MEMORANDUM FOR RECORD

SUBJECT: Department of the Army Environmental Assessment and Statement of Findings for the Above-Referenced Standard Individual Permit Application

This document constitutes the Environmental Assessment, 404(b)(1) Guidelines Evaluation, as applicable, Public Interest Review, and Statement of Findings for the subject application.

1.0 Introduction and Overview:

Information about the proposal subject to one or more of the Corps' regulatory authorities is provided in Section 1.0, detailed evaluation of the activity is found in Sections 2.0 through 11.0 and findings are documented in Section 12.0 of this document.

1.1 Applicant:

Oil Search (Alaska), LLC (OSA)

1.2 Activity location:

The proposed seawater treatment plant (STP) project site is located at 70.50978° North Latitude and 149.86109° West Longitude in T. 13N., R. 9E., S. 4. Umiat Meridian, along the eastern shoreline of Oliktok Point and into Simpson Lagoon of the Beaufort Sea. The STP pipeline is located in T. 13N., R. 9E., S. 4, 5, 9, 16, 21, 28 and 33; T. 12N., R. 9E., Section 3, 10, 11, 15, 22, 23, 25, 26 and 36; T.11N., R. 9E., Section 1, 11, 12, 14, 15, 16, and 21 Umiat Meridian.

1.3 Description of activity requiring permit:

<u>Sea Water Treatment Pipeline</u>

Discharge of sand slurry (7,100 CY) into 0.05 acre wetlands in winter requiring authorization under Section 404 to install vertical support members (VSMs) to support an 18.4 mile make-up water pipeline. The pipeline would be installed by drilling holes into frozen ground in the winter and backfilling with sand slurry.

<u>Sea Water Treatment Plant (STP)</u>

Discharge of gravel fill (190,000 CY) and a sunken barge (47,000 CY) into 0.09 acres of marine waters in the summer between HTL and MHW requiring authorization under Section 404 and 6.74 acres below the MHW requiring authorization under Section 10 and 404 to construct a salt water treatment plant. (The STP will be transported by sealift vessel to just outside of the barrier islands

near the project site and then positioned by tugboats. The STP barge will be moored in place and grounded to rest on the seafloor.)

Dolphins

Installation of 4 mooring dolphins, each 48 inch in diameter by 75 feet in length, to a depth of approximately -50 feet MLLW during the winter using a vibratory hammer in frozen marine waters below the MHWM, requiring authorization under Section 10, for the purpose of guiding and mooring the barge.

Screeding

Screeding (17,000 CY), grooming humps and depressions in the sea floor, to a depth of 7.5 to 8.0 feet below MLLW of 8.32 acres of sea floor in the summer annually requiring authorization under Section 10 and Section 404. A barge will be outfitted with the following equipment used for screeding: a rake structure, a forklift, an excavator, and an anchor based mooring system.

Installation of sheetpile

2,218 linear feet of sheet pile will be installed into 0.01 acres of marine waters during the winter using a vibratory hammer in ground fast ice below the MHW requiring authorization under Section 10.

Outfall

Install a 24 inch diameter by 457 foot outfall pipe into 0.02 acres of the seafloor of frozen marine waters below MHW during the winter by trenching (110 CY) of the seafloor. Excavated material will be backfilled to cover the pipe and excess material will be side cast requiring Section 10 and Section 404 authorization.

Excavation

The 1.94-acre area designated for STP barge placement will be dewatered and excavated to -9.5 feet MLLW during the summer, and the excavated material (12,000 CY) will be placed in the sheet pile enclosure. Pumps, excavators, and a crane will be required for the excavation. Approximately 12,000 cubic yards of material will be excavated and placed in the adjacent sheet pile enclosure requiring authorization under Section 10.

1.3.1 Proposed avoidance and minimization measures:

The project has been designed to avoid and minimize the discharge of fill into wetlands and other waters. The following measures will be taken to avoid impacts to aquatic ecosystems, including wetlands and WOUS, to the greatest extent practicable:

- The STP has been sited adjacent to existing infrastructure at Oliktok Dock. The STP will have a seawater intake at the face of the barge on which the STP rests, thereby avoids the need for extensive dredging for the seawater intake structure.
- Stockpiling of gravel for STP construction will occur on uplands. Gravel will either be stockpiled on Oliktok Point or be transported directly from the material site and placed within the project footprint.
- All excavated materials from the seafloor will be reused within the project footprint to avoid the need to dispose of the material within WOUS outside of the project area and to reduce the volume of gravel to be mined and hauled to the site.
- Single-season ice roads and pads will be used to support winter construction, avoiding the need for additional fill to support construction.
- Drilling for VSMs will occur from an ice road, and drill cuttings will be sidecast onto the ice around each VSM, avoiding a discharge of fill material into WOUS. The sidecasting will not change the bottom elevation of WOUS or replace any portion of WOUS with dry ground. The drill cuttings will be removed once VSM installation is complete.
- OSA will comply with State and local water quality regulations, BMPs, and a SWPPP. These stipulations are longstanding, demonstrably effective on the Alaska North Slope, and ensure negligible or no water quality degradation.
- Impacts to special aquatic sites (wetlands) have been limited to 0.05 acre.
- All fill material acquired for the project will be clean fill material. The fill material will be free of items such as trash, debris, automotive parts, asphalt, construction materials, concrete blocks with exposed reinforcement bars, and soils contaminated with any toxic substance, in toxic amounts in accordance with Section 307 of the Clean Water Act.
- The majority of the fill placed for the STP will be enclosed in sheet pile to minimize turbidity and sedimentation outside of the project footprint.
- The pipeline will be externally coated with fusion-bonded epoxy under the shop-applied insulation to minimize or eliminate the need for tundra travel to perform external corrosion inspections of the pipeline.
- Construction of single-season ice roads and pads will minimize the need for annual withdrawal of water for ice road construction. In accordance with permits, ice road crossings of designated streams and rivers will be

slotted, breached, or weakened upon completion of use to minimize flooding and associated scour upon the return of flowing waters in spring.

- The applicant will develop an Alaska Department of Environmental Conservation (ADEC)-approved Stormwater Pollution Prevention Plan to be implemented prior to project construction.
- The applicant will develop a Snow Removal Plan to prevent soil or debris from being discharged into WOUS outside of any authorized fill areas.
- The applicant will develop a Waste Management Plan to address the types and quantities, regulatory controls, and management options for solid and liquid wastes.
- At the conclusion of production, abandonment of project facilities will be conducted in accordance with applicable Alaska Department of Natural Resources Division of Oil and Gas North Slope Areawide Lease Mitigation Measures and in compliance with all permit and lease requirements.
- The STP and associated pipeline will not impact documented cultural resources.
- Summer construction activities, including transport of the STP barge to Oliktok Dock, will be coordinated with the Alaska Eskimo Whaling Commission to minimize impacts to the marine mammal subsistence harvest.
- Pile/pipe driving and sheet pile installation will be completed during the ice-covered season eliminating the prospect of impacts to marine mammals from pile/pipe driving and sheet pile during the open water season.
- In order to obtain Letter of Concurrence from the National Marine Fisheries Service (NMFS) and Letter of Authorization issued by the U.S. Fish and Wildlife Service (USFWS), OSA will develop a Marine Wildlife Avoidance and Interaction Plan and Polar Bear Interaction Plan to ensure that all activities have the least practicable adverse impact on affected marine mammal species.
- In order to obtain Letter of Concurrence from NMFS and Letter of Authorization issued by USFWS, OSA also will develop a Plan of Cooperation with the nearest affected communities to the locations of open water and over-ice activities to ensure the activities have no unmitigable adverse impacts to any Alaska Native subsistence uses.

- Single-season ice roads will be routed and constructed to minimize impacts to sensitive vegetation such as willow, per North Slope Borough (NSB) requirements.

Wildlife:

- VSMs will be aligned with the VSMs from adjacent pipelines to avoid the creation of a “fence” in order to minimize impacts to caribou.
- The pipeline will be separated from Oliktok Road to minimize caribou disturbance and excessive snow drift accumulation and to reduce the risk of vehicle impacts to the pipeline.
- The pipeline and horizontal support members will be a minimum of 7 feet above tundra surface, except where pipelines intersect a road or pad, in order to minimize impacts to caribou and other terrestrial wildlife.
- Pile/pipe driving and sheet pile installation will be completed during the ice-covered season when the nearshore area around Oliktok Dock is expected to be grounded or nearly grounded ice (frozen to the ocean bottom) limiting impacts to overwintering aquatic marine life, ice seals, and eliminating the prospect of impacts to migrating whales from pile/pipe driving and sheet pile during the open water season.
- A Polar Bear Interaction Plan and Marine Wildlife Avoidance and Interaction Plan have been developed to provide personnel with guidance to minimize the possibility of wildlife interactions and impacts to bears and human safety.
- Lighting of the STP facility will be designed to minimize the impact of lighting on visual aesthetics and minimize the occurrence of bird strikes. The facility lighting will minimize light visible from outside of project facilities by using downward illumination such as downcast floodlights and excluding use of horizontally aimed floodlights, locating mast poles away from the pad edge, using lighting fixtures with lamps contained within the reflector, and shading externally facing windows on buildings.
- Pipelines will have a non-reflective finish to reduce reflectivity and potential impacts to wildlife from visual disturbances.
- Water withdrawal for ice pad and ice road construction will be conducted in compliance with water withdrawal authorizations and fish habitat permit stipulations to maintain adequate lake volumes in fish-bearing lakes.

- Screens will be installed at the STP water intake to prevent fish entrapment and filter large organic matter (e.g., sticks, tundra matt, and other large items suspended or floating in the seawater).
- Following Section 7 Consultation with NMFS and USFWS, the applicant will implement agency-recommended mitigation measures or mandatory terms and conditions (including the use of Protected Species Observers) to avoid and/or minimize impacts from screeding, gravel fill placement, pile and sheet pile installation, marine transport, and operations on species listed under the Endangered Species Act such as spectacled eiders, Steller's eiders, polar bears, bowhead whales, Beringia Distinct Population Segment (DPS) bearded seals, Arctic ringed seals, blue whales, fin whales, Western North Pacific gray whales, Western North Pacific DPS and Mexico DPS humpback whales, North Pacific right whales, sperm whales, and Western DPS Steller sea lions, as well as designated critical habitats, as appropriate.
- External pipeline walls will be coated with fusion-bonded epoxy. The pipeline will include an insulation system consisting of polyurethane foam insulation covered with an interlocked sheet metal jacket. The STP facility will include pig launchers and receivers capable of handling in-line inspection tools, and maintenance and cleaning tools.
- Where the pipeline crosses road embankments, the coated and insulated pipeline will be encased in structural steel pipe casings buried within the roadway section. Casings for pipeline-road crossings will extend a minimum of 2 feet beyond the road embankment toe.
- The pipeline is designed to be above ground, allowing for better access for leak detection, maintenance, and potential spill response.
- Periodic surveillance of the OSA pipelines will be conducted in accordance with federal regulatory and American Society of Mechanical Engineers (ASME) B31.4 requirements and in accordance with ADEC regulations (18 Alaska Administrative Code 75). Leak detection systems and surveillance will be compliant with ASME codes and state and federal standards.
- All fuel and hazardous substances used by the project will be handled and stored on-site in compliance with state and federal regulatory guidance and Nanushuk Project's Spill Prevention, Control, and Countermeasures Plan. All fuels and chemicals will be stored in appropriate primary

containment areas. Secondary containment areas will be designed in compliance with all applicable permits and regulations.

- Fuels and other products will be transported to the project area using a licensed, commercial transporter following U.S. Department of Transportation regulations for safe transport of materials to minimize spill risk.
- Trained North Slope employees and contractors who are familiar with North Slope oilfields will be employed, providing personnel who are familiar with industry requirements regarding environmental and regulatory compliance standards. Personnel will be trained on Nanushuk operational plans, including oil handler training, waste management, snow removal, spill prevention, and wildlife interaction, which will minimize the potential for impacts during daily operations.

1.3.2 Proposed compensatory mitigation: OSA has designed the project to avoid and minimize adverse effects to aquatic resources and other environmental resources to the maximum extent practicable, as described above. Direct impacts from the project will result in a nominal loss of 0.05 acre of wetlands from VSM installation and 6.83 acres of marine waters from STP construction, for a total of 6.88 acres of permanent impact to WOTUS. All other impacts to marine waters will be temporary. No additional formal compensatory mitigation is proposed for project activities undertaken through this permit modification.

1.4 Existing conditions and any applicable project history:

The proposed project is the second modification to the original permit. The original permit authorized the construction of the Nanushuk project.[1] The first modification involved minor changes to the road and pad alignments.

Sections 1.2 and 1.2.1 of the Nanushuk Project Final Environmental Impact Statement (Nanushuk Project FEIS) provide a summary of the Nanushuk Project and historical context of oil and gas development on the North Slope, respectively.[2] The FEIS indicated that an existing commercial source of make-up water, such as the Kuparuk STP, could be used as the source of make-up water for the Nanushuk Project. However, further investigation has shown that there is not a guarantee that an existing facility would be able to provide the quantity and quality of water that is needed to fulfill the proposed project purpose.

[1] Refer to www.nanushukeis.com.

[2] USACE. 2018. Final Environmental Impact Statement, Nanushuk Project. U.S. Army Corps of Engineers, Alaska District, Anchorage, AK.

Oliktok Point is located at the western end of Simpson Lagoon, a sheltered and shallow part of the Beaufort Sea between the shore of the ACP and Jones Islands. Oliktok Point is 10 miles east of the mouth of the East Channel of the Colville River.

Simpson Lagoon has a relatively shallow nearshore shelf that provides a mixing environment for turbid, sediment-bearing, freshwater inflows from the Colville, Kuparuk, Sagavanirktok, and other smaller rivers entering the Beaufort Sea. Nearshore marine waters of the Beaufort Sea are fresher and more turbid compared to the deeper marine waters, which are clearer, colder, and more saline.

Nearshore waters of the Beaufort Sea have four seasonal states: freeze-up, ice cover, breakup, and open water. The marine water quality naturally changes among seasons and is influenced by the extent and depth of ice cover and other environmental factors. Ice in the vicinity of the STP typically begins to form in late September, becomes frozen by October, and attains a thickness of 4 to 5 feet by April. Ice cover typically remains until spring breakup, which generally occurs in June. During breakup, the water column along the coast has a freshwater upper layer resulting from sea ice melt and freshwater runoff. During the open-water season, wind drives currents and vertical mixing of the water column.[3] Vertical mixing is further enhanced by turbulence from wind waves. Periods of varying winds cause rapid mixing in shallow areas. As the open-water season begins to cool and approaches freeze-up, coastal waters become colder and more saline as solar insolation and freshwater inputs diminish.[4]

At Oliktok Point, the high tide line (HTL) is at 1.5 feet mean lower low water (MLLW), and mean high water (MHW) is at 0.6 foot MLLW.[5] In tidal waters, the lateral extent of USACE jurisdiction under Section 404 of the Clean Water Act (CWA) is the HTL, whereas the lateral extent of jurisdiction under Section 10 of the Rivers and Harbors Act of 1899 is the MHW.

The proposed STP would be adjacent to existing gravel infrastructure at the end of Oliktok Point. Oliktok Point was originally a natural coastline feature at the demarcation between Harrison Bay to the west and Simpson Lagoon to the east.

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[3] LGL Alaska Research Associates Inc., and Environmental Science and Engineering Inc., 1990. Coastal oceanography of the Alaska Beaufort Sea. Appendix B. Pages B1– B74 [In] J. M. Colonell and B. J. Gallaway, editors. An assessment of marine environmental impacts of West Dock Causeway. Prepared for Prudhoe Bay Unit Owners represented by ARCO Alaska, Inc., Anchorage.

[4] Ibid.

[5] USACE. 2017. Alaska District Tidal Data. https://www.poa.usace.army.mil/Portals/34/docs/regulatory/TidalData06052017.pdf?ver=2017-08-31-182208-907.

