Justifications for Likely to Adversely Affect Determinations Humpback whale, to more accurately reflect historical vessel strike information in the Project area, as follows:	A1-114

A1-111 Comment noted.

A1-112 Section 4.8.1.1 of the final EIS has been updated to address this comment.

A1-113 Table 4.8.1-3 of the final EIS (formerly table 4.8.1-2 of the draft EIS) has been updated to address this comment.

A1-114 Historical strike data outside of the Project area was not included in the vessel strike calculations for humpback whales. See section 7.7.2.2 of the Biological Assessment, which is provided as appendix O of the final EIS.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		"There is a ~~high~~ risk of vessel strikes on humpback whales from Project vessel traffic."	
Prudhoe Bay is outside the range of the right whale - no impacts to this species from work at West Dock are expected.	AGDC respectfully requests removal of North Pacific right whales from the Table 4.8.1-2, since Prudhoe Bay is outside the range of the right whale and no impacts to this species from work at West Dock are expected.	Review/incorporate the information noted by AGDC. In particular, consider the attached modifications to Table 4.8.1-2. File Name: 112_Table 4.8.1-2	A1-115
Pipeline construction from MP 0 to MP 56 would be conducted in winter so eider nests would not exist nor could be destroyed.	AGDC respectfully suggests modification of Table 4.8.1-2 as noted to remove potential eider nest destruction, since pipeline construction from MP 0 to MP 56 would be conducted in winter and no eider nests are present at that time.	Review/incorporate the information noted by AGDC. In particular, consider modifying Table 4.8.1-2 to remove eider nest destruction during winter construction. See attached suggested redline of Table 4.8.1-2. File Name: 112_Table 4.8.1-2	A1-116
There are no eiders and no eider nests on the North Slope during the time frame that ice roads would be constructed or used. There could therefore be no nest destruction or human disturbance of eiders during ice road construction. North Pacific right whales are not found in the Beaufort Sea and therefore potential noise impacts associated with the proposed West Dock modifications should not be attributed to this species (sealift vessel noise is addressed elsewhere in the table). PBTL and PTTL would be constructed on land in the winter and would therefore not result in habitat loss for ringed or bearded seals (marine mammals) or destruction of spectacled eider nests (absent in winter). Pipeline construction from MP 0 to MP 56 would be conducted in winter so eider nests would not exist nor could be destroyed. Regarding facilities - gravel pads will be constructed before the nesting season.	AGDC respectfully suggests modification of Table 4.8.1-2 to recognize lack of nests and certain bird species during winter construction and correct whale distributions relative to West Dock construction.	Review/incorporate the information noted by AGDC. In particular, consider modifying Table 4.8.1-2, as attached. File Name: 112_Table 4.8.1-2	A1-117

A1-115 Table 4.8.1-3 of the final EIS (formerly table 4.8.1-2 of the draft EIS) has been updated to address this comment.

A1-116 AGDC's response to question 5 of our EIR dated November 6, 2018 indicates that site preparation activities (e.g., right-of-way construction) of the Mainline Pipeline for Spread 1 would begin in the second quarter of 2021, which would coincide with the nesting period for spectacled eider (Accession No. 20181107-5072).

A1-117 See the responses to comments A1-113, A1-115, and A1-116.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
As indicated in two data request responses (RFI-528-FERC-171 (Accession No. 20180330-5172(32778836) filed March 20, 2018) and RFI-561_-FERC-125 (Accession No. 20181022-5218(33207182) file October 22, 2018)) the removal of the temporary MOF is outside the 5yr period of current ITRs. MOF removal will require a future incidental take authorization and mitigation will be addressed during that application process.	AGDC respectfully suggests modifying section 4.8.1.3, Pg. 4-488, to note that the ITR application for removal of the Marine Terminal MOF will be requested from NMFS when removal is within the 5-year time limit of the ITR authorizations.	Review/incorporate the information noted by AGDC. In particular, consider revising section 4.8.1.3, Pg. 4-488 as follows: "AGDC will be required, and has committed, to ~~providing a mitigation plan for impacts on marine mammals from removal of the Marine Terminal MOF during the ITR rule-making process with NMFS and USFWS,~~ obtaining incidental take authorizations for activities associated with the Marine Terminal MOF removal when that work is within the 5-year period for an ITR. The ITR will include requirements for mitigation for impacts on marine mammals from removal of the MOF as established in coordination with NMFS at that time."	A1-118
Section 4.6.3 states that AGDC has not proposed PSOs during screeding, but AGDC does commit to PSOs during screeding in the Project IHA application for West Dock. In Cook Inlet, the proposed rule from NMFS finds that due to the low activity level and source levels from dredging, they do not consider there would be take of marine mammals. Therefore, dredging was not further analyzed in the ITR and PSOs would not be appropriate. USACE maintenance dredging for the Port of Anchorage also has not been required to utilize PSOs to monitor dredging.	AGDC respectfully requests modification of the recommendation in section 4.8.1.3 to make PSO requirements consistent with NMFS requirements.	Review/incorporate the information noted by AGDC. In particular, consider modifying the recommendation in section 4.8.1.3 to make PSO requirements consistent with NMFS requirements attached, as follows: "As described in section 4.6.3, in Cook Inlet, PSOs would be employed during anchor handling operations and pile driving. In Prudhoe Bay, PSOs would be employed during pile driving and screeding at West Dock. AGDC has not proposed using PSOs during dredging, or dredged material disposal~~, or screeding~~ activities in either Cook Inlet or Prudhoe Bay, which is consistent with NMFS findings of low activity and low source levels for dredging.; ~~however, based on the potential for Level B takes, we have recommended PSOs be employed for dredging and screeding activities and Mainline Pipeline shoreline installation~~" File Name: 79b_NMFS Cook Inlet ITR	A1-119
Duration is only one factor in measuring impact. Extent and magnitude should be included in the conclusion, i.e. 8,546 acres of forested land would be permanently affected; however, this accounts for only 0.01 percent of the more than 85 million acres of forested land in Alaska.	AGDC respectfully suggests modification of 4.9.1.2 to add context to the evaluation of significance of impacts to forested land.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.9.1.2 to add context as follows: "Based on the Project's nominal 30-year design life (see section 2.1), and the quantity of forest vegetation cleared, Mainline Facilities construction would have significant permanent impacts on forests. Approximately 8,546 acres of forested land would be permanently affected, however this accounts for only 0.01	A1-120

