LEASE PLAN OF OPERATIONS APPLICATION

State of Alaska

Department of Natural Resources, Division of Oil & Gas

550 W. 7th Ave, Suite 1100, Anchorage, AK 99501-3563

Phone: 907-269-8800 Fax: 907-269-8943

Permitting Email: dog.permitting@alaska.gov

SECTION I: APPLICANT INFORMATION

1. Applicant:

Name: Accumulate Energy Alaska, Inc.

Mailing Address: P.O.Box 112212

City: Anchorage

State: Alaska Zip Code: 99511-2212

Phone: 907-244-5210 Fax: 907-345-5821

Email: erik.opstad@gmail.com

2. Applicant Contact:

First Name: Erik Last Name: Opstad

Title: General Manager-Alaska Operations

Is the Mailing Address the same as Applicant's Mailing Address? If "No", please provide information below: ☒ Yes

Mailing Address: Enter Mailing Address.

City: Enter City. State: Enter State. Zip Code: Enter Zip Code.

Phone: Enter Phone. Fax: Enter Fax.

Email: Enter Email.

SECTION II: THIRD PARTY INFORMATION

(Fill out this section only if you are applying for the Applicant)

Third Party Company Name: Enter 3rd Party Company Name.

First Name: Enter First Name. Last Name: Enter Last Name.

Title: Enter Title.

Mailing Address: Enter Mailing Address.

City: Enter City.

State: Enter State. Zip Code: Enter Zip Code.

Phone: Enter Phone. Fax: Enter Fax.

Email: Enter Email.

Describe the affiliation to the Applicant:

Describe your affiliation to the Applicant.

SECTION III: APPLICATION DATE AND NUMBER

(FOR OFFICE USE ONLY)

Application Date:

RECEIVED
SEP 12 2017
DIVISION OF
OIL AND GAS

Application Number: LONS 17-004

SECTION IV: PROJECT INFORMATION

1. Project Name: ICEWINE Project Exploration Wells Bravo #1 and Charlie #1

2. Proposed Start Date: 11/15/2017

3. Project Description:

Describe what and where:

Accumulate Energy Alaska, Inc. (AEA) is proposing to drill two exploration oil wells: Bravo #1 and Charlie #1 as part of a multi-year program, beginning in winter 2017/2018. The proposed wells are about 24 and 27miles west of the Franklin Bluffs Pad, and will be accessed via a tundra winter ice road ("TWR") starting at Mile Post 386.5 (MP386.5) Dalton Highway.

Primary drilling objectives include testing and evaluating the Seebee Formation for oil. This same target was found in surrounding exploration wells, and is currently on production in the nearby Kuparuk River Unit (KRU) Meltwater Oil Pool located about to 20 miles the north. The Meltwater Oil Pool is the closest oil production and development. AEA planned winter operations include construction and maintenance of 32 miles of ice roads (Main TWR. Bravo TWR Spur and Charlie TWR Spur) and three ice pads (two drill pads and one staging pad), and drilling & then testing the Bravo #1 and Charlie #1 exploration wells. AEA also may include an ice airstrip. All facilities will be temporary, and will be designed and constructed to meet federal, State and North Slope Borough (NSB) regulatory requirements, industry standards and arctic oil field best practices. Additionally, the NSB Oil and Gas Technical Report (NSB 2104) was consulted.

SECTION V: LAND STATUS

1. State Mineral Estate:

Are supplemental pages for land status included in Appendix C? ☒ Yes ☐ No

Affected ADL: ADL 391680 Date Effective: 5/1/2011 Date Assigned: 4/1/2012

Oil And Gas Lessee(s): GREAT BEAR PETROLEUM VENTURESII, LLC

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: No

Other Considerations: See Fig. 10a Land Status Summary in Appendix A. See Figs. 3a & 4a (MTRS) designation and Figs. 5a & 6a (ADLs) in Appendix A.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Main Tundra Winter Ice Road ("Main TWR") and Staging Pad	Umiat, T006N, R013E, Sect. 36	69.636279° / 148.792194° (pad centroid)
Main TWR and Water Source A1 Access Ice Road ("Lake A1 Access Road")	Umiat, T006N, R013E, Sect. 25	Varies – GPS coordinates in Appendix C
Main TWR and Lake A2 Access Road	Umiat, T006N, R013E, Sect. 36, 35	Varies – GPS coordinates in Appendix C

Affected ADL: ADL 391660 Date Effective: 5/1/2011 Date Assigned: 4/1/2012

Oil And Gas Lessee(s): GREAT BEAR PETROLEUM VENTURESII, LLC

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: No

Other Considerations: See Fig. 10a Land Status Summary in Appendix A. See Figs. 3a & 4a (MTRS) designation and Figs. 5a & 6a (ADLs) in Appendix A.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Main TWR	Umiat, T005N, R013E, Sect. 2	Varies – GPS coordinates in Appendix C
Main TWR and Lake A5 Access Road	Umiat, T005N, R013E, Sect. 3	Varies – GPS coordinates in Appendix C
Click here to enter text.	Click here to enter text.	Click here to enter text.

Affected ADL: 391661 Date Effective: 5/1/2011 Date Assigned: 4/1/2012

Oil And Gas Lessee(s): GREAT BEAR PETROLEUM VENTURESII, LLC

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: None

Other Considerations: See Fig. 10a & 10b Land Status Summary in Appendix A. See Figs. 3a & 3b, 4a &4b (MTRS) designation and Figs. 5a & 5b, 6a & 6b (ADLs) in Appendix A.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Main TWR	Umiat, T005N, R013E, Sect. 4, 9, 18	Varies – GPS coordinates in Appendix C
Main TWR and Lake A6 Access Road	Umiat, T005N, R013E, Sect. 8	Varies – GPS coordinates in Appendix C
Main TWR and Lake A7 Access Road	Umiat, T005N, R013E, Sect. 7	Varies – GPS coordinates in Appendix C

Affected ADL: 391658 Date Effective: 5/1/2011 Date Assigned: 4/1/2012

Oil And Gas Lessee(s): GREAT BEAR PETROLEUM OPERATING, LLC,

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: None

Other Considerations: See Fig. 9b in Appendix A for Land Status Summary. See Figs. 3b and 4b for MTRS in Appendix A, and Figs. 5b and 6b for ADLs.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Main TWR and Lake A8 Access Road	Umiat T005N, R012E, Sect. 13	Varies – GPS coordinates in Appendix C
Main TWR, Lake A10 and A9 Access Roads	Umiat, T005N, R012E, Sect. 14	Varies – GPS coordinates in Appendix C
Main TWR	Umiat, T005N, R012E, Sect. 14	Varies – GPS coordinates in Appendix C

Affected ADL: 392305 Date Effective: 10/1/2013 Date Assigned: 5/1/2015

Oil And Gas Lessee(s): GREAT BEAR PETROLEUM OPERATING, LLC

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: None

Other Considerations: See Fig. 9b in Appendix A for Land Status Summary. See Figs. 3b and 4b for MTRS in Appendix A, and Figs. 5b and 6b for ADLs.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Lake A9 Access Road	Umiat, T005N, R012E, Sect. 23	Varies – GPS coordinates in Appendix C
Main TWR, Lake A11 and A12Access Roads	Umiat, T005N, R012E, Sect. 22	Varies – GPS coordinates in Appendix C
Click here to enter text.	Click here to enter text.	Click here to enter text.

2. State of Alaska Surface Lands:

Are supplemental pages for land status included in Appendix C? ☐ Yes ☒ No

Oil And Gas Mineral Estate Owner: N/A

Access Authorization(s): N/A

Special Use Lands: N/A

Jointly Managed Lands: N/A

Other Considerations: N/A

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
N/A	N/A	N/A
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Click here to enter text.	Click here to enter text.	Click here to enter text.

Oil And Gas Mineral Estate Owner: N/A

Access Authorization(s): N/A

Special Use Lands: N/A

Jointly Managed Lands: N/A

Other Considerations: N/A

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
N/A	N/A	N/A
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Oil And Gas Mineral Estate Owner: N/A

Access Authorization(s): N/A

Special Use Lands: N/A

Jointly Managed Lands: N/A

Other Considerations: N/A

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
N/A	N/A	N/A
Click here to enter text.	Click here to enter text.	Click here to enter text.
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3. Private Lands:

Are supplemental pages for land status included in Appendix C? ☐ Yes ☒ No

Oil And Gas Mineral Estate Owner: N/A

Surface Ownership And Access Agreement(s): N/A

Special Use Lands: N/A

Jointly Managed Lands: N/A

Other Considerations: N/A

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
N/A	N/A	N/A
Click here to enter text.	Click here to enter text.	Click here to enter text.
Click here to enter text.	Click here to enter text.	Click here to enter text.

Oil And Gas Mineral Estate Owner: N/A

Surface Ownership And Access Agreement(s): N/A

Special Use Lands: N/A

Jointly Managed Lands: N/A

Other Considerations: N/A

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
N/A	N/A	N/A
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Click here to enter text.	Click here to enter text.	Click here to enter text.

Oil And Gas Mineral Estate Owner: N/A

Surface Ownership And Access Agreement(s): N/A

Special Use Lands: N/A

Jointly Managed Lands: N/A

Other Considerations: N/A

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
N/A	N/A	N/A
Click here to enter text.	Click here to enter text.	Click here to enter text.
Click here to enter text.	Click here to enter text.	Click here to enter text.

SECTION VI: BOND INFORMATION

Bonded Company: Before undertaking operations on or in the leased area, AEA will provide a $500,000 Statewide Oil and Gas Bondto be held for full payment of all damages sustained by the owner of the surface estate, by reason of entering the land.

Type: Cash Trust Acct for ADLS 393058 & 393043 Number: Will be on file with ADNR-DOG Amount: $500,000

Bonding Company: TBD

Mailing Address: TBD

City: TBD State: TBD Zip Code: TBD

Phone: TBD Fax: N/A Email: N/A

SECTION VII: SEQUENCE AND SCHEDULE OF OPERATIONS

Project Milestone #	Project Milestone	Proposed Start Date	Proposed End Date
1.	Conduct Field Studies, Project Planning & Design and Project Permitting	7/14/2017	10/1/2017
2.	Inspect/survey Main TWR alignment, TWR Spur alignments and ice pads, sound potential water sources, and install thermistors	8/13/2017	9/1/2017
3.	Pre-pack all TWR alignments and pad locations	11/1/2017	12/15/2017
4.	Construct Main TWR, TWR Spurs and ice pads	12/15/2017	1/1/2018
5.	Mobilize drill rig, camp and support operations	1/1/2018	1/21/2018
6.	Drill & test Bravo #1 (testing & demob may be concurrent with Charlie #1)	1/14/2018	4/30/2018
7.	Drill & test Charlie #1 (testing & demob may be concurrent with Bravo #1)	2/22/2018	4/30/2018
8.	Demobilize drill rig, test equipment, camp and support operations	5/1/2018	5/14/2018
9.	Cleanup, remediate & rehabilitate TWR alignments & ice pad locations	7/14/2018	9/1/2018
10.	Enter Milestone.	Enter Date.	Enter Date.

SECTION VIII: PROJECTED USE REQUIREMENTS

1. Describe the proposed operations, including the location and design, of **Well Sites**:

Both Bravo #1 and Charlie #1 exploration wells will be drilled to depths of about 11,000 feet true vertical depth (TVD) to test stacked conventional objectives within the SeeBee Formation. AEA will use the Arctic Fox #1 (or similar mobile land drilling rig). Wells will be designed and permitted in accordance with the Alaska Oil and Gas Conservation Commission (AOGCC) regulations. The wells may be tested and hydraulically stimulated/flow tested, and may include laterals, sidetracks, or additional penetrations from the same exploration pad. Operations also may include wireline logging and related seismic surveys, such as vertical seismic profiles (VSPs). AEA has developed and will maintain a well control plan for its drilling program that includes primary and secondary blowout prevention systems, a well capping program, and a relief well plan designed for successful operation in arctic conditions. All operations will be from ice pads as shown in Figures 7 and 8 in Appendix A. Proposed locations were inspected in mid-August during field work, and pads were located and staked based on terrain considerations and to avoid damaging willows, which are important food sources for local wildlife. Each ice pad (500 feet by 500 feet) footprint covers approximately 5.7 acres.

2. Describe the proposed operations, including the location and design, of **Buildings**:

General well site and pad layouts are shown in Figures 7 and 8 in Appendix A. Temporary facilities used to support the Exploration Program at each wellsite include a satellite office camp, storage and laydown areas, communication tower and connexes,and maintenance shops. There also will be 60-bed camp at Bravo #1. The camp will include offices, restroom, foodservice and recreation areas. AEA plans to spot the camp at the Bravo #1 ice pad for the duration of the Exploration Program; however, the camp may be moved between pads. The satellite office camp will be moved with the drill rig between pads. A construction staging pad is planned to be constructed at the start of the Main TWR, about 1 mile west of MP386.5 Dalton Highway as shown in Figures 3c, 4c, 5c, 6c and 10c in Appendix A. This location is west of Dalton Highway right of way (ROW), within the Dalton Highway Trasnporation Corridor. The staging ice pad (500 feet by 500 feet) also will be roughly 5.7 acres in plan and may have a self contained 30-bed TWR construction camp as well as laydown areas and maintenance shops.

3. Describe the proposed operations, including the location and design, of **Fuel and Hazardous Substances**:

Ultra-low sulfur diesel (USLD) fuel will be trucked to the drill pads by commercial carrier for drilling, completion and well testing operations. AEA anticipates that approximately 16,800 gallons of fuel will be stored at each drill site in double-walled aboveground storage tanks (ASTs) staged within secondary containment areas (SCAs) providing 110% of AST volume plus seasonal precipitation containment. No individual fuel storage tank will exceed 9,990 gallons. An onsite tanker truck will fuel ancillary equipment such as heaters, light plants, and heavy equipment. Fuel and hazardous substance storage will comply with State and federal oil pollution prevention and contingency requirements found in 18 AAC 75, 40 CFR 112 and NSBMC § 19.50 and § 19.70. ASTs used to store flammable and combustible liquids are regulated by the EPA and will comply with the International Fire Code (IFC) and 13 AAC 50.025. Additionally, fuel storage, handling, transfers, and spill reporting will be conducted in accordance with AEA's Oil Discharge Prevention and Contingency Plan (ODPCP) which was approved by the ADEC as Plan No. 15-CP-5241, North Slope Environmental Field Handbook (NSEFH), and the Alaska Safety Handbook (ASH). All bulk hazardous fluid and fuel transfers will be conducted in accordance with the fluid transfer guidelines described in the NSEFH and AEA's Fluid Transfer Checklist (found in Appendix A of ODPCP 15-CP-5241). A variety of commonly used water-based mud (WBM) drilling fluids & additives will be used to provide and maintain the correct drilling mud formulation for the conditions being drilled. Other drill fluid chemicals, required for testing and well stimulation, also may be brought in. The various additives are provided in 5-gallon pails, 55-gallon drums or a variety of different sized (250-400 gal) isocontainers that are regulated by the USDOT and/or EPA and will be stored within SCA. All fuel and drill fluid SCAs are inspected daily by the on-site spill technician. All unused products will be returned to the supplier. All used fluids will be disposed of in accordance with AEA's Waste Management Plan and other applicable guidance documents and contract/ballot agreements.

During fuel and fluid transfer operations, equipment storage or maintenance activities, the site will be protected from leaking or dripping fuel and hazardous substances using drip pans or other surface liners designed to catch and hold fluids under the equipment or by creating a specialized area using an impermeable liner or other suitable containment mechanism. Appropriate spill response equipment, as required in ODPCP 15-CP-5241, will be staged on location & managed/maintained by an on-site spill technician contracted through Alaska Chadux Corporation (ACC). Trained spill technicians & fuel contractor personnel (oil handlers), operating under the Fluid Transfer Procedures, will attend all fuel & fluid transfer operations at all times. A copy of ODPCP 15-CP-5241 will be kept on site at all times for guidance in controlling and cleaning up any accidental discharges of fuels, lubricants, or produced fluids. The plan will include immediate response actions, reporting requirements, communication trees, receiving environments, spill cleanup mobilization response times, well control information and spill prevention guidance. Information related to immediate response actions, receiving environments, spill cleanup mobilization response times and well control can be found in the ODPCP. AEA also has an approved Spill Prevention Control and Countermeasure (SPCC) Plan for tanks to be operated at exploration sites, including Bravo #1 and Charlie #1. The drilling and well testing contractors will develop & provide SPCC plans specific for their operations in support of the drilling and testing operations. The plans will be maintained and available on-site. Contractor crews will be trained in the appropriate response & prevention strategies.

4. Describe the proposed operations, including the location and design, of **Solid Waste Sites**:

WASTE MANAGEMENT AND DISPOSAL: All waste management activities will be conducted in general accordance with the AEA ICEWINE Project Waste Management Plan (WMP) and in conformance with AEA HSE Management Policies. Additionally, the latest versions of the Alaska Safety Handbook (ASH), the North Slope Environmental Field Handbook (NSEFH) and the Alaska Waste Disposal & Reuse ("Redbook") Guide are adopted as guidance, reference and standard operating procedures and workplace "best" safety, environmental and waste management practices for AEA operations.
RCRA-EXEMPT WASTES. Four waste streams exempt from regulation as Resource Conservation and Recovery Act (RCRA) hazardous wastes ("RCRA-exempt wastes") per 40 CFR 261.4 and 261.7 will be generated during operations. These include: 1) E&P fluids and solids from drilling and testing operations); 2) residue and rinsate found in "RCRA empty" containers; 3) household hazardous wastes; and, 4) domestic wastewater from camps and envirovacs. Up to 4,000 barrels (bbls) of drilling wastes and another 4,000 bbls of test fluids will be generated during drilling, and then temporarily stored onsite, hauled and disposed by injection in either offsite Class I or Class II UIC disposal wells. Non-oily E&P solid drill cuttings may also be hauled the NSB SA 10 landfill for beneficially reused as sanitary cover if acceptance criteria are met. Finally, on-site disposal through annular injection may be conducted, as approved by the AOGCC (using Sundry Form 10-403). All methods will be managed and tracked by using North Slope Manifest procedures. Residue and tank rinsate found in RCRA-empty tanks and vessels will be manifested, hauled and disposed by injection in offsite Class I or II disposal injection wells as they are generated at tank wash bays after drilling and testing operations. RCRA-exempt household hazardous wastes generated from camp operations will be combined with domestic wastewater and temporarily stored in the camp sewage tank modules before being hauled to the NSB-SA-10 wastewater treatment plant for disposal. The camp is expected to generate less than 3,000 gallons per day of domestic wastewater and less than 1 gallon per day of household hazardous wastes.
SOLID WASTE: Non-hazardous solid waste will be stored on site in Municipal Solid Waste (MSW) and Construction & Demolition (C&D) dumpsters that will be hauled to and disposed in the NSB SA10 landfill. MSW and C&D dumpsters will be managed to avoid potential wildlife interactions by covering. Metal will be collected and sent offsite for recycling. Oily waste will be managed & stored on-site until transport to an approved disposal facility. Used oil will packaged in drums for transport & be recycled or disposed at an approved facility. HAZARDOUS and UNIVERSAL WASTES: RCRA-hazardous wastes expected to be generated during construction, drilling and production operations include very small quantities of Characteristic Hazardous and Universal Wastes (as defined by 40 CFR 261.3) will be managed on-site in Satellite Accumulation Areas (SAAs), manifested and then transported to approved disposal or recycling facilities at the completion of the field operations.

5. Describe the proposed operations, including the location and design, of **Water Supplies**:

During operations, up to 5,000 gallons per day (gpd) potable water will be required for domestic use. Potable water will be transported to the camp and rig pads by water truck. For other fresh water uses, AEA will request temporary water use authorizations (TWUAs) from ADNR/DML&W for withdrawal of ice chips and water from 37 area lakes. This water use will total about 98 million gallons (Mgal) as follows: 89 Mgal for TWR and ice pad construction and maintenance (fresh water and ice chips combined), 5 Mgal for drilling operations and 4 Mgal for stimulating and testing each well. Snow will be removed from portions of the lakes prior to water withdrawal to help provide access for water trucks and ice trimmers. Water pumped from lakes will be transported by low ground pressure vehicles or rolling stock once winter tundra travel is approved by ADNR. Rolling stock will only use trails that have been improved with a firm ice surface or packed snow to support the weight and pressure of the vehicles. Snowmelt and other run-off from Project facilities will be managed through implementation of AEA Best Management Practices (BMPs) and a Storm Water Pollution Prevention Plan (SWPPP) pursuant to the Alaska Pollutant Discharge Elimination System (APDES) general permit for north slope activities (NS GP AKG32000).

6. Describe the proposed operations, including the location and design, of **Utilities**:

N/A Electrical, natural gas, sewer and water utilities will not be designed or located on the ice pads. Rig operations will be self contained, powered by generators. Smaller dual generator sets will provide power to camps, offices, and other facilities. Satellite phone service and internet will be available at each field camp. Operational radio communications will utilize fixed base stations and truck-mounted radio equipment, with small communication towers placed at each pad. Potable water will be hauled to the site and domestic wastewater hauled from the site (see Subsections VIII-4 and VIII-5). Emissions sources for the construction, drilling, and operations will be similar to equipment and sources at other exploration drilling projects on the North Slope. Therefore, air emissions sources from the Project related to construction, drilling and operations will be authorized under an ADEC Oil or Gas Drilling Rigs Minor General Permit MGP1.

7. Describe the proposed operations, including the location and design, of **Material Sites**:

N/A All operation activities on TWRs and pads.

8. Describe the proposed operations, including the location and design, of **Roads**:

Figures showing the features required to support drilling and testing (e.g., TWRs and ice pads) for this winter exploration program are in Appendix A. The GPS coordinates referenced in the application are included in Appendix C. The proposed TWR alignments and ice pad locations shown in Appendix A reflect the results of fieldwork conducted by AEA in mid-August where a field team mapped routes and locations that avoided higher, drier tundra covered by shrubs, forbs and tussock vegetation. Starting in November 2017, winter operations will include pre-packing and constructing the Main TWR and two TWR Spurs (Bravo TWR Spur and Charlie TWR Spur) to access the Bravo #1 and Charlie #1 drill sites where two ice pads will be built to support drilling operations. Project road activities include the following: 1) constructing the 18.75-mile long Main TWR starting at MP386.5 Dalton Highway; 2) constructing a 500- by 500-foot ice staging pad within 1 mile of the start of the Main TWR; 3) constructing the 3.75-mile long Bravo TWR Spur to the Bravo #1 pad location and then constructing the 500- by 500-foot Bravo #1 ice pad; and, 4) constructing a 17.75-mile long Charlie TWR Spur and then constructing the 500-by 500-foot Charlie #1 ice pad. All TWRs will be built to accommodate drill rig moves, and pads large enough to safely carry out drilling and support operations. All TWRS and ice pads will be constructed and maintained using the generally accepted practices for the North Slope, subject to ADNR opening criteria for winter tundra travel in the lower NS Foothills. Pre-packing of the trail will be requested prior to the official tundra opening to drive frost down and preserve early snow. Additionally, TWRs crossings at established subsistence and winter trails will be constructed to provide a smooth transition to ensure trail users have safe passage. Upon completion of use, TWR stream crossings will be slotted, breached, or weakened to facilitate breakup and minimize potential impacts to stream banks. Any snow or ice used as fill for ramps will be removed from banks in a manner that does not disturb the natural stream bank.

