Alaska District

DEPARTMENT OF THE ARMY

RECORD OF DECISON
&
PERMIT EVALUATION

APPLICANT: Alaska Gasline Development Corporation (AGDC)
APPLICATION NUMBER: POA-2015-00329
WATERWAY: Multiple

This document constitutes the United States (U.S.) Department of the Army (DA), Corps of Engineers' (Corps) Record of Decision (ROD) under the National Environmental Policy Act (NEPA); the compliance determination with the U.S. Environmental Protection Agency's (EPA) Section 404(b)(1) Guidelines (40 CFR 230; Guidelines), and the public interest review, for the proposed Alaska Liquefied Natural Gas (AKLNG) Project, under the authority delegated to the District Commander by 33 CFR 325.8, pursuant to Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act (RHA) of 1899.

BACKGROUND

The Alaska Gasline Development Corporation (AGDC; the applicant) is seeking authorization to construct a liquefied natural gas (LNG) pipeline project across the state of Alaska, from the North Slope to Cook Inlet for the purpose of international exportation (the AKLNG project; proposed project). The project would require several federal authorizations. The Federal Energy Regulatory Commission (FERC) is the lead federal agency for the project, and published a Final Environmental Impact Statement (FEIS) pursuant to NEPA for the project on March 6, 2020. The U.S. Army Corps of Engineers, Alaska District, Regulatory Division (Corps) was a cooperating agency in the development of this FEIS.

AGDC submitted a DA permit application to the Corps on April 17, 2017, seeking authorization to discharge fill and dredged material, as well as perform work in waters of the U.S., including wetlands, for the purposes of constructing the proposed project. The application was determined incomplete, and AGDC submitted a revised DA permit application on May 22, 2019. The application was again determined incomplete, and AGDC submitted a second revised application on November 8, 2019. The application was then determined complete, and the individual permit review process began.

For the purposes of the Corps' quantification of impacts, permanent impacts for this project were defined as any discharge of fill material in waters of the U.S.,

including wetlands, which would be left in place for five or more years. All other impacts are considered to be temporary.

AUTHORITY

I have independently reviewed and evaluated the information in the FEIS, including all supplemental data subsequently provided, in accordance with 40 CFR 1506.3 and 40 CFR Part 230, and have found them to be sufficient and accurate assessments, and therefore appropriate for the purposes of the public interest review and alternatives analysis required by 33 CFR 320.4(b)(4) and 40 CFR 230.10. The Corps hereby adopts the FEIS for the AKLNG Project, (available on the FERC eLibrary at http://elibrary.FERC.gov/idmws/file_list.asp?accession_num=20200306-3098).

1.0 SUMMARY OF DECISION

I have decided, in light of the overall public interest, to issue a permit pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403), and pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344) for the applicant's proposed project as described in section 2.1 of this document. The proposed project incorporates all practicable avoidance and minimization measures. This permit would authorize the permanent discharge of fill and dredged material into material into 10,446 acres of waters of the U.S., including wetlands, as well as temporarily discharge fill and dredged material into 6,677 acres of waters of the U.S., including wetlands.

Principal impacts resulting from work in, and the placement of fill in waters of the U.S., including wetlands, are described in Section 6.0 of this document, and Section 4.0 of the FEIS. This authorization also requires compensatory mitigation for the direct, indirect and secondary impacts to waters of the U.S., including wetlands, as described in Section 5.0 of this document, and Special Conditions 27 a through c.

The authorization will include special conditions to avoid and minimize potential adverse impacts and to compensate for unavoidable adverse impacts to the aquatic ecosystem, and to ensure that the project would not be contrary to the public interest.

All work will be performed in accordance with the attached plans, sheets 1 – 195, dated September 1, 2018, and December 1 and 9, 2019.

2.0 PROPOSED PROJECT

2.1 Project Description:

AGDC proposes to permanently discharge fill and dredged material into 10,446 acres of waters of the U.S., including wetlands, as well as temporarily discharge fill and dredged material into 6,677 acres of waters of the U.S., including wetlands, in order to construct an integrated LNG project that includes a new Gas Treatment Plant (GTP) on Alaska's North Slope and an approximately 807-mile long natural gas pipeline to a new Liquefaction Facility on Cook Inlet, near Nikiski.

The proposed project would be constructed in accordance with the following plans:

- Project Plans, sheets 1 – 195, dated September 1, 2018, and December 1 and 9, 2019;
- Project Camps and Yards Layouts and Locations, sheets 1 - 64, dated March 2018, and November 2019;
- Site Specific Waterbody Crossing Plans, sheets 1 – 30, dated November 8, 2019;
- Point Thomson Transmission Line Rev D Route Maps, sheets 1 – 12, dated May 30, 2018; and
- Waters of the U.S., including wetlands, impact tables, dated April 20, 2020. It should be noted that acreages in these tables will appear different than what is stated below. This is due to how acreages are grouped in the tables versus how they are accounted for in the description below. All acreages stated in the description below were ascertained from these impacts tables.

The proposed project would include the following jurisdictional activities:

<u>Gas Treatment Plant: West Dock Modification and Dock Head 4 (DH4) Construction</u>

The GTP is to be constructed using large modules which would be barged to the North Slope and received at West Dock in Prudhoe Bay. In order for West Dock to receive those modules and those modules then to be transported to the GTP site, West Dock would require modification, and DH4 would need to be constructed.

A total of 32.76 acres of waters of the U.S. would be permanently impacted for the modification of West Dock and construction of DH4. Another 13.7 acres would be temporarily impacted. Specifically, West Dock modification and DH4 construction would include:

- Sheet pile installation and the placement of fill behind the sheet pile to construct DH4;
- Installation of mooring dolphins;
- Screeding at the barge berths of DH4;

- Construction of a new staging area south of the existing West Dock staging area;
- Installation of a temporary barge bridge within the West Dock causeway, consisting of two barges ballasted to the sea floor, and involving placement of gabion mattresses as bedding for the bridge; and
- Placement of fill material for widening the West Dock causeway.

GTP and Aboveground Facilities

A total of 673.16 acres of waters of the U.S., including wetlands, would be permanently impacted for the construction of the GTP and its aboveground facilities. In addition, 57.71 acres would be temporarily impacted. Specifically, GTP and above ground facilities construction would include:

- Construction of a module haul road from West Dock to the GTP facility location;
- Construction of a module staging pad;
- Construction of an Operations Center pad;
- Construction of a GTP pad;
- Installation of four associated transfer pipes (fuel gas, propane, and two water lines) on vertical support members (VSMs);
- Construction of a GTP access road;
- Construction of a GTP emergency egress road to the Prudhoe Bay Unit Central Gas Facility (CGF);
- Construction of an access road connecting the GTP to the water reservoir and material mine;
- Construction of a material mine; and
- Construction of a water reservoir.

Prudhoe Bay Gas Transmission Line (PBTL)

Natural gas would be supplied to the GTP from two gas facilities, one of which is the Prudhoe Bay Unit CGF. Less than one-tenth of an acre of waters of the U.S., including wetlands (0.003-acre; reported as 0.00-acre on impact tables due to rounding) would be permanently impacted by the construction of this transmission line on VSMs.

Point Thomson Transmission Line (PTTL)

The PTTL would be the second line which would supply natural gas to the GTP. Up to 0.44-acre of waters of the U.S., including wetlands, would be permanently impacted by the construction of this transmission line on VSMs. The following facilities would also be constructed in support of PTTL construction and operations, and would result in the permanent impact of 110.17 acres of waters of the U.S., including wetlands:

- Construction camp pad;

- Helicopter pad; and
- Pipe storage yard pad.

Mainline Pipeline

The GTP would supply natural gas to the mainline pipeline, which would travel from the North Slope to Cook Inlet. The mainline pipeline would be buried for its entire onshore length, with the exception of two major water crossings, and active fault crossings. The construction of the mainline pipeline would result in 5,354.6 acres of permanent impacts, and 1,063.92 acres of temporary impacts to waters of the U.S., including wetlands. Depending on the location and terrain, the mainline pipeline would be constructed using a variety of construction modes, as detailed in project plans.

In support of construction of the mainline pipeline, the following facilities would be constructed, and would result in 3,520.79 acres of permanent impacts and 484.42 acres of temporary impacts to waters of the U.S., including wetlands:

- Access roads;
- Additional temporary workspace pads;
- Construction camp pads;
- Disposal sites;
- Double joining yard pads;
- Helicopter pads;
- Material sites;
- Pipe storage yard pads; and
- Railroad spurs and work pads.

In support of operation of the mainline pipeline, the following facilities would be constructed, resulting in 108.88 acres of permanent impacts to waters of the U.S., including wetlands:

- Compressor station pads at Coldfoot, Galbraith Lake, Healy, Honolulu Creek, Rabideux Creek, Ray River, and Sagwon;
- A heater station pad at Theodore River; and
- Mainline block valve pads.

Once at Cook Inlet, near Beluga, the mainline pipeline would cross Cook Inlet, landing near Nikiski. The offshore pipeline construction would result in 64.11 acres of permanent impacts and 5,057.6 acres of temporary impacts to waters of the U.S., including wetlands. The offshore mainline pipeline would be laid on the seafloor of Cook Inlet, and buried at the shore on either side of Cook Inlet.

Marine Offloading Facilities

In support of the construction of the mainline pipeline Cook Inlet crossing, as well as other onshore mainline facilities, two marine offloading facilities (MOFs) would be constructed. A total of 5.04 acres of waters of the U.S., including wetlands, would be permanently impacted for the construction of the mainline MOF on the west side of Cook Inlet, near Beluga. Specifically, this MOF construction would include:

- Construction of access roads; and
- Sheet pile installation and the placement of fill behind the sheet piles.

On the eastern side of Cook Inlet, near Nikiski, a second MOF would be constructed at the marine terminal site. A total of 538.96 acres of waters of the U.S., including wetlands would be permanently impacted for the direct construction of the marine terminal MOF. The marine terminal MOF would be removed, and the site restored after it is no longer required for construction support. It would likely be in place for up to ten years, therefore impacts to waters of the U.S. are considered permanent. Specifically, the marine terminal MOF construction would include:

- Sheet pile installation and the placement of fill behind the sheet piles;
- Dredging the seafloor directly adjacent to the MOF to -32 feet Mean Lower Low Water (MLLW) up to three times during the life of the MOF;
- Disposal of the dredged material at a designated disposal area in Cook Inlet; and
- Shoreline protection.

Marine Terminal and Liquefaction Facility

Near Nikiski, where the mainline pipeline lands after crossing Cook Inlet, a liquefaction facility and product loading facility (PLF) would be constructed. A total of 36.9 acres of waters of the U.S., including wetlands would be permanently impacted for the construction of these facilities. Construction of the PLF would consist of installation of pile-supported structures allowing for the berthing and loading of LNG carriers (LNGCs), and personnel access to and from the LNGCs. Jurisdictional construction components of the liquefaction facility would consist of a fill pad for the LNG plant.

2.2 Project Design Revisions:

After publication of the proposed project's Public Notice (PN) on December 30, 2019, AGDC submitted revised impact tables. The PN stated that the proposed project would result in a total of 10,323.78 acres of permanently impacted waters of the U.S., including wetlands, as well as temporarily impacting 8,730.26 acres. AGDC's most recent impact tables list that permanent impacts would be 10,445.83 acres to (10,445 acres, rounded) waters of the U.S.,

including wetlands, and temporary impacts would be 6,677.49 (6,677 acres, rounded) acres.

The acreages of impacts changed because the original acreages included non-jurisdictional project components, such as ice roads and ice pads. Additionally, discrepancies between reported impact acreages in the FERC draft EIS (DEIS) and the DA permit application prompted AGDC to evaluate the acreages closely, which led to finding and correcting some errors.

2.3 Project Purpose:

Applicant's Purpose and Need: As described in the proposed project's DA permit application, the applicant's stated purpose is to commercialize the natural gas resources on Alaska's North Slope during the economic life of the Prudhoe Bay and Point Thomson Units, by converting the available natural gas supply to LNG for export to foreign markets and to provide opportunities for in-state use.

Basic Project Purpose: The Corps has determined that the basic project purpose [40 CFR 230.10(a)(3)] is to construct a natural gas pipeline. Where the activity associated with the placement of fill material in a special aquatic site does not require access or proximity to or locating within the special aquatic site in order to fulfill its basic purpose (i.e., the activity is not water dependent) the Guidelines pose two rebuttable presumptions: 1) practicable alternatives not involving special aquatic sites are presumed to be available, and 2) practicable alternatives not involving discharges to special aquatic sites are presumed to have less adverse impact on the aquatic ecosystem. It is the applicant's responsibility to clearly rebut the presumptions for non-water dependent projects [40 CFR 230.10(a)(3)].
As discussed further below in Section 3.0 of this document, the Corps has determined that the project is not water dependent, but that practicable alternatives not involving special aquatic sites are not available.

Overall Project Purpose: The overall project purpose is used in the determination of practicable alternatives and determination of the Least Environmentally Damaging Practicable Alternative in compliance with the Guidelines. The Guidelines define practicable to mean: "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the *overall project purpose*" [40 CFR 230.10(a)(2)]. While the determination of a project's overall project purpose is the Corps' responsibility, it must take into consideration the applicant's stated need for the project and the type of project being proposed. The overall project purpose should be specific enough to define the applicant's needs, but not so restrictive as to constrain the range of alternatives that must be considered under the Guidelines.

The Corps agrees with FERC's defined project objective, as stated in Section 3.0 (Alternatives) of the FEIS, and is adopting it as the overall project purpose. The overall project purpose is to commercialize North Slope natural gas reserves by treating and liquefying the gas and then exporting it to foreign markets while also providing for in-state deliveries. The three identified delivery points are Fairbanks, south-central Alaska, and the Kenai Peninsula.

Failure to demonstrate compliance with the Guidelines would require permit denial, regardless of whether a lead federal agency other than the Corps has selected a preferred alternative as part of the NEPA process. Stated another way, if the permit application for the applicant's preferred alternative is denied by the Corps, that alternative shall not be built. This underscores the critical distinctions between "purpose and need" under NEPA, and "overall project purpose" under the Guidelines; and between "agency's preferred alternative" under NEPA, and "least environmentally damaging practicable alternative" (LEDPA) under the Guidelines. The Corps does not independently determine an "agency's preferred alternative" as part of the NEPA process; as The Corps is neither a proponent nor opponent of any individual permit application. As a result, development of such an alternative by another agency as part of the NEPA process does not impact the Corps' permit evaluation under the Guidelines. The Guidelines impose a substantive regulatory requirement that prohibits the discharge of dredged and/or fill material where there is a practicable alternative that would have less adverse impact on the aquatic environment.

2.4 Scope of Analysis:

The Corps' scope of analysis involves determining the Federal action area by evaluating those direct and indirect project impacts which are subject to federal control and responsibility under the Corps' authorities. The extent of cumulative Federal control and responsibility is sufficient to make the entire project a Federal action.

The FERC is the federal agency which evaluates and authorizes projects which would export LNG to foreign markets. Under NEPA, the FERC is the lead federal agency, and has federalized the entire proposed project. As stated in Section 1.0 of this document, the Corps has adopted the FERC's FEIS for the proposed project.

The FERC is the lead federal agency, as well, for demonstrating the proposed project's compliance with the National Historic Preservation Act (NHPA), the Endangered Species Act (ESA), and the Magnuson-Stevens Fisheries Conservation and Management Act (EFH). The Corps' scope of analyses under these acts would be limited by the Corps' jurisdictional authorities under Section 404 of the Clean Water Act (33 U.S.C. 1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403). The Corps has reviewed the FERC's

evaluations of the proposed project and determined that they are sufficient for the purposes of the Corps' evaluation of project impacts under these jurisdictional authorities.

3.0 ALTERNATIVES

3.1 Summary of FEIS Alternatives Analysis:

Section 3.0 of the FEIS identifies the proposed project alternatives. The FEIS evaluated several alternatives, grouped into the following categories: System Alternatives; Gas Treatment Facility Alternatives; PTTL Alternatives; PBTL Alternatives; Mainline Pipeline Route Alternatives; Mainline Pipeline Aboveground Facilities Alternatives; Liquefaction Facility Alternatives; and Additional Work Area Alternatives. In addition, the FEIS evaluated the No Action Alternative, as required by NEPA. Except as noted below, the Corps concurs with and makes reference to the FEIS, Section 3.0 for this document's alternatives analysis, and has determined that the evaluated alternatives either would not meet the overall project purpose, are not practicable, and/or are not less environmentally damaging when compared to the proposed project. Below, the Corps has expanded on specific alternatives where warranted.

Liquefaction Facility Alternatives: Port MacKenzie Alternative

The FEIS evaluates locating the proposed liquefaction facility at Port MacKenzie in the Matanuska Susitna Borough (MSB) rather than near Nikiski on the Kenai Peninsula. This alternative would eliminate the need for the mainline pipeline to cross Cook Inlet, and is estimated to reduce wetland impacts by more than 300 acres as compared with the proposed project. For a comparison of estimated impacts, see FEIS Table 3.8.1-1. This alternative would result in a substantial reduction in impacts to waters of the U.S., including wetlands, which warrants a thorough analysis in order to determine if it is the LEDPA.

The FEIS states the following of the Port MacKenzie Alternative: "The alternative mainline pipeline to the Port MacKenzie site would, like the Project, connect to ENSTAR's distribution system, which serves the Municipality of Anchorage as well as the MSB and Kenai Peninsula Borough. Unlike the proposed Project, the Port MacKenzie Alternative 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. The Kenai Peninsula interconnect is one of three future delivery points that have been identified as an objective of the Project (see section 1.1)." Further, in the conclusion of why this alternative does not offer significant environmental advantages over the proposed site, the FEIS states, "Moreover, the Port MacKenzie Alternative would provide for only two of the three delivery points proposed by the Project."

The Corps disagrees with that statement. The proposed project objective states only that the project should provide delivery to the three locations: Fairbanks, southcentral Alaska, and the Kenai Peninsula. The project objective does not state where interties should be located for the project nor the extent of supply to communities on the Kenai Peninsula or other locations. Given the established natural gas pipeline system operated by ENSTAR (see map below) and other private companies on the Kenai Peninsula, it is reasonable to expect that an LNG plant located at Port MacKenzie could supply the Kenai Peninsula. The Port MacKenzie Alternative would meet the project objective and overall project purpose.

Source: ENSTAR Natural Gas Company News, February 2015

Much of the Port MacKenzie Alternative analysis in the FEIS focuses on the increased risks to the endangered Cook Inlet beluga whale. The Corps recognizes that this alternative would result in greater risks to the species, mainly through an increased risk of vessel strikes due to increased traffic in this part of the inlet, than the proposed project. However, as stated in the FEIS, there have been no confirmed vessel strikes of Cook Inlet beluga whales and only two instances of suspected strikes. The Corps believes that under Section 7 of the ESA, and through the Marine Mammal Protection Act (MMPA), minimization measures or incidental take or harassment authorizations could potentially be put in place to mitigate impacts to the species if this alternative were to be proposed.

The Corps does not believe the FEIS demonstrates that the increased risk to Cook Inlet beluga whales is solely enough to dismiss the Port MacKenzie Alternative. However, the estimated impacts to the species is taken into consideration in our overall analysis of the alternative.

The FEIS touched on the strong tidal current in upper Cook Inlet near Port MacKenzie, but didn't adequately discuss the safety and logistical concerns with operating a liquefaction facility in such environmental conditions. The Corps discussed this alternative at length with the applicant in April 2019.

According to the applicant, in order to access Port MacKenzie, LNGCs would need to cross Knik Shoal at high tide to maintain a 10-foot clearance beneath the carrier. The carrier would come in just as the tide is coming to its maximum, which would mean the current is at the most slack water, allowing the carrier to swing 360 degrees around and make fast along the dock. This maneuver is necessary to allow the carrier to face outward so that in an emergency, the carrier could leave the dock quickly. If an emergency requiring the carrier to leave the dock were to occur during low tide, it is possible that the carrier could get caught in the Cook Inlet basin. This potential situation could be dangerous, as even a partially full carrier presents a danger to the nearby Port of Alaska. A carrier in this situation could block or interfere with other navigation to and from the Port of Alaska, which is critical state infrastructure and a designated strategic military seaport. The applicant stated that it is not possible to anchor in the Cook Inlet basin, so it may not be possible to keep the carrier away from other navigation. Considering the proximity to the Port of Alaska, as well as Joint Base Elmendorf-Richardson, a stranded LNGC would present a very real danger to port operations, and potentially, to national security.

When docked during a high tidal current, LNGCs would likely need to keep their main engines on in order to keep alongside the dock. The use of tugs may also be necessary to keep the carrier in place. Fighting against a high tidal current during loading operations increases the risk of spills. If efforts to keep the carrier in place fail, LNG could spill into the environment, although at ambient temperature, it would evaporate quickly. The use of tugs and main engines remaining on during loading operations is not common practice at other LNG loading facilities in the nation, but the applicant would expect it to be a normal, required practice if the liquefaction facility was located at Port MacKenzie. The applicant stated that if circumstances were such that it were necessary to use tugs and main engines during loading operations at other LNG facilities, it would warrant halting those operations. Given high tidal currents are very common at Port MacKenzie, halting operations during them would present logistical challenges to operations of the project.

In the FEIS, FERC discussed, but declined to take into consideration, potential dredging requirements that the Port MacKenzie Alternative would have, as

dredging estimates provided by both the applicant and the Matanuska Susitna Borough (MSB) have been widely varied and dredging impacts are temporary in nature. However, in making determinations of practicability, the Corps considers cost, logistics, and existing technology to complete the alternative. Dredging is an action that could be completed using existing technology and would not present a logistical challenge. However, according to the applicant, dredging required for this alternative would cost around a billion dollars more for the life of the project. In addition to the high cost of dredging, the applicant stated that the increased travel distance to Port MacKenzie would require additional tankers, which cost around $250 million dollars each.

Taking into account the increased risks to the endangered Cook Inlet beluga whale and potential impacts to their designated critical habitat, as well as the high costs of dredging and extra LNGCs, with the safety risks and logistical challenges this location would present, the Corps has determined that the alternative is not practicable, and therefore not the LEDPA.

Liquefaction Facility Alternatives: North Foreland Alternative

The FEIS states, "Because of the shorter mainline pipeline length, the North Foreland alternative would affect about 355 fewer acres of wetlands than the proposed site, although the permanent loss of wetlands at the North Foreland liquefaction site itself would be about 261 acres greater than the proposed site." FERC did not update the acreages in this section of the FEIS from the DEIS, resulting in a misleading analysis of impacts to wetlands. Comparing Table 3.8.1-1 in both the DEIS and FEIS reveals that the acreage for the proposed site's "NWI-mapped wetlands affected by the mainline pipeline, Livengood to liquefaction site (acres)" was revised from 1,618 acres to 1,487.8 acres. The proposed project would still affect 224.8 acres more wetlands for this stretch of mainline pipeline than the North Forelands Alternative, according to the FEIS. However, when combined with the acreage of waters of the U.S. within the LNG plant site, the North Foreland Alternative would result in more impacts to waters of the U.S., for a total of 1,538 acres. The proposed project would impact a total of 50.2 acres less than the North Foreland Alternative. Therefore, the Corps has determined that the North Foreland Alternative is not the LEDPA.

No Action Alternative

The "no action alternative" is defined as permit denial as stated at 33 CFR 325, App B(7)(a). The no action alternative would result in either the proposed project not being constructed, or a project design that does not require a DA permit for construction. In either case, no impacts to waters of the U.S., including wetlands, would occur. Taking into consideration the scale of the proposed project, and the extensive amount of waters of the U.S., including wetlands, in Alaska, no alternative exists in which jurisdictional impacts to waters, including wetlands,

could be completely avoided. Therefore, the no action alternative would not meet the overall project purpose. Additional discussion of the no action alternative can be found in Section 3.1 of the FEIS.

3.2 Determination of the Least Environmentally Damaging Practicable Alternative: Based on the analysis in the FEIS and within this document, including the 404(b)(1) Guidelines analysis and Public Interest Review, the Corps has determined that the LEDPA is the applicant's proposed project with the inclusion of FERC recommended mitigation measures, special conditions of the DA permit for the project, and required compensatory mitigation. The proposed project, with these inclusions, is the only alternative that would meet the overall project purpose, is practicable, and would have the least amount of impacts to waters of the U.S., including wetlands.

4.0 PUBLIC INVOLVEMENT

The Corps published a PN for the proposed project on December 30, 2019, with a 60 day comment period ending February 28, 2020. With the PN, the Corps included six attachments of the supplemental permit application information submitted by the applicant. Some PN reviewers requested all supplemental permit application information. Complete supplemental permit application information materials were provided to the following individuals or agencies: U.S. Fish and Wildlife Service, Earthjustice, Ms. Pamela Miller, and Chickaloon Village Traditional Council. Below is a summary of the comments which were received in response to the PN.

