APPENDIX K WATER USE PLAN

Alaska LNG™

DRAFT WATER USE PLAN

USAI-P2-SPZZZ-00-000018-000

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1.0 INTRODUCTION

1.1 PURPOSE

This Water Use Plan (Plan) addresses the consumptive and non-consumptive uses of water resources during construction of the Alaska LNG Project (Project). Water use and water rights permitting would be undertaken to provide water necessary to construct the Project. The Clean Water Act Section 404 Permit and best management practices (BMPs) associated with constructing the Project across wetlands and waterbodies are addressed elsewhere, in the Alaska LNG Project *Wetland and Waterbody Construction, and Mitigation Procedures* (Alaska LNG Project *Procedures*).

The *Water Use Plan* will require more specific information on water volumes, source locations, discharge locations, and any proposed treatment and would be finalized prior to construction after all construction plans have been finalized and sources/volumes confirmed.

1.2 OBJECTIVES

The objectives of this Plan are to:

- Identify necessary volumes for various construction uses.
- Minimize adverse impacts to surface waters, associated aquatic biota (e.g., fish) and existing users during withdrawal.
- Avoid impacts to groundwater and existing uses.
- Establish procedures for discharges after use.
- Establish procedures for discharge of wastewater.

1.3 WATER APPROPRIATION, DISPOSAL AND DISCHARGES

Water appropriation, disposal and discharges are regulated under:

Federal:

- U.S. Environmental Protection Agency (EPA) Underground Injection Control (UIC) Class I Injection Well Disposal Permit.
- Safe Drinking Water Act, 40 Code of Federal Regulations (CFR) parts 142 through 148.

State:

- Alaska Statutes Title 46. Water, Air, Energy, and Environmental Conservation.
  - Chapter 15: Water Use Act; Section 145: Reservation of Water (Surface and Subsurface).
  - Amendment AS 46.15.03 (“instream flow law”).
- Water Right Certificate of Appropriation for permanent water uses.
- Temporary Water Use Authorization for non-permanent water use.
- Alaska Pollutant Discharge Elimination System (APDES) coverages for Storm Water Associated with Large and Small Construction Activities under the Alaska Construction General Permit.
- Approval to Construct and Operate a Public Water Supply System.
- Domestic and Non-Domestic Wastewater Disposal System Plan Review.

- Domestic and Non-Domestic Wastewater Disposal State Permits (18 AAC 72) and APDES Permits (18 AAC 83).
- Alaska Department of Natural Resources (ADNR) Tundra Travel Guidance.
- Alaska Department of Fish & Game Title 16 Fish Habitat.
- (Guidance) Alaska Department of Environmental Conservation (ADEC) Drinking Water Protection: Private Drinking Water Wells and Systems.

1.4 RELATED PLANS

Related plans that are not addressed here but contain BMPs for the protection of water resources include:

- *Spill Prevention, Control, and Countermeasure (SPCC) Plan.*
- *Stormwater Pollution Prevention Plan* (SWPPP).
- *Groundwater Monitoring Plan.*
- *Water Well Monitoring Plan.*
- Alaska LNG Project *Procedures*.
- Alaska LNG Project *Upland Erosion Control, Revegetation, and Maintenance Plan* (Alaska LNG Project *Plan*).
- *Noxious/Invasive Species Control Plan*.

2.0 WATER USE DURING CONSTRUCTION

Preliminary sources and volumes of water are identified in this Plan and would be finalized ahead of construction after construction plans are finalized and agency input is received on the source waters and their applicability for use.

Water uses during Project operations would be subject to separate permitting. The information in this Plan describes the preliminary water requirements for Project operations.

2.1 LIQUEFACTION FACILITY

2.1.1 Construction (without hydrostatic testing)

At peak, onsite water demand for construction of the Liquefaction Facility would be approximately 360,000 gallons per day, or 250 gallons per minute This includes water for construction uses and for potable water at the facility construction camp. Potable water demand per person is estimated at 50 to 75 gallons of water per person per day. In addition to uses at the construction camp, the following Liquefaction Facility construction activities would be the majority contributors to site water demands:

- Peak water demand would occur during hydrostatic testing of the LNG tanks (see discussion in Section 2.1.2).
- The batch concrete plant would require dedicated water use and storage capacity of approximately 50,000 gallons per day to allow continuous concrete placement.
- Dust suppression at the site would require approximately 10,000 gallons per day during dry summer months (soil compaction requires approximately 20 gallons per cubic yard).
- During commissioning of the LNG Plant, water would be required for flushing and filling the water systems for the first time. Preliminary estimates are that approximately 2,260,000 gallons of freshwater would be required for flushing (i.e., moving the fluid through the system at the same speed at which it would go through it under normal operating conditions) piping in the water systems (firewater makeup, potable water, demineralized water, and service water). The first filling of the freshwater system would require approximately 510,000 gallons of water.

For construction, the total storage required primarily for commissioning of the LNG Plant would be 1,380,000 gallons. The construction water system would consist of:

- Two freshwater tanks (690,000 gallons each).
- Intake screens for each pump.
- Six-inch freshwater tank feed lines.

Intake screens will be sized according to permit requirements. During initial site preparation, bladder tanks and temporary ponds may be used for water storage.

Two temporary water treatment plants would be located on site during construction—one adjacent to the construction camp and the second located adjacent to the onsite concrete batch plant.

A third temporary water treatment plant is being considered to support hydrostatic testing and would be located near the liquefaction trains. The plants would source water from the new construction

wells, potentially supplemented by the existing onsite wells, if they are not removed during site clearing and grading.

2.1.2 Hydrostatic Testing

Hydrostatic testing of each of the two 240,000-cubic-meter LNG tanks would require approximately 42,000,000 gallons of Cook Inlet seawater over a 14–21-day period. It is estimated that the testing would be sequenced so that test water from the first tank could also be used as test water for the second tank. Freshwater from onsite wells would be used to rinse the tanks after the hydrotest. In advance of filling each tank, the hydrostatic test water source would be tested to ensure that the water would meet applicable permit requirements The LNG storage tanks would be hydrostatically tested in accordance with the requirements of American Petroleum Institute (API) Standard 620. Hydrostatic testing of Liquefaction Facility tanks and non-cryogenic piping would be carried out in accordance with applicable state and federal code and permit requirements. Hydrostatic testing of the LNG tanks would likely occur during the summer of the sixth year of construction

Approximately 60 to 70 percent of LNG plant piping system consist of cryogenic piping, which is not tested with water but is pneumatically tested. Approximately 50,000 gallons of water sourced from onsite water wells would be recycled and used for hydrostatic testing of non-cryogenic plant piping over a multi-year period during construction. Testing would be conducted at 1.5 times design pressure. To the extent practicable, piping that requires hydrostatic testing would be tested at the fabrication yards prior to arriving on site.

At hydrostatic test completion, the water will be tested and discharged in accordance with applicable permits via one of three outfalls into Cook Inlet. No biocides would be added to the test water and hydrostatic testing would likely occur in the warmer months.

2.2 INTERDEPENDENT PROJECT FACILITIES

2.2.1 Mainline

2.2.1.1 Mainline and Aboveground Facilities Construction

A summary of the anticipated water requirements for construction of the Mainline and above ground facilities is included in Table 1. The water use outlined below is required over eight construction seasons.

Table 1: Estimated Water Requirements Summary for the Mainline and Aboveground Facilities Construction (million gallons)

Year	Spread 1	Spread 2	Spread 3	Spread 4	Aboveground Facilities	Estimated Total (million gallons)
Y1	0.00	0.00	0.00	0.00	0.00	0.00
Y2	5.85	9.98	6.66	4.42	0.00	26.91
Y3	11.64	13.48	9.95	7.19	0.00	42.26
Y4	229.56	13.47	24.68	18.19	2.73	288.64
Y5	325.88	72.28	73.23	73.71	8.86	553.96
Y6	213.16	115.68	117.71	120.20	21.41	588.15

Y7	0.00	0.00	0.00	0.00	8.84	8.84
Y8	0.00	0.00	0.00	0.00	0.00	0.00
Total	**786.09**	**224.89**	**232.23**	**223.71**	**41.83**	**1,508.76**

A discussion of total Mainline water use is provided in the following sections.

Camps

A summary of the anticipated water requirements for support of the temporary construction camps associated with the Mainline is provided in Table 2. A detailed breakdown by construction season is provided in Appendix A.

Table 2: Estimated Water Requirements for the Construction Camps for the Mainline

Construction Spread	Camp Type	Estimated Volume (million gallons)
ML Spread 1	Pipelay Camps	18.05
	Civil Camps	10.75
ML Spread 2	Pipelay Camps	19.27
	Civil Camps	11.31
ML Spread 3	Pipelay Camps	19.04
	Civil Camps	13.57
ML Spread 4	Pipelay Camps	17.63
	Civil Camps	9.14
Aboveground Facilities		20.92
	TOTAL	**139.68**

Road Maintenance

The estimated quantity of water required for road maintenance and freeze-down of the construction right-of-way (ROW) and ice road/ice pad construction and maintenance of the Mainline is provide in Table 3.

Table 3: Estimated Water Requirements for Road Maintenance, Freeze-down, and Ice Road/Ice Work Pad Construction and Maintenance of the Mainline Construction Right-of-Way (ROW)

Activity/Location	MM Gallons per Year	Estimated Volume (million gallons)
Ice Roads/Work Pads		
Mainline	NA	556.92
Road Maintenance		
ML Spread 1	31.51	126.03
ML Spread 2	31.51	126.03
ML Spread 3	31.51	126.03
ML Spread 4	31.51	126.03
Total	126.03	1,061.04

Ice Roads and Work Pads

Both ice roads (tundra and sea ice) and work pads share similar construction methodologies. Prior to construction, the locations for work pads and ice road routes would be surveyed and staked. The ice roads would be routed to avoid tussock areas, deep holes in streams, steep river banks, cultural resources, stands of willow, and any prior year's work pad locations and road routes wherever possible.

Construction begins once the ground temperature and snow cover on the tundra meets the ADNR criteria for general cross-country traveling in wet sedge tundra on the North Slope (when a minimum 15 centimeters (6 inches) of snow cover is available and ground hardness reaches a minimum of 75 drops of a slide hammer to penetrate 1 foot of ground (ADNR 2004).

The estimated water use during ice road construction for Spread 1 of the Mainline is approximately 556.9 million gallons (may be a combination of ice chips, water, and snow).

2.2.1.2 Mainline Hydrostatic Testing

The estimated volume of water required for hydrostatic testing of the Mainline is provided in Table 4. All testing for the Mainline would occur during the summer, and the number of test sections in each construction spread and the potential for cascading (or reuse of test water) between test segments is still being evaluated.

Offshore Mainline Pipeline Hydrostatic Testing

A temporary pig launcher/receiver would be installed at the respective shore crossing limit. Using a pig train, the pipeline would be flooded, cleaned, and gauged with chemically treated and filtered seawater. Once all pigs are received, the gauging plate would be checked for any signs of damage. Once an acceptable gauging run is complete, the pipeline would be ready for hydrostatic testing.