Gravel pads have extended Oliktok Point into the nearshore marine area. Two facilities, the Kuparuk STP and the Eni Oliktok Production Pad, sit on the gravel pads at the end of Oliktok Point. During winter, Eni constructs an ice road from Oliktok Point to Spy Island to support operations there. The Kuparuk STP was constructed by ARCO in 1985 after the first drill sites (DS) and production facilities were constructed in 1981. The Kuparuk STP was designed to take in more than 500,000 barrels per day (bpd) of seawater in order to conduct waterflood of the Kuparuk River Unit (KRU) reservoir. The Kuparuk STP currently supplies water to the KRU, the SMU, the Nikaitchuq Unit, the Oooguruk Unit, the Colville River Unit, and the Greater Moose's Tooth Unit (GMTU). The existing Kuparuk STP facility has two outfalls: a strainer and filter backwash outfall and a marine life return outfall located on the north side of the gravel infrastructure. Oliktok Dock is at the northern edge of Oliktok Point and is composed of an approximately 490-foot-wide sheet-pile dock face. Oliktok Dock is the proposed sealift site for Nanushuk Project modules[6] and the Willow Project.[7]

1.5 Permit Authority:

Section 10 of the Rivers and Harbors Act (33 U.S. Code [USC] 403) and Section 404 of the Clean Water Act (33 USC 1344).

2.0 Scope of review for National Environmental Policy Act (i.e. scope of analysis), Section 7 of the Endangered Species Act (i.e. action area), and Section 106 of the National Historic Preservation Act (i.e. permit area)

2.1 Determination of scope of analysis for National Environmental Policy Act (NEPA)

The scope of analysis includes the specific activity requiring a Department of the Army permit. Other portions of the entire project are included because the Corps does have sufficient control and responsibility to warrant federal review.

Final description of scope of analysis: The scope of analysis is the 18.4-mile STP pipeline including the 0.05 acres of wetlands; the 6.83-acre STP footprint, including dolphins, sheet pile, gravel discharge, sunken barge; and the 10.28-acre screeding, trenching and excavation, plus a circumferential buffer of 1-mile around the project site.

[6] USACE. 2018. Final Environmental Impact Statement, Nanushuk Project. U.S. Army Corps of Engineers, Alaska District, Anchorage, AK.

[7] Bureau of Land Management (BLM). 2019. Willow Master Development Plan Draft Environmental Impact Statement. Prepared by the Bureau of Land Management, Department of the Interior.

2.2 Determination of the "Corps action area" for Section 7 of the Endangered Species Act (ESA):

The project would occur in the ranges of the polar bear (*Ursus maritimus*), spectacled eider (*Somateria mollissima*), Steller's eider (*Polysticta stelleri*), Arctic subspecies of ringed seals (*Phoca hispida*), threatened Beringia DPS of bearded seals (*Erignathus barbatus*), and endangered Western Arctic population of bowhead whales (*Balaena mysticetus*). The project would occur in the critical habitat of the polar bear (*Ursus maritimus*)

The action area is defined in the ESA regulations (50 Code of Federal Regulations [CFR] 402.02) as the area within which all direct and indirect effects of the project will occur. The action area is distinct from and larger than the project footprint because some elements of the project may affect listed species some distance from the project footprint. The action area therefore extends out to a point where no measurable effects from the project are expected to occur. The underwater portion of the action area extends outward approximately 1,280 feet (390 meters) from the proposed STP project footprint. The in-air portion of the action area includes a 1-mile radius around the STP project and pipeline.

2.3 Determination of permit area for Section 106 of the National Historic Preservation Act (NHPA):

The permit area includes only those areas comprising waters of the United States that will be directly affected by the proposed work or structures . Activities outside of waters of the U.S. are not included because all three tests identified in 33 CFR 325, Appendix C(g)(1) have not been met.

Final description of the permit area: The permit area is the project footprint comprised of 0.05 acres of wetlands and 17.11 acres of sea floor.

3.0 Purpose and Need

3.1 Purpose and need for the project as provided by the applicant and reviewed by the Corps:

The purpose and need for the project is to provide a long-term supply of make-up water with sufficient reliability and water quality assurance and to allow the applicant to optimize production efficiency from the Pikka Unit reservoirs. The project would supplement or potentially displace the need to obtain make-up water from a third party to support full field development of the Pikka Unit.

3.2 Basic project purpose, as determined by the Corps:

The project basic purpose is to supply water.

3.3 Water dependency determination:

Supplying the Pikka Unit reservoirs with a long-term supply of make-up water is not water-dependent.

3.4 Overall project purpose, as determined by the Corps:

The overall project purpose is to provide a long-term supply of make-up water with sufficient reliability and water quality assurance to optimize production from the Pikka Unit reservoirs.

4.0 Coordination

The initial Public Notice (PN) was issued on April 1, 2020, the project was modified and a second PN notice was issued on July 9, 2020.

4.1 The results of coordinating the proposal on Public Notice (PN) are identified below, including a summary of issues raised, any applicant response and the Corps' evaluation of concerns.

Were comments received in response to the PN? Yes

Were comments forwarded to the applicant for response? Yes

Was a public meeting and/or hearing requested and, if so, was one conducted? No

Comments received in response to public notice:

U.S. Fish and Wildlife Service

In a letter dated July 21, 2020 Bob Henszey, Branch Chief, Planning and Consultation, of USFWS stated:

Although we do not object to the proposed permit modification, we would appreciate any voluntary general and facility specific management practices intended to avoid and minimize adverse impacts to migratory birds and their habitats. Migratory bird nests, eggs, or nestlings could be destroyed if activities are conducted during the spring and summer breeding season, which is June 1 – July 31 on the North Slope in Alaska. A common mitigation measure to help minimize impacts to nesting birds is to avoid land disturbing activities (e.g., clearing, excavation, gravel fill, brush hogging, etc.) during the breeding season. We also suggest implementing perching and nesting deterrents to the STP to

reduce attractants for nesting birds, including ravens. Breeding bird nest and young predation impacts are increased with raven presence.

We also recommend considering using the already established CPAI STP for the needed water resources. With upgrades or added equipment to the existing facility, perhaps it is possible to refine the water produced by the existing STP and make it suitable for the Pikka development. The coordination and cooperation between the two projects could be more economical and lessen the environmental impact.

OSA Response:

USFWS's suggested BMPs are consistent with OSA's Wildlife Interaction and Avoidance Plan as well as BMPs incorporated into the Nanushuk Project.

The purpose for the STP Project is to "provide a long-term supply of make-up water that is reliably available in sufficient quantities, and of sufficient water quality, to allow OSA to optimize production efficiency from the Pikka Unit reservoirs." CPAI has not indicated the volume of water that would be provided by an expanded KRU STP, or whether its upgrade would result in water of sufficient quality to result in optimized production efficiency from Pikka Unit reservoirs. Given the limited information provided by CPAI, OSA and the Corps cannot reasonably conclude that OSA's purpose and need would be met by a KRU STP upgrade. The proposed STP Project meets OSA's purpose and need for reliable quantities of quality makeup water.

Alaska Department of Environmental Conservation

In a letter dated June 11, 2020, Charley Palmer of ADEC provided instructions on identifying Drinking Water Protections Areas (DWPA) within the proposed project vicinity as well as agency contact information and BMPs for handling stormwater and wastewater discharges near DWPAs.

OSA Response:

The nearest DPWAs are Eni's two groundwater wells that support Nikaitchuq Operations Center and the Oliktok Production Pad (PWSID: AK 2330070). These wells are designated as Non-Transient Non-Community Water Systems. OSA will coordinate with Eni and ADEC to ensure that the STP Project will not impact these water sources.

Alaska Department of Natural Resources – Division of Mining, Lands, and Water

In an email on May 1, 2020, Melissa Head of ADNR stated:

In reference to POA-2015-00025-M2, please note that the proposed activities will require authorizations from the Alaska Department of Natural Resources. To date, the DNR has not received an application from OSA. Additionally, there are numerous other activities authorized and third party interests in the vicinity that would be impacted by this project. These other uses will need to be accommodated by Oil Search Alaska or revised during the State adjudication process to ensure all users can continue their operations. The USACE will be sent review of any applications received.

OSA Response:

On June 23, 2020, OSA applied to ADNR Division of Oil and Gas (DOG) for an easement under state law (AS 38.05.850) to place the STP on State of Alaska land at Oliktok Point as proposed.

Arctic Slope Regional Corporation

In a letter dated May 1, 2020, Richard Glenn, Executive Vice President of External Affairs for Arctic Slope Regional Corporation (ASRC) stated:

ASRC is a mineral owner of a large portion of the Nanushuk Project area and therefore has an economic interest in seeing this project developed. ASRC continues to balance the need for Arctic oil and gas development for the North Slope's economic well-being with the subsistence culture of our Iñupiat shareholders. ASRC understands there is an opportunity to improve the Pikka development project by constructing a new seawater treatment plant, or STP, at Oliktok Point. The proposed location for STP is cited near existing infrastructure and the construction plans for the project considers enclosing footprint in sheet-pile prior to gravel lay and sheet-piling exclusive to winter season, which will help reduce impacts to marine mammals and subsistence users. To further mitigate and minimize any impacts to subsistence users, ASRC recommends that OSA consult directly with AEWC, Nuiqsut Whaling Captains Association, and Barrow Whaling Captains Association prior to arrival and installation of the STP to ensure impacts to subsistence whaling are well integrated into OSA's operations.

ASRC expects that USACE and OSA will adhere to NSB Municipal requirements regarding pipeline height, separation between pipelines, and proper distance between pipeline and roads to not impede caribou migration and movement. ASRC recognizes that the Project Proponent has thoughtfully sited virtually all of the project infrastructure adjacent to existing infrastructure. Although ASRC appreciates that only a small segment of the STP pipeline (approximately 1.6 mi) departs from existing infrastructure near DS-2W where the STP Pipeline is routed to meet the Nanushuk Pipeline, ASRC suggests the Corps and OSA

consider alternative routing of the STP Pipeline to follow existing infrastructure in its entirety.

While ASRC is sensitive to any potential impacts to our lands, waters, businesses, shareholders, or subsistence resources, ASRC maintains that development of Alaska's resources can proceed safely while protecting the Arctic environment and the subsistence culture of its Alaska Native population. ASRC has been involved in reviewing plans for Arctic oil and gas development offshore and onshore for more than 30 years. OSA has continued to develop and refine its project plans since the USACE issued OSA's 404 permit for the Pikka Project (formerly known as the Nanushuk Project) in May of 2019. To support production and implement enhanced oil recovery, injection of sea-water will be required for Pikka development project. The proposed construction of STP, at Oliktok Point, will provide make-up water of the reliable quantity and quality necessary to maintain reservoir pressure and optimize field recovery. Given the current oil price climate companies are looking for efficiencies and optimization of their projects, and ASRC understand that the construction of the STP will help achieve this aim for the Nanushuk Project.

Development of the Nanushuk project is poised to contribute significantly to the local, regional and state economy, and will work to offset declines in throughput of TAPS, providing a promising resurgence of Alaska's North Slope. ASRC appreciates the opportunity to present these comments and looks forward to USACE conducting their due diligence as they prepare the EA for the STP project.

OSA Response:

OSA concurs with comments made by ASRC regarding the need for, expected benefit of, and public interest in the STP Project. In response to the comment of ASRC regarding the initially proposed STP pipeline route, OSA made a minor modification to route the STP project pipeline to align with existing piperacks from where it emerges at Oliktok Point to OSA's Tie-In Pad at CPF-2. This lengthens the STP pipeline length by 1.9 miles as compared to the originally proposed design, resulting in approximately 230 additional vertical support members (VSMs), and less than 0.01 acre more fill to wetlands. OSA believes this to be a modest increase in fill to wetlands with little environmental impact, while further offsetting the prospect of potential impacts to caribou movement by pipeline infrastructure. OSA also commits to coordinate with AEWC on summer construction activities, see Section 1.3.1 of this document, which includes the whaling captains of Nuiqsut and Barrow. OSA is encouraged by the local and regional support for the STP Project as an optimization of the Pikka Development

Project. OSA intends to consult with local subsistence users and avoid potential conflicts during the installation of the STP.

OSA values the comments made by ASRC regarding the STP Project and has considered the suggestion regarding the STP pipeline route. OSA submitted minor modifications to the Corps permit application, altering the pipeline route to follow existing infrastructure in its entirety. The Corps issued a Public Notice detailing OSA's minor modifications on July 9, 2020.

Kuukpik Corporation

In a letter dated May 1, 2020, Joe Nukapigak, President of Kuukpik Corporation stated:

While Kuukpik would normally encourage CPAI and Oil Search to expand processing capacity at the Kuparuk STP instead of seeming to duplicate facilities, Kuukpik believes the benefits of a second STP in this area outweigh the likely impacts. The facility is slated to be installed in an area that has already been impacted by development by multiple operators and will not significantly expand the existing development footprint. The additional STP and associated piping will have minimal additional impacts to wetlands (0.05 acres) and only slightly more impact to marine waters (6.07 acres). The seawater pipeline will, for the most part, utilize existing pipeline corridors until it reaches the currently planned pipeline routing to the Nanushuk oil development.

The addition of a 2nd STP at Oliktok will not diminish module offloading at the Oliktok dock. It appears that it will provide additional dock space and storage space for equipment and material movement via Oliktok.

Finally, the addition of a 2nd STP at Oliktok will provide a source for treated seawater for other North Slope projects as the need develops over time. Building this STP at Oliktok Point therefore makes it less likely that a standalone STP will later need to be constructed farther west in a more sensitive, less developed area in the future.

The proposed Oil Search STP will utilize modem technology for water filtration and treatment. Kuukpik is confident that technology for seawater treatment has advanced significantly since the 1980s. The use of more modem technology, in turn, will increase recoverable reserves (and, perhaps, production rates) from the Nanushuk reservoir at the Pikka Unit. Increased oil recovery and rates would benefit Kuukpik, Arctic Slope Regional Corporation (a mineral estate owner in the Pikka Unit), the State of Alaska, and other entities.

Kuukpik has no objections regarding Oil Search's proposal to install a 2nd STP at Oliktok.

OSA Response:

OSA concurs with comments made by Kuukpik regarding the need for, expected benefit of, and public interest in the STP Project. OSA is encouraged by the local and regional support for the STP Project as an optimization of the Pikka Development Project.

ConocoPhillips Alaska, Inc.

In a letter dated April 30, 2020, CPAI raised the following issues with respect to the applicant's proposed project:

- Construction of a new STP facility at Oliktok Dock would not be practicable.
- Use of the existing source of make-up water at the Kuparuk STP was preferable to construction of a new STP facility at Oliktok Dock.

OSA Response:

The purpose for STP Project is to "provide a long-term supply of make-up water that is reliably available in sufficient quantities, and of sufficient water quality, to allow OSA to optimize production efficiency from the Pikka Unit reservoirs." CPAI has not indicated the volume of water that would be provided by an expanded KRU STP, or whether its upgrade would result in water of sufficient quality to result in optimized production efficiency from Pikka Unit reservoirs. Given the limited information provided by CPAI, OSA and USACE cannot reasonably conclude that OSA's purpose and need would be met by a KRU STP upgrade. The proposed STP Project meets OSA's purpose and need for reliable quantities of quality makeup water.

CPAI also has not provided any support for its assertion that an upgraded KRU STP would be "environmentally preferable" to the OSA STP Project. CPAI has not described the scale of impacts that a KRU STP expansion would have on waters of the United States, nor has it described the air quality impacts that would arise from the expansion of its roughly thirty-five year old facility. It is unlikely that a KRU STP upgrade would represent a significant reduction in environmental impacts as compared to the STP Project, given the minimal impacts associated with the proposed project.

The amount and detail of information in an alternatives analysis and the level of scrutiny required by the Guidelines is commensurate with the severity of the

environmental impact and the scope/cost of the project. Here, the jurisdictional activities for the STP Project are minor, 0.05 acres of wetlands and 6.83 acres of marine waters will be impacted (OSA STP DA 404 Permit Application; March 2, 2020); the activities will cause little direct impacts as they are located adjacent to existing disturbances, they have little potential for secondary or cumulative impacts, and they are partially temporary in nature. Where an alternative does not have a "significant or easily identifiable difference in impact, the alternative need not be considered to have a 'less adverse' impact." Further, use of commercially available sources of make-up water for oil recovery, likely from the KRU STP, was considered as the No Action Alternative and was not selected because it does not meet the purpose and need of the STP Project.

4.2 Were additional issues raised by the Corps including any as a result of coordination with other Corps offices? No

If yes, provide discussion including coordination of concerns with the applicant, applicant's response and Corps' evaluation of the response:

4.3 Were comments raised that do not require further discussion because they address activities and/or effects outside of the Corps' purview? Yes

ConocoPhillips Alaska, Inc.