4.1 Federal Agencies:

Environmental Protection Agency (EPA); Mr. Daniel D. Opalski, Director

The EPA submitted a 404(q)(3)(a) letter to the Corps on February 28, 2020. In the letter, the EPA identified wetlands within the Sagavanirktok and Nenana watersheds as Aquatic Resources of National Importance (ARNI). On March 24, 2020, the EPA notified the Corps that they would not be sending a follow up 3(b) letter.

EPA1: The EPA expressed concern that there are large discrepancies in the quantification of impacts to aquatic resources within the PN, the EIS, and the draft Wetland Compensatory Mitigation Plan.

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: Prior to receiving EPA's comments, the Corps also noted the apparent discrepancies and requested clarification from both FERC and the

applicant regarding the reported acreages between the DEIS and the DA permit application. FERC's analysis of wetlands is specific to only wetlands, and doesn't include other waters of the U.S., as the Corps' analysis does. Therefore, the reported acreages of impacted wetlands in the DEIS and subsequent FEIS appear to be much less than what is listed in the permit application materials. This is because the Corps requires estimated impacts to all waters of the U.S., not just wetlands. The applicant was able to compare the acreages in the FEIS and the permit application materials, and rectify the two numbers. All acreages in the Wetlands Compensatory Mitigation Plan are based on the proposed project's wetland impacts as stated in the DA permit application.

EPA2: EPA recommends "…that the nature and extent of secondary impacts to wetlands…also be discussed and quantified."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: Secondary impact to wetlands are discussed throughout Section 4.4 of the FEIS. The Corps has reviewed this section of the FEIS and concurs with its analysis. Secondary impacts to wetlands are also discussed in Sections 6.1.7 and 6.3.2 of this document. A DA permit, if issued, would be special conditioned to minimize secondary impacts such as those identified in EPA's comment. A secondary impact such as fragmentation can be easily seen by the pipeline trench, or a road, etc., but quantifying the effects of such an impact is difficult. There is not a reliable way to know what distance fragmentation impacts would be apparent in a specific ecosystem, or to know how many species which utilize the ecosystem would be affected. The applicant would be required to minimize secondary impacts associated with fugitive dust. The applicant has developed a fugitive dust plan, and thermal modeling information is included in Section 4.2.5.2 of the FEIS.

EPA3: EPA recommends that, "If the permanent placement of fill is demonstrated to be the only practicable construction option in permafrost-supported wetlands, then…enough insulating foam material should be placed between the granular fill material and the surface of the wetland to insulate the underlying permafrost. The foam material should be closed-cell extruded polystyrene or other closed cell foams rather than non-extruded expanded polystyrene."

Applicant Response: The applicant acknowledges that foam material would, "…decrease the rate of heat energy transfer to the subsurface…" but not, "…completely eliminate this heat transfer." Furthermore, the applicant states that insulation would restrict the downward flow of water from the surface which could increase erosion of the fill pad or road. Erosion could then expose the foam to environmental variables (wind, rain, etc.) degrading it and causing it to

breakdown, and potentially be spread throughout the environment, potentially causing a greater environmental impact.

Corps Response: The Corps requested that the applicant address this recommendation specifically. The applicant's response is essentially that the potential for foam litter is a more detrimental impact than permafrost thaw. However, the Corps disagrees with this conclusion. Per General Condition number 2 of a DA permit (33 CFR 325, Appendix A), the applicant would be required to maintain fill such that it does not erode at any point. Erosion, even after the use of the fills ceases, is unacceptable, and the applicant would be required to stabilize the fill. If foam breakdown and subsequent litter were to occur because of eroding fill, the applicant would be required to remove any foam from adjacent areas. The Corps will require the applicant to prevent thaw and subsequent thermokarsting in permafrost wetlands, but will not prescribe insulation methods.

EPA4: EPA suggests that proposed impacts in the Nenana River watersheds could be avoided by constructing during winter months via ice roads, and utilizing equipment matting during summer construction, as these watersheds are low slope and lack large trees. In addition, EPA states, "…48% of the proposed Mode 4 fill placement in wetlands is within wetlands with less than 2% slopes. Thirty-eight percent (111.7 miles) of the Mode 4 construction is currently proposed to occur during the winter." Winter construction on 2% slopes could occur using construction Modes 1 (ice work pad) and 2 (winter frost pack) rather than Mode 4.

Applicant Response: The applicant reiterated their commitment to evaluate whether there are more areas along the pipeline route in which winter construction may be possible during final design of the proposed project, and stated that the construction in the Nenana watersheds is 106 miles long, 60 miles of which are planned for winter construction. Of those 60 miles, 30 would be through wetlands. Of the 46 miles slated for summer construction, 17 would be through wetlands. The applicant determines if Mode 2 construction is feasible based on ground slope, water availability, and climate conditions. Ice roads/pads can only be used in areas with cross slopes less than 2%, that are in close proximity to a winter water source, and are in an area which experiences sufficient freezing days and frozen soil depths to support heavy equipment. Of those wetland areas slated for Modes 4 and 5A (graded) in the Nenana watersheds, 15.8 miles satisfy this list set of requirements. In order to construct ice roads/pads along this 15.8 miles, the proposed project would require 39.5 million gallons of water. The applicant evaluated water sources in the area and found 8 potential locations from five rivers which may accommodate ice road/pad construction. Three of these (Bear Creek, Panguingue Creek, and Dry Creek) were identified only as summer water sources, and have unconfirmed winter flow. Of the remaining sources (Tanana River, Nenana River Reaches A, B, and

C, and Nenana River at mainline pipeline mile point (MP) 489.2), four have committed water rights to the ADF&G. ADF&G's water rights for Nenana River Reaches A, B, and C, and the Tanana River during the months of January and February, when ice road/pad construction would take place, exceed the minimum flow rate of the rivers. Therefore, even if the river locations were flowing higher than minimal during those two months, it would be likely that ADF&G would still have rights for the entire flow. Therefore, it is likely not practicable to construct ice roads/pads with water from these sources during those months.

The water source location at Nenana River near MP 489.2 was determined to potentially accommodate ice road/pad construction from MP 473.8 to MP 489.4. In that construction spread there would be a total of 8.42 miles of wetland construction. The applicant has not committed to changing their proposed project to construct ice roads/pad through this construction spread, as they still would need to confirm with more detailed information that the spread is conducive to ice road/pad construction. However, the applicant has committed to finalizing this determination of practicability during their final design and in accordance with FERC Staff's Recommendation Number 19.

Corps Response: The Corps requested that the applicant address this recommendation specifically. The Corps believes the applicant has sufficiently explained why winter construction for more of these watersheds is not practicable. The Corps will require that the applicant provide their analysis of additional winter and matted construction areas as required by FERC to the Corps before construction of the proposed project would begin. The Corps will require the applicant to use ice roads and pads to the maximum extent practicable to minimize impacts to aquatic resources, including the identified 15.8 miles in Modes 4 and 5A, unless the applicant can clearly demonstrate impracticability.

EPA5: EPA recommends that, "Gravel fill used to support summer construction in wetlands should have geotextile underneath it to prevent water and fines from the subgrade from pumping into the gravel, weakening the fill material and resulting in an unstable, undrainable fill pad. Geogrid could also be used over geotextile to provide lateral stability and prevent displacement of the select material."

Applicant Response: The applicant responded that geotextile would be utilized for temporary and permanent use access roads, and that their project plans (sheet 53 of 195) specify using geotextile/geogrid in built up right-of-way Mode 4 pad areas for stabilization.

Corps Response: The Corps requested that the applicant address this recommendation specifically. The Corps believes that the applicant has sufficiently addressed this comment.

EPA6: Using Mode 3 construction (matting) may be practicable in both summer and winter, as 48% of the proposed Mode 4 construction would be within wetlands with less than a 2% slope. EPA states, "Composite mats such as GeoTerra and Dura-Base systems have advantages over wooden mats and provide greater stability and load bearing capacity than gravel. According to the manufacturer, GeoTerra mats provide support equivalent to 12 inches of gravel over geotextile. Composite mats are available from local companies that will deliver mats to the job site and can also install and remove them."

Applicant Response: The applicant reiterated their commitment to evaluate whether there are more areas along the pipeline route in which winter construction may be possible during final design of the proposed project, and stated that feasibility of mat usage is dependent on conditions at the site. Factors contributing to feasibility include: a safe, level surface; presence of permafrost; and the area of work. The applicant states that if the surface is not already level enough, surface preparation would be required for matting, which would defeat the purpose of using mats. Matting applied to permafrost wetlands during the summer season, could result in compression of the surface organics, and lead to an increase in active layer thaw. And lastly, if the area in which matting would be feasible is short, the logistics and costs associated with switching construction methods may make it become not practicable.

In addition to these considerations, cranes lifting a string of pipe would, "…easily exceed 100,000 pounds, and may approach or exceed 200,000 pounds…", at which point they would exceed the maximum rating of composite mats. This heavy equipment, loaded with a string of pipe, would likely be working at the edge of the mat, compressing the mat's edge into the organic surface of the wetland, causing potential thermokarst to form after removal of the mats. Lastly, edge instability of mats can cause them to de-couple and tilt or tip forward towards the trench, which would create an unsafe situation. This could be avoided by placing multiple layers of mats (cross-wise, length-wise, cross-wise) to provide a stable work surface, which would significantly increase the number of mats required.

Corps Response: The Corps requested that the applicant address this recommendation specifically. The Corps does not consider the potential for matting to cause permafrost thaw and thermokarst impacts reason enough to dismiss this construction alternative, as the proposed methodology (fill placement) would definitely cause permafrost thaw and thermokarst impacts. However, the Corps does believe the applicant has responded to this comment sufficiently, as additional costs and logistics incurred by changing construction methodologies for short distances, as well as by requiring more mats to create safe working situations would make the methodology, in some cases, not practicable. The Corps will require that the applicant provide their findings of

where additional matting could occur before construction of the proposed project would begin.

EPA7: EPA suggests that fill material for the proposed temporary use fill pads could be removed and re-used, if underlain by geotextile material, thus reducing permanent impacts to waters of the U.S., as well as the extent of material site developments.

Applicant Response: The applicant states that geotextile materials used for separation and subgrade stability are susceptible to puncturing and ripping due to void spaces, sharp objects, and heavy equipment tracks and/or blades, making large scale removal of the fill difficult. Damage to the subgrade would be likely. This would be compounded by the confined right-of-way area, as large excavators and dump trucks would be required for such an effort. In addition, removal and reuse of fill material would require the expansion of the right-of-way so that travel and sequencing of pipe staging, welding, and lay operations would not be impacted. Also, not all fill could be removed, as the gravel fill will extend over the pipeline trench. There are federal regulations which require a minimum cover of material over a buried pipeline. The fill placed would help to meet this requirement.

Corps Response: The Corps requested that the applicant address this recommendation specifically. The Corps has determined the applicant has demonstrated that removal and reuse of fill material is not practicable due to logistics.

EPA8: EPA states, "The proposed compensation would not offset the lost acreage at a minimum one-to-one compensation ratio, nor would it fully replace the aquatic resource functions that would be lost from the proposed project." The EPA is also concerned with the methodology used which proposes compensatory mitigation in only those watersheds which have or would have a 5% cumulative disturbance after project completion. EPA states that functional capacity is conducted at the site scale rather than the watershed scale, and states that, "The Guidelines identify that functional or condition assessment methods should be used where practicable to measure changes in aquatic resource functional capacity, and 'determine how much compensatory mitigation is required.'"

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: See Section 5 of this document for information regarding the Corps' rationale as to how compensatory mitigation requirements have been determined. The Corps acknowledges that in most cases, site specific functional or condition assessments are beneficial for determining functional loss and

subsequent compensatory mitigation requirements. However, there are no regulations requiring that such assessments be completed for such purposes, and functional assessments do not exist for some areas of the proposed project's large span. For a project of this scale performing functional or condition assessments prior to construction would be difficult given the remoteness of much of the project area. Remoteness of much of the project area is also why field wetland delineations did not occur for the entire project route. In addition, the proposed project spans multiple different ecoregions, and not one functional or condition assessment would be appropriate for the entire project area, adding to the complexity. With remoteness of the project area in mind, it should also be taken into consideration, that much of the proposed project has little to no anthropogenic impacts, therefore, if an assessment was completed, the functional capacity index (FCI) or equivalent would likely equal one or close to one, meaning the aquatic resource is functioning at its highest potential. Although the remote, pristine aquatic resources would be impacted by the proposed project, and a loss of resource function would occur, due to the remoteness, lack of surrounding development, and linear nature of the proposed project, it would be expected that the FCI would still, in many cases, reveal a highly functioning aquatic resource, and may not indicate a significant degradation.

EPA9: EPA states, "…AGDC's compensation proposal is not based on the impracticability of providing compensation and the analysis and proposed approach are inconsistent with the Guidelines."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The compensatory mitigation plan is based on compensatory mitigation required by the Corps and mitigation opportunities that are available and practicable. The Corps has determined that the Wetlands Compensatory Mitigation Plan is consistent with 2018 Joint Corps/EPA mitigation MOA and the Guidelines to the extent practicable. See Section 5.0 of this document for more information.

U.S. Fish and Wildlife Service (USFWS); Ms. Karen Clark, Regional Director

The USFWS submitted comments on April 10, 2020, well after the comment period for the PN closed. However, the comments were received in enough time to include and consider them in this document.

USFWS1: The Migratory Bird Conservation Plan developed for the proposed project should, "…be expanded to discuss all bird species protected under the Migratory Bird Treaty Act."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Corps has no authority under the Migratory Bird Treaty Act, and cannot request or require the applicant to make amendments to their Migratory Bird Conservation Plan. Compliance with this act is solely the responsibility of the applicant. Also, as stated in the FEIS (Section 4.6.2.3) the applicant has a Migratory Bird Conservation Plan, and will address outstanding issues regarding timing of vegetation clearing and mowing (FEIS, Appendix X, Recommendation Number 48). In addition, vegetation clearing or fill placement would take place outside of the nesting season (FEIS, Appendix X, Recommendation Number 49).

USFWS2: The applicant should, "…reconsider their proposal to not remove fill placed in wetlands for temporary Project needs, and reclaim wetland functions whenever practicable. An alternative to reclamation would be to acknowledge the temporary work pads as permanent."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The removal of fills for temporary uses has been discussed at length with the applicant. There are many challenges in removing fills for a project of this scale. Such challenges are the potential damage fill removal could cause to the underlying ground, costs of removal, and disposal sites may be difficult to find. Many material sites will not accept fill material back, as it can no longer be guaranteed clean (i.e. free of contaminants and invasive species). In the DA permit application, all fills for temporary uses are referred to as "temporary use" fills, and it is acknowledged that these would be permanent fills. Temporary use fill acreages are listed under "Permanent" impacts in the Wetland Impact Tables. The Corps understands the language is confusing. Mitigation requirements are assessed with these impacts acknowledged as permanent.

USFWS3: Relatively warm hydrostatic test water discharged onto permafrost supported wetlands could "…cause thermal erosion or thermokarsting of the frozen soils, impacting wildlife habitat." It's been documented that ground thawed with water remains thawed indefinitely. The USFWS recommends additional mitigation measures to avoid these impacts, including the reuse of test water to minimize the number of discharges required, and avoiding hydrostatic test water discharge onto land during the bird-nesting season.

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Corps has no regulatory authority over the discharge of water into wetlands or any other water of the U.S. Although the Corps acknowledges the potential impacts which could occur from hydrostatic test water discharge into wetlands, this comment may be better addressed through the State of Alaska's Department of Environmental Conservation (ADEC) and EPA's CWA Section 401 review.

USFWS4: For construction of the mainline pipeline, the applicant proposes to impact less than three acres of rare string bog habitat. As these bogs develop over thousands of years, impacts would not be restorable, and the USFWS recommends avoiding these wetlands by choosing a different route, or by using vertical support members to elevate the pipeline.

Applicant Response: The Corps requested that the applicant provide information as to whether it would be practicable for the mainline pipeline to be elevated on VSMs for these portions of the route. The applicant explained that less than one mile of the mainline pipeline would cross string bogs. This one mile would be, "…distributed across 94 miles of the pipeline footprint, in 19 separate locations…"; it would not be a continuous one mile stretch. Each individual crossing of string bogs would vary in length, ranging from 52.8 feet to 844.8 feet long. It would not be practicable to switch installation methods for such short stretches. In addition, constructing the mainline pipeline on VSMs would be problematic for operations. A liquefied natural gas pipeline situated above ground would be more susceptible to condensation of the gas stream occurring in the pipeline. In addition, VSMs require the support of continuous permafrost. String bogs typically consist of saturated organics that can be up to nine meters in depth, and installation of VSMs would require deeper pile foundations installed with additional heavy equipment, increasing the construction footprint and duration of activities within the string bog wetlands.

Corps Response: The Corps requested the applicant address this comment specifically. In consideration of the information in Section 4.4.3.2 of the FEIS, with the information additionally provided by the applicant, the Corps has determined the applicant has sufficiently addressed why it is not practicable to elevate the pipeline through string bog wetlands.

USFWS5: The USFWS recommends ground truthing the proposed project area to determine where moss-lichen wetlands may occur. Moss-lichen wetlands are an important winter forage for caribou, and the proposed project may impact about 3.7 acres of such wetlands. The USFWS recommends avoiding disturbance to these wetlands once identified, if practicable.

Applicant Response: The Corps requested that the applicant state whether or not they could identify these specific wetlands when they are identifying wetland boundaries per FERC requirements, and to state whether or not they could avoid

such wetlands. In their response, the applicant outlined their measures to avoid moss-lichen wetlands using desktop resources. The applicant then stated that during the wetland delineations required by FERC Staff's Recommendation Numbers 38 and 39, they would identify moss-lichen wetlands as well as wetlands containing *Arctophila fulva*, and "…evaluate the potential for avoidance."

Corps Response: The Corps has determined the applicant has sufficiently addressed this comment.

USFWS6: The USFWS recommends ground truthing the proposed project area to determine where wetlands containing pendant grass (*Arctophila fulva*) are located, and avoiding disturbance to these wetlands once identified, if practicable.

Applicant Response: The Corps requested that the applicant state whether or not they could identify these specific wetlands when they are identifying wetland boundaries per FERC requirements, and to state whether or not they could avoid such wetlands. See "Applicant Response" to USFWS5.

Corps Response: See "Corps Response" to USFWS5.

USFWS7: The USFWS recommends that culverts be designed not only in consideration of hydraulics and fish passage, but also in consideration of floodplain integrity both up and downstream of the crossing. The USFWS references the FERC recommendation of the applicant developing a Culvert Design and Maintenance Plan.

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Corps concurs with this recommendation. As the referenced plan would be a result of a FERC recommendation, the Corps has no authority to require specifics to be included in the plan. The Corps will include a special condition that culverts be sized and installed properly to maintain floodplain connectivity.

USFWS8: The USFWS recommends that similar mitigation measures for vertical scour potential be applied for areas where channel migration could occur to protect the pipeline from riverbank erosion and channel migration across the floodplain. The USFWS recommends burying the pipeline 5-feet deep throughout the meander belt of a floodplain.

Applicant Response: The Corps requested that the applicant state whether they could implement this suggested measure. The applicant responded that for all

waterbody crossings to be completed via open-cut, project plans specify a minimum 5-foot burial depth below the stream channel, and that where applicable, the 5-foot burial minimum depth would include multiple channels within a meander belt. The applicant stated that they could implement the requested minimization measure.

Corps Response: The Corps has determined the applicant has sufficiently addressed the comment.

USFWS9: The USFWS recommends expanding the Spill Prevention, Control, and Countermeasure Plan (SPCCP) and Project Procedures and Waste Management Plan, "…to include measures to respond, contain, control, and clean up a spill in sea ice conditions."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Corps has no authority to require changes to these plans, although the Corps acknowledges the legitimacy of the USFWS's concern regarding spills in sea ice conditions.

USFWS10: The USFWS states that they believe salvaging frozen topsoil is practicable as technology is available, and has been used for more than a decade by the pipeline industry in western Canada.

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Corps agrees with the USFWS, and will require that topsoils be segregated and stockpiled separately for use in reclamation. See Section 5.3 of this document.

USFWS11: For areas outside the North Slope, the USFWS recommended specific slopes to reclaim material sites in order to create suitable bird habitat. For reclamation of material sites on the North Slope, the USFWS recommended the following: "1) Salvaging the active organic topsoil layer…and stockpile on an adjacent ice pad/pad. 2) Removing the remaining inorganic/mineral overburden from the cell and stockpiling it separately from the organic topsoil on an adjacent ice pad/pad. 3) Placing a berm of inorganic overburden around the outside edge of the cell as insulation to prevent thermokarsting and erosion of the cell sidewalls. 4) As a safety precaution, constructing side slopes of the cell no steeper than 2H:1V (preferably 3H:1V). 5) Placing the inorganic/mineral overburden back into the cell when mining is complete to create 3H:1V side slopes if possible. 6) Using organic topsoil to stabilize the top edges of the side slopes of the mined cell, to reclaim the adjacent tundra disturbed by mining

operations, and/or to use in other reclamation sites. 7) Keeping the berm surrounding the pit in place as a safety precaution until the pit has completely filled with water, at which point the berm can be removed (e.g., pushed into the water filled pit)."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: In general, the Corps concurs with the USFWS's recommendations, but will not require specific side slopes for reclamation of material sites. Rather, side slopes, similar to other fills, would be required to be stabilized and not erodible. However, the Corps will require segregation of top soils to be used in reclamation, and that a berm to be constructed around a material site. See Section 5.3 of this document.

USFWS12: The USFWS recommends prohibiting the use of synthetic monofilament mesh/netted erosion control materials along the entire proposed project footprint, as they pose a significant threat to wildlife through ingestion and strangulation.

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Corps concurs with the USFWS's recommendation, but declines to prescribe specific erosion prevention measures. The Corps' special conditions to the DA permit would only require that the applicant use erosion prevention measures and that those measures be successful. See Section 5.3 of this document.

USFWS13: The USFWS states their disagreement with using a threshold of watershed disturbances in the large HUC12 watersheds the proposed project would impact, as the studies which support the threshold of watershed disturbances were in much smaller watersheds. The USFWS states that watershed degradation could occur before thresholds are reached, as degradation is dependent on locations and circumstances. The USFWS recommends requiring compensatory mitigation for wetland functional losses, but not limiting required compensation to watersheds exceeding a certain threshold.

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Corps acknowledges the USFWS's comment. See Section 5.1.3 of this document for a discussion of compensatory mitigation requirements.

USFWS14: The USFWS states that rare and difficult to replace wetlands should be mitigated for, including avoidance, minimization, and compensation.

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Corps concurs with the USFWS.

USFWS15: The USFWS requested the following conditions be made a part of the DA permit, if issued: (responses below each proposed condition)

"1. A final mitigation plan shall be approved by the USACE in consultation with the Service before work commences in waters of the U.S., including wetlands. Unavoidable direct, indirect, and temporal (e.g., >3 years) project impacts to wetlands shall be compensated with at least equal-functioning wetlands."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: A final mitigation plan has been approved by the Corps. Due to considerations of construction timing, site specific permittee responsible mitigation plan(s) will be refined and approved prior to commencement of construction activities. The Corps declines to include the Service as part of the mitigation project approval process. The Corps, at their discretion, will request input from resource agencies as needed during the review process(es) of mitigation project plan(s).

"2. A buffer of one hundred feet of undisturbed vegetation shall be maintained along any ponds, lakes, creeks, rivers, or higher-value wetlands (e.g., emergent wetlands, string bogs, moss-lichen wetlands). The buffer width shall start from the edge of the riparian area associated with waterbodies or from the edge of higher-value wetlands."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Corps agrees with this special condition and will include it with modification. See Section 5.3 of this document.

"3. Disturbance to uncommon wetlands, such as string bogs, moss-lichen wetlands, or *Arctophila* wetlands shall be avoided to the maximum extent practicable. Any unavoidable wetland-function impacts shall be compensated."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: Impacts to these wetland types have been minimized to the extent practicable. See the applicant's response to USFWS5 and USFWS6. Compensatory mitigation requirements are discussed in Section 5.1.3 of this document.

"4. All fish-bearing stream crossings shall include natural channel designs (e.g., USFWS [2020] Culvert Design Guidelines for Ecological Function) to facilitate fish passage for all life stages."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: Per AS 16.05.841, the applicant would be required to obtain fish habitat permits for all fish-bearing stream crossings from the Alaska Department of Fish and Game (ADF&G). ADF&G is the more appropriate authority to determine and regulate appropriate stream crossings for the proposed project. Therefore, the Corps declines to adopt this condition.

"5. Stream crossings shall preserve floodplain connectivity to the greatest extent possible, including setting the invert for overflow culverts at the same grade level as the floodplain, and distributing the overflow culverts to match flood-flow patterns in the floodplain. These culverts would be in addition to the elevated culverts intended to account for aufeis overflow, which would not support floodplain connectivity because they are elevated."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Corps will adopt this special condition, with modifications. See Section 5.3 of this document.