Approximately 10,000,000 gallons of seawater would be required to conduct hydrostatic testing of the offshore segment of the Mainline (Table 4). Following hydrostatic testing, the pipeline would be dewatered, chemically dried, and nitrogen packed at ambient pressure for storage until onshore tie-ins are completed. Hydrostatic test water would be discharged via outfalls to Cook Inlet in accordance with all applicable state and federal permit requirements.

Onshore Mainline Pipeline Hydrostatic Testing

The proposed hydrostatic test approach, including pipeline cleaning, gauging plate pig run, pressure testing, caliper pig run, and pipeline dehydration, is based on testing up to 20-mile-long sections during the summer or fall. Sections of pipeline to be tested as single segments would be determined according to water availability, pipeline length, and terrain contours.

Potential water sources for Mainline pipeline hydrostatic testing include streams crossed by the pipeline ROW, nearby lakes, and parallel streams. Estimated volumes and potential sources of test water are provided in Appendix B. Once final water sources are identified, test plans for each construction spread would list permitted water sources, the associated pipeline mileposts (MPs), and the permitted water volume and conditions for water withdrawals and discharges received from the regulatory authorities.

Hydrostatic testing would be conducted mainly during summer or fall and would require no additives to the test water. However, some testing may also be carried out during the fall and winter. If winter testing becomes necessary, the test plans would list any additives (such as antifreeze chemicals) proposed for use. Hydrostatic testing on the North Slope could require the use of additives year-round, and the hydrostatic testing discharge water would be injected to UIC-permitted wells

Discharges would be tested and treated, if required, in accordance with applicable state and federal permit requirements. With the exception of discharges on the North Slope (injected), test water will be discharged to the ground through an energy-dissipating device to reduce the potential for erosion and encourage infiltration.

Table 4: Estimated Water Requirements for Hydrostatic Testing of the Mainline and Above Ground Facilities

Construction Spread	Estimated Volume (million gallons)
ML Spread 1	74.34
ML Spread 2	68.29
ML Spread 3	73.58
ML Spread 4	61.21
Offshore Pipeline	9.70
Aboveground Facilities	10.46
Total	297.57

The estimated quantity of water required for hydrostatic testing of the Mainline's aboveground facilities is included with the estimates for the Mainline in Table 4.

Trenchless Construction Fluid Makeup

Trenchless construction methods such as bores and horizontal directional drills (HDD) would be used to install the Mainline at a variety of road and infrastructure crossings and at the following waterbody crossings:

- Middle Fork of Koyukuk River
- Yukon River (MP 356.5).
- Tanana River (MP 472.9).
- Chulitna River (MP 641.8).
- Deshka River (MP 704.7).

In support of trenchless construction, water would be required to make up drilling fluid. The estimated volume of water required for the HDD activities for the five crossings listed above ranges between 16 and 26 million gallons. In addition, water would be required to conduct hydrostatic testing of the drilled and bored segments of pipe prior to pull back. The volume of water required for fluid make up and hydrostatic testing has been included in Table 4.

2.2.1.3 Point Thomson Gas Transmission Line (PTTL)

The estimated water requirements for construction of the Point Thomson Gas Transmission Line (PTTL) is summarized in Table 5.

Table 5: Estimated Water Requirements for the PTTL

Spread	Ice Pad/Road	Hydrostatic Testing	Construction	Camp	Estimated Volume (MM gallons)
PTTL	180.77	14.22	31.51	6.22	232.72

Construction Camp

The PTTL construction camps are estimated to require approximately 6.22 million gallons of water.

Ice Road Maintenance

Ice road maintenance of the PTTL ROW during construction is estimated to require approximately 31.51 million gallons of water.

Ice Road and Work Pad Construction

PTTL ice road/pad construction is estimated to require approximately 180.77 million gallons of water (approximately 2.67 million gallons per mile along a nominal 110-foot construction ROW). Access roads along the ROW are estimated to require an additional 13.79 million gallons of water (approximately 813,120 gallons per mile).

Hydrostatic Testing

Hydrostatic testing of the PTTL is estimated to require approximately 14.22 million gallons of water. Hydrostatic testing of the PTTL Meter Station piping is estimated to require approximately 1.27 million gallons of water. Once final water sources (see Appendix C for proposed sources) are identified, pressure test plans for each PTTL construction spread would list all permitted water sources, the associated pipeline MP, and the permitted water volume and conditions for water withdrawals and discharge received from the regulatory authorities.

The current testing plan calls for PTTL hydrostatic testing to take place in the summer. No additives would be included in the test water. One exception would be that testing on the North Slope might require the use of additives year-round, and the hydrostatic testing waste water would be injected to UIC-permitted wells.

Water would be discharged into the same watershed from which it was drawn or into an existing permitted UIC well. Discharge would be in accordance with APDES permit requirements or existing UIC permit requirements.

2.2.1.4 Gas Treatment Plant (GTP)

Camp

A pioneer camp would be established to support GTP construction. Once operations begin at the facility, the camp would continue to support construction through phased construction. At its peak, estimated water usage at the pioneer camp would be approximately 20.80 million gallons per year. This would occur at the height of construction, when the forecasted peak for all personnel on site is estimated to be 600 people. During integrated construction and operations at the camp, the estimated raw water usage would be approximately 53.35 million gallons per year when the camp is fully occupied, estimated at 1,680 people. The raw water demand per person is estimated at 95 gallons per day.

Ice Road and Work Pad Construction

Ice roads would be necessary in the first winters of construction to connect the material site to the GTP pad site and to connect water sources to the GTP pad site. Ice roads would also be required during construction of the water pipeline, pipelines on vertical support members (VSMs) between the GTP and Central Gas Facility (CGF), and for other utility construction.

Pipeline Construction ROW Ice Roads

Table 6 summarizes the various construction ROW ice roads that would be needed to construct the pipelines associated with the GTP. Ice roads used as construction ROW for transfer pipelines between the Prudhoe Bay Unit (PBU) and GTP (including the PBTL) would be approximately 120 feet wide, with additional space as necessary for laydown and expansion loops. The water requirements are calculated for the total estimated length of the ROW.

Table 6: Estimated Water Use for Ice Roads Associated with the GTP

Ice Road Purpose/Use	Estimated Width	Estimated Length/Acreage	Preliminary Seasons Utilized	Estimated Gallons of Water per Season (million gallons)[b]
Construction of Mine, Reservoir, Pipeline and Transfer Lines[a]				
Mine/Reservoir Service Vehicle Access Road	~40 feet	~ 2.1 miles	Year1	5.3 million
Pipeline Crossing Construction Ice Pads	-	~ 4.5 acres	Year 1	2.8 million
Mine Site Perimeter Ice Road	-	~ 35.9 acres	UYear 1 Year 2 Year 3 Year 4	21.3 million
Reservoir Perimeter Ice Road	-	~ 12.7 acres	Year 1 Year 2 Year 3 Year 4	7.5 million
Construction ROW/Ice Road for the PBTL (includes Fuel Gas, and propane lines on shared VSM with PBTL between PBU, CGF, and GTP Pad)	~120 feet	~ 0.7 mile	Year 3 Year 4	6.1 million
Construction ROW/Ice Road for Electrical/cable trays, Fuel Gas Line, Gray Water Return line, and water line between GTP and Operations Camp	~120 feet	~1.1 miles	Year 3	9.5 million
Construction ROW/Ice Road for Put River Intake Line (from the Putuligayuk River to Reservoir)	~ 110 feet	~0.8 mile	Year 3	8.7 million
Construction ROW/Ice Road for Water Line from Reservoir to GTP Pad	~110 feet	~4.0 miles	Year 3	34.54 million

Notes:

a. Ice road widths and water usage for the pipeline ROW do not include additional space as necessary for laydown and expansion loops or general access ice roads to reach pipeline ROW.

b. Preliminary estimates based on planned design. Estimated amounts for maintenance water

General Access Ice Roads

General access ice roads and pads would be needed during the initial phases of construction. The number, routing, length, and duration of use of general access ice roads and pads are outlined in Table 6 above. Tundra impacts would be minimized as ice road corridors would be reused to the extent practicable.

Offshore Ice Roads

Offshore ice roads will be built to facilitate construction of the proposed offshore infrastructure at Dockhead 4. Quantities have not yet been calculated, but most will be seawater with fresh water used for topping and maintenance.

Granular Pads and Access Roads

Water is also used to compact the granular GTP pad and any other granular pads used during construction. The volume of water required for compaction is not known at this time. In addition, various options are being considered to reduce dust generated from traffic on granular roads and pads during construction and operations. These options include traditional spraying of water, as well as alternatives such as chip seal and calcium chloride.

Hydrostatic Testing

Approximately 14.2 million gallons of water would be required to conduct hydrostatic testing of the following pipelines:

- PBTL;
- Untreated fuel gas pipeline;
- Propane pipeline;
- Water reservoir supply pipeline (Putuligayuk River pipeline, which would run from the Putuligayuk River to the reservoir);
- GTP raw water supply pipeline (from reservoir to the GTP);
- Raw water supply pipeline to the Operations Center;
- Grey Water Return pipeline to the GTP; and
- Treated fuel gas pipeline to the Operations Center.

The pipelines would be installed during the winter using ice roads and/or the GTP pad, and hydrostatic testing would occur during the following summer season (with the exception of the Putuligayuk River crossing). Pipe for the Putuligayuk River crossing would need to be hydrostatically tested during the same winter season it is installed.

Of note, there would be limited hydrostatic testing activities conducted on the North Slope in association with the GTP. Where practicable, non-critical/non-hydrocarbon services (such as water pipelines) may be in-service tested for leaks in lieu of hydrostatic testing. Module piping and vessels would be hydrostatically tested at the fabrication facilities.

Because the majority of testing would occur during the summer, additives are not currently anticipated to be required. Water would be discharged into an existing permitted UIC well. Discharge would be in accordance with existing UIC permit requirements. Until the GTP reservoir is operational, potential sources of water are found in Appendix D.

2.3 WATER SOURCES

2.3.1 Liquefaction Facility Construction

Existing water wells on the site could potentially be used during the early stages of site construction before additional wells and piping are added. The use of these wells during project construction would require consultation with State regulators. However, these wells are not considered sufficient to supply the anticipated construction water demand.

An estimated four groundwater wells (bores) would be located near the site, providing up to approximately 250 gallons per minute with a combined output of 1.4 million gallons per day. These wells would be used for construction activities and are not currently planned to support operations.

Two of the groundwater wells would supply the temporary potable water plant. Potable water would be distributed through the construction camp, office complex, mechanic shop, and induction building. One of the groundwater wells would be used for dust control and as a backup.

Water from the third water well would be distributed to the mechanic shop. The fourth water well would be used asbackup, but could be used to supply water for dust control during construction.

Existing water wells on the property could be used during the early (pioneering) phase of.

In 2016 the Project sampled a number of water wells in the Liquefaction Facility footprint as part of an ongoing study to characterize the hydrogeological conditions in the proposed Liquefaction Facility project area and obtain baseline water quality and aquifer yield data. The studies were detailed in the Draft 2016 Hydrogeology Program Supplemental Information Document as part of an application for an ADNR Temporary Water Use Authorization. A total of three aquifer pump test wells and four observation wells were installed to determine aquifer yield and radius of influence in the underlying water bearing zones to assist in evaluating future facility well design. Baseline groundwater quality data was also collected from existing wells within and adjacent to the Liquefaction Facility footprint. Preliminary results from the initial water quality sampling and aquifer yield study at the Liquefaction Facility are summarized in Resource Report No. 2, Section 2.2.6 Groundwater Quality.