9. Describe the proposed operations, including the location and design, of **Airstrips**:

OPTIONAL. Two locations for ice airstrips have been identified: Option 1 – (Preferred) ice airstrip constructed on Lake A28 within U004N010E, Sec. 12-13 and U004N/011E, Sec. 7; and, Option 2 (Alternative) - ice airstrip constructed on Lake A23 within U004N011E, Sec. 7. Although two airstrip locations have been identified, only one may be selected and constructed. The ice airstrip will facilitate transportation of materials and personnel crew changes. The ice airstrip will be approximately 300 feet by up to 5,000 feet and will be planned/permitted/constructed with appropriate lighting and control systems. to accommodate up to 30-passenger aircraft.

10. Describe the proposed operations, including the location and design, of **All Other Facilities and Equipment**:

HEAVY EQUIPMENT. A list of typical equipment used to support drilling activities is provided in Appendix C. Equipment types will be the same that is used for North Slope oil and gas operations and will be obtained from North Slope contractors. MEDICAL EVACUATION (per AEA Medical Evacuation Plan) Resources will be mobilized from Prudhoe Bay Unit in the event of a major medical issue or fire to provide additional emergency response, per an existing Ballot Agreement. Medical evacuation, if necessary, will be provided by ambulance, helicopter, or fixed-wing aircraft, directly from the TWRs or Franklin Bluffs airstrip to the Beacon Clinic in Deadhorse for patient stabilization and/or transfer to a Medevac jet to an Anchorage hospital facility. If the weather precludes fixed/rotary medevac operations from the TWRs, the patient will be transported via ambulance to Fairweather Deadhorse Aviation Center (DAC) for evacuation.

11. If another permit(s) is required for the above described Projected Use Requirements, provide the following information:

Agency	Permit Type	Permit Number	Application Status	Projected Use Requirement(s)
ADNR/DOG	Lease Plan of Operations	TBD	Pre-App, Draft	1 to 10
AOGCC	Permit to Drill	TBD	Draft	1
AOGCC	Sundry Approval – Annular Disposal	TBD	TBD	1, 4
AOGCC	Blowout Contingency Plan	Review	Complete	1, 4
ADNR/DML&W	Land Use Permit	TBD	Pre-App, Draft	1, 2, 8, 9
ADNR/DML&W	Temporary Water Use Authorizations	A2017-132, A2017-133, 2017-134, A2017-135, A2017-136, A2017-137, A2017-138, A2017-139	TWUA No.s issued, Application Packages under review	5
ADNR/OHA	State Historic Preservation Office (SHPO) Determination	No Historic Properties Affected Stamp	Fieldwork Complete & Report Prepared for submital	8
ADEC/DW -APDES	APDES General Permit for North Slope (NS GP AKG332000) SWPPP & BMP	AKG332026	Complete & Approved	1, 5

ADEC/AQ	MGP1 Air Quality Permit for Land Drill Rigs	TBD	Awating contract with rig	1
ADEC/SPAR	Major Amendment (Rev. 3) to ODPCP 15-CP-5241	15-CP-5241 Rev. 3	Undergoing Public Review through 9/18/2017	3
ADEC/EH	AEA SW Management Plan	None	Reviewed and Updated	4
ADEC/EH	Temporary Storage of Drilling Wastes Plan	Approval Letter	Pre-App, Draft	4
NSB/Planning	NSB Traditional Land Use Inventory (TLUI) Certificate of Clearance	TBD	Fieldwork Complete & Report Prepared for submital	1, 8
NSB/Planning	NSB Development Permit	TBD	Awaiting TLUI for Pre-App and then Draft	All
ADF&G/DH	Title 16 Fish Habitat	TBD	Application Package submitted 9/13/2017	5, 8
ADF&G/PS	Public Safety Permit	17-022	Wildlife Interaction Plan & Bear Interaction Plan Updated, Submit new application 31 Jan 2018	8
USACOE/AK	CWA Section 404	Phone Consultation	Consultation complete. No wetlands impacted	5, 8
USEPA	SPCC Plan	None	AEA SPCC Plan updated and approved	3
ADOT&PF/NRO	Driveway/ Approach Road ROW Permit	TBD	In preparation	8
ADNR/DML&W	LNO from ALASKA GASLINE DEVELOPMENT CORP-ASAP to cross ADL 418997 Pipeline ROW (see Figure 10a in Appendix A)	TBD	In preparation	8

SECTION IX: REHABILITATION PLAN

1. Proposed Level of Infrastructure, Facilities and Equipment Removal:

Upon completion of drilling and evaluation operations, the wells will either be plugged and abandoned (P&A) or suspended in accordance with AOGCC regulations. Equipment and structures will be removed from the Project area at the end of the season. Ice pads and roads will be scraped to remove dark-colored drips missed by the ACC spill technician and the resulting snow will be thawed with resulting oily water disposed of at a permitted disposal facility. Trash and debris will be removed and transported for disposal at a permitted disposal facility. AEA will conduct an inspection and "stick picking" operation via helicopter in Summer 2018 to ensure that NSB and State cleanup requirements have been met.

2. Description of Restoration and Rehabilitation Activities for Vegetation, Habitat, Impacted Wildlife, and Other Applicable Resources:

Although activities will be conducted from TWRs and ice pads, impacts to vegetation and habitat may occur. Therefore, AEA will inspect the Project area following snowmelt in 2018 during "stickpicking" to confirm that tundra damage did not occur. If tundra damage is discovered, AEA will consult with the State and the NSB to determine the appropriate methods for restoration, and incorporate them into a Tundra Damage Rehabilitation/Remediation Plan that meets requirements found in NSBMC § 19.30, 19.500 and § 19.60, ADL 393058 and 393043 lease conditions, and specific State requirements. The Plan will address the area, type, and extent of damage and will be developed in accordance with the Alaska Coastal Revegetation & Erosion Control Guide (developed by the State of Alaska Plant Materials Center), the Streambank Revegetation and Protection Guide (developed by the Alaska Department of Fish and Game), and other relevant guidance documents. Agency personnel will be invited to verify that rehabilitation operations are complete and that any issues identified are addressed.

SECTION X: OPERATING PROCEDURES DESIGNED TO MINIMIZE ADVERSE EFFECTS

Describe operating procedures designed to prevent or minimize adverse effects on other natural resources and other uses of the Lease area and adjacent areas including:

Fish and Wildlife Habitats: Pad and roads constructed of ice will only be used in winter months during the open winter tundra travel season. Streams will crossed in shallow waters that normally freeze to bottom or will be bridged using temporary bridges founded on ice ramps and abutments. Willow habitats were identified/located during fieldwork in August 2017 and the TWR alignments staked to avoid them during TWR and ice pad construction. In summary, all AEA activities will be conducted to minimize impacts on fish and wildlife. This includes mitigation measures outlined in the ADL lease stipulations and adherence to State of Alaska and NSB land management regulations and permit requirements. A wildlife avoidance & interaction plan and a bear avoidance interaction plan (for both grizzly and polar bear) has been prepared & will be included in the site orientation for all Project personnel.

Historic and Archeological Sites:	AEA has completed a consultation, survey and fieldwork to inventory prehistoric, historic, and archeological sites ("resources") on and around the proposed ice pads and TWR alignments. This was done by Reanier & Associates, Inc. (Reanier) in June 2017. As part of the survey, TLUI data was obtained by Reanier from the NSB Inupiat Heritage and Language Center (NSB IHLC) and reviewed, along with data from Alaska Heritage Resource Survey and National Register of Historic Places. This data and a field report will be submitted for review by the NSB Planning and Land Management Department, Cultural Resources Office and the ADNR/OHA State Historic Preservation Office ("SHPO"). The data and field report both indicate there are no archaeological, historic or culutural resources within 0.4 miles of the Main TWR alignment, Bravo TWR Spur and Charlie TWR Spur alignments, or staging and drill ice pad locations. Additionally, AEA has created a series of 500-foot buffers ("environmentally sensitive zones") around sites identified Reainer during the study, where traffic will be excluded. Combined with drilling operations limited to winter when the ground is frozen and covered snow, these zones will help provide adequate protection for the historic and archaeological resources. Finally, it is AEA's intention that historic, cultural or archaeological resources (or suspected resources) that are discovered during Project activities are not to be disturbed under any circumstance. This will include providing training to all field personnel on what to do as part of required Project orientation. If archaeological sites are discovered during Project activities, the following steps will be taken:1) Project personnel discovering historical or archaeological (or suspected) resources during operations will not disturb materials in place at the site of discovery and mark the area with flagging tape; 2) Project personnel will stop all activities and then inform their job supervisor so as to contact AEA's onsite representative; 3) AEA will then report these properties to SHPO and NSB ILHC for identification and assessment, and 4) AEA will use identification and assessment consultations to guide further planned activities in the site area.
Public Use Areas:	The proposed operations occur near the Nuiqsut Subsistence Use area (reference Figure 9 in Appendix A). AEA will conduct operations to minimize any adverse effects on subsistence uses and avoid conflicts with private, commercial & industrial users. Additionally, if potential subsistence issues are identified, subsistence representatives will be contacted and updated during drilling and testing operations to minimize impacts. The permitting actions associated with the exploration wells will be public noticed as part of the permitting processes. If there are concerns with regards to the Project, AEA will be receptive and pro-active. Although public access to the AEA TWR must be restricted due to safety concerns, AEA will provide shelter and assistance in emergency situations to subsistence users.
Other Uses:	PERMITS and LEASES: ADL Oil & Gas leases in the Project area are shown in Figure2, Figures 5a-5e and 6a-6e in Appendix A. Other ADL leases and permits are shown by Meridian, Township, Range, Section (MTRS) designation in Figures 10a-10e. AEA will contact all leasees and permitees before entering their surface lands and gain approval through letters of non objection (see Section VII Project Use Requirments, Subsection 11 for a complete list of other ADL leases and permits). SIMOPS: The only other use in the general area will be possible activities by other oil & gas companies or geophysical companies…When identified, AEA will contact those companies to discuss and avoid simops problems. TRAINING PROGRAMS: AEA's training program has been designed to inform each individual of the environmental, social, and cultural concerns that relate to their job functions. Training components include a review of permit stipulations and requirements, cultural awareness, spill prevention and reporting, wildlife interaction, site specific safety, waste management practices, etc. All personnel will participate in a specific training program module for bear safety and a briefing of the Bear Avoidance, Interaction, and Mitigation Plan. In addition, AEA employees and contractors are required to complete an 8-hour training program provided by the North Slope Training Cooperative (NSTC). A Field Environmental Handbook, Alaska Safety Handbook, and a North Slope Visitor's Guide are used for the training. The training program includes classes on the Alaska Safety Handbook, personal protective equipment, camp and safety orientation, hazard communication, HAZWOPER Level I, and Environmental Awareness. Additioally, Finally, AEA also requires that all company personnel and contractors attend rig and location safety meetings (pre-tour, SIMOPS, and weekly), as well as participate in the contractor's safety practice ("Risk Assessment/JSEA, PTW, STOP," etc. programs) on-site training orientation, and required weekly safety meetings. Topics discussed in safety meetings will include various emergency action drills (scheduled and unscheduled) familiarizing workers with the wildlife interaction plans, warnings and hazing methods, and reporting requirements; reviewing spill/incident reporting requirements and spill prevention measures, reviewing fluid transfer procedures, and general hazard identification regarding the various chemicals used in drilling operations and other activities; reviewing cold weather operations and personal protection. INTERACTING with LOCAL COMMUNITIES and COMMUNITY GROUPS. As part of the permitting process, AEA has published public notices detailing planned winter drilling program operations in Utqiagvik (Barrow), Fairbanks and Anchorage, and has been responding to requests for additional information (RFAI) from individuals and non-government organizations interested in the Project.

SECTION XI: GLOSSARY OF TERMS

Term #	Term	Term Definition
1.	AAC	Alaska Administrative Code
2.	ADEC	Alaska Department of Environmental Conservation
3.	ADEC/AQ	ADEC Division of Air Quality
4.	ADEC/DW	ADEC Division of Water
5.	ADEC/EH	ADEC Division of Environmental Health
6.	ADEC/SPAR	ADEC Division of Spill Prevention and Response
7.	ADF&G	Alaska Department of Fish and Game
8.	ADF&G/DH	ADF&G Division of Fish Habitat

9.	ADF&G/PS	ADF&G Division of Public Safety
10.	ADL	Alaska Division of Land (lease)

SECTION XII: CONFIDENTIALITY

The undersigned hereby requests that each page/section of this application marked confidential be held confidential under AS 38.05.035(a)(8).

APPLICANT CONTACT:

Signature	Name	Title	Date
	Erik Opstad	Alaska Operations General Manager	18 Sept. 2017

APPENDIX A: MAPS

MAP SUMMARY

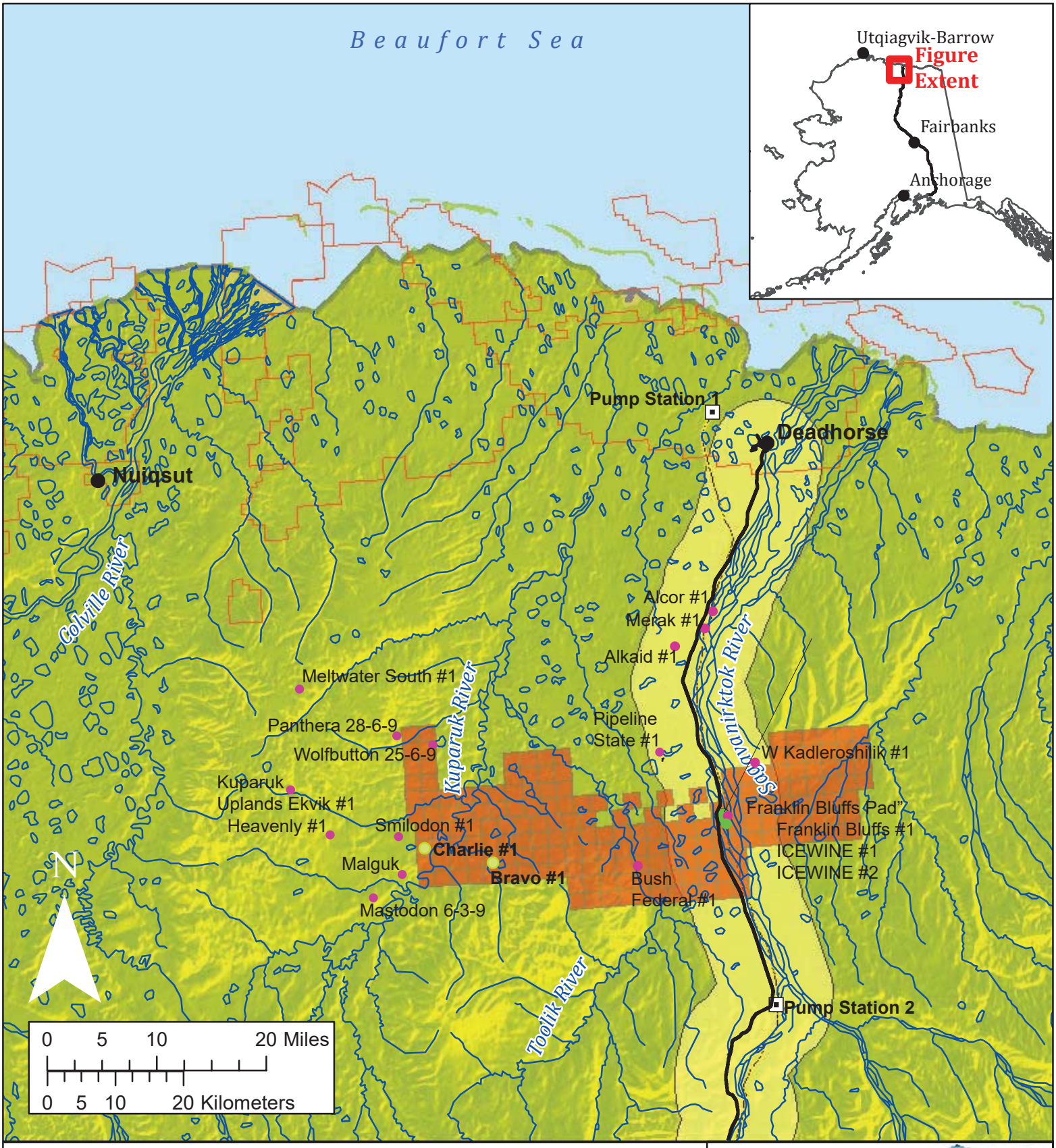
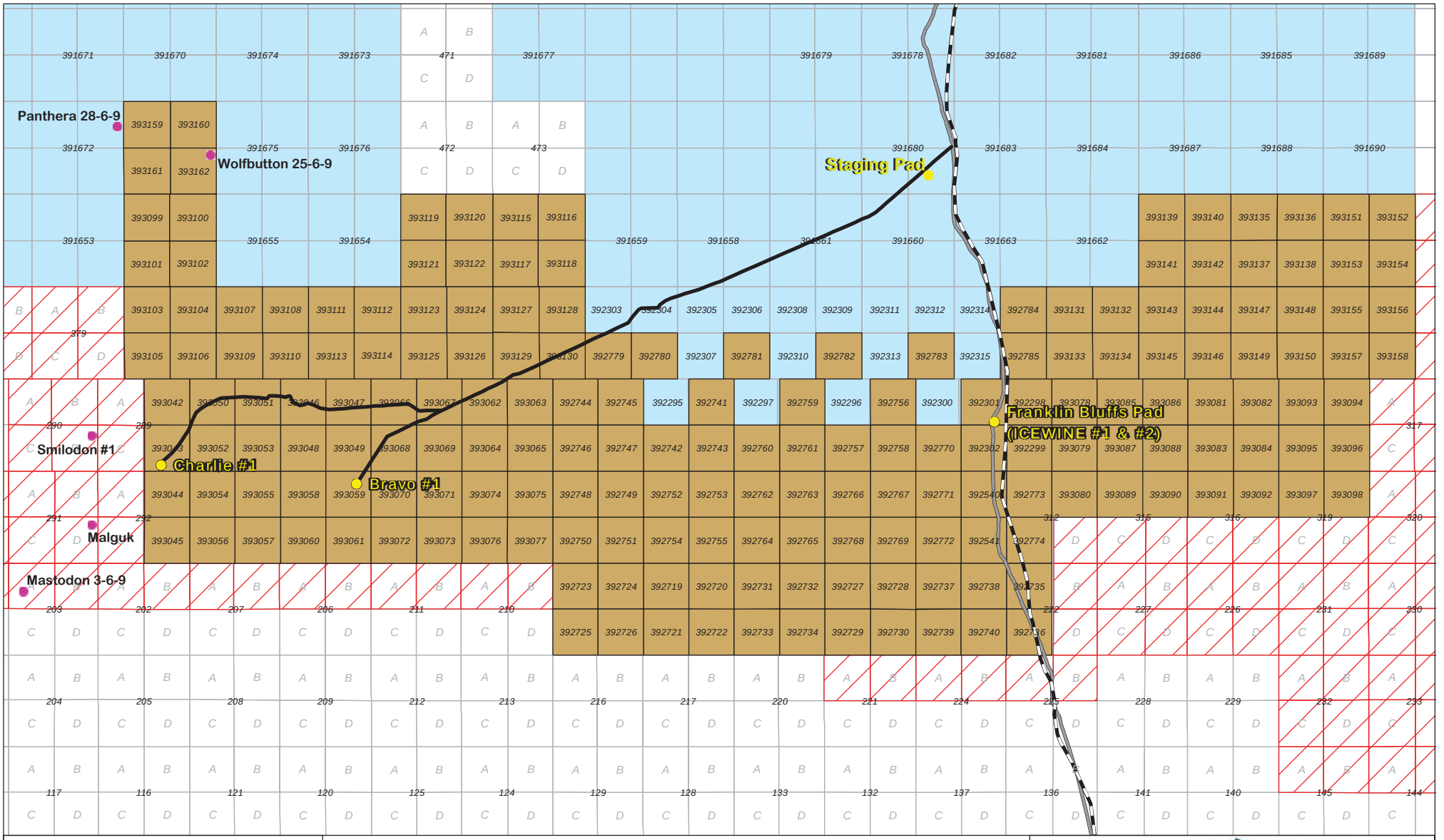
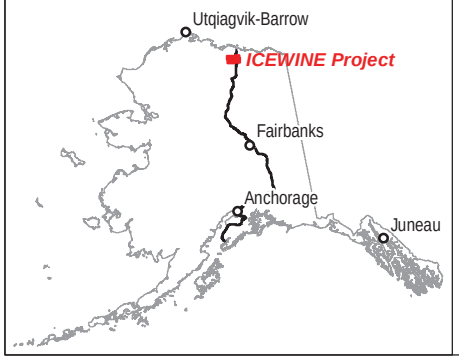


Figure 1

ICEWINE Exploration Wells
Bravo #1 & Charlie #1

Project Overview





LEGEND

- ICEWINE Project Wells
- Regional Wells
- Proposed Ice Road
- Trans-Alaska Pipeline System
- Dalton Highway ("Haul Road")
- AEA ADL Leases
- Great Bear ADL Leases
- NS O&G Lease Sale Tracts
- Pending Leases