In the letter dated April 30, 2020, CPAI raised the following additional issues with respect to the applicant's proposed project that are outside the Corps' purview:

- There are unaddressed conflicts with existing infrastructure at Oliktok Dock.
- Impacts to existing air permits at the Kuparuk STP and the Nikaitchuq facility.
- Potential conflicts with sealifts from construction of the Willow project and the Eastern Northeast West Sak development.
- No information was given on how OSA would obtain rights to use KRU roads and facilities during construction or operations or to install its new facilities on KRU oil and gas and tidelands leases.

  Discussion: Multiple users and operations have coexisted at Oliktok Point for decades and are managed by the State of Alaska and facilitated through coordination between operators. As the landowner, the State of Alaska is the appropriate party to mediate any disputes or perceived impacts to the competing uses of State owned tidelands at Oliktok Point. The applicant must acquire the necessary authorizations from the State of

Alaska and other agencies identified in the STP Project description. This includes authorizations relating to access to Oliktok Point, air emissions, and water discharges, which are within the jurisdiction and expertise of State of Alaska regulatory agencies. OSA has already engaged these jurisdictional agencies and intends to acquire these authorizations in a timely manner independent of the Corps permitting process. A number of comments by CPAI relating to land access, coordination of simultaneous operations, and future and/or potential State of Alaska permit obligations of OSA and CPAI should be addressed by commercial arrangements or by the State of Alaska.

5.0 Alternatives Analysis (33 CFR Part 325 Appendix B(7), 40 CFR 230.5(c) and 40 CFR 1502.14).

An evaluation of alternatives is required under NEPA for all jurisdictional activities. An evaluation of alternatives is required under the Section 404(b) (1) Guidelines for projects that include the discharge of dredged or fill material. NEPA requires discussion of a reasonable range of alternatives, including the no action alternative, and the effects of those alternatives; under the Guidelines, practicability of alternatives is taken into consideration and no alternative may be permitted if there is a less environmentally damaging practicable alternative.

5.1 Site selection/screening criteria:

In order to be practicable, an alternative must be available, achieve the overall project purpose (as defined by the Corps), and be feasible when considering cost, logistics and existing technology.

Criteria for evaluating alternatives as evaluated and determined by the Corps:

The applicant provided “Seawater Treatment Plant Environmental Assessment Rev. 1. Oil Search America, Inc. July 2020” including an Alternatives Analysis (Section 2.3), to USACE on July 14, 2020. Information presented here is from the environmental assessment (EA), which has been included as an attachment (Attachment 1). The EA is being incorporated into the Corps’ analysis by reference.

Key components required to meet the applicant’s purpose and need for the project include an STP capable of reliably supplying 150,000 bpd of make-up water (such as treated seawater) that meets the particle size specifications of the Pikka Unit target reservoirs, and a pipeline elevated on VSMs and horizontal support members to deliver the make-up water to the Nanushuk Project. The

applicant screened concepts related to these components based on the following criteria:

- Does the concept satisfy the applicant's purpose and need?
- Is the concept reasonable as defined by the CEQ in its NEPA guidance (CEQ 1981)?
- Is the concept potentially practicable according to the Section 404(b)(1) Guidelines?
- Does the concept minimize potential environmental impacts relative to the proposed project?

Additionally, the applicant developed pipeline alignment alternatives to balance logistical, environmental, and economic concerns by considering one or both of the following:

- Maximizing the length of pipeline that follows existing pipeline and road infrastructure to reduce new impacts to wildlife, particularly caribou.
- Reducing the overall length of pipeline needed to reach the Nanushuk Processing Facility (NPF) for full-field development of the Nanushuk Project.

5.2 Description of alternatives

5.2.1 No action alternative:

This alternative would not result in a permit for placement of fill in WOUS, and as a result, construction of the project would not occur. The Nanushuk project would continue to advance toward construction of infrastructure previously permitted by the USACE (POA-2015-00025), relying upon commercially available sources of make-up water for oil recovery, as described in the Nanushuk Project FEIS,[8] likely from the Kuparuk STP.

Commercial arrangements have not been realized with any third-party source; therefore, estimates of reliability and volumes of available water are uncertain. Actual reliability and available volumes could impact the development pace of the Nanushuk project. Further, the applicant obtained concerning results from pore throat analysis on Pikka Unit reservoir rock samples in late 2019. Many of the pore throats were smaller by an order of magnitude or more from the typical North Slope formations. According to the analysis high levels of filtration will be necessary to prevent the Pikka Unit reservoir pore throats from becoming

[8] USACE. 2018. Final Environmental Impact Statement, Nanushuk Project, Section 2.3.2.7.3. U.S. Army Corps of Engineers, Alaska District, Anchorage, AK.

clogged, thereby inhibiting efficient hydrocarbon recovery over the life of the field. This newly identified mitigation has not been necessary for seawater used in other North Slope formations, but will be designed into the STP. The most logical source for third party water supply, the Kuparuk STP currently supplies the KRU, the SMU, the Nikaitchuq Unit, the Oooguruk Unit, the Colville River Unit, and the GMTU with make-up water. The Kuparuk STP has also been identified as the source of injection water for the Willow Development and the Mustang Field, which would further impact the volumes available for use for the Nanushuk project. The quality and long-term reliability of water provided under No Action Alternative could impact the pace of the full development of the Nanushuk Project and likely would not meet the applicant's stated purpose and need.

5.2.2 Off-site alternatives

The applicant identified four off-site alternatives for providing make-up water to the previously permitted Nanushuk Project.

Off-site alternative 1: Shallow Groundwater

This alternative consists of drilling into shallow groundwater either from a nearshore location at Oooguruk Island (Oooguruk) or from a gravel pad adjacent to the Colville River Delta (CRD). Producing shallow groundwater from Oooguruk would require a gravel pad equipped with erosion protection, a trenched subsea pipeline, and an overland pipeline. Producing from a gravel pad adjacent to the CRD would require an overland pipeline.

Under this alternative, the applicant would drill wells to penetrate a gravel seam underlying the Beaufort Sea. Eni, the operator of Oooguruk and Nikaitchuq, uses a small amount of this water source for utility water and potable water. At this time, it is uncertain whether this shallow groundwater source could support 150,000 bpd of water without impacting the existing operator's usage.

The water that would be produced under this alternative also contains magnesium, which, when exposed to air, creates a black precipitate that would be detrimental to the Nanushuk injection wells. In addition, the applicant expects that the suspended particle size would be too large and the water would require additional filtration equipment at all Nanushuk Project drill sites and the NPF to achieve the desired quality for oil extraction in the Pikka Unit target reservoirs.

This alternative does not meet the applicant's stated purpose and need because of the water quality issues and because the long-term reliability of the water source quantity is not well known.

Off-site alternative 2: STP at Oliktok Long Range Radar Site

This alternative involves placement of the STP barge offshore of the Oliktok LRRS, southwest of Oliktok Point. The STP barge would be placed in a sheet-pile-protected gravel berth approximately 2,200 feet (0.4 mile) offshore of the Oliktok LRRS. The STP barge and gravel berth would be installed using the construction methods described for the proposed project and would include installation of approximately 1,443 feet of sheet pile on the northwest face of the gravel pad. The gravel pad would be connected to shore with a 160-foot-wide gravel causeway with a surface width of 32 feet. Fish passage areas would be installed in the causeway to ensure safe fish passage through the structure.

Due to the shallow waters present in Harrison Bay west of Oliktok Point, an approximately 1.3-mile by 500-foot (79-acre) swath of seafloor would be dredged to accommodate the draft of the STP barge as it is towed to its final location. From the STP, the make-up water pipeline would be placed in a trench under the causeway to bring the make-up water onshore near the Oliktok LRRS. The make-up water would be delivered to the Nanushuk Project via an STP pipeline.

An STP at the Oliktok LRRS would require a 6.9-acre gravel pad for the STP barge, and an 8.3-acre causeway, for a total of 15.2 acres of gravel fill in marine waters. This alternative would also require 79 acres of screeding, and would not minimize environmental impacts compared to the proposed project.

Off-site Alternative 3: STP at Oooguruk

This alternative involves placement of the STP barge in marine waters adjacent to Oooguruk. The STP barge would be installed in marine waters adjacent to existing infrastructure on the west side of Oooguruk. The STP barge and gravel berth would be installed using the construction methods described for the proposed project and would include installation of approximately 1,513 feet of sheet pile on the northeast face of the gravel pad.

Due to the shallow waters present in Harrison Bay around Oooguruk, an approximately 1-mile by 500-foot (61-acre) swath of seafloor would be dredged to allow for the draft of the STP barge as it is towed to its final location. Additionally, the STP barge intake pipe would be trenched 2.1 miles to the northeast, while the marine life outfall and STP outfall pipe would be trenched approximately 1.6 miles and 2.2 miles, respectively, to the same general area. At these points, water depths are great enough that sea ice does not become groundfast in the winter and would not impact the outfall pipe and intake structure.

The STP would connect to the NPF via a subsea and overland pipeline. The 5.0-mile subsea pipeline would be trenched. The subsea pipeline would make landfall approximately 2.3 miles northeast of Nuna DS 1. A 2.2-mile overland pipeline, requiring 210 new VSMs, would then carry the make-up water to near Kuparuk DS 3, where it would connect to the Nanushuk Project via a new STP pipeline on new VSMs.

An STP at Oooguruk would require a 9.0-acre gravel pad for the STP barge, as well as 61 acres of screeding and a 5-mile trench for the subsea pipeline. This alternative would not minimize environmental impacts compared to the proposed project.

Off-site alternative 4: In-land STP

This concept involves placement of an STP facility in-land from the coast, with an intake structure at Oliktok Dock, an intake pipeline to the STP facility, and an outfall pipeline routed to the Beaufort Sea. This alternative is not practicable because of issues which emerge from separating the intake structure from the STP facility. With the intake structure separated from the filtration at the STP facility, there will be issues with increased sedimentation in the intake pipeline and the potential for biological growth in the seawater pipeline. Duplicative seawater heating equipment would need to be installed at the intake to prevent seawater from freezing at the intake and seawater in the intake pipeline from freezing. OSA would also have to add additional and / or larger pumps to deliver water to an In-land STP facility than is currently envisioned in the proposed Project. The intake pipeline would require frequent maintenance to mitigate the sedimentation, biological growth, and prevent freezing which may impact the reliability of the intake and threaten the surety of adequate supply for the STP facility and make-up water to the Pikka Unit. Once seawater is transported to the In-land STP facility, filtration would occur similar to the proposed project, and return water from that filtration would need to be returned to the Beaufort Sea by way of an additional buried pipe.

5.2.3 On-site alternatives

The applicant identified four alternative STP pipeline alignments, including the applicant's proposed alignment (On-Site Alternative 1).

On-Site Alternative 1

The proposed Project includes an 18.4-mile STP pipeline that would transport seawater from the STP to the make-up water pipeline previously permitted for the Nanushuk Project. The proposed pipeline would be 20 inches in diameter and would be constructed on approximately 2,115 new vertical support members

(VSMs). The pipeline would rest on horizontal support members (HSMs), supported by 12- to 20-inch-diameter pile VSMs spaced approximately 55 to 65 feet apart. The pipeline would be located parallel to existing pipelines and roads.

On-Site Alternative 2

On-Site Alternative 2 would be a 16.3-mile pipeline that would begin at Eni's Nikaitchuq Operations Pad. The Alignment 2 pipeline would be located parallel to and within 500 feet of existing pipelines and roads, where practicable. The pipeline would begin with 0.2 mile of buried pipeline across existing gravel fill at Oliktok Point to Eni's Oliktok Production Pad, which sits at the northern end of a large lake adjacent to the terminus of Oliktok Road. From Oliktok Point, the STP pipeline would parallel Oliktok Road and existing infrastructure above-ground for 10.2 miles. The proposed STP pipeline would then turn southwest across 1.6 miles of open tundra towards Kuparuk DS 2W. Once it reaches the drill site, the STP pipeline parallels the road to Kuparuk DS 2W for 4.5 miles until it connects with the previously permitted make-up water pipeline for the Nanushuk project. This alignment would construct a pipeline in a caribou migration area that currently does not have a pipeline structure. Creating a pipeline in this area has the potential to create a coral effect that impedes the migration of caribou.

On-Site Alternative 3

On-Site Alternative 3 would be an 18.8-mile pipeline that would begin at the Nikaitchuq Operations Pad and follow the existing Nikaitchuq pipeline south to a point just north of the Nikaitchuq Operations Center. From there, the pipeline alignment would run southwest across open tundra and cross Kalubik Creek at a point southwest of Kuparuk DS 3H. After crossing Kalubik Creek, the alignment would turn south, cross Kalubik Creek two more times, and tie into the previously permitted Nanushuk Project make-up water pipeline approximately 3 miles west of Central Processing Facility 2. Alignment 3 would require an overall longer pipeline than the STP pipeline included in the proposed project, and would require 17.9 miles of pipeline across open tundra, which would have greater impacts to terrestrial wildlife movement than the proposed project. This alignment would also require three crossings of Kalubik Creek and would cross 26 ponds and lakes, which would potentially have greater impacts on aquatic habitats.

On-Site Alternative 4

On-Site Alternative 4 would be a 24.8-mile pipeline following the same corridor as Alignment 3 to the west side of Kalubik Creek southwest of Kuparuk DS 3H. From that point, it would turn directly west for 3.3 miles and then turn southwest near the Kuparuk DS 3S. From DS 3S, the pipeline alignment would cross open tundra for approximately 22 miles, crossing the Miluveach River, and tie in

directly to the NPF. Alignment 4 would require the longest pipeline compared to the proposed project and would require 24.1 miles of pipeline across open tundra, which would have greater impacts to terrestrial wildlife movement than the proposed project. This alignment would also require crossing the Miluveach River and 42 ponds and lakes, which would potentially have greater impacts on aquatic habitats.

5.3 Evaluate alternatives and whether or not each is practicable under the Guidelines or reasonable under NEPA.

The No Action Alternative would not meet the overall project purpose.

The off-site alternative 1 and 4 are not practicable. (Refer to 5.2.2)

All on-site alternatives would be considered practicable and reasonable. (Refer to 5.2.3)

5.4 Least environmentally damaging practicable alternative under the 404(b)(1) Guidelines (if applicable) and the environmentally preferable alternative under NEPA:

The applicant's proposed project is the least environmentally damaging practicable alternative under the 404(b)(1) Guidelines and the environmentally preferable alternative under NEPA.

As compared to Off-site Alternatives 2 (STP at Oliktok Long Range Radar Site) and 3 (STP at Oooguruk) the proposed STP would require the smallest area of gravel fill in marine waters (5.50 acres) and the smallest area of screeding (8.32 aces), and would not require a gravel causeway (off-site Alternative 2) or a 5-mile trench for a subsea pipeline (Off-site Alternative 3). Off-site alternatives 2 and 3 require 15.2 acres and 9.0 acres of gravel fill in marine waters, respectively, and 79 acres and 61 acres of screeding, respectively. The proposed STP would be constructed adjacent to existing facilities and human activities at Oliktok Point, and thus construction and operation would be unlikely to result in additional impacts to marine mammals, whereas Alternative 2 requires a gravel causeway which would impact marine mammal movement, and Alternative 4 requires miles of subsea trenching.

Of the STP pipeline alignments identified, the proposed pipeline route from the STP to the Nanushuk Project make-up water pipeline was selected because it would maximize use of existing infrastructure and minimize impacts to caribou. Paralleling existing infrastructure would minimize caribou disturbance and excessive snow drifting while facilitating access for visual pipeline inspection, monitoring, repairs, modifications, and testing. While Alternative 2 would be shorter than Alternative 1, the difference in fill acreage from VSM installation

between the two alternatives is less than 0.01 acre. STP pipeline Alternative 2 crosses tundra that does not have existing infrastructure and is likely to have a greater impact to caribou movement than Alternative 1. VSMs would be installed to align with the VSMs from the adjacent pipe rack. Locating the new pipeline close to the existing pipeline and road corridor would minimize impacts to the aquatic environment compared to having the two features spaced farther apart.

6.0 Evaluation for Compliance with the Section 404(b)(1) Guidelines.

The following sequence of evaluation is consistent with 40 CFR 230.5

6.1 Practicable alternatives to the proposed discharge consistent with 40 CFR 230.5(c) are evaluated in Section 5.0.

The statements below summarize the analysis of alternatives.

Based on the analysis in Section 5.0 above, the no-action alternative, which would not involve discharge into waters, is not practicable.

For those projects that would discharge into a special aquatic site and are not water dependent, the applicant has demonstrated there are no practicable alternatives that do not involve special aquatic sites.

