

**EXHIBIT A
STIPULATIONS**

**ADL 418975
POINT THOMSON EXPORT PIPELINE
RIGHT-OF-WAY LEASE**

Table of Contents

1. GENERAL	3
1.1 Responsibilities	3
1.2 Authority of Representatives of the Pipeline Coordinator and Lessee	3
1.3 Notice to Proceed for Initial Construction of the Pipeline	3
1.4 Submissions Required Before Issuance of Notice to Proceed	4
1.5 Issuance of NTP	6
1.6 Written Authorizations	7
1.7 Surveillance and Monitoring	7
1.8 Incident Reporting	7
1.9 Annual Report	7
1.10 Completion of Use	7
1.11 Changes in Condition	8
1.12 Lessee Support of State Oversight	8
1.13 Access	8
1.14 Public Improvements	9
1.15 Fire Prevention and Suppression	9
1.16 Health and Safety	9
1.17 Protection of Survey Monuments	9
1.18 Use of Existing Facilities	10
1.19 Protection of Cultural Resources	10
1.20 Hunting, Fishing, Trapping, and Camping	10
1.21 Off Right-of-Way Traffic	10
1.22 Material Sites	10
2. ENVIRONMENTAL	11
2.1 Environmental Briefings	11
2.2 Pollution Control	11
2.3 Disturbance of Natural Waters	11
2.4 Excavated Material	11
2.5 Restoration and Revegetation	11

2.6	Fish and Wildlife Protection	12
2.7	Use of Explosives	13
2.8	Vegetation.....	13
3.	TECHNICAL	13
3.1	General.....	13
3.2	Design Basis and Criteria.....	13
3.3	Technical Record Keeping.....	14
3.4	Electronics and Communications	14
3.5	Corrosion	14
3.6	Lightning Protection	14
3.7	Seismic.....	14
3.8	Arctic Geotechnical	14
3.9	Land and Surface Disturbance.....	14
3.10	Rivers, Streams, Coastal Areas and Floodplains	15
3.11	Access Roads, Work Pads and Ice Roads	16
3.12	Overhead and Belowground Road Crossings	16

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1. GENERAL

1.1 Responsibilities

1.1.1 Except where the approval of the Pipeline Coordinator is required before the Lessee may commence a particular operation, neither the State nor any of its agents or employees is in any way obligated to examine or review any plan, design, specification, or other document which may be filed with the Pipeline Coordinator by the Lessee pursuant to these Stipulations.

1.1.2 The absence of any comment by the Pipeline Coordinator or any other agent or employee or Contractor of the State with respect to any plan, design, specification, or other document which may be filed by the Lessee with the Pipeline Coordinator shall not be deemed to represent in any way whatever, assent to, approval of, acceptance of, or concurrence in such plan, design, specification, or other document or of any action proposed therein.

1.2 Authority of Representatives of the Pipeline Coordinator and Lessee

1.2.1 No order or notice given to the Lessee on behalf of the Pipeline Coordinator or any other Person shall be effective as to the Lessee unless prior written notice of the delegation of authority to issue such order or notice has been given to the Lessee in the manner provided in Section 30 of the Lease.

1.2.2 The Lessee shall comply with each and every lawful order directed to the Lessee by the Pipeline Coordinator or by any duly authorized representative of the Pipeline Coordinator.

1.2.3 The Lessee shall maintain a sufficient number of its duly authorized Field Representatives to allow for the prompt delivery to the Lessee of all notices, orders, and other communications, written or oral, of the Pipeline Coordinator. The Lessee shall notify the Pipeline Coordinator and each of his/her duly authorized representatives of the Lessee's Field Representatives, who shall be appropriately identified in such a manner as the Pipeline Coordinator shall prescribe. The Lessee shall consult with the Pipeline Coordinator regarding the number and location of such representatives.

1.3 Notice to Proceed for Initial Construction of the Pipeline

1.3.1 Permission to Construct

1.3.1.1 The Lessee shall not initiate any Construction on State Land without prior written permission of the Pipeline Coordinator.