ACCUMULATE ENERGY

Figure 2

ICEWINE PROJECT EXPLORATION WELLS

Bravo #1 & Charlie #1

AEA ADL Oil & Gas Leases Area Map

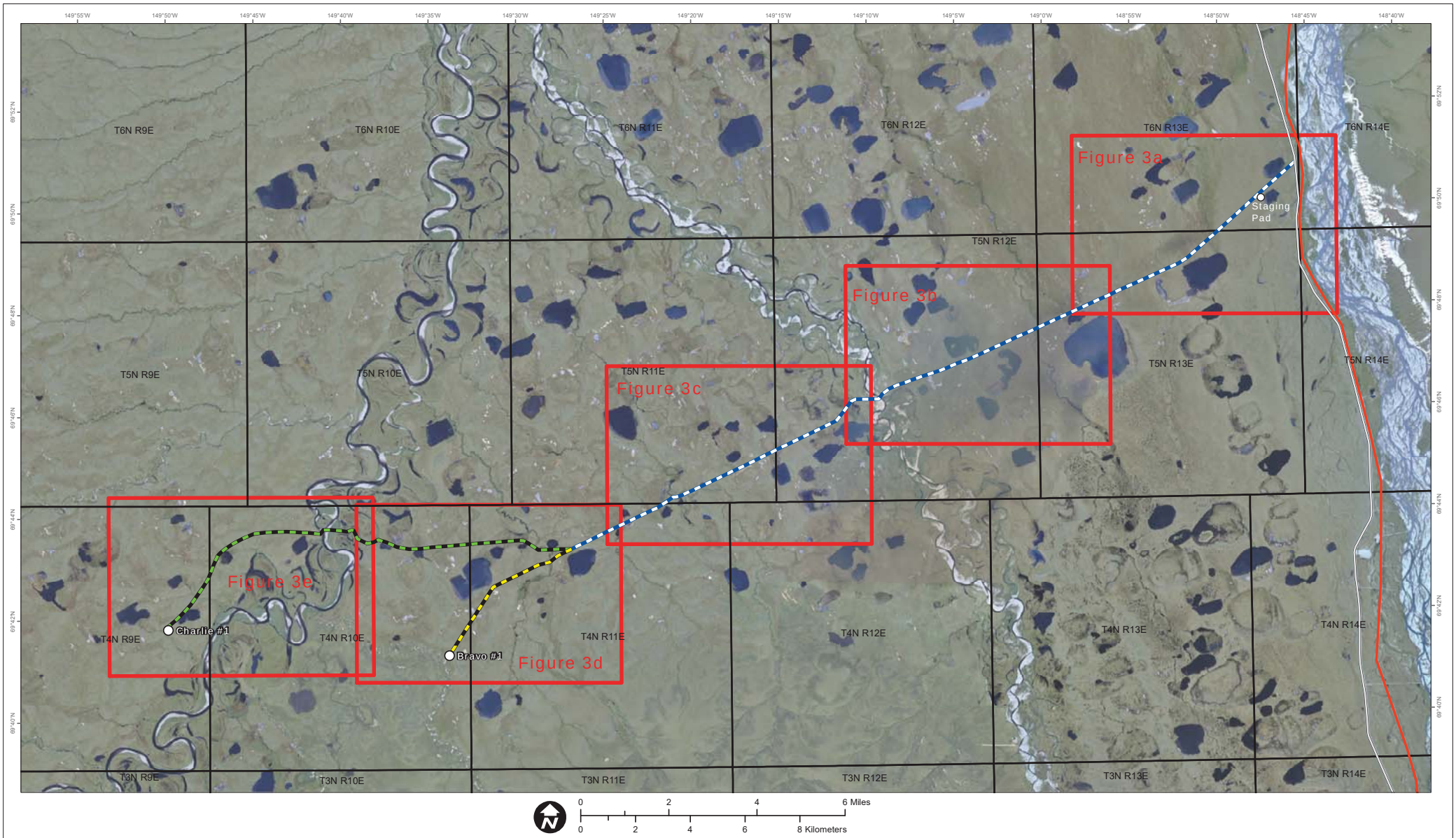
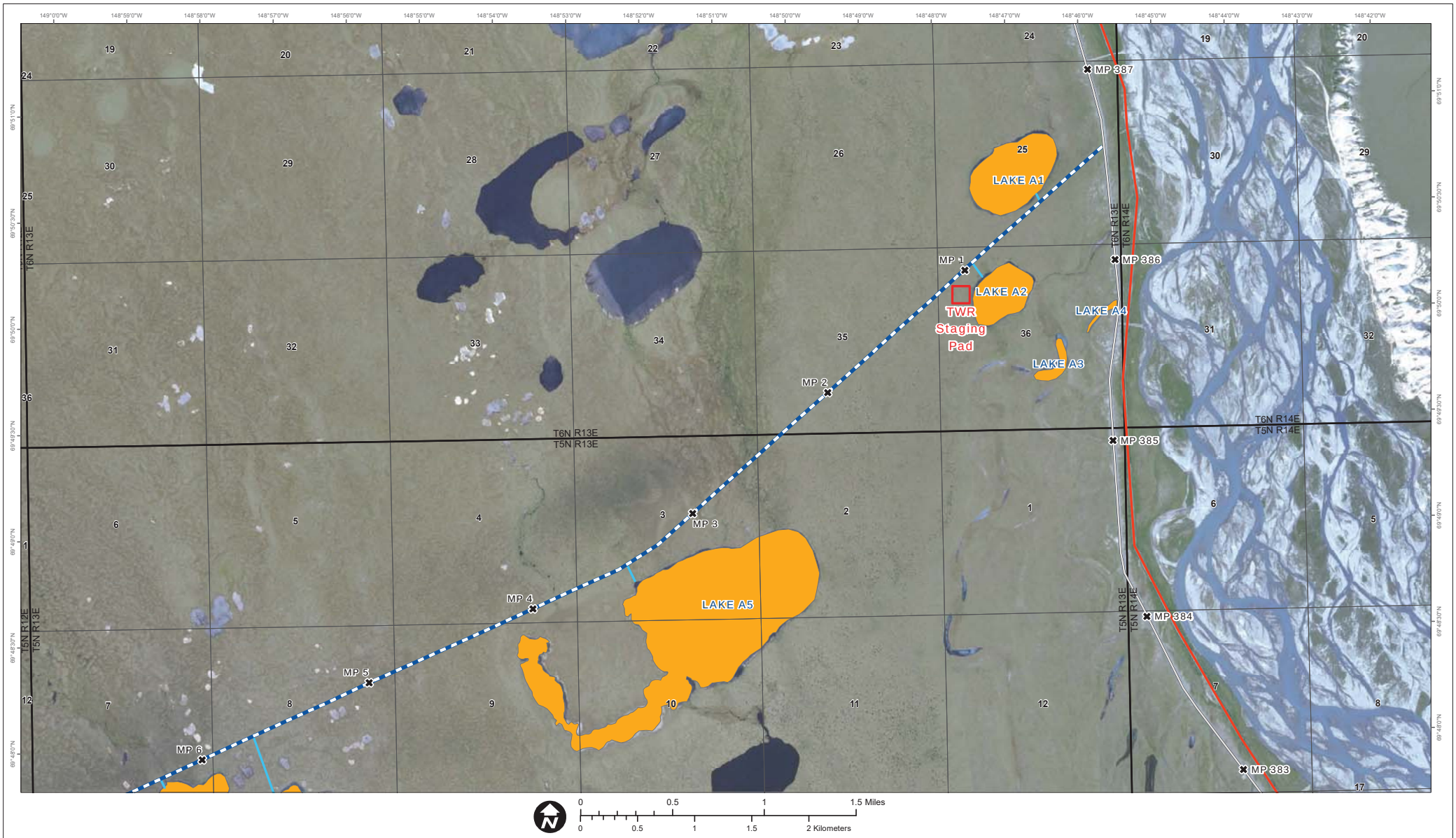
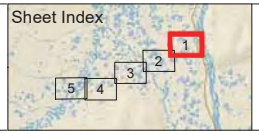


Figure 3
ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Proposed TWRs Index Map - Aerial MTRS





- Proposed Main TWR
- Proposed Bravo TWR Spur
- Proposed Charlie TWR Spur
- Water Source Access Road
- Proposed Water Source
- TWR Staging Pad
- Dalton Highway (Haul Road)
- Trans-Alaska Pipeline

Figure 3a

ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Proposed TWR with Water Sources and Stream Crossings - Aerial MTRS

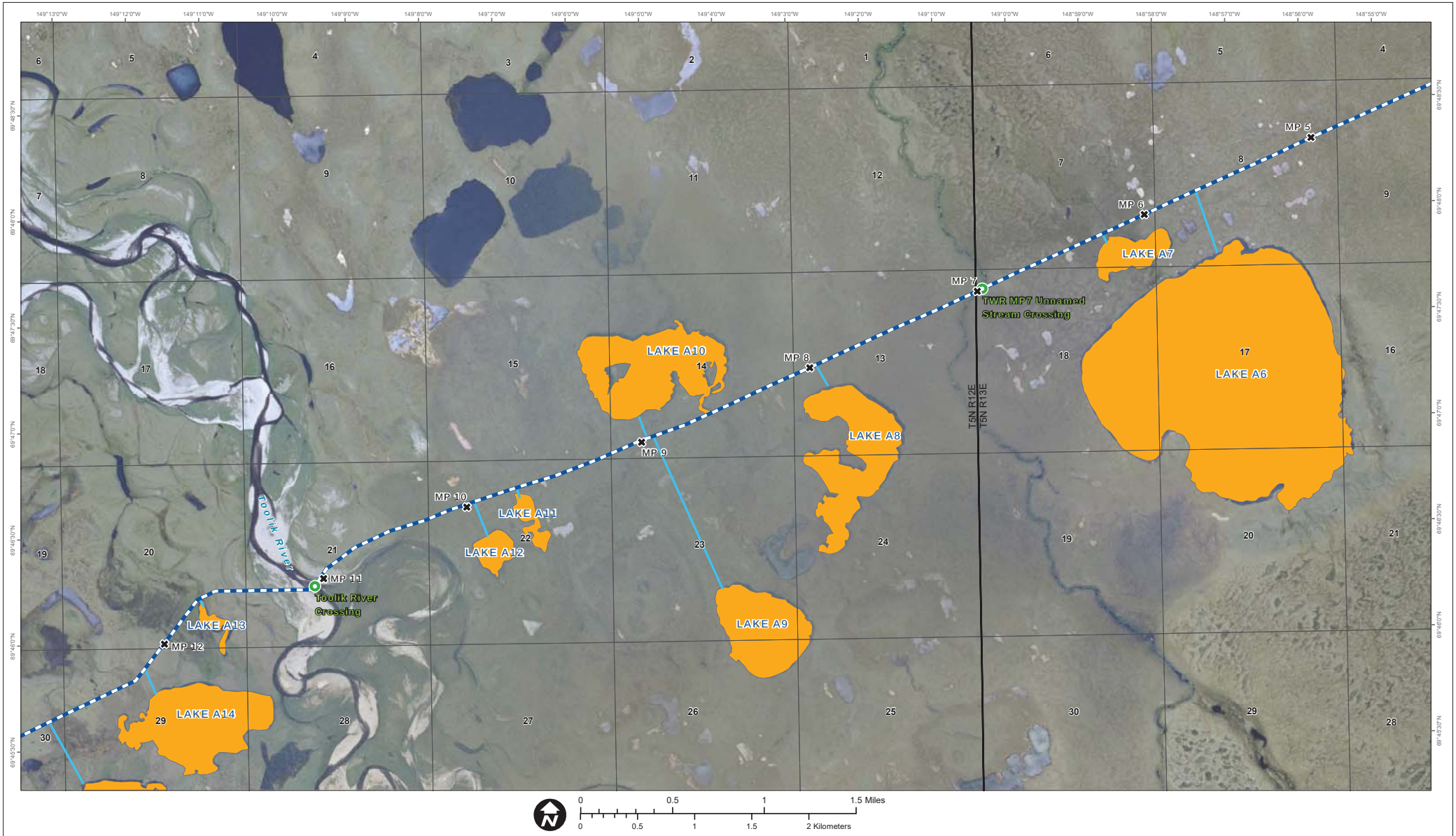
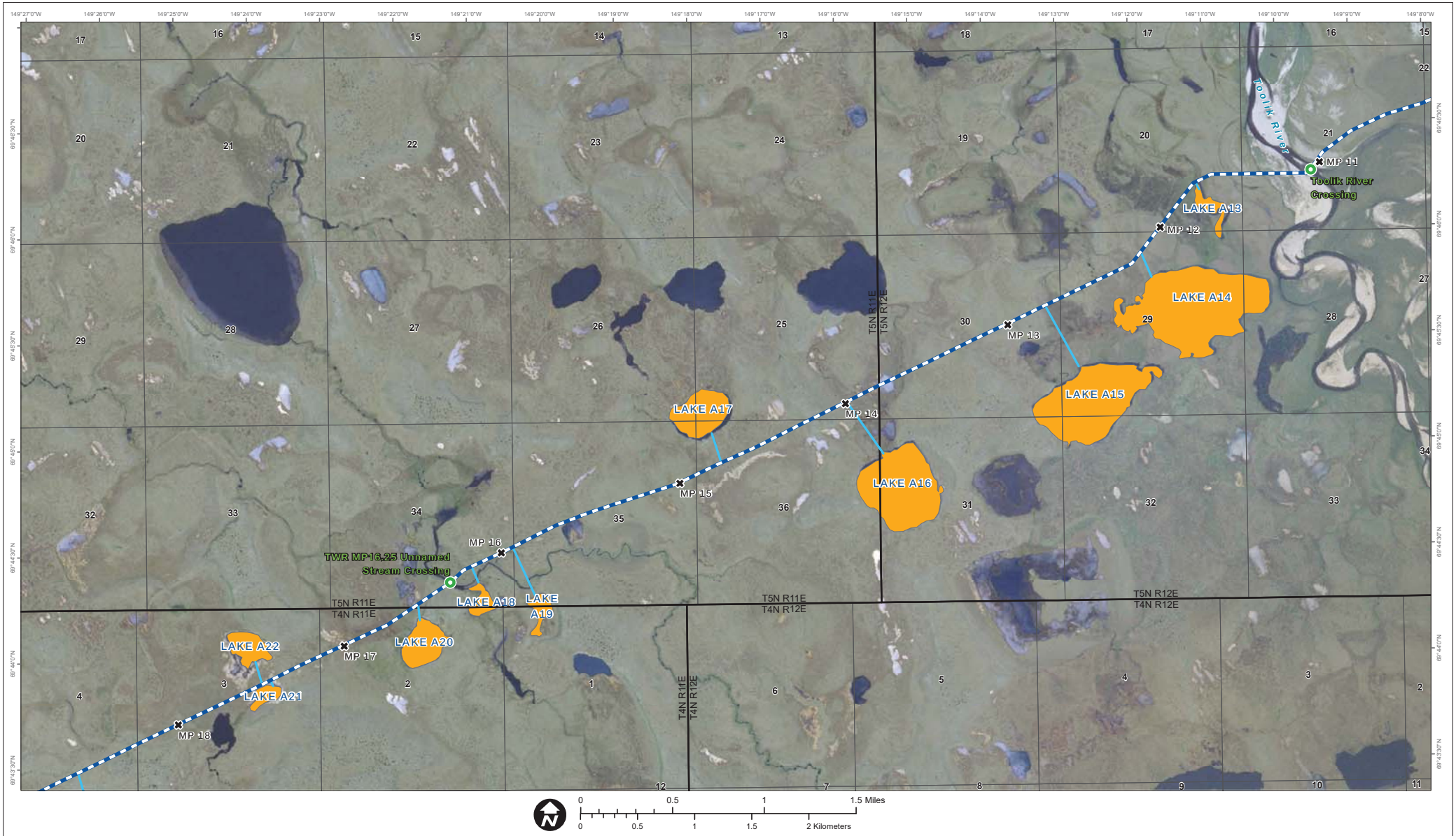


Figure 3b

ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Proposed TWR with Water Sources and Stream Crossings - Aerial MTRS



ACCUMULATE ENERGY

Map Location

ALASKA

Sheet Index

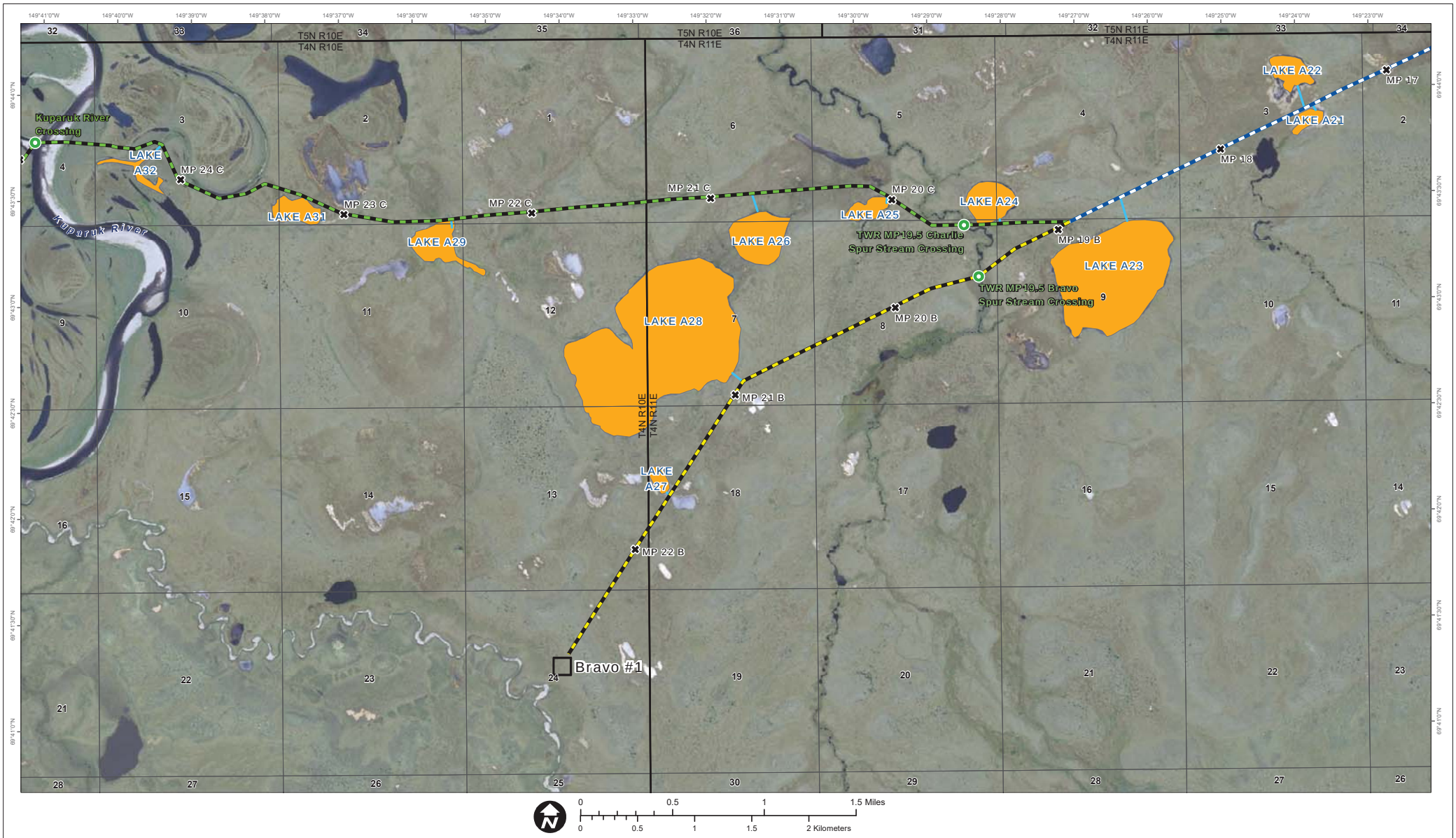
1 2 3 4 5

- Proposed Main TWR
- Proposed Bravo TWR Spur
- Proposed Charlie TWR Spur
- Water Source Access Road
- Proposed Water Source
- Proposed Stream Crossing

Figure 3c

ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Proposed TWR with Water Sources and Stream Crossings - Aerial MTRS



ACCUMULATE ENERGY

Map Location

ALASKA

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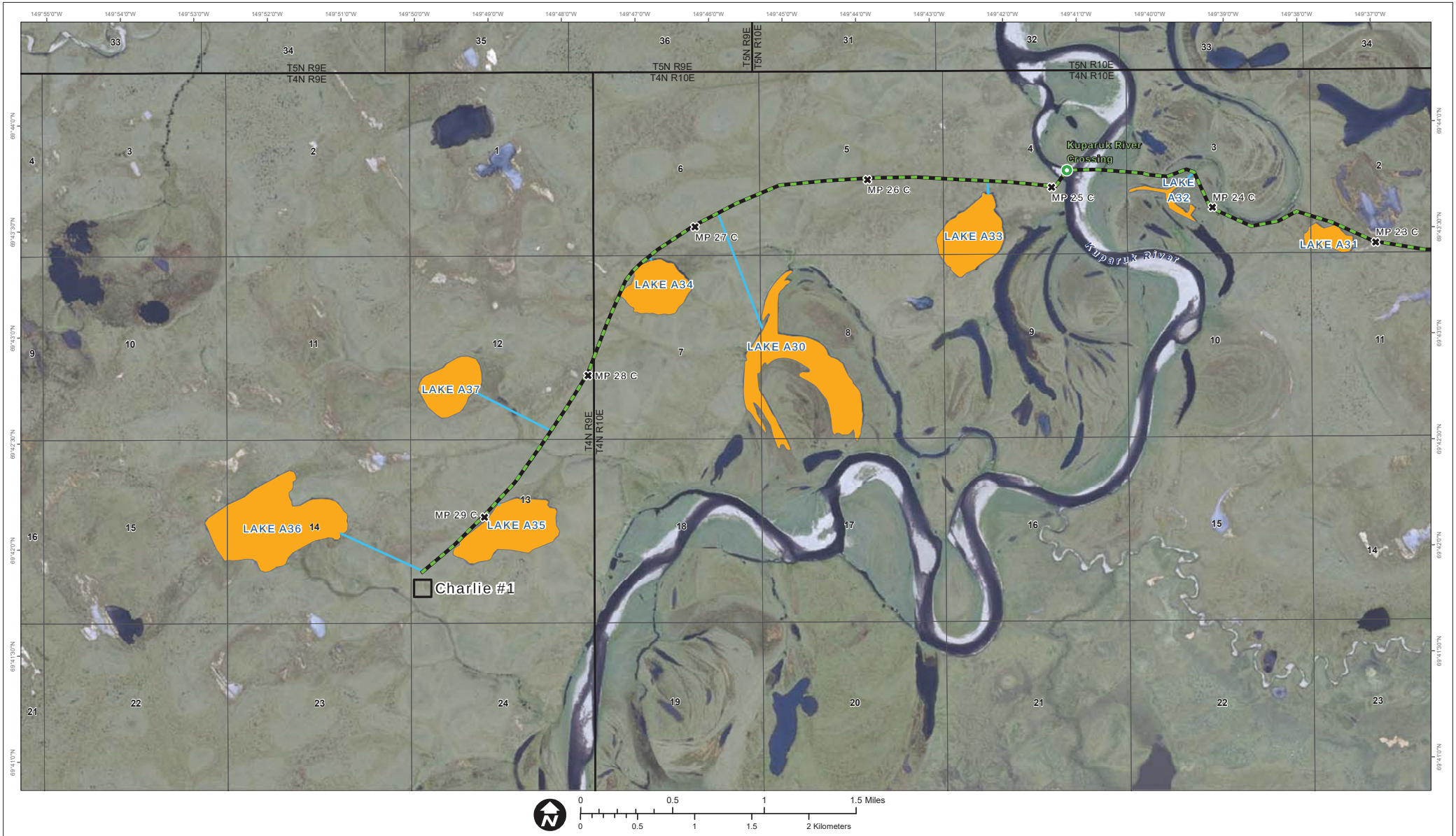
1 2 3 4 5

- Proposed Main TWR
- Proposed Bravo TWR Spur
- Proposed Charlie TWR Spur
- Water Source Access Road
- Proposed Water Source
- Proposed Stream Crossing
- Drill Site

Figure 3d

ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Proposed TWR with Water Sources and Stream Crossings - Aerial MTRS



ACCUMULATE ENERGY

Map Location

ALASKA

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1 2 3 4 5

- Proposed Main TWR
- Proposed Bravo TWR Spur
- Proposed Charlie TWR Spur
- Water Source Access Road
- Proposed Water Source
- Proposed Stream Crossing
- Drill Site

Figure 3e

ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Proposed TWR with Water Sources and Stream Crossings - Aerial MTRS