A third temporary water treatment plant is being considered to support hydrostatic testing and would be located near the liquefaction trains. All of the plants would source water from the new construction wells described above, potentially supplemented by the existing onsite wells, if they are not removed during site development (i.e., clearing and grading). If the fresh water source does not provide drinking quality water, a reverse osmosis system would also be provided.

2.3.1.1 Liquefaction Facility Hydrostatic Testing (LNG Tanks)

The source of the hydrostatic test-water would either be marine waters withdrawn from Cook Inlet or freshwater supplied by the onsite groundwater wells. If salt water is used, the intake within Cook Inlet would be equipped with a screen and the intake rate reduced as required by permits and to the extent practicable to minimize the potential for entrainment and impingement of marine life. Screened intake will be sized according to permit requirements and agency approval. Similarly, the withdrawal rate of freshwater from the onsite construction wells would be reduced as required by permits and to the extent practicable to reduce the potential for local groundwater drawdown. In advance of filling each tank, the hydrostatic testing water source would be tested to ensure that the water would meet all applicable permit requirements.

2.3.2 Interdependent Project Facilities

2.3.2.1 Pipeline Construction

Freshwater for use during pipeline construction would be sourced from rivers and lakes adjacent to the Project area. Multiple water sources have been identified along the ROW as well as on the existing road system to provide water, ice chips, and clean snow. Tundra ice roads and work pads would be built using fresh water. Seawater would not be used at any terrestrial locations.

On lakes identified as sources of ice chips, snow would be stockpiled and a loader-mounted rotary trimmer would be used to make ice chips from surface ice. Ice chips and snow would be transported to the Project area using dump trucks.

At approved water sources, a submersible pump would provide a filling station for water tanker trucks used to transport water to the Project area (e.g., for road maintenance) or for supplying a temporary waterline (e.g., hydrostatic test fill line) to the Project area. When obtaining water from a surface waterbody, the fill pump would be placed at the waterbody edge and connected to the intake line. If there is not adequate depth at the intake location, it may be necessary to dig a small sump to allow the pump intake to be fully submerged (where allowed by the permitting agency).

The fill pump engine would be placed within a plastic-lined bermed or metal containment area to prevent spills or leaks from reaching the ground or the waterbody. The fill pumps would be continuously monitored during operation.

Withdrawal rates and volumes would be in accordance with all applicable permit requirements. Water withdrawal rates would be monitored to avoid significant impacts to stream flow or downstream water users and resources or to water levels. The intake would be fabricated to provide an adequate surface area of fine-meshed screen to reduce the water approach velocity to prevent impingement or entrainment of small fish, larvae, and eggs. The intake hose and screen would be kept off the bottom of the waterbody to avoid sediment uptake.

In waterbodies that harbor known infestations of invasive aquatic plant or animal species, the withdrawal of water would be avoided to the extent practicable. If no alternative sources exist, all equipment used during withdrawal and discharge would be thoroughly cleaned before being used at subsequent locations to prevent the transfer of invasive species to new locations.

Mainline

The potential sources that have been identified that could supply the water requirements for construction of the Mainline, including aboveground facilities, are listed in Appendix B. More sources have been identified than are needed at the present time, with preliminary estimates indicating:

- Spread 1 – The average monthly demand of 1.42 cubic feet per second (cfs), or a peak month demand of 17.03 cfs, could potentially be supplied by seven sources (2.4 cfs each) located at mileposts (MPs) 72, 88, 96, 98, 98, 102, and 108.
- Spread 2 – The average monthly demand of 0.33 cfs, or a peak month demand of 3.97 cfs, could potentially be supplied using a single source located at MP 357.
- Spread 3 – The average monthly demand of 0.32 cfs, or a peak month demand of 3.86 cfs, could potentially be supplied by five sources (0.77 cfs each) located at MPs 473, 499, 526, 533, and 561.
- Spread 4 – The average monthly demand of 0.32 cfs, or a peak month demand of 3.85 cfs, could potentially be supplied by four sources (0.96 cfs each) located at MPs 647, 675, 721, and 725.

These sources would be investigated further after agency feedback to determine those that would be permitted for the Project.

Mainline Aboveground Facilities

For the aboveground facilities, water would be sourced from an onsite well or trucked in from nearby surface water sources. Similarly, potable water for the facility construction camps is anticipated to be supplied by new groundwater wells with a treatment plant located at each work site. Storage capacity at each site would be sufficient to supply the camp and general use with the capacity for seven days. The Project entity will continue to evaluate the feasibility of using groundwater wells.

PBTL

See Section 2.3.2.2.

PTTL

The potential sources that have been identified that could supply the water requirements for construction of the PTTL, including aboveground facilities, are listed in Appendix C. The average monthly demand of 1 cfs, or a peak month demand of 11.7 cfs, could potentially be supplied by five sources (2.3 cfs each) located at MPs 44, 52.2, 53, 54, and 59.6.

2.3.2.2 GTP

Water for construction of the GTP and associated infrastructure, including the PBTL, would be brought in via trucks and stored on site until the new water reservoir and pumping stations necessary to support permanent operations are established. Potential water sources for construction, including hydrostatic testing, in the vicinity of the GTP include fresh water from:

- The Putuligayuk River;
- The Sagavanirktok River;
- The North Slope Borough's water system; and
- Naturally occurring lakes.

A preliminary list of the potential sources of water from naturally occurring lakes is provided in Appendix D.

Of note, ice chips could also be obtained from nearby lakes, as practicable. Ice chips would be sourced from nearby shallow lakes following standard North Slope practices and in accordance with applicable permits issued at the time of construction.

3.0 RESPONSIBILITIES

3.1 PROJECT RESPONSIBILITIES

The Project would be responsible for ensuring that all contractors comply with the provisions of all permits and authorizations pertaining to water withdrawals, uses, and discharges by:

- Ensuring that copies of all permits, including amendments, are up to date and available on site at all Project locations;
- Monitoring all authorized water withdrawals for compliance with allocated withdrawal volumes and withdrawal rate constraints;
- Conducting inspections of all regulated intakes and discharges; and
- Complying with reporting requirements as specified by the permits.

3.2 CONTRACTOR RESPONSIBILITIES

The Construction Contractor(s) would have primary responsibility for implementing all specified water intake and discharge procedures related to the various construction activities discussed in Sections 2 and 3.

4.0 ACRONYMS AND TERMS

Term	Definition
ADEC	Alaska Department of Environmental Conservation
ADNR	Alaska Department of Natural Resources
AGDC	Alaska Gasline Development Corporation
APDES	Alaska Pollutant Discharge Elimination System
API	American Petroleum Institute
BMP	best management practice
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGF	Central Gas Facility
EPA	United States Environmental Protection Agency
FERC	Federal Energy Regulatory Commission
GTP	Gas Treatment Plant
HDD	horizontal directional drill
LNG	liquefied natural gas
PBTL	Prudhoe Bay Gas Transmission Line
PBU	Prudhoe Bay Unit
Project	Alaska LNG Project
PTTL	Point Thomson Gas Transmission Line
PTU	Point Thomson Unit
ROW	right-of-way
SPCC	Spill Prevention, Control, and Countermeasure
SWPPP	Stormwater Pollution Prevention Plan
VSM	vertical support member

5.0 REFERENCES

Alaska Department of Natural Resources. “Tundra Travel Management Strategy.” Juneau, Alaska, 2004.

6.0 APPENDICES

APPENDIX A – WATER USE DETAILS (PIPELINE)

Estimated Water Requirements for the Construction Camps for the Mainline			
Construction Spread	**Camp Type**	**Construction Season**	**Estimated Volume (gallons)**
ML Spread 1	Pipelay Camps	W1	4,504,180
		W2	4,469,025
		S1.5	4,217,030
		W2	1,143,110
		S2.5	4,484,410
		Subtotal	18,817,755
	Civil Camps	S-0.5 to W1	4,222,355
		W1 to W2	6,913,735
		W0 to S0.5	5,412,075
		S0.5 to S1.5	4,175,825
		Subtotal	20,723,990
ML Spread 2	Pipelay Camps	S1.5	6,253,670
		W1	4,665,000
		S2.5	6,175,630
		W2	3,322,925
		Subtotal	20,417,225
	Civil Camps	S-0.5 to S0.5	13,102,785
		S0.5 to S1.5	11,867,920
		Subtotal	24,970,705
ML Spread 3	Pipelay Camps	W1	4,200,915
		S1.5	4,858,060
		W2	4,031,195
		S1.5	2,198,700
		S2.5	4,809,555
		Subtotal	20,098,425
	Civil Camps	S-0.5 to W1	6,333,830
		S-0.5 to S0.5	7,654,755
		S0.5 to W1	1,797,410
		S1.5 to W2	3,319,785
		S0.5 to S1.5	3,822,890
		Subtotal	22,928,670

Estimated Water Requirements for the Construction Camps for the Mainline			
Construction Spread	**Camp Type**	**Construction Season**	**Estimated Volume (gallons)**
ML Spread 4	Pipelay Camps	S1.5	5,783,385
		W1	3,894,220
		W2	3,721,295
		S2.5	6,074,980
		Subtotal	19,473,880
	Civil Camps	S-0.5 to S1.5	3,426,415
		S-0.5 to S0.5	3,343,055
		S1.5 to S2.5	3,497,235
		S1.5 to W2	3,742,445
		S2.5	2,800,850
		Subtotal	16,810,000
Aboveground facilities			**22,690,000**
		TOTAL	**186,930,650**

Notes:

Assumes 75 gallons per person per day

Construction Season Schedule

W0 = “winter zero” – the winter (one year) before the first winter of pipe lay

W1 = “winter one” – the first winter of pipe lay

W2 = “winter two” – the second winter of pipe lay

S -0.5 = “summer minus point five” – the summer between W1 and W0

S 0.5 = “summer point five” – the summer between W0 and W1

S1.5 = “summer one point five” – the summer between W1 and W2

S2.5 = “summer two point five” – the summer between W2 and W3

Estimated Water Requirements for Hydrostatic Testing of the Mainline					
Construction Spread	**Mile Post**		**Construction Season**	**Number of Tests**	**Estimated Volume (million gallons)**
	Start	**End**			
Spread 1	0.0	56.8581	S1.5	3	20,235
	56.8581	113.1980	S2.5	6	20,335
	113.1980	166.3127	S1.5	8	19,480
	166.3127	168.9120			
	168.9120	170.4835	S2.5	4	14,070
	170.4835	178.5786			
	178.5786	182.3189			
	182.3189	209.1700			
			Subtotal	**21**	**74,340**
Spread 2	209.170	229.474	S1.5	10	37,550
	229.474	241.413	S1.5		
	241.413	251.756	S1.5		
	251.756	282.065	S1.5		
	282.065	315.884	S1.5		
	315.884	327.188	S2.5	18	30,390
	327.188	342.563	S2.5		
	342.563	348.333	S2.5		
	348.333	356.831	S2.5		
	356.831	376.700	S2.5		
	376.700	382.894	S2.5		
	382.894	401.266	S2.5		
			Subtotal	**28**	**68,290**
Spread 3	401.266	409.365	S1.5	3	10,320
	409.365	430.669	S1.5		
	430.669	469.491	S1.5	2	13,820
	469.491	474.137	S2.5	4	18,450
	474.137	489.877	S2.5		
	489.877	499.179	S2.5		
	499.179	521.325	S2.5		
	521.325	532.500	S1.5	3	7,840
	532.500	535.332	S1.5		
	535.332	539.156	S1.5		
	539.156	543.464	S1.5		
	543.464	594.546	S2.5	5	18,180

Estimated Water Requirements for Hydrostatic Testing of the Mainline					
Construction Spread	**Mile Post**		**Construction Season**	**Number of Tests**	**Estimated Volume (million gallons)**
	Start	**End**			
			Spread 3 Subtotal	**17**	**73,580**
Spread 4	594.546	648.073	S2.5	9	44,960
	648.073	687.070			
	687.070	720.872			
	720.872	763.873	S1.5	2	15,305
	Spread 4 Subtotal (Excluding Offshore)			**11**	**61,210**
Offshore Pipeline	792.349	804.024	S1.5	2	9,700
				TOTAL	297,570,000

Notes:

All testing would occur during the summer and the number of test sections in each spread with the potential for cascading (or reuse) of water between test segments is still being evaluated.