1.3.1.2 Permission for Initial Construction of the Pipeline shall be given solely by means of a written Notice to Proceed issued by the Pipeline Coordinator. The Notice to Proceed shall authorize Construction only as therein expressly stated.

1.3.1.3 Any Construction activity that is not covered by the Notice to Proceed or that occurs after Initial Construction shall be granted by a Written Authorization of the Pipeline Coordinator pursuant to Stipulation 1.6.

1.4 Submissions Required Before Issuance of Notice to Proceed

1.4.1 Prior to issuance of the Notice to Proceed, the Lessee shall submit to the Pipeline Coordinator the documents identified in Stipulations 1.4.2 through 1.4.8 below.

1.4.2 Engineering Documents

1.4.2.1 The Lessee shall develop a Design Basis and Criteria document as defined in Stipulation 3.2.1 for acceptance by the Pipeline Coordinator.

1.4.2.2 The Lessee shall submit to the Pipeline Coordinator an Engineering Analysis and Report on the Seismic design of the Pipeline, as required by Stipulation 3.7.2.

1.4.2.3 The Lessee shall identify seismic faults and (if any are found) assess the results of fault movement and ground deformation to the satisfaction of the Pipeline Coordinator.

1.4.2.4 The Lessee shall submit the Final Design for acceptance by the Pipeline Coordinator.

1.4.3 Plans for Construction, Operation, Maintenance, and Termination

1.4.3.1 The Lessee shall submit for approval the following plans for Construction. In addition, prior to beginning operations, the Lessee shall submit for approval the following plans for Operation, Maintenance, and Termination activities:

- (a) Camps;
- (b) Work Pads (Stipulation 3.13);
- (c) Erosion and Sedimentation Control;
- (d) Fire Control (refer to 1.4.3.1(r));
- (e) Stream, River, and Floodplain Crossings (Stipulation 3.10);
- (f) Control, Sanitation and Disposal of Hazardous Waste and Hazardous Substances;
- (g) Disposal of Overburden, and Excess and Excavated Material;
- (h) Cultural Resource Preservation;
- (i) Groundwater Control;
- (j) Restoration and Revegetation of Disturbed Areas;
- (k) Fish and Wildlife Protection;

- (l) Access to the Pipeline and Methods for Access Road Construction including Ice Roads (Stipulation 3.11);
 - (m) Control, Cleanup, and Disposal of Hazardous Substances (refer to 1.4.3.1(f));
 - (n) Use of Pesticides, Herbicides, Preservatives, and Other Chemicals;
 - (o) Construction in Wetlands;
 - (p) Handling of Solid and Liquid Waste;
 - (q) Managing Human/Carnivore Interaction; and
 - (r) Emergency Preparedness .
- 1.4.3.2 These plans shall provide sufficient detail and scope to allow the Pipeline Coordinator to determine if they are consistent with the requirements of this Lease. All applicable State and federal requirements shall be incorporated into the plans and programs of this Lease.
- 1.4.3.3 Any amendments to these plans must be approved by the Pipeline Coordinator before the amendment is implemented.

1.4.4 Quality Management Program

- 1.4.4.1 The Lessee must have an approved Quality Management Program in effect during all phases of Pipeline Activities. The Quality Management Program shall be comprehensive and designed to assure safety, integrity, and document the Lessee's compliance with the Lease and Stipulations.
- 1.4.4.2 The Quality Management Program must demonstrate that the Lessee has:
- (a) Determined the processes needed for the Quality Management Program, as well as the sequence and interaction of these processes;
 - (b) determined appropriate methodologies to ensure the processes are effective;
 - (c) ensured appropriate resources necessary to support the operation and monitoring of these processes; and
 - (d) monitored, measured and analyzed processes, and, where necessary, implemented corrective actions.
- 1.4.4.3 The Lessee must submit the following components of the Quality Management Program for review and approval by the SPC:
- (a) Quality Manual, or similar document, which describes the Quality Management Program and includes the quality policy and objectives;
 - (b) An outline, or similar document, of the Quality Management Program processes, which describes, in hierarchical form, the inter-related processes and activities required to implement the Quality Management Program;
- 1.4.4.4 Any amendments to the documents approved under Section 1.4.4.3 for the Quality Management Program must be approved by the Pipeline Coordinator before the

amendment is implemented. This does not include changes to detailed work instructions or processes, but does include changes to the hierarchical relationship of processes.