"6. Culverts installed for sheet-flow connectivity shall be marked in such a way they can be routinely inspected to ensure their intended function is not limited by debris clogging the inlet, or by the culverts subsiding below the land surface."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: All culverts will be required to be maintained in good working condition for whichever purpose they serve, as per General Condition 2 of a DA permit (33 CFR 325, Appendix A). The Corps declines to adopt this special condition.

"7. The pipeline shall be buried in the meander belt of the floodplain at the same elevation as the depth under the river or stream (e.g., at least 5 feet below the expected maximum-scour depth elevation), and include the same scour protection measures as under the stream or riverbed."

Applicant Response: See response to USFWS8.

Corps Response: The applicant stated they could implement this measure, and that their project plans specify a 5-foot depth for open waterway crossings, which may extend into the meander belt of a waterway. As such, the Corps will not include this as a special condition.

"8. The uppermost soil layer (~6-12 inches) containing seeds, plants propagules, roots, organic matter, and soil microbes excavated for trenching and other activities shall be salvaged for the entire Project footprint, handled and stockpiled separated, and later used in reclamation to enhance the revegatation process with locally adapted native plant species."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Corps will include a special condition regarding topsoil segregation. See Section 5.3 of this document.

"9. Material sites shall be reclaimed in accordance with a plan approved by the USACE in consultation with the Service. Reclamation shall be accomplished within 3 years on any portion of the material site that has been inactive (abandoned) for 3 years, or where the material source is no longer practical or economically feasible to extract."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Corps will require reclamation of material sites in accordance with the applicant's reclamation plan. The Corps declines to include the Service as part of the approval plan. The Corps, at their discretion, will request input from resource agencies as needed.

"10. To minimize wildlife entanglement and inadvertent ingestion, as well as plastic debris pollution, erosion and sediment control products shall be plastic-free, such as netting manufactured from 100 percent biodegradable, non-plastic materials like jute, sisal, or coir fiber."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: See response to USFWS10.

"11. Natural drainage patterns shall be maintained to the extent practicable by the installation of culverts or bridges in sufficient number and size under access roads and trails to prevent ponding, diversion, or concentrated runoff that would result in adverse impacts to adjacent wetlands and other fish and wildlife habitats."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Corps will require maintenance of hydrology throughout the proposed project area. See Section 5.3 of this document.

"12. All disturbed, stockpile, and fill areas shall be stabilized to prevent erosion. Increased water turbidity and accumulation of sediment in drainages, sloughs, and other wetlands shall be evidence of insufficient stabilization."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Corps will require sufficient erosion and sediment control measures. See Section 5.3 of this document.

"13. The boundaries of all construction areas shall be staked or flagged prior to construction to prevent inadvertent encroachment outside the permitted construction area. No fill, equipment, or construction materials shall be stockpiled or stored on wetlands that do not have authorization from the DA for those activities."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Corps will require the applicant mark the boundaries of the proposed project footprint. See Section 5.3 of this document.

"14. When Project improvements (e.g., infrastructure, roadbed, pads) are no longer required, end-of-project reclamation shall include removing fill placed on wetlands, and restoring the original contour of the landscape to return the land to its original condition for fish and wildlife habitat."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: See response to USFWS2.

Military Aviation and Installation Assurance Siting Clearinghouse (Military Clearinghouse); Mr. Steven J. Sample, Deputy Director

The Military Clearinghouse submitted comments on April 13, 2020, well after the comment period for the PN closed. However, the comments were received in enough time to include and consider them in this document.

Military Clearinghouse1: Construction activities may impact U.S. Air Force low-level flight operations out of Joint Base Elmendorf-Richardson in areas from 64°05.17' N., 149°31.27' W to 64°08.12' N, 148°31.55' W. The applicant should contact the 11th Air Force's Airspace Management Team at ALASKAMILITARYAIRSPACE@us.af.mil.

Military Clearinghouse2: "The proposed route also passes under restricted airspace operated by the U.S. Space Force." The applicant should contact Ms. Martha Wilkinson at martha.wilkinson.1@us.af.mil to discuss the restrictions.

Military Clearinghouse3: "…ongoing radar improvements at Clear Air Force Station are leading to an expansion of restricted airspace, which may impact aircraft surveys and helicopter operations for this project." The applicant should contact Mr. Frank Pichler at frank.pichler.FFRDC@mda.mil to discuss and facilitate a plan to coordinate operations.

Applicant Response: The applicant reviewed the identified airspace relative to the pipeline route and determined that all facilities and work would be less than 100 feet high, and should not interfere with the airspace.

Corps Response: The applicant's review of the airspace was only the area specifically identified by the Military Clearinghouse; the other two airspaces were only generally referenced, which would require the applicant to contact those named points of contact specifically. The Corps forwarded the provided information to the Military Clearinghouse, and will add a special condition to the permit requiring the applicant to contact those named in the Military Clearinghouse's letter to coordinate construction operations prior to construction occurring in all referenced areas.

4.2 Local Agencies:

Fairbanks North Star Borough (FNSB); Ms. Nancy Durham, Flood Plain Administrator

FSNB1: The proposed project would require a floodplain permit for any work conducted in Flood Zone A. The comment also identified project areas where a zoning permit would be required.

Applicant Response: The applicant acknowledged receipt of the comment, and stated that prior to initiating work in the FNSB area they will obtain all appropriate zoning and floodplain permits.

Corps Response: The Corps will take into consideration that within the FNSB floodplain permits are required, which would ensure minimal impacts to such features.

Alyeska Pipeline Service Company (Alyeska); Mr. Peter Nagel, Lands Manager

Alyeska1: The proposed mainline pipeline route would incorporate 12 crossings with the Trans Alaska Pipeline System (TAPS) and five fuel gas line crossings. Alyeska states that the proximity to TAPS exposes it to a substantial risk, and Alyeska would like to see the number of crossings reduced, if possible.

Applicant Response: The 2016 TAPS Engineering Impact Study referenced by Alyeska in their comments, included the analysis of many safety concerns, including TAPS facility crossings by the mainline pipeline. Through this, the applicant minimized crossings to the greatest extent possible. Currently, 14 crossings of TAPS facilities are proposed. Two crossings were added to mitigate geohazard concerns of slope failure events, which would have an increased risk to TAPS. Site specific crossing plans were provided to FERC during the NEPA review process, and the applicant has committed to developing those specific plans further with Alyeska during detailed final design. The FEIS concluded that the mainline pipeline would meet design and safety requirements at these crossings.

Corps Response: The Corps requested that the applicant provide a response describing the measures they have implemented, or would implement, in order to mitigate and minimize the safety concerns presented by Alyeska. The Corps has determined that the applicant has adequately addressed this comment.

Alyeska2: Outside of the crossings of TAPS facilities, the proposed mainline pipeline would encroach within 200 feet of the TAPS mainline 17 times over seven miles. In that seven miles, two are only at 40 feet of separation from TAPS. In addition, the proposed mainline pipeline would encroach fuel gas lines nine time along 14 miles. In that 14 miles, nine are only at 90 feet of separation. Alyeska states that the encroachments, "…may expose TAPS to unacceptable risks, particularly at pump stations driveways, stream crossings, and unstable slopes."

Applicant Response: The applicant corrected this comment, stating that the current mainline pipeline route is within 200 feet of TAPS a total of 17 times within the 400 miles that it is in proximity to TAPS. Six of those are within the constricted and geographically constrained Atigun Pass; four are within another geographically constrained area alongside the Koyukuk River; and the remaining seven occur variously between MP 193 and 397 of the mainline pipeline, where the route is confined between TAPS and the Dalton Highway. The applicant has committed to further refining these during final detailed design to further minimize the location and length.

Corps Response: The Corps has determined that the applicant has adequately addressed this comment.

Alyeska3: Although the current proposed project plan would have the mainline pipeline cross the Yukon River separately from the E.L. Patton bridge, Alyeska emphasized the need for the individual crossing. The consequences of a failure if collocated on this bridge are extremely high.

Applicant Response: The applicant did not directly address this comment; however, the applicant did state that the 2016 TAPS Engineering Impact Study contained a detailed crossing method analysis for the Yukon River crossing near the E.L. Patton bridge.

Corps Response: The Corps determined that this comment did not require a response from the applicant, as the statement seemed to just reiterate Alyeska's concerns of collocation on the bridge. The proposed project does not collocate the mainline pipeline on the E.L. Patton bridge.

Alyeska4: Alyeska recommends, "Any proposed access road which would intersect the [TAPS] pipeline…should be relocated to a below-ground TAPS segments..."

Applicant Response: The applicant responded directly to Alyeska that the general approach for access roads would be to cross at below-ground TAPS segments, and only one access road is planned at an aboveground TAPS location near the Dietrich Camp and Pipe Storage Yard.

Corps Response: The Corps has determined that the applicant has adequately addressed this comment.

Alyeska5: Alyeska requests involvement in the applicant's planning for mineral material resource use, noting discrepancies between how many TAPS authorizations were listed in the permit application materials and how many Alyeska understands there to be.

Applicant Response: The applicant stated that in their meeting with Alyeska, Alyeska clarified that this comment should have been deleted, and that no discrepancies existing between the number of mineral material sites listed in the permit application materials and TAPS authorizations.

Corps Response: The Corps has determined that the applicant has adequately addressed this comment.

Chugach Electric Association (CEA); Ms. Karen Keesecker, Manager – Land Services

CEA1: CEA has no objections to the proposed project, but wanted to make the applicant aware that the proposed mainline route would cross under CEA overhead electrical distribution lines at two points, approximately at MP 764.2 and MP 765. CEA states that coordination with their engineering department during the design and construction phase is necessary.

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Corps forwarded the comments to the applicant, but did not require a response.

Earthjustice, Center for Biological Diversity, Chickaloon Village Traditional Council, Cook Inletkeeper, Natural Resources Defense Council, Northern Alaska Environmental Center, and Sierra Club (Earthjustice); Ms. Sarah Saunders – Paralegal

Earthjustice1: The Corps, ADEC, and EPA should deny the proposed project a DA permit on the grounds that the proposed project, "…undercuts public participation by forcing the public to choose between losing the chance to comment on a proposal that would have significant adverse environmental effects spanning the entire state, and poring over reams of confusing, inaccurate, incomplete information about a project that may never be built in any form."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Corps cannot deny a permit on the basis of how confusing or complex a project may be. The proposed project has been reviewed in accordance with typical permit evaluation procedures for an application for an individual permit, and included a 60-day comment period. The PN for the proposed project directly notified numerous individual adjacent property owners, state, federal, and local agencies, as well as those who have requested to be notified of all Corps, Alaska District public notices, in addition to being posted on

the Corps, Alaska District's website. Comments received during the PN comment period were minimal. Typically, the Corps treats the receipt of no comments from any individual or agency as that they have no objection to the proposed project (33 CFR 325.5(d)(3)). The minimal amount of comments received in response to the proposed project's PN indicates that the public has no substantial objection.

Earthjustice2: The Corps may not adopt FERC's DEIS for the proposed project as it does not fully "…address the full scope of alternatives or direct and indirect environmental effects from the Corps' permitting action..."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Corps agrees that it would not be able to rely on the DEIS for the proposed project to support a permitting decision. However, the Corps has reviewed FERC's FEIS and determined it is adequate to meet the Corps' NEPA requirements. Any supplemental information which may be needed to support the Corps' decision making process that isn't included in the FEIS is included in this document. Any supplemental information which may be required is not at a level such that it would require a supplemental EIS.

Earthjustice3: "The Corps must deny the permit because the proposed discharge does not comply with the Clean Water Act's Section 404(b)(1) guidelines." The DEIS and the DA permit application fail to demonstrate that the proposed project would comply with the Guidelines.

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: EISs are documents required under NEPA, and an EIS for any project is not required to include a Section 404(b)(1) Guidelines analysis. DA permit applications also do not require such an analysis to be included. The Guidelines analysis is required to be included in decision documents, and such analysis for the proposed project is found in Section 6.0 of this document and is supported by the information in the FEIS.

Earthjustice4: The DEIS does not support a finding that the proposed action is the LEDPA. The Corps cannot adopt the alternatives analysis in the DEIS because it fails to adequately assess the impacts of the use of LNG terminals in British Columbia or other LNG export facilities on the west coast. The alternatives analysis in the DEIS also does not offer any analysis to support the statement that the additional 37.5 miles of mainline pipeline required for the Fairbanks Alternative would not be outweighed by the benefits of avoiding Minto

Flats State Game Refuge and decreasing a future lateral pipeline to Fairbanks by 23 miles.

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Corps has reviewed FERC's alternatives analysis in the FEIS and agrees with the conclusions therein, and has expanded on the analysis where necessary (see Section 3.0 of this document).

Earthjustice5: The proposed project cannot be the LEDPA because the applicant has not sufficiently explained its choice of construction modes for roads and work pads in wetlands. Earthjustice refers to the Corps' and EPA's comments regarding the usage of mats instead of fill, and foam insulation in fills.

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Corps requested that the applicant more thoroughly address these issues in response to comments from the EPA. See response to comment EPA3 for additional information.

Earthjustice6: Earthjustice makes the point that the applicant has stated they plan to use millions of gallons of water for hydrostatic testing of the pipeline from sources which occur along the mainline pipeline route. However, the applicant has also stated that there is not enough water along the pipeline route to construct ice roads and pads for winter construction.

Applicant Response: The applicant explained that the construction of more ice roads and pads would require a significantly larger amount of water than is necessary for hydrostatic testing of the pipeline. Hydrostatic testing would require 298 million gallons of water, while constructing ice roads and/or pads in areas slated for Mode 4 construction with a slope of less than 2% would require around 475 million gallons of water. Also, not all terrain is suitable for ice road and pad construction. In addition, hydrostatic testing would be completed in the summer months because the sources and methods of water withdrawal are not restricted or prohibited due to overwinter fish habitat by the ADF&G. During winter, when ice roads and pads would be constructed, those restrictions would apply.

Corps Response: The Corps requested that the applicant address this recommendation specifically. The Corps believes that the applicant has sufficiently addressed this comment.

Earthjustice7: The DEIS must determine whether any alternatives, including the proposed project are practicable. "There have been many failed attempts to build a gas pipeline in the past due to the economic constraints, and this particular project would rely on the highly uncertain development of offshore gas fields to generate sufficient quantities of gas over the 30-year period…Moreover, AGDC's President has stated publicly that the Project described in this application costs too much to be viable."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: None of the alternatives evaluated were dismissed due to economic constraints. The Corps' additional discussion of the Port MacKenzie Alternative does touch on the cost of potential required dredging, but costs were not the sole reason the alternative was dismissed. Per 33 CFR 320.4(q), the Corps generally assumes "…that appropriate economic evaluations have been completed, the proposal is economically viable, and is needed in the market place." The Corps can take into consideration cost to evaluate the practicability of an alternative and require information to support decision making, but that is not typically necessary unless an applicant states that cost alone is the reason they cannot adopt the alternative. In this case, the applicant has never stated to the Corps that the proposed project is not economically viable. Furthermore, no regulation exists which states that a permit can be denied or that a permit application should be withdrawn if a proposed project is shown to not be economically viable.

Earthjustice8: The DEIS is lacking information for "…over half of the waterbodies that the Mainline Pipeline would cross and for 69 percent of the waterbodies that the PTTL would cross." Additionally, it "…fails to appropriately identify the effects of wetland loss and fails to explain how proposed mitigation would avoid significant degradation of the aquatic ecosystems."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Corps has reviewed the pertinent sections of the FEIS, and has found them to be adequate for the Corps' purposes.

Earthjustice9: The proposed project "…would destroy important habitat for Cook Inlet belugas and otherwise adversely affect these whales and their prey."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: As the lead federal agency, FERC is conducting formal consultation under Section 7 of the ESA for proposed impacts to listed species, including the Cook Inlet beluga whale. On June 3, 2020, the National Marine Fisheries Service (NMFS) issued a biological opinion (BO) to FERC in which they determined, "…the proposed action is not likely to jeopardize the continued existence of…endangered Cook Inlet beluga whales…" and, "…the proposed action is not likely to destroy or adversely modify the designated critical habitat for Cook Inlet beluga whales." The Corps reviewed FERC's biological assessment (BA) and NMFS's subsequent BO and determined it was sufficient for the Corps' purposes.

Earthjustice10: Mainline pipeline construction across Cook Inlet "…would occur during the salmon and eulachon runs, risking harm to the fish through increased turbidity and potential exposure to toxins from suspended particles..." "Dredging could also interfere with spawning and egg and fish survival, as eggs and fish can be killed by entrainment in suction-type dredge equipment."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: Impacts to marine fish species which may be affected during dredging operations are discussed in Section 4.7.1.7 of the FEIS. The Corps has reviewed this section of the FEIS and concurs with its analysis.

Earthjustice11: There are large discrepancies between the DEIS and the 404 permit application materials regarding wetland impact totals.

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: See response to EPA1.

Earthjustice12: The proposed project "…does not include all appropriate and practicable measures to minimize impacts to the aquatic ecosystem." The DEIS fails to adequately assess mitigation options and describe how mitigation would be effective, while relying on FERC recommended measures as well as "…hypothetical and unproven mitigation measures..."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: Minimization measures for impacts to waters of the U.S., including wetlands, are discussed in Section 5 of this document. The Corps has reviewed the FEIS and concurred with its analysis. The minimization measures discussed, including FERC recommendations, are adequately included and

appropriate. The minimization measures included would be typical measures and are not considered hypothetical or unproven.

Earthjustice13: The proposed project's compensatory mitigation plan is inadequate. "The plan fails to identify the extent of wetland function loss or timing of full or partial recovery for specific wetlands..." No compensatory mitigation is proposed for temporary impacts such as those which would occur from ice roads and pads and their construction.

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: Compensatory mitigation is discussed in Section 5.0 of this document. The Corps has determined that the applicant's compensatory mitigation plan would sufficiently offset unavoidable losses to the extent required and practicable. The Corps does not have jurisdictional authority to regulate ice roads, pads, or the withdrawal of water from waterbodies in order to make such features. Therefore, the Corps cannot require compensatory mitigation to offset those features' impacts.

Earthjustice14: "The Corps cannot approve the proposed project because it cannot ensure the discharges will not jeopardize ESA-protected species or adversely modify their critical habitat."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: FERC is the lead federal agency with the responsibility for ensuring compliance of the proposed project under the ESA. See the Corps' response to comment Earthjustice9, above.

Earthjustice15: "The Corps cannot approve the proposed project because it would violate the State of Alaska's Water Quality Standards."

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The ADEC is responsible for determining whether or not the proposed project would violate the state's Water Quality Standards, then waive, issue, or deny certification thereof. The Corps cannot issue a permit if the ADEC denies certification. In such case, a DA permit would be denied without prejudice. See Section 8.1 of this document.

Earthjustice16: "The Corps must deny the permit because the proposed project is not in the public interest," as it would "…exacerbate the effects of climate

change." The DEIS does not provide information necessary for the Corps to meaningfully consider the proposed project's contribution to climate change, and it fails "…to estimate the likely enormous downstream emissions from burning gas delivered to market as a result..." of this proposed project.

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Corps has reviewed the discussion of climate change in the FEIS, Section 4.19.4.18 and concurs with the discussion. Climate change is also discussed in Section 7.1.3 of this document.

Earthjustice17: The proposed project risks dangerous spills and leaks in sensitive environments. Earthjustice cited data that show new pipelines carry a high risk of spills mostly because of faulty design or construction.

Applicant Response: The Corps did not request that the applicant address this comment; nor was it voluntarily addressed by the applicant.

Corps Response: The Pipeline Hazardous Materials Safety Administration (PHMSA) is the federal agency tasked with ensuring the safe design of the proposed project. PHMSA, as of March 24, 2020, has issued multiple permits to the applicant for the proposed project. The Corps assumes that if the proposed project receives all required PHMSA permits, that it complies with all pertinent safety regulations.

4.3 Individuals:

Mr. Jim McCall

McCall1: On January 8, 2020, Mr. Jim McCall called after receiving notification of the PN's availability. Mr. McCall owns a 46 acre parcel that may be affected by the proposed project, and would like to sell the parcel to the applicant.

Applicant Response: Not applicable. The comment was not forwarded to the applicant. See Corps' response below.

Corps Response: The Corps provided Mr. McCall with the applicant's phone number so that he could contact them directly about his real estate concerns.

Mr. Ward Grant

Grant1: On January 15, 2020, Mr. Ward Grant submitted comments to the Corps via email. Mr. Grant's family owns properties located immediately adjacent to the proposed project's mainline pipeline location near Beluga, along Cook Inlet.

Mr. Grant's family uses these properties for recreational and commercial fishing purposes. According to Mr. Grant, the properties also provide for the operation of the only barge landing in the area. Mr. Grant is concerned that impacts related to noise, dust, and vehicle traffic could result in damage to his family's properties, and that construction operations would result in a complete cessation of their family's commercial fishing activities, resulting in financial hardship.

Grant2: Construction of the proposed project may result in the interruption of his family's right of way, ingress and egress, to the Beluga Highway, which would interfere with operations at the existing barge landing.

Grant3: The pipeline may obstruct vessels from landing at the existing barge landing. Mr. Grant states that this may not occur after construction, depending on the depth of the pipe below the seafloor, but that during construction, barges may not be able to navigate and land, again resulting in cessation of his commercial activities and loss of revenue.

Grant4: The location of the Beluga MOF is such that it would impair the fishing rights for the tidal area, and would impact Mr. Ward's nephew and sister, along with others who lease the nearby fishing areas.

Grant5: The construction of the pipeline would impact the movement of salmon as they migrate along the tidal area of Three Mile Beach towards their spawning rivers. These salmon are pushed and pulled by the tide, and Mr. Ward's family fishes both the incoming and outgoing tide, within an allotted 12 hour time period. If interfering construction is occurring during that 12 hours, it could impede or stop their fishing.

Grant6: The proposed MOF is in an area of strong ebb and flow of the tide, which when out leaves soft, quicksand-like mud. It is also in a fairly shallow area. The existing barge landing is located in a deeper area, but barges can still only get in during high tide, and must leave again within a half hour to avoid becoming stranded. This barge landing must be constantly maintained, according to Mr. Ward, due to things such as erosion from the strong tides, gale force winds, underground springs and occasional seismic activity. Mr. Ward believes this location will prove to be problematic for the proposed project, and that it would extend the construction period, furthering the length of time his family's fishing operations would be impacted.

Applicant Response: The applicant replied to Mr. Grant directly and stated that upon his return to Alaska, they would schedule a meeting with him and other interested local residents to discuss the specifics of the proposed project construction in this location. The applicant also stated that they would be negotiating with each leaseholder to reach an amicable financial solution should there be any disruptions to commercial activity.

Corps Response: As Mr. Grant's comments were all related to impacts to his and his family's commercial fishing business and potential loss of revenue, the Corps has determined applicant's response is adequate.

5.0 MEANS TO MINIMIZE OR AVOID ADVERSE ENVIRONMENTAL IMPACT TO AQUATIC RESOURCES (40 CFR 230.70, Subpart H; 40 CFR 1505.2(c); 40 CFR 1505.3)

5.1 Mitigation:

5.1.1 Avoidance: The proposed project spans the entire state of Alaska, beginning off the North Slope of Alaska in the Beaufort Sea, ending near Nikiski along the coast of Cook Inlet. Due to the extent of waters of the U.S., including wetlands, across the state of Alaska, complete avoidance is not practicable.

5.1.2 Minimization: The applicant has committed to minimizing both direct and indirect impacts to waters of the U.S., including wetlands. Direct impacts would be minimized mostly by routing and locating the mainline pipeline and attendant features of the proposed project to impact the least amount of waters of the U.S., including wetlands, to the extent practicable. The applicant has made numerous minor adjustments to the proposed project in an effort to achieve this goal. One of the largest alignment adjustments the applicant made to minimize acreages of impacts to waters of the U.S., including wetlands, was by routing the mainline pipeline through Denali National Park and Preserve (DNPP).

In addition, the PTTL and the PBTL would both be constructed completely on vertical support members, rather than buried. The proposed project design was also changed such that all major river crossings by the PTTL would be completed via aerial span, rather than open trench crossing. Those aerial spans would avoid impacts to 2,400 feet of open water impacts.

In addition the applicant has stated they would adhere to following measures to minimize direct impacts to waters of the U.S., including wetlands, as described in their Wetlands Compensatory Mitigation Plan (2020):

1. Scheduling pipeline construction across wetlands during the winter to the maximum extent practicable.
2. Committing to determining whether more winter construction (rather than Mode 4 construction) is practicable during final design of the project.
3. Avoiding and minimizing ground disturbing activity in wetland habitats.
4. Maintaining existing hydrologic systems by use of appropriate ditching, culverts, etc. to avoid ponding or drying.