Construction Season Schedule

S1.5 = “summer one point five” – the summer between W1 and W2

S2.5 = “summer two point five” – the summer between W2 and W3

APPENDIX B – POTENTIAL MAINLINE WATER SOURCES

Potential Sources of Water to Support Mainline Construction														
Spread	MP	Water Type	Peak Month	Stream/ Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Fish Presence			Water Rights		
						max	min		Anadramous Waters Catalogue (AWC)	AWC Code	Species[a]	MTRS	Water Rights	TWUA
1	0	Lake		GTP-L01	2.37	TBD	TBD	4				U012N014E33 U012N014E34		
1	0	Lake		GTP-L07	1.04	TBD	TBD	5				U011N014E10 U011N014E03		
1	0	Lake		001-D	2.13	TBD	TBD	4				U012N014E35 U012N014E34 U012N014E26 U012N014E27 U011N014E02		
1	1.5	Lake		GTP-L02	2.41	TBD	TBD	5				U011N014E08 U011N014E05		
1	1.5	Lake		GTP-L08	1.33	TBD	TBD	5				U011N014E10 U011N014E09 U011N014E04		
1	1.9	Lake		GTP-L03	2.72	TBD	TBD	4				U011N014E07 U011N014E18		
1	2.1	Lake		002-D	0.35	TBD	TBD	7[b]				U011N014E15 U011N014E22		
1	2.4	Lake		GTP-L04	1.21	TBD	TBD	4				U011N014E17 U011N014E20		
1	4	River	June		0.00	TBD	TBD	N/A	Yes	330-00-10415	AWr,BCr,DVr,LCr,OMp,Wr	U011N014E28	No	No

Potential Sources of Water to Support Mainline Construction														
Spread	MP	Water Type	Peak Month	Stream/ Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Fish Presence			Water Rights		
						max	min		Anadramous Waters Catalogue (AWC)	AWC Code	Species[a]	MTRS	Water Rights	TWUA
1	4.7	Lake		003-D	2.77	TBD	TBD	5				U011N013E13 U011N013E23 U011N013E36 U011N013E24 U011N013E25 U011N014E31 U011N014E30		
1	5	Lake		004-D	0.95	TBD	TBD	4				U011N014E32 U011N014E29 U011N014E31 U011N014E30		
1	6.8	Lake		005-D; Anadramous lake	1.33	TBD	TBD	5	Yes	330-00-10415-2001-0020	BCp,DVp, Wp	U010N014E09 U010N014E16	No	No
1	7.1	Lake		GTP-L06	2.90	TBD	TBD	4				U010N013E02 U011N013E35		
1	7.7	Lake		002-E	0.12	TBD	TBD	7[b]				U010N014E18 U010N014E07		
1	7.7	Lake		006-D	0.90	TBD	TBD	4	No	N/A	N/A	U010N014E17 U010N014E20 U010N014E08 U010N014E18	No	No
1	8.1	Lake		001-E	0.50	TBD	TBD	3				U010N013E13 U010N013E12 U010N014E18 U010N014E07		
1	9	Lake		005-E	2.22	TBD	TBD	4.25				U010N013E15 U010N013E23		

Potential Sources of Water to Support Mainline Construction														
Spread	MP	Water Type	Peak Month	Stream/ Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Fish Presence			Water Rights		
						max	min		Anadramous Waters Catalogue (AWC)	AWC Code	Species[a]	MTRS	Water Rights	TWUA
												U010N013E22 U010N013E14		
1	9	River	No Gauge June		0.00	TBD	TBD	N/A	No	N/A	N/A	U010N014E19	No	No
1	9.1	Lake		004-E	1.28	TBD	TBD	2.5				U010N013E13 U010N013E23 U010N013E24 U010N013E14		
1	9.2	Lake		003-E	0.33	TBD	TBD	4.25				U010N013E24 U010N014E19		
1	10	Lake		007-D	1.95	TBD	TBD	3	No	N/A	N/A	U010N014E20 U010N014E28 U010N014E29 U010N014E21	No	No
1	11	Lake		007-E	2.06	TBD	TBD	5.25				U010N013E34 U010N013E27 U010N013E26 U010N013E35		
1	11	Lake		006-E	0.81	TBD	TBD	5				U010N013E25 U010N013E36		
1	12	Lake		008-D	1.92	TBD	TBD	7[b]	No	N/A	N/A	U010N014E33	No	No
1	12	Lake		008-E	0.62	TBD	TBD	2.75				U010N014E32 U009N014E05 U010N014E31 U009N014E06		
1	14	Lake		009-E	0.89	TBD	TBD	6	No	N/A	N/A	U009N014E08 U009N014E07	No	Yes[c]

Potential Sources of Water to Support Mainline Construction														
Spread	MP	Water Type	Peak Month	Stream/ Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Fish Presence			Water Rights		
						max	min		Anadramous Waters Catalogue (AWC)	AWC Code	Species[a]	MTRS	Water Rights	TWUA
1	14	Lake		009-D	2.71	TBD	TBD	5	No	N/A	N/A	U009N014E16 U009N014E21 U009N014E15 U009N014E22	No	No
1	16	Lake		010-E	1.46	TBD	TBD	4.75				U009N014E29 U009N014E20 U009N014E30 U009N014E19		
1	16	Lake		011-E	0.66	TBD	TBD	3.75				U009N013E24 U009N014E30 U009N014E19		
1	16	Lake		DA-011	4.72	TBD	TBD	5.5				U009N014E26 U009N014E35		
1	16	Lake		012-E	0.21	TBD	TBD	4.25				U009N013E25		
1	16	Lake		010-D	3.56	TBD	TBD	7[b]	No	N/A	N/A	U009N014E27 U009N014E28 U009N014E34	No	Yes[c]
1	16	Lake		DA-012	4.66	TBD	TBD	3.75				U009N014E35		
1	18	Lake		011-D	4.21	TBD	TBD	6.75				U009N014E34 U009N014E35		
1	18	Lake		012-D	2.92	TBD	TBD	5.5				U009N014E33 U008N014E03		
1	21	Lake		013-D	1.03	TBD	TBD	5.25				U008N014E16 U008N014E17		
1	21	Lake		014-D	1.99	TBD	TBD	5.5				U008N014E21		

Potential Sources of Water to Support Mainline Construction														
Spread	MP	Water Type	Peak Month	Stream/ Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Fish Presence			Water Rights		
						max	min		Anadramous Waters Catalogue (AWC)	AWC Code	Species[a]	MTRS	Water Rights	TWUA
1	22	Lake		015-D	2.17	TBD	TBD	8				U008N014E28		
1	23	Lake		016-D	1.52	TBD	TBD	5.5				U008N014E29 U008N014E32 U008N014E28 U008N014E33		
1	23	Lake		013-E	1.13	TBD	TBD	8.5[b]				U008N014E32		
1	24	Lake		017-D	1.16	TBD	TBD	8				U008N014E32		
1	25	Lake		018-D-W	0.57	TBD	TBD	5.5				U007N014E05 U007N014E08 U007N014E06 U007N014E07		
1	25	Lake		018-D-E	0.76	TBD	TBD	-5				U007N014E05 U007N014E08		
1	25	Lake		019-D	0.24	TBD	TBD	7[b]	No	N/A	N/A	U007N014E07	No	No
1	26	Lake		020-D	0.45	TBD	TBD	5.5				U007N014E18		
1	27	Lake		021-D	0.29	TBD	TBD	4.5				U007N014E18		
1	28	Lake		DA-016	0.30	TBD	TBD	7.5[b]				U007N014E19 U007N014E30		
1	30	Lake		022-D	0.65	TBD	TBD	6				U007N013E36 U007N013E35		
1	33	Lake		023-D	1.38	TBD	TBD	7.25[b]				U006N013E14 U006N013E22 U006N013E15 U006N013E23		

Potential Sources of Water to Support Mainline Construction														
Spread	MP	Water Type	Peak Month	Stream/ Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Fish Presence			Water Rights		
						max	min		Anadramous Waters Catalogue (AWC)	AWC Code	Species[a]	MTRS	Water Rights	TWUA
1	35	Lake		024-D	0.43	TBD	TBD	6	No	N/A	N/A	U006N013E25	No	No
1	36	River	June	Sag River[d]	0-2	7310[e]	2.2[e]	N/A	Yes	330-00-10360	CHp,Ps,BCp,DVr,LCp,Wp	Various	Yes[c]	No
1	37	Lake		025-D	2.31	TBD	TBD	5.75				U005N013E11 U005N013E09 U005N013E10 U005N013E02 U005N013E03		
1	42	Lake		026-D	1.36	TBD	TBD	8.5[b]				U005N013E35 U005N013E36		
1	44	Lake		027-D	2.31	TBD	TBD	6				U004N013E12 U004N014E07		
1	47	Lake		028-D	1.18	TBD	TBD	6	No	N/A	N/A	U004N014E32 U004N014E29	No	No
1	52	Lake		029-D	0.89	TBD	TBD	6				U003N014E21 U003N014E22 U003N014E28		
1	53	Lake		030-D	0.70	TBD	TBD	7[b]				U003N014E27 U003N014E28		
1	54	Lake		031-D	0.35	TBD	TBD	6				U003N014E35 U003N014E27 U003N014E26		
1	59	Lake	No Gauge	032-D	0.98	TBD	TBD	TBD				U002N014E23 U002N014E26 U002N014E27		