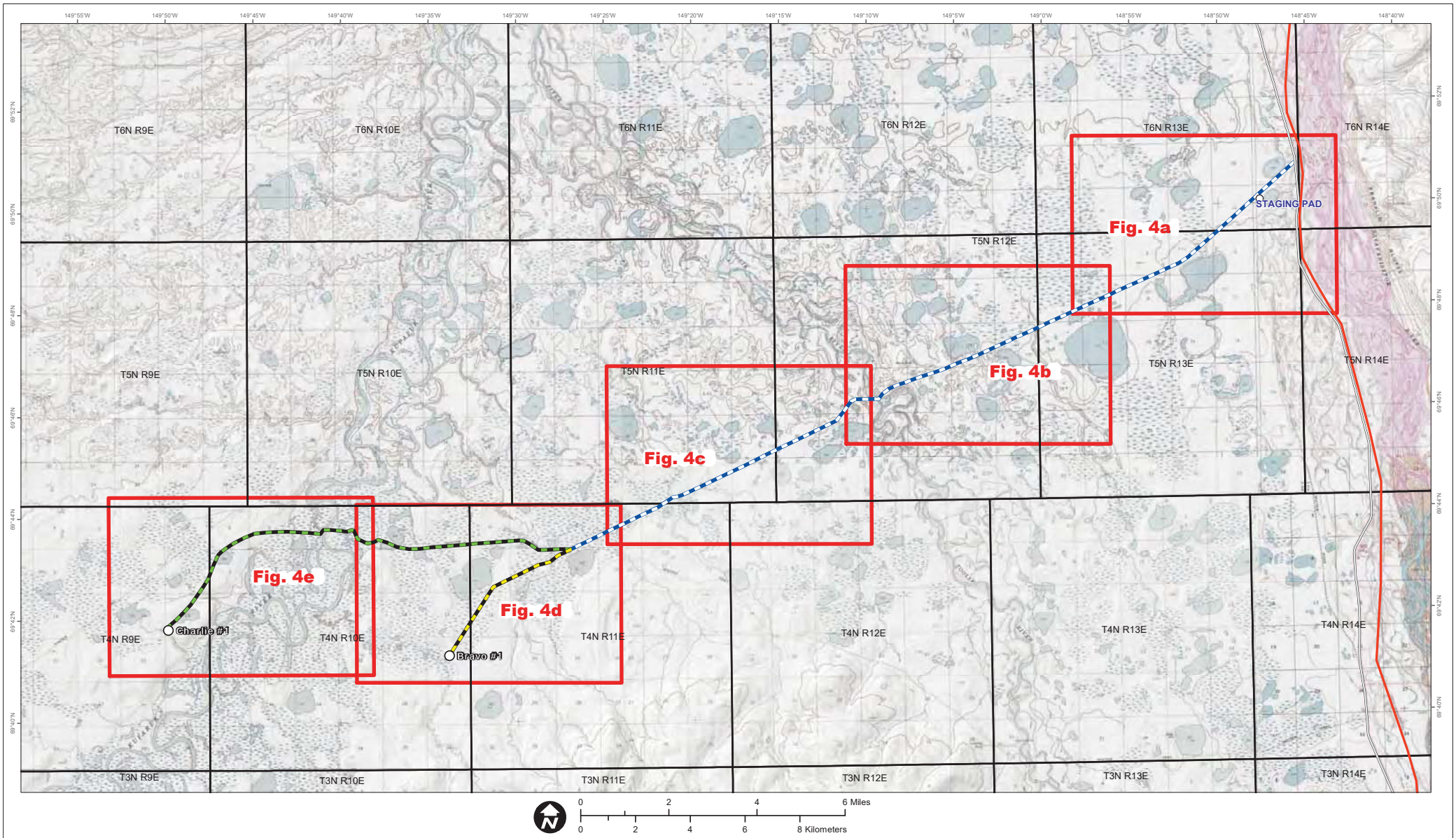
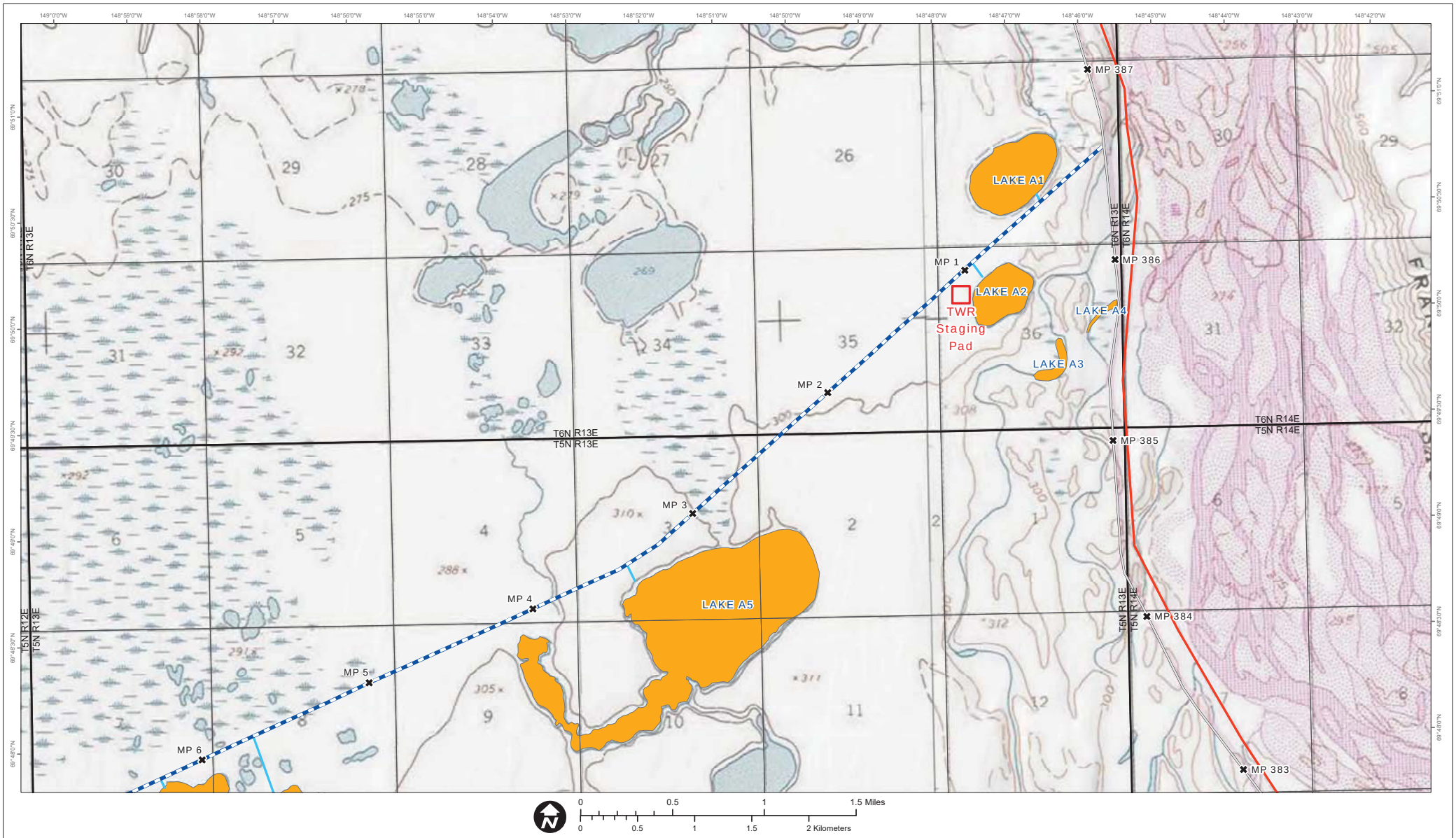
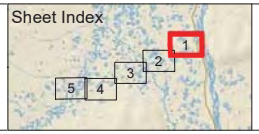


Figure 4
ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Proposed TWRs Index Map - Topo MTRS



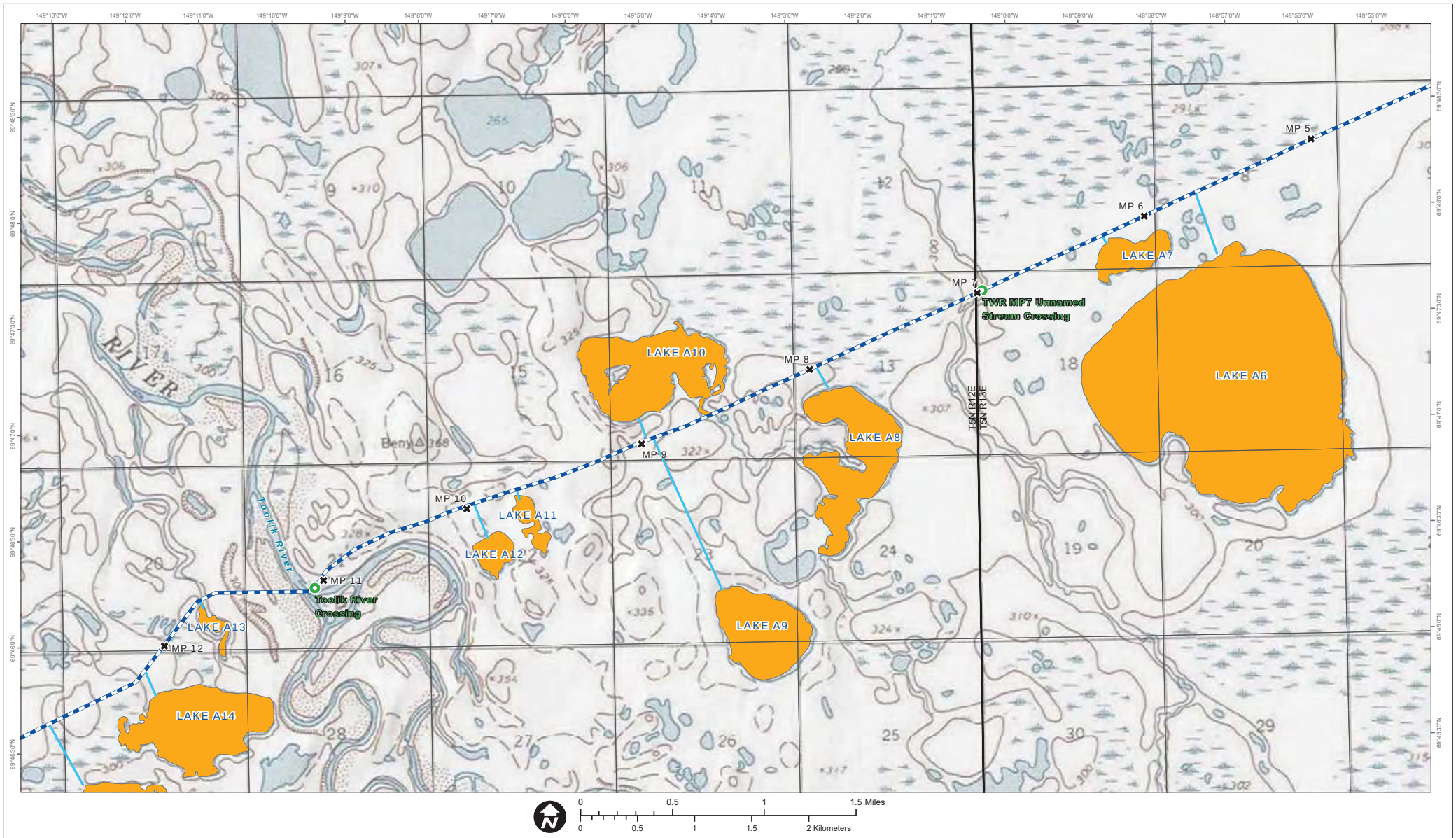


- Proposed Main TWR
- Proposed BravoTWR Spur
- Proposed Charlie TWR Spur
- Water Source Access Road
- Proposed Water Source
- TWR Staging Pad
- Dalton Highway (Haul Road)
- Trans-Alaska Pipeline

Figure 4a

ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Proposed TWR with Water Sources and Stream Crossings



ACCUMULATE ENERGY

Map Location

ALASKA

Sheet Index

1 2 3 4 5

- Proposed Main TWR
- Proposed Bravo TWR Spur
- Proposed Charlie TWR Spur
- Water Source Access Road
- Proposed Water Source
- Proposed Stream Crossing

Figure 4b

ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Proposed TWR with Water Sources and Stream Crossings

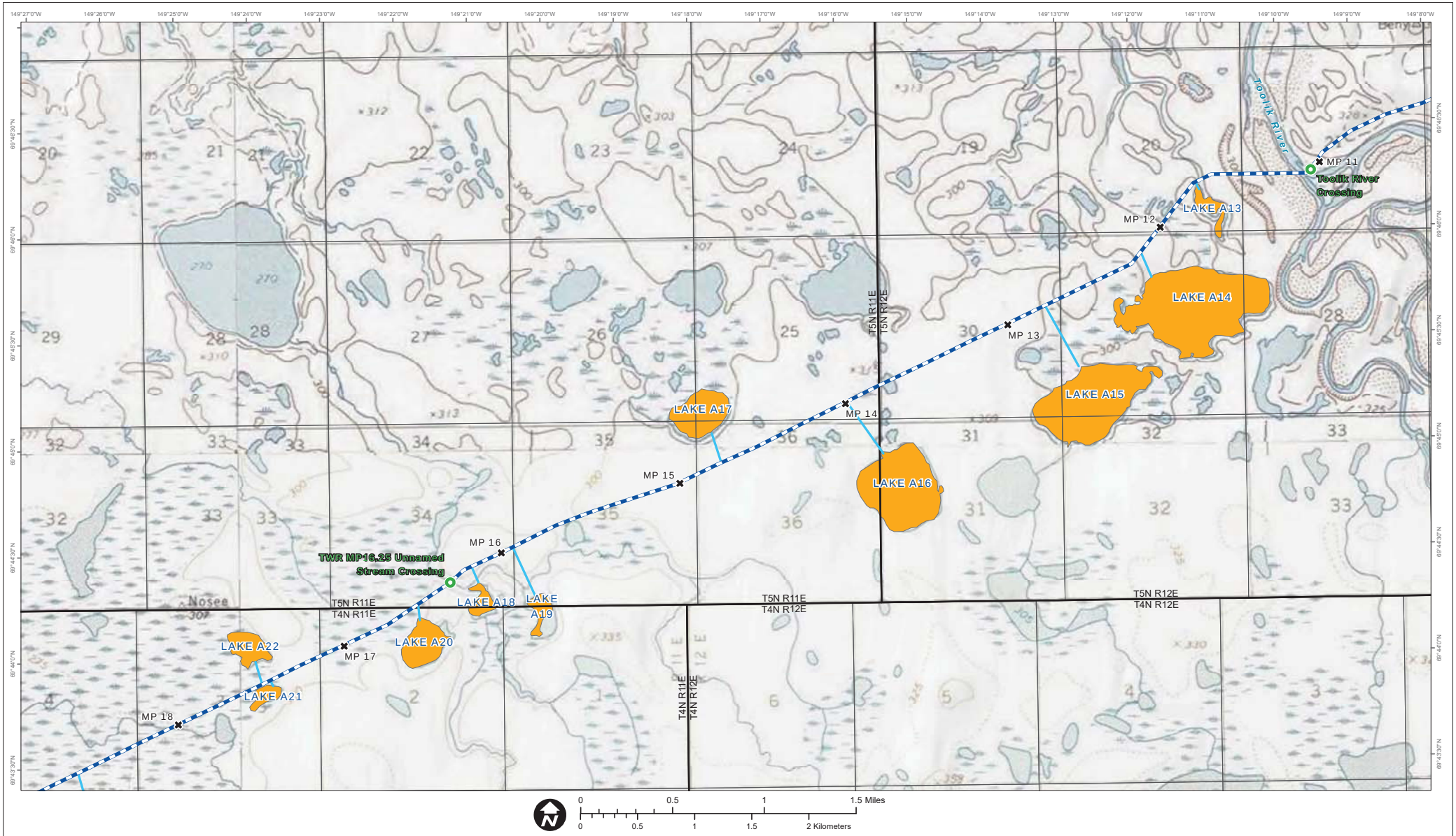


Figure 4c

ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Proposed TWR with Water Sources and Stream Crossings

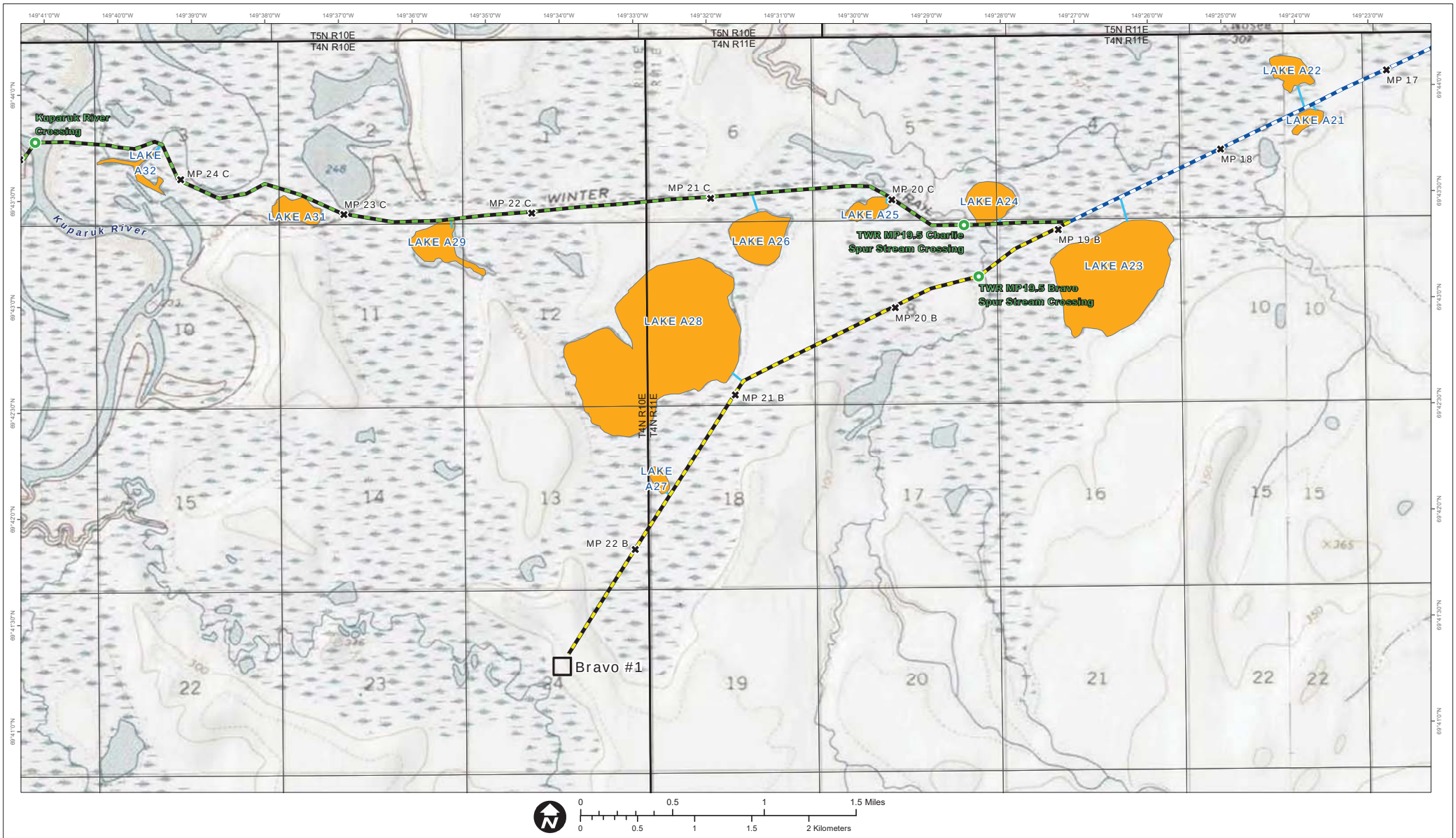
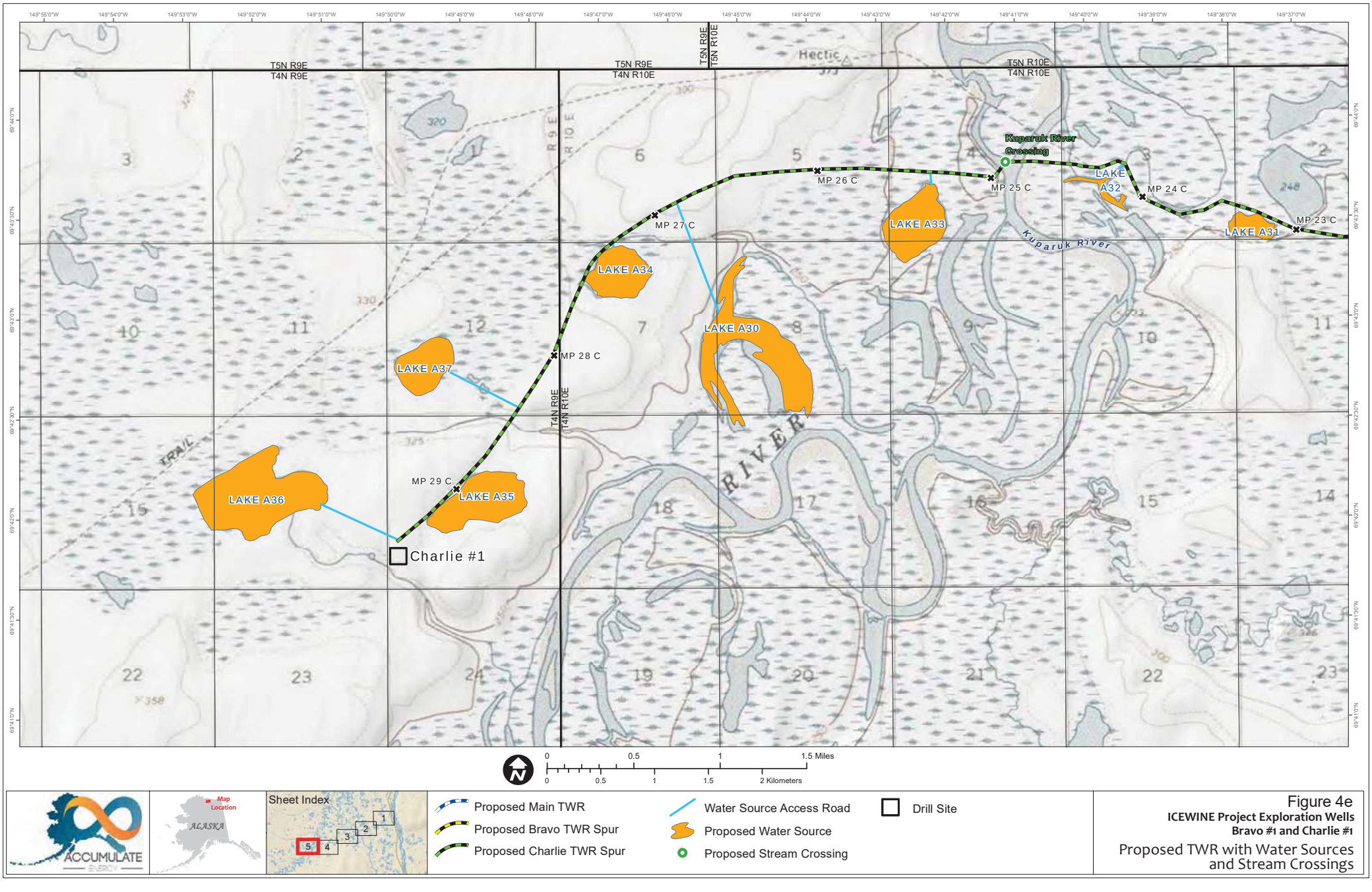


Figure 4d

ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Proposed TWR with Water Sources and Stream Crossings