5. Re-establishing vegetation that is typical of the general area.
6. Using existing bridges and trenchless technology.
7. Minimizing temporary impact areas disturbed during construction activities where reasonably possible.
8. Favoring upland sites for permanent facilities and material sites where practicable. Strategic material source siting would minimize impacts to waters of the U.S., including wetlands, by 3,824.5 acres.
9. Utilizing previously disturbed areas for siting larger facilities (i.e., camps, pipe storage yards, operations and maintenance facilities, etc.). In combination with utilizing uplands, these measures would reduce impacts to waters of the U.S., including wetlands by 13,425 acres.
10. Ice roads would be utilized in the Northern Ecoregion to avoid disturbing or filling wetlands. The use of ice roads would reduce impacts to waters of the U.S., including wetlands, by 640.7 acres.
11. Ice pads and snow packing would be utilized during the trenching and burying of the mainline pipeline in the Northern Ecoregion. The use of ice pads and snow packing would reduce impacts to waters of the U.S., including wetlands, by 2,794.5 acres.
12. Excess spoil material, including vegetation, trees, and roots would be removed and placed in upland areas for disposal or removal.
13. Pipeline waterbody crossings would minimize impacts by using trenchless technology (directional micro-tunneling; DMT) or aerial crossing structures.
14. Existing material sources and access roads would be used to the extent practicable.
15. Facilities such as camps and pipe storage yards would be collocated when practicable.
16. In inundated wetlands, the mainline pipeline would be installed using a push-pull technique from mats, rather than from a filled pad.
17. The mainline pipeline trench would be restored by crowning (to account for settlement of backfilled material), re-contouring the soils, and revegetation.
18. Revegetation procedures would be implemented after construction to stabilize areas and prevent erosion.
19. Restoration of the GTP mine site and reservoir (after the life of the project) would be completed by using overburden from the sites to shape and contour the sites, resulting in ponded wetlands.

The applicant has stated that they would adhere to the following measures to minimize potential indirect impacts to waters of the U.S., including wetlands, as described in their Wetlands Compensatory Mitigation Plan (2020):

1. Providing secondary containment for fuel and lubricant stations in wetland areas with sufficient capacity to prevent release outside the station area.
2. Implementing procedures to minimize fuel and lubricant spills during construction.
3. Implementing procedures to limit the spread of non-native invasive plants.
4. Implementing dust abatement measures during construction to minimize dust deposition in wetlands.
5. Implementing a storm water pollution prevention plan and an erosion and sediment control plan to prevent sediment deposition into adjacent wetlands.

In addition to these measures listed above, the FEIS describes additional minimization measures the applicant has committed to, as well as those that FERC recommends and would likely require. Such measures can be found throughout the discussions in Sections 4 and 5.2 of the FEIS, as well as within Appendix X of the FEIS.

5.1.3 Compensatory Mitigation: The applicant has avoided and minimized impacts to waters of the U.S., including wetlands, to the maximum extent practicable. 33 CFR 320.4(r)(2) states that "All compensatory mitigation will be for significant resource losses which are specifically identifiable, reasonably likely to occur, and of importance to the human or aquatic environment." The Corps determination of appropriate and practicable compensatory mitigation requirements for unavoidable losses of aquatic resources was based on a watershed-level analysis consistent with federal regulations and the 2018 Joint USACE-EPA Memorandum of Agreement.

The proposed project would result in temporary impacts to 6,677 acres of waters of the U.S., including wetlands. Areas temporarily impacted would be expected to return to baseline, or similar, conditions within five years of the impact occurring, thus resulting in no permanent, significant resource losses of waters of the U.S., including wetlands. Therefore, compensatory mitigation will not be required for temporary impacts.

The proposed project would result in the permanent impact of 10,446 acres of waters of the U.S., including wetlands. As stated in Section 1.0 of this document, permanent impacts was defined as discharges of dredged and or fill material in waters of the U.S., including wetlands, which would remain in place for greater than or equal to five years. Of the disclosed permanent impacts of the proposed project, the majority of the total acreage would include both the permanent and temporary use pads and roads. Temporary use pads and roads would be scarified across the landscape to promote eventual natural revegetation. These

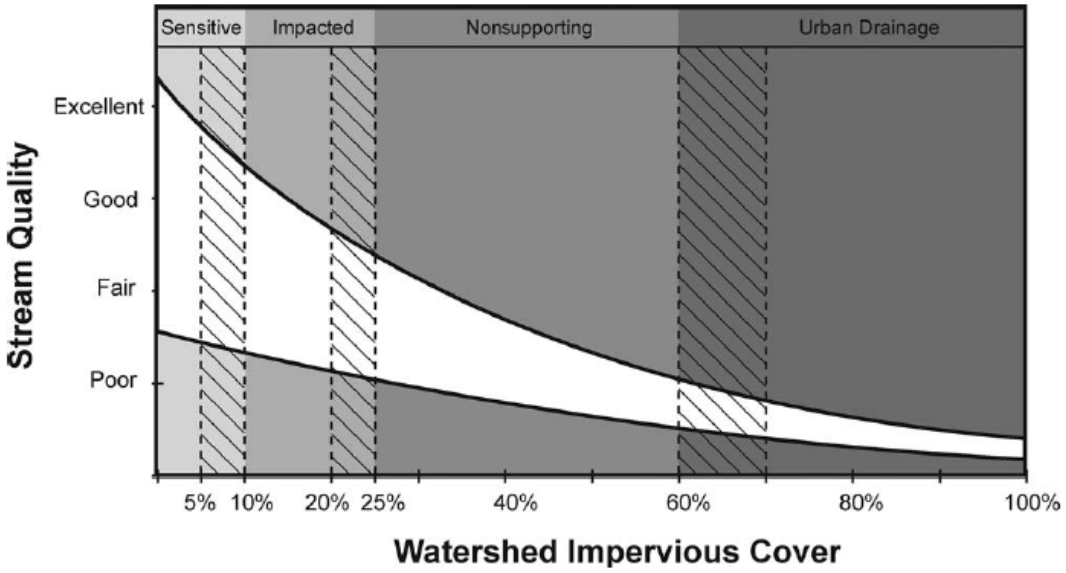
areas are expected to continue, to varying degrees and temporal lag, to contribute to the functional capacity of the affected watersheds. Considering that there will be no DA requirement for applicant to ensure restoration of these features to pre-disturbance levels, the impacts are considered permanent.

The impacts would not be concentrated in one specific area. Rather, permanent impacts would span the entire state of Alaska, crossing many watersheds over the 807-mile length of the proposed pipeline, most of which are remote with little to no human development, relatively unaltered hydrology, and few impervious or compacted surfaces. 33 CFR 332.3(c)(1) states, "The district engineer must use a watershed approach to establish compensatory mitigation requirements in DA permits to the extent appropriate and practicable." Therefore, compensatory mitigation must be required for watersheds in which proposed permanent impacts would be considered significant. 33 CFR 332 doesn't prescribe which watershed level the Corps should evaluate proposed impacts and compensatory mitigation, but the Alaska District Corps typically begins analysis at the HUC 10 level. HUC 10 watersheds in Alaska tend to be very large, and due to the vast remoteness of a majority of the state, and the relatively small population, percentages of anthropogenic impacts within a HUC 10 watershed tend to be very small, which may result in an analysis which concludes that impacts are not significant when looking at the watershed as a whole. For a proposed project which traverses the entire state, and where many of the proposed impacts would be in remote areas, a watershed approach at the HUC 10 level would not be appropriate, and could result in a determination of potentially significant impacts as not requiring compensatory mitigation. Therefore, for the proposed project, the Corps evaluated the impacts at the HUC 12 watershed level.

The Section 404(b)(1) Guideline analysis in Section 6.0 of this document identifies that the following factors would be permanently and adversely impacted by the proposed project: physical substrates, aquatic ecosystem and organisms, other wildlife, and wetlands. For a linear project at this scale, it is difficult to evaluate where waters of the U.S., including wetlands, would be impacted at a significant level that compensatory mitigation would be required. In order to simplify the matter, and create a predictable and clear determination as to which losses would be considered significant and require compensatory mitigation, the Corps considered the magnitude of anthropogenic impacts in the affected watersheds, including impervious cover, fill, agriculture, mining, etc.

The Impervious Cover Model (ICM), first proposed in 1994, states that as impervious cover reaches 10% in a subwatershed (1,235.5 acres to 12,355.3 acres), stream health shows a measurable decline (hydrology, habitat, water quality, and/or biota are measurably impacted). A study completed by Schueler, T., et al. (2009) of scientific literature that tested the ICM found that it was a reliable model in 69% of the cases. Schueler, T., et al. did acknowledge, however, that most of the studies reviewed streams in subwatersheds larger than

the ICM defined subwatershed size. Schueler, T., et al, concluded their review by proposing a modification to the ICM, giving it more of a sliding scale to account for the different variables which may impact stream health outside of impervious cover, such as deforestation, acid mine drainage, and riparian cover removal. The modified ICM also acknowledges a transition between stream quality classifications, with the lowest threshold of being "impacted" at 5% impervious cover.



*Schueler, T.R., Fraley-McNeal, L., and Cappiella, K. (2009) "*Is Impervious Cover Still Important? Review of Recent Research*." Journal of Hydrologic Engineering. 309-315.

For the proposed project, our analysis follows the basis of the ICM, but provides augmentation to account for the limitations we have as a result of the proposed project's large size and the lack of available data. The HUC 12 watersheds crossed by the proposed project vary in size, but are typically much larger than the subwatershed size prescribed in the ICM. The smallest HUC 12 watershed that the proposed project would cross is 7,103.44 acres. Also, the ICM is specifically for predicting stream health. The Corps is extrapolating that the correlation of increased impervious coverage to poor stream health is also an indicator of the overall watershed health. Also, the percentage of impervious cover in a watershed is typically data collected from the National Land Cover Dataset (NLCD). The NLCD, however, is not current, and is at a resolution that does not detect smaller impacts. Therefore, the Corps is conservatively considering any anthropogenic disturbance as impervious cover, including mining, agriculture, etc. In addition, the Corps is adding DA permitted impacts to the NLCD data, retrieved from the Corps' ORM2 database. The Corps is also using a lower percentage threshold level for land disturbance than the ICM's lowest threshold for impacted streams. A review of multiple research articles

found the lowest percentage of impervious cover which also had a measureable impact to stream health was 4.4% (Ourso,R.T., and Frenzen, S.A. (2003) "Identification of linear and threshold responses in streams along a gradient of urbanization in Anchorage, Alaska." Hydrobiologia 501. 117-131). Therefore, the Corps will require compensatory mitigation for all proposed permanent impacts to waters of the U.S., including wetlands, which would occur within HUC 12 watersheds that would cumulatively have 4.4% or greater anthropogenic disturbance (i.e., where a potential for measurable changes in functional capacity may occur) following the proposed project's construction.

The Corps required that the applicant provide an analysis of HUC 12 watershed permanent land disturbance impacts. Proposed project features would be constructed within 184 individual HUC 12 watersheds (referred to as the "project watersheds"). Table 1, below, lists the project watersheds which are already impacted at a level greater than 4.4% or would be after proposed project completion. The total acreage of permanent impacts proposed to occur in these watersheds is 362.59 acres. These impacts require compensatory mitigation. A table evaluating impacts across all HUC 12 watersheds is available in the administrative record.

Table 1. Project Watersheds with Land Disturbance ≥ 4.4%

HUC 12	Watershed Name	Proposed Acreage of Impacts in Watershed	% Land Disturbance Post Project
190203021906	Salamatof Creek-Frontal Cook Inlet	8.711	16.58%
190203021908	Island Lake-Frontal Cook Inlet	2.302	5.29%
190604010104	Prudhoe Bay-Frontal Beaufort Sea	308.94	5.63%
190803060907	Chena River	42.64	42.86%
	Total	**362.59**	

The proposed project also would cross numerous anadromous waterways, important State aquatic resources. Each crossing of an anadromous waterway would require a State of Alaska Fish Habitat permit to ensure impacts to each waterway are minimal. However, the proposed project would result in indirect impacts to the anadromous waterways due to proximate filling of waters of the U.S., including wetlands. These indirect impacts could include erosion and sedimentation into the waterway, incidental runoff of equipment hydrocarbons into the waterway, and deposition of fugitive dust into the waterway. To maintain the biological integrity of important fishery resources to the State of Alaska, the Corps is requiring the applicant to compensate for all permanent losses of waters

of the U.S., including wetlands, within a 500 foot radius of each anadromous waterway within or near the proposed project area, regardless of the watershed's cumulative land disturbance. A total of 128.83 acres of permanent impacts to waters of the U.S., including wetlands, fall within this 500 foot radius. Total, the Corps is requiring the applicant to compensate for 491.42 acres of permanent impacts.

5.1.3.1 Determination of Appropriate Compensatory Mitigation: The applicant provided the Corps with a proposed Compensatory Mitigation Plan, dated June 2, 2020. In this plan, the applicant proposes to utilize a combination of third party mitigation providers and permittee responsible compensatory mitigation to offset the 491.42 acres of permanent impacts to waters of the U.S., including wetlands. The applicant's proposal is organized by ecoregions of Alaska where impacts requiring compensatory mitigation would occur: Northern, Interior, and Southcentral. The applicant's mitigation plan would provide appropriate and sufficient compensatory mitigation required to offset unavoidable losses to aquatic resources authorized by the DA permit.

Northern

In the northern ecoregion, 310.12 acres of waters of the U.S., including wetlands, would be permanently impacted and requires compensatory mitigation. Presently, no in-lieu fee programs or mitigation banks exist which serve the northern ecoregion. Therefore, the applicant is limited to providing permittee responsible compensatory mitigation (PRM) to offset these impacts. Using the "Alaska North Slope Region Rapid Wetland Assessment," the applicant determined the proposed project would result in 142.14 debits in this ecoregion. PRM projects that restore previously degraded areas, critical habitat, altered landscape hydrology, habitat segmentation, and/or improve degraded water quality conditions are environmentally preferable.

In order to fulfill required compensatory mitigation obligations, the applicant worked with the State of Alaska Department of Natural Resources (ADNR) to identify potential restoration or enhancement projects which may be available to complete. Through that process, four projects were identified (see Table 3 in the Draft Wetlands Compensatory Mitigation Plan). However, all four projects were dismissed from further consideration because there would be no way to demonstrate a functional gain (credits) to the aquatic resource (for example, performing surveys of old drill site reserve pits, or improvements would be to uplands), or because the project would include a high level of risk and time lag and not generate enough credits to offset proposed project impacts (gravel pad removal and restoration of wetland habitat).

The applicant proposes to work with ADEC to design and fund a Village Safe Water Program (VSWP) project and/or look for alternative projects within the Arctic Coastal Plain (ACP) to identify specific PRM proposals. In order for this

proposed compensatory mitigation to be acceptable, the applicant would need to refine their mitigation plan to include specific project details to demonstrate the benefits (i.e., functional gain) to the aquatic resource(s) the project(s) would have. As of the date of this document, the project lacks funding for construction of either the proposed project or required mitigation projects. Therefore, it is most prudent to defer specific project submittals until such a time as construction funding is foreseeable to ensure that the most appropriate, environmentally preferable projects can be developed to sufficiently offset losses at the time. The ADEC maintains a list of priority VSWP projects updated frequently, and the applicant would not know which projects are a priority until closer to the actual construction of the proposed project. As compensatory mitigation must be completed prior to or concurrent with project construction, and project construction timing is not known at this time, the applicant cannot demonstrate which VSWP or other PRM projects would be available and environmentally preferable to complete.

The second guiding principal of the June 2018 "Memorandum of Agreement (MOA) between the Department of the Army and The Environmental Protection Agency Concerning Mitigation Sequence for Wetlands in Alaska under Section 404 of the Clean Water Act," is that "Restoring, enhancing, or establishing wetlands for compensatory mitigation may not be practicable due to limited availability of sites and/or technical or logistical limitations." In addition, the MOA states that compensatory mitigation is required only to the extent that it is appropriate and practicable. Due to the lack of mitigation banks, in-lieu fee programs, and traditional permittee responsible projects in the northern ecoregion, the Alaska District must be flexible in evaluating projects that may result in the most benefit to the aquatic resources, and environmental needs of affected watersheds, including non-traditional compensatory mitigation projects. The ACP comprises several watersheds that are hydrologically connected by nearly contiguous palustrine, lacustrine, and estuarine wetlands. Hydrologic functions across the ACP are connected due to minimal topographic relief. The key functions of ACP wetlands include nutrient cycling, waterfowl habitat, avian nesting and foraging, terrestrial mammal foraging, and carbon sequestration. Considering that watershed boundaries are not distinctly separated on the ACP, compensatory mitigation options can be expanded outside HUC 10 or 12 watershed boundaries and still appropriately offset aquatic resource functional losses. Expanding the analysis for compensatory mitigation opportunities outside of the HUC 10 or 12 watershed of the project impact area is consistent with the flexibilities identified in the 2018 EPA/DA MOA.

The applicant proposes, in the case that the Corps finds completion of a VSWP or other PRM project to not be sufficient compensatory mitigation, to preserve wetland parcels on the North Slope as a backup compensatory mitigation plan. The applicant proposes that they would preserve wetlands at Cape Halkett and Utquiagvik. These parcels are outside the proposed project's impacted

watersheds, but are in the North Slope's ubiquitous wetland complex. The applicant states that these parcels are under threat of oil and gas project development, and are available for preservation.

The Utquiagvik parcel is owned by the Ukpeagvik Inupiat Corporation (UIC), and UIC has applied to the Corps to put this parcel into a mitigation bank. This indicates that this parcel is not currently available for preservation. Furthermore, on August 7, 2019, the Corps sent Ecosystem Investment Partners (working in cooperation with UIC) a letter stating that the mitigation bank prospectus for this parcel needs to include new or revised information regarding how the specific resources are under threat of destruction or adverse modifications. Threat to this parcel has not been demonstrated sufficiently at this time. The Cape Halkett parcel also lacks a clear demonstration of imminent threat of destruction or adverse modifications, however has been used in the past for compensatory mitigation (GMT 1). Considering the abundance of contiguous homogeneous wetlands on the ACP, preservation is generally a lower priority to offset aquatic resource functional losses. The Corps would not allow wetland credit types consisting of preservation to compensate for unavoidable losses to wetlands unless the applicant clearly demonstrates that appropriate aquatic restoration opportunities are not available at the time of proposed implementation.

Interior

In the interior ecoregion, 104.17 acres of waters of the U.S., including wetlands, would be permanently impacted and requires compensatory mitigation. The Corps has determined that purchasing in-kind 3rd party mitigation bank or In-lieu Fee credits would appropriately offset unavoidable losses in the Interior Ecoregion. The applicant has proposed to purchase credits from the Tanana Watershed Umbrella Stream and Wetland Mitigation Bank. At a date closer to the commencement of construction within the interior ecoregion, the applicant will use the Alaska Wetlands Assessment Methodology to determine the amount of debits the proposed project would incur. Debit calculations must be provided and approved by the Corps prior securing the third party credits.

Southcentral

In the southcentral ecoregion, 77.16 acres of waters of the U.S., including wetlands would be permanently impacted and requires compensatory mitigation. The Corps has determined that purchasing in-kind 3rd party mitigation bank or In-lieu Fee credits would appropriately offset unavoidable losses in the Southcentral Ecoregion. The applicant has proposed to purchase credits from either the Su-Knik Mitigation Bank, or the Great Land Trust. At a date closer to the commencement of construction within the southcentral ecoregion, the applicant will use the HGM assessment methodology to determine the amount of debits the proposed project would incur within, and near the bank's and in-lieu fee's service areas. The Corps has determined it is acceptable for the applicant to

purchase credits outside of a service area, as there is a lack of available compensatory mitigation options for the proposed impacts.

Purchase of mitigation bank credits in the interior and southcentral ecoregions of Alaska is an acceptable form of compensatory mitigation. Determining how many credits would need to be purchased to offset will be determined before proposed project construction in those ecoregions. The Corps has agreed with the applicant that compensatory mitigation requirements may be phased to align with project construction. Credit type and amount availability and debit/acre ratios may change by the time credit acquisition is needed. Therefore, determining how many credits would need to be purchased to offset the proposed project's debits is deferred until a time closer to when construction in the ecoregion would take place. As the project will take several years to be completed, it is possible that new, environmentally preferable, compensatory mitigation options may become available. The applicant will be required to submit to the Corps specific proposals for approval in each ecoregion in advance of construction.

The specific credit purchases and/or PRM projects for each ecoregion must be reviewed/approved prior to construction. If purchase of mitigation bank or in-lieu fee program credits is proposed, the applicant will use appropriate methodology or methodologies to determine project debits and credits using site specific information. If a permittee responsible project is proposed, the applicant will also use site specific information to determine generated credits.

5.1.4. Other Mitigative Actions (e.g. voluntary actions that exceed compensatory mitigation as needed to offset resource impacts): None.

5.2 Mitigation Measures Required by State Agencies:

ADEC's Certificate of Reasonable Assurance for the proposed action includes:

"1. Reasonable precautions and controls must be used to prevent incidental and accidental discharge of petroleum products or other hazardous substances. Fuel storage and handling activities for equipment must be sited and conducted so there is no petroleum contamination on the ground, subsurface, or surface waterbodies."

"2. During construction, spill response equipment and supplies such as sorbent pads shall be available and used immediately to contain and cleanup oil, fuel, hydraulic fluid, antifreeze, or other pollutant spills. Any spill amount must be reported in accordance with Discharge Notification and Reporting Requirements (AS 46.03.755 and 18 AAC 75 Article 3). The applicant must contact by telephone the DEC Area Response Team for Central Alaska at (907) 269-3063 or Northern Alaska at (907) 451-2121 during work hours or 1-800-478-9300 after

hours. Also, the applicant must contact by telephone the National Response Center at 1-800-424-8802."

"3. Ensure soil thermal regime is protected from erosion or melt. Use BMP's; including timing, and engineering practices, to protect the permafrost and to maintain the soil temperature to minimize potential for thaw damage to the soils."

"4. Use of BMP's is required for all stream crossings to minimize the potential to spread sediment into the waterbodies."

"5. HDD cuttings will need to be properly disposed of and not allowed to impact any waterbodies."

"6. Low impact vehicles should be used when operating in wetland areas during non-frozen conditions to minimize long term impacts in wetland areas."

"7. Construction equipment shall not be operated below the ordinary high-water mark or high tide line if equipment is leaking fuel, oil, hydraulic fluid, or any other hazardous material. Equipment shall be inspected and recorded in a log daily for leaks. If leaks are found, the equipment shall not be used and pulled from service until the leak is repaired."

"8. All work areas, material access routes, and surrounding wetlands involved in the construction project shall be clearly delineated and marked in such a way that equipment operators do not operate outside of the marked areas."

"9. Natural drainage patterns shall be maintained, to the extent practicable, without introducing ponding or drying."

"10. Excavated or fill material, including overburden, shall be placed so that it is stable, meaning after placement the material does not show signs of excessive erosion. Indicators of excess erosion include: gullying, head cutting, caving, block slippage, material sloughing, etc. The material must be contained with siltation best management practices (BMPs) to preclude reentry into any waters of the U.S., which includes wetlands."

"11. Include the following BMPs to handle storm water and total storm water volume discharges as they apply to the site:

a. Divert storm water from off-site around the site so that it does not flow onto the project site and cause erosion of exposed soils;

b. Slow down or contain storm water that may collect and concentrate within a site and cause erosion of exposed soils;

c. Place velocity dissipation devices (e.g., check dams, sediment traps, or riprap) along the length of any conveyance channel to provide a non-erosive flow velocity. Also place velocity dissipation devices where discharges are from the conveyance channel or structure join a water course to prevent erosion and to protect the channel embankment, outlet, adjacent stream bank slopes, and downstream waters."

"12. Use of best management practices is required during crossing of impaired waterbodies (e.g. Goldstream Creek, impaired for sediment/turbidity. Note, that a specific pipeline crossing location is not within the impaired water zone for Goldstream Creek in the ADEC GIS mapping database.). A water is impaired for purposes of this permit if it has been identified by the State or Environmental Protection Agency (EPA) pursuant to Section 303(d) of the CWA as not meeting applicable State Water Quality Standards (these waters are called "water quality limited segments" under 40 CFR 30.2(j)). Impaired waters include both waters with approved or established Total Maximum Daily Load (TMDL), and those that a TMDL has not yet been approved or established. For further information on impaired waters and the most current approved 303(d) Listed Waterbodies see: dec.alaska.gov/water/water-quality/impaired-waters. A water is impaired for purposes of this permit if it has been identified by a State or Environmental Protection Agency (EPA) pursuant to Section 303(d) of the CWA as not meeting applicable State Water Quality Standards (these waters are called "water quality limited segments" under 40 CFR 30.2(j)). [sic]

a. Discharging to a CWA §303(d)-Listed Waterbody (Category 5) (e.g., Turbidity or Sediment)

i. A permittee who places fill into a surface waterbody listed on the CWA §303(d) list for turbidity or sediment must monitor turbidity at the following locations to evaluate compliance with the turbidity Water Quality Standard when the activity occurs inside the riparian zone. The width of the riparian zone or areas are measured perpendicular to the ordinary high water mark on each bank of the watercourse and follow the shape of the channel. Width shall be at least: 50-feet wide on anadromous fish streams, and 25-feet wide on all other streams. Permittees shall consult the Alaska Department of Fish and Game (ADFG) or the state Anadromous Waters Catalog to determine fish status and appropriate riparian area width for streams at the site.