- 1.4.4.5 The Lessee, including its agents, employees, and Contractors shall comply with the approved Quality Management Program.

1.4.5 Project Management Schedule

- 1.4.5.1 The Lessee shall submit a Project Management Schedule for the entire project to the Pipeline Coordinator. This schedule shall be time-scaled and shall include all activities and contingencies which may reasonably be anticipated in connection with the project. The Project Management Schedule shall include:

- (a) Data collection activities;
- (b) Submittal and approval activities; and
- (c) Pre-Construction, Construction, and post-Construction activities.

- 1.4.5.2 The Project Management Schedule shall be updated at thirty (30) day intervals, as significant changes occur, or as otherwise approved by the Pipeline Coordinator.

1.4.6 Project Maps and Spatial Data

- 1.4.6.1 The Lessee shall prepare and submit to the Pipeline Coordinator for approval:

- (a) A map, or maps, depicting the Pipeline centerline, construction right-of-way and all Related Facilities.
- (b) Spatial Data, along with metadata, depicting the Pipeline centerline, construction right-of-way and all Related Facilities.

1.4.7 Survey

- 1.4.7.1 Prior to issuance of the Notice to Proceed, the Lessee shall, in such manner as shall reasonably be acceptable to the Pipeline Coordinator, by survey, locate and clearly mark on the ground the proposed centerline of the pipe, the bounds of the construction right-of-way and the location of all Related Facilities proposed to be constructed.

- 1.4.7.2 Any amendments to the Survey must be approved by the Pipeline Coordinator before the amendment is implemented.

1.4.8 Other Data As Requested

- 1.4.8.1 The Lessee shall submit to the Pipeline Coordinator such other data relevant to the Notice to Proceed as may be requested by the Pipeline Coordinator at any time during the review period.

1.5 Issuance of NTP

- 1.5.1 Once all the project documentation identified in Stipulations 1.4.2 through 1.4.8 is received from the Lessee, the Pipeline Coordinator shall have up to thirty (30) days for

review of each complete request, unless the Pipeline Coordinator states, in written notice, that more time is needed.

1.6 Written Authorizations

1.6.1 After Initial Construction of the Pipeline, the Pipeline Coordinator may require a Written Authorization for a major activity or significant modification to the Pipeline. Required information shall be project-specific and provided to the Lessee in writing.

1.6.2 Once all project information is received from the Lessee, the Pipeline Coordinator shall have thirty (30) days for review of each complete request, unless the Pipeline Coordinator states, in written notice, that more time is needed.

1.6.3 Any Written Authorization may contain site-specific terms and conditions as deemed necessary by the Pipeline Coordinator.

1.7 Surveillance and Maintenance

1.7.1 During the Construction, Operation, Maintenance and Termination of the Pipeline, The Lessee shall conduct a surveillance and maintenance program applicable to the arctic environment. These programs shall be designed to:

- (a) Provide for and protect public health and safety;
- (b) Prevent and mitigate damage to natural resources;
- (c) Prevent and mitigate erosion;
- (d) Maintain Pipeline integrity and monitor any Pipeline movement that may affect integrity; and
- (e) Protect public and private property.

1.8 Incident Reporting

1.8.1 The Lessee shall give immediate notice of any significant spill, leakage, or discharge of Oil or other Hazardous Materials in connection with Pipeline Activities to the Pipeline Coordinator.

1.8.2 The Lessee shall provide a report of all spills in conjunction with Pipeline Activities on a monthly basis.

1.9 Annual Report

1.9.1 The Lessee shall provide a comprehensive annual report by March 1 of each year this Lease is in effect beginning after the first Lease Anniversary Date unless notified otherwise by the Pipeline Coordinator. The Pipeline Coordinator shall provide a written description of the annual reporting requirements.