It has been determined that there are no alternatives to the proposed discharge that would be less environmentally damaging. (Subpart B, 40 CFR 230.10(a)). The proposed discharge in this evaluation is the practicable alternative with the least adverse impact on the aquatic ecosystem, and it does not have other significant environmental consequences.

6.2 Candidate disposal site delineation (Subpart B, 40 CFR 230.11(f)).

Discussion:

The proposed STP disposal site would occur in Simpson Lagoon at Oliktok Point on the North Slope of Alaska.

Marine water in the project vicinity includes Simpson Lagoon, a sheltered waterbody east of Oliktok Point and between the shore of the ACP and the Jones Islands. Oliktok Point is 10 miles east of the mouth of the East Channel of the Colville River. Simpson Lagoon has a relatively shallow nearshore shelf that provides a mixing environment for turbid, sediment-bearing, freshwater inflows, such as the Colville, Kuparuk, Sagavanirktok, and other smaller rivers. The nearshore areas of the Beaufort Sea are fresher and more turbid compared to the deeper offshore areas, which are clearer, colder, and more saline.

During the open-water season, wind drives currents and vertical mixing of the water column.[9] Vertical mixing is further enhanced by turbulence from wind waves. Periods of varying winds cause rapid mixing in shallow areas. As the open-water season begins to cool and approach ice-over conditions, coastal waters become colder and more saline as solar insolation and freshwater inputs diminish.[10] Suspended sediments may be carried out to deeper waters during westward wind events.[11] Summer water temperatures in Simpson Lagoon have been measured between 34 degrees Fahrenheit (°F) and 41°F, and salinity values have been measured at 12.09 to 28.04 practical salinity units.[12]

Turbidity and total suspended solids (TSS) are usually at their highest during spring breakup when peak discharges carry a high sediment load into the marine environment. Winds mixing in shallow areas and coastal erosion have a large influence on turbidity values and TSS throughout the open-water season. When ice cover is present, wind does not stir up sediments that could increase turbidity or TSS. No turbidity or TSS data are available for Simpson Lagoon in the vicinity of Oliktok Point. During summer when Simpson Lagoon is free of ice, dissolved oxygen concentrations range between 8.04 and 10.19 mg/L.[13]

Natural sources of hydrocarbons in marine waters include exposed coal seams, natural outcrops, and peat erosion occurring along the coast or streams that discharge to the ocean.[14] Hydrocarbons can also be introduced into marine waters from petroleum spills or leaks from vessels. Oliktok Dock is an active commercial barging area during the open-water season. Several spills of oils and other hazardous substances have occurred on land at Oliktok Point. Although contaminant migration to surface waters is a potential concern, it has not been documented to date.[15]

Trace metals naturally occur in the Beaufort Sea and are introduced from coastal erosion, freshwater inputs, and atmospheric deposition. The background

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[9] Colonell, J.M., and A.W. Niedoroda. 1990. Appendix B: Coastal oceanography of the Alaska Beaufort Sea. Pages B-1 to B-74 in J.M. Colonell and B.J. Gallaway, editors. An assessment of marine environmental impacts of west dock causeway. Prepared for ARCO Alaska, Inc., Anchorage. Prepared by LGL Alaska Research Associates, Inc. Anchorage, AK.

[10] Ibid.

[11] Weingartner, T.J. 2009. Seasonal variation in circulation and water properties in the nearshore Beaufort Sea. Institute of Marine Science, University of Alaska. Fairbanks, AK.

[12] ADEC. 2016. Offshore oil gas wastewater study: 2014 assessment of Simpson Lagoon. https://dec.alaska.gov/water/wqsar/pdfs/Reports/Simpson-Lagoon-2016.pdf Accessed November 2019.

[13] Ibid.

[14] MMS (Minerals Management Service) and EPA (Environmental Protection Agency). 1996. Beaufort Sea planning area, oil and gas lease sale 144: Final environmental impact statement. Anchorage, AK.

[15] ADEC. 2016. Prevention, preparedness, and response (PPR) spills database search. http://dec.Alaska.gov/Applications/SPAR/PublicMVC/PERP/SpillSearch Accessed November 2019.

concentrations of trace metals in Simpson Lagoon sediments are relatively low or below detection limits. Of 13 metals analyzed in sediment samples from August 2014, only arsenic was found in concentrations above which toxicological effects may occur, which is not uncommon for Alaska marine sediments.[16]

6.3 Potential impacts on physical and chemical characteristics of the aquatic ecosystem (Subpart C 40 CFR 230.20).

See Table 3.

Table 1. Potential Impacts on Physical and Chemical Characteristics

Physical and Chemical Characteristics	N/AA	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Substrate					X	
Suspended particulates/ turbidity				X		
Water				X		
Current patterns and water circulation			X			
Normal water fluctuations		X				
Salinity gradients			X			

Discussion:

Substrate

Physical, chemical and biological characteristics of substrate can change as a result of the discharge of fill material. The degree of those impacts on the substrate may be influenced by the quantity, composition, location, method and timing of discharge (40 CFR 230.20). The applicant's proposed project would primarily occur in marine waters along the shoreline of Simpson Lagoon at Oliktok Point, Alaska and on wetlands on the ACP of the North Slope. The ACP is a relatively smooth plain rising from the Beaufort Sea.[17] The dominant landforms are thaw lakes, beaded streams, meandering rivers, delta deposits

[16] ADEC. 2016. Offshore oil gas wastewater study: 2014 assessment of Simpson Lagoon. https://dec.alaska.gov/water/wqsar/pdfs/Reports/Simpson-Lagoon-2016.pdf Accessed November 2019.

[17] Gallant, A.L., E.F. Binnian, J.M. Omernik, and M.B. Shasby. 1995. Ecoregions of Alaska. US Government Printing Office. https://pubs.usgs.gov/pp/1567/report.pdf.

and topography influenced by the seasonal expansion and contraction of ice[18] and are described in further detail in the Nanushuk Project FEIS in Section 3.4.[19] The project area is underlain by continuous permafrost with an active layer ranging from approximately 1 to 3 feet deep, with a total depth ranging from 650 to 1,300 feet below the ground surface.[20] Marine sediments in Simpson Lagoon are primarily silt and sand.[21,22] Under average current velocities, discharged marine sediments are estimated to settle within 2,000 feet of the placement area.[23]

Project activities that could result in impacts to substrate include dewatering and excavation, discharge of gravel fill to ground the STP barge, seafloor trenching, screeding, VSM installation, dolphin installation, and sheet pile installation.

Discharge of fill material would permanently convert WOUS into uplands. Accidental oil spills or fuel leaks from construction machinery or vehicles using the road could impact the surrounding substrate by potentially introducing hazardous materials.

Suspended particulates/Turbidity

The discharge of fill material in marine waters and wetlands would result in elevated levels of suspended particulates, which could also increase turbidity in receiving waterbodies. Waterbodies in the project area primarily consist of marine waters. Increased suspended particulates and turbidity would temporarily impact marine life including fish, invertebrates, and marine mammals. No waterbodies in the project area are listed as impaired by ADEC under CWA Section 303(d).[24] No turbidity or TSS data are available for Simpson Lagoon in the vicinity of Oliktok Point.[25] Turbidity and TSS are usually at their highest during spring breakup when peak discharges carry a high sediment load into the marine

[18] Wahrhaftig, C. 1965. Physiographic divisions of Alaska: a classification and brief description with a discussion of high-latitude physiographic processes. Geological Survey Professional Paper 482. U.S. Government Printing Office. Washington, DC. https://pubs.usgs.gov/pp/0482/report.pdf. Accessed August 2017.

[19] USACE. 2018. Final Environmental Impact Statement, Nanushuk Project. U.S. Army Corps of Engineers, Alaska District, Anchorage, AK.

[20] Jorgenson, M.T., Y. Shur, and E.R. Pullman. 2006. Abrupt increase in permafrost degradation in Arctic Alaska. *Geophysical Research Letters* Vol. 33(2). http://onlinelibrary.wiley.com/doi/10.1029/2005GL024960/pdf.

[21] Drake, D.E. 1977. Suspended Matter in the Nearshore Waters of the Beaufort Sea, 1976. [In] P. W. Barnes, E. Reimnitz, D. Drake, and L. Toimil, Eds. Miscellaneous hydrologic and geologic observations on the inner Beaufort Sea Shelf, Alaska. U.S. Geological Survey, Open-File Report 77-477, Washington, DC.

[22] ADEC. 2016. Offshore oil gas wastewater study: 2014 assessment of Simpson Lagoon. https://dec.alaska.gov/water/wqsar/pdfs/Reports/Simpson-Lagoon-2016.pdf Accessed November 2019.

[23] Cheng, N.S. 1997. Simplified settling velocity formula for sediment particle. Journal of Hydraulic Engineering 123(2):149–52.

[24] ADEC. 2018. State of Alaska 2014/2016 Final Integrated Water Quality Monitoring and Assessment Report. November 2, 2018.

[25] ADEC. 2016. Offshore oil gas wastewater study: 2014 assessment of Simpson Lagoon. https://dec.alaska.gov/water/wqsar/pdfs/Reports/Simpson-Lagoon-2016.pdf Accessed November 2019.

environment. Activities such as screeding, trenching, sheet pile installation, and gravel placement would cause temporary increases in turbidity and TSS concentration. To avoid artificially caused increases in erosion and sedimentation, the applicant would not place VSMs below ordinary high water of any stream crossed by the STP pipeline.

Water

There is limited water quality information for waterbodies in the project area. No waterbodies impacted by the proposed project are CWA Section 303(d) impaired. The primary water quality parameters that would likely be affected by the project include sediment, turbidity, and stream temperature. The project would be required to obtain an Alaska Pollutant Discharge Elimination System (APDES) Permit to minimize water quality impacts. Potential water quality impacts from the STP would largely be limited to the nearshore marine environment. Construction and operation of the STP would not impact freshwater. The STP would impact marine water quality during the construction and operation of the STP. Impacts on marine water quality from the STP outfall are expected to be minimal. A complete analysis of water quality impacts and establishment of mixing zones will occur during the APDES permitting process.

A spill or accidental release of fuel or other petroleum products could occur during construction or operation of the STP. The impacts on waterbodies in the event of a spill depend on the size of the spill, the season in which the spill occurs, and where the spill occurs.

Current patterns and water circulation, normal water fluctuations, and salinity gradients

The project would primarily be constructed in marine waters. Impacts to marine waters would alter flow patterns but are expected to be minor and limited to the immediate area surrounding the outfall and gravel pad and could occur due to the screeding, dredging, placement of fill material and the STP barge. VSM installation also has the potential to alter surface drainage patterns. Construction of the pipeline alignment would require the use of non-potable freshwater from local permitted lakes for construction of the associated ice road. OSA would adhere to permit stipulations to withdraw water from local lakes for ice road and pad construction, resulting in a short-term impact.

At Oliktok Point, the HTL is at 1.5 feet MLLW, and MHW is at 0.6 foot MLLW.[26] In tidal waters, the lateral extent of USACE jurisdiction under Section 404 of the

[26] USACE. 2017. Alaska District Tidal Data. https://www.poa.usace.army.mil/Portals/34/docs/regulatory/TidalData06052017.pdf?ver=2017-08-31-182208-907.

CWA is the HTL, whereas the lateral extent of jurisdiction under Section 10 of the Rivers and Harbors Act of 1899 is the MHW.

The applicant would not place STP pipeline VSMs below ordinary high water of any streams.

6.4 Potential impacts on the living communities or human uses (Subparts D, E, and F)

6.4.1 Potential impacts on the biological characteristics of the aquatic ecosystem (Subpart D, 40 CFR 230.30).

See Table 4.

Table 2. Potential Impacts on Biological Characteristics

Biological characteristics	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Threatened and endangered species				X		
Fish, crustaceans, mollusk, and other aquatic organisms				X		
Other wildlife					X	

Discussion:

Threatened and Endangered Species

Four marine mammal species occur regularly in or near the project vicinity and are protected under the ESA. These species include the Western Arctic stock of bowhead whale (*Balaena mysticetus*), the Beringia DPS of bearded seal (*Erignthus barbatus*), the Southern Beaufort Sea stock of polar bear (*Ursus maritimus*), and the Arctic subspecies of ringed seal (*Pusa hispida*). See Section 3.11.5.1 and Appendix IX of the Nanushuk Project FEIS[27] for detailed information regarding distribution, status, life history, and critical habitat information for ESA-protected species.

[27] USACE. 2018. Final Environmental Impact Statement, Nanushuk Project. U.S. Army Corps of Engineers, Alaska District, Anchorage, AK.

Western Arctic Stock of Bowhead Whale

Bowhead whales will not be present in the action area during the ice-covered season when vibratory pile installation and removal is planned. During the open-water season when screeding and excavation are planned bowhead whales are not likely to be present within the action area or ensonified area. Minor, short-term disturbance to bowhead whales due to the presence of vessels transiting to the project site could occur though these effects would be short-term and not result in biologically significant effects.

Beringia DPS of Bearded Seal

Although considered rare in the nearshore environment for most of the year, bearded seals may occur in waters where screeding and excavation activities would take place. Bearded seals are not likely to be in this nearshore area during winter months as they prefer pack ice further offshore. During the open water season, screeding and excavation, or the physical presence of screeding vessels or barges may disturb bearded seals if they are in the area.

Southern Beaufort Sea Stock of Polar Bear

The presence of polar bears in the action area is dependent on seasonal changes in sea ice and availability of prey species. Coastal and nearshore habitats can be inhabited by polar bears year-round; however, they are more likely to be encountered during summer.[28] Terrestrial dens most commonly occur on barrier islands. Polar bears have been documented within and adjacent to the action area during denning and non-denning periods. Approximately 95 percent of terrestrial dens occur within 5 miles (8 kilometers) of the coastline.[29]

The project has the potential to adversely affect polar bears through behavioral displacement, attraction to facilities, interactions with humans, contamination from spills, and permanent and temporary alteration of critical habitat. However, these potential impacts would be limited as a result of avoidance and minimization measures described in Section 1.3.1.

Arctic Subspecies of Ringed Seal

Arctic ringed seals may occur in low densities in waters where pile installation and removal, screeding, and excavation activities would take place. During winter

[28] USFWS. 2011. Programmatic Biological Opinion for polar bears (Ursus maritimus), polar bear critical habitat, and conference opinion for the Pacific walrus (Odobenus rosmarus divergens) on Beaufort Sea incidental take regulations. U.S. Fish and Wildlife Service, Fairbanks Fish and Wildlife Field Office, Fairbanks, AK.

[29] Durner, G.M., D.C. Douglas, and S.C. Amstrup. 2009. Polar bear habitat in Alaska: Inland extent of maternity denning and graphics showing observed and predicted changes in offshore optimal habitat. Prepared for U.S. Fish and Wildlife Service, Region 7, by U.S. Geological Survey, Alaska Science Center.

pile driving, seals are not expected to be in this area as it is likely to be bottom-fast ice (i.e., frozen to the bottom [grounded]). Areas less than 10 feet deep are typically frozen to the bottom by late winter and the remainder of this area has very little water below the ice. The 1997 and 1998 Northstar seal surveys reported very low densities of ringed seals in areas less than 10 feet deep.[30,31] Additionally, during winter months, seals are likely to spend time in lairs where noise from pile driving is expected to be attenuated such that Level B harassment thresholds would not be reached.

Two breeding bird species that may occur in or near the project area, Steller's eider and spectacled eider, are listed as threatened by USFWS under the ESA.

Steller's Eider

Although the action area is located within the historical breeding range of the Steller's eider, the species has not been observed in the action area in recent years. Current breeding activity is concentrated in tundra wetlands near Utqiaġvik.[32] Further, observations over the last two decades and knowledge of their current distribution indicate that the species may be found only rarely in the action area.[33,34] Only one occurrence of Steller's eider has been recorded in or near the action area (in 1992) in 25 years of ACP surveys.[35]

Spectacled Eider

Spectacled eiders breed on the ACP, including within the project area. They occur in low to moderate densities in the project area during the pre-nesting period and may breed in the project area in low numbers.[36] Spectacled eiders typically occur in the project area from late May through late October. During summer, this species tends to be widely distributed near lakes or coastal margins throughout the ACP, with the highest abundances typically occurring near the coast and within the CRD. Spectacled eiders molt and stage for fall migration in

[30] Miller, G.W., R.E. Elliott and W.J. Richardson. 1998. Whales [1997]. p. 5-1 to 5-124 In: W.J. Richardson (ed., 1998), q.v.