1) The permittee must sample the upstream turbidity in the §303(d)-listed receiving waterbody at a representative location (up gradient) from the project activity (activity) into the §303(d)listed [sic] surface waterbody; and

2) The permittee must sample the downstream turbidity at a representative location immediately downgradient from the activity in the §303(d)-listed surface waterbody, inside the area of influence of the activity.

3) Samples must be collected concurrently, or within a one-hour of each other.

4) Monitoring frequency shall be "three times per week" starting on either the first or second day of the week that activities commence with subsequent samples taken every other day thereafter until three samples are collected.

5) If a sample is not collected due to safety concerns or a situation beyond the permittee's control, the circumstances must be documented in a log and another sample must be collected as soon conditions allow.

6) Based on the sampling, the resulting water quality must meet the state Water Quality Standard for turbidity, as follows: the downstream sample may not exceed 5 nephelometric turbidity units (NTU) above the upstream sample when the upstream turbidity is 50 NTU or less, and may not have more than a 10% increase in turbidity when the upstream turbidity is more than 50 NTU, not to exceed a maximum increase of 25 NTU.

7) If the difference between the upstream and downstream sample exceeds the turbidity Water Quality Standard, the permittee must:

a. Review the pipeline site plan and the BMPs selected for the project phase and make appropriate improvements and corrections to the BMPs within seven (7) calendar days of the date the discharge exceeds the water quality standard;

b. Implement improvements and changes to the BMPs;

c. Continue to sample according to the frequency identified under stipulation number 12.a.i(4) of the certification.

b. Discharging into a Surface Waterbody with an Approved or Established TMDL (Category 4a or 4b) (e.g., Turbidity or Sediment).

i. The permittee must review the status of the TMDL each year by reviewing the current status of Approved and Scheduled TMDL's which can be access at the following website: dec.alaska.gov/water/tmdl/tmdl_index.htm.

ii. If the permittee discharges into a surface waterbody with an EPA-established or approved TMDL, the permittee must implement measures to ensure that the discharge of pollutants from the site is consistent with the assumptions and requirements of the EPA-established or approved TMDL. This includes ensuring that the discharge does not exceed specific waste-

load or load allocation that has been established that would apply to the discharge. The permittee must also evaluate the recommendations.

c. Inspection Program. The permittee shall institute an inspection program. A daily visual inspection of the site must be conducted and documented in a log while on-site during the construction season, and include the following:

i. An evaluation of the condition of all water control devices such as diversion structures and berms and all solids retention structures including, but not limited to: berms, dikes, pond structures, and dams; and

ii. Visual monitoring for turbidity upstream of the site and at a point immediately downstream of the site.

iii. If during a daily visual inspection the receiving water downstream of the operation appears more turbid than upstream, the permittee must take measures to determine the source and ensure compliance with discharge limits in stipulation number 12.a.i.(6) of the certification and BMPs.

iv. Visual monitoring requirements do not apply when activity occurs outside the riparian zone. The width of the riparian zone or areas are measured perpendicular to the ordinary high water mark on each bank of the watercourse and follow the shape of the channel. Width shall be at least: 50-feet wide on anadromous fish streams, and 25-feet wide on all other streams. Operators shall consult the Alaska Department of Fish and Game (ADFG) or the state Anadromous Waters Catalog to determine fish status and appropriate riparian area width for streams at the site.

d. Sampling and Analysis Methods

i. Turbidity analysis must be performed with a calibrated EPA-approved turbidimeter.

ii. Turbidity Sampling Protocol:

1) Grab samples shall be collected in sterile polypropylene or glass containers.

2) Samples must be cooled to 4 degrees Celsius / 39 degrees Farenheit (iced), if analysis is not performed immediately.

3) Cooled samples must be analyzed within 48 hours of sample collection.

e. Recordkeeping

i. A permittee must retain records of all monitoring information, field logbooks, or visual monitoring logbooks for a minimum of three years from the time of measurement or observation.

ii. For each sample collected, the permittee must record in a log the following:

1) The date, monitoring location, method, and time of sampling;
2) The name and title of the individual(s) who performed the sampling and analyses;
3) The date(s) and time any analyses was performed;
4) The analytical techniques or methods used; and
5) The results of such analyses in nephelometric turbidity units (NTU) and all calibration and quality control information used to validate the measurement(s).

f. Reporting: All monitoring information should be sent to Compliance and Enforcement Program, decwqreporting@alaska.gov, 555 Cordova Street, Anchorage, Alaska 99501 and to Water Quality Standards, Assessment and Restoration Program, Attention: Chandra McGee (Chandra.McGee@alaska.gov, 907-451-2140) at 610 University Avenue, Fairbanks, Alaska 99709."

"13. Fill placed during winter construction within wetlands that during the summer contain surface water that is connected to natural bodies of water, must be stabilized or contained in the spring prior to breakup. This action is to ensure that silts are not carried from the fill to the natural bodies of water in the spring and summer."

"14. Prior to fill placement in the spring or summer, a silt fence or similar structure shall be installed on a line parallel to and within five feet of the proposed fill toe of slope within all wetland areas that contain standing water that is connected to any natural body of water or where the fill toe is within 25 feet of such a water body. This structure shall remain in place until the fill has been stabilized or contained in another manner."

"15. The permittee must stabilize any dredged material (temporarily or permanently) stored on upland property to prevent erosion and subsequent sedimentation into jurisdictional waters of the United States. The material must be contained with siltation control measures to preclude reentry into any waters of the U.S., including wetlands."

"16. Fill material (including dredge material) must be clean sand, gravel or rock, free from petroleum products and toxic contaminants in toxic amounts."

"17. Any disturbed ground and exposed soil not covered with fill must be stabilized and re-vegetated with endemic species, grasses, or other suitable vegetation in an appropriate manner to minimize erosion and sedimentation, so that a durable vegetative cover is established in a timely manner."

"18. Additional Monitory Required by DEC. DEC may notify the permittee of additional discharge monitoring requirements. Any such notice will state the reasons for the requested monitoring locations, and parameters to be monitored, frequency and period of monitoring, sample types, and reporting requirements."

"19. DEC reserves the right to modify, amend, or revoke this certification if DEC determines that, due to changes in relevant circumstances – including without limitation, changes in project activities, the characteristics of receiving water bodies, or state water quality standards (WQS) – there is no longer reasonable assurance of compliance with WQS or other appropriate requirements of state law."

"20. If your project is not completed by the time limit specified under USACE Permit and will continue, or for modification of the USACE permit, you must submit an application for renewal of this certification at least 60 days before the expiration date or any deadline established by USACE for certification action on the modification, or 60 days before the proposed effective date of the modification, whichever is sooner."

5.3 Special Conditions of the DA Permit:

In addition, in order to comply with the 404(b)(1) Guidelines, and to ensure the project is not contrary to the public interest, the following special conditions will be carried on the Department of the Army permit:

1. The permittee shall have available and maintain for review a copy of this permit and approved project plans at the construction site at all times. All contractors involved in this permitted activity shall be provided copies of this permit in its entirety prior to construction.

Rationale: This condition is required to prevent adverse impacts to wetlands and other waters of the U.S. outside of the permitted project area (33 CFR 320.4(b) and (d), 40 CFR 230.21(b), and 40 CFR 230.73(c)).

2. Project boundaries shall be staked, flagged, or otherwise clearly delineated prior to the commencement of any component of the authorized activity which involves the placement of fill. No fill, equipment, or construction materials shall be stockpiled or stored in wetlands that do not have authorization by this permit.

Rationale: This condition is required to prevent adverse impacts to wetlands and other waters of the U.S. outside of the permitted project area (33 CFR 320.4(b) and (d), 40 CFR 230.21(b), and 40 CFR 230.73(c)).

3. In order to prevent sedimentation into adjacent waters of the U.S. outside of the authorized project footprint, the permittee shall install silt curtains or another type of turbidity barriers around all in-water work areas, including work areas adjacent to surface waters. The turbidity barriers shall remain in place, and be monitored for effectiveness and maintained until all authorized work in the area has been completed, and all suspended and erodible materials have been stabilized. Turbidity barriers shall be removed and disposed of properly upon stabilization of the work area.

Rationale: This condition is required to prevent adverse impacts to wetlands and other waters of the U.S. outside of the permitted project area (33 CFR 320.4(b) and (d), 40 CFR 230.21(b), and 40 CFR 230.73(c)).

4. Erosion control measures shall be installed along the perimeter of permitted discharges of fill to prevent the displacement of fill material outside of the authorized project footprint. The erosion control measures shall remain in place and be maintained until authorized work is completed and the work areas are stabilized. All graded land surfaces, slopes, and filled areas shall be stabilized to prevent erosion.

Rationale: This condition is required to ensure that areas outside of the permitted area are protected from sediment caused by erosion, slumping, or lateral displacement of surrounding bottom deposits until the site is permanently stabilized (33 CFR 320.4(b), 40 CFR 230.20(b), 40 CFR 230.21, and 40 CFR 230.72(a)).

5. The permittee shall use only clean fill material for this project. The fill material shall be free from items such as trash, debris, automotive parts, asphalt, construction materials, concrete blocks with exposed reinforcement bars, and soils contaminated with any toxic substances in toxic amounts in accordance with Section 307 of the Clean Water Act.

Rationale: This condition is required to prevent adverse impacts to wetlands and other waters of the U.S. outside of the permitted project area (33 CFR 320.4(b) and (d), 40 CFR 230.11(c) and (d), and 40 CFR 230.60)).

6. Where discharges of fill material are authorized to occur in permafrost supported wetlands, those discharges shall be constructed in such a manner to discourage permafrost thaw and subsequent thermokarsting, including around material site developments. Examples of measures to prevent such thaw from occurring include, but are not limited to, sufficient fill thickness, foam insulation

installed between the wetland surface and fill, and berm construction along the perimeter of a material site. Ponding, sinking of ground and subsequent fill subsidence, etc. will be considered as evidence of noncompliance with this condition.

Rationale: This condition is required to prevent and minimize adverse impacts to permafrost supported wetlands (33 CFR 320.4(b) and 40 CFR 230.41)

7. A buffer of one hundred feet of undisturbed vegetation shall be maintained along any ponds, lakes, creeks, rivers, or higher-value wetlands (e.g., emergent wetlands, string bogs, moss-lichen wetlands) that are outside the project footprint. The buffer width shall start from the edge of the riparian area associated with waterbodies or from the boundary of higher-value wetlands.

Rationale: This condition is required to prevent adverse impacts to wetlands and other waters of the U.S. outside of the permitted project area (33 CFR 320.4(b) and (d), 40 CFR 230.11(c) and (d), and 40 CFR 230.60)).

8. Wetland areas affected by trenching, including those areas used to temporarily stockpile side-cast excavated material, must be restored to approximate preconstruction contours and elevations, unless otherwise reflected in the authorized project plans. To ensure a high likelihood for successful trench restoration, for all wetlands in the project area, topsoil excavated from the trench shall be removed first and stockpiled separately and used in trench restoration. This soil layer is the upper, outermost layer of soil, usually comprising the top 10 to 30 centimeter of the soil profile. When backfilling the trench, topsoil must be replaced as the uppermost layer to provide a seed bed for native species. This condition will not apply when soil segregation is not possible for reasons such as thin depth of topsoil, presence of boulders, standing water, or other similar circumstances.

Rationale: This condition is required to ensure successful revegatation of the trench, help to prevent erosion of the backfilled trench, and successfully restore the impacted wetlands (33 CFR 320.4(b)(1), 40 CFR 230.41, and 40 CFR 230.75(d)).

9. The mainline pipeline trench shall not be constructed or backfilled in such a manner as to drain waters of the U.S., including wetlands.

This condition is required to prevent adverse impacts to wetlands and other waters of the U.S. outside of the permitted project area (33 CFR 320.4(b) and (d), 40 CFR 230.11(c) and (d), and 40 CFR 230.60)).

10. All excavated material temporarily side-cast in wetlands shall be underlain with geotextile, packed snow, ice pads, or similar material to allow for removal of the material to the maximum extent practicable.

Rationale: This condition is required to prevent adverse impacts to wetlands and other waters of the U.S. outside of the permitted project area (33 CFR 320.4(b) and (d), 40 CFR 230.11(c) and (d), and 40 CFR 230.60)).

11. All excavated material that will not be used for backfilling the mainline pipeline trench, shall be disposed of at an appropriate upland location.

Rationale: This condition is required to prevent adverse impacts to wetlands and other waters of the U.S. outside of the permitted project area (33 CFR 320.4(b) and (d), 40 CFR 230.21(b), and 40 CFR 230.73(c)).

12. No stockpiling, outside of trench backfill material, shall occur in wetlands, or other waters of the U.S. that is not authorized by this permit.

Rationale: This condition is required to avoid adverse impacts to adjacent wetlands as a result of the permitted project (33 CFR 320.4(b)(1), 33 CFR 320.4(r)(1), and 40 CFR 230.41).

13. Along all access roads and the mainline pipeline trench (open and restored), natural drainage patterns shall be maintained using appropriate ditching, trench plugs, culverts, drainage systems, and other measures to ensure hydrology is not altered. If there is evidence of altered hydrology (such as excessive ponding, drying, channelization, etc.) the permittee shall be required to restore hydrology to preconstruction conditions.

Rationale: This condition is required to minimize impacts to adjacent wetlands and other waters of the U.S. as a result of the permitted project (33 CFR 320.4(b) and (l) and 40 CFR 230.41).

14. Revegetation shall begin as soon as site conditions allow and in the same growing season as the disturbance occurred unless climatic conditions warrant additional time. Revegetation shall follow all methods, monitoring, performance standards, and reporting outlined in the Project's FERC approved Revegetation Plan. All monitoring reports and surveys shall be provided to the Corps. If monitoring reveals that the Revegetation Plan's methods or performance standards are not accomplishing sufficient revegetation, then the plan will be revised to address insufficiencies and adaptive management will occur as necessary.

Rationale: This condition is required to ensure success restoration of disturbed wetlands not permanently filled (33 CFR 320.4(b)(1), 40 CFR 230.41, and 40 CFR 230.75(d)).

15. All material sites located in jurisdictional wetlands shall be reclaimed. The permittee shall submit to the Corps for review and approval a material site reclamation plan prior to commencement of authorized work.

Rationale: This condition is required to ensure success restoration of disturbed wetlands not permanently filled (33 CFR 320.4(b)(1), 40 CFR 230.41, and 40 CFR 230.75(d)).

16. All temporary use access roads which cross open waterways with culverted crossings shall have those crossings removed and the beds and banks of the waterway restored appropriately once use of the access road is no longer required. Removed culverts and fill material shall be disposed of appropriately in an upland location. Culverts remaining in place after use of the road is complete, erosion of the stream bank, and/or fill mounds within the streambed will be evidence of noncompliance with this condition.

Rationale: This condition is required to ensure maintenance of hydrology, restoration of stream impacts (including to fish habitat), and to maintain water quality (33 CFR 320.4(d), 40 CFR 230.23(b), and 40 CFR 230.31(b)).

17. Stream crossings shall preserve floodplain connectivity to the greatest extent practicable, which could include setting the invert for overflow culverts at the same grade level as the floodplain, and distributing the overflow culverts to match flood-flow patterns in the floodplain.

Rationale: This condition is required to minimize impacts to floodplains and was requested by the USFWS (33 CFR 320.4(l) and 33 CFR 320.4(c))

18. The permittee shall take all prudent and practicable measures to prevent the spread of invasive species. In revegetated disturbed areas, invasive plant species shall not be the majority of growing vegetation.

Rationale: This condition is required to ensure success restoration of disturbed wetlands not permanently filled and to prevent the spread of invasive plant species to adjacent wetlands (33 CFR 320.4(b)(1), 40 CFR 230.41, and 40 CFR 230.75(d)).

19. The usage of permitted project shall not interfere with the public's right to free navigation on all navigable waters of the U.S.

Rationale: Protection of navigation and the general public's right of navigation on the water surface is a primary concern of the federal government. This condition is required by regulation (33 CFR 320.4(o)(3)).

20. You shall install and maintain, at your expense, any safety lights and signals prescribed by the U.S. Coast Guard (USCG), through regulations or otherwise, on your authorized facilities. The USCG may be reached at the following address and telephone number: Commander (oan), 17th Coast Guard District, P.O. Box 25517, Juneau, Alaska 99802; (907) 463-2272.

Rationale: The facility must be lighted to prevent navigation hazards and this condition is required by regulation (33 CFR 320.4(o)(3)).

21. The permittee understands and agrees that, if future operations by the U.S. require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the U.S. No claim shall be made against the U.S. on account of any such removal or alteration.

Rationale: This condition is required by regulation to protect free navigation and the interests of the United States in existing or future federal projects (33 CFR 320.4(o)(3) and HQ memorandum).

22. The National Oceanic and Atmospheric Administration, Office of Coast Survey, Marine Chart Division, National Ocean Service (NOS) has been notified of this authorization. You must notify NOS and this office in writing, at least two weeks before you begin and upon completion of the construction of the mainline pipeline's Cook Inlet crossing authorized by this permit. Your notification of completion must include a drawing which certifies the location and configuration of the completed crossing. Notifications to NOS will be sent to the following address: Nautical Data Branch, Attn: Mr. John Whiddon, N/CS261 Room 7220, 1315 East-West Highway, Silver Spring, Maryland 20910.

Rationale: This condition is required by regulation (33 CFR Appendix A(B)).

23. Prior to initiating work in navigable waters of the U.S., the permittee shall provide coordinates (latitude and longitude), dates of work, and other pertinent information to the USCG and request that a Local Notice to Mariners be issued. No authorized work may commence in navigable waters until the Local Notice to Mariners has been issued, identifying the location and schedule for commencement of the work. This written request can be submitted by email or

letter to: Commander (DPW), Seventeenth Coast Guard District, P.O. Box 25517, Juneau, Alaska 99802-5517; (907) 463-2269, D17-PF-D17-LNM@uscg.mil.

Rationale: This condition is necessary to avoid impacts to navigation (33 CFR 320.4(o)(3)).

24. Prior to conducting any construction activities near military installations or air space, the permittee shall coordinate with the following points of contact in order to ensure construction activities will not interfere with U.S. military operations:

a. For construction activities between 64°05.17' N., 149°31.27' W., and 64°08.12' N., 148°31.55' W., the permittee shall contact the 11th Air Force's Airspace Management Team at ALASKAMILITARYAIRSPACE@us.af.mil;

b. For construction activities near restricted airspace operated by the U.S. Space Force, the permittee shall contact Ms. Martha Wilkinson at martha.wilkinson.1@us.af.mil; and

c. For construction activities near Clear Air Force Station airspace, the permittee shall contact Mr. Frank Pichler at Frank.Pichler.FFRDC@mda.mil.

Rationale: This condition is required to satisfy the concerns outlined in the comment letter received from the Military Clearinghouse to prevent adverse impacts on Department of Defense operations.

25. Within 10 days from the date of initiating work authorized by this permit, the permittee shall provide a written notification of the date of commencement of authorized work to the Corps. Separate notifications are required 10 days prior to the commencement of the following specific project components: West Dock modifications and Dock Head 4 construction, Cook Inlet mainline pipeline crossing, product loading facility dock construction, and Cook Inlet dredging. Notifications shall be sent via email to regpagemaster@usace.army.mil.

Rationale: This special condition is necessary in order to efficiently plan compliance inspections and ensure compliance of the permitted project.

26. Should any other agency require and/or approve changes to the work authorized or obligated by this permit, the permittee is advised that a modification to this permit may be required prior to initiation of those changes. It is the permittees's responsibility to request a modification of this permit. The Corps reserves the right to fully evaluate, amend, and approve or deny the request for modification of this permit.

Rationale: This special condition is required to ensure compliance with the permit, and to minimize impacts to adjacent wetlands and other waters of the U.S. as a result of the permitted project (33 CFR 320.4(b) and 40 CFR 230.41).

27. Prior to initiation of work authorized by this permit, the permittee shall implement the Compensatory Mitigation Plan (CMP), dated June 2, 2020, which is incorporated herein by reference. If conflicts occur between the mitigation plan and any permit conditions, the permit conditions shall prevail. Completion of mitigation may be phased with project construction phases (e.g., phased to be completed before or concurrent with each ecoregion).

a. Northern Ecoregion: Prior to construction in the Northern ecoregion, the permittee shall submit, for Corps' review and approval, specific permittee responsible or 3rd Party mitigation to appropriately and sufficiently offset the project's 142.17 debits in this ecoregion.

b. Interior Ecoregion: Prior to construction in the Interior ecoregion, the permittee shall submit, for Corps' review and approval, specific permittee responsible or 3rd Party mitigation to appropriately and sufficiently offset the required 104.17 acres of impacts to waters of the U.S., including wetlands requiring mitigation in this ecoregion. Should the permittee intend to purchase available 3rd Party Mitigation bank or ILF credits, all components must be approved by the Corps, including the debit/credit calculations, credit types (HGM or Cowardin), etc. Receipt of credit purchase must be received by the Corps prior to commencement of construction activities. The Permittee must email the signed credit transaction to mitigationmanager@usace.army.mil and to regpagemaster@usace.army.mil upon completion of the credit transaction.

c. Southcentral Ecoregion: Prior to construction in the Interior ecoregion, the permittee shall submit, for Corps' review and approval, specific permittee responsible or 3rd Party mitigation to appropriately and sufficiently offset the required 77.16 acres of impacts to waters of the U.S., including wetlands requiring mitigation in this ecoregion. Should the permittee intend to purchase available 3rd Party Mitigation bank or ILF credits, all components must be approved by the Corps, including the debit/credit calculations, credit types (HGM or Cowardin), etc. Receipt of credit purchase must be received by the Corps prior to commencement of construction activities. The Permittee must email the signed credit transaction to mitigationmanager@usace.army.mil and to regpagemaster@usace.army.mil upon completion of the credit transaction.

Rationale: This condition is required to offset the project's authorized unavoidable impacts to waters of the U.S., including wetlands and to comply with the 404(b)(1) Guidelines and 33 CFR 320.4(r).

28. The permittee shall provide the Corps with copies of all completed wetland delineations and the final wetland delineation report, including all information as required by the FERC (FEIS, Appendix X, Recommendation Numbers 38 and 39). If wetland delineations completed prior to project construction in any part of the project footprint reveal that project impacts would differ from what is authorized, the permittee shall contact the Corps to determine any required DA permit modifications.

Rationale: This condition is required to prevent adverse impacts to wetlands and other waters of the U.S. outside of the permitted project area (33 CFR 320.4(b) and (d), 40 CFR 230.21(b), and 40 CFR 230.73(c)).

29. The permittee shall provide the Corps with completed additional analysis of where proposed Mode 4 construction could be substituted with Mode 1, 2, or 3 construction prior to commencement of authorized work, in accordance with FERC Staff's Recommendation Number 19. The permittee shall specifically identify to the Corps their analysis of ice road/pad construction practicability for the construction spread identified as 3-E (mainline pipeline mile points 473.80 – 489.40). Changes in project impacts to waters of the U.S., including wetlands, may require modification of the authorized work and required compensatory mitigation.

Rationale: This condition is required to ensure compliance with the 404(b)(1) Guidelines, and accurate requirements for compensatory mitigation.

6.0 EVALUATION OF THE DISCHARGE OF DREDGE AND FILL MATERIAL IN ACCORDANCE WITH 404(B)(1) GUIDELINES (40 CFR Section 230, Subparts B through F)

6.1 SUBPART B- Compliance with the Guidelines and SUBPART C- Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem: Findings of significant degradation related to the proposed discharge shall be based upon appropriate factual determinations, evaluation and tests required by subparts B and G, after consideration of subparts C through F, with special emphasis on the persistence and permanence of the effects outlined in those subparts (40 CFR 230.10(c)).

The determinations of potential short or long-term effects of proposed discharges of dredged or fill material on the physical, chemical, and biological components of the aquatic environment shall include the following:

6.1.1. Physical Substrate Determinations [40 CFR 230.11(a)] and Substrate [40 CFR 230.20]:

References: Soils and sediments, including permafrost, are discussed in the FEIS Section 4.2. Marine substrates are discussed in FEIS Section 4.3.3.

The proposed project would have direct impacts on physical substrates in marine waters, open fresh waters, and wetlands. In all cases, direct impacts would include both permanent and temporary removal and replacement of native substrates, as well as smothering of native substrates. Recontouring of native substrates would also occur. In marine waters, direct disturbance of substrates would cause a temporary and localized increase in suspended sediment concentration that would likely return to background levels within hours. For open freshwaters, specifically waterway crossings, indirect impacts could include increased sedimentation and turbidity downstream of the crossing during wet ditch construction. Dry ditch and/or frozen cut methodology may result it in movement of stream bottom sediment during spring breakup and flood events. In wetlands, indirect impacts from permanent smothering or replacement of native substrates could include changes in wetland hydrology and water retention. In permafrost supported wetlands, indirect impacts could include warming of the substrates, leading to permafrost thaw in, and adjacent to, the project area. Direct and indirect impacts to wetlands is discussed in Section 6.4.2 of this document. All physical substrates located in waters of the U.S., including wetlands, and adjacent to proposed fill which would be traversed by vehicles would be subject to the deposition of fugitive dusts, as an indirect impact, as well.