ACCUMULATE ENERGY

Map Location

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Proposed Main TWR
Proposed Bravo TWR Spur
Proposed Charlie TWR Spur
Water Source Access Road
Proposed Water Source
Proposed Stream Crossing
Drill Site

Figure 4e
ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1
Proposed TWR with Water Sources and Stream Crossings

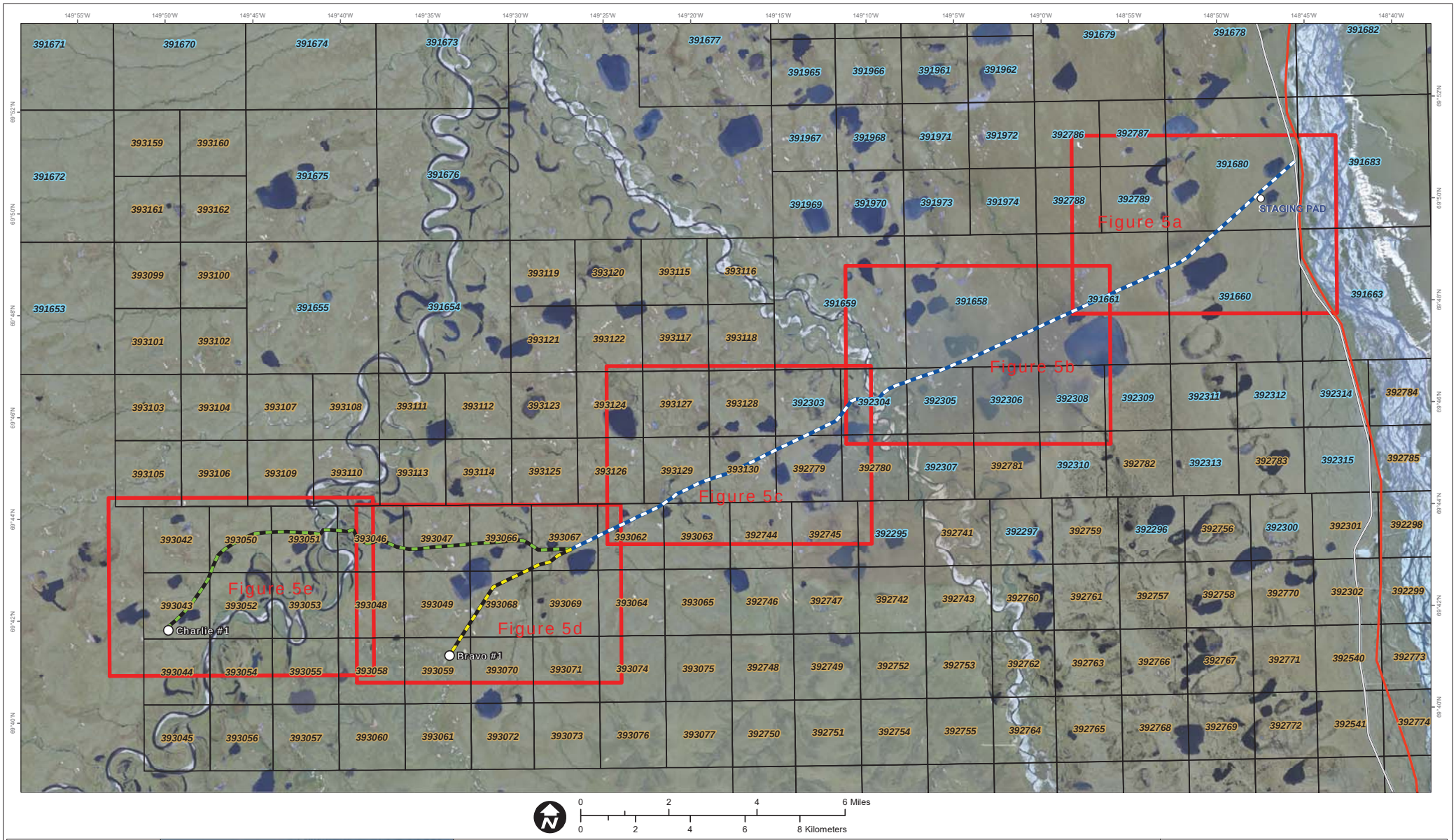


Figure 5
ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Proposed TWRs Index Map - Aerial ADLs

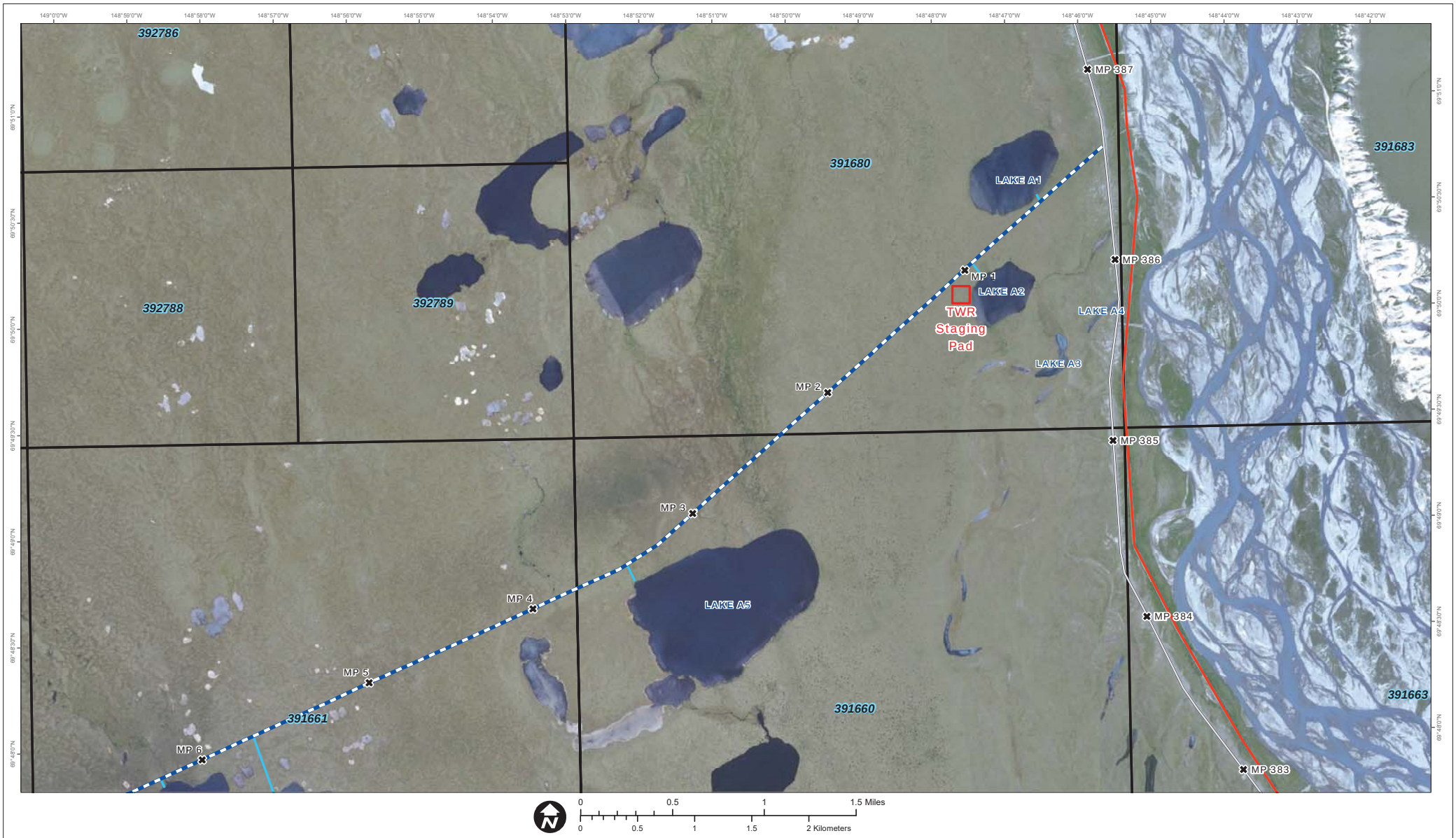


Figure 5a

ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Proposed TWR with Water Sources and Stream Crossings

Figure 5b

ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Proposed TWR with Water Sources and Stream Crossings

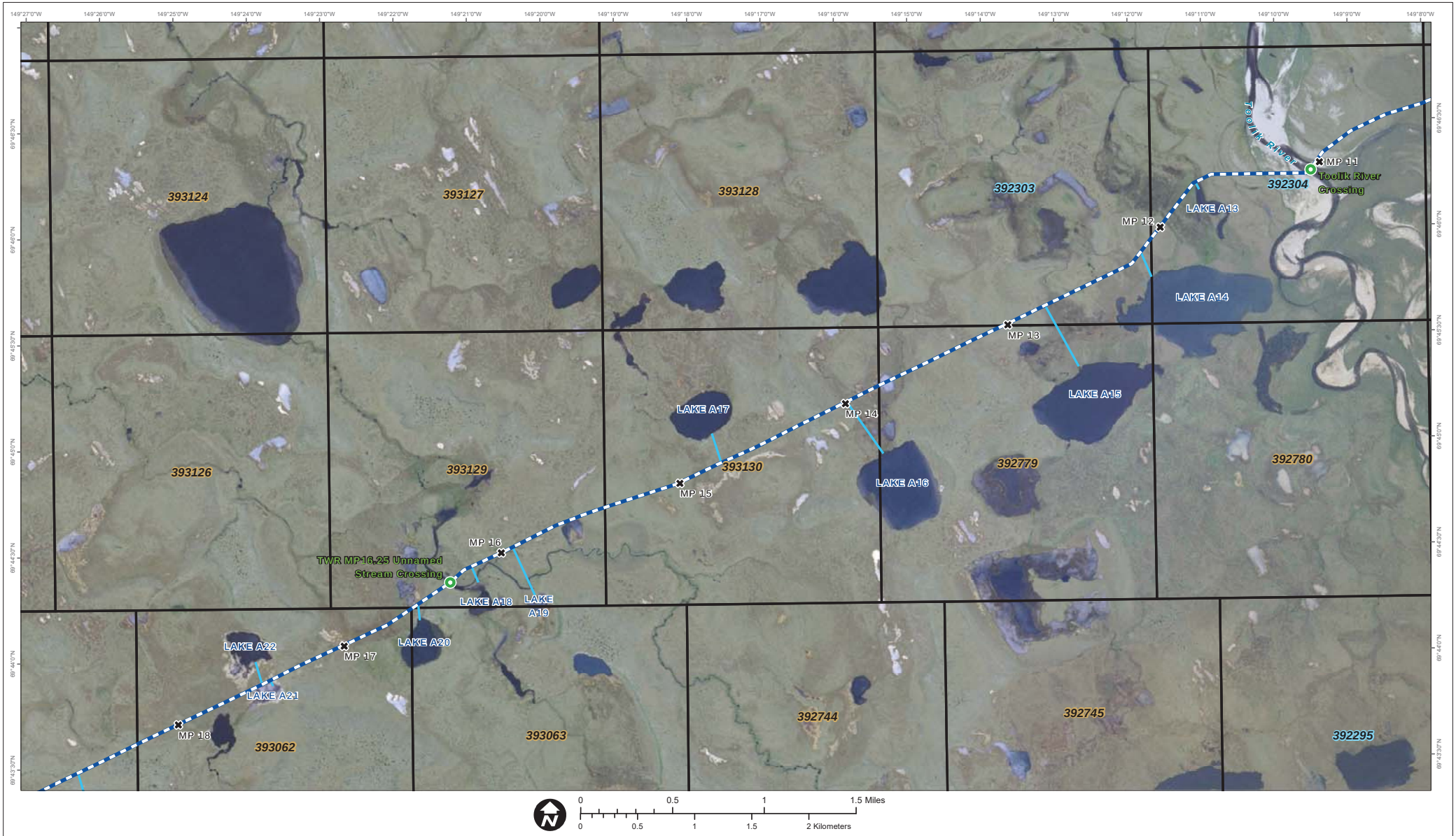
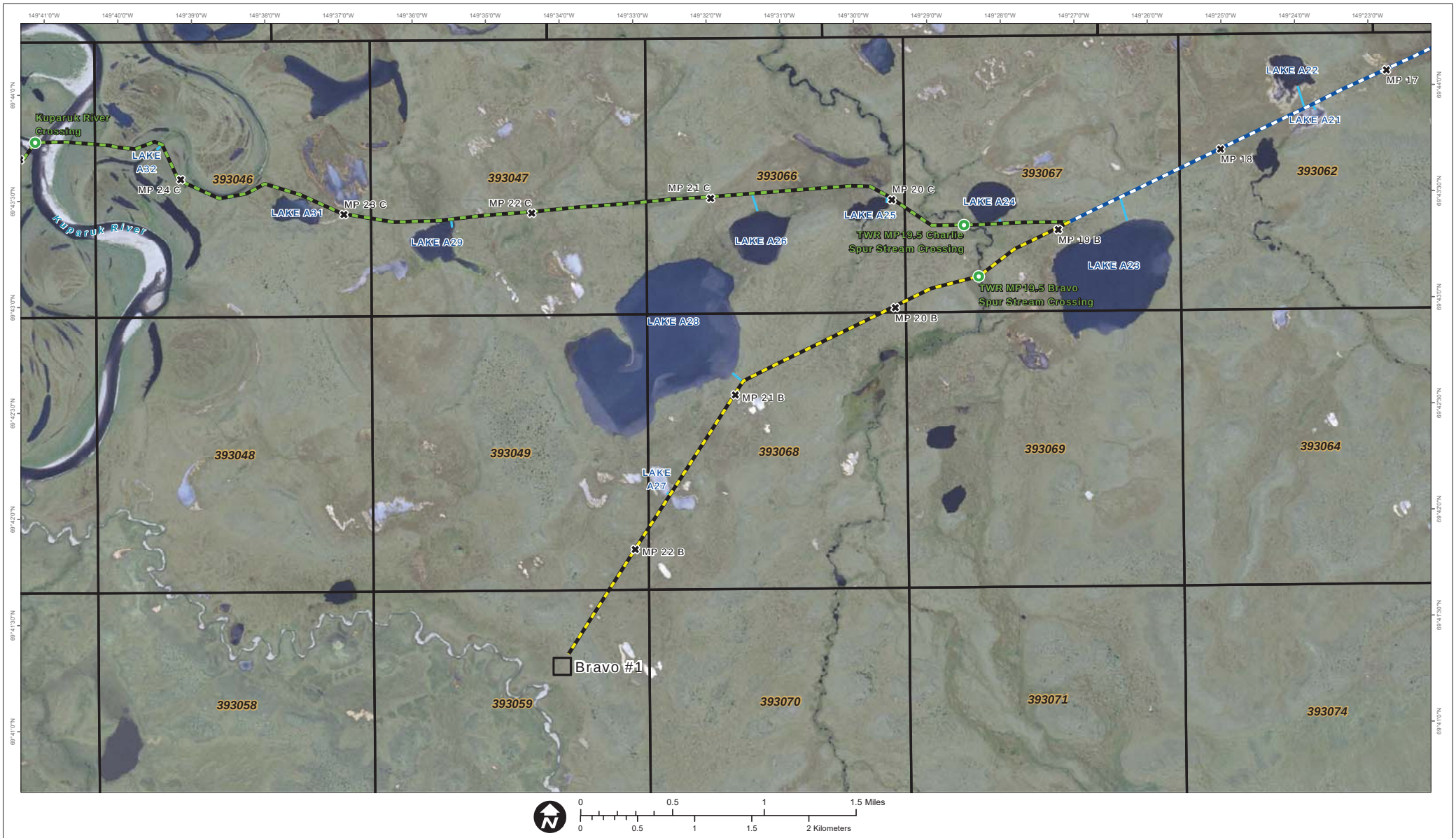


Figure 5c

ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Proposed TWR with Water Sources and Stream Crossings

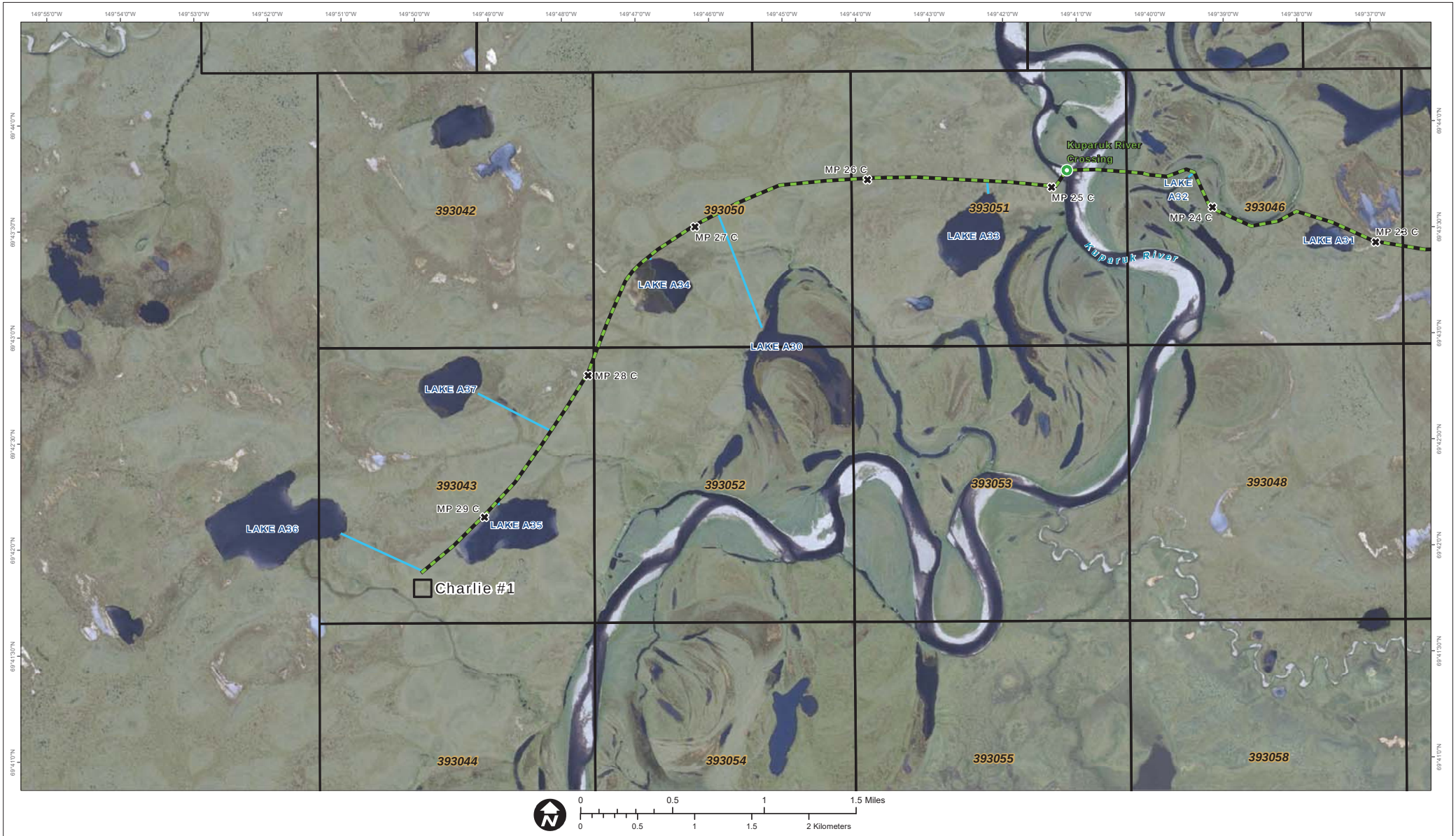


ACCUMULATE ENERGY

Figure 5d

ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Proposed TWR with Water Sources and Stream Crossings



ACCUMULATE ENERGY

Map Location

ALASKA

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1 2 3 4 5

- Proposed Main TWR
- Proposed Bravo TWR Spur
- Proposed Charlie TWR Spur
- Dalton Highway (Haul Road)
- Trans-Alaska Pipeline
- Water Source Access Road
- Proposed Stream Crossing
- 393129 AEA ADL O&G Lease
- 392305 Great Bear ADL O&G Lease
- Drill Site

Figure 5e

ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Proposed TWR with Water Sources and Stream Crossings

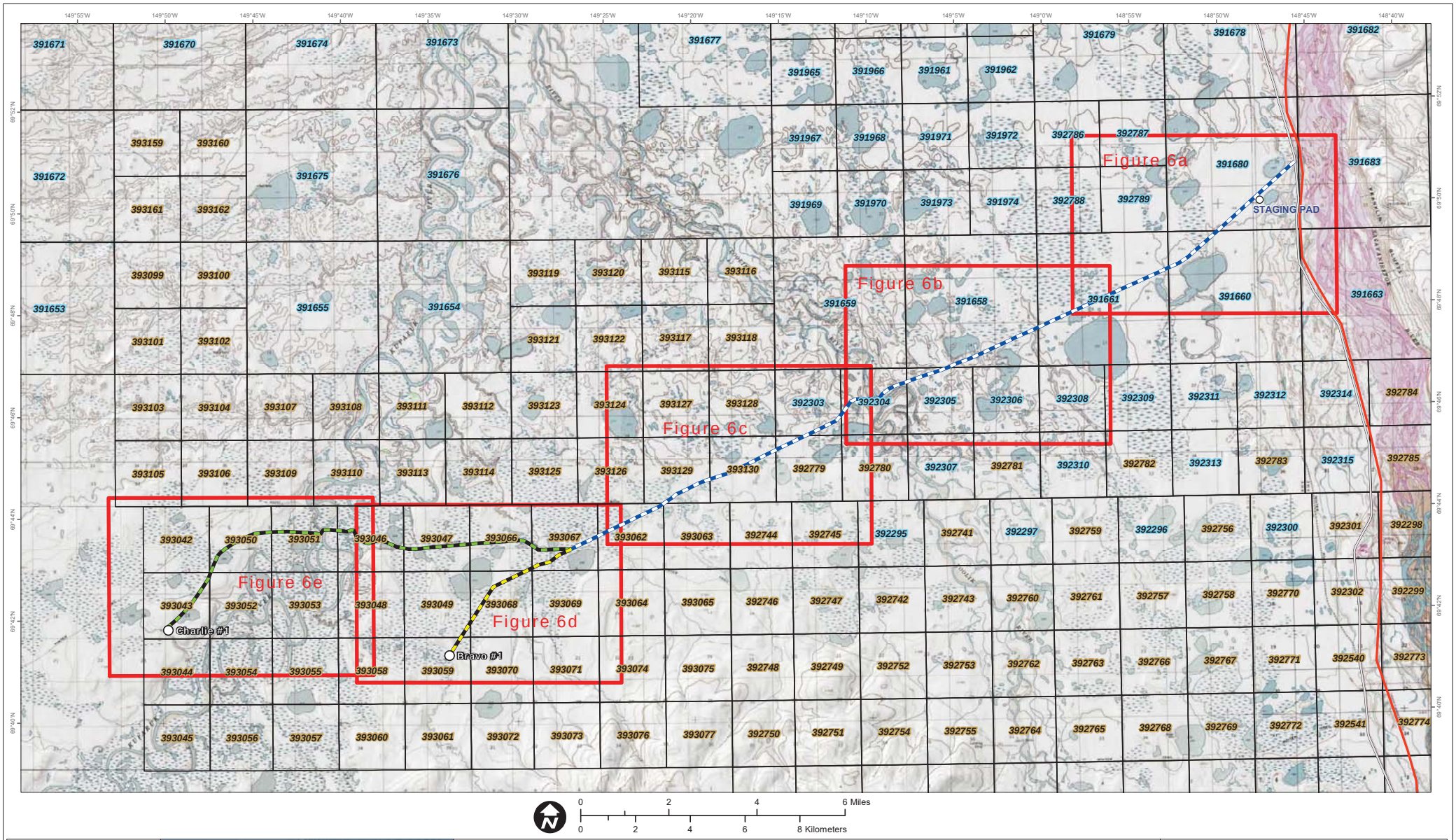


Figure 6
ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Proposed TWRs Index Map - Topo ADLs