[31] Link, M.R., T.L. Olson, and M.T. Williams. 1999. Ringed seal distribution and abundance near potential oil development sites in the central Alaskan Beaufort Sea, spring 1998. LGL Report P-430. Prepared by LGL Alaska Research Associates, Inc., Anchorage, for BP Exploration (Alaska) Inc., Anchorage.

[32] USFWS. 2013. Biological Opinion for DS-2S Development Project: Miluveach River POA-2012- 922. Consultation with the U.S. Army Corps of Engineers. Fairbanks Fish and Wildlife Field Office, Fairbanks, AK.

[33] Quakenbush, L.T., R.H. Day, B.A. Anderson, F.A. Pitelka, and B.J. McCaffery. 2002. Historical and present breeding season distribution of Steller's eiders in Alaska. *Western Birds* 33: 99–120.

[34] Stickney, A.A., L.B. Attanas, and T. Obritschkewitsch. 2013. Avian studies in the Kuparuk Oilfield, Alaska, 2012. Report for ConocoPhillips Alaska, Inc., Anchorage, AK, by ABR, Inc., Fairbanks, AK.

[35] USFWS. 2016. Unpublished data for spectacled eiders and yellow-billed loons. U.S. Fish and Wildlife Service, Migratory Bird Management, Anchorage, AK.

[36] USACE. 2018. Final Environmental Impact Statement, Nanushuk Project. U.S. Army Corps of Engineers, Alaska District, Anchorage, AK.

offshore areas including along the Beaufort Sea coast, although primary locations for staging and molting are located outside of the project area.[37] Preferred terrestrial habitats for breeding spectacled eiders that occur in the project area include Wet Sedge Meadow, Fresh Grass Marsh, and other wet habitat types that occur adjacent to lakes or ponds.[38] There is no critical habitat designated by USFWS for this species on the North Slope.

No plant species on Alaska's North Slope are listed under the ESA.

Fish

The Nanushuk Project FEIS[39] identifies that at least twenty-eight fish species have been found within the fresh, brackish, and nearshore marine water habitats in the FEIS analysis area, which encompasses the STP project area.

Common Name by Family Group	Scientific Name	Life History Strategy	Important for Local Subsistence	Common in Area
PETROMYZONTIDAE: Lampreys				
Arctic lamprey	*Lethenteron camtschaticum*	Marine		
CATOSTOMIDAE: Suckers				
Longnose sucker	*Catostomus catostomus*	Freshwater		
UMBRIDAE: Mudminnows				
Alaska blackfish	*Dallia pectoralis*	Freshwater		X
ESOCIDAE: Pikes				
Northern pike	*Esox lucius*	Freshwater		X
OSMERIDAE: Smelts				
Capelin	*Mallotus villosus*	Marine		
Rainbow smelt	*Osmerus mordax*	Diadromous		X
SALMONIDAE: Salmonids				
Least cisco	*Coregonus sardinella*	Freshwater and/or Diadromous	X	X
Arctic cisco	*Coregonus autumnalis*	Diadromous	X	X
Bering cisco	*Coregonus laurettae*	Freshwater and/or Diadromous	X	X
Broad whitefish	*Coregonus autumnalis*	Freshwater and/or Diadromous	X	X
Humpback whitefish	*Coregonus pidschian*	Freshwater and/or Diadromous	X	X
Round whitefish	*Prosopium cylindraceum*	Freshwater	X	X
Sheefish, Inconnu	*Stenodus leucichthys*	Diadromous		
Arctic grayling	*Thymallus arcticus*	Freshwater	X	X
Lake trout	*Salvelinus namaycush*	Freshwater		
Arctic char	*Salvelinus alpinus*	Freshwater		X
Dolly Varden	*Salvelinus malma*	Diadromous	X	X
Pink salmon	*Oncorhynchus gorbuscha*	Diadromous (Anadromous)		X

[37] Ibid.

[38] Repsol. 2015. Nanushuk Project Environmental Evaluation Document. Prepared by HDR, in association with SLR, October 2015.

[39] USACE. 2018. Final Environmental Impact Statement, Nanushuk Project. U.S. Army Corps of Engineers, Alaska District, Anchorage, AK.

Common Name by Family Group	Scientific Name	Life History Strategy	Important for Local Subsistence	Common in Area
Chum salmon	*Oncorhynchus keta*	Diadromous (Anadromous)		X
GADIDAAE: Cods				
Burbot	*Lota lota*	Freshwater	X	X
Arctic cod	*Boreogadus saida*	Marine		X
Saffron cod	*Eleginus gracilis*	Marine		X
COTTIDAE: Sculpins				
Slimy sculpin	*Cottus cognatus*	Freshwater		X
Fourhorn sculpin	*Myoxocephalus quadricornis*	Marine and/or Diadromous		X
Shorthorn sculpin	*Myoxocephalus scorpius*	Marine		
Arctic staghorn sculpin	*Gymnocanthus tricuspis*	Marine		
GASTEROSTEIDAE: Sticklebacks				
Threespine stickleback	*Gasterosteus aculeatus*	Marine, Freshwater, or Diadromous		X
Ninespine stickleback	*Pungitius pungitius*	Freshwater and Diadromous		X

Notes:
Marine fish spend all or most of their lives in marine waters; however, some can occur in brackish or freshwater habitats.
Freshwater fish complete their entire life cycle in a specific freshwater river, lake, or pond.
Diadromous fish migrate between fresh and salt waters.
Anadromous fish begin their life cycle in freshwater, migrate to saltwater, and return to freshwater to spawn.

Nearshore estuarine and marine waters of the Beaufort Sea are designated as essential fish habitat (EFH) for five Pacific salmon species as well as Arctic cod, saffron cod, and snow crab (*Chionoecetes opilio*).[40] Construction and operation of the STP would impact fish and invertebrates through habitat loss and alteration, disturbance and displacement, and injury and mortality. The intake structure for the STP barge would be designed to minimize impacts to fish and invertebrates. Water withdrawal from lakes to construct the ice road could injure or kill fish and invertebrates that become entrained in pumped water. Alaska Department of Fish and Game (ADF&G) permit stipulations require water intakes to be screened to reduce the likelihood of fish entrainment.

Birds

Approximately 80 bird species occur in the project vicinity. Of these, approximately 50 species are known to occur regularly in the nearshore waters of the Beaufort Sea. A comprehensive list of bird species that may occur in the project area is found in Table 3.9-3 in the Nanushuk Project FEIS.[41]

[40] North Pacific Fishery Management Council. 2012. Fishery Management Plan for the Salmon Fisheries in the EEZ off Alaska. North Pacific Fishery Management Council; National Marine Fisheries Service, Alaska Region; and State of Alaska Department of Fish and Game. June 2012.

[41] USACE. 2018. Final Environmental Impact Statement, Nanushuk Project. U.S. Army Corps of Engineers, Alaska District, Anchorage, AK.

Two breeding bird species that may occur in or near the project area, Steller's eider and spectacled eider, are listed as threatened by USFWS under the ESA. Although the project area is located within the historical breeding range of the Steller's eider, the species has not been observed there in recent years, and only one occurrence of Steller's eider has been recorded in the project area (1992) in 25 years of ACP surveys.[42] Nine species of breeding birds that may occur in the project area are listed by USFWS as Birds of Conservation Concern. Disturbance to birds could occur as a result of disturbance and displacement due to noise and visual disturbance from human activity and infrastructure, as well as habitat loss and alteration due to screeding.

Mammals

- Eighteen terrestrial mammal species regularly occur or likely occur in the project area. None of the terrestrial mammals found in the area are listed as threatened or endangered under the ESA, but some have been designated as Species of Greatest Conservation Need (SGCN) by ADF&G.[43] Detailed life history information for the terrestrial mammal species that occur in the area can be found in Section 3.10.5 and Appendix VIII.2 of the Nanushuk Project FEIS.[44] Caribou is considered an important species in Alaska for both ecological and sociocultural reasons. It is the most abundant herbivore on the ACP, and is important for subsistence, sport hunting, tourism, and wildlife viewing. Two herds, the Central Arctic Caribou Herd and the Teshekpuk Caribou Herd, regularly use the terrestrial portion of the project area. The pipeline is a linear feature that has the potential to impact caribou movement. The applicant's mitigation would be a seven-foot height requirement to allow caribou to migrate without potentially being obstructed by the pipeline. The pipeline would be realigned so that it would parallel an existing pipeline route to provide areas for caribou to migrate that would not necessitate navigating a pipeline. Pipelines would have a non-reflective finish to reduce reflectivity and potential impacts to wildlife from visual disturbances. Additional information on caribou is included in Appendix VIII.2 of the Nanushuk Project FEIS).[45]

[42] USFWS 2016 as cited in USACE. 2018. Final Environmental Impact Statement, Nanushuk Project. U.S. Army Corps of Engineers, Alaska District, Anchorage, AK.

[43] ADF&G. 2015. Alaska Wildlife Action Plan. Juneau, AK. Available online at: https://www.adfg.alaska.gov/static/species/wildlife_action_plan/2015_alaska_wildlife_action_plan.pdf

[44] USACE. 2018. Final Environmental Impact Statement, Nanushuk Project. U.S. Army Corps of Engineers, Alaska District, Anchorage, AK.

[45] Ibid.

6.4.2 Potential impacts on special aquatic sites (Subpart E, 40 CFR 230.40). See Table 5.

Table 3. Potential Impacts on Special Aquatic Sites						
Special Aquatic Sites	**N/A**	**No Effect**	**Negligible Effect**	**Minor Effect (Short Term)**	**Minor Effect (Long Term)**	**Major Effect**
Sanctuaries and refuges	X					
Wetlands				X	X	
Mud flats	X					
Vegetated shallows	X					
Coral reefs	X					

Discussion:

Sanctuaries

No sanctuaries are designated within the project area.

Wetlands

The STP would be constructed entirely in marine waters and is not anticipated to have any direct or indirect impacts to vegetation or wetlands. Installation of VSMs for the pipeline would result in approximately 0.05 acre of total loss of vegetation and wetlands.[46]

Mud Flats

There are no mud flats present within the project area.

Vegetated Shallows

No vegetated shallows are present within the project area.

Coral Reefs

No coral reefs are present within the project area.

6.4.3 Potential impacts on human use characteristics (Subpart F, 40 CFR 230.50). See Table 6.

[46] This represents the approximate footprint of 2,115 12-20-inch diameter VSMs. VSMs to be installed would range from 12 to 20 inches in diameter.

Table 4. Potential Impacts on Human Use Characteristics						
Human Use Characteristics	**N/A**	**No Effect**	**Negligible Effect**	**Minor Effect (Short Term)**	**Minor Effect (Long Term)**	**Major Effect**
Municipal and private water supplies		X				
Recreational and commercial fisheries			X			
Water-related recreation	X					
Aesthetics			X			
Parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves	X					

Discussion:

Municipal and Private Water Supplies

No municipal water supplies would be impacted by the project.

Recreational and Commercial Fisheries

There are no known commercial fisheries in the project vicinity. Impacts to recreational fisheries would be negligible due to the small amount of year-round residents in the project vicinity and the existing industrial facilities present at Oliktok Dock.

Water-related Recreation

There is no known recreational use of the waters in Simpson Lagoon.

Aesthetics

STP construction and necessary improvements at the dock would directly add more features to a viewshed already populated by industrial development. The proposed pipeline would add new linear features among existing infrastructure associated with oil and gas development on the North Slope. The pipeline would be finished with a non-reflective coating and placed at heights similar to other

pipelines in the project area. In addition, the pipeline would be co-located with other pipelines and would thus blend in with the existing viewshed.

Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves

No parks, national and historical monuments, national seashores, wilderness areas, research sites or similar preserves are located within or nearby the project vicinity.

6.5 Pre-testing evaluation (Subpart G, 40 CFR 230.60):

The following has been considered in evaluating the biological availability of possible contaminants in dredged or fill material. See Table 7.

Table 5. Possible Contaminants in Dredged/Fill Material	
Physical characteristics	X
Hydrography 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 (Section 331 of CWA) hazardous substances	X
Other public records or significant introduction of contaminants from industries, municipalities, or other sources	X
Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities	

Discussion:

Disposal site characteristics are provided in Section 6.2.

The Nanushuk Project FEIS[47] identifies one contaminated site near the Oliktok LRRS. The Oliktok Distant Early Warning (DEW) Diesel Tanks are listed as Hazardous ID 2654 in the ADEC Contaminated Sites Database. The site is a former DEW site that was subject to a remedial investigation and feasibility study following identification of petroleum-contaminated soil that resulted from historical diesel unloading and storage practices by the United States Air Force. The site was formally closed in November 2012, and the cleanup status was marked as

[47] USACE. 2018. Final Environmental Impact Statement, Section 3.19, Nanushuk Project. U.S. Army Corps of Engineers, Alaska District, Anchorage, AK.

complete.[48] In addition, 14 spills have been reported in the project area and all cleanups were determined complete. The source of some fill material would be re-used fill excavated from the barge placement area placed entirely within an area enclosed by sheet pile. The remaining source of gravel fill will be sourced from a previously permitted gravel mine in the project vicinity.

6.6 Evaluation and testing (Subpart G, 40 CFR 230.61):

Discussion:

Based on the evaluation in Section 6.5, Testing is not required because the proposed material is either local material from the project site that would then be discharged at the same site or is clean, gravel fill from a previously permitted site.

Actions to minimize adverse impacts (Subpart H).

The following actions, as appropriate, have been taken through application of 40 CFR 230.70-230.77 to ensure minimal adverse effects of the proposed discharge. See Table 8.

Table 6. Actions to Ensure Adverse Effects are Minimized	
Actions concerning the location of the discharge	X
Actions concerning the material to be discharged	X
Actions controlling the material after discharge	X
Actions affecting the method of dispersion	X
Actions affecting plant and animal populations	X
Actions affecting human use	X

Discussion:

Actions concerning the location of the discharge

The effects of the discharge can be minimized by choosing placement sites that minimize smothering of aquatic organisms by avoiding disruption of periodic water inundation patterns; by minimizing or preventing the creation of standing water in areas of normal fluctuation water levels; and by minimizing or preventing the drainage of areas subject to such fluctuations. Efforts to minimize and avoid

[48] ADEC. 2019. Contaminated sites program database. Available at https://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/Search, Accessed November 10, 2019.

discharge impacts are addressed in the Applicant's Proposed Avoidance and Minimization Statement Section 1.3.1).

The locations for fill placement would include the STP gravel pad and STP pipeline VSMs. The STP gravel pad location was chosen because Oliktok Dock currently supports the Kuparuk STP and is accessible by gravel road. This would consolidate impacts to WOUS and limits those impacts to waters that are already disturbed by ongoing activities at the dock. The intake for the STP was located based on existing site topography, which avoids the need for extensive dredging at the intake structure. VSM locations would be selected to avoid placement below the ordinary high water line of all streams. Nearly the entire length of the STP pipeline is located adjacent to existing disturbances to minimize impacts to relatively undisturbed areas.

Actions controlling the material after discharge

The effects of the discharge of fill material may be controlled by selecting methods and sites where the potential for erosion, slumping, or leaching of material into the surrounding aquatic ecosystem would be reduced; maintaining and containing discharged materials; and timing the discharge to minimize impacts to aquatic resources.

Nearly all of the gravel fill material used at the STP would be contained within the sheet pile enclosure and would not disperse sediment into the water column. A temporary increase in turbidity would occur from gravel placement below the MHW mark on the southeast portion of the STP gravel pad that is not enclosed by sheet pile. This area of fill would be armored with sand bags designed to limit the erosion and prevent gravel from entering marine habitat. Sheet pile would be installed in grounded sea ice and would avoid temporary increases in turbidity within the water column.

Actions affecting the method of dispersion

The effects of the discharge can be minimized by orienting the fill mound to minimize obstruction to the water current or circulation pattern, utilizing natural bottom contours to minimize the size of the fill mound, confining suspended particulates/turbidity to a small area, and using currents and circulation patterns to disperse and dilute the discharge.

As described above, much of the discharge would be confined within the sheet pile enclosure and would not disperse into the water column. The trenching would be completed during the winter in ground fast ice which would impede the sediment from dispersing.

Actions affecting plant and animal populations

Minimization of adverse effects of discharges on populations of plants and animals can be achieved by avoiding changes in water currents and circulation patterns; selecting and managing discharge sites; avoiding unique habitats; and timing discharges to avoid biologically critical time periods.

The proposed project is almost entirely located in unvegetated marine waters in Simpson Lagoon. Discharge of material for placement of VSMs for the STP pipeline would impact 0.05 acre of tundra. The proposed STP pipeline was chosen to avoid impacts to caribou movement by locating the pipeline adjacent to existing road and pipeline infrastructure. VSM installation would occur in winter to avoid impacts to migratory birds.