A1-118 Section 4.8.1.3 of the final EIS has been updated to address this comment.

A1-119 See the responses to comments A1-1 and A1-96.

A1-120 See the response to comment A1-1. While the amount of forest affected is small compared to available resources in Alaska, 8,500 acres affected by construction is a substantial amount, especially given the long regrowth times in much of Alaska.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		percent of the more than 85 million acres of forested land in Alaska."	
Section 4.13.1.2 text and associated Table 4.13.1-1 do not reflect the current eligibility status per SHPO May 16, 2019 comments and AGDC Section 106 submittal to FERC (April 19, 2019 (Accession 20190419-5170).	AGDC respectfully suggests modifying section 4.13.1.2 and Table 4.13.1-1 to align with current eligibility determinations from SHPO.	Review/incorporate the information noted by AGDC. In particular, consider revising Page 4-868 and Table 4.13.1-1 to align with current SHPO feedback on recommendations of eligibility, as follows: Archaeological surveys resulted in the identification of ~~117~~ 115 archaeological resources and other sites, including segments of historic highways and trails, in the survey corridor for the Mainline Pipeline and access roads and within the footprint of material sites, camps, and a helipad. Information on these resources, including site number, description, NRHP eligibility, and status of Alaska SHPO comments is provided in table 4.13.1-1. We concur with the findings of the Alaska SHPO as summarized in this table. The NRHP eligibility of ~~7~~ two sites ~~are is~~ pending and ~~14~~ 12 sites require additional documentation or clarification or have not been evaluated, including one segment each of the historic Elliot and Denali Highways, and a historic burial site.[102] Two sites were found to be outside of the project footprint. Of the ~~seven~~ two sites that are pending SHPO comment, AGDC recommends that the two sites are NRHP-eligible ~~, one is not NRHP-eligible, and four~~ and one of the eligible sites warrants a Phase II evaluation.	A1-121
This, and similar language, is found throughout 4.14.3.1. Using the methodology identified in Section 6.1.5 of Appendix D of Resource Report No. 5, which considers magnitude, duration, geographic extent, and resource importance, AGDC identified that overall impacts to the community's subsistence uses would be moderate because potential impacts to Wiseman subsistence uses are major in magnitude, of extensive geographic extent, but medium-term in duration (see RFI-466-RR05-034, Accession Nos. 20171201-5211(32556533) part 1, 20171201-5211(32556534) part 2)). Temporary impacts to access and availability would be reduced (from moderate to minor) by applying the mitigation measures in Section 4.14.2.6 of the DEIS. Access to and availability of resources would likely NOT continue into Project operation because many of these communities are in or adjacent to already developed areas, including the Dalton	AGDC respectfully requests modification of subsections of 4.14.3.1 to be consistent with the conclusion in 4.14.4. Competition for subsistence resources and impacts to the availability and abundance of resources could occur primarily in Minto, Nenana, Four Mile Road, Alexander Creek/Susitna, and Beluga where access roads would be constructed in undeveloped areas. Competition in areas already accessible would not increase as a result of the Alaska LNG project.	Review/incorporate the information noted by AGDC. In particular, consider revising subsections of 4.14.3.1, as follows: Wiseman: Construction would temporarily affect access to resources and availability of these resources as a result of habitat loss, increased traffic, increased competition along the easily accessible Dalton Highway, and additional cost and effort to harvest resources. Impacts would likely not continue into Project operation because in this area is already developed along the Dalton Highway and TAPS. Coldfoot: Impacts would likely continue but are not likely to increase during Project operation	A1-122

A1-121 Table 4.13.1-1 and section 4.13.1.1 of the final EIS have been updated based on comments from the Alaska SHPO provided in letters dated May 16, 2019 and October 4, 2019.

A1-122 Section 4.14.3.2 of the final EIS has been updated to address this comment.