The applicant would follow all avoidance and minimization measures outlined in Section 5.1 of this document. The applicant has also agreed to FERC Recommendation Numbers 38, 39, and 55 (FEIS Appendix X) which would minimize impacts to this factor. Impacts would also be minimized by FERC's recommendations, specifically numbers 19, 23, and 40 (FEIS Section 5.2).

In addition, the special conditions listed in Section 5.3 of this document would be made a part of the permit and lessen impacts to physical substrates. Compensatory mitigation would also be required to offset the permanent loss of the functions and values, including those provided by the physical substrates, of the impacted waters of the U.S., including wetlands. In consideration of all avoidance, minimization, and special conditions, the proposed project would comply with this factor of the Guidelines.

6.1.2 Water Quality, Circulation, Fluctuation and Salinity Determinations [40 CFR 230.11(b), Water [40 CFR 230.22], Current Patterns and Water Circulation [40 CFR 230.23], Normal Water Fluctuations [40 CFR 230.24], and Salinity Gradients [40 CFR 230.25]:

References: Water quality is discussed in the FEIS Sections 4.3.1 (groundwater), 4.3.2 (freshwater), and 4.3.3 (marine water).

The Corps cannot issue a permit without the project first obtaining CWA Section 401 Water Quality Certifications (WQC) for the proposed project, or a waiver of such certifications. The ADEC issued a WQC for the proposed project on June 19, 2020. The EPA issued a WQC for the proposed project on June 22, 2020. The issued WQCs would be incorporated into the DA permit, and the stipulations of the WQCs would help to avoid and minimize impacts to water quality. Further, any crossings of anadromous and resident fish streams would require a fish habitat permit from the ADF&G, which would also carry stipulations to minimize impacts to water quality and flow.

In marine waters, proposed fills which would extend the shoreline seaward could have localized impacts to currents in the vicinity of the fill, but these wouldn't be anticipated to have a measurable impact to overall current patterns nor water circulation. Specifically, the extension of the West Dock Causeway has the greatest likelihood of impacting currents, as well of salinity gradients; however, this extension would primarily involve widening the existing causeway and would not further obstruct water flow. Proposed fills within open freshwater bodies would be expected to have similar localized, minor impacts to currents.

Crossings of waterways by either access roads or mainline pipeline construction, would not be anticipated to have any permanent impacts to water fluctuation or flow, as the crossings would be required to maintain flow. During construction, however, flow may be diverted and temporarily impact water fluctuations. Temporary use access roads would be required to have all stream crossings removed and the waterway restored to preconstruction conditions. Stream crossings and marine facilities would not restrict flow nor increase flow of fresh or salt water and would not be anticipated to result in any impacts to salinity gradients.

The applicant would follow all avoidance and minimization measures outlined in Section 5.1 of this document. Impacts would also be minimized by FERC's recommendations, specifically numbers 17, 19, 23, and 40 (FEIS Section 5.2).

In addition, the special conditions listed in Section 5.3 of this document would be made a part of the permit and lessen impacts to water quality, etc. Compensatory mitigation would also be required to offset the permanent impacts of functions and services, including those provided by these factors, of certain impacted waters of the U.S., including wetlands. In consideration of all avoidance, minimization, and special conditions, the proposed project would comply with this factor of the Guidelines.

6.1.3 Suspended Particulate/Turbidity Determinations [40 CFR 230.11(c)] and Suspended Particulates/Turbidity [40 CFR 230.21]:

References: Suspended sediments and turbidity are discussed in the FEIS Sections 4.3.2 (freshwater), and 4.3.3 (marine water).

Proposed project construction activities which would temporarily increase suspended particulates and increase turbidity directly within waters of the U.S., including wetlands, includes the discharges of fill for waterbody crossings, mechanized land clearing, access road construction, work and building pad construction, etc., as well as temporary stockpiling of material for trench construction, screeding, and the disposal of dredged material in marine waters.

For all project components which would result in increased turbidity, impacts would be no more than minimal and temporary either in marine or freshwaters of the U.S., including wetlands. Shortly after completion of construction, turbidity levels would be anticipated to return to preconstruction levels.

The applicant would follow all avoidance and minimization measures outlined in Section 5.1 of this document. Impacts would also be minimized by FERC's recommendations, specifically numbers 19, 23, and 40 (FEIS Section 5.2).

In addition, the special conditions listed in Section 5.3 of this document would be made a part of the permit and lessen impacts caused by suspended particulates and turbidity. Compensatory mitigation would also be required to offset the permanent impacts of the functions and services of certain impacted waters of the U.S., including wetlands. In consideration of all avoidance, minimization, and special conditions, the proposed project would comply with this factor of the Guidelines.

6.1.4 Contaminant Determinations [40 CFR 230.11(d)]: Note: The information presented below satisfies the requirements of 40 CFR 230, Subpart G (40 CFR 230.60 and 230.61).

References: Contaminants within substrate to be screeded, dredged, and the disposal area are discussed in the FEIS Sections 4.2.6, 4.3.3.3 and 4.7.2.3. Potential to discover contaminants during construction is discussed in FEIS Section 4.9.6.3.

6.1.4.1 The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material for all alternatives: (checked boxes apply)

☒ Physical characteristics (receiving waters, bottom sediments, slurry constituents).

☐ Hydrograph in relation to known or anticipated sources of contaminants.
☒ Results from previous testing of the material or similar material in the vicinity of the project.
☐ Known, significant, sources of persistent pesticides from land runoff or percolation.
☐ Spill records for petroleum products or designated (§311 of CWA) hazardous substances.
☐ Other public records of significant introduction of contaminants from industry, municipalities or other sources.
☐ Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities.

6.1.4.2 An evaluation of the information above indicates that there is reason to believe the proposed dredged or fill material is not a carrier of contaminants, or that levels of contaminants are substantively similar at extraction and disposal sites. The material meets the testing exclusion criteria.

☒ Yes ☐ No ☐ Unknown

6.1.4.3 Is the discharge site adjacent to the extraction site and subject to the same sources of contaminants, or are the materials at the two sites substantially similar?

☒ Yes ☐ No ☐ Unknown

6.1.4.4 If there is a high probability that the material proposed for discharge is a carrier of contaminants are there constraints available that are acceptable to the permitting authority, and the Regional Administrator, to reduce potential contamination to acceptable levels at the disposal site?

This question is not applicable. There is not a high probability that the material proposed for discharge is a carrier of contaminants.

The applicant performed sampling and analysis of the proposed dredge area near the liquefaction facility and submitted the "Nikiski Capital Dredge Material and Characterization Sampling and Analysis Plan (SAP)," on September 21, 2017. The Corps determined on December 5, 2017, the proposed dredge location to be adequately characterized to meet the requirements of the Guidelines. Sediments were also tested in Prudhoe Bay, which found no evidence of contamination nor trace metals beyond background levels.

The applicant would follow all avoidance and minimization measures outlined in Section 5.1 of this document. Impacts would also be minimized by FERC's recommendations, specifically number 22 (FEIS Section 5.2).

In addition, the special conditions listed in Section 5.3 of this document would be made a part of the permit and lessen the probability of contamination occurring. Compensatory mitigation would also be required to offset the permanent impacts of the functions and services of certain impacted waters of the U.S., including wetlands. In consideration of all avoidance, minimization, and special conditions, the proposed project would comply with this factor of the Guidelines.

6.1.5 Aquatic Ecosystem and Organism Determinations [40 CFR 230.11(e)]:

For this factor, the determination of impacts should be "…on the structure and function of aquatic ecosystem and organisms. Consideration shall be given to the effect at the proposed disposal site of potential changes in substrate characteristics and elevation, water or substrate chemistry, nutrients, currents, circulation, fluctuation, and salinity, on the recolonization and existence of indigenous aquatic organisms or communities." Discussion of these considerations are found in Sections 6.1.6 (disposal sites), 6.1.1 (substrates), 6.1.2 (water quality, currents, circulation, fluctuation, and salinity), and 6.3.1, 6.3.2, 6.3.3 (aquatic organisms) of this document.

The proposed project would permanently impact 10,446 acres of aquatic ecosystem (waters of the U.S., including wetlands), replacing it with uplands, as well as temporarily impact 6,677 acres of aquatic ecosystem. The applicant would follow all avoidance and minimization measures outlined in Section 5.1 of this document. Impacts would also be minimized by FERC's recommendations. In addition, special conditions to ensure minimized impacts would be made a part of the permit. In consideration of all avoidance, minimization, and special conditions, including the specific discussions in the referenced parts of this document, the proposed project would comply with this factor of the Guidelines.

6.1.6 Proposed Disposal Site Determination [40 CFR 230.11(f)]:

References: An overview of the dredged material disposal site is discussed in Section 4.3.3.3 of the FEIS.

Two locations within Cook Inlet (DP1 and DP2) are proposed for the disposal of dredged material from the marine liquefaction facilities. The applicant provided sediment transport modeling for these areas, which is discussed in the above referenced section of the FEIS.

An evaluation of the appropriate factors below indicates that the disposal site and/or size of the mixing zone are acceptable.

☒ Depth of water - DP1 (preferred location) is an open-water site in state waters with water depths between -60 and -110 feet mean lower low water (MLLW). DP2 (alternative location) would be in deeper water, between -85 to -110 feet MLLW.

☒ Current velocity, direction, and variability - Modeling indicates that the strong tidal currents of Cook Inlet would naturally disperse the sediment from either proposed disposal site.

☒ Degree of turbulence - Currents in Upper Cook Inlet are classified as reversing currents: as the flow changes to the opposite direction, it is briefly near zero velocity at each high and low tide. Upper Cook Inlet, therefore, experiences strong turbulence and vertical mixing during each tidal cycle, resulting in relatively uniform water properties throughout the water column. Strong tidal currents in Upper Cook Inlet can oppose wind-generated waves, making the waves steeper and more chaotic.

☒ Water column stratification - Stratification attributable to causes such as obstructions, salinity or density profiles were not identified in the modeling the applicant performed.

☒ Discharge vessel speed and direction - The initial dredging for the Marine Terminal MOF coffer cell would be disposed via two 5,000 cubic yard dump scows (the dump scows' effective capacity is 4,000 cubic yards). Dredging to -30 to -32 MLLW would be disposed via three 5,000-yd^3 dump scows or with pipeline disposal methods. Maintenance dredging would be disposed via two 5,000-yd^3 dump scows.

☒ Rate of discharge – Table 4.3.3-4 of the FEIS shows production rates (cubic yards/day) which would indicate disposal rates.

☒ Dredged material characteristics - The dredged material is anticipated to be a heterogeneous mix of sandy silt and sand with hard-packed clay. Up to 800,000 cubic yards of dredged material would be discharged in the initial dredging effort, followed by two maintenance dredging operations in years three and seven of construction. Turbidity would exceed background levels after discharge for up to 100 minutes, as estimated by modeling.

☒ Other factors affecting rates and patterns of mixing (natural sediment loads) - Cook Inlet is a naturally turbid marine water with measured turbidity ranging from 61 nephelometric turbidity units (NTU) to 983 NTU. The highest modeled NTU from dredging was 841 NTU, indicating that disposed dredged material may not result in increased turbidity.

The applicant would follow all avoidance and minimization measures outlined in Section 5.1 of this document. In consideration of all avoidance, minimization, and special conditions, the proposed project would comply with this factor of the Guidelines.

6.1.7 Determination of Secondary Effects on the Aquatic Ecosystem [40 CFR 230.11(h)]:

References: Secondary impacts to the aquatic ecosystem are discussed in FEIS Sections 4.2.4 (soils and sediments), 4.3.2 (freshwater), 4.3.3 (marine waters), and 4.4.2 (wetlands).

The proposed project would permanently impact 10,446 acres and temporarily discharge fill material into 6,677 acres of waters of the U.S., including wetlands. Potential secondary impacts of the discharges would largely depend on where the discharges occur. In permafrost supported wetlands, secondary impacts could include permafrost thaw and fugitive dust deposition. Potential permafrost thaw and fugitive dust deposition are discussed at length in Sections 4.2.4 and 4.4.2 of the FEIS. In other wetlands, potential secondary impacts from the discharge of fill could include disruption of natural flow patterns, erosion and sedimentation into wetlands and open waters outside of the project area, and habitat fragmenting. Impacts to wetlands are discussed in Section 4.4.2 of the FEIS. In open waters, both fresh and marine, potential secondary impacts from the discharge of fill could include temporary increases in turbidity and sedimentation, as well as potential changes in currents. Impacts to open waters are discussed in Sections 4.3.2 and 4.3.3 of the FEIS. Secondary impacts that could occur in all types of waters of the U.S., including wetlands, includes the spread of invasive species, accidental spills or leaks of hazardous fluids from construction equipment, and the disturbance of the aquatic ecosystems outside of the proposed project footprint.

The applicant would follow all avoidance and minimization measures outlined in Section 5.1 of this document. Impacts would also be minimized by FERC's recommendations, specifically those aimed at reducing the environmental impact of the proposed project.

In addition, all special conditions regarding the discharge of fill material into waters of the U.S., including wetlands, would be made a part of the permit and minimize secondary impacts. Compensatory mitigation would also be required to offset the permanent impacts of the functions and services of certain impacted waters of the U.S., including wetlands. In consideration of all avoidance, minimization, and special conditions, the proposed project would comply with this factor of the Guidelines.

6.1.8 Determination of Cumulative Effects on the Aquatic Ecosystem [40 CFR 230.11(g)]:

References: Cumulative impacts are discussed in FEIS Sections 4.19.4.3 and 4.19.4.4.

The proposed project's potential cumulative impacts, combined with other recent, current, or reasonably foreseeable actions, would include aquatic resource and marine impacts from oil and gas exploration and development, roads and railroads, community development, military infrastructure, scientific research, mining, and shipping. Section 4.19.3 and Appendix W of the FEIS list and describe actions that have been constructed, are currently being constructed, or are planned or proposed within the geographic scopes defined for the proposed project, and were considered in the cumulative impacts analysis of the FEIS.

Cumulative impacts on freshwater resources could result from the proposed project's waterbody crossings, the placement of fill for pads and access roads, and spills of fuel and hazardous materials. Proposed project components could result in cumulative temporary and permanent loss of vegetation and topsoil, increased erosion, alterations to stream flow and water level, increased turbidity and sedimentation, changes to water quality, and increased likelihood of the release of hazardous materials and fuel to surrounding waterbodies. These impacts are described in Section 4.19.4.3 of the FEIS in detail.

Future development at the in-state gas interconnections could result in wetland impacts to the extent that pipeline laterals and associated appurtenant facilities would be routed through or sited within wetlands. The locations of any such facilities are not known, so the extent of impacts cannot be fully assessed. A potential future lateral to Fairbanks from a point near the proposed project's proposed take-off, however, was analyzed in the FEIS for the Alaska Stand Alone Pipeline Project.

As has been discussed, permafrost thaw could occur within the same HUC12 watersheds as the proposed project, meaning that any such impacts would be cumulative to the proposed project's impacts, most notably loss of wetlands via fill placement for roads, and the temporary impacts of pipeline construction through wetlands. Cumulative impacts on wetlands are described in Section 4.19.4.4 of the FEIS in detail.

In addition to the existing shoreline and marine developments within the proposed project's defined geographic scopes for the cumulative impacts analysis, the FEIS identified other potential projects. However, many of these potential projects are oil and gas leasing projects, which have no specific development plans. Therefore, evaluating cumulative impacts is not possible, but additional shoreline development (structures and fills) would be expected.

Dredging operations for the proposed project could be cumulative to dredging operations performed by the Corps of Engineers in Cook Inlet. Both dredging operations would be in different locations with different disposal areas, so cumulative impacts would be limited, but there could be higher turbidity and sedimentation if the operations were to occur simultaneously. These impacts would be temporary, however.

Projects which would contribute cumulatively with the proposed project's impacts, would likely require a DA permit, as well. Therefore, these projects would also go through evaluation under Section 404 of the CWA, though may not require environmental impact statements, as the proposed project did. They would likely be subject to similar avoidance and minimization measures, special conditions, and, possibly, compensatory mitigation requirements. This, in consideration with the proposed project's avoidance and minimization measures outlined in Section 5.1 of this document, FERC's recommendations (specifically those aimed at reducing the environmental impact of the proposed project), and the special conditions in Section 5.3 of this document would minimize cumulative impacts. Compensatory mitigation would also be required to offset the permanent impacts of the functions and services of certain impacted waters of the U.S., including wetlands. In consideration of all avoidance, minimization, and special conditions, the proposed project would comply with this factor of the Guidelines.

6.1.9 Findings of Compliance or Non-Compliance with the Restrictions on Discharge [40 CFR 230.12]:

☐ On the basis of these Guidelines (Subparts C through G), the proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) Guidelines.

☒ On the basis of these Guidelines (Subparts C through G), the proposed disposal site for the discharge of dredged or fill material complies with the Section 404(b)(1) Guidelines with the inclusion of the appropriate and practicable discharge conditions to minimize pollution or adverse effects to the affected aquatic ecosystem. See Section 5.3 of this document for a list of Special Conditions.

☐ The proposed disposal site for discharge of dredged or fill material does not comply with the Section 404(b)(1) Guidelines for the following reasons:

☐ There is a less damaging practicable alternative.

☐ The proposed discharge will result in significant degradation of the aquatic ecosystem.

☐ The proposed discharge does not include all practicable and appropriate measures to minimize potential harm to the aquatic ecosystem.

☐ There does not exist sufficient information to make a reasonable judgment as to whether the proposed discharge will comply with these Guidelines

6.2 SUBPART D - Potential Impacts on Biological Characteristics of the Aquatic Ecosystem: The impacts described in this subpart were considered in making the factual determinations and the findings of compliance or non-compliance in Subpart B (see 6.1 above).) (40 CFR Section 230 Subpart D)

6.2.1 Threatened and Endangered Species [40 CFR 230.30]:

References: Federally listed threatened and endangered species are discussed in Section 4.8.1 of the FEIS. The BA is provided in Appendix O of the FEIS. The Services' BOs are a part of the administrative record.

As the lead federal agency, FERC is responsible for making the determinations of effects the proposed project would have on species listed as threatened or endangered under the ESA. For any determination other than "no effect," FERC is responsible for conducting ESA Section 7 consultation with the USFWS and NMFS (the Services). Thirty-one (31) federally listed species, Distinct Population Segments (DPS), or Evolutionarily Significant Unit (ESU) species and one previous candidate species were identified as potentially occurring in the proposed project area. A full description of each federally listed species and impacts, avoidance, minimization, and mitigation measures for construction and operation-related impacts is provided in the referenced BA.

FERC determined that proposed project construction and operation would have no effect on two species, would be not likely to adversely affect 23 species (DPSs or ESUs), and would be likely to adversely affect six (6) species (spectacled eider, polar bear, bearded seal, Cook Inlet beluga whale, humpback whale, and ringed seal). FERC also determined that the proposed project would be not likely to adversely affect designated critical habitat for five species and would be likely to adversely affect designated critical habitat for two species (polar bear and Cook Inlet beluga whale). A summary of the determinations for federally listed species and designated critical habitat is provided in Table 4.8.1-1 of the FEIS.

FERC initiated ESA Section 7 consultation with NMFS on June 28, 2019. Consultation with NMFS ended on June 3, 2020, by the issuance of their BO for the proposed project. In their BO, NMFS determined the proposed project is not likely to adversely affect seven (7) listed species (blue whale,

North Pacific right whale, Western DPS Steller sea lion, Western North Pacific DPS gray whale, sei whale, Chinook salmon, and steelhead trout), and is likely to adversely affect eight (8) listed species (bowhead whale, fin whale, North Pacific DPS humpback whale, Mexico DPS humpback whale, sperm whale, Arctic subspecies ringed seal, Beringia DPS bearded seal, and Cook Inlet beluga whale). NMFS also determined that the proposed project would not be likely to destroy or adversely modify designated critical habitat for five (5) listed species (North Pacific right whale, Western DPS Steller sea lion, Cook Inlet beluga whale, Chinook salmon, and steelhead trout).

FERC initiated ESA Section 7 consultation with USFWS on July 11, 2019. Consultation with USFWS ended on June 17, 2020, by the issuance of their BO for their proposed project. In their BO, USFWS determined the proposed project is not likely to adversely affect three (3) listed species (Alaska-breeding Steller's eiders, short-tailed albatross, and northern sea otters), and is likely to adversely affect two (2) listed species (spectacled eiders and polar bears). USFWS also determined that the proposed project is not likely to adversely affect designated critical habitat for two (2) listed species (Steller's eiders and northern sea otters), and is not likely to destroy or adversely modify designated critical habitat for one (1) listed species (polar bears).

Impacts to listed species would be minimized by the implementation of many mitigation measures including, but not limited to, timing restrictions, non-lethal hazing (to clear areas of wildlife before blasting), the use of protected species observers, not installing overhead power lines, use of bird flight diverters on unavoidable guy wires and other bird-facility collision prevention measures, and observation and shutdown protocols and procedures. Minimization measures would also include protocols designed to avoid or minimize impacts during certain activities such as pile driving, anchor handling and positioning, pipelaying and trenching (in Cook Inlet), dredging and screeding, fill placement, operation of heavy and construction equipment, vessel operations, aircraft operations, and data collection and reporting requirements. In addition, other protocols would be implemented to prevent impacts to listed species, such as for waste handling, lighting, and personnel training.

NMFS has authorized incidental take for those species in which they determined adverse effects to be likely (bowhead whale; ringed seal, Arctic subspecies; bearded seal, Beringia DPS; humpback whale, Mexico DPS; humpback whale, Western North Pacific DPS; Cook Inlet beluga whale; fin whale; and sperm whale). USFWS authorized incidental take to spectacled eiders, but did not authorize any incidental take to polar bears, as such take will be authorized under the MMPA.

The Corps has reviewed the Services' BOs, with special attention paid to the sections regarding the mitigation measures, action area, effects of the action, incidental take statements, including the reasonable and prudent measures, and determined that the BOs are sufficient for demonstrating compliance with the ESA for proposed project components which fall under the Corps' jurisdiction.

6.2.2 Fish, Crustaceans, Mollusks, and Other Aquatic Organisms in the Food Web [40 CFR 230.31]:

References: Fisheries resources are discussed in FEIS Section 4.7.1; benthic invertebrate resources are discussed in FEIS Section 4.7.2; plankton resources are discussed in FEIS Section 4.7.3; and essential fish habitat (EFH) is discussed in FEIS Section 4.7.4. The EFH Assessment is provided in Appendix M of the FEIS.

Construction activities within or adjacent to streams and adjacent wetlands could affect aquatic organisms by increasing turbidity and sedimentation, altering stream channels or substrate composition, altering or removing cover, increasing erosion, or degrading habitat. Proposed jurisdictional activities would include pipeline crossings; VSM installation; mechanized land clearing; trenching and subsequent backfilling; access road construction, including installation of culverts and bridges; facility construction in Cook Inlet; West Dock expansion; screeding; dredged material disposal; and material site development. Impacts on fish and other aquatic organisms could include displacement; changes in feeding or breeding behaviors; interference with passage; and stress, injury, or mortality. Turbidity and sedimentation, alteration or removal of in-stream and streambank cover, streambank erosion, and introduction of water pollutants resulting from proposed project activities could increase stress, injury, and mortality of aquatic organisms in the proposed project area.

The applicant would be required to obtain Fish Habitat Permits from the ADF&G for each anadromous and resident fish waterbody crossing, which would be conditioned to avoid and/or minimize the potential impacts described above. The proposed project has also been coordinated by FERC with NMFS for impacts to EFH. The result of EFH coordination is recommendations to avoid and/or minimize the impacts to EFH and fish species in marine waters. See Section 8.4 of this document.

The applicant would follow all avoidance and minimization measures outlined in Section 5.1 of this document. The applicant has also agreed to FERC Recommendation Numbers 52, 53, 54, 56, and 57 (FEIS Appendix X) which would minimize impacts to fish. Impacts would also be minimized by FERC's recommendations, specifically number 26 (FEIS Section 5.2).

In addition, the special conditions listed in Section 5.3 of this document would be made a part of the permit and lessen impacts to fish and other aquatic organisms in the food web. Compensatory mitigation would also be required to offset the permanent impact of the functions and services, including those which provide suitable habitat for such organisms, of certain impacted waters of the U.S., including wetlands.

6.2.3 Other Wildlife [40 CFR 230.32]:

References: Terrestrial wildlife is discussed in FEIS Section 4.6.1; avian resources are discussed in FEIS Section 4.6.2; and marine mammals are discussed in FEIS Section 4.6.3.