Actions affecting human use

Minimization of adverse effects on human use potential may be achieved by preventing damage to aesthetically pleasing features of the aquatic sites; avoiding valuable natural aquatic areas; timing discharges to minimize adverse impacts to human use periods; and selecting sites to be compatible with human activities. Human use includes water supplies, recreational and commercial fisheries, water-related recreation, and aesthetics associated with the aquatic ecosystem.

The proposed STP would be constructed east of the existing Kuparuk STP at Oliktok Dock. The dock is an established commercial and industrial development center that receives supplies, equipment, modules, and other supporting materials during the open-water season. STP construction would directly add more features to a viewshed already populated by industrial development. The discharge area is not known as a resource for human use outside of the existing industrial developments.

6.7 Factual Determinations (Subpart B, 40 CFR 230.11).

See Table 9.

Table 7. Factual Determinations of Potential Impacts

Site	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Physical substrate					X	
Water circulation, fluctuation and salinity			X			
Suspended particulates/turbidity				X		

Table 7. Factual Determinations of Potential Impacts						
Site	**N/A**	**No Effect**	**Negligible Effect**	**Minor Effect (Short Term)**	**Minor Effect (Long Term)**	**Major Effect**
Contaminants			X			
Aquatic ecosystem and organisms					X	
Proposed disposal site					X	
Cumulative effects on the aquatic ecosystem					X	
Secondary effects on the aquatic ecosystem				X		

Discussion:

Substrate

The project would cause long-term minor impacts to substrate from the permanent discharge of fill into 6.83 acres of marine waters, and screeding in 8.32 acres of marine waters. More details about the impacts to substrate can be found in Section 6.3.

Water Circulation, Fluctuation and Salinity

The project would cause long-term impacts to water circulation and flow patterns in Simpson Lagoon around Oliktok Point. However, mixing zone analysis estimated impacts would be negligible and limited to the nearshore area of the STP and outfall. Section 6.3 includes additional information about the impacts to water circulation, fluctuation and salinity.

Suspended particulates/Turbidity

Temporary increases in suspended particulates and turbidity would occur as a result of the placement of gravel fill into and near marine waters and wetlands. See Section 6.3 for more details about the impacts of the project on suspended particulates and turbidity.

Contaminants/Disposal Site

The discharge of fill material would not introduce, relocate, or increase contaminants at the disposal sites. Clean gravel fill would be extracted from the project site and additional material from sites located near the project area. See Sections 6.5 and 6.6 for the considerations that were given to evaluate the likelihood of contamination.

Aquatic Ecosystem and Organisms (including cumulative and secondary effects)

The project impacts designated EFH for five species of salmon. The project also impacts terrestrial areas and waterbodies known to contain ESA-listed species including Steller's eider, spectacled eider, Western Arctic stock of bowhead whale, the Beringia DPS of bearded seal, the Southern Beaufort Sea stock of polar bear, and the Arctic subspecies of ringed seal. Impacts to marine mammals resulting from marine vessel traffic would largely be avoided due to minimization and avoidance measures. Of the ESA-listed marine mammals, polar bears would be most susceptible to impacts from the project. No plant species on Alaska's North Slope are listed under the ESA. The impacts to ESA-listed species and other organisms are discussed in Section 6.4.

6.8 Findings of compliance or non-compliance with the restrictions on discharges (40 CFR 230.10(a-d) and 230.12).

Based on the information above, including the factual determinations, the proposed discharge has been evaluated to determine whether any of the restrictions on discharge would occur. See Table 10.

Table 8. Compliance with Restrictions on Discharge

Subject	Yes	No
1. Is there a practicable alternative to the proposed discharge that would be less damaging to the environment (any alternative with less aquatic resource effects, or an alternative with more aquatic resource effects that avoids other significant adverse environmental consequences?) This has been addressed above in Section 6.1 but is reiterated here because this is the first restriction.		X
2. Will the discharge cause or contribute to violations of any applicable water quality standards?		X
3. Will the discharge violate any toxic effluent standards (under Section 307 of the Act)?		X
4. Will the discharge jeopardize the continued existence of endangered or threatened species or their critical habitat?		X
5. Will the discharge violate standards set by the Department of Commerce to protect marine sanctuaries?		X
6. Will the discharge cause or contribute to significant degradation of waters of the U.S.?		X
7. Have all appropriate and practicable steps (Subpart H, 40 CFR 230.70) been taken to minimize the potential adverse impacts of the discharge on the aquatic ecosystem?	X	

Discussion:

1. **Is there a practicable alternative to the proposed discharge that would be less damaging to the environment (any alternative with less aquatic resource effects, or an alternative with more aquatic resource effects that avoids other significant adverse environmental consequences?)**
   The alternatives analysis can be found in Section 5.0.

2. **Will the discharge cause or contribute to violations of any applicable water quality standards?**
   The state water quality agency, ADEC, has issued a Certificate of Reasonable Assurance for placement of the fill material. The discharge of fill material for the project would not be expected to cause any impairments to water quality standards.

3. **Will the discharge violate any toxic effluent standards (under Section 307 of the Act)?**
   The fill material would be sourced from the project site and from a nearby, previously permitted material site.

4. **Will the discharge jeopardize the continued existence of endangered or threatened species or their critical habitat?**
   Consultation with USFWS and NMFS have been undertaken to ensure that the continued existence of threatened or endangered species, and their critical habitat, would not be jeopardized as a result of this project or any of its activities, either short or long-term, immediate or cumulative.

5. **Will the discharge violate standards set by the Department of Commerce to protect marine sanctuaries?**
   No marine sanctuaries exist within the project area.

6. **Will the discharge cause or contribute to significant degradation of waters of the U.S.?**
   Impacts to WOUS are discussed in detail in Sections 6.3 and 6.4. The discharge of fill material into WOUS is not expected to cause or contribute to significant degradation of WOUS.

7. **Have all appropriate and practicable steps (Subpart H, 40 CFR 230.70) been taken to minimize the potential adverse impacts of the discharge on the aquatic ecosystem?**
   The steps taken to minimize potential impacts resulting from the discharge on the aquatic system are detailed in Sections 1.3 and 8.0.

7.0 General Public Interest Review (33 CFR 320.4 and RGL 84-09)

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 use on the public interest as stated at 33 CFR 320.4(a). To the extent appropriate, the public interest review below also includes consideration of additional policies as described in 33 CFR 320.4(b) through (r). The benefits which reasonably may be expected to accrue from the proposal are balanced against its reasonably foreseeable detriments.

7.1 All public interest factors have been reviewed and those that are relevant to the proposal are considered and discussed in additional detail.

See Table 11 and any discussion that follows.

Table 9. Public Interest Factors

Factors	Effects					
	None	Detrimental	Neutral (mitigated)	Negligible	Beneficial	Not Applicable
1. Conservation: See below for discussion			X			
2. Economics: See below for discussion					X	
3. Aesthetics: See below for discussion				X		
4. General Environmental Concerns: See below for discussion			X			
5. Wetlands: See below for discussion			X			
6. Historic Properties: See below for discussion				X		
7. Fish and Wildlife Values: See below for discussion			X			
8. Flood Hazards/Floodplain Values: See below for discussion				X		
9. Land Use: See below for discussion			X			
10. Navigation: See below for discussion				X		
11. Shoreline Erosion and Accretion: See below for discussion			X			
12. Recreation: See below for discussion				X		

Table 9. Public Interest Factors						
Factors	Effects					
	None	Detrimental	Neutral (mitigated)	Negligible	Beneficial	Not Applicable
13. Water Supply and Conservation: See below for discussion				X		
14. Water Quality: See below for discussion.			X			
15. Energy Needs: See below for discussion				X		
16. Safety: See below for discussion			X			
17. Food and Fiber Production: See below for discussion			X			
18. Mineral Needs: See below for discussion			X			
19. Consideration of Property Ownership: See below for discussion			X			
20. Needs and Welfare of the People: See below for discussion			X			

Additional discussion of effects on factors above:

1. Conservation

This proposed project would not benefit conservation. It would impact 0.05 acres of wetland habitat containing 9 bird species under conservation, and has the potential to impact ESA threatened and endangered species in the Simpson Lagoon. However, mitigation measures should reduce these impacts to a negligible level. Wildlife species are discussed in Section 6.4.1.

2. Economics

Jobs from construction and operation of the STP would be generated from the project. Secondary economic impacts would include the long-term supply of make-up water for continued field development potentially providing further jobs. The project could have beneficial financial impacts through increased property tax revenue for the NSB and increased payments to the State of Alaska for oil and gas rights.[49] These financial benefits would indirectly benefit Nuiqsut

[49] Ibid, Section 3.19.2.

residents through increased funding for social, health, and employment programs sponsored by the NSB.

3. Aesthetics

The project would have negligible impacts on aesthetics, which is discussed in greater detail in Section 6.4.2.

4. Environmental Concerns

The project could impact polar bear habitat, caribou migration, and aquatic resources in the project area as a result of habitat alteration from STP and STP pipeline construction. Mitigation measures would be employed to reduce these impacts to a negligible level.

5. Wetlands

An estimated total of 0.05 acres of wetlands is expected to occur as a result of the VSM installation. See Section 6.4.1 for a discussion of impacts on wetlands due to gravel fill placement. Also, a special condition in section 11.1 would require no stockpiling of fill materials in wetlands or other waters of the U.S. that do not have DA authorization to avoid adverse impacts to adjacent wetlands as a result of the permitted project.

6. Historic Properties

There are two cultural resource sites with the potential to be adversely affected by the STP or STP pipeline but they will not be adversely affected because they have been previously covered by gravel infrastructure. Also, due to the existence of modern oil and gas infrastructure the character and setting of these sites won't be affected by construction of the STP or STP pipeline. The Alaska State Historic Preservation Office (AKSHPO) provided a determination that a finding of no adverse effect is appropriate for the proposed project.

7. Fish and Wildlife Value

Fish and wildlife potentially impacted by the project are primarily of subsistence value to local residents of nearby communities. Fish and wildlife provide limited aesthetic, recreational, or commercial value due to existing marine and terrestrial development that has occurred prior to this proposed project. Potential impacts from the proposed project on fish and wildlife are discussed in Section 6.4.1.

8. Flood Hazards/Floodplains

Project avoidance and minimization measures include methods to maintain surface drainage patterns. The applicant would not place any STP pipeline VSMs below the ordinary high water mark of any streams. Consistent with the

Nanushuk project, VSMs placed within known floodplains would be designed to withstand the impacts of scour, bank migration, and forces from ice floe impacts. Analyses would be based on conditions associated with the 200-year return period design flood. Determination of water surface elevations and velocities would be dependent on the location.

9. Land Use

Simpson Lagoon is within State of Alaska-owned tidelands. The majority of construction for the project would occur in marine waters. The applicant will need to secure land authorizations from the ADNR, which is responsible for oversight of the area involved and minimizing conflicts between existing and future users. On June 23, 2020 the applicant applied under state law (AS 38.05.850) to ADNR Division of Oil and Gas (DOG) for an easement to place the STP on State of Alaska land at Oliktok Point.

10. Navigation

The project would have a negligible impact on navigation in Simpson Lagoon or the Beaufort Sea due to the short term nature of the construction. Additionally, dolphin piles placed in Simpson Lagoon have been sited to avoid impacts to navigation in Simpson Lagoon, and would not impede anchorage at Oliktok Dock. There are three special conditions that would be required to protect navigation in Section 11.1 under Section 10.

11. Shoreline Erosion and Accretion

Project avoidance and minimization measures to reduce impacts to shoreline erosion would be implemented as outlined in Sections 1.3.1 and 8.0. Measures include installation of sheet pile to minimize erosion of gravel fill into WOUS during and after construction.

12. Recreation

No parks, major roads, or recreation areas for public use are present near the project. The Nuiqsut Comprehensive Development Plan[50] includes a discussion on the importance of subsistence to Nuiqsut residents, as well as subsistence vulnerabilities which include recreational purposes.

13. Water Supply and Conservation

See Section 6.4.2. Private water supplies would not be affected by the project.

[50] NSB. 2016. Nuiqsut Comprehensive Development Plan. January 2016. North Slope Borough, Barrow, AK. Available at http://www.north-slope.org/assets/images/uploads/NUI_Final_Draft_Jan2016.pdf Accessed November 14, 2019.

14. Water Quality

Impacts to water quality are discussed in detail in Section 6.3, which primarily include increased suspended particulates and turbidity due to placement of gravel fill, screeding and dredging. On May 27, 2020, Teri Buck, Environmental Program Specialist at ADEC, sent an email stating that the applicant's Antidegradation analysis had been reviewed and accepted by ADEC. This analysis found that turbidity/sedimentation will be short term and limited to wetlands and near-shore waters of Simpson Lagoon. Impacts to water quality from sedimentation due to gravel placement would be limited because most of the gravel fill would be placed within the sheet pile enclosure. Also, a special condition would require only clean fill be used for this project as stated in in Section 11.1 under fill material to protect water quality. ADEC issued their Clean Water Act Section 401 Water Quality Certification on August 2, 2020.

15. Energy Needs

The STP would be connected to gas lines once installed and grounded. Fossil fuels would be used for construction equipment for the project, which are estimated to be minor in relation to the overall needs of the Nanushuk Project.

16. Safety

There would be minimal effects on safety, assuming all applicable safety regulations are followed during construction. Safety measures implemented would include such the Wildlife Avoidance and Interaction Plan and the Polar Bear Interaction Plan. The project would adhere to all safety precautions to ensure safe conditions.

17. Food and Fiber Production

Subsistence activities including hunting, fishing, and harvesting plants may occur in the project area. Important subsistence resources include marine mammals, salmon, other fish and marine invertebrates, waterfowl and terrestrial mammals. Caribou are of specific importance for subsistence uses such as food. Impacts to these resources are discussed in Sections 6.3 and 6.4.

18. Mineral Needs

Clean gravel material for project development would be obtained from on-site excavation(Refer to Table 1), and remaining gravel fill quantities would be supplemented from one or more of the existing mine sites on the North Slope in the vicinity of the project area. All existing mine sites under consideration for use by the project are located within 25 miles of Oliktok Point and are accessible by existing gravel roads.

19. Property Ownership

Gravel placement and barge mooring for the STP would fill in an approximately 6.83-acre area that is currently State of Alaska-owned waters in Simpson Lagoon at Oliktok Point. This would effectively create new land and would result in a permanent change of the land use of this area to industrial use. The STP pipeline would be on state land, federal land, and NSB land. Since the land would be leased, construction and operation of the pipeline would not impact land ownership.

On June 23, 2020, the applicant applied to ADNR DOG for an 850 easement on State of Alaska land at Oliktok Point to place the STP as proposed.

20. Needs and Welfare of the People

The Nanushuk Project FEIS describes the existing socioeconomic conditions of the project area.[51] The Native Village of Nuiqsut is located approximately 32 miles from the footprint of the proposed STP. Kuukpik Corporation, the Alaska Native village corporation for Nuiqsut, is a major surface land-owner in the area. The proposed project has the potential to impact subsistence activities. To mitigate the potential impacts the applicant has committed to constructing the project outside of the bowhead whale subsistence harvest period and will coordinate closely with the Alaska Eskimo Whaling Commission, and the STP pipeline has been designed to avoid impacts to caribou movement.

Construction and operation of the STP and STP pipeline would result in an increase in employment. On-site employment would be highest during construction. The peak construction workforce is estimated at 350 workers. Construction of the project would increase the oil- and gas-related infrastructure in the NSB. Property tax is assessed on infrastructure value, which would result in a slight increase in NSB revenue. This revenue could benefit Nuiqsut and other NSB residents if the NSB spends it on programs or projects that benefit residents.

7.1.1 Climate Change

The proposed activities within the USACE federal control and responsibility likely will result in a negligible release of greenhouse gases into the atmosphere when compared to global greenhouse gas emissions. Greenhouse gas emissions have been shown to contribute to climate change. Aquatic resources can be sources and/or sinks of greenhouse gases. For instance, some aquatic resources

[51] USACE. 2018. Final Environmental Impact Statement, Nanushuk Project, Section 3.18.5. U.S. Army Corps of Engineers, Alaska District, Anchorage, AK.

sequester carbon dioxide, whereas others release methane; therefore, authorized impacts to aquatic resources can result in either an increase or decrease in atmospheric greenhouse gas. These impacts are considered de minimis. Greenhouse gas emissions associated with the USACE federal action may also occur from the combustion of fossil fuels associated with the operation of construction equipment, increases in traffic, etc. USACE has no authority to regulate emissions that result from the combustion of fossil fuels. These are subject to federal regulations under the Clean Air Act and/or the Corporate Average Fuel Economy (CAFE) Program. Greenhouse gas emissions from the Corps action have been weighed against national goals of energy independence, national security, and economic development and determined not contrary to the public interest.