CC-1029

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
Highway and TAPs. Increased access and competition may result but would be reduced through mitigation. Many of these communities are not called out in Section 4.14.4 of the DEIS as experiencing increased competition from non-local hunters.		because in this area is already developed along the Dalton Highway and TAPS. Denali Park CDP: Competition for resources would likely continue but would not be likely to increase during Project operation because this area is already developed along the Parks Highway. Cantwell: Competition for resources would likely continue but would not likely increase during Project operation because this area is already developed along the Parks Highway.	A1-122
AGDC requests that FERC include, in the appropriate DEIS section, line-of-site to the statutory basis and regulatory requirements, including evaluation criteria, for assessing impacts on Air Quality Related Values (AQRVs) at Class I, Sensitive Class II, and/or Class II nationally designated protected areas. AGDC also requests that FERC explain how analysis of AQRVs in the DEIS avoids duplication, and potentially inconsistent decisions, with respect to the ADEC air permitting process. Our rationale for this request is explained below. In this DEIS, FERC and the cooperating agencies introduce the term "nationally designated protected areas" on p. 4-877, the first page of section 4.15 pertaining to air quality. According to the DEIS, these areas may be units of the National Park System, National Wilderness Areas, and National Wildlife Refuges. The second paragraph on p. 4-888 explains that these areas are designated for special purposes through various organic acts. In the first paragraph of p. 4-888, the DEIS points out that, if a nationally designated protected area has not been classified following proper CAA procedures as a Class I area, then the CAA automatically classifies such areas as Class II areas. AGDC agrees with this statement. However, new undefined terms appear frequently in section 4.15, including "protected Class II areas" and "Class II nationally designated protected areas" that have no clear statutory definition or basis in either the CAA or the various organic acts. As used, these terms appear to be equivalent to another term that has no statutory basis: 'Sensitive Class II' areas. During the Alaska LNG NEPA process, the U.S. Department of the Interior (DOI) recognized that "Sensitive Class II area" is an inappropriate, ambiguous, and conflicted term and requested that FERC withdraw the NEPA inquiries addressing that topic due to: • Encroachment on the exclusive authority of the Alaska Department of Environmental Conservation (ADEC) to review specific CAA requirements;	AGDC respectfully suggests revision of section 4.15 to better address and clarify undefined terms and the statutory basis of the assessment.	AGDC requests that FERC include, in the appropriate DEIS section, line-of-site to the statutory basis and regulatory requirements, including evaluation criteria, for assessing impacts on Air Quality Related Values (AQRVs) at Class I, Sensitive Class II, and/or Class II nationally designated protected areas. AGDC also requests that FERC explain how analysis of AQRVs in the DEIS avoids duplication and potentially inconsistent decisions with the ADEC air permitting process. Also, please see attached letter from DOI regarding this issue. File Name: 5_Ltr from DOI to FERC - 7-17-18	A1-123

A1-123 See the response to comment SA2-7.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC
• Duplication of the air permitting process within NEPA that could lead to different conclusions and potentially inconsistent decisions; and • FLM interpretations of CAA requirements that are inappropriate and infringe upon the State's permitting role. See attached DOI letter dated July 17, 2018. Of particular concern with Class II nationally designated protected areas is that the DEIS is extending Class I protections to Class II areas without undertaking the proper regulatory and rulemaking processes. The CAA section 164 specifically states that only States or Indian Governing Bodies may propose re-designation of a Class II area to be Class I. No regulatory process has been properly executed under the Administrative Procedures Act (APA) to marry "Class II" with "nationally designated protected area" and impose Class I protections on such areas. Therefore, the DEIS proposes an improper action by using Class I criteria to evaluate AQRV impacts at Class II nationally designated protected areas. Furthermore, the DEIS would impose a requirement for emissions from Project facilities "to ensure that the predicted visibility and deposition impacts are below the associated NPS thresholds" at Class I and Sensitive Class II areas. (DEIS, p. 4-937 and Mitigation 72, p. 5-59). Presumably, "NPS thresholds" refers to the PSD Class I screening criteria set forth in the FLM guidance document FLAG 2010, which has not been through an APA-compliant regulatory process and therefore remains non-binding guidance. **This guidance document even states that the deposition analysis threshold is "not necessarily an adverse impact threshold."** As the DOI letter acknowledges, evaluation of AQRV impacts against Class I criteria is a function of the PSD air permitting process, not the NEPA process. Whether addressing a Class I or Class II nationally designated protected area, duplicative regulatory processes through the CAA and NEPA risk different conclusions and inconsistent decisions. AGDC provided in Resource Report 9 (RR9), extensive AQRV impact analyses at Class I and Class II nationally designated protected areas. Prior to filing, we participated in a long consultation process with FERC, the FLMs, EPA, and ADEC. See, e.g., RFI-466-RR09-001 and RFI-466-RR09-022. Subsequent to the RR9 filing, AGDC responded to many requests for information seeking adjustments to, or clarifications on, the analyses. See, e.g., RFI-528-FERC-278, RFI-528-FERC-279, and RFI-528-NPS-001 to RFI-528-NPS-005 (32 separate RFI responses). As discussed in AGDC's comments on AQRV, all impacts are well within the range of acceptability using the FLM's latest research and FLAG process		