1.10 Completion of Use

1.10.1 Upon completion of use of all, or a very substantial part, of the Leasehold, the Lessee shall promptly remove all improvements and equipment, except as otherwise approved by the Pipeline Coordinator, and shall Restore the Leasehold to a condition that is

approved in writing by the Pipeline Coordinator or, at the option of the Lessee, pay the cost of such removal and Restoration. Where approved by the Pipeline Coordinator, buried pipe may be left in place provided all residue is removed from the pipe and the ends are suitably capped.

- 1.10.2 All areas that do not constitute all, or a very substantial part of the Leasehold, or other portion of the Pipeline, utilized pursuant to authorizations issued in connection with the Pipeline, shall be “put-to-bed” by the Lessee upon completion of use unless otherwise directed by the Pipeline Coordinator. “Put-to-bed” is used herein to mean that Access Roads, material sites, and other areas shall be left in such stabilized condition that erosion shall be minimized through the use of adequately designed and constructed waterbars, Revegetation, and chemical surface control; that culverts and bridges shall be removed by the Lessee in a manner satisfactory to the Pipeline Coordinator; and that Access Roads, sites and areas shall be closed to use. The Lessee’s Restoration and Revegetation plans shall be approved by the Pipeline Coordinator prior to Termination of use of any Access Road, or any part thereof.

1.11 Changes in Condition

- 1.11.1 Unforeseen conditions arising during Pipeline Activities may make it necessary to revise or amend these Stipulations to control or prevent damage to the environment or hazards to public health and safety. In that event, the Lessee and the Pipeline Coordinator shall agree as to what revisions or amendments shall be made.

1.12 Lessee Support of State Oversight

- 1.12.1 During the design and Pipeline Activities the Lessee shall furnish, without cost, representatives of the State, including Contractors involved in field surveillance of the Leasehold and/or the Pipeline, adequate meals, living quarters, office space, transportation, and use of the Lessee’s communication systems. Whenever possible, the Pipeline Coordinator shall give the Lessee advance written notice of the need for such services and facilities, including the number and names of Persons to be accommodated.

1.13 Access

- 1.13.1 The Lessee shall regulate or temporarily prohibit public access and vehicular traffic on Roads on State Land, which are not managed or owned by the Alaska Department of Transportation and Public Facilities (DOT/PF), as required for activities in the immediate vicinity of the Pipeline and Related Facilities. The Lessee shall provide appropriate warnings, flagging, barricades, and other safety measures when the Lessee is regulating public access.
- 1.13.2 Pipeline Activities shall not interfere with the public’s free and unrestricted access to and upon the Leasehold, except that, with the Pipeline Coordinator’s approval, the Lessee shall regulate or limit access, including vehicular traffic, to and upon the Leasehold to the extent necessary to facilitate Pipeline Activities, maintain Pipeline integrity, or to protect the public and wildlife from hazards associated with Pipeline Activities.
- 1.13.3 The creation of any permanent obstruction to the passage of small craft in streams is prohibited, unless otherwise approved by the Pipeline Coordinator.

1.13.4 The Lessee shall make provisions for suitable permanent crossings for the public where the Leasehold or Access Roads cross existing Roads, foot trails, winter trails, easements or other rights-of-way, unless otherwise authorized by the Pipeline Coordinator.

1.13.5 Any access restrictions on any rights-of-way managed by the Division of Mining, Land & Water, including but not limited to those identified in AS 19.30.400 or acquired under former 43 U.S.C. 932 require prior written approvals by the Pipeline Coordinator and the Division of Mining, Land and Water. In the event that future upgrades to these rights-of-way are approved, the Lessee may be responsible for accommodating these upgrades.

1.14 Public Improvements

1.14.1 The Lessee shall protect existing telephone and other transmission lines, Roads, trails, fences, ditches, and like improvements during Pipeline Activities.

1.14.2 Any damages caused by the Lessee to public utilities and/or improvements shall be promptly repaired by the Lessee to a condition which is reasonably satisfactory to the Pipeline Coordinator.