Potential Sources of Water to Support Mainline Construction															
Spread	MP	Water Type	Peak Month	Stream/ Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Fish Presence			Water Rights		
						max	min		Anadramous Waters Catalogue (AWC)	AWC Code	Species[a]	MTRS	Water Rights	TWUA
1	61	Lake		033-D	0.62	TBD	TBD	5.25				U001N014E01 U002N014E36		
1	72	Lake		034-D	1.68	TBD	TBD	30[b]				U001S014E29 U001S014E32 U001S014E30 U001S014E31		
1	80	Lake		036-D	0.49	TBD	TBD	4	No	N/A	N/A	U002S014E32	No	No
1	82	Lake	No Gauge	035-D	3.74	TBD	TBD	TBD				U002S013E26 U002S013E27 U002S013E34 U002S013E35		
1	84	River	June	Sag River[d]	0-2	7310	2.2	N/A	Yes	330-00-10361	CHp,Ps,BCp,DVr,LCp,Wp	Various	Yes[c]	No
1	84	Lake		037-D	0.25	TBD	TBD	7[b]	No	N/A	N/A	U003S013E13 U003S013E24 U003S014E19 U003S014E18	No	No
1	88	Lake		038-D	0.74	TBD	TBD	11[b]				U004S013E02 U003S013E35		
1	88	Lake		039-D	1.00	TBD	TBD	8.5[b]				U004S013E02		
1	91	River	June	Sag River[d]	0-1	7310[b]	2.2	N/A	Yes	330-00-10360-2390	DVp	U004S014E18	Yes[c]	No
1	95	River	June	Sag River[d]	0-1	5920[b]	37	N/A	Yes	330-00-10360	CHp,Ps,BCp,DVr,LCp,Wp	Various	Yes[c]	No

Potential Sources of Water to Support Mainline Construction															
Spread	MP	Water Type	Peak Month	Stream/ Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Fish Presence			Water Rights		
						max	min		Anadramous Waters Catalogue (AWC)	AWC Code	Species[a]	MTRS	Water Rights	TWUA
1	95	Lake		040-D	0.35	TBD	TBD	9[b]				U005S014E05		
1	96	Lake		041-D	2.02	TBD	TBD	19[b]				U005S013E01 U005S013E12		
1	98	Lake		042-D	1.02	TBD	TBD	20[b]				U005S013E13 U005S014E18		
1	98	Lake		043-D	1.18	TBD	TBD	20[b]				U005S013E13 U005S013E24		
1	101	River	June	Sag River[d]	0	383[f]	TBD	TBD	Yes	330-00-10360	CHp,Ps,BCp,DVr,LCp,Wp	U006S014E05	Yes[c]	Yes[c]
1	102	Lake		044-D	0.98	TBD	TBD	49[b]	No	N/A	N/A	U006S013E12	No	No[c]
1	108	Lake		045-D	0.38	TBD	TBD	24[b]				U007S014E06 U007S014E07		No[c]
1	123	River	June	Intermittent stream[d]	0-1	50[b]	0	N/A	No	N/A	N/A	U009S013E04	No	Yes[c]
1	131	River	No Gauge	Kaparuk	0.00	TBD	TBD	N/A	No	N/A	N/A	U009S012E32	No	No[c]
1	139	Lake	No Gauge	Large lake[d]	0.12	TBD	TBD	TBD	No	N/A	N/A	U010S011E35 U011S011E02	No	Yes[c]
1	144	Lake	No Gauge	Galbraith Lake[d]	0.32	TBD	TBD	TBD	No	N/A	N/A	U011S011E24 U011S012E19 U011S012E30 U011S011E23	No	No[c]
1	146	River	June	Stream[d]	0-1	1490[b]	0.05	N/A	No	N/A	N/A	U012S012E05	Yes[c]	Yes[c]

Potential Sources of Water to Support Mainline Construction															
Spread	MP	Water Type	Peak Month	Stream/ Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Fish Presence			Water Rights		
						max	min		Anadramous Waters Catalogue (AWC)	AWC Code	Species[a]	MTRS	Water Rights	TWUA
1	151	River	No Gauge	Roche Mourtone e Creek[d]	0	TBD	TBD	N/A	No	N/A	N/A	U012S012E28	No[c]	Yes[c]
1	152	River	July	Intermitten t stream[d]	0-2	131[b]	0	N/A	No	N/A	N/A	U012S012E33	No	No
1	163	River	June	Atigun River and tribs[d]	0-1	196[b]	0	N/A	No	N/A	N/A	U014S012E20	No	Yes[c]
1	179	River	No Gauge	Andy's Creek[d]	0	TBD	TBD	N/A	No	N/A	No	U016S011E20	No	Yes
1	185	River	No Gauge	Trib. To Dietrich River[d]	0	TBD	TBD	N/A	No	N/A	No	F036N010W3	No	No
1	186	River	May	Dietrich River[d]	0-1	10.5[f]	0	N/A	No	N/A	N/A	F035N010W10	No	Yes[c]
1	188	River	Augus t	Dietrich River[d]	0	303[f]	TBD	TBD	No	N/A	N/A	F036N010W33	No	Yes[c]
1	191	River	No Gauge	Tracy's Trickle[d]	0	TBD	TBD	N/A	No	N/A	N/A	F035N010W4	No	No
1	203	River	June	Dietrich River[d]	0	500[f]	TBD	TBD	No	N/A	N/A	F034N010W33	No	Yes[c]
1	211	River	May	Middle Fork	0	364	TBD	N/A	Yes	334-40-11000-	CHp,Kp,SFp,Wp	F031N011W19	No	Yes[c]

Potential Sources of Water to Support Mainline Construction															
Spread	MP	Water Type	Peak Month	Stream/ Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Fish Presence			Water Rights		
						max	min		Anadramous Waters Catalogue (AWC)	AWC Code	Species[a]	MTRS	Water Rights	TWUA
				Koyukuk River[d]						2125-3912				
2	221	River	May	Stream[d]	0	364[f]	TBD	N/A	Yes	334-40-11000-2125-3912	CHp,Kp,SFp,Wp	F031N011W19	No	Yes[c]
2	229	River	June	Middle Fork Koyukuk River & Minnie Creek[d]	0-1	3560[b]	2.2	N/A	Yes	334-40-11000-2125-3912 & 334-40-11000-2125-3912-4128	CHp,Kp,SFp,Wp & KR	F030N011W18	No	Yes[c]
2	230	River	June	Middle Fork Koyukuk River & Wiseman Creek[d]	0	111[b]	0	N/A	Yes	334-40-11000-2125-3912 & 334-40-11000-2125-3912-4123	CHp,Kp,SFp,Wp & KR	F030N011W19	No	Yes[c]
2	237	River	No Gauge	Marion Creek[d]	0	TBD	TBD	N/A	Yes		CHs, KR	334-40-11000-2125-3912-4112	No	Yes[c]
2	242	River	May	Slate Creek[d]	0-2	220[b]	0.57	N/A	Yes	334-40-11000-2125-3912-4100	CHp,Kp	F028N012W15	Yes[c]	Yes[c]

Potential Sources of Water to Support Mainline Construction															
Spread	MP	Water Type	Peak Month	Stream/ Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Fish Presence			Water Rights			
						max	min		Anadramous Waters Catalogue (AWC)	AWC Code	Species[a]	MTRS	Water Rights	TWUA	
2	273	River	No Gauge	Jim River	0	TBD	TBD	N/A	Yes	334-40-11000-2125-3740-4080	COr	F024N014W26	Yes[c]	No[c]	
2	282	River	May	Prospect Creek	0	5430[f]	TBD	N/A	Yes	334-40-11000-2125-3740-4080-5030	Ksr	F023N014W31			
2	290	River	No Gauge	S. Fork Bonana Oxbow		TBD	TBD	N/A	No	N/A	N/A	F021N014W8 F021N014W7	No	No	
2	294	River	May	Pung's Crossing Creek	0	220[f]	TBD	N/A	No	N/A	N/A	F021N014W30	No	No	
2	299	River	No Gauge	Fish Creek	0	TBD	TBD	N/A	No	N/A	N/A	F020N015W23	No	No	
2	307	River	No Gauge	Kanuti River	0	TBD	TBD	N/A	No	N/A	N/A	F019N014W30	Yes	Yes	
2	313	River	No Gauge	S. Fork Olsen Lake Creek	0	TBD	TBD	N/A	No	N/A	N/A	F018N014W15	No	No	
2	320	River	June	Tribs of the West Dall River	0	60[f]	TBD	N/A	No	N/A	N/A	F017N013W17	No	No	

Potential Sources of Water to Support Mainline Construction															
Spread	MP	Water Type	Peak Month	Stream/ Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Fish Presence			Water Rights			
						max	min		Anadramous Waters Catalogue (AWC)	AWC Code	Species[a]	MTRS	Water Rights	TWUA	
2	334	River	No Gauge	North Fork Ray River	0	TBD	TBD	N/A	No	N/A	N/A	F015N012W19	No	Yes	
2	341	River	No Gauge	Fort Hamelin Hills Creek	0	TBD	TBD	N/A	No	N/A	N/A	F014N012W20	No	No	
2	348	River	May	Trib to the Ray River (James Creek)	0	93.1[f]	TBD	N/A	No	N/A	N/A	F013N011W07	No	Yes[c]	
2	357	River	June	Yukon River	0	329000[b]	22400	N/A	Yes	334-40-11000	CHp,COp, Kp,Pp,Sp, SFp,Wp	F012N011W12	Yes[c]	No	
2	382	River	May	Hess Creek	0	1240[b]	0.16	N/A	No	N/A	N/A	F010N007W19	No	Yes[c]	
2	389	River	May	Trib to Erickson Creek	0	1300[f]	TBD	N/A	No	N/A	N/A	F009N007W14	No	Yes[c]	
3	403	River	May	Tolovana River & West Fork Tolovana	0	481[b]	0.23	N/A	Yes	334-40-11000-2490-3151 & 334-40-11000-2490-3151-4501	CHp,COp, Kp & CHp	F007N005W05	No	Yes[c]	
3	431	River	May	Tatalina River	0	1240[f]	TBD	N/A	No	N/A	N/A	F003N006W12	No	No	

Potential Sources of Water to Support Mainline Construction															
Spread	MP	Water Type	Peak Month	Stream/ Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Fish Presence			Water Rights		
						max	min		Anadramous Waters Catalogue (AWC)	AWC Code	Species[a]	MTRS	Water Rights	TWUA
3	433	River	June	Washington Creek	0	2500[f]	TBD	N/A	No	N/A	N/A	F003N006W24	No	No
3	439	River		Chatanika Creek		TBD	TBD	N/A	Yes	334-40-11000-2490-3151-4020	CHp, Cop,Kp	F002N006W25 F002N006W24	No	No
3	473	River	July	Nenana River & Tanana River[d]	0-3	60400[b]	6570	N/A	Yes	334-40-11000-2490-3200 & 334-40-11000-2490	CHp,COp, Kp & CHp,COp, Kp	F004S008W14 & Various	Yes[c]	No
3	499	River	July	Nenana River[d]	0-3	14500[b]	645	N/A	Yes	334-40-11000-2490-3200	CHp,COp, Kp	F008S009W14	Yes[c]	No
3	505	River	No Gauge	Bear Creek[d]	0	TBD	TBD	N/A	No	N/A	N/A	F009S009W14	No	No
3	521	River	No Gauge	Panguingue Creek[d]	0	TBD	TBD	N/A	Yes	334-40-11000-2490-3200-4075	Cosr	F011S008W35	No[c]	No
3	526	River	June	Dry Creek[d]	0	10600[b]	826	N/A	No	N/A	N/A	F012S008W23	No	No
3	533	River	June	Nenana River[d]	0-3	9880[b]	434	N/A	No	N/A	N/A	F013S007W09	Yes[c]	No