Proposed project construction would affect aquatic resource habitat used by terrestrial wildlife, waterfowl, and marine mammals, such as wetlands, waterbodies, riparian areas, meadows, and bogs. Forest fragmentation from mainline pipeline and access road construction would occur throughout the proposed project area, but would have a greater impact in areas where forest stands are naturally small. Construction in wetlands would result in the loss and/or conversion of wetland habitat, and could result in mortality to individuals of smaller species, such as wood frogs, that could be crushed or buried during construction. Open pipeline trenches would also create a temporary physical barrier to wildlife movement. Smaller species could fall into the trench, become trapped, and experience mortality.

Proposed project construction would affect avian resources that depend on wetlands and waterbodies for certain life stages. Impacts on avian resources could occur as a result of habitat alteration, noise, lighting, and collisions. The discharge of fill material and ground-disturbing activities in wetlands during the summer nesting season could remove nesting habitat for birds and/or disturb active nesting birds, resulting in nestling/egg and adult mortality. Additionally, activity near active nests during incubation or brood rearing would likely result in bird disturbance and/or displacement and affect egg and young survival. Permanent habitat displacement for avian resources could lead to long-term impacts or otherwise resonate throughout the life cycle as carry-over effects. Impacts would be permanent for a small subset of ground nesting bird species in areas that would be permanently filled and/or where full recovery of vegetation is not possible, including functional loss to the underlying wetlands. The loss or conversion of wetlands could affect numerous bird species, such as waterbirds and seabirds, and would have an impact on passerines as well as tundra-nesting raptors.

Proposed project construction would affect marine mammals in Prudhoe Bay and Cook Inlet. Marine mammals could be affected by construction

noise and alterations to habitat, prey availability, vessel strikes, additional human presence, and invasive species introduced by the proposed project's construction. These impacts could affect foraging, mating, and migration behaviors in oceanic, coastal, and terrestrial habitats for marine mammals. The proposed project would affect marine mammal habitat through development of construction work surfaces, placement of fill material for marine offloading facilities, and expansion of West Dock. These activities would result in temporary and permanent loss or alteration of potential haulout habitat for harbor seals, northern fur seals, and spotted seals. Construction activities could make the habitat temporarily unsuitable during active construction periods. Proposed project facilities would cause permanent habitat loss in Prudhoe Bay and Cook Inlet. Prey habitat loss and alteration could occur from disturbance related to dredging in Cook Inlet, and screeding in Prudhoe Bay; facility construction (e.g., benthic construction and noise from construction equipment) at the West Dock Causeway, the Marine Terminal MOF, and the mainline pipeline. Impacts from proposed project construction activities on prey resources for marine mammals would be short term and localized.

The applicant would follow all avoidance and minimization measures outlined in Section 5.1 of this document. The applicant has also agreed to FERC Recommendation Numbers 48, and 49 (FEIS Appendix X) which would minimize impacts to wildlife. Impacts would also be minimized by FERC's recommendations, specifically numbers 24, 25, and 27 (FEIS Section 5.2).

In addition, the special conditions listed in Section 5.3 of this document would be made a part of the permit and lessen impacts to wildlife. Compensatory mitigation would also be required to offset the permanent impacts of the functions and services, including those which provide suitable habitat for wildlife, of certain impacted waters of the U.S., including wetlands.

6.3 SUBPART E - Potential Impacts on Special Aquatic Sites: The impacts described in this subpart were considered in making the factual determinations and the findings of compliance or non-compliance in Subpart B (see 6.1 above). (40 CFR Section 230 Subpart E)

6.3.1 Sanctuaries and Refuges [40 CFR 230.40]:

References: Federal and state refuges are discussed in FEIS Section 4.6.1.1.

The proposed project would traverse Denali National Park and Preserve (DNPP), Minto Flats State Game Refuge (SGR), and the Susitna Flats SGR. No other federal or state refuges would be impacted by the proposed project, however the proposed project area would range from 0.3-mile to 6 miles in proximity to other

federal refuges. Waters of the U.S., including wetlands, within refuges may be affected by discharges of fill material for proposed project construction.

Impacts to waters of the U.S., including wetlands, and the functions and values they provide for wildlife (habitat for breeding, spawning, migration, etc.), water balance (storage of flood waters, ground water recharge, etc.), and to any of the Guideline factors within federal and state refuges would be the same as those not situated within designated refuges.

It should be noted that in DNPP, impacts would be subject to further oversight, as authorization from the National Parks Service (NPS) and a CWA Section 401 WQC from the EPA are required. Furthermore, the NPS has their own wetland mitigation requirements outlined in Director's Order 77-1.

The proposed project's impacts in these designated areas would be subject to the same avoidance and minimization measures as anywhere else in the proposed project area. The applicant would follow all of these avoidance and minimization measures outlined in Section 5.1 of this document. Impacts would also be minimized by the applicant agreed FERC recommendations (FEIS Appendix X), as well as FERC recommendations listed in FEIS Section 5.2.

In addition, the special conditions listed in Section 5.3 of this document which would be made a part of the permit would help to minimize impacts to these specially designated areas. Compensatory mitigation would also be required to offset the permanent impacts of the functions and services of certain impacted waters of the U.S., including wetlands.

6.3.2 Wetlands [40 CFR 230.41]:

References: Permafrost impacts are discussed in FEIS Sections 4.2.4. Wetland resources are discussed in FEIS Section 4.4.1, and impacts are discussed in Sections 4.4.2 and 4.4.3.

The FEIS analyzed two categories of impacts to wetland resources: temporary and permanent. The FERC's definitions of temporary and permanent impacts differ from the Corps' definitions for the proposed project (see "Background" section of this document). Despite these differences, the evaluation of impacts in the FEIS is adequate for the Corps' purposes.

For this discussion, only Cowardin classified palustrine forested, emergent, and scrub-shrub wetlands are discussed and quantified. Impacts to open waters are discussed within other Guideline factors sections, including Sections 6.1.2 through 6.1.6, 6.2.2, and 6.3.3 through 6.3.6 of this document.

The proposed project would result in 9,366.70 acres of palustrine wetlands permanently impacted and converted to uplands for access roads, construction pads, building foundations, etc. The greatest permanent impact would be on palustrine scrub-shrub wetlands (5,402.7 acres); palustrine emergent wetlands would receive the second greatest area of impact (2,653.22 acres).

Table 2. Permanent Wetland Impacts

Cowardin Classification	Acreage of Permanent Impacts
Palustrine emergent (PEM)	2,653.22
Palustrine scrub-shrub (PSS)	5,402.70
Palustrine forested (PFO)	1,310.78
Total	**9,366.70**

*Open water impacts were not included for the purposes of this section's discussion.
**Acreages are from the applicant provided "Wetlands Impacts Table R2" dated January 30, 2020.

Impacts from proposed project construction to wetlands can be grouped into three categories depending on the wetland type affected, the construction method used, length of the growing season, and restoration method: (1) restored to pre-construction conditions (e.g., topography and hydrology); (2) wetland vegetation conversion (e.g., PFO to PEM); and (3) permanent loss of wetland from discharge of fill material.

Construction and installation of the mainline pipeline would result in only temporary impacts to wetlands. Excavated material for mainline pipeline construction would be temporarily discharged and used to backfill the trench after the pipeline is installed. No excavated material would be allowed to remain on site. Any remaining material would be taken to an upland disposal area (see Section 5 of this document). The mainline pipeline trench would be backfilled with a roach (or mound) to account for settling and to prevent channelization; however, the backfilled trench would be contoured to ensure that natural cross drainage patterns are restored.

Some wetlands would be converted to a different wetland type, or an open water. For example, along the mainline pipeline route, large woody vegetation would be removed and not allowed to grow back to help preserve pipeline integrity. In such a situation, palustrine forested wetlands would be converted to palustrine scrub-shrub or emergent wetlands. In the case of material site development, wetlands may be reclaimed to uplands, but many would likely become open waters. The Corps doesn't treat conversions of water types as permanent losses of waters of the U.S.

The discharge of fill material in a wetland, creating uplands, would result in localized and broad ecosystem impacts. The creation of uplands would result in a direct loss of wetland functions and services, such as water storage, ground

water recharge, fish and wildlife habitat, shoreline stabilization, nutrient production, floodwater retention, and carbon sequestration. Linear features consisting of fill, such as access roads and work pads, left in place after construction could permanently modify natural drainage patterns within wetlands. Constructed access roads, work pads, etc. could intercept natural drainage, causing ponding on the up-gradient side of the filled area, and prevent water flow into the down-gradient side, which could adversely reduce wetland hydrology.

In permafrost supported wetlands, disruption of natural hydrology resulting in increased surface water or ponding could cause thermokarst and affect the accumulation and decomposition of soil organic matter. In addition, fill material would increase soil thermal conductivity that, when coupled with increased solar radiation, could lead to permafrost thaw, cumulatively adding to thermokarst and ponding as the fill material settles.

Adjacent to filled areas, related construction activities and usage of filled features (e.g., clearing, grading, traversing, etc.) could further degrade wetlands. These impacts could lead to the loss of wetland functions such as groundwater recharge and water storage by the compaction of substrates, fish and wildlife habitat, shoreline stabilization, and nutrient production. Other indirect impacts to adjacent wetlands could include, increased erosion and sedimentation from storm water runoff from not yet stable fills, sidecasted excavated material piles, and vegetation removal; fugitive dust deposition from use of and vehicle traversing constructed fills; incidental and accidental spills of hazardous construction equipment fluids; and the unintentional spread of invasive species.

The applicant would follow all avoidance and minimization measures outlined in Section 5.1 of this document. The applicant has also agreed to FERC Recommendation Numbers 38, 39, and 55 (FEIS Appendix X) which would minimize impacts to wetlands. Impacts would also be minimized by FERC's recommendations, specifically numbers 19, 23, and 40 (FEIS Section 5.2).

In addition, the special conditions listed in Section 5.3 of this document would be made a part of the permit and lessen impacts to wetlands. Compensatory mitigation would also be required to offset the permanent impacts of the functions and services of certain impacted waters of the U.S., including wetlands.

6.3.3 Mud Flats [40 CFR 230.42]:

References: Mud flats are mentioned in the FEIS Section 4.4.1.1. However, intertidal estuary resources are discussed in FEIS Section 4.4.1.4 and impacts are discussed in FEIS Sections 4.4.2 and 4.4.3.

Mud flats within the proposed project area occur within intertidal estuarine areas of Cook Inlet and are exposed at low tides. Construction of the mainline pipeline

Cook Inlet crossing would occur within mud flats. The mainline pipeline shore approaches would be open-cut trenched, and all impacts to the mudflats would be temporary. During construction of the shoreline approaches, mud flat sediments would be removed and replaced. During tidal fluctuations, the disturbed sediments would likely be resuspended in the water column, increasing turbidity. Turbidity levels would be expected to return to normal, background levels quickly. Backfilling of the shoreline approach trenches would be completed to restore natural contours, but it would be expected that contours would be naturally restored as well by the tidal fluctuations.

The applicant would follow all avoidance and minimization measures outlined in Section 5.1 of this document. Impacts would also be minimized by FERC's recommendations, specifically number 40 (FEIS Section 5.2).

In addition, the special conditions listed in Section 5.3 of this document would be made a part of the permit and lessen impacts to mudflats. Compensatory mitigation would also be required to offset the permanent impacts of the functions and services, including those provided by mud flats, of certain impacted waters of the U.S., including wetlands.

6.3.4 Vegetated Shallows [40 CFR 230.43]:

References: An overview of aquatic vegetation is discussed in FEIS Section 4.5.5.

No large beds of marine submerged aquatic vegetation are known to occur in the proposed project area. Freshwater aquatic vegetation would be permanently lost where any proposed project construction would fill vegetated open waters. Construction would temporarily affect freshwater aquatic vegetation, which would be expected to recover naturally. Impacts would include aquatic plant removal and increased turbidity and sedimentation from trenching activities and potential erosion from disturbed adjacent wetlands. In addition, incidental spills, such as fuel from construction and operation equipment, could reduce water quality. Reduced water quality resulting from these effects could detrimentally affect aquatic plant growth in the short term.

The applicant would follow all avoidance and minimization measures outlined in Section 5.1 of this document. The applicant agreed to FERC Recommendations (FEIS Appendix X), as well as FERC recommendations listed in FEIS Section 5.2, would also minimize impacts to any vegetated shallows.

In addition, the special conditions listed in Section 5.3 of this document would be made a part of the permit and lessen impacts to vegetated shallows. Compensatory mitigation would also be required to offset the permanent impacts

of the functions and services, including those provided by vegetated shallows, of certain impacted waters of the U.S., including wetlands.

6.3.5 Coral Reefs [40 CFR 230.44]:

The FEIS Section 4.7.2.2 discloses that no coral reefs have been identified; therefore no impacts to coral reefs would be anticipated to occur as a result of the proposed project's construction.

6.3.6 Riffle and Pool Complexes [40 CFR 230.45]:

References: Aquatic resources, relating to riffle and pool complexes are discussed in FEIS Section 4.7.1.7.

Mainline pipeline installation across steep gradient sections of streams could affect the streambed and affect fish habitat. Large logs provide in-stream channel structures (i.e., riffles and pools) that are critical to salmon spawning and rearing. In areas where waterbodies are adjacent to forested areas, the reduction of large woody debris in streams and on land could affect salmon habitat use post-construction. Removal of forests that provide large woody debris to adjacent streams and the length of time for revegetation of those forests, could alter salmon use at affected crossings, but the affected area would be relatively small compared to the available habitat within the stream reach. In addition, the discharge of fill material into streams could eliminate riffle and pool areas by displacement, hydrologic modification, or sedimentation clogging the area.

The applicant would follow all avoidance and minimization measures outlined in Section 5.1 of this document. The applicant agreed to FERC Recommendations (FEIS Appendix X), as well as FERC recommendations listed in FEIS Section 5.2, would also minimize impacts to any riffle and pool complexes.

In addition, the special conditions listed in Section 5.3 of this document would be made a part of the permit and lessen impacts to riffle and pool complexes. Compensatory mitigation would also be required to offset the permanent impacts of the functions and services, including those provided by riffle and pool complexes, of certain impacted waters of the U.S., including wetlands.

6.4 SUBPART F - Potential Effects on Human Use Characteristics: The impacts described in this subpart were considered in making the factual determinations and the findings of compliance or non-compliance in Subpart B (see 6.1 above). (40 CFR Section 230, Subpart F)

6.4.1 Municipal and Private Water Supplies [40 CFR 230.50]:

References: Drinking water supply wells is discussed in FEIS Sections 4.3.1.3 and 4.3.1.5.

Municipal and private water supplies consist of surface water or groundwater, which is directed to the intake of a municipal or private water supply system. Impacts to drinking water availability resulting from the discharge of fill material could include a decrease in quality with respect to color, taste, odor, chemical content, and suspended particulate concentration, potentially making water supplies unfit for consumption. In addition, the discharge of fill material could potentially lead to a decrease in available water for consumption.
To address and prevent impacts on nearby private or active public water supply (PWS) sources using groundwater due to construction of the proposed project, the applicant prepared a Water Well Monitoring Plan. According to this plan, the applicant would conduct pre- and post-construction monitoring for active PWS sources using groundwater and private water wells and springs within 150 feet of the proposed project's footprint on a case-by-case basis in accordance to federal and state requirements.

The applicant would follow all avoidance and minimization measures outlined in Section 5.1 of this document. The applicant agreed to FERC Recommendations (FEIS Appendix X), as well as FERC recommendations listed in FEIS Section 5.2, would also minimize impacts to water supplies.

In addition, the special conditions listed in Section 5.3 of this document would be made a part of the permit and lessen impacts to water supply. Compensatory mitigation would also be required to offset the permanent loss impacts of the functions and services of certain impacted waters of the U.S., including wetlands.

6.4.2 Recreational and Commercial Fisheries [40 CFR 230.51]:

References: An overview of commercial and recreational fisheries are discussed in FEIS Sections 4.7.1.5 and 4.7.1.6.

Seventy-seven commercial or recreational use fisheries would be crossed by the mainline pipeline centerline, and five recreational use fisheries would be crossed by the PTTL centerline. The proposed project footprint in Cook Inlet overlaps with commercial and recreational fishing areas, including four shore fishery leases at the mainline facilities.

Proposed project construction could impact commercial and recreational fisheries by modifying habitat, causing physical harm to individual fishes resulting in mortality or by adversely affecting their ability to carry out their life processes. Accidental introduction of harmful substances could adversely impact water quality and/or sediment quality resulting in

decreases in individual fish health. Appendix N of the FEIS summarizes impacts to fisheries the proposed project would have. Furthermore, the proposed project's construction could occur at the same time commercial and recreational fishing typically happens and could directly prevent those from operating. Most impacts to commercial and recreational fisheries would be temporary, and, through negotiations with leaseholders, the ADF&G (the state agency with authority to issue fishing restrictions), and the ADNR, the applicant would identify mitigation measures to address fishing restrictions and ways to accommodate fishing activities during proposed project construction (e.g., safety setbacks and permanent exclusion areas).

The applicant would follow all avoidance and minimization measures outlined in Section 5.1 of this document. The applicant has also agreed to FERC Recommendation Numbers 52, 53, 54, 56, and 57 (FEIS Appendix X) which would minimize impacts to fish. Impacts would also be minimized by FERC's recommendations, specifically number 26 (FEIS Section 5.2).

In addition, the special conditions listed in Section 5.3 of this document would be made a part of the permit and lessen impacts to physical substrates. Compensatory mitigation would also be required to offset the permanent impacts of the functions and services, for all impacted waters of the U.S., including wetlands, within 500 feet of anadromous streams.

6.4.3 Water-related Recreation [40 CFR 230.52]:

References: An overview of recreational areas is discussed in FEIS Section 4.9.4.

Table 4.9.4-1 of the FEIS summarizes the acreages of land located within recreational or special use areas. Within these areas, water-related recreation such as fishing, boating, floating, rafting, etc. is expected to occur. Open water use, such as canoeing down creeks, or snow machining along rivers, associated with hunting, hiking, camping, and other terrestrial recreation is expected to occur in these areas, as well.

During proposed project construction temporary land disturbance would occur and could prevent water-related recreation from taking place by blocking access or making conditions unsafe for public recreation. Disruptions to access and safety conditions would be localized and temporary. Proposed project construction could be disruptive to nearby water-related recreation due to machinery noise, dust, increases in traffic, etc., diminishing the experience. Disruptions to water-related recreation could be avoided by utilizing recreational areas outside of the proposed project area.

For both federally and state managed recreational areas, the applicant intends to comply with all relevant management plans and required permits. The applicant intends to maintain access to public areas as much as possible, and in accordance with lease stipulations. In addition, the applicant has agreed to FERC Recommendation Number 61, which would also minimize impacts to recreation.

6.4.4 Aesthetics [40 CFR 230.53]:

References: Visual resource impacts are discussed in FEIS Section 4.10.2.2.

Aesthetics in the proposed project area would be impacted by new artificial lighting, construction of new permanent facilities, and clearing of vegetation, all of which would interrupt the natural landscape. In addition, much of the mainline pipeline route follows the existing byways used by the public to view aquatic resources. Therefore, much of the mainline facilities would be visible. The liquefaction facilities would also be visible from publicly accessible beaches. Although some facilities would be constructed in pristine areas, other facilities such as those proposed to be constructed on the North Slope and along Cook Inlet are similar in nature to existing facilities in the area.

Impacts to aesthetics during construction of the proposed project would likely be more severe, but temporary, due to the presence of more lighting in areas that wouldn't have permanent lighting (i.e., along the mainline pipeline route where permanent above ground facilities wouldn't exist), the presence of construction equipment, open, unreclaimed ground, etc. However, after completion, construction lighting would be removed, equipment would not be present, and the construction areas would be reclaimed. The applicant has agreed to FERC Recommendation Number 66, which would lessen impacts to aesthetics.

6.4.5 Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves [40 CFR 230.54]:

References: See discussion below.

The proposed project would travel through or cross the following areas: DNPP (FEIS Sections 1.2.3, 1.2.8, 1.1.16, 4.6.1.1, 4.9.4.1, and 5.1.9); George Parks Highway National Scenic Byway (FEIS Sections 4.9.4.1 and 5.1.9); Bureau of Land Management (BLM) public lands, including the Toolik Lake Research Natural Area and Galbraith Lake Outstanding Natural Area (FEIS Sections 4.5.7.1, 4.6.1.1., 4.6.1.3, 4.8.2, 4.9.4.1, and 4.9.5.1); Iditarod National Historic Trail (INHT; FEIS Sections 4.9.4.2 and 5.1.9); Denali State Park (FEIS Section 4.9.4.2 and 5.1.9); multiple Special Use Areas (SUA; FEIS Sections 4.9.4.2 and 5.1.9); Dalton Highway Scenic Byway (FEIS Sections 4.9.4.2 and 5.1.9); Alaska

Railroad (a state designated scenic byway; FEIS Section 4.9.4.2); and Tanana Valley State Forest (FEIS Section 4.9.4.2 and 5.1.9).

Physical, environmental impacts to these areas would be the same as any other area within the propose project; however, the proposed project in these areas may be subject to additional regulation depending on the agency which manages the land. Impacts to these areas, as well as the agencies that manage the lands, and their subject authorizations, are described in the above referenced FEIS sections.

The applicant would follow all avoidance and minimization measures outlined in Section 5.1 of this document. The applicant agreed FERC Recommendations and FERC recommendations listed in FEIS Section 5.2 would also minimize impacts to these areas.

In addition, the special conditions listed in Section 5.3 of this document would be made a part of the permit and lessen impacts to these areas. Compensatory mitigation would also be required to offset the permanent impacts of the functions and services of certain impacted waters of the U.S., including wetlands.

6.5 SUBPART H - Actions to Minimize Adverse Effects: (40 CFR Section 230, Subpart H)

All avoidance and minimization measures (i.e., "actions to minimize adverse effects"), including required mitigation and permit special conditions are discussed in Section 5.0 of this document.

7.0 GENERAL POLICIES FOR EVALUATING SECTION 10 RHA AND SECTION 404 CWA PERMIT DECISIONS [33 CFR 320.4]

7.1 Public Interest Review General Criteria [33 CFR 320.4(a)(2)]: The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended effect on the public interest.

The Corps has determined, after evaluation of the following general criteria (7.1.1 – 7.1.19, below) and the factors listed in Section 7.2 through 7.18, that the proposed AKLNG project would not be contrary to the public interest, as long as all permit special conditions listed in Section 5.3 of this ROD are implemented.

i. The relative extent of the public and private need for the proposed work:

References: "USACE Permit Application Supplemental Information" (November 4, 2019), Section 5.1.

The proposed project would commercialize natural gas on Alaska's North Slope for foreign markets, as well as in-state markets. As stated in the applicant's permit application, foreign demand for natural gas has increased, and the only way Alaska could provide for this market is through the export of LNG. Although the Department of Energy has conditionally approved an application for the proposed project to export 20 million metric tons per annum of LNG from Alaska for a 30-year period to foreign markets, no infrastructure to do so exists at this time. The proposed project would also make LNG available to in-state markets, by constructing the mainline pipeline with off-take connections. Though the applicant does not propose to construct these additional pipelines, by installing the infrastructure of the mainline pipeline facilities, bringing LNG to largely populated areas of the state would be much simpler, and could provide a means to less expensive natural gas supply to the public and could reduce air quality impacts in areas which typically use less clean energy for heating and power (such as coal and wood).

ii. The practicability of using reasonable alternative locations and/or methods to accomplish the objective of the proposed structure or work:

See Section 3 of this document. There are no unresolved conflicts as to resource use.

iii. The extent and permanence of the beneficial and/or detrimental effects that the proposed structures or work may have on the public and private uses which the area is suited:

The FEIS identified and addressed a range of potential adverse and beneficial impacts the proposed project could have. The proposed project, after construction, would have a 30 year lifespan. Impacts resulting from permanent facility construction, such as roads, work, and building pads, would have long-term, permanent detrimental impacts to the aquatic environment, as those impacted resources would never be restored. Facility construction would also have short-term, temporary detrimental impacts to the aquatic environment, as some restoration would occur, such as along stream crossings and the mainline pipeline trench.

The extent and permanence of these impacts on the public or private uses which the area is suited would depend mostly on where along the proposed project the impacts would occur. For example, permanent impacts on the North Slope, such as for GTP construction, would not be anticipated to have detrimental effects to the public and private uses of the area, as oil and gas development is common in that area of the state. Due to the remoteness of most of the proposed project area, neither beneficial nor detrimental effects to

the public and private use of the area would be anticipated, as use of the area is expected to be very minimal.

Active construction of the proposed project could temporarily detrimentally impact access to recreational opportunities, and fisheries access could be blocked or limited. These impacts are discussed in Sections 6.4.2 and 6.4.3 of this document, and after construction impacts would cease.

7.1.1 Conservation [33 CFR 320.4(a)(1)]:

a. Water Supply and Conservation [33 CFR 320.4(m)]:

References: Drinking water supply well impacts are discussed in FEIS Sections 4.3.1.3 and 4.3.1.5. Water use is discussed in FEIS Sections 4.3.4.3 and 4.3.4.4.

Municipal and private water supplies are discussed in Section 6.4.1 of this document.