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
demonstrating that the resources are in good condition. Also, please see our additional DEIS section 4.15 comment on AQRVs.			
Statement on average monthly precipitation peaks on the slope is incorrect and does not reflect the baseline precipitation data in the record.	AGDC respectfully suggests modification of last sentence of section 4.15.1.1 to correct precipitation patterns consistent with the data submitted in Resource Report 9, Appendix A - Regional Climate Summaries for Meteorological Stations within the Project Vicinity (see attached highlighted pages).	Review/incorporate the information noted by AGDC. In particular, consider modifying text in 4.15.1.1, as follows: "Average monthly precipitation peaks in the ~~fall and early winter~~summer, with maximum average monthly precipitation of about ~~3~~ 1 inches in ~~October~~August."	A1-124
This subsection of the DEIS is titled "Prevention of Significant Deterioration Requirements" and provides a summary of PSD requirements under the authority of the CAA. (On p. 4-885, the DEIS correctly points out that the Project is not located in any nonattainment areas, and therefore only PSD requirements apply.) In the first paragraph, there are distinctions between what is required as a "protected Class II area" versus what is required at all Class II areas. However, there is no difference in PSD requirements at all Class II attainment areas. The suggested wording change in the first paragraph clarifies this point - PSD requirements apply equally at all Class II attainment areas.	AGDC respectfully suggests deletion of reference to 'protected' Class II areas in 4.15.3.1 (PSD Requirements) and reference to 'additional impacts analysis' because Class II areas overall (not just 'protected') are considered under the provisions of the PSD regulations.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.15.3.1, as follows: "Under the CAA, federal Class I areas are areas in existence as of August 7, 1977 that meet one of the following criteria: 1) national wilderness areas or national memorial parks that exceed 5,000 acres in size, 2) national parks that exceed 6,000 acres in size, or 3) international parks. Such areas fall under the provisions of the PSD regulations. The United States has 158 mandatory Class I areas. If a new source or major modification of an existing source is subject to the PSD program requirements, the facility is required to notify the appropriate federal officials whose areas could be affected and, if applicable, assess the impacts of the proposed project on the Class I area. Under the CAA, if a nationally designated protected area, like a unit of the National Park System, does not meet the criteria to be a Class I area, it is automatically a Class II area. Impacts on ~~protected~~ Class II areas should be considered under the ~~"additional impacts analysis"~~ provisions of the PSD regulations."	A1-125

A1-124 Section 4.15.1.1 of the final EIS has been updated to address this comment.

A1-125 See the response to comment SA2-7.

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
			A1-125
There is insufficient information available at this time to determine whether the gas or liquid would have at least 5% total organic HAPs on an annual basis. It is not possible at present to make an affirmative determination that Subpart H applies to the compressors, heater stations, or the LNG plant.	AGDC respectfully suggests modification of section 4.15.3.1, p. 4-892, to delete reference to applicability of the Subpart H NESHAP given there is not information at this time to indicate it is applicable.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.15.3.1, p. 4-892, to delete reference to applicability of the Subpart H NESHAP.	A1-126
Incinerators at compressor and heater stations will not be used to dispose of hazardous waste. Therefore, it is not appropriate to indicate Subpart EEE applies to the compressor or heater stations.	AGDC respectfully suggests modification of section 4.15.3.1, p. 4-893 to delete reference to Subpart EEE paragraph from the NESHAPs section, since no hazardous waste will be incinerated at the compressor or heater stations.	Review/incorporate the information noted by AGDC. In particular, consider modifying 4.15.3.1, p. 4-893 to delete reference to Subpart EEE paragraph from the NESHAPs section, since it is not applicable.	A1-127
Subpart EEEE does not apply to the GTP. Facilities that are subject to NESHAP Subpart HH are exempted from Subpart EEEE as per 40 CFR 63.2334(c)(1). Since the GTP is subject to Subpart HH, Subpart EEEE does not apply.	AGDC respectfully suggests deletion of the last portion of 4.15.3.1, p. 4-893 that references applicability of the NESHAP subpart EEEE requirements to the GTP in the last sentence of the paragraph on Subpart EEEE since it is not applicable.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.15.3.1, as follows: "Subpart EEEE would apply to operations at the ~~GTP and~~ Liquefaction ~~Facilities~~Facility…"	A1-128
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 evaluation of AQRV impacts consistent with the accepted process established by FLMs in the FLAG 2010 guidance.	Review/incorporate the information noted by AGDC. In particular, consider modifying applicable DEIS sections cited in this comment based on the accepted process established by FLMs in the FLAG 2010 guidance. Further, consider providing a clear explanation in the FEIS on why case-by-case authority should be exercised on the Alaska LNG project for deviating from FLAG screening procedures. See detailed comments and additional supporting information attached. Files Names: 128a_Comment Redline 128b_RFI-466_RR09-007_Public 128c_RFI-466_RR09-008_Public	A1-129
Wet dust suppression controls are only operational above freezing temperatures. This point should be addressed in the Fugitive Dust Control Plan as construction contractor selection progresses.	AGDC respectfully suggests modification of DEIS text related to wet controls on rock washers (Section 4.15.4.1, p. 4-897; 4.15.4.2, p. 4-899; 4.15.4.3, p. 4-901) to reflect fact that wet dust	Review/incorporate the information noted by AGDC. In particular, consider modifying text as shown on the attached.	A1-130

A1-126 Section 4.15.3.1 of the final EIS has been updated to address this comment.

A1-127 Section 4.15.3.1 of the final EIS has been updated to address this comment.

A1-128 Section 4.15.3.1 of the final EIS has been updated to address this comment.

A1-129 See the response to comment CO29-5.