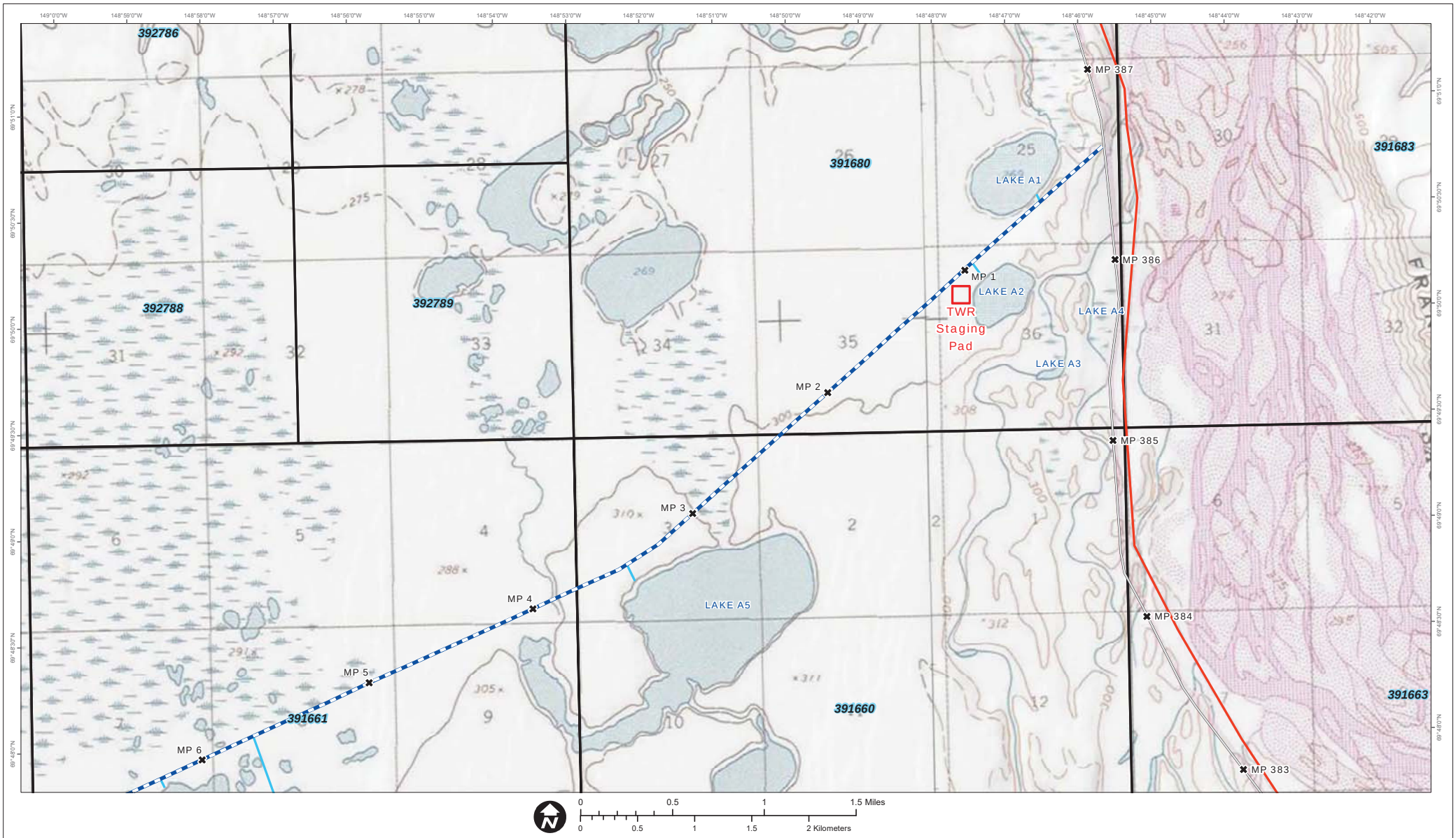


Figure 6a

ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Proposed TWR with Water Sources and Stream Crossings

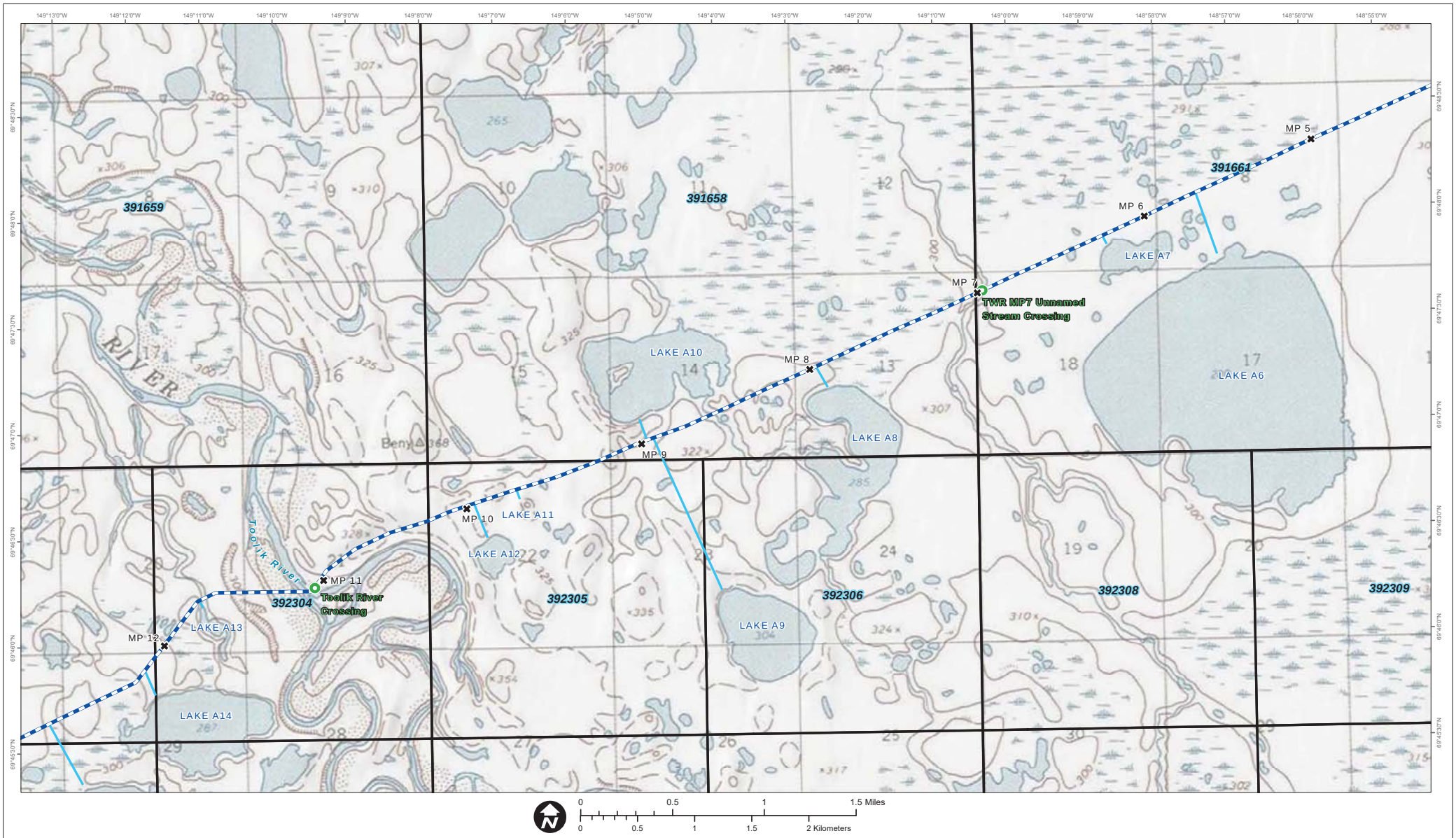
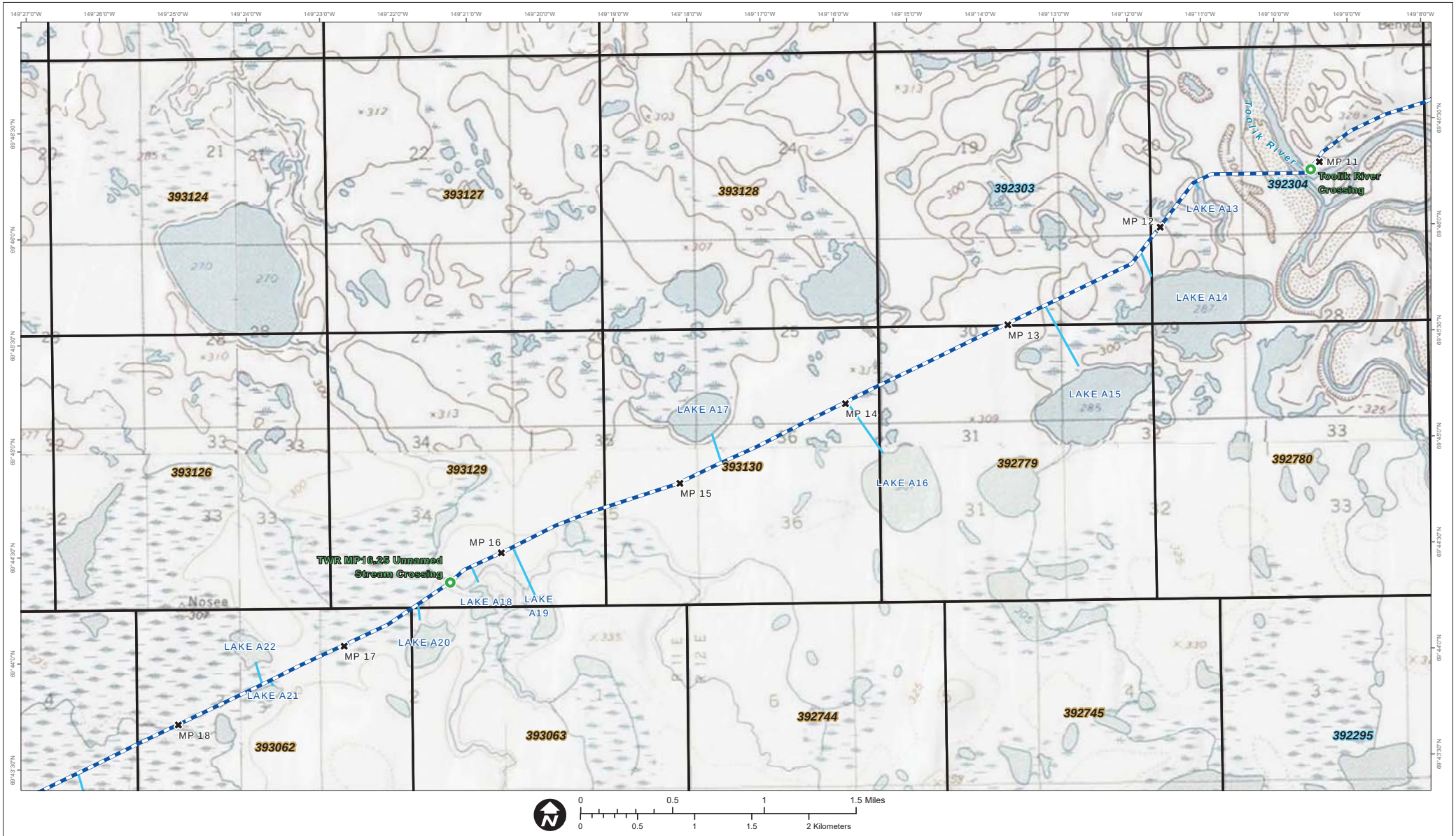


Figure 6b

ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Proposed TWR with Water Sources and Stream Crossings



Sheet Index

Map Location

Proposed Main TWR
Proposed Bravo TWR Spur
Proposed Charlie TWR Spur
Dalton Highway (Haul Road)
Trans-Alaska Pipeline
Water Source Access Road
Proposed Stream Crossing
393129 AEA ADL O&G Lease
392305 Great Bear ADL O&G Lease

Figure 6c
ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1
Proposed TWR with Water Sources and Stream Crossings

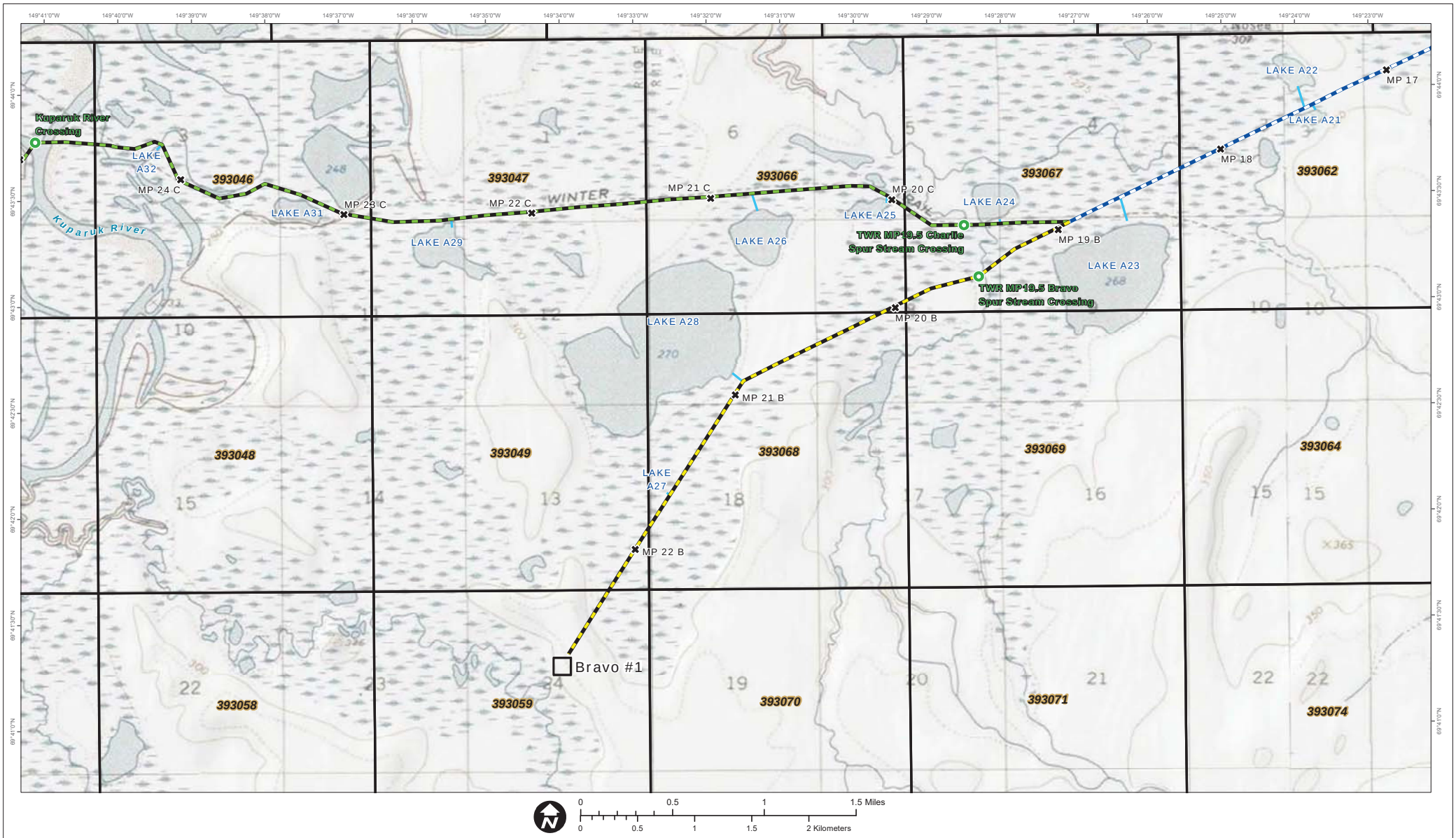
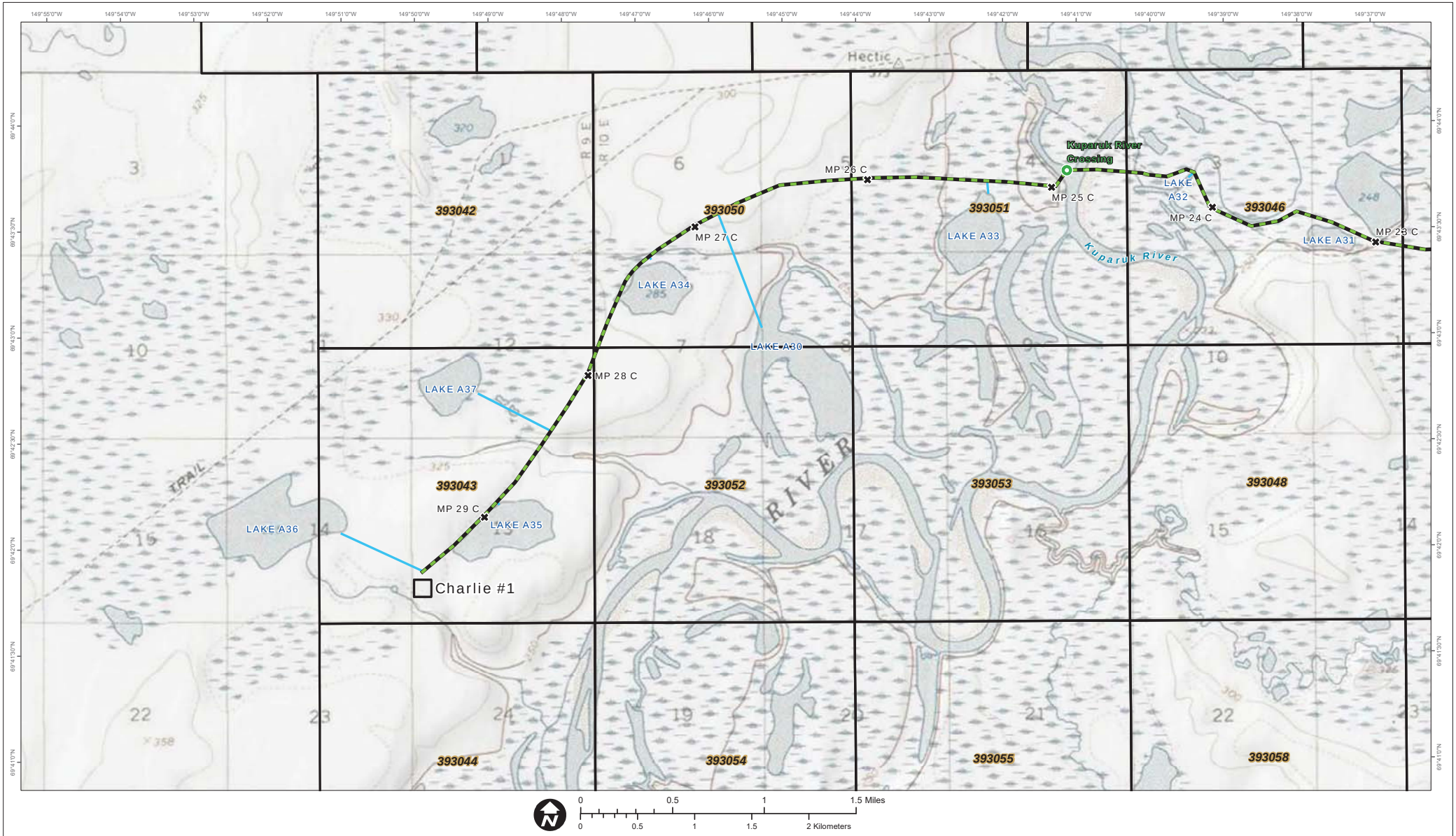


Figure 6d

ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Proposed TWR with Water Sources and Stream Crossings



ACCUMULATE ENERGY

Map Location

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Proposed Main TWR
Proposed Bravo TWR Spur
Proposed Charlie TWR Spur
Dalton Highway (Haul Road)
Trans-Alaska Pipeline
Water Source Access Road
Proposed Stream Crossing
393129 AEA ADL O&G Lease
392305 Great Bear ADL O&G Lease
Drill Site

Figure 6e
ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1
Proposed TWR with Water Sources and Stream Crossings