1.15 Fire Prevention and Suppression

1.15.1 The Lessee shall promptly notify the Pipeline Coordinator of any fires on, or which may threaten any portion of, the Pipeline and shall take all measures necessary or appropriate for the prevention and suppression of fires in accordance with applicable law. The Lessee shall comply with the instructions and directions of the Pipeline Coordinator concerning the use, prevention, and suppression of fires on State Land.

1.15.2 Use of open fires in connection with Pipeline Activities is prohibited on State Land unless approved by the Pipeline Coordinator and performed in accordance with State law.

1.16 Health and Safety

1.16.1 The Lessee shall take all measures necessary to protect the health and safety of all Persons affected by Pipeline Activities and shall immediately abate any health or safety hazards. The Lessee shall immediately notify the Pipeline Coordinator of all serious accidents which occur in connection with such activities.

1.17 Protection of Survey Monuments

1.17.1 The Lessee shall mark and protect all survey monuments encountered during Pipeline Activities. These monuments are not to be disturbed; however, if a disturbance of a monument, or any of its accessories, becomes necessary, the Lessee shall contact the survey section of the Division of Mining Land and Water for current information on the policies regulating the implementation of "Records of Monument" (AS 34.65.040).

1.17.2 A written report to the Pipeline Coordinator shall be made by the Lessee in the event that any monuments or accessories are inadvertently damaged.

1.18 Use of Existing Facilities

1.18.1 Subject to existing rights vested in other parties, the Lessee shall use existing facilities, to the maximum extent feasible, in all Pipeline Activities associated with the Pipeline. Nothing in this Stipulation shall require the Lessee to use an existing facility if the use of the facility could potentially create a risk to health, safety, or the environment.

1.19 Protection of Cultural Resources

1.19.1 The Lessee shall enter into a programmatic agreement with the State of Alaska Office of History and Archaeology (OHA) related to implementation of Section 106 of the Historic Preservation Act (16 U.S.C. 470 et seq.).

1.19.2 The Lessee shall take affirmative responsibility to require its agents, employees, and Contractors to protect cultural resources while conducting Pipeline Activities.

1.19.3 Should any sites or suspected sites be discovered during the course of Pipeline Activities, the activities that may disturb or damage the site shall cease. The OHA and the North Slope Borough shall be notified immediately.

1.20 Hunting, Fishing, Trapping, and Camping

1.20.1 With respect to Lessee's agents, employees, and Contractors, the Lessee shall prohibit hunting, fishing, trapping, shooting, and camping within the Leasehold.

1.20.2 The Lessee's agents, employees, and Contractors, shall not use project equipment, including transportation to and from the job site, for the purpose of hunting, fishing, shooting, and trapping.

1.21 Off Right-of-Way Traffic

1.21.1 The Lessee shall not operate mobile ground equipment off the Leasehold, Access Roads, State highways, or authorized areas, unless approved by the Pipeline Coordinator or when necessary to prevent harm to any Person.

1.22 Material Sites

1.22.1 If the Lessee requires materials from State Land, the Lessee shall make application to purchase such materials in accordance with appropriate State laws and regulations. No materials shall be removed from State Land by the Lessee without the approval of the Pipeline Coordinator.

1.22.2 Insofar as possible, use of existing material sites shall be authorized in preference to new sites.

1.22.3 Gravel and other construction materials shall not be taken from streambeds, riverbeds, lakeshores, or outlets of lakes, unless the taking is approved by the Pipeline Coordinator.

2. ENVIRONMENTAL

2.1 Environmental Briefings

2.1.1 The Lessee shall develop and provide environmental briefings for supervisory and field personnel and Field Representatives. The briefings shall communicate, at a minimum, Lease and environmental permit requirements.

2.2 Pollution Control

2.2.1 The Lessee shall conduct all Pipeline Activities in a manner that shall avoid or minimize degradation of air, land, and water quality.

2.2.2 Mobile ground equipment shall not be operated in or on lakes, streams, or rivers on State Land unless such operation is approved by the Pipeline Coordinator.

2.2.3 All waste generated in Pipeline Activities shall be removed or otherwise disposed of according to all local, State, and federal laws, and in a manner reasonably acceptable to the Pipeline Coordinator.