A1-130 Section 4.15.4 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	
	suppression controls are only operational above freezing temperatures.	File Name: 129_Construction Section 4.15.4 Redline	A1-130
The ADEC through its PSD permitting process will address air quality impacts during years of simultaneous construction, startup, and operation of the Liquefaction Facilities. The PSD permit for this facility will not be issued unless there is reasonable assurance that these activities would not cause or contribute to an exceedance of the NAAQS/AAAQS. Speculative conclusions about possible exceedances of the NAAQS during construction are unsupported and should not be included in the impact assessment. See attached ADEC preliminary determination of finding on the PSD application and suggested DEIS text modifications. Below are additional detailed comments – Construction, Startup, and Operational NAAQS Impacts Section 4.15.4.3 – Liquefaction Facilities, p. 4-901 Section 4.15.5.3 – Liquefaction Facilities, Ambient Air Quality, p. 4-927 The DEIS states that simultaneous construction, startup, and operational activities in Years 7 and 8 of construction would result in overlapping emissions in excess of the modeled operational emissions. It concludes that this could result in exceedances of the NAAQS/AAAQS leading to a potential short-term significant impact on air quality in the immediate vicinity of the Liquefaction Facilities. There is no support in the record for this conclusion, and it should be stricken from the DEIS. The issue is already being properly addressed in the PSD permitting process before the Alaska Department of Environmental Conservation (ADEC). As the DEIS notes, the PSD application for the Liquefactions Facilities was filed with ADEC on May 1, 2018. (DEIS, p. 4-888). The ADEC has not yet issued its preliminary PSD permit for the Liquefaction Facilities, but, notably, recently issued the preliminary PSD permit and accompanying preliminary Technical Analysis Report (TAR) for the GTP [1]. The Modeling Report included in the preliminary TAR addresses the issue of simultaneous emissions from construction (preliminary TAR, Modeling Report, pp. 15-16): AGDC provided a general discussion regarding their construction emissions in section 4.1.3 of the GTP Modeling Report, and a more detailed discussion in their May 1, 2018 submittal. AGDC stated the GTP construction phase would last approximately 8 years.	AGDC respectfully suggests removal of text suggesting possible NAAQS exceedances during construction, since the PSD permit for this facility will not be issued unless there is reasonable assurance that these activities would not cause or contribute to an exceedance of the NAAQS/AAAQS. See the attached ADEC preliminary determination of finding on the PSD application and suggested DEIS text modifications. Also note that the ADEC, through its PSD permitting process, will address air quality impacts during years of simultaneous construction, startup, and operation of the Liquefaction Facilities. The PSD permit for this facility will not be issued unless there is reasonable assurance that these activities would not cause or contribute to an exceedance of the NAAQS/AAAQS. Speculative conclusions about possible exceedances of the NAAQS during construction are unsupported and should not be included in the Final EIS. [1] Preliminary Technical Analysis Report for Construction Permit AQ1524CPT01. Available at http://dec.alaska.gov/Applications/Air/airtools web/AirPermitsApprovalsAndPublicNotices.	Review/incorporate the information noted by AGDC. In particular, consider modifying text as shown on the attached. Also see attached ADEC preliminary determination of finding on the PSD application and suggested DEIS text modifications. File Name: 130a_Comment Redline 130b_ADEC GTP Preliminary TAR_07-12-19	A1-131

A1-131 See the response to comment A1-1 and the updates to section 4.15.5.3 of the final EIS.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC
However, they noted that the majority of GTP would consist of modules constructed off-site and transported to the site via seagoing barge. This approach would generally lead to secondary emissions that are less than the operational emissions used in the modeling analysis. AGDC further noted that the various construction activities/emissions would change during the 8-year period. They verbally clarified that even the temporary construction camp would be moving between various locations until the permanent worker housing camp becomes operational. Developing the parameters needed to correctly characterize and simulate constantly changing construction emissions, especially fugitive dust emissions, is challenging. In some cases, the resulting concentrations are questionable, if not overly conservative. The Department further notes that the modeling results generally lead to: fugitive dust control plans (to minimize the fugitive dust impacts); and/or requirements to install vertical, uncapped exhaust stacks on the camp engines (to reduce the impacts from the combustion sources – see Sections 5.7.7 and 5.8.2 of this report). The Department therefore decided to impose the typical endpoint (i.e., ambient air conditions) rather than requiring AGDC to develop the details needed to model the construction phase emissions. Thus, the ADEC believes dispersion modeling of construction emissions yields unreliable and perhaps misleading results. The preliminary TAR suggests alternative solutions for confirming that simultaneous construction, startup, and operation of the GTP would not cause or contribute to an exceedance of the NAAQS. AGDC fully expects the preliminary and final PSD permits for the Liquefaction Facilities will address this issue as well. Conclusion The ADEC, through its PSD permitting process, will address air quality impacts during years of simultaneous construction, startup, and operation of the Liquefaction Facilities. The PSD permit for this facility will not be issued unless there is reasonable assurance that these activities would not cause or contribute to an exceedance of the NAAQS/AAAQS. Speculative conclusions about possible exceedances of the NAAQS during construction are unsupported and should be not be included in the Final EIS. [1] Preliminary Technical Analysis Report for Construction Permit AQ1524CPT01. Available at http://dec.alaska.gov/Applications/Air/airtoolsweb/AirPermitsApprovalsAndPublicNotices.		