Potential Sources of Water to Support Mainline Construction															
Spread	MP	Water Type	Peak Month	Stream/ Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Fish Presence			Water Rights		
						max	min		Anadramous Waters Catalogue (AWC)	AWC Code	Species[a]	MTRS	Water Rights	TWUA
3	543	River	No Gauge	Yanert Fork[d]	0	TBD	TBD	N/A	No	N/A	N/A	F014S006W19	Yes[c]	No
3	561	River	June	Jack River and Nenana River (with Tribs)[d]	0-3	3710[b]	167	N/A	No	N/A	N/A	F017S007W12	Yes[c]	Yes[c]
3	586	River	July	Middle Fork Chulitna River[d]	0	21900	1010	N/A	Yes	247-41-10200-2381	CHs,COp, Kp,Pp,Sp	Various	Yes[c]	No
3	593	River	No Gauge	Hardage Creek[d]	0	TBD	TBD	N/A	Yes	247-41-10200-2381-3260-4020	Kr	F021S010W02	No[c]	No[c]
4	647	River	July	Chulitna River[d]	0-3	21900[b]	1010	N/A	Yes	247-41-10200-2381	CHs,COp, Kp,Pp,Sp	Various	Yes[c]	No
4	675	River	July	Susitna River[d]	1-5	62900[b]	3460	N/A	Yes	247-41-10200	CHp,COs, Kp,Pp,Sp, ALp,DVp,H Wp,OUs	Various	Likely[c]	No
4	690	Lake	No Gauge	Trapper Lake[d]	0.37	TBD	TBD	TBD	Yes	247-41-10200-2081-3050-0050	COpr,Kr	S022N006W	No[c]	No[c]

Potential Sources of Water to Support Mainline Construction															
Spread	MP	Water Type	Peak Month	Stream/ Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Fish Presence			Water Rights			
						max	min		Anadramous Waters Catalogue (AWC)	AWC Code	Species[a]	MTRS	Water Rights	TWUA	
4	704	River		Deska River/Krotoo Creek[h]		TBD	TBD	TBD	Yes	247-41-10200-2081	CHs,COsr,Kpr,Pp,Spr,ALp,HWp	S020N006W27	Yes[c]	No	
4	721	River	July	Yentna River[h]	0-5	53900[b]	2600	N/A	Yes	247-41-10200-2053	CHs,COsr,Kpr,Pp,Spr,OUs	Various	Yes[c]	No	
4	725	River	July	Susitna[d]	0-5	129000[b]	7160	N/A	Yes	247-41-10200	CHp,COs,Kp,Pp,Sp,ALp,DVp,HWp,OUs	Various	Likely[c]	No	
4	744	River	No Gauge	Lewis River	0	TBD	TBD	N/A	Yes	247-30-10070	COr,Ksr,Pp	Various	Likely[c]	No	
4	756	River	No Gauge	Beluga River		TBD	TBD	N/A	Yes	247-30-10090	COpr,Kpr,Pp,Spr	S013N010W07	Likely[c]	No	
4	762	Lake	No Gauge	Tukallah Lakes and Three Mile Creek	0.04	TBD	TBD	TBD	Yes	247-20-10002-0010, 247-20-10002-0020, 247-20-10002	CHp,COsr,Kpr,Ps,Sp	S012N010W07	Likely	No	
4	798	Lake	No Gauge	Pond	0	TBD	TBD	TBD	No	N/A	N/A	S007N012W02	No	No	
4	799	Lake	No Gauge	Foreland Lake	0.06	TBD	TBD	TBD	No	N/A	N/A	S007N012W03	No	No	

Potential Sources of Water to Support Mainline Construction														
Spread	MP	Water Type	Peak Month	Stream/ Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Fish Presence			Water Rights		
						max	min		Anadramous Waters Catalogue (AWC)	AWC Code	Species[a]	MTRS	Water Rights	TWUA

Notes:

MTRS – Meridian, Township, Range and Section

TWUA – Temporary Water Use Authorization

[a] AC – Arctic Char, AW – Arctic Cisco, AI – Arctic Lamprey, BW – Bering Cisco, BC – Broad Whitefish, K = Chinook Salmon, CH – Chum Salmon, CO – Coho Salmon, CT – Cutthroat Trout, DV – Dolly Varden, OU – Eulachon, GS – Green Sturgeon, HW – Humpback Whitefish, SF – Inconnu/Sheefish, LP – Lamprey (undifferentiated), LC – Least Cisco, OL – Longfin Smelt, PC – Pacific Lamprey, P – Pink Salmon, OM – Rainbow Smelt, LV – River Lamprey, SM – Smelts (undifferentiated), S – Sockeye Salmon, SH – Steelhead Trout, ST – Sturgeon (undifferentiated), W – Whitefishes (undifferentiated), WS – White Sturgeon; m –Migration, p – Present, r – Rearing, s – Spawning; C – Copper River Meridian, F – Fairbanks Meridian, K – Kateel River Meridian, S – Seward Meridian, U – Unimat Meridian

[b] Summer demand met and peak met for entire year

[c] Peak flow to request split per source (assuming yearly demand met within a one-month period)

[d] Paralleling river or stream

[e] Low estimate of flow, draw off much farther downstream than gage

[f] Peak flow data only, not an average monthly cfs

APPENDIX C – POTENTIAL PTTL WATER SOURCES

Potential Sources of Water to Support PTTL Construction													
MP	Water Type	Stream/Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Volume (million gallons)	Fish Presence			Water Rights	
				max	min			AWC	AWC Code	Species[a]	MTRS	TWUA
0.0	Lake	Lake #16	3.33	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-78
0.0	Lake	LO 2013-38-00	3.74	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-205
0.0	Lake	Fox Lake	0.39	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2014-143
0.2	Lake	Lake #15	2.11	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-78

Potential Sources of Water to Support PTTL Construction												
MP	Water Type	Stream/Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Volume (million gallons)	Fish Presence			Water Rights	
				max	min			AWC	AWC Code	Species[a]	MTRS	TWUA
0.3	Lake	Lake #17	3.55	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-76
0.3	Lake	Alaska State C-1 Pit	2.21	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-77
0.5	Lake	Lake #14	0.15	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-73
0.8	Lake	LO 2013-34-01	1.36	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-205
0.8	Lake	LO 2013-35-00	2.10	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-209
0.8	Lake	Lake #10-18	0.12	TBD	TBD	2.5	TBD	TBD	TBD	TBD	U009N023E04 U009N023E03	TWUP A2012-74
1.5	Lake	Drummer Lake	0.82	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2014-143
1.9	Lake	Lake #13	1.28	TBD	TBD	TBD	TBD	Yes	330-00-10246	DVr	TBD	TWUP A2012-73
2.1	Lake	Lake #11	0.12	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-73
2.2	Lake	Lake #12	0.30	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-73
3.2	Lake	LO 2013-33-01	3.18	TBD	TBD	TBD	TBD	TBD	TBD	TBD	U009N023E06	TWUP A2013-205
3.2	Lake	LO 2013-31-00	1.01	TBD	TBD	2.5		TBD	TBD	TBD	TBD	TWUP A2013-208
3.2	Lake	LO 2013-32-00	0.58	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-208
3.7	Lake	Lake #10	0.22	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-73
4.3	Lake	Agviq Lake	0.06	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2014-143
5.0	Lake	LO 2013-29-02	1.99	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-205
6.1	Lake	LO 2013-28-00	0.83	TBD	TBD	4	TBD	TBD	TBD	TBD	U009N022E03 U009N022E02	TWUP A2013-208
6.3	Lake	Lake #9	0.11	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-72
6.6	Lake	LO 2013-26-01	1.50	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-208
7.0	Lake	LO 2013-26-00	0.27	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-20

Potential Sources of Water to Support PTTL Construction												
MP	Water Type	Stream/Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Volume (million gallons)	Fish Presence			Water Rights	
				max	min			AWC	AWC Code	Species[a]	MTRS	TWUA
7.3	Lake	Lake #10-14	0.63	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-74
7.4	Lake	LO 2013-25-00	0.54	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-206
7.4	Lake	LO 2013-25-01	1.20	TBD	TBD	4	TBD	TBD	TBD	TBD	U009N022E10 U009N022E09	TWUP A2013-208
7.9	Lake	Lake #8	0.17	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-72
9.4	Lake	Lake ID 014	2.91	TBD	TBD	5	TBD	TBD	TBD	TBD	U009N022E20 U009N022E19	
10.1	Lake	Lake #6	0.34	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-72
10.2	Lake	Lake #7	0.61	TBD	TBD	TBD	TBD	TBD	TBD	TBD	U009N021E01 U009N021E12 U009N022E07 U009N022E06	TWUP A2012-72
10.7	Lake	Lake #5	0.33	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-72
13.1	Lake	Lake #4 E/W	0.33	TBD	TBD	TBD	TBD	Yes	330-00-10280	DVr	TBD	TWUP A2012-76
13.2	Lake	LO 2013-23-00	1.49	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-206
13.5	Lake	Lake #3	0.10	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-76
14.3	Lake	LO 2013-22-00	1.53	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-76
14.8	Lake	LO 2013-20-00	1.20	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-206
15.4	Lake	Lake #2	0.64	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-76
16.3	Lake	Lake ID 023	0.44	TBD	TBD	2.5	TBD	TBD	TBD	TBD	U009N021E18	
16.8	Lake	LO 2013-19-01	2.29	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-210
17.6	Lake	Lake #1	0.14	TBD	TBD	TBD	TBD	Yes	330-00102 90	DVr	TBD	TWUP A2012-76

Potential Sources of Water to Support PTTL Construction											
MP	Water Type	Stream/Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Volume (million gallons)	Fish Presence			Water Rights	
				max	min			AWC	AWC Code	Species[a]	MTRS	TWUA
18.7	Lake	Badami Reservoir	0.23	TBD	TBD	TBD	TBD	Yes	330-00102 90	DVr	TBD	TWUP A2012-78
19.0	River[b]		0.00	TBD	TBD	N/A	TBD	Yes	330-00102 90	DVr	TBD	TBD
20.2	Lake	LO 2013-18-00	0.94	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-76
21.4	Lake	Lake #18	0.43	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-77
22.1	Lake	Lake #19	0.39	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-77
23.5	Lake	Unnamed Lake 18	0.56	TBD	TBD	2.5	TBD	TBD	TBD	TBD	U009N019E13 U009N020E18	TWUP A2012-82
25.4	Lake	Shaviovik Pit	0.85	TBD	TBD	TBD	TBD	Yes	330-00-10310	Ps, DVr	TBD	TWUP A2012-77
25.6	River[b]	Shaviovik River East	0.00	TBD	TBD	N/A	TBD	Yes	330-00-10300	DVr	TBD	TBD
27.4	Lake	Lake #20	0.23	TBD	TBD	TBD	TBD	Yes	330-13010-2006	Ps, DVr	TBD	TWUP A2012-77
28.4	Lake	Lake #10-10	0.46	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-74
28.6	Lake	Lake #10-11	1.56	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-74
29.0	Lake	Portions of the Beaufort Sea	2.90	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
29.0	Lake	Lake #21	0.71	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-70
29.6	Lake	Lake #22	0.39	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-70