2.3 Disturbance of Natural Waters

2.3.1 All activities of the Lessee in connection with the Pipeline that may create new lakes, drain existing lakes, significantly divert natural drainage and surface runoff, permanently alter stream or groundwater hydrology, or disturb significant areas of streambeds are prohibited unless such activities and necessary mitigation measures are approved by the Pipeline Coordinator.

2.3.2 The temperature of natural surface water or groundwater shall not be significantly changed by the Pipeline or by any Pipeline Activities so as to adversely affect the natural surface water or groundwater, unless approved by the Pipeline Coordinator.

2.4 Excavated Material

2.4.1 Excess excavated material shall be disposed of in accordance with approved plans required by Stipulation 1.4.3 during Pipeline Activities.

2.4.2 Excavated materials shall not be stockpiled in rivers, streams, floodplains, or Wetlands unless approved by the Pipeline Coordinator.

2.5 Restoration and Revegetation

2.5.1 Restoration and Revegetation of disturbed areas on State Land shall be conducted as soon as practicable, and in accordance with the approved construction plan in Stipulation 1.4.3, until accepted in writing by the Pipeline Coordinator.

2.5.2 Surface materials shall be stockpiled and utilized during Restoration unless otherwise approved by the Pipeline Coordinator. Stabilization practices, as determined by the needs for specific sites, shall include but shall not be limited to the placement of mat binders, soil binders, rock, or gravel blankets or structures.

2.5.3 All disturbed areas of State Land shall be left in such stabilized condition that erosion in excess of natural rates shall be minimized until practicable Restoration and

Revegetation can be accomplished in a manner that is reasonably satisfactory to the Pipeline Coordinator.

2.6 Fish and Wildlife Protection

2.6.1 Fish Passage

2.6.1.1 All Pipeline Activities shall be conducted so as to assure free passage and movement of fish in streams designated by the Pipeline Coordinator in consultation with the Alaska Department of Fish and Game (ADF&G). Temporary blockages of fish necessitated by in-stream activities shall be approved by the ADF&G.

2.6.1.2 Pump intakes shall be screened to prevent harm to fish. Screening specifications shall be approved by the Pipeline Coordinator.

2.6.1.3 When abandoned, water diversion structures shall be removed or plugged and stabilized unless otherwise approved by the Pipeline Coordinator.

2.6.1.4 If material sites are approved adjacent to or in certain lakes, rivers, or streams, the Pipeline Coordinator may require the Lessee to construct levees, berms, or other suitable means to protect fish and fish passage and to prevent siltation of streams or lakes.

2.6.2 Fish Spawning Beds, Rearing Areas, and Overwintering Areas

2.6.2.1 The Lessee shall protect Fish Spawning Beds, Fish Rearing Areas, and Overwintering Areas from sediment where soil material is expected to be suspended in water as a result of Pipeline Activities. Settling basins or other sediment control structures shall be constructed and maintained to intercept sediment before it reaches rivers, streams, or lakes.

2.6.2.2 The Lessee shall comply with site-specific terms and conditions imposed by the Pipeline Coordinator to protect Fish Spawning Beds, Fish Rearing Areas, and Overwintering Areas from the effects of Pipeline Activities. Damage caused by the Lessee's Pipeline Activities shall be repaired to the reasonable satisfaction of the Pipeline Coordinator.

2.6.2.3 The Lessee shall avoid disturbance to Fish Spawning Beds, Fish Rearing Areas, and Overwintering Areas designated by the Pipeline Coordinator. However, where disturbances cannot be avoided, proposed modifications and appropriate mitigation measures shall be designed by the Lessee and approved by the Pipeline Coordinator.

2.6.3 Wildlife

2.6.3.1 The Pipeline shall be maintained to avoid significant alteration of big-game movement patterns. The Pipeline Coordinator may require additional measures to mitigate impacts to big-game movement.

2.6.3.2 The Lessee shall coordinate with the U.S. Fish & Wildlife Service regarding any activity that has the potential to disturb polar bears. Pipeline Activities shall avoid polar bear dens unless alternative mitigative measures to minimize disturbances are approved by the Pipeline Coordinator and the U.S. Fish and Wildlife Service.