For the proposed project construction water would be used for the following: ice road and ice pad construction; hydrostatic testing of the mainline pipeline, PTTL and PBTL; potable water for construction camps and permanent facilities; fugitive dust suppression; road maintenance; and concrete production. Water would be obtained for these purposes either by utilizing existing infrastructure, water withdrawals, or by construction of new wells. Water usage for the construction of the proposed project could temporarily and/or permanently reduce water availability for others, and have impacts to aquatic organisms, as well as recreational uses of water. Water withdrawals are subject to state permitting, and the applicant's Storm Water Pollution Protection Plan would also help to reduce impacts. The applicant would be required by the FERC to submit for approval a Water Use Plan prior to construction. This plan will identify the potential for reuse of hydrostatic test water, an action that will minimize impacts caused by water withdrawal.

The applicant would follow all avoidance and minimization measures outlined in Section 5.1 of this document.

Considering the findings of the FEIS, and the analysis in this ROD, the Corps has determined the proposed project is not contrary to the public interest with regard to this factor.

b. Energy Conservation and Development [33 CFR 320.4(n)] and Energy Needs [33 CFR 320.4(a)]:

The proposed project would develop a naturally occurring energy resource on the North Slope of Alaska for export to foreign markets, while providing the opportunity of a new energy source for some Alaskan communities. The Corps' regulations simply state that DA permit applications for energy conservation and development projects will be given high priority to their processing. The proposed project is an energy development project which has been on a prioritized timeline since the applicant's original submittal of a DA permit application.

c. Land Use [33 CFR 320.4(a)]:

References: Land use and impacts are discussed in Section 4.9.1.2 of the FEIS. Table 4.9.1-1 outlines the existing land uses in the proposed project area which would be impacted.

Of the proposed project, 93% would be located in open lands. The remaining 7% would be located on agricultural, industrial, commercial, and residential lands. The proposed project's impacts on industrial lands would generally be in-line with the existing land usage. Facilities such as the GTP and the liquefaction facility would be located on industrial and/or commercial lands. Less than one percent of the proposed project would be located on agricultural lands, impacts to which are considered minor and temporary. Commercial lands would be more highly impacted due to the proposed project's construction potentially blocking access to commercial businesses and increasing construction noise and traffic in the vicinity of businesses, which could hamper patronage. These impacts could potentially be significant to business owners, but would only last during local construction. The applicant would negotiate use agreements with such business owners, minimizing impacts. More residential than industrial or commercial lands would be impacted. The applicant would implement general mitigation measures to minimize impacts to residential lands. Access to residential lands would be maintained and coordinated throughout construction. Impacts to residential lands would be minimal and temporary.

Open land usage includes activities such as recreation, impacts to which are discussed in Sections 6.4.2 and 6.4.3 of this document. Other open lands not used for recreation could have other uses, such as logging or mining, are subject to the management plans and/or regulations of the land owner. Open land owners include federal agencies, the State of Alaska, and local governmental agencies. The proposed project in these areas would be subject to those agencies' management plans and necessary authorizations.

Considering the findings of the FEIS, and the analysis in this ROD, the Corps has determined the proposed project is not contrary to the public interest with regard to this factor.

d. Food and Fiber Production [33 CFR 320.4(a)]:

References: Impacts to agricultural lands are discussed in the FEIS Section 4.9.1.2.

As stated above, impacts to agricultural lands would be temporary and minimal. The applicant would minimize impacts to agricultural lands by monitoring soil compaction, segregate topsoil, and maintain natural surface water flow patterns. No fiber production is known to occur within the proposed project area.

Considering the findings of the FEIS, and the analysis in this ROD, the Corps has determined the proposed project is not contrary to the public interest with regard to this factor.

e. Mineral Needs [33 CFR 320.4(a)]:

References: Impacts to mining operations is discussed in Section 4.1.2.3 of the FEIS.

According to the applicant's DA permit application, the proposed project would require up to 19,835,633 cubic yards of gravel fill material discharged into waters of the U.S., including wetlands. The applicant has identified 59 mineral material sources within 250 feet of the construction workplace. Those sources used for the proposed project would be operated in accordance with landowner requirements, as well as federal and state law, as applicable. Up to 153 off right-of-way sites would be sourced for additional fill material requirements. New material sites to be developed would be done so following site-specific mining and reclamation plans developed in coordination with the appropriate land management agency, and environmental mitigation measures would be implemented through this process.

Rare earth elements, tin, and base metal deposits are present within the proposed project area. The applicant would not allow for mining to occur within the proposed project footprint, and access to these resources which may be facilitated by the proposed project (i.e., with access road construction) would be permanently blocked in order to protect the proposed project. Impacts to mining would be subject to State of Alaska mining laws, and the applicant would need to work with existing mining

claim holders to mitigate impacts the proposed project may have on operations.

Considering the findings of the FEIS, and the analysis in this ROD, the Corps has determined the proposed project is not contrary to the public interest with regard to this factor.

7.1.2 Needs and Welfare of the People [33 CFR 320.4(a)]:

References: Impacts to subsistence are discussed in Section 4.14.2 of the FEIS. Public health impacts are discussed in Section 4.17.3.

Factors which influence the needs and welfare of the people, such as economics, safety, and environmental justice are discussed specifically in Sections 7.1.18, 7.1.13, and 8.14 of this document, respectively. This section will discuss the impact to subsistence and public health.

Impacts to subsistence resulting from the proposed project could include a decrease in the availability of subsistence resources such as wildlife, fish, and vegetation, increased costs and greater travel to harvest resources, reduction in physical access to resources, increased competition for resources, and contamination of resources. In addition, wildlife may be disturbed by proposed project construction, and may move away from typical subsistence areas. Impacts resulting from construction of the proposed project would be expected to be temporary, while there may be impacts which remain due to operation of the proposed project. For example, constructed access roads would allow for easier access to traditional subsistence areas, and converted vegetation may provide new forage for moose.

The applicant would minimize impacts to subsistence by prohibiting project employees from subsistence activities at construction camps; coordinating with local impacted communities; minimizing access into undeveloped areas; coordinating with whaling associations; requiring mandatory subsistence related training for the proposed project workforce; and establishing a "Local Subsistence Implementation Committee."

Impacts to public health resulting from the proposed project could include an increase to the spread of infectious diseases due to the increase in populations from workers of the proposed project; changes in food and nutrition due to disruptions of subsistence use areas; and increased potential of accidents and injuries due to increased vehicle, rail, and marine traffic. Table 4.17.3-1 of the FEIS describes mitigation measures to minimize impacts to public health.

Considering the findings of the FEIS, and the analysis in this ROD, the Corps has determined the proposed project is not contrary to the public interest with regard to these factors.

7.1.3 General Environmental Concerns [33 CFR 320.4(a)]:

References: Noise impacts are discussed in Section 4.16.3, 4.6.3.2, and 4.7.1.6 of the FEIS. Climate change is discussed in Section 4.19.4.18 of the FEIS.

Factors that are not specifically listed in 33 CFR 320.4(a) through (r) are addressed under "general environmental concerns." For the proposed project, this includes noise impacts and climate change impacts.

For the duration of construction, anywhere that active construction is taking place within the proposed project area, noise levels would be increased. Increased noise levels have the potential to disturb or even injure wildlife, as well as disrupt subsistence by disturbing subsistence species. Increased noise levels would be mitigated by the applicant by implementing consistent construction times (for example, work would occur from 7:00 am to 10:00 pm, six days a week); implement monitoring and an exclusion zone for marine species during pile driving activity; implementing pile driving soft starts; restricting blasting activities during sensitive wildlife stages and subsistence hunting periods; using blasting mats; and by the development of a "Noise Mitigation Plan."

In regard to climate change, the proposed project construction would increase the atmospheric concentration of greenhouse gases (GHG), thus contributing cumulatively to climate change. FERC determined in the FEIS that there was not a reliable methodology for assessing GHG-related impacts attributable to the proposed project's construction. The Corps has no authority to regulate emissions. The proposed project would be subject to emission regulations under the Clean Air Act and/or the Corporate Average Fuel Economy Program, which would minimize impacts.

Considering the findings of the FEIS, and the analysis in this ROD, the Corps has determined the proposed project is not contrary to the public interest with regard to these factors.

7.1.4 Wetlands [33 CFR 320.4(b)]:

Impacts to wetlands are discussed in Section 6.3.2 of this document.
Considering the findings of the FEIS, and the analysis in this ROD, the Corps has determined the proposed project is not contrary to the public interest with regard to this factor.

7.1.5 Fish and Wildlife Values [33 CFR 320.4(c)]:

Impacts to fish and wildlife values are discussed in Sections 6.1.5, 6.2.1, 6.2.2, 6.2.3, and 6.4.2 of this document. Considering the findings of the FEIS, and the analysis in this ROD, the Corps has determined the proposed project is not contrary to the public interest with regard to this factor.

7.1.6 Water Quality [33 CFR 320.4(d)]:

Impacts to water quality are discussed in Sections 6.1.2, 6.1.3, 6.1.4, and 8.1 of this document. Considering the findings of the FEIS, and the analysis in this ROD, the Corps has determined the proposed project is not contrary to the public interest with regard to this factor.

7.1.7 Historic, Cultural, Scenic, and Recreational Values [33 CFR 320.4(e)]:

References: Impacts to historic and cultural resources are discussed in Section 4.13.5 of the FEIS. Wild and scenic rivers are discussed in Section 4.3.2.6 of the FEIS.

Impacts to some historic properties are discussed in Section 6.4.5 of this document. Impacts to historic and cultural properties resulting from the construction of the proposed project could include destruction of and/or damage to, alteration of, removal of a historic or cultural property. A property's use could also be changed, or the area surrounding the property could change. The proposed project would be required to comply with Section 106 of the NHPA. FERC established a Programmatic Agreement (PA) with the applicant, federal land management agencies (Bureau of Land Management (BLM), and NPS), the Alaska State Historic Preservation Officer (SHPO), the Alaska Department of Natural Resources (ADNR) and the Advisory Council on Historic Preservation (ACHP), with other consulting parties (federally recognized tribes) for the treatment of historic and cultural properties. This PA was fully executed on June 24, 2020, per a letter from ACHP dated the same, and demonstrates compliance with Section 106 of the NHPA. See Section 8.7 of this document for more information. This PA would help to minimize impacts on known and discovered properties.

The proposed project would not cross any designated wild and scenic rivers, but would cross two waterways listed on the National Rivers Inventory, noted for their recreational, fish, cultural, and scenic values. One river, the Deshka River, would be crossed by DMT, and is not considered a navigable water, so the Corps would not regulate this crossing. The other, Alexander Creek, would be crossed using dry-ditch construction in the winter. Winter construction would avoid impacts on the creek's summer recreational values, and any impact to winter time recreation would be temporary during construction. Impacts to the creek's scenic value

would be minimized by maintaining vegetative screening and restoring the creek bank.

Impacts to recreation are discussed in Sections 6.4.2, 6.4.3, and 6.4.5 of this document.

Considering the findings of the FEIS, and the analysis in this ROD, the Corps has determined the proposed project is not contrary to the public interest with regard to this factor.

7.1.8 Effects on Limits of the Territorial Sea [33 CFR 320.4(f)]:

Territorial seas are measured 3 nautical miles from a baseline (mean lower low water elevation) off the coastal state. The proposed project would involve components constructed along the coast of Alaska, in Prudhoe Bay and Cook Inlet. No proposed project components would affect the baseline or the limits of the territorial seas. The Corps has determined the proposed project is not contrary to the public interest in regard to this factor.

7.1.9 Consideration of Property Ownership [33 CFR 320.4(g)]:

References: Land ownership impacts are discussed in Section 4.9.2.1 of the FEIS.

The proposed project would be located on lands owned or managed by the federal or state governments, boroughs, cities, Alaska Native Corporations, or other Alaska Native entries, or private landowners. For lands owned by governments the proposed project would be subject to the applicable laws and authorizations from those entities. For private lands, and lands owned by Alaska Native Corporations, the applicant would negotiate easement agreements. If agreements cannot be agreed upon, eminent domain processes would take place. A DA permit does not convey property rights, nor authorize injury to property or invasion of other rights. Any disputes regarding land ownership or rights would be outside of the Corps' authorities and would need be resolved through other means, involving the land owner and the applicant.

Considering the findings of the FEIS, and the analysis in this ROD, the Corps has determined the proposed project is not contrary to the public interest with regard to this factor.

7.1.10 Activities Affecting Coastal Zones [33 CFR 320.4(h)]:

See Section 8.2 of this document.

7.1.11 Activities in Marine Sanctuaries [33 CFR 320.4(i)]:

There are no marine sanctuaries located in Alaska, and therefore the proposed project would have no impact to this public interest factor.

7.1.12 Other Federal, State, and Local Requirements [33 CFR 320.4(j)]:

Section 1.2 of the FEIS describes the other federal agencies with authority to regulate the proposed project. FEIS Section 1.6 describes the other acts, and regulations in which the proposed project is subject. In addition, the proposed project would be subject to state and local laws. The applicant is solely responsible for obtaining all necessary authorizations and complying with federal, state, and local laws.

7.1.13 Safety of Impoundment Structures [33 CFR 320.4(k)] and Safety [33 CFR 320.4(a)]:

References: Section 1.2.2 of the FEIS describes the federal safety regulatory process in which the proposed project is subject.

The PHMSA is the federal agency responsible for implementing federal safety regulations. PHMSA issued four special permits for the proposed project on September 9, 2019. PHMSA special permits include terms and conditions intended to ensure safety or environmental protection. The proposed project does not include any permanent impoundments of waters (i.e., dams). Considering the findings of the FEIS, and the analysis in this ROD, the Corps has determined the proposed project is not contrary to the public interest with regard to this factor.

7.1.14 Floodplain Management [33 CFR 320.4(l), Flood Hazards [33 CFR 320.4(a)], and Floodplain Values [33 CFR 320.4(a)]:

References: Floodplains are discussed in Section 4.3.2.7 of the FEIS.

Impacts to floodplains which could result from the proposed project could include changes in surface and subsurface flow patterns, decreases in filtering capacity, and reductions in flood attenuation and storage capacity. The applicant would minimize impacts to floodplains by contouring discharged fill (for pads or roads) after construction to restore hydrological connectivity through floodplains. Culverts in access roads would be sized appropriately for flood events, and then removed from roads not needed for project operations. In addition, for construction within certain boroughs, the local government may require the applicant to obtain floodplain development permits, which would also help to ensure minimal impacts to floodplains. In addition, the applicant has agreed to FERC Recommendation Number 35, and FERC recommendation number 32 would further minimize impacts to floodplains. Considering the findings of the

FEIS, and the analysis in this ROD, the Corps has determined the proposed project is not contrary to the public interest with regard to this factor.

7.1.15 Shoreline Erosion and Accretion [33 CFR 320.4(a)]:

References: Accretion is discussed in Section 4.3.3.1 of the FEIS.

Erosion is discussed in Section 6.1.3 of this document.

The proposed project would involve many waterway crossings and components along coastal shoreline. Accretion is not typical in Prudhoe Bay, and it would not be anticipated that proposed project construction at West Dock would cause accretion. Marine facilities in Cook Inlet are also not anticipated to have a major impact to shoreline accretion, though any fill structure could cause accretion by blocking the movement of sediment down the shoreline with the current. Disturbance of waterways for crossings of both the mainline pipeline and access roads could also cause accretion. Pipeline crossings would disturb sediment, and if not restored properly, sediment could be transported downstream faster than normal processes and cause accretion. Accretion could also occur around culverts, if not properly installed and sized.

The applicant would minimize these impacts by restoring waterway crossings and minimizing in water work. The Corps has determined the proposed project is not contrary to the public interest with regard to this factor.

7.1.16 Navigation [33 CFR 320.4(o)]:

The proposed project would involve the expansion of West Dock in Prudhoe Bay, two marine offloading facilities in Cook Inlet (one near Beluga, one near Nikiski), a product loading facility in Cook Inlet, and the mainline pipeline would cross Cook Inlet. None of these structures or fills would be anticipated to impede navigation. The proposed project would not be anticipated to hamper navigation on any navigable rivers. Navigable rivers in which the applicant would construct a bridge are subject to Section 9 of the RHA, which the U.S. Coast Guard would evaluate and authorize. The Corps has determined the proposed project is not contrary to the public interest with regard to this factor.

7.1.17 Environmental Benefits [33 CFR 320.4(p)]:

No environmental benefits have been identified as potentially resulting from the proposed project's construction. Once in operation, there may be an overall improvement to GHG emissions with a reduction in coal or wood burning for heat and energy. However, there is no methodology to quantify this potential benefit.

7.1.18 Economics [33 CFR 320.4(q)]:

References: Impacts to economics are discussed in Section 4.11 of the FEIS.

The applicant expects to purchase $7.1 billion of materials and services within the state of Alaska during proposed project construction, with most of the purchases occurring with Anchorage and Fairbanks, and smaller purchases throughout the proposed project area. This expenditure would be beneficial to the state and local economies. However, most of the proposed project materials would be purchased from outside the state, and most of the workforce would likely come from out of state. The applicant also anticipates that the proposed project's construction would induce employment in industries outside of the proposed project such as oil and gas, mining support services, transportation, professional, scientific, and technical services, as well as tourism. These impacts to the economy would be beneficial, but would only last during construction. During operation of the proposed project, up to 980 people would be employed for the life of the project, all along the proposed project footprint.

In addition to providing employment opportunities, the proposed project construction would increase taxes collected by state and local governments through material purchases, payroll expenditures, and property and other taxes. Once constructed, proposed project operation would generate more tax revenue by production taxes, royalties, and income taxes to the state.

Considering the findings of the FEIS, and the analysis in this ROD, the Corps has determined the proposed project is not contrary to the public interest with regard to this factor.

7.1.19 Mitigation [33 CFR 320.4(r)]:

Mitigation is discussed in Section 5.0 of this document.

8.0 COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS [33 CFR 320.3 Related Laws]:

8.1 Clean Water Act (33 USC Section 1341) Section 401 Certificate of Reasonable Assurance [33 CFR 320.4(d)]:

Alaska Department of Environmental Conservation:
Date Issued: June 19, 2020 ☒Issued ☐Denied ☐Waived
Special Conditions: ☒Yes ☐No

Environmental Protection Agency:
Date Issued: June 22, 2020 ☒Issued ☐Denied ☐Waived
Special Conditions: ☒Yes ☐No

8.2 Coastal Zone Management Consistency Determination [33 CFR 320.4(h)]:

By operation of Alaska State law, the federally approved Alaska Coastal Management Program expired on July 1, 2011, resulting in a withdrawal from participation in the Coastal Zone Management Act's (CZMA) National Coastal Management Program. The CZMA Federal consistency provision, section 307, no longer applies in Alaska. Federal Register Notice published July 7, 2011, Volume 76 N. 130, page 39857.

8.3 Endangered Species Act of 1973 [16 U.S.C. 1531]:

As lead federal agency, FERC initiated ESA Section 7 consultation with NMFS on June 28, 2019, and with the USFWS on July 11, 2019. A BA for the proposed project is included as Appendix O of the FEIS. The Corps has reviewed the BA and subsequent BOs from the Services (NMFS and USFWS), and determined they are sufficient for the Corps' purposes. See Section 6.2.1 of this document for more information. ESA Section 7 consultation was completed with the NMFS on June 3, 2020, and on June 17, 2020, with the USFWS. In light of the Services' BOs, the proposed project complies with the ESA.

8.4 Magnuson-Stevens Fishery Conservation and Management Act:

As lead federal agency, FERC completed consultation for impacts to EFH under the Magnuson-Stevens Fishery Conservation and Management Act on September 23, 2019. An EFH assessment for the proposed project is included as Appendix M of the FEIS. Impacts to EFH are summarized in Section 4.7.4 of the FEIS. The Corps has reviewed the EFH assessment and determined it is sufficient for the Corps' permit evaluation purposes. FERC determined the proposed project would not significantly affect benthic invertebrates, and would have minor impacts on plankton and freshwater EFH. Through the EFH coordination process, the applicant agreed to six recommendations which would minimize impacts to EFH (see FEIS Appendix M).

8.5 National Environmental Policy Act of 1969 [42 U.S.C. 4321 - 4347]:

The Corps participated as a cooperating agency in the development of the FEIS for the proposed project, with FERC as the lead federal agency. Signature of this ROD by the authorizing official completes the Corps' NEPA requirements and responsibilities.

8.6 National Historic Preservation Act of 1966 [16 U.S.C. 470 et seq.]:

As the lead federal agency, FERC is responsible for ensuring compliance with Section 106 of the NHPA. FERC developed a PA with the applicant, federal land

management agencies (BLM and NPS), Alaska SHPO, ADNR, and the ACHP, as well as other consulting parties (federally recognized tribes) for the treatment of historic and cultural properties. The PA was fully executed on June 24, 2020, and has been reviewed by the Corps. The Corps has determined the PA satisfies the Corps' requirements for Section 106 compliance.

8.7 Executive Order 13175 Consultation and Coordination with Indian Tribal Governments:

The Corps' PN for the proposed project was sent to the following federally recognized tribes: Alatna Village; Allakaket Village; Arctic Village; Beaver Traditional Council; Birch Creek Tribal Council; Cheesh-Na Tribarl Council; Chickaloon Native Village; Circle Tribal Council; Eklutna Native Village; Evansville Tribal Council; Gulkana Village; Inupiat Community of the Arctic Slope; Kaktovik Village; Kenaitze Indian Tribe; Knik Tribal Council; Manley Hot Springs Traditional Council; Native Village of Barrow Inupiat Traditional Government; Native Village of Cantwell; Chenega IRA Council; Native Village of Eyak; Native Village of Fort Yukon; Native Village of Gakona; Native Village of Kluti-Kaah; Minto Traditional Council; Native Village of Nanwalek; Native Village of Nuiqsut; Native Village of Port Graham; Stevens Village IRA Council; Native Village of Tanana; Native Village of Tatitlek; Native Village of Tyonek; Nenana Native Association; Ninilchik Traditional Council; Rampart Traditional Council; Seldovia Village Tribe; Village of Anaktuvuk Pass; Village of Salamotof; and Native Village of Venetie Tribal Government. Only the Chickaloon Native Village responded by requesting additional information about the proposed project, and submitted comments with Earthjustice (see Section 4.0 of this document).

FERC conducted government-to-government consultation with 38 federally recognized tribes. Comments from the tribes are summarized in Section 4.13.2 of the FEIS.

8.8 Clean Air Act [42 U.S.C. 7401 - 7671 Section 176(c)]:

Impacts to air quality are discussed in Section 4.15 of the FEIS. None of the proposed project's emissions would occur within a nonattainment area, and the maximum annual emissions generated would not exceed general conformity applicability thresholds, therefore, a general conformity analysis would not be required.

8.9 Executive Order 12898 (Environmental Justice):

Environmental justice impacts are discussed in Section 4.11.8 of the FEIS. In the FEIS, it was determined that there would be disproportionate subsistence impacts to minority and low-income residents of Minto, Nenana, Four Mile Road, Alexander Creek/Susitna, and Beluga, but that those impacts are not expected to

be high, and these impacts would be mitigated by the applicant, as outlined in the referenced section of the FEIS.

8.10 Executive Order 11988 (Flood Plain Management):

See Section 7.14 of this document. The proposed project has been designed to avoid and minimize impacts to floodplains to the extent practicable. Completion of the process and analysis contained within this ROD and signature by the authorizing official completes the Corps EO 11988 requirements.

8.11 Executive Order 13112, Invasive Species:

References: Section 4.5.8 of the FEIS discusses invasive species impacts.

☒ The evaluation above included invasive species concerns in the analysis of impacts at the project site and associated compensatory mitigation projects.

☐ Through special conditions, the permittee will be required to control the introduction and spread of exotic species.

8.12 Executive Orders 13212 and 13302, Energy Supply and Availability:

☒ The review was expedited and/or other actions were taken to the extent permitted by law and regulation to accelerate completion of this energy-related (including pipeline safety) project while maintaining safety, public health, and environmental protections.

The proposed project has been reviewed under the Fixing America's Surface Transportation Act (FAST-41), which established a strict timeline for completion of the FEIS and federal authorization decisions.

8.13 Significant National Issues [33 CFR 325.2(a)(6)]:

This decision document and final decision is not contrary to state or local decisions.

9.0 Decision:

I find that the issuance of the DA permit, as described by regulations published in 33 CFR Parts 320 through 332, with the scope of work as described in this document is based on a thorough analysis and evaluation of all issues set forth in this ROD. There are no less environmentally damaging, practicable alternatives available to the Alaska Gasline Development Corporation to construct the Alaska LNG Project. The issuance of this permit is consistent with National Policy, statutes, and administrative directives; and on balance, issuance of a DA permit

to construct the Alaska LNG Project is not contrary to the public interest. As explained above, all practicable means to avoid and/or minimize environmental harm from the selected, permitted alternative have been adopted and will be required by the terms and conditions of a permit issued in accordance with this ROD.

David S. Hobbie
David S. Hobbie
Regional Regulatory Chief

June 24th, 2020
Date