7.2 The relative extent of the public and private need for the proposed structure or work:

The private need for the project is described in Section 3.0. A long-term supply of make-up water with sufficient reliability and water quality assurance and allow the applicant to optimize production efficiency from the Pikka Unit reservoirs. Additionally, a modern STP constructed at Oliktok Dock would increase supply of make-up water that could become available for other oil and gas operators on the North Slope. The public need for the project is the financial benefits gained by the State of Alaska from fees and taxes paid by the applicant that benefit the Alaskan public. Also fees would be paid by the applicant to the North Slope Borough (NSB) and residents of the NSB would indirectly benefit through increased funding for social, health, and employment programs sponsored by the NSB.

7.3 If there are unresolved conflicts as to resource use, explain how the practicability of using reasonable alternative locations and methods to accomplish the objective of the proposed structure or work was considered.

Discussion: There were no unresolved conflicts identified as to resource use. The State of Alaska, owner of the lands at the site of the STP and STP pipeline, did not provide comments with respect to land use during the public comment period. Further, on August 6, 2020, the State of Alaska Division of Oil and Gas (DOG) public noticed OSA’s application for a private exclusive easement to place the STP on state land, and DOG intends soon to public notice OSA’s additional easement application for the STP pipeline on state land

7.4 The extent and permanence of the beneficial and/or detrimental effects that the proposed work is likely to have on the public and private use to which the area is suited:

Detrimental effects are expected to be negligible and temporary.

Beneficial effects are expected to be more than negligible and permanent.

The proposed project would permanently impact 6.88 acres of WOUS, resulting in the loss of functions these areas provide. However, the permanently filled areas would result in a new STP that would have long-term beneficial effects for residents of the State of Alaska in the form of additional employment and increased revenue to state and local governments.

8.0 Mitigation (33 CFR 320.4(r), 33 CFR Part 332, 40 CFR 230.70-77, 40 CFR 1508.20 and 40 CFR 1502.14)

8.1 Avoidance and Minimization:

When evaluating a proposal including regulated activities in waters of the United States, consideration must be given to avoiding and minimizing effects to those waters. Avoidance and minimization measures are described above in Sections 1.0 and 3.0.

Were any other mitigative actions including project modifications discussed with the applicant implemented to minimize adverse project impacts? (see 33 CFR 320.4(r)(1)(i)) No

8.2 Is compensatory mitigation required to offset environmental losses resulting from proposed unavoidable impacts to waters of the United States?

No

The Alaska District Compensatory Mitigation Thought Process document identifies six cases where compensatory mitigation may be required to offset unavoidable project impacts in order to comply with USACE regulations. These six cases are:

The project occurs in rare, difficult to replace or threatened wetlands, areas of critical habitat (i.e. Cook Inlet Beluga whale critical habitat area).

The project permanently impacts more than 1/10 of an acre of wetlands and/or other waters of the U.S. or 300-feet of stream, AND the watershed condition is such that compensatory mitigation is necessary to offset the project's unavoidable effects. Situations that can indicate degradation of the watershed's aquatic environment can include, but are not limited to waters listed as impaired

or CWA section 303(d) listed waterbodies, identification in a watershed management plan, impervious surface cover, developed land use, etc.

Fill placed in intertidal waters associated with special aquatic sites.

Fill placed in fish bearing waters and jurisdictional wetlands within 500 feet of such waters when impacts are determined to be more than minimal.

The project is federally funded, so compensatory mitigation is required under Executive Order 11990 to meet the National policy goal of no net loss of wetlands.

Large scale projects with adverse aquatic resource impacts (ex. Mining development, highway, airport, pipeline, and railroad construction projects [33 CFR 320.4(r)(2)] (i.e., bridge that results in substantial loss of intertidal habitat).

Below is a discussion of each of these cases as they relate to the impacts from the project:

The STP will be placed in shallow, nearshore waters that are not rare and do not perform any specific aquatic resource function identified by resource agencies or other groups. The STP will be sited within designated polar bear sea ice critical habitat. However, the amount of sea ice habitat that will be filled will be exceedingly small compared to the total area of polar bear sea ice critical habitat (187,157 square miles).

While the project will impact greater than 1/10 of an acre of other waters of the U.S., there is no available evidence that the water quality within Simpson Lagoon is currently degraded and it is not listed as a Section 303(d) waterbody by ADEC. Additionally, ADEC has issued their Clean Water Act Section 401 Water Quality Certification that construction of the project will comply with water quality requirements within Simpson Lagoon. The STP pipeline will result less than 1/10 of an acre of terrestrial wetland being filled due to the placement of Vertical Support Members (VSMs).

Construction of the STP will occur within intertidal waters below the High Tide Line. However, the intertidal waters at the proposed site consist of gravels and sand and are not associated with any special aquatic sites such as vegetated shallows, mudflats, coral reef, or sanctuaries and refuges.[52]

[52] See 40 CFR (Subpart E) 230.40-45

Simpson Lagoon is known to support various fish species. However, the resource agencies with special expertise with fish populations and their habitats (ADF&G, NMFS, and USFWS) did not provide any public comments concerning potential impacts to fish or fish habitat from the project. Additionally, based on the size of the STP compared to the overall size of Simpson Lagoon, the impact from the placement of fill to construct the STP will be minimal. During future operation of the STP, fish are unlikely to be harmed by impingement in the STP intake structure due to the low velocity of intake water and well as the use of travelling screens to prevent fish and debris from entering the facility.

The project is not federally-funded.

Construction of the STP is not a large scale project. No resource agencies have expressed that they consider the project to be anything more than a small or minor project with minimal impacts.

Due to the extensive avoidance and minimization measures resulting in the minor impacts to marine waters and wetlands, additional compensatory mitigation beyond that required of OSA in the Nanushuk Project is not required for the proposed project.

9.0 Consideration of Cumulative Impacts

9.1 Identify/describe the direct and indirect effects caused by the proposed activity:

Direct effects caused by the proposed project are discussed in Sections 6.3 and 6.4.

Indirect or secondary effects are effects on an aquatic ecosystem that are associated with the discharge of fill materials, but do not result from the actual placement of the fill materials. They are impacts that occur as a result of the proposed project but are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects to the aquatic environment include impacts to physical substrate, water quality, vegetation, and aquatic ecosystems and organisms.

Indirect impacts of this project would result from the operation and maintenance of the STP and the STP pipeline and could include limited degradation of the marine environment at Oliktok Point. Fish and wildlife species may experience disturbance from operation of the STP.

The project would represent a new emission source within an industrial area at Oliktok Point. The applicant has supplied an ambient air quality impact assessment (Appendix A of Attachment 1), on July 14, 2020. The potential

emissions from the project and off-site stationary sources, including the CPAI Kuparuk STP and Eni Nikaitchuq Operations Pad, were modeled to compute a cumulative impact. The resulting pollutant concentration from the project and off-site sources, combined with representative background air quality data, fall below the applicable National Ambient Air Quality Standards/Alaska Ambient Air Quality Standards and Prevention of Significant Deterioration permitting threshold.

The proposed STP would represent an additional source of make-up water that could become commercially available for other oil and gas developments on the North Slope. Projects could be more viable if they could acquire make-up water rather than developing a source of make-up water (such as an STP) at another location. The construction and operation of additional oil and gas projects on the North Slope could result in increased air emissions and terrestrial water quality impacts.

The proposed STP would operate in proximity to the existing Kuparuk STP and Oliktok Dock. The Simpson Lagoon and Beaufort Sea are not listed as impaired by ADEC. The Kuparuk STP discharges effluent and meets water quality standards at the boundary of two mixing zones. The proposed STP would also likely require a mixing zone associated with the STP outfall pipe. The applicant supplied an assessment of the potential marine water quality impacts from operation of the proposed STP (Appendix B of Attachment 1). Based on this assessment, the mixing zone associated with the proposed STP would not overlap with those of the Kuparuk STP. Even with both STP facilities operating with their respective mixing zones, their cumulative effects on water quality would be minimal due to the size of Simpson Lagoon and the Beaufort Sea.

Construction of the proposed STP is not expected to increase marine traffic at Oliktok Dock. However, an increase in traffic could result in an increase in marine water quality impacts around Oliktok Dock. As described above, the construction of the STP could facilitate other oil and gas projects. This could lead to additional water quality impacts associated with construction of gravel pads and roads as well as pipelines.

The impacts from construction and operation of the STP and pipeline described here and in Sections 6.3 and 6.4 represent small, incremental increases relative to the past, present, and reasonably foreseeable future actions previously described in the Nanushuk Project FEIS.[53] Construction and operation of the STP and STP pipeline would not likely result in collectively significant impacts.

[53] USACE. 2018. Final Environmental Impact Statement, Nanushuk Project. U.S. Army Corps of Engineers, Alaska District, Anchorage, AK.

Indirect effects are further evaluated in Sections 6.3 and 6.4.

9.2 The geographic scope for the cumulative effects assessment is:

The geographic scope for this assessment are the following 10-digit HUC watersheds: 1906030414 Kalubik Creek-Frontal Harrison Bay, 1906040115 Ugnuravik River, and 1906040116 Simpson Lagoon-Frontal Beaufort Sea.

9.3 The temporal scope of this assessment includes the middle 1980's when development activity on the North Slope began in earnest, and extends through approximately 2025, which is the extent of when predictive efforts for North Slope development activity can reasonably be made.

9.4 Describe the affected environment:

The Kuparuk STP was constructed by ARCO in 1985 after the first drill sites and production facilities were constructed in 1981. Two existing facilities, the Kuparuk STP and the Eni Oliktok Production Pad, sit on the gravel pads at the end of Oliktok Point, adjacent to the proposed project. The applicant continues to conduct exploratory drilling and development construction activities on leases within State of Alaska lands in and near the Pikka Unit (Nanushuk Development).

Previous activities have occurred in the immediate area around the proposed STP project since 1981. These include operation of the Kuparuk STP, Oliktok Dock, maintenance screeding for the Kuparuk STP intake and navigation of marine traffic to Oliktok Dock. Disturbance of the marine environment is a previous and future activity already occurring in the project area, which includes habitat for marine mammals and fish. The STP pipeline would be installed to minimize impacts to wetlands by constructing mostly within existing footprints.

All of the land in the STP project area is zoned Resource Development District by the NSB. This zone allows "large scale resource extraction and related activities as well as offers developers quick, inexpensive, predictable permit approvals for master planned developments that do not impair the capacity of the surrounding ecosystem to support the plants and animals upon which borough residents depend for subsistence."[1]

State leases are managed by the Alaska Department of Natural Resources, which manages them for maximum use consistent with the public interest.

[1] Ibid.

9.5 Determine the environmental consequences:

Two of the three watersheds within the cumulative effects assessment area (Kalubik Creek-Frontal Harrison Bay and Simpson Lagoon-Frontal Beaufort Sea) have been directly affected by the construction of marine-based infrastructure, primarily at Oliktok Point.

All three watersheds within the cumulative effects assessment area have experienced losses of vegetation and wetlands primarily from the construction of oil and gas-related infrastructure, including gravel mines, pads, and roads as well as pipelines. Dust, primarily from gravel roads, has impacted adjacent wetland areas by covering native vegetation and soils. The approximate total area impacted by surface development within each watershed are as follows:

- Kalubik Creek-Frontal Harrison Bay, approximately 115,836 acres of total area in watershed: 903 acres of total area covered by surface development (<1%)
- Simpson Lagoon-Frontal Beaufort Sea, approximately 195,701 acres of total area in watershed: 1,258 acres of total area covered by surface development (<1%)
- Ugnuravik River approximately 77,239 acres of total area in watershed: 1,668 acres of total area covered by surface development (approximately 2%)

Streams within each watershed have been crossed by gravel roads and pipelines, which has likely contributed to site-specific changes at these road crossings, including increased scour and erosion due to higher water velocities. Cumulatively, these crossings have likely resulted in decreased water quality within each stream but the effect is small compared to the overall size of the watersheds. Water withdrawal within each of the three watersheds from streams and lakes has occurred to support the construction and operation of oil and gas projects, which decreases the amount of water available for fish and other organisms with the lakes.

The permanent discharge footprint for the STP Project is 6.83 acres of marine waters and 0.05 acres of tundra for the STP pipeline. The STP Project would represent a new emission source within an industrial area at Oliktok Point. For the cumulative ambient air quality impact assessment (Appendix A of Attachment 1 [Applicant-supplied Environmental Assessment]), the potential emissions from the STP Project and off-site stationary sources, including the ConocoPhillips Alaska, Inc. Kuparuk STP and Eni Nikaitchuq Operations Pad, were modeled to compute a cumulative impact. The resulting pollutant concentration from the STP

Project and off-site sources, combined with representative background air quality data, fall below the applicable NAAQS/AAAQS and PSD permitting threshold.

The proposed STP would operate in proximity to the existing Kuparuk STP and Oliktok Dock. The Simpson Lagoon and Beaufort Sea are not listed as impaired by ADEC. The Kuparuk STP discharges effluent and meets water quality standards at the boundary of two mixing zones. The proposed STP would also likely require a mixing zone associated with the STP outfall pipe. The mixing zone associated with the proposed STP would not overlap with those of the Kuparuk STP. Even with both STP facilities operating with their respective mixing zones, their cumulative effects on water quality would be minimal due to the size of Simpson Lagoon and the Beaufort Sea.

Construction of the proposed STP is not expected to increase marine traffic at Oliktok Dock. However, an increase in traffic could result in an increase in marine water quality impacts around Oliktok Dock.

The impacts from construction and operation of the STP and pipeline represent small, incremental increases relative to the past, present, and reasonably foreseeable future actions. Construction and operation of the STP and STP pipeline would not likely result in collectively significant impacts.

9.6 Discuss any mitigation to avoid, minimize or compensate for cumulative effects:

Details of the avoidance and minimization measures implemented are listed in Section 1.3.1. Measures to lessen cumulative impacts include the following:

- Due to previously occurring dredging activity, the STP was sited adjacent to existing facilities on Oliktok Point to minimize dredging required for the project and therefore cumulative dredging around Oliktok Point.
- Excavated material will be re-used to reduce impacts to existing gravel mine site resources and avoid disposal outside the project footprint or in marine waters.
- Sheet pile installation will reduce impacts from construction due to sedimentation and turbidity.
- Transport of the STP barge to Oliktok Dock, will be coordinated with the Alaska Eskimo Whaling Commission to minimize impacts to the marine mammal subsistence harvest.
- VSMs will be aligned with the VSMs from adjacent pipelines to avoid the creation of a “fence” in order to minimize impacts to caribou. The pipeline will be separated from Oliktok Road to minimize caribou disturbance and

excessive snow drift accumulation and to reduce the risk of vehicle impacts to the pipeline.

9.7 Conclusions regarding cumulative impacts:

When considering the overall impacts that will result from the proposed activity, in relation to the overall impacts from past, present, and reasonably foreseeable future activities, the incremental contribution of the proposed activity to cumulative impacts in the area described in section 9.2, are not considered to be significant. We recommend that compensatory mitigation not be required to help offset the impacts to the proposed activity's incremental contribution to cumulative effects within the geographic area described in Section 9.2. Mitigation required for the proposed activity is discussed in Section 8.0.

10.0 Compliance with Other Laws, Policies, and Requirements

10.1 Section 7(a)(2) of the Endangered Species Act (ESA):

Refer to Section 2.2 for description of the Corps action area for Section 7.

10.1.1 Has another federal agency been identified as the lead agency for complying with Section 7 of the ESA with the Corps designated as a cooperating agency and has that consultation been completed?

No.