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC
AGDC explained in accompanying comments regarding the DEIS AQRV analysis that the record in this proceeding actually demonstrates that visibility and deposition impacts from all Project components will not adversely impact AQRVs. AGDC has provided extensive analyses and supporting data demonstrating that visibility and deposition impacts from Project components on Class I and Class II nationally designated protected areas will remain in "good condition" as defined by NPS in almost every instance. AQRV analyses and impact evaluation followed the FLM FLAG 2010 process including examining the context of any instances where predicted impacts are above conservative screening criteria. The logic in the DEIS does not follow this same process, but rather establishes "NPS thresholds" as new AQRV regulatory standards. See additional detailed comments below. Comments – Class I and Sensitive Class II Mitigation Plan section 4.15.5.1 – Gas Treatment Facilities, p. 4-909, third full paragraph, last sentence section 4.15.5.2 – Mainline Facilities, p. 4-922, first paragraph, last sentence section 4.15.5.3 – Liquefaction Facilities, p. 4-937, fourth and fifth paragraphs (also section 5.2, Mitigation 72, p. 5-59) A "Class I and Sensitive Class II Mitigation Plan" is first identified in the DEIS on p. 4-937 and apparently is recommended by FERC staff based on comments from NPS. Key provisions of this Mitigation Plan (with AGDC commentary) are: • It pertains to mitigation at Class I and Sensitive Class II areas. AGDC's accompanying DEIS comments explain that the DEIS contains confusing and inconsistent terms for nationally designated protected areas. Consistent and defined terminology would help clarify the meaning of the DEIS mitigation requirements. • It should be developed in consultation with FLMs and ADEC. ADEC is not a party to the DEIS so it is not clear what obligation, if any, the ADEC would have to consult with AGDC on such a plan. It could be impossible for AGDC to comply with this requirement. Note that the FLMs normally consult with the ADEC in evaluation of AQRV impacts during the PSD permitting process. • It should reduce NOX and SOX emissions from the GTP, Mainline Facilities, and Liquefaction Facilities to ensure that visibility and deposition impacts are below NPS thresholds. AGDC is not aware of a definition of "NPS thresholds." Also, AGDC is not aware of any precedents in a FERC NEPA process or otherwise for requiring an applicant to reduce NOX and	AGDC respectfully suggests striking the Class I and Sensitive Class II Mitigation Plan requirement from the DEIS and modification of DEIS text consistent with legal requirements for assessing air emissions.	Review/incorporate the information noted by AGDC. In particular, consider modifying text as shown on the attached. File Name: 131_Class I and II Mitigation Plan Redline

A1-132

A1-132 See the responses to comments SA2-7 and A1-129.

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
SOX emissions such that visibility and deposition impacts from all project components are below "NPS thresholds." DEIS section 4.15.3 correctly points out that facility emissions are regulated through an air permitting program developed as part of the State Implementation Plan as approved by EPA under the authority of the CAA. DEIS Table 1.6-1 lists the various PSD and minor air quality construction permits required before beginning actual construction of Project components. These permits will not be issued unless AGDC demonstrates that NOX and SOX emissions comply with applicable legal requirements. Furthermore, the Mitigation Plan includes a requirement to reduce emissions based on a presumption of adverse impact thereby pre-judging the outcome of any consultation. In fact, this Mitigation Plan requirement is effectively a new permitting program for regulating air emissions from the Project. As with any permitting program or regulatory requirement, AGDC recommends that agencies with statutory authority over the program go through an APA-compliant rulemaking process. To the best of our knowledge, this is not occurred. AGDC explained in accompanying comments regarding the DEIS AQRV analysis that the record in this proceeding actually demonstrates that visibility and deposition impacts from all Project components will not adversely impact AQRVs. We have provided extensive analyses demonstrating that visibility and deposition impacts from Project components on Class I and Class II nationally designated protected areas will remain in "good condition" as defined by NPS in almost every instance. AQRV analyses and impact evaluation followed the FLM FLAG 2010 process including examining the context of any instances where predicted impacts are above conservative screening criteria. The logic in the DEIS fails to follow this same process, but rather establishes "NPS thresholds" as new AQRV regulatory standards. For these reasons, AGDC suggests striking the Class I and Sensitive Class II Mitigation Plan requirement from the DEIS.			A1-132
The record supports the conclusion that emissions from the GTP and Liquefaction Facilities, including maximum flaring events, would not result in an O3 or 24-hour PM2.5 NAAQS exceedance at either location. Any other speculative conclusions about possible exceedances of the NAAQS are unsupported by the science and the record in permit applications. Please see detailed comments attached.	AGDC respectfully suggests modification of section 4.15.5.1 (pp. 4-909-4-910); section 4.15.5.3 (pp. 4-936-4-937) to be consistent with expected emissions estimates as described in the attached detailed comments.	Review/incorporate the information noted by AGDC. In particular, consider modifying text consistent with the attached supporting Technical Analysis Report from ADEC for the GTP facility and the attached redline edit suggestions. File Names: 132_Comment Redline 130b_ADEC GTP Preliminary TAR_07-12-19	A1-133

A1-133 Based on comments from the EPA regarding regional ozone, we have updated sections 4.15.5.1 and 4.15.5.3 of the final EIS to indicate that the Project would not likely result in exceedances of the ozone and PM2.5 NAAQS.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
Align the conclusions within the AQ section (4.15) of the DEIS with accompanying 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 the Class I and Sensitive Class II Mitigation Plan. Furthermore, conclusions 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 NAAQS/AAAQS, nor would any toxic air pollutants generated during maximum flare events result in exceedances of EPA's REL.	AGDC respectfully suggests alignment of the conclusions within the AQ section (4.15) of the DEIS with legal requirements as noted in other sections of the DEIS and in the attached redline text.	Review/incorporate the information noted by AGDC. In particular, consider modifying text as shown on the attached. File Name: 133_Comment Redline	A1-134
Any suggestion or finding on Best Available Control Technology (BACT) within the DEIS should be removed since the statutory basis of BACT is the CAA, the authority to make BACT determinations is vested in the ADEC, and suggestions or findings on BACT in a NEPA document is duplicative and potentially inconsistent. See more detailed comments attached.	AGDC respectfully suggests modification of section 4.15.5.1, p. 4-911 regarding BACT determinations to be consistent with ADEC jurisdiction.	See attached letter from ADEC to DOI and letter from DOI to FERC, along with attached redline edit suggestions. File Names: 134a_BACT Comments 134b_Ltr from ADEC to DOI - 06-27-18 5_Ltr from DOI to FERC - 7-17-18	A1-135
Current text describes additional mitigation measures that FERC requested from AGDC but doesn't distinguish those from the "current" mitigation measures deemed sufficient and practicable. Please revise text as recommended to clarify AGDC's proposed mitigation are those included in the operational modeling listed in the bulleted items in the 3rd paragraph in this subsection.	AGDC respectfully requests modification of section 4.16.4.3 to clarify the "current" mitigation measures.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.16.4.3 to clarify the "current" mitigation measures as follows: "We have reviewed the ~~current~~ mitigation measures proposed by AGDC ~~and~~ that were included in the operational modeling, and determine that they would sufficiently minimize noise impacts at nearby NSAs to the extent practicable."	A1-136
The Project has adopted two (2)-inch as the representative release for use in the facility siting study for the LNG facility. This is considered an appropriate hole size, as it represents the most credible release hole size and has consistently been used across the US and international LNG Industry. The Project team selected the two (2)-inch size based on statistical information and findings	AGDC respectfully notes the Project has adopted two (2)-inch as the representative release for use in the facility siting study for the LNG facility. This is considered an appropriate hole size, as it represents the most credible release hole size and has consistently been		A1-137