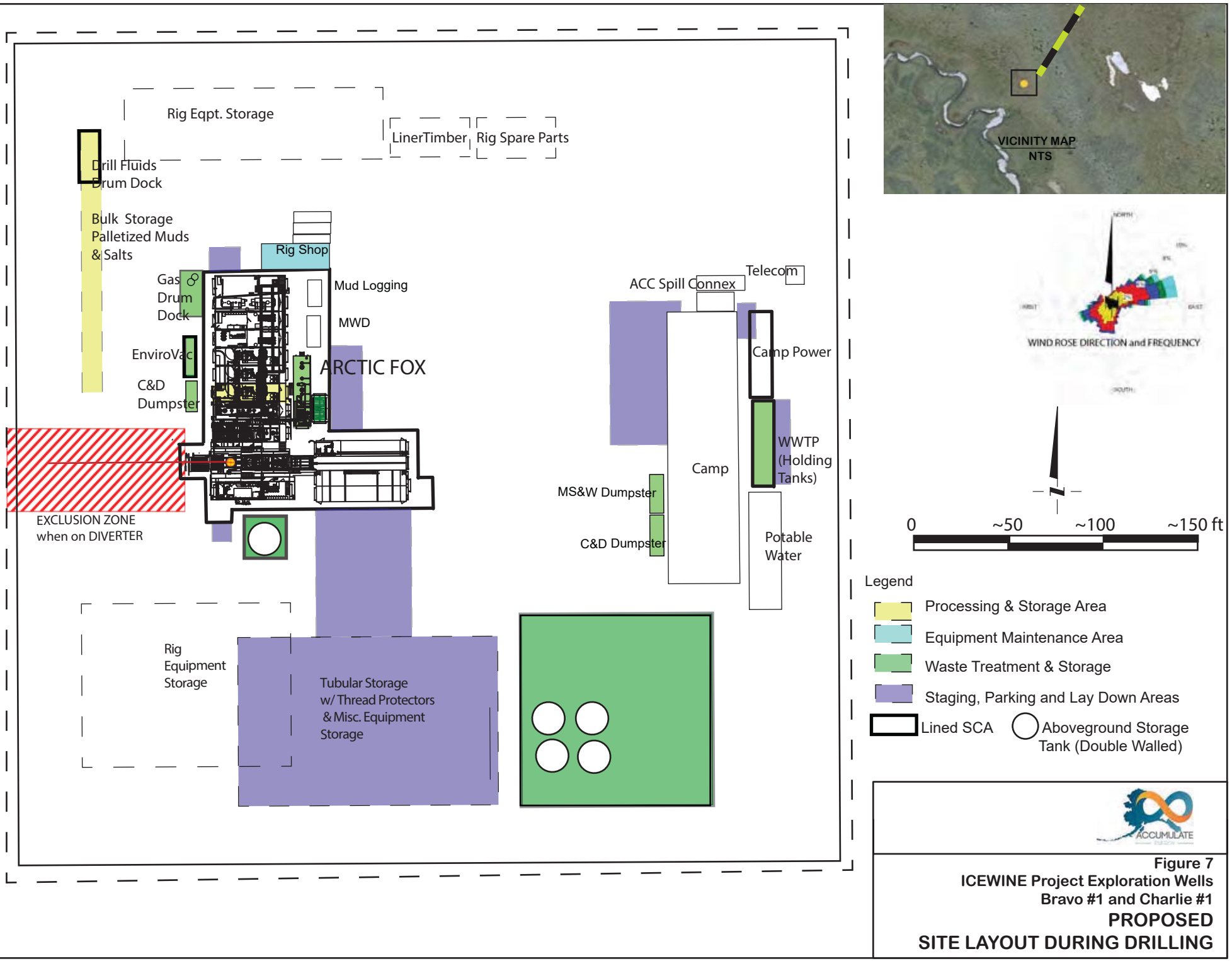
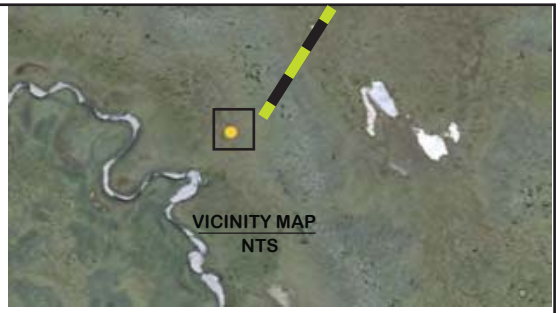
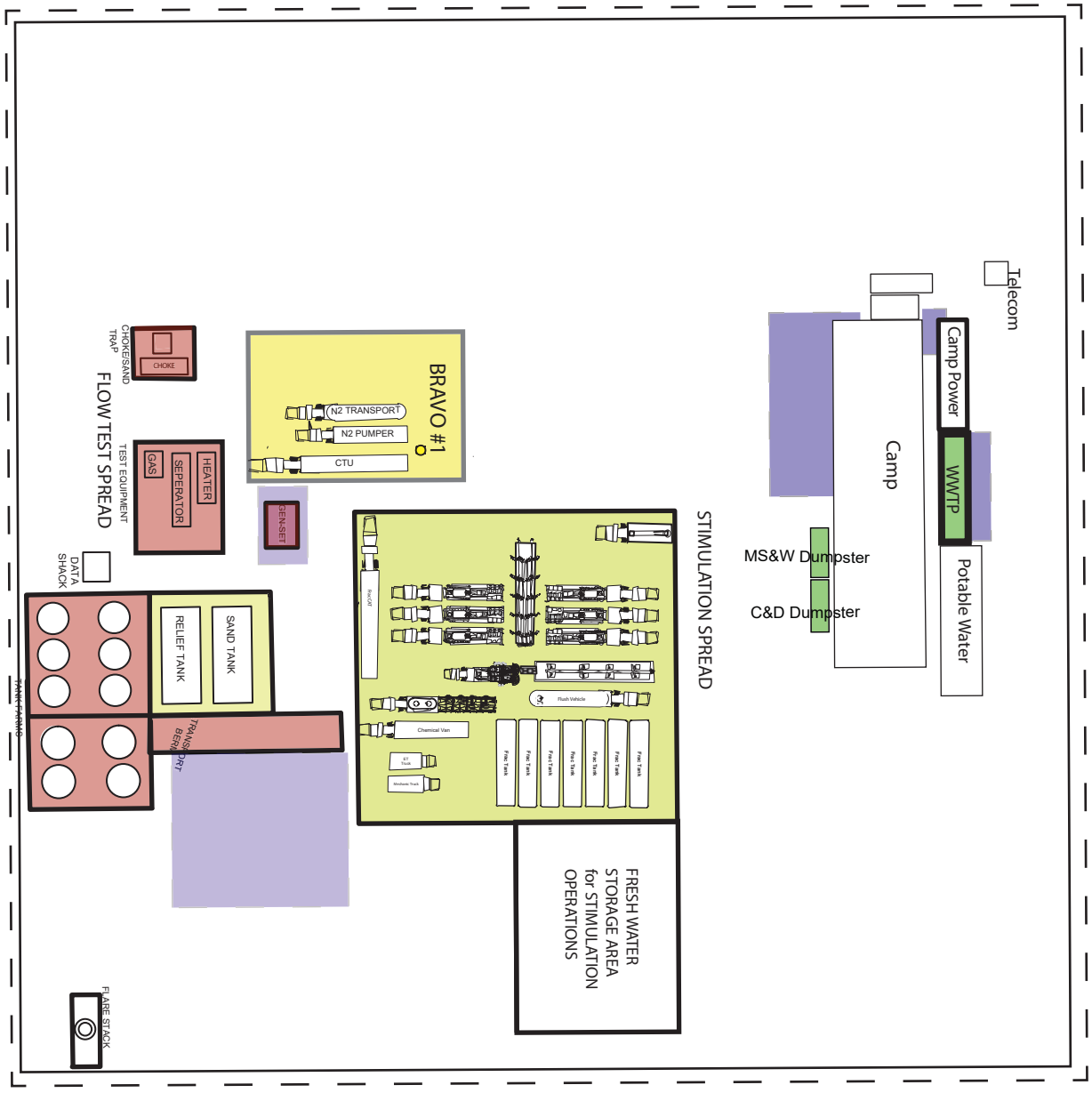
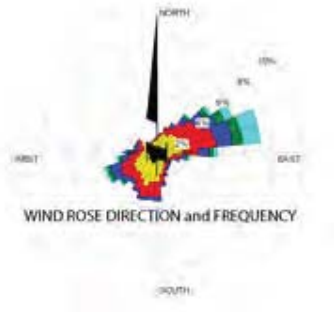


Figure 7
ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1
PROPOSED
SITE LAYOUT DURING DRILLING





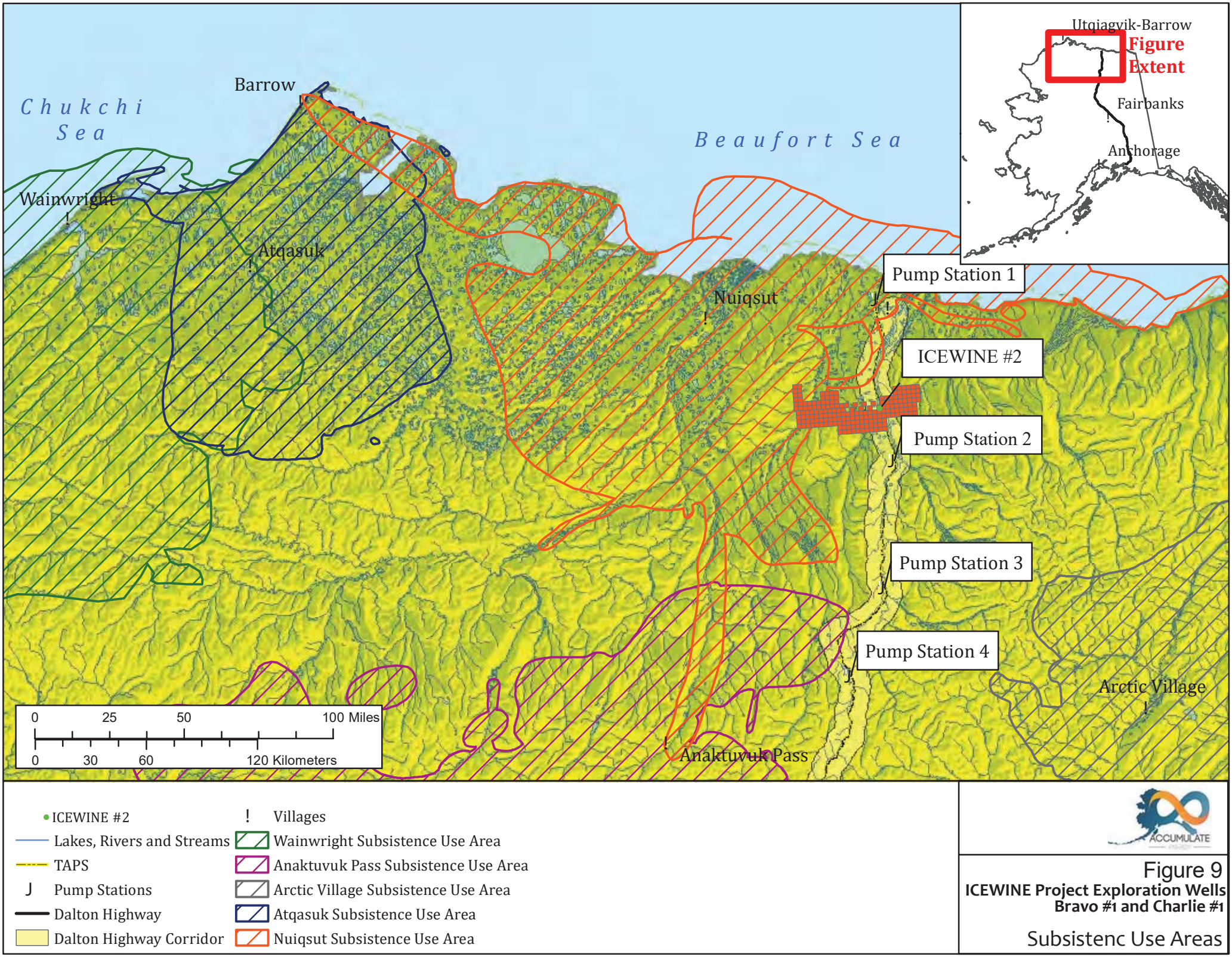


0 ~50 ~100 ~150 ft

Legend

- Processing & Storage Area
- Equipment Maintenance Area
- Waste Treatment & Storage
- Staging, Parking and Lay Down Areas
- Lined SCA
- Aboveground Storage Tank (Double Walled)

Figure 8
ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1
PROPOSED SITE LAYOUT DURING TESTING



ACCUMULATE

Figure 9

ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Subsistenc Use Areas

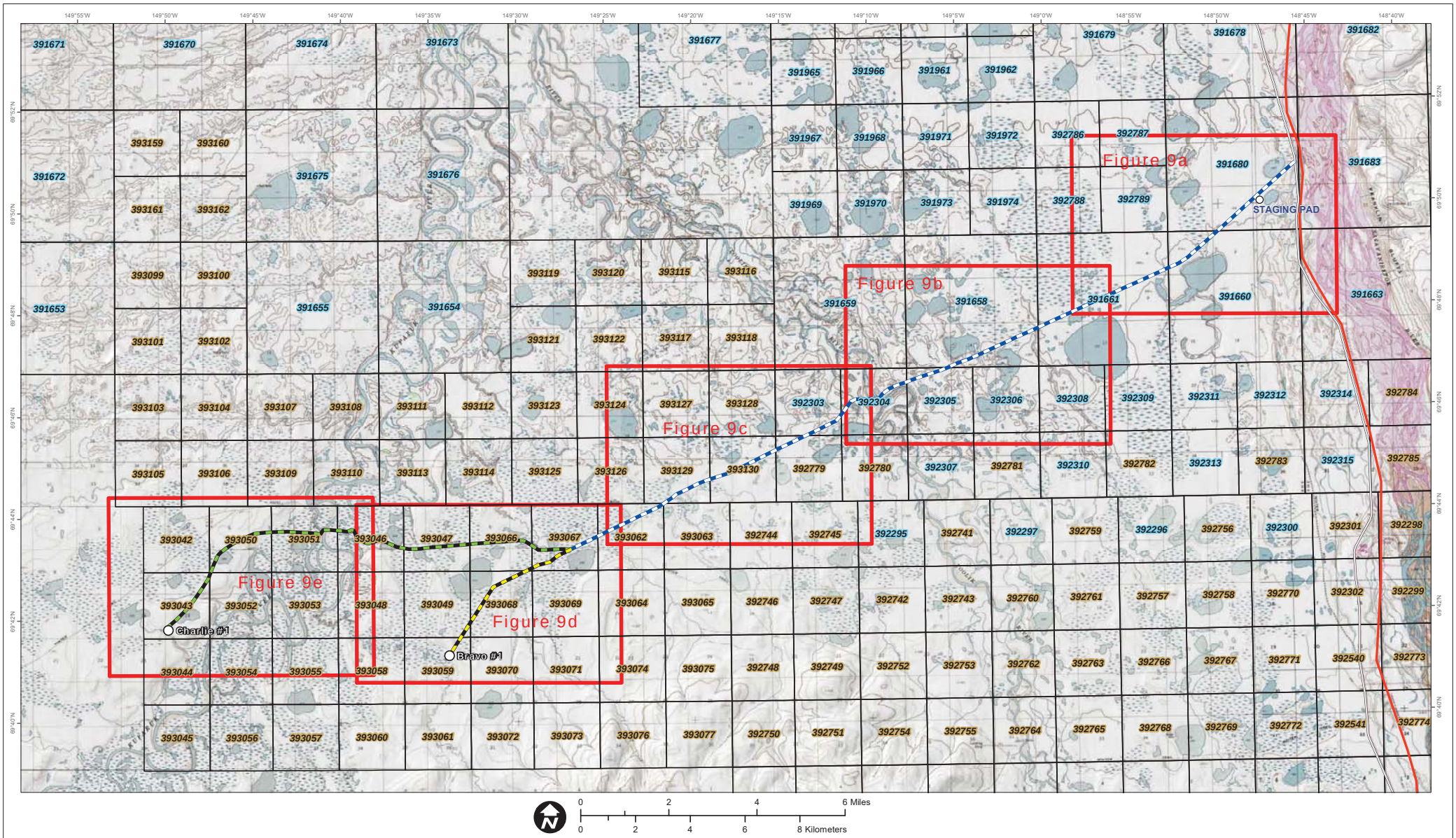


Figure 10
ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1
Proposed TWRs Index Map - Land Estate Summary

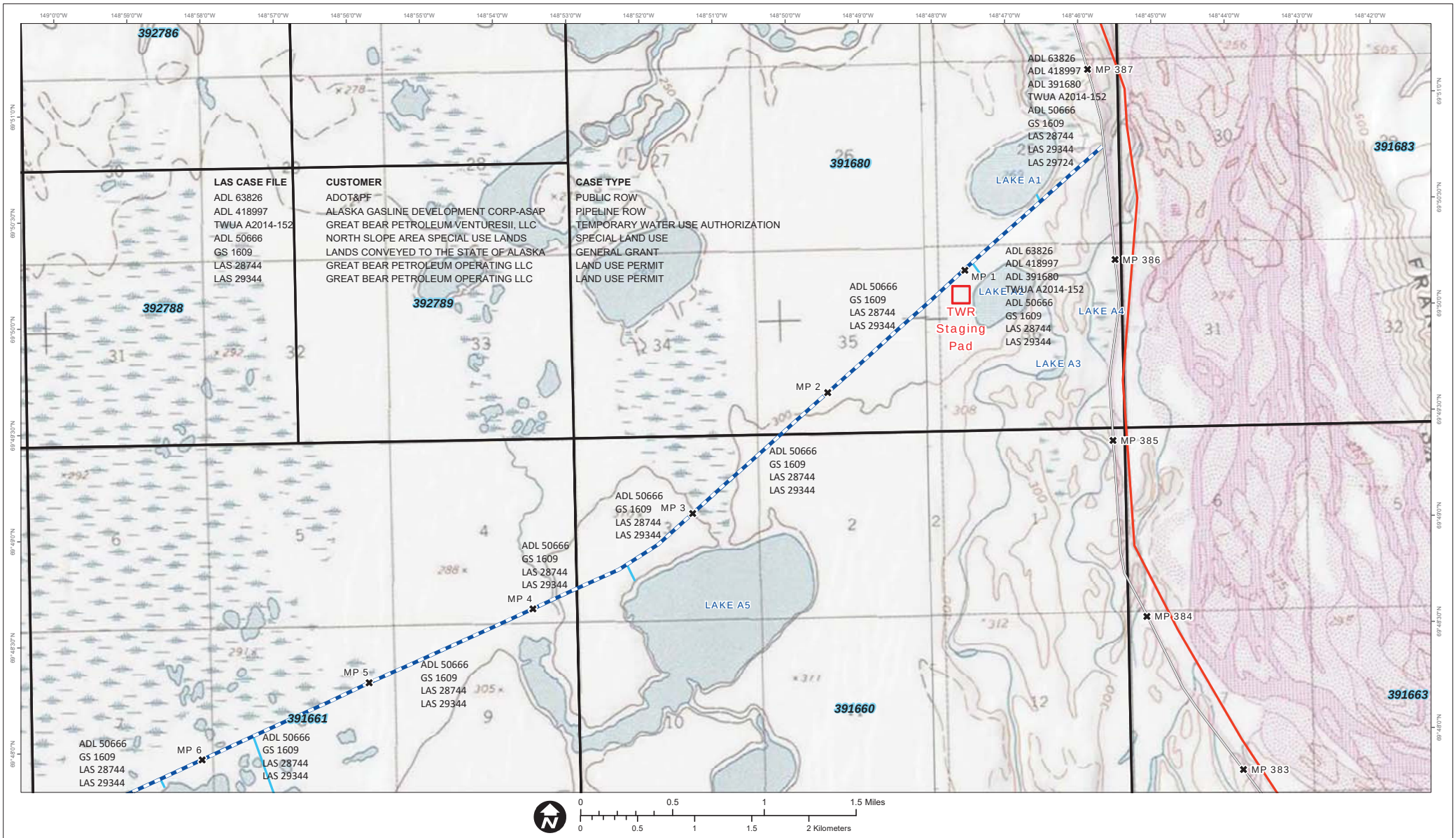
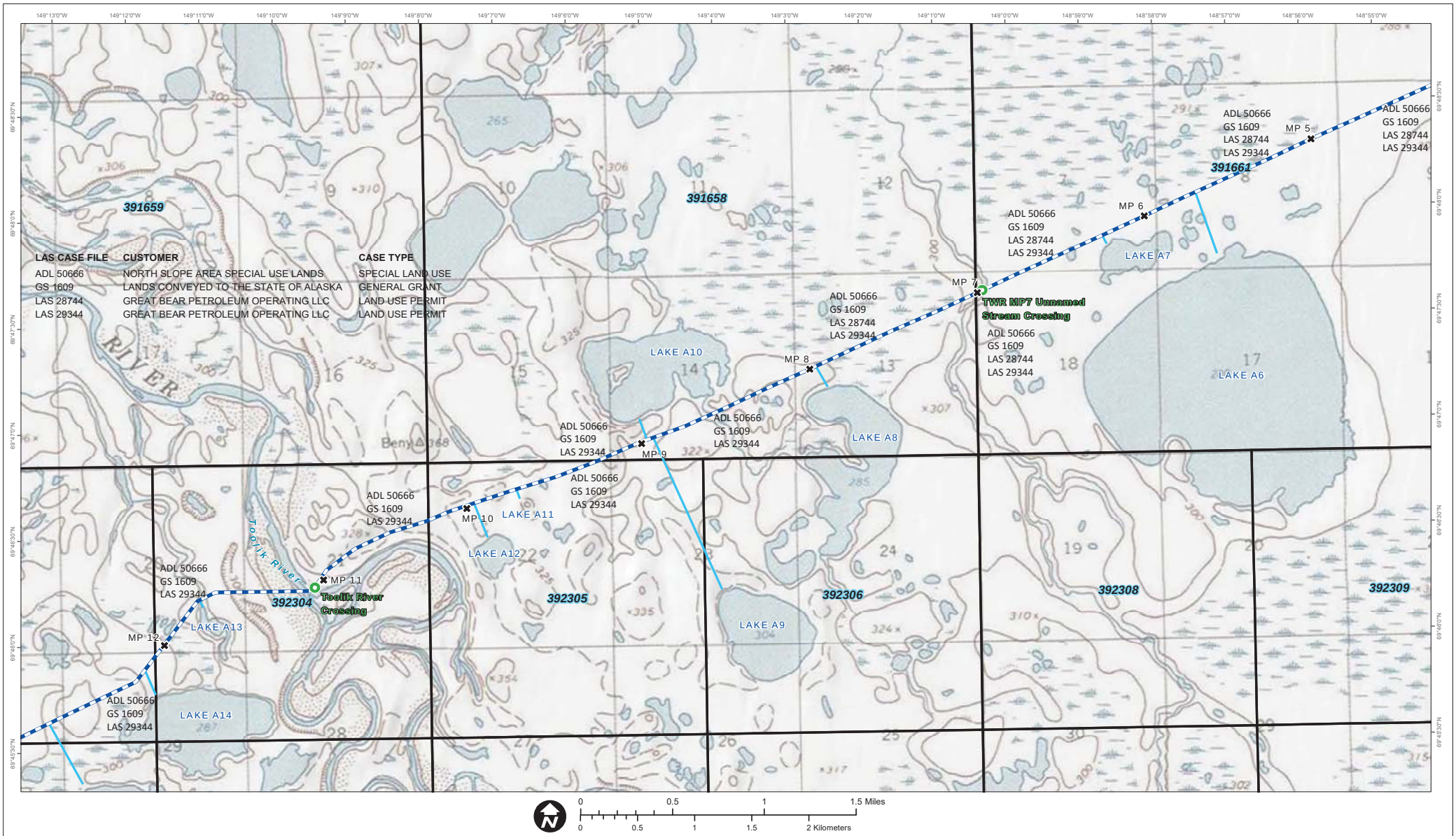
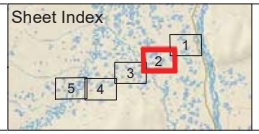