2.6.3.3 Prior to starting Pipeline Activities, the Lessee shall obtain the locations of known brown-bear dens from the ADF&G for the purpose of avoiding both human/bear interactions and disturbance of bear dens.

2.6.4 Zones of Restricted Activity

2.6.4.1 During periods of wildlife breeding, nesting, lambing, or calving activity, and during major migrations of wildlife, the Lessee's activities on State Land may be restricted by the Pipeline Coordinator with written notice. From time to time, the Pipeline Coordinator shall furnish the Lessee a list of areas where such actions may be required, together with anticipated dates of restriction. In addition, no blasting shall be done under water or within one-quarter (1/4) mile of streams or lakes with identified sensitive wildlife habitat without the approval of the Pipeline Coordinator.

2.6.4.2 During periods of fish spawning, rearing, and migration, the Lessee's activities on State Land may be restricted by the Pipeline Coordinator with written notice. From time to time, the Pipeline Coordinator shall furnish the Lessee a list of areas where such actions may be required, together with anticipated dates of restriction. In addition, no blasting shall be done under water or within one-quarter (1/4) mile of streams or lakes with identified sensitive fisheries habitat without the approval of the Pipeline Coordinator.

2.7 Use of Explosives

2.7.1 No blasting is allowed unless approved, in writing, by the Pipeline Coordinator.

2.8 Vegetation

2.8.1 Pipeline Activities shall be conducted so as to minimize impacts to riparian and aquatic vegetation.

3. TECHNICAL

3.1 General

3.1.1 All methods employed in design or during Pipeline Activities shall be in accordance with sound engineering practice and shall meet or exceed applicable federal, state and local regulations, standards and codes, including the U.S. Department of Transportation Regulations in 49 CFR, Parts 191, 195 and 199.

3.1.2 Requirements in addition to those set forth in the above minimum standards may be imposed by the Pipeline Coordinator as reasonably necessary to reflect the impact of arctic environment or other specialized situations. The Pipeline Coordinator shall make every effort to identify such additional requirements during the design phase.

3.2 Design Basis and Criteria

3.2.1 The Lessee shall develop a Design Basis and Criteria document for acceptance by the Pipeline Coordinator. The document shall follow the Pipeline Coordinator's standard format modified to encompass the characteristics of the project. After acceptance, any modifications to the contents of the Design Basis and Criteria shall also be accepted by the Pipeline Coordinator.

3.3 Technical Record Keeping

3.3.1 Critical drawings and technical documents shall be kept up-to-date. Changes to the Pipeline will be documented by final drawings of record, with engineering seals within one-hundred (180) days of completion, unless otherwise authorized by the Pipeline Coordinator, in accordance with State statutes, regulations and administrative codes.

3.4 Electronics and Communications

3.4.1 The Lessee shall screen, filter, or otherwise suppress any electronically operated devices installed as part of the Pipeline which are capable of producing electromagnetic interference with existing communication systems, navigational aids, or related systems.

3.4.2 Any structures built as part of the communication systems shall not interfere with radiation patterns of existing communication systems, navigational aids, or related systems.

3.4.3 The pipeline shall have a fully functioning and reliable control system.

3.5 Corrosion

3.5.1 The Lessee shall provide a Corrosion Plan for acceptance by the Pipeline Coordinator prior to startup of the facilities.

3.6 Lightning Protection

3.6.1 Lightning protection and surge suppression shall conform to the requirements of NFPA 780, 2011 Edition, "Standard for the Installation of Lightning Protection Systems."

3.7 Seismic

3.7.1 Summaries of the results of the seismic design and the results of the pipeline stress analysis shall be submitted to the Pipeline Coordinator. If significant physical changes are made during the lease, these summaries shall be updated accordingly.

3.7.2 If the Lessee has an earthquake monitoring systems (EMS), the EMS shall be evaluated for integration into the University of Alaska statewide seismic monitoring system.

3.8 Arctic Geotechnical

3.8.1 The design shall consider areas of potential cold-region methods of soil failure, such as transitional permafrost, bodies of water, thermally disturbed soils, and areas of seasonal groundwater flow.