Potential Sources of Water to Support PTTL Construction												
MP	Water Type	Stream/Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Volume (million gallons)	Fish Presence			Water Rights	
				max	min			AWC	AWC Code	Species[a]	MTRS	TWUA
29.9	Lake	Lake ID 038	0.89	TBD	TBD	6	TBD	TBD	TBD	TBD	U009N018E13 U009N018E12 U009N019E18	TBD
31.6	Lake	Lake #23	0.46	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-70
31.8	Lake	Lake #10-09	2.21	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-82
33.3	Lake	Unnamed Lake 15	0.68	TBD	TBD	4.25	TBD	TBD	TBD	TBD	U010N018E34 U010N018E33 U009N018E03 U009N018E04	TWUP A2012-82
34.1	Lake	Lake #24	1.46	TBD	TBD	TBD	TBD	TBD	TBD	DVr	TBD	TWUP A2012-70
35.4	River[b]	Kadleroshilik River	0.00	TBD	TBD	N/A	TBD	Yes	330-00-10320	DVr	TBD	TBD
36.1	Lake	Unnamed Lake 14	0.24	TBD	TBD	7[c]	TBD	TBD	TBD	TBD	U010N018E31 U010N018E30	TWUP A2012-82
37.4	Lake	Unnamed Lake 13	0.20	TBD	TBD	3.75	TBD	TBD	TBD	TBD	U010N017E25 U010N017E36	TWUP A2012-82
39.0	Lake	Lake ID 045	0.50	TBD	TBD	3.75	TBD	TBD	TBD	TBD	U010N017E34 U010N017E27	TBD
40.3	Lake	Lake ID 046	0.68	TBD	TBD	5.5	TBD	TBD	TBD	TBD	U010N017E28 U010N017E21	TBD
40.0	Lake	Offshore Portion of Sag River	1.95	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
41.1	Lake	Lake #25	0.37	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-70
42.7	Lake	Lake #10-05	2.38	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-75
42.9	Lake	Unnamed Lake 22	0.17	TBD	TBD	5.5	TBD	Yes	330-00-10330	DVr	U010N017E17 U010N017E19 U010N017E18	TWUP A2012-82

Potential Sources of Water to Support PTTL Construction												
MP	Water Type	Stream/Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Volume (million gallons)	Fish Presence			Water Rights	
				max	min			AWC	AWC Code	Species[a]	MTRS	TWUA
44.2	River[d]	Sagavanirktok River	0.00	7310[c,e,f]	2.2[c,e,f]	N/A	TBD	Yes	330-00-10360	CHp, Ps, BCp, DVr, LCp, Wp	TBD	TBD
44.9	Lake	Unnamed Lake 12	0.10	TBD	TBD	TBD	TBD	TBD	TBD	CHp, Ps, BCp, DVr, LCp, Wp	TBD	TWUP A2012-82
45.8	Lake	Lake #10-01	3.35	TBD	TBD	TBD	TBD	TBD	TBD	CHp, Ps, BCp, DVr, LCp, Wp	TBD	TWUP A2012-75
45.8	Lake	Lake #10-02	4.50	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-75
45.8	Lake	Lake #10-03	4.10	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-75
45.8	Lake	Lake #10-04	4.09	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-75
45.8	Lake	Unnamed Lake	4.75	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-82
45.8	Lake	MPI Seawater Intake	8.92	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	0
45.8	Lake	Lake south of Endicott Rd, Mile 8.5	4.08	TBD	TBD	9	13.158	TBD	TBD	TBD	TBD	TWUP A2012-05
45.8	Lake	Lake north of Endicott Rd, Mile 9	4.75	TBD	TBD	3.7	8.242	TBD	TBD	TBD	TBD	TWUP A2012-05
45.8	Lake	Endicott Causeway and Facilities	7.30	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
45.8	Lake	Lake along Endicott Rd, Mile 6.3	2.00	TBD	TBD	2.4	0.106	TBD	TBD	TBD	TBD	TWUP A2012-05
46.5	Lake	Lake ID 050	0.26	TBD	TBD	4.5	TBD	TBD	TBD	TBD	U010N016E15 U010N016E10	TBD
46.7	Lake	Unnamed Lake 10	0.33	TBD	TBD	6.5	TBD	TBD	TBD	TBD	U010N016E10	TWUP A2012-82

Potential Sources of Water to Support PTTL Construction											
MP	Water Type	Stream/Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Volume (million gallons)	Fish Presence			Water Rights	
				max	min			AWC	AWC Code	Species[a]	MTRS	TWUA
47.1	Lake	Unnamed Lake 21	0.27	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-82
47.5	Lake	North Liberty Ice Chip Lake	1.98	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
47.6	Lake	East Liberty Ice Chip Lake	1.45	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
47.8	Lake	Lake ID 053	-0.87	TBD	TBD	TBD	TBD	TBD	TBD	TBD	U010N016E08 U010N016E09 U010N016E05 U010N016E04	TBD
48.1	Lake	Lake ID 054	-0.19	TBD	TBD	-4	TBD	TBD	TBD	TBD	U010N016E08 U010N016E09	TBD
49.0	Lake	Unnamed Lake 20	0.82	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
49.0	Lake	South Liberty Ice Chip Lake	0.82	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
49.0	Lake	Middle Liberty Ice Chip Lake	1.09	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
49.2	Lake	Lake along Endicott Rd, Mile 3	0.20	TBD	TBD	4.4	0.687	TBD	TBD	TBD	TBD	TWUP A2012-05
49.4	Lake	LO 2013-01-00	0.59	TBD	TBD	7[c]	TBD	TBD	TBD	TBD	U010N016E05 U010N016E06	TWUP A2013-208
49.4	Lake	West Liberty Ice Chip Lake	0.59	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
50.6	Lake	Duck Island Mine Site Reservoir	0.38	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2011-100
50.6	Lake	Duck Is. Mine	0.38	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-78
51.7	Lake	Drill Site 17 Lake	2.46	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
52.2	Lake	Drill Site 9 Lake	0.66	TBD	TBD	10.7[c,f]	51.040	TBD	TBD	TBD	TBD	TBD
52.5	Lake	Sag Mine Site C	0.14	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
52.5	Lake	Vern Lake/Mine C	0.15	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2012-78

Potential Sources of Water to Support PTTL Construction												
MP	Water Type	Stream/Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Volume (million gallons)	Fish Presence			Water Rights	
				max	min			AWC	AWC Code	Species[a]	MTRS	TWUA
53.0	River[b]		0.00	7310[c,e,f]	2.2[c,e,f]	N/A	TBD	Yes	330-00-10361	CHp, Ps, BCp, DVr, LCp, Wp	TBD	TBD
53.7	Lake	Drill Site 12 Lake - West	3.61	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
53.7	Lake	Drill Site 12 Lake - East	3.20	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
53.7	Lake	Deadhorse Access Rd small Ponds/impoundments	1.98	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
53.8	Lake	West channel Sag River (to store in Webster Reservoir)	0.25	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
54.1	Lake	Webster Reservoir	0.41	TBD	TBD	16[c,f]	TBD	TBD	TBD	TBD	U011N015E34	TWUP A2013-34
54.4	Lake	PBOC small ponds/impoundments	0.53	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
54.5	Lake	PBOC small ponds/impoundments	0.70	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
54.5	Lake	FS2 Access Rd small ponds/impoundments	0.09	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
54.6	Lake	PBOC small ponds/impoundments	1.01	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
54.8	Lake	Surfcote Pad Lake	2.73	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
54.8	Lake	Drill Site L-5 Lake	4.24	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
54.8	Lake	Surfcote small ponds/impoundments	1.83	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-08
54.8	Lake	Drill Site 4 Lake - South of East Dock Rd.	1.33	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUA A2014-11
54.8	Lake	Base Camp Lake	0.17	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

Potential Sources of Water to Support PTTL Construction												
MP	Water Type	Stream/Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Volume (million gallons)	Fish Presence			Water Rights	
				max	min			AWC	AWC Code	Species[a]	MTRS	TWUA
54.8	Lake	Surfcote small ponds/impoundments	1.80	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
54.8	Lake	DS4 small ponds/impoundments	1.51	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
54.8	Lake	DSL5 small ponds/impoundments	5.08	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
54.8	Lake	Drill Site 4 Lake - North of East Dock Rd.	1.29	TBD	TBD	1.8	0.502	TBD	TBD	TBD	TBD	TWUA A2014-11
54.8	Lake	Drill Site 4 Lake - North of DS4	1.20	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUA A2014-11
54.8	Lake	Drill Site 4 Lake - West of DS4	0.96	TBD	TBD	7.4[c]	37.750	TBD	TBD	TBD	TBD	TWUA A2014-11
54.8	Lake	Drill Site L3 Lake	1.70	TBD	TBD	8.2[c]	279.917	TBD	TBD	TBD	TBD	TWUA A2014-11
54.8	Lake	Drill Site 4 Lake - West of East Dock Rd.	0.99	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUA A2014-11
54.8	Lake	Drill Site 4 Lake - East of East Dock Rd.	1.08	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUA A2014-11
55.5	Lake	PBOC small ponds/impoundments	0.90	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
55.5	Lake	Coleen Lake	4.43	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
55.5	Lake	Spine Road Lakes (west of Coleen Lake)	5.02	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
55.5	Lake	Spine Road Lakes (west of Coleen Lake)	5.20	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
55.5	Lake	Spine Road Lakes (west of Coleen Lake)	5.14	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
55.5	Lake	Spine Road Lakes (west of Coleen Lake)	5.10	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

Potential Sources of Water to Support PTTL Construction												
MP	Water Type	Stream/Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Volume (million gallons)	Fish Presence			Water Rights	
				max	min			AWC	AWC Code	Species[a]	MTRS	TWUA
55.5	Lake	Spine Road Lakes (west of Coleen Lake)	5.05	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
55.5	Lake	Spine Road Lakes (west of Coleen Lake)	5.04	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
55.5	Lake	Spine Road Lakes (west of Coleen Lake)	5.26	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
55.5	Lake	Coleen Lake	4.42	TBD	TBD	7.7[c]	782.160	TBD	TBD	TBD	TBD	TBD
55.5	Lake	MCC Impoundments	1.15	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
56.1	Lake	Lake NW of MCC Storage Pad	1.40	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
56.2	Lake	Lake SE of Flow Station 1	1.91	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
56.3	Lake	Drill Site 5 Lake	0.43	TBD	TBD	5.3	180.324	TBD	TBD	TBD	U011N015E32 U011N015E29	TBD
56.7	Lake	East Dock small ponds/impoundments	3.05	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
56.7	Lake	T 3 C Lake	1.25	TBD	TBD	6.8	517.513	TBD	TBD	TBD	U011N015E29 U011N015E20	TBD
57.1	Lake	Flow Station 1 Lake	1.28	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
57.1	Lake	FS1 and SIP small ponds/impoundments	1.63	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
57.1	Lake	FS1 and SIP small ponds/impoundments	1.68	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
57.1	Lake	FS1 and SIP small ponds/impoundments	1.72	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
57.1	Lake	FS1 and SIP small ponds/impoundments	1.67	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