A1-134 See the responses to comments SA2-7 and CO29-5.

A1-135 Section 4.15.5.1 of the final EIS describes the purpose of a BACT analysis. We are not making a BACT determination, which is the responsibility of ADEC. As noted in section 4.15.5.1 of the final EIS, because distillate oil is not commonly used to drive compressors at natural gas facilities, we do not believe that use of natural gas over distillate oil constitutes a GHG control measure.

A1-136 Section 4.16.4.3 of the final EIS has been updated to address this comment.

A1-137 The spacing and plant layout discussion in section 4.18.5.5 of the final EIS has been updated to reflect AGDC's rationale and selection of 2-inch-diameter holes as the maximum size considered for building siting. However, this selection may not adequately account for piping system failures, and we recommend that the building siting study be based on the hazard analyses done for general siting requirements, which use less than 6-inch-diameter releases that are comprised mostly of 2-inch- and 4-inch-diameter releases. This range is consistent with PHMSA requirements for siting and based on statistical information looking across over two dozen databases, including the one cited, that weighted LNG specific datasets more heavily and was largely verified by a 2017 PHMSA research study, Statistical Review and Gap Analysis of LNG Failure Rate Table, Contract DTPH56-15-T-00008 (available at https://primis.phmsa.dot.gov/matrix/FilGet.rdm?fil=11074) and adopted into National Fire Protection Association 59A (2019 edition), Standard for the Production, Storage, and Handling of LNG.

A1 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
from the DNV Technical study - A Guide to Quantitative Risk Assessment for Offshore Installations (ISBN I870553365).	used across the US and international LNG Industry. The Project team selected the two (2)-inch size based on statistical information and findings from the DNV Technical study - A Guide to Quantitative Risk Assessment for Offshore Installations (ISBN I870553365).		A1-137
Fireproofing details for skirts and supports were provided in Resource Report 13 Appendix 11S.	AGDC respectfully notes fireproofing details for skirts and supports were provided in Resource Report 13 Appendix 11S.		A1-138
The response to FERC filed on 5/24/19 (RFI-568-ENG-041, Accession No. 20190524-5193(33592109)) demonstrated that credible and SALS release sources would be captured by the tank curbing. Therefore, an additional discussion on cascading impacts is not warranted.	AGDC respectfully suggests modification of section 4.18.5.5, Pg. 4-1021 and 4-1022 to reflect the response filed on 5/24/19 (RFI-568-ENG-041 (Accession No. 20190524-5193(33592109)) that demonstrated that credible and SALS release sources would be captured by the tank curbing.	Review/incorporate the information noted by AGDC. In particular, consider modifying section 4.18.5.5, as follows: "Within the plant, spills from the conventional portions of the LNG lines between the LNG storage tanks would be directed to the LNG Storage Tank Impoundment Sump. Liquid spilled on the LNG tank rooftop area ~~is proposed to~~ would be directed, with the use of concrete curbing on the roof, to a stainless steel down-comer pipe running from the tank top to the spill containment trench at the base of the tank for direction to the spill impoundment. ~~However, it is not clear whether~~ AGDC has confirmed that the spill curbing system on the tank top, along with installed pipe flange guards, would be designed to capture ~~all~~ significant jetting releases up to the full rupture of piping on the tank top. AGDC indicates that LNG can be safely conveyed ~~along~~ within the LNG tank-top spill collection and drainage system along the concrete outer tank for the 10-minute sizing spill duration without affecting the outer wall., ~~but has not~~ Based on that ~~provided~~ information, ~~on where an~~ any LNG release landing outside of the intended collection system would be contained within ~~although~~ the tertiary berm around the LNG tank area ~~may limit the potential LNG collection to certain areas. It follows that~~ AGDC has ~~also~~not provided information on the potential impacts on equipment and personnel in the event that pooled LNG would ignite in those locations or the potential increased vaporization due to this spilled LNG not being directed to the trench system. Therefore, we recommend in section 4.18.9 that AGDC provide, for review and approval prior to construction of the final design, demonstration that allowing certain impoundment sizing spills from the LNG tank	A1-139

A1-138 The documents referenced in the comment are Fire Exposed Area drawings with pipe rack cross-sections. The specific thicknesses and material selections of the fireproofing that would be applied to vessel skirts is typically found on vessel data sheets and does not appear to have been provided in the resource reports. The referenced fireproofing equipment list in S.9 also does not provide these details. Our recommendation in section 4.19.8 of the final EIS related to providing the fireproofing design covers this information.