3.9 Land and Surface Disturbance

3.9.1 All Pipeline Activities shall be conducted to minimize surface modifications. These activities shall be planned and executed in such a way that the resulting surface disturbance or alteration of permafrost shall not jeopardize Pipeline integrity or the surrounding environment.

3.9.2 A monitoring program shall be developed by the Lessee to identify (a) any Pipeline movement that may affect Pipeline integrity, including those resulting from frost heave

or settlement forces, and (b) surface heave or subsidence or other soil movement above the Pipeline. This program, including baseline data, shall be finalized and operational prior to startup of the Pipeline.

- 3.9.3 Construction of Access Roads, ice ramps, ice work pads, protective work mats, or any other method to protect the ground surface shall be approved by the Pipeline Coordinator. Approvals shall be obtained during all phases of the Lease, including Construction, Operation, Maintenance, and Termination of the Pipeline.
- 3.9.4 Erosion control measures shall be maintained to limit induced and accelerated erosion, limit sediment production and transport, and lessen the possibility of forming new drainage channels during Pipeline Activities.

3.10 Rivers, Streams, Coastal Areas and Floodplains

- 3.10.1 The Pipeline shall be designed to withstand or accommodate the hydrology and its effects (including runoff, stream and floodplain erosion, meander cutoffs, lateral migration, ice jams, and aufeis) of the local area.
- 3.10.2 For stream crossings and portions of the Pipeline within a floodplain, the following design standards shall apply:
 - (a) The design flood shall, at a minimum, be based on the 100-year flood event as defined by a nationally accepted flood frequency analysis method;
 - (b) The depth of channel scour shall be established by appropriate field investigations and theoretical calculations using those combinations of water velocity and depth that yield the maximum value;
 - (c) For overhead crossings, analysis shall be made to ensure that support structures are adequately protected from the effects of scour, channel migration, undercutting, ice forces, degradation of permafrost, and other external and internal loads; and
 - (d) Fords across streams or rivers where any mobile ground equipment is moved on the streambed shall be designed, constructed, maintained, and Restored to standards approved by the Pipeline Coordinator.
- 3.10.3 The Pipeline, where practical, shall be designed to minimize the number and length of waterway crossings. The design of water crossings shall consider the unique characteristics of arctic and permafrost areas, such as the increased active layer under water bodies, the potential of aufeis development, and thermal erosion. It shall minimize other types of erosion, sedimentation, restriction of natural meander, or alteration of the physical or chemical nature of crossed water bodies.
- 3.10.4 Temporary access at or around stream banks shall be made through the use of fill ramps rather than by cutting through stream banks, unless otherwise approved by the Pipeline Coordinator. The Lessee shall remove such ramps upon termination of the activity. Ramp materials shall be disposed of in a manner approved by the Pipeline Coordinator.

- 3.10.5 Where practicable, Pipeline routing will avoid placement of Vertical Support Members (VSM²s) in lakes. If placement in lakes is necessary, the additional length of the active layer will be evaluated and included in the design.
- 3.10.6 Ice ride-up or pile-up shall be considered in the design of any stream crossing. A significant clearance will be maintained under worse-case conditions.

3.11 Access Roads, Work Pads and Ice Roads

- 3.11.1 The Lessee shall submit a layout of each proposed temporary or permanent Access Road, work pad and ice road for approval, in accordance with approved plans required by Stipulation 1.4.3, by the Pipeline Coordinator.

3.12 Overhead and Belowground Road Crossings

- 3.12.1 The original ground surface below road crossings shall be thermally protected by insulation.
- 3.12.2 A buried pipeline road crossing and/or casing shall be designed and constructed per API 1102 and 49 CFR 195.
- 3.12.3 Cased road crossings shall be electrically isolated between the casing and the pipeline at all locations.
- 3.12.4 Road casings and nearby drainage will be designed to prevent water flow through the casing.
- 3.12.5 Road casings will be designed and maintained in such a way as to not damage or cause deterioration of the condition of the road.
- 3.12.6 Overhead pipeline road crossings shall be protected from accidental traffic strikes.