Biological Assessments were submitted to NMFS (Attachment 2) and USFWS (Attachment 3) on July 13, 2020:

Table 10. Endangered Species Known or Expected to Occur Near Proposed Project

Species	ESA Status	Effect Determination for Species	Effect Determination for Critical Habitat
NMFS-managed ESA Species			
Ringed Seal (*Phoca hispida*)	Threatened (Arctic subspecies)	May affect, not likely to adversely affect	Will not destroy or adversely modify
Bearded Seal (*Erignathus barbatus*)	Threatened (Beringia DPS)	May affect, not likely to adversely affect	Will not destroy or adversely modify
Bowhead Whale (*Balaena mysticetus*)	Endangered (Western Arctic)	May affect, not likely to adversely affect	NA
USFWS-managed ESA Species			
Polar Bear (*Ursus maritimus*)	Threatened	May affect, likely to adversely affect	May affect, not likely to adversely affect
Spectacled Eider (*Somateria fischeri*)	Threatened	May affect, likely to adversely affect	No Effect

Table 10. Endangered Species Known or Expected to Occur Near Proposed Project			
Species	**ESA Status**	**Effect Determination for Species**	**Effect Determination for Critical Habitat**
Steller's Eider (*Polysticta stelleri*)	Threatened	May affect, not likely to adversely affect	No Effect

These determinations included consideration for effect(s) of the regulated activity(s) proposed in WOUS requiring authorization from USACE and within the action area as described above.

10.1.2 Are there listed species or designated critical habitat present or in the vicinity of the Corps' action area? Yes.

The proposed activity is within designated critical habitat for polar bear. Critical habitat for Arctic subspecies of ringed seal and Beringian DPS of bearded seal are pending a court-ordered determination.

Effect determination(s), including no effect, for all known species/habitat, and basis for determination(s):

The effect determinations are as shown in Table 12 above.

10.1.3 Consultation with NMFS and USFWS was initiated and completed as required, for any determinations other than "no effect".

The Corps received the U.S. Fish and Wildlife Service Biological Opinion dated October 16, 2020 and National Marine Fisheries Service letter of concurrence (NMFS #AKR-2020-02002 dated October 29, 2020. Refer to Special Condition in Section 11.2 ESA Condition.

Based on a review of the above information, the Corps has determined that it has fulfilled its responsibilities under Section 7(a)(2) of the ESA. The documentation of the consultation is incorporated by reference.

10.2 Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), Essential Fish Habitat (EFH)

10.2.1 Has another federal agency been identified as the lead agency for complying with the EFH provisions of the Magnuson-Stevens Act with the Corps designated as a cooperating agency and has that consultation been completed?

No.

10.2.2 Did the proposed project require review under the Magnuson-Stevens Act?

Yes.

10.2.3 If yes, EFH species or complexes considered:

Nearshore estuarine and marine waters of the Beaufort Sea are designated as EFH for Arctic cod, saffron cod, snow crab, and five Pacific salmon species.

Effect(s) determination and basis for that determination(s):

Determinations and basis for determinations are below. Additional information on EFH determinations can be found in the EFH Technical Memo (Attachment 4), provided to NMFS on May 11, 2020, followed by an addendum to the original technical memorandum on July 14, 2020.

STP site preparations will result in minor, localized adverse effects to EFH and Fishery Management Plan (FMP)-managed species in nearshore marine waters. Operating the STP will likely result in temporary, localized impacts and long-term, minor to moderate, localized adverse effects to EFH and FMP-managed species. While the STP pipeline route on VSMs will intersect streams and other freshwater habitat, the STP pipeline will not intersect or otherwise affect EFH. The project is therefore not anticipated to affect freshwater EFH. Potential impacts on marine EFH specific to the STP are summarized below.

The potential for each proposed activity to affect FMP-managed species and marine EFH depends largely on the timing of the activity relative to site conditions and species' seasonal distribution. Ice pad construction, sheet pile and mooring dolphin installation, and the trenching and backfilling associated with the outfall pipe installation will occur in winter, during which time Pacific salmon would not be present in this area. Arctic and saffron cod both spawn in the winter, and development to hatching requires several months. [54] Saffron cod typically spawn in nearshore waters and may spawn within and adjacent to the Colville River delta.[55] Arctic cod are demersal, and distribution is closely associated with the presence of sea ice and/or low salinity. [56, 57] The extent to which these species may use nearshore marine waters in the vicinity of the STP site during winter is not known; however, given the shallow depths surrounding Oliktok Point, suitable winter habitat appears limited in this area. Based on available contour data, depths within the STP footprint do not exceed 7.25 feet.

Constructing the ice pad will involve drilling holes in the existing ice and directing the extracted seawater across the top of existing ice to increase its thickness to the point at which it is grounded. Grounding the ice prior to installing the sheet

[54] Morrow, J. E. 1980. The freshwater fishes of Alaska. Alaska Northwest Publishing Company. Anchorage.

[55] Craig. P. C. and L. Haldorson. 1986. Pacific salmon in the North American Arctic. Arctic 39(1):2–7.

[56] Ibid.

[57] Mecklenburg, C.W., T.A. Mecklenburg, and L.K. Thorsteinson. 2002. Fishes of Alaska. American Fisheries Society (June 1, 2002).

pile may displace fish and invertebrates, if present, and potentially kill organisms unable to move away (e.g. incubating eggs, benthic invertebrates). Fish and invertebrates, if present, could also be affected as a result of pumping seawater during grounding activity. The applicant commits to using screens on the pump intakes to minimize potential impacts to aquatic life. Vibratory hammers, as opposed to impact hammers, will be used for all pile installation and removal activities for the proposed project. The use of vibratory hammers has the potential to temporarily degrade habitat quality and/or displace fish. The applicant's commitments to conduct vibratory hammer operation during winter and to ground the ice prior to vibratory hammer use will minimize the potential for adverse effects on EFH and FMP-managed species. Grounding the ice prior to installing sheet pile will also minimize the potential for the sheet pile enclosure to trap fish or organisms. While in-water activities proposed during winter may affect some individuals (if present), they would not adversely affect species' populations.

Conducting in-water activities during the open water season has a greater potential to affect FMP-managed species because conditions would be more suitable to support aquatic life and more fish and invertebrates would be expected to occupy habitat near the site. Placing gravel fill within the sheet pile enclosure during summer should not directly affect fish since the activity will occur within the enclosure. Screeding north of the dock face will alter an estimated 8.3 acres of EFH during summer. Screeding will be performed by a screeding device (a plow or rake-like structure) attached to a barge that will be moved with two tugboats. The screeding device is controlled vertically using hydraulics (i.e., a forklift located on the barge). The barge will also be outfitted with excavators and an anchor-based mooring system. Excavators may be used to groom humps and depressions on the sea floor that are too large or compacted for the screeding device to handle. Sediment from within the screeding area will be placed in adjacent marine areas and spread as thinly as possible. Screeding and excavator use will temporarily increase turbidity throughout the water column, create noise disturbance and physically displace fish during the activity, alter habitat function, and take the life of, by removal, direct burial, or entrainment, some fish and other organisms unable to move away. While juvenile fish, benthic invertebrates (e.g. snow crab), and incubating eggs, if present, would be especially susceptible to burial or entrainment from screeding during the open water season, other species and/or life stages could also be affected. Arctic cod often use substrate at the sea bottom and occur in ice-free waters. Adult and juvenile Pacific salmon may be present in affected habitat, depending on the timing of the activity relative to run-timing and strength. Snow crab are most often associated with mud substrate, though smaller

individuals may prefer gravels.[58] The extent to which snow crab occur near the STP site is unknown; however, given their overall distribution, presence in this area is assumed. While some fish and invertebrates may be displaced or killed, the in-water work proposed for the open water season is not anticipated to adversely affect the health and survival of FMP-managed species at the population level.

The project will ultimately eliminate 6.83 acres below mean high water, which is considered EFH. The STP will not impede migration; fish and invertebrates would be expected to use similar, adjacent habitats. The loss of EFH within the fill footprint is therefore not anticipated to affect species' populations.

Long-term impacts associated with STP operation will also result from annual screeding, withdrawing seawater via the intake pipe and discharging the filter-backwash water back into the Beaufort Sea via the outfall pipe. Once operational, screeding north of the dock face will occur on an annual basis. Potential impacts will be similar to those described above. Given the intake structure's orientation and size, water velocities at the intake will typically be less than 0.4 feet per second. The low velocities will minimize the risk of impingement and the intake screen will minimize entrainment for most fish.[59] Nonetheless, water withdrawals may kill or harm some small fish and invertebrates but are not anticipated to affect species' populations.

While the project will eliminate a relatively small amount of EFH, modify the quality and function of adjacent EFH, and may displace, harm, or kill individual fish and invertebrates, the project is not anticipated to impede migration or affect the health and survival of the affected species at the population level. In summary, the project will result in localized, adverse impacts but is not anticipated to result in substantial[60] adverse impacts on EFH or managed fish stocks.

10.2.4 Consultation with the National Marine Fisheries Service was initiated and completed as required.

NMFS representative Charlene Felkley acknowledged receipt of the EFH information provided on August 25, 2020 and confirmed that EFH consultation was satisfied by USACE. NMFS did not provide any additional conservation

[58] Siegel, J. 2013. Chionoecetes opilio (On-line), Animal Diversity Web. Accessed April 16, 2020 at https://animaldiversity.org/accounts/Chionoecetes_opilio/

[59] EPRI. 2000. Technical Evaluation of the Utility of Intake Approach Velocity as an Indicator of Potential Adverse Environmental Impact under Clean Water Act Section 316(b), Electric Power Research Institute (EPRI), Palo Alto, CA, 2000. 1000731

[60] Substantial adverse effects are those that may pose a relatively serious threat to EFH and typically could not be alleviated through minor modifications to the proposed action (NMFS 2004. *EFH Consultation Guidance*, Version 1.1, Office of Habitat Conservation, Silver Spring, Maryland, April 2004.).

recommendations. Based on a review of the above information, the Corps has determined that it has fulfilled its responsibilities under EFH provisions of the Magnuson-Stevens Act.

10.3 Section 106 of the National Historic Preservation Act (Section 106):

Refer to Section 2.3 for permit area determination.

10.3.1 Has another federal agency been identified as the lead federal agency for complying with Section 106 of the National Historic Preservation Act with the Corps designated as a cooperating agency and has that consultation been completed?

No.

10.3.2 Known historic properties present?

No

USACE has reviewed the AHERS database and cultural resources section 3.17 of the applicant provided environmental assessment.

Effect determination and basis for that determination: No adverse effect. There are two cultural resource sites with the potential to be adversely affected by the STP or STP pipeline but they will not be adversely affected because they have been previously covered by gravel infrastructure. Also, due to the existence of modern oil and gas infrastructure the character and setting of these sites won't be affected by construction of the STP or STP pipeline.

The Alaska State Historic Preservation Office (AKSHPO) provided a determination that a finding of no adverse effect is appropriate for the proposed project. AKSHPO concurrence is provided in Attachment 5.

10.3.3 Consultation was initiated and completed with the appropriate agencies, tribes and/or other parties for any determinations other than "no potential to cause effects". The concurrence, File No.: 3130-1R COE-R/2020-00433, received from AKSHPO is dated May 8, 2020.

10.4 Tribal Trust Responsibilities

10.4.1 Was government-to-government consultation conducted with Federally-recognized Tribe(s)?

No. A public notice was sent to the Native Village of Nuiqsut on Apr 1, 2020 requesting comments on the proposed project. A modified public notice was sent to the Native Village of Nuiqsut on July 9, 2020 requesting comments on the proposed project. An invitation for government to government consultation was mailed to the Native Village of Nuiqsut on August 7, 2020. An invitation for government to government consultation was emailed to the Native Village of

Nuiqsut on August 6, 2020. No response was received from the Native Village of Nuiqsut. USACE has determined that it has fulfilled its tribal trust responsibilities.

10.4.2 Other Tribal including any discussion of Tribal Treaty rights?

N/A

10.5 Section 401 of the Clean Water Act – Water Quality Certification (WQC)

10.5.1 Is a Section 401 WQC required, and if so, has the certification been issued, waived or presumed?

ADEC issued their Clean Water Act Section 401 Water Quality Certification on August 2, 2020.

10.6 Coastal Zone Management Act (CZMA)

10.6.1 Coastal Zone Management Consistency under Section 307c of the Coastal Zone Management Act (CZMA):

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.

10.7 Wild and Scenic Rivers Act

10.7.1 Is the project located in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system?

No.

10.8 Effects on Corps Civil Works Projects (33 USC 408)

10.8.1 Does the applicant also require permission under Section 14 of the Rivers and Harbors Act (33 USC 408) because the activity, in whole or in part, would alter, occupy or use a Corps Civil Works project?

No, there are no Corps Civil Works projects in or near the vicinity of the proposal.

10.9 Corps Wetland Policy (33 CFR 320.4(b))

10.9.1 Does the project propose to impact wetlands?

Yes

10.9.2 Based on the public interest review herein, the beneficial effects of the project outweigh the detrimental impacts of the project.

11.0 Special Conditions

11.1 Are special conditions required to protect the public interest, ensure effects are not significant and/or ensure compliance of the activity with any of the laws above?

Yes.

11.2 Required special condition(s)

Special condition(s):

Fill Material: 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 substance, 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)).

Stockpiling: No stockpiling of fill materials shall occur in wetlands or other waters of the U.S. that do not have DA authorization.

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).

Section 10:

Your use of the permitted activity must 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)).

You must 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)).

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).

ESA Conditions: The permittee shall comply with the Federal Endangered Species Act, you must implement all of the mitigating measures identified in the enclosed U.S. Fish and Wildlife Service Biological Opinion dated October 16, 2020 and National Marine Fisheries Service letter of concurrence (NMFS #AKR-2020-02002 dated October 29, 2020), including those ascribed to the Corps therein. If you are unable to implement any of these measures, you must immediately notify the Corps, the U.S. Fish and Wildlife Office, and the National Marine Fisheries Service so we may consult as appropriate, prior to initiating the work, in accordance with Federal law.

Rationale: This condition is required to reduce the likelihood of adverse impacts to species protected under the Endangered Species Act and to comply with the Act (Section 7 of the ESA and 40 CFR 230.30).

Self-Certification: Within 60 days of completion of the work authorized by this permit, the Permittee shall complete the attached “Self-Certification Statement of Compliance” form and submit it to the Corps (U.S. Army Corps of Engineers, Regulatory Division, P.O Box 6898 JBER, Alaska 99506-0898. In the event that the completed work deviates in any manner from the authorized work, the Permittee shall describe the deviations between the work authorized by this permit and the work as constructed on the “Self-Certification Statement of Compliance” form. The description of any deviations on the “Self-Certification Statement of Compliance” form does not constitute approval of any deviations by the Corps.

Rationale: This special condition is required to ensure compliance with the permit and in order to efficiently plan compliance inspections.

Contractors: All contractors involved in this permitted activity shall be provided copies of this permit in its entirety. A copy shall remain on site at all times during construction.

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).

12.0 Findings and Determinations

12.1 Section 176(c) of the Clean Air Act General Conformity Rule Review:

The proposed permit action has been analyzed for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. It has been determined that the activities proposed under this permit will not exceed de minimis levels of direct or indirect emissions of a criteria pollutant or its precursors and are exempted by 40 CFR 93.153. Any later indirect emissions are generally not within USACE's continuing program responsibility and generally cannot be practicably controlled by the USACE. For these reasons, we recommend that a conformity determination is not required for this permit action.

12.2 Presidential Executive Orders (EO):

12.2.1 EO 13175, Consultation with Indian Tribes, Alaska Natives, and Native Hawaiians: This action has no substantial effect on one or more Indian tribes, Alaska or Hawaiian natives.

12.2.2 EO 11988, Floodplain Management

This action is not located in a floodplain; alternatives to location within the floodplain, minimization, and compensatory mitigation of the effects were considered above.

12.2.3 EO 12898, Environmental Justice

The Corps has determined that the proposed project would not use methods or practices that discriminate on the basis of race, color or national origin nor would it have a disproportionate effect on minority or low-income communities.

12.2.4 EO 13112, Invasive Species:

There are no invasive species issues involved in this proposed project.

12.2.5 EO 13212 and EO 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 project while maintaining safety, public health and environmental protections.

12.3 Findings of No Significant Impact:

Having reviewed the information provided by the applicant and all interested parties, and an assessment of the environmental impacts, we recommend that this permit action will not have a significant impact on the quality of the human environment. Therefore, an environmental impact statement will not be required.

12.4 Compliance with the Section 404(b)(1) Guidelines:

Having completed the evaluation above, we recommend a finding that the proposed discharge complies with the Guidelines.

12.5 Public interest determination:

Having reviewed and considered the information above, we recommend a finding that the proposed project is not contrary to the public interest.

PREPARED BY:

POST.JANET.L.1009337160 Digitally signed by POST.JANET.L.1009337160 Date: 2020.11.05 12:52:30 -09'00' Date:_____

Janet Post, Project Manager