A1-139 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 collected and drained to the impoundment, unless it can be demonstrated that providing this containment would not reduce the consequences. The response did not clarify collection mechanisms for the full range of release sizes, or provide 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 – Alaska Gasline Development Corporation (cont'd)

AGDC Comment or Concern	Potential Approach to Resolution	AGDC Request to FERC	
		top area, up to a full guillotine rupture, not captured by the tank top LNG spill collection system would not significantly increase the radiant heat or vapor dispersion hazard compared to directing those spills to the trench and impoundment. We also recommend that AGDC provide an analysis that demonstrates the tank top spill collection system can withstand the sudden force and thermal shock of a cryogenic release.	A1-139
AGDC provided the requested information on spill containment dimension in response to FERC Data request RFI-568-ENG-002 (Accession 20190628-5116) provided on 6/28/2019.	AGDC respectfully notes this information has been filed. See Reference response RFI-568-ENG-002 (Accession 20190628-5116).		A1-140
This data request from 1/15/19 (RFI-568-ENG-040, Accession No. 20190524-5193(33592108)), was addressed by AGDC on 5/24/19 and demonstrated that credible and SALS release sources would be captured by the dock curbing.	AGDC respectfully notes this information has been addressed by FERC and AGDC in a data request from 1/15/2019 (RFI-568-ENG-040, Accession No. 20190524-5193(33592108)). The response filed by AGDC on 5/24/2019 demonstrated that credible and SALS release sources would be captured by the dock curbing.		A1-141
Due to the extreme weather temperatures, firewater is only used as a mist system within the gas turbine enclosures. In gas treatment facilities and LNG facilities, the proper way to mitigate jet fires is to shutdown the system and blowdown the inventory to remove all hazardous fluids from the area.	AGDC respectfully notes that due to the extreme weather temperatures, firewater is only used as a mist system within the gas turbine enclosures. In gas treatment facilities and LNG facilities, the proper way to mitigate jet fires is to shutdown the system and blowdown the inventory to remove all hazardous fluids from the area.		A1-142
AGDC's response to FERC's Request for Information RFI-ENG-565-053 (Accession No. 20190503-5054(33549620)) provided updated impoundment sizing and foam calculations.	AGDC respectfully notes AGDC's Response RFI-ENG-565-053 (Accession No. 20190503-5054(33549620)) provided updated impoundment sizing and foam calculations and was filed on 5/3/2019 (Accession No. 20190503-5054(33549620)).		A1-143

A1-140 The spill containment discussion in section 4.18.5.5 of the final EIS and related recommendations have been updated to consider information received after development of the draft EIS.

A1-141 AGDC's response to question 40, filed on May 24, 2019, is related to the sizing and design of hazardous liquid spill containment at the dock 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 provide a final evaluation of the consequences of not containing the full range of releases. Therefore, we included a recommendation for the marine area spill collection design to meet the above criteria.

A1-142 We agree that active mitigation, such as manual, remote, and/or automatic emergency shutdown systems, is a key component in shutting down and isolating releases to minimize impacts of a release, including impacts from potential jet fires. We also recognize that active mitigation, such as blow downs, can be a key layer of protection in reducing the severity of jet fires and potential for BLEVEs. However, the time for these systems to fully activate versus the time to failure is not yet defined and may or may not be effective by themselves. Therefore, we also recognize that additional layers of protection, such as structural passive protection and firewater systems, can aid in the effectiveness of these active systems in ensuring there is not a failure within their time to shutdown, isolate, de-inventory, and/or depressurize or they may act as an independent layer of protection depending on their designs. Section 4.18.5.5 of the draft EIS recognized AGDC's proposal to mitigate jet fires at the GTP with a combination of passive protection, as well as active measures, including shutdown and depressurization systems. Section 4.18.5.5 also recommended an appropriate reliability level for these systems at the GTP. However, because the details of the design of these systems are not completely defined, it is not possible to determine the overall effectiveness of these mitigation systems. Therefore, we have included recommendations to ensure that the final design of these systems would be effective in mitigating such events. In addition, a significant amount of equipment areas at the GTP would be enclosed within process buildings, rather than open to the more extreme ambient temperatures, and the feasibility of providing firewater coverage in these indoor areas was not evaluated. Regardless, due to the location, no recommendation was made to require a standard fire water system at the GTP, located on the North Slope, if other systems can be demonstrated to provide an equivalent level of protection.

A1-143 AGDC's response to question 53, filed on May 3, 2019, indicated that the low expansion foam systems would be sized only for the tank top area of one condensate tank. The area of the impoundment surrounding those tanks, plus the diesel tank, was not proposed to have low expansion foam coverage as mitigation in the event of a tank rupture that may cover the impoundment floor.

However, AGDC's response to question 24, filed on October 4, 2017, regarding a truck BLEVE had stated, "The Condensate Storage Tank area will be protected with a low expansion foam system, which would reduce thermal radiation from the sump in the event of a pool fire."

AGDC's response to question 97, filed on October 7, 2019, acknowledges that the low expansion foam system was designed for a fire within a tank and indicates that AGDC intends to file an evaluation justifying the detection and mitigation to be used for fires within the condensate/diesel tank impoundment prior to construction of the final design. Section 4.18.5.5 has been updated to reflect this information.