Potential Sources of Water to Support PTTL Construction												
MP	Water Type	Stream/Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Volume (million gallons)	Fish Presence			Water Rights	
				max	min			AWC	AWC Code	Species[a]	MTRS	TWUA
57.1	Lake	FS1 and SIP small ponds/impoundments	1.73	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
58.0	Lake	LPC Lake	1.09	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
58.3	Lake	DSL2 and DS18 small ponds/impoundments	1.39	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-06
58.3	Lake	DSL2 and DS18 small ponds/impoundments	1.17	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-06
58.3	Lake	DSL2 and DS18 small ponds/impoundments	1.20	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-06
58.8	Lake	Drill Site 18 Lake	0.44	TBD	TBD	5.2	279.758	TBD	TBD	TBD	U011N014E25 U011N014E24	TBD
58.9	Lake	DS2 small ponds/impoundments	0.91	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
59.2	Lake	DS13 small ponds/impoundments	4.36	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
59.2	Lake	DS13 small ponds/impoundments	4.50	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
59.2	Lake	DS13 small ponds/impoundments	4.54	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
59.2	Lake	DS13 small ponds/impoundments	4.43	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
59.4	Lake	Drill Site 13 Lake	3.97	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
59.4	Lake	Drill Site 7 Lakes	1.98	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
59.4	Lake	Drill Site 7 Lakes	2.07	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
59.4	Lake	Drill Site 7 Lakes	2.33	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
59.4	Lake	Drill Site 7 Lakes	2.04	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

Potential Sources of Water to Support PTTL Construction											
MP	Water Type	Stream/Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Volume (million gallons)	Fish Presence			Water Rights	
				max	min			AWC	AWC Code	Species[a]	MTRS	TWUA
59.4	Lake	Lake on West Side of X-Pad Access Road	4.27	TBD	TBD	2.1	0.476	TBD	TBD	TBD	TBD	TBD
59.6	Lake	Put 27 Mine Site Reservoir	1.22	TBD	TBD	57[c,f]	TBD	TBD	TBD	TBD	TBD	TBD
59.8	Lake	DS15 Access Rd small ponds/impoundments	1.45	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
60.3	Lake	Put 23 Mine Site	0.37	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
61.3	River[d]	Putuligayuk River	0.00	451[c]	0	N/A	TBD	Yes	330-00-10415	AWr,BCr, DVr,LCr, OMp,Wr	TBD	TBD
61.4	Lake	Drill Site 15 Lake	0.98	TBD	TBD	5.4	99.699	TBD	TBD	TBD	TBD	TBD
61.7	Lake	PBU Base Operations Impoundments	4.05	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
61.7	Lake	PBU Base Operations Impoundments	4.13	TBD	TBD	4	0.267	TBD	TBD	TBD	TBD	TBD
61.8	Lake	Big Lake	4.84	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
61.8	Lake	PBU Base Operations Impoundments	4.17	TBD	TBD	3.3	0.634	TBD	TBD	TBD	TBD	TBD
61.9	Lake	PBU Base Operations Impoundments	4.23	TBD	TBD	0	5.997	TBD	TBD	TBD	TBD	TBD
61.9	Lake	Lake on West Side of C Pad Access Road	3.66	TBD	TBD	2.4	35.373	TBD	TBD	TBD	TBD	TBD
62.1	Lake	PBU Base Operations Impoundments	4.23	TBD	TBD	4.3	5.997	TBD	TBD	TBD	TBD	TBD
62.2	Lake	PBU Base Operations Impoundments	4.24	TBD	TBD	1.5	5.997	TBD	TBD	TBD	TBD	TBD
62.3	Lake	PBU Base Operations Impoundments	4.26	TBD	TBD	2.7	0.159	TBD	TBD	TBD	TBD	TBD

Potential Sources of Water to Support PTTL Construction												
MP	Water Type	Stream/Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Volume (million gallons)	Fish Presence			Water Rights	
				max	min			AWC	AWC Code	Species[a]	MTRS	TWUA
62.5	Lake	LGI and DSL1 small ponds/impoundments	2.21	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
62.5	Lake	West Dock Staging Pad Impoundment/small ponds	3.51	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
62.5	Lake	GCI Impoundments	4.26	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
62.5	Lake	LGI and DSL1 small ponds/impoundments	2.17	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
62.5	Lake	NGI small ponds/impoundments	1.42	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-08
62.5	Lake	LGI and DSL1 small ponds/impoundments	2.32	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-08
62.5	Lake	NGI small ponds/impoundments	1.47	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-08
62.5	Lake	NGI small ponds/impoundments	1.45	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-08
62.5	Lake	Pond/Impoundment south of West Beach State	3.06	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-08
62.5	Lake	LGI and DSL1 small ponds/impoundments	2.23	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-08
62.5	Lake	West Beach State small ponds/impoundments	3.04	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-08
62.5	Lake	Pond/Impoundment south of West Beach State	3.01	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TWUP A2013-08
62.5	Lake	Central Storage Pad Lakes	5.12	TBD	TBD	2.8	0.185	TBD	TBD	TBD	TBD	TBD
62.5	Lake	Central Storage Pad Lakes	5.08	TBD	TBD	1.8	0.185	TBD	TBD	TBD	TBD	TBD
62.5	Lake	Central Storage Pad Lakes	5.05	TBD	TBD	2.8	0.238	TBD	TBD	TBD	TBD	TBD
62.5	Lake	Lake behind Frontier Camp	5.33	TBD	TBD	4	9.959	TBD	TBD	TBD	TBD	TBD

Potential Sources of Water to Support PTTL Construction											
MP	Water Type	Stream/Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Volume (million gallons)	Fish Presence			Water Rights	
				max	min			AWC	AWC Code	Species[a]	MTRS	TWUA
62.5	Lake	Lake between G and E Pad Access Roads	4.33	TBD	TBD	3.6	95.023	TBD	TBD	TBD	TBD	TBD
62.5	Lake	North PRB State No. 2	2.39	TBD	TBD	3.1	218.761	TBD	TBD	TBD	TBD	TBD
62.5	Lake	E Pad Lake	3.19	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
62.5	Lake	Unnamed Lake east of H Pad	6.68	TBD	TBD	4		TBD	TBD	TBD	TBD	TBD
62.5	Lake	Unnamed Lake east of H Pad	6.53	TBD	TBD	4		TBD	TBD	TBD	TBD	TBD
62.5	Lake	Unnamed Lake east of H Pad	6.47	TBD	TBD	4		TBD	TBD	TBD	TBD	TBD
62.5	Lake	Unnamed Lake east of H Pad	6.43	TBD	TBD	4		TBD	TBD	TBD	TBD	TBD
62.5	Lake	Unnamed Lake east of H Pad	6.62	TBD	TBD	4		TBD	TBD	TBD	TBD	TBD
62.5	Lake	Unnamed Lake east of H Pad	6.45	TBD	TBD	4		TBD	TBD	TBD	TBD	TBD
62.5	Lake	Unnamed Lake east of H Pad	6.64	TBD	TBD	4		TBD	TBD	TBD	TBD	TBD
62.5	Lake	Unnamed Lake east of Q Pad	6.27	TBD	TBD	4.7	123.817	TBD	TBD	TBD	TBD	TBD
62.5	Lake	Unnamed Lake east of Q Pad	6.38	TBD	TBD	4.7	123.817	TBD	TBD	TBD	TBD	TBD
62.5	Lake	West Dock Staging Pad Lake	3.40	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
62.5	Lake	T Pad Lake	6.62	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
62.5	Lake	T Pad Lake	6.62	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

Potential Sources of Water to Support PTTL Construction											
MP	Water Type	Stream/Lake ID	Distance (miles)	Average Monthly Discharge (cfs)		Depth (feet)	Volume (million gallons)	Fish Presence			Water Rights	
				max	min			AWC	AWC Code	Species[a]	MTRS	TWUA
62.5	Lake	West Beach St Lake - North	2.81	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
62.5	Lake	West Beach St Lake - South	2.73	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

Notes:
Sources from MP47-50 would potentially be used for ice chips
AWC – Anadromous Waters Catalog
MTRS – Meridian, Township, Range and Section
TWUA – Temporary Water Use Authorization

[a] AC – Arctic Char, AW – Arctic Cisco, Al – Arctic Lamprey, BW – Bering Cisco, BC – Broad Whitefish, K = Chinook Salmon, CH – Chum Salmon, CO – Coho Salmon, CT – Cutthroat Trout, DV – Dolly Varden, OU – Eulachon, GS – Green Sturgeon, HW – Humpback Whitefish, SF – Inconnu/Sheefish, LP – Lamprey (undifferentiated), LC – Least Cisco, OL - Longfin Smelt, PC – Pacific Lamprey, P – Pink Salmon, OM – Rainbow Smelt, LV – River Lamprey, SM – Smelts (undifferentiated), S – Sockeye Salmon, SH – Steelhead Trout, ST – Sturgeon (undifferentiated), W – Whitefishes (undifferentiated), WS – White Sturgeon; m –Migration, p – Present, r – Rearing, s – Spawning; C – Copper River Meridian, F – Fairbanks Meridian, K – Kateel River Meridian, S – Seward Meridian, U – Unimat Meridian

[b] No gauge

[c] Summer demand met and peak met for entire year

[d] Peak month = June

[e] Low estimate of flow, draw off much further downstream than gage

[f] Distributed sources (cfs) – 2.3

APPENDIX D – NATURAL LAKES THAT ARE POTENTIAL WATER SOURCES TO SUPPORT GTP CONSTRUCTION

Natural Lakes that Are Potential Water Sources to Support GTP Construction									
Lake ID	Distance to GTP Main Pad (miles) [a]	Lake Depth (feet)	Volume (Million Gallons)			Water Allowed for Withdrawal (million gallons)	Fish Presence		Water Rights Info
			Total	Under 5 feet	Volume Under 7 feet		A, N, S [b]	Species	
GTP-L05 (L68PA002)	2.13	5.4	447.26	5.22	0.00	1.57	N	Ninespine Stickleback	Water Right: LAS 12188 TWUP: A2009-86
GTP-L07 (L68PA004)	0.10	6.0	199.18	3.04	0.00	39.84	A		No
GTP-L09 (L68PA003)	3.86	7.7	328.90	67.10	0.77	65.78	A		No
005-D (L53PA013)	5.42	6.0	220.34	TBD	0.00	44.07	A		No
Sag Mine Site C	8.02	> 50	TBD	TBD	TBD	85.13	S	Arctic grayling Dolly Varden Broad whitefish	LAS 23869; FG-III-0226; FG96-III-0035; TWUP A2010-106
Duck Island Mine Site	9.15	75.0	TBD	TBD	TBD	Minimum of 117.31	A		LAS 28149; TWUP A2011-100; FG90-III-078; TWUP A2012-78; TWUP A2011-162; TWUP A2011-151; TWUP A2014-138

Notes:

[a] Straight line distance

[b] A - Absent, N - Non-sensitive, S - Sensitive