Figure 10a

ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

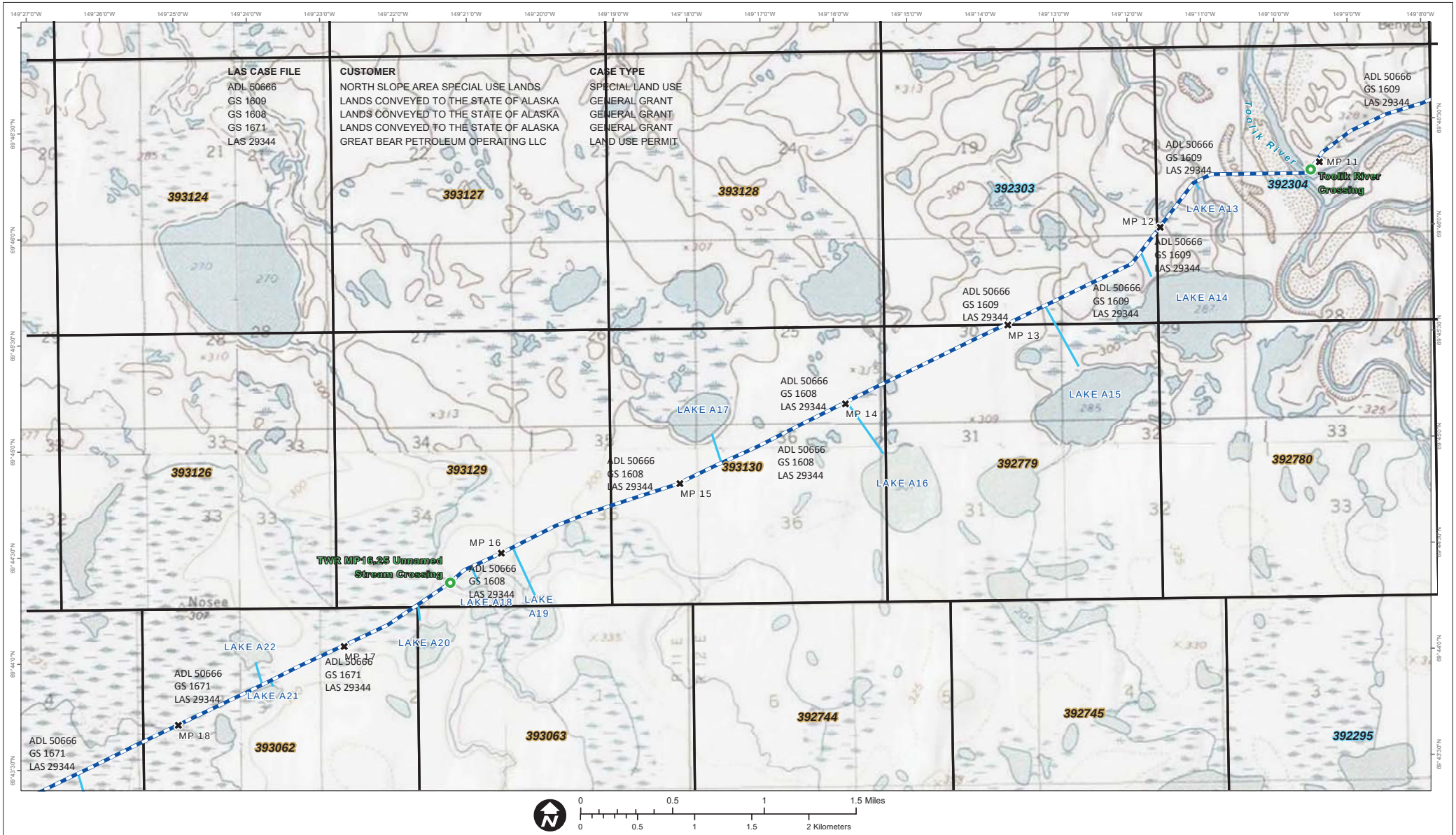
Land Estate Information Summary by Section along Proposed TWR Alignments





Proposed Main TWR
Proposed Bravo TWR Spur
Proposed Charlie TWR Spur
Dalton Highway (Haul Road)
Trans-Alaska Pipeline
Water Source Access Road
Proposed Stream Crossing
393129 AEA ADL O&G Lease
392305 Great Bear ADL O&G Lease

Figure 10b
ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1
Land Estate Information Summary by Section along Proposed TWR Alignments



Map Location

Sheet Index

Proposed Main TWR
Proposed Bravo TWR Spur
Proposed Charlie TWR Spur
Dalton Highway (Haul Road)
Trans-Alaska Pipeline
Water Source Access Road
Proposed Stream Crossing
393129 AEA ADL O&G Lease
392305 Great Bear ADL O&G Lease

Figure 10c
ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1
Land Estate Information Summary by Section along Proposed TWR Alignments

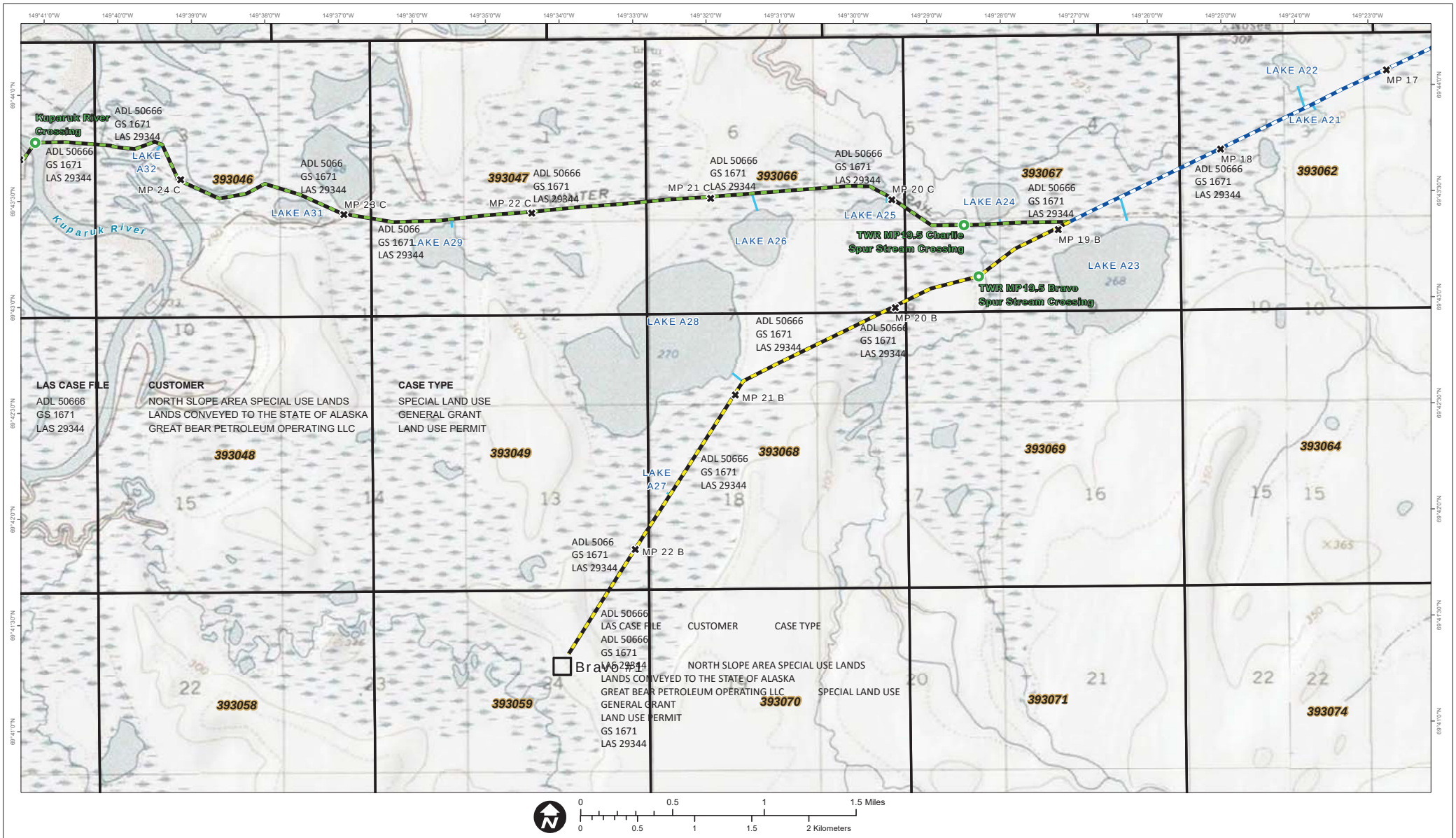
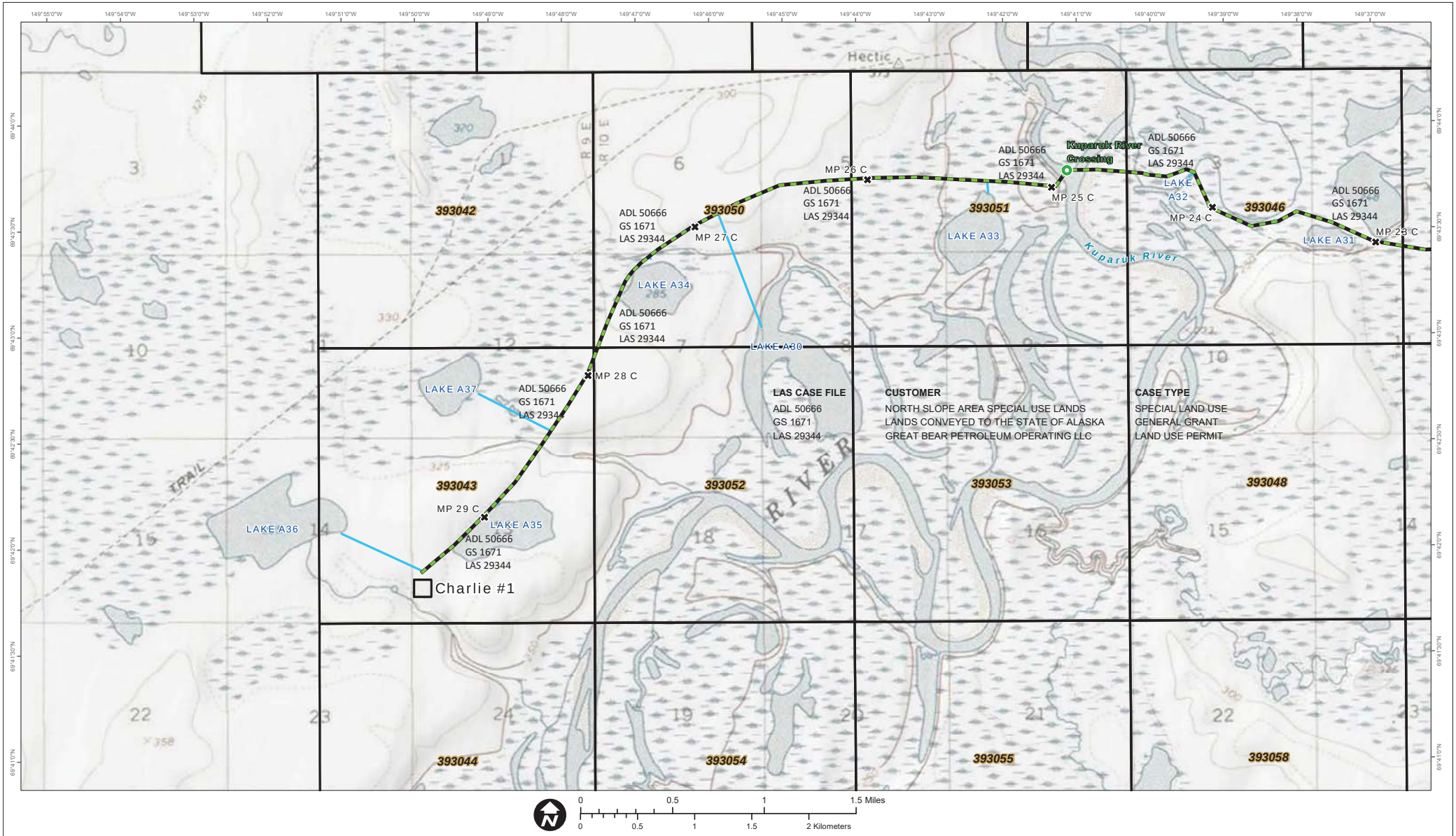


Figure 10d

ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Land Estate Information Summary by Section along Proposed TWR Alignments



ACCUMULATE ENERGY

Map Location

ALASKA

Sheet Index

1 2 3 4 5

- Proposed Main TWR
- Proposed Bravo TWR Spur
- Proposed Charlie TWR Spur
- Dalton Highway (Haul Road)
- Trans-Alaska Pipeline
- Water Source Access Road
- Proposed Stream Crossing
- 393129 AEA ADL O&G Lease
- 392305 Great Bear ADL O&G Lease
- Drill Site

Figure 10e

ICEWINE Project Exploration Wells
Bravo #1 and Charlie #1

Land Estate Information Summary by Section along Proposed TWR Alignments

APPENDIX B: MITIGATION MEASURES

Include mitigation measures here.

Alaska Department of Natural Resources
Division of Oil & Gas
550 W 7th Ave. Suite 800
Anchorage, Alaska 99501

Revised: March 2013

MITIGATION MEASURE ANALYSIS: NORTH SLOPE

The following instructions are provided for guidance to adequately complete the Mitigation Measure Analysis form.

1. The applicant shall respond to each Mitigation Measure, and all subsets of mitigation measures; i.e. A.2.d.i should be addressed and A.2.d.ii, and so forth.

2. The applicant's response shall begin by clearly indicating if the **mitigation measure is satisfied**, an **exception is requested**, or if the mitigation measure is **not applicable**.

3. The applicants' response shall then address how the proposed project clearly satisfies the mitigation measure, meets the intent of the mitigation measure, is not practicable, or is not applicable.

4. The applicant shall verify working 'in consultation with' parties other than Department of Natural Resources (DNR), Division of Oil and Gas (DO&G) by reporting meeting dates and parties present for Mitigation Measures which require consultation with parties other than DNR, DO&G; i.e. Mitigation Measure 1.b.

Please note that this form, along with the Plan of Operations Application form and the Plan of Operations, must be adequately completed before DNR DO&G will review an application for potential approval.

NORTH SLOPE **A. Mitigation Measures**	**Company Response**
1. Facilities and Operations	
a. A plan of operations must be submitted and approved before conducting exploration, development or production activities, and must describe the lessee's efforts to minimize impacts on residential, commercial, and recreational areas, Native allotments and subsistence use areas. At the time of application, lessee must submit a copy of the proposed plan of operations to all surface owners whose property will be entered.	A.1.a**. MITIGATION MEASURE is SATISFIED**. A Plan of Operations for the ICEWINE Project Exploration Wells Bravo #1 and Charlie #1 is being submitted to ADNR. ADNR, representing the State of Alaska, is the only surface owner in the Project area whose property will be entered.
b. Facilities must be designed and operated to minimize sight and sound impacts in areas of high residential, commercial, recreational, and subsistence use and important wildlife habitat. Methods may include providing natural buffers and screening to conceal facilities, sound insulation of facilities, or by using alternative means approved by the Director, in consultation with ADF&G and the NSB.	A.1.b. **MITIGATION MEASURE is SATISFIED**. Planned operations are >40 miles south of Nuiqsut and Deadhorse, the closest communities. The tundra winter ice road (TWR) alignments will intersect a winter trail at about MP10 along the Main TWR alignment in the Toolik River area. AEA will construct this river crossing to provide a smooth transition to ensure trail users have safe passage. AEA also will coordinate with and update local interests on Project siting, timing and activities as well as measures to minimize impacts to subsistence users. Finally, AEA will obtain applicable permits from ADNR, ADF&G, ADEC, NSB and other federal, state, and local agencies.
c. To the extent practicable, the siting of facilities will be prohibited within 500 feet of all fish-bearing streams and waterbodies and 1,500 feet from all current surface drinking water sources. Additionally, to the extent practicable, the siting of facilities will be prohibited within one-half mile of the banks of the main channel of the Colville, Canning, Sagavanirktok, Kavik, Shaviovik, Kadleroshilik, Echooka, Ivishak, Kuparuk, Toolik, Anaktuvuk and Chandler Rivers. Facilities may be sited within these buffers if the lessee demonstrates to the satisfaction of the Director, in consultation with ADF&G, that site locations outside these buffers are not practicable or that a location inside the buffer is environmentally preferred. Road, utility, and pipeline crossings must be consolidated and aligned perpendicular or near perpendicular to watercourses.	A.1.c. **MITIGATION MEASURE is SATISFIED**. All facilities are temporary, and are not within 500 feet of fish bearing streams and water bodies, or within 1,500 feet of current surface drinking water sources. Facilities also are not within one-half mile of the banks of the main channel of the Kuparuk River. TWR crossings are consolidated and perpendicular to watercourses and to the extent practicable will be in areas that ground naturally to avoid impacts to overwintering fish. All stream crossings will be permitted by ADF&G. Finally, gravel roads, utilities and pipeline crossing are not part of this Project.
d. No facilities will be sited within one-half mile of identified Dolly Varden overwintering and/or spawning areas on the Canning, Shaviovik, and Kavik rivers. Notwithstanding the previous sentence, road and pipeline crossings may only be sited within these buffers if the lessee demonstrates to the satisfaction of the Director and ADF&G in the course of obtaining their respective permits, that either (1) the scientific data indicate the proposed crossing is not within an overwintering and/or spawning area; or (2) the	A.1.d. **MITIGATION MEASURE is SATISFIED**. AEA's facilities are not within one-half mile of identified Dolly Varden overwintering and/or spawning areas on the Canning, Shaviovik, and Kavik Rivers. Finally, gravel roads and pipeline crossing are not part of this Project.

NORTH SLOPE **A. Mitigation Measures**	**Company Response**
proposed road or pipeline crossing will have no significant adverse impact to Dolly Varden overwintering and/or spawning habitat.	
e. Impacts to important wetlands must be minimized to the satisfaction of the Director, in consultation with ADF&G and ADEC. The Director will consider whether facilities are sited in the least sensitive areas. Further, all activities within wetlands require permission from the US Army Corps of Engineers.	A.1.e. **MITIGATION MEASURE is SATISFIED**. AEA winter operations and exploration activities are temporary and will take place only during winter. No wetlands impacts are expected. Additionally, AEA contacted Jack Hewitt at the USACOE/Alaska on 1 August 2017, and inquired if construction of an ice constitutes the discharge of fill into Water of the Us requiring a CWA Section 404 Permit. Hewitt responded *"…It is NOT necessary to obtain a DA permit to construct an ice road on the North Slope, or anywhere else for that matter. Ice roads do not constitute a discharge of fill material, they are not within the Corps jurisdiction, and we do not regulate them…"*
f. Exploration facilities, including exploration roads and pads, must be temporary and must be constructed of ice unless the Director determines that no practicable alternative exists. Re-use of abandoned gravel structures may be permitted on a case-by-case basis by the Director, after consultation with the director, DMLW, and ADF&G. Approval for use of abandoned structures will depend on the extent and method of restoration needed to return these structures to a usable condition.	A.1.f. **MITIGATION MEASURE is SATISFIED**. AEA's planned 2017/2018 operations will be supported by temporary tundra winter ice roads (TWRs) and ice pads. No gravel roads or gravel pads will be constructed; no abandoned structures will be re-used as part of proposed operations and exploration activities.
g. Pipelines must utilize existing transportation corridors where conditions permit. Pipelines must be designed to facilitate the containment and cleanup of spilled fluids. Where practicable, onshore pipelines must be located on the upslope side of roadways and construction pads, unless the director, DMLW, determines that an alternative site is environmentally acceptable. Wherever possible, onshore pipelines must utilize existing transportation corridors and be buried where soil and geophysical conditions permit. All pipelines, including flow and gathering lines, must be designed, constructed and maintained to assure integrity against climatic conditions, geophysical hazards, corrosion and other hazards as determined on a case-by-case basis.	A.1.g. **NOT APPLICABLE.** No pipelines are proposed as part of Project operations and exploration activities.
h. Pipelines shall be designed and constructed to avoid significant alteration of caribou and other large ungulate movement and migration patterns. At a minimum, above-ground pipelines shall be elevated 7 feet, as measured from the ground to the bottom of the pipe, except where the pipeline intersects a road, pad, or a ramp installed to facilitate wildlife passage. Lessees shall consider increased snow depth in the sale area in relation to pipe elevation to ensure adequate clearance for wildlife. ADNR may, after consultation with ADF&G, require additional measures to mitigate impacts to wildlife movement and migration.	A.1.h. **NOT APPLICABLE.** No pipelines are proposed as part of Project operations and exploration activities.

NORTH SLOPE **A. Mitigation Measures**	**Company Response**
i. The state of Alaska discourages the use of continuous-fill causeways. Environmentally preferred alternatives for field development include use of buried pipelines, onshore directional drilling, or elevated structures. Approved causeways must be designed, sited, and constructed to prevent significant changes to nearshore oceanographic circulation patterns and water quality characteristics (e.g., salinity, temperature, suspended sediments) that result in exceedances of water quality criteria, and must maintain free passage of marine and anadromous fish.	A.1.h.i. **NOT APPLICABLE.** No continuous-fill causeways are proposed as part of Project operations and exploration activities.
ii. Causeways and docks shall not be located in river mouths or deltas. Artificial gravel islands and bottom founded structures shall not be located in river mouths or active stream channels on river deltas, except as provided for in (iii).	A.1.h.ii. **NOT APPLICABLE.** No causeways, artificial gravel islands, bottom-founded structures or docks are proposed as part of Project operations and exploration activities.
iii. Each proposed structure will be reviewed on a case-by-case basis. Causeways, docks, artificial gravel islands and bottom founded structures may be permitted if the Director, in consultation with ADF&G, ADEC, and the NSB determines that a causeway or other structures are necessary for field development and that no practicable alternatives exist. A monitoring program may be required to address the objectives of water quality and free passage of fish, and mitigation shall be required where significant deviation from objectives occurs.	A.1.h.iii. **NOT APPLICABLE.** No causeways, artificial gravel islands, bottom-founded structures or docks are proposed as part of Project operations and exploration activities.
i. Dismantlement, Removal and Rehabilitation (DR&R): Upon abandonment of material sites, drilling sites, roads, buildings or other facilities, such facilities must be removed and the site rehabilitated to the satisfaction of the Director, unless the Director, in consultation with DMLW, ADF&G, ADEC, NSB, and any non-state surface owner, determines that such removal and rehabilitation is not in the state's interest.	A.1.i. **MITIGATION MEASURE is SATISFIED**. The proposed winter operations are temporary activities conducted on TWR alignments and ice pads where temporary surface facilities will be removed prior to breakup. The wells will be plugged and abandoned (P&A) per AOGCC regulations. Remaining debris and potentially contaminated materials will be removed and disposed at approved facilities by completion of site closure.
j. Gravel mining sites required for exploration and development activities will be restricted to the minimum necessary to develop the field efficiently and with minimal environmental damage. Where practicable, gravel sites must be designed and constructed to function as water reservoirs for future use. Gravel mine sites required for exploration activities must not be located within an active floodplain of a watercourse unless the director, DMLW, after consultation with ADF&G, determines that there is no practicable alternative, or that a floodplain site would enhance fish and wildlife habitat after mining operations are completed and the site is closed. Mine site development and rehabilitation within floodplains must follow the procedures outlined in McLean, R. F. 1993, North Slope Gravel Pit Performance Guidelines, ADF&G Habitat and Restoration Division Technical Report 93-9, available from ADF&G.	A.1.j. **NOT APPLICABLE.** Development of gravel mining sites is not part of proposed Project operations or activities.

NORTH SLOPE **A. Mitigation Measures**	**Company Response**
2. Fish and Wildlife Habitat	
a. Detonation of explosives within or in proximity to fish-bearing waters must not produce instantaneous pressure changes that exceed 2.7 pounds per square inch in the swim bladder of a fish. Detonation of explosives within or in close proximity to a fish spawning bed during the early stages of egg incubation must not produce a peak particle velocity greater than 0.5 inches per second. Blasting criteria have been developed by ADF&G and are available upon request from ADF&G. The location of known fish-bearing waters within the Project area can also be obtained from ADF&G. The lessee will consult with the NSB prior to proposing the use of explosives for seismic surveys. The Director may approve the use of explosives for seismic surveys after consultation with the NSB.	A.2.a. **NOT APPLICABLE.** Detonation of explosives is not proposed as part of Project operations or activities.
b. Water intake pipes used to remove water from fish-bearing waterbodies must be surrounded by a screened enclosure to prevent fish entrainment and impingement. Screen mesh size shall be no greater than 1 mm (0.04 inches), unless another size has been approved by ADF&G. The maximum water velocity at the surface of the screen enclosure may be no greater than 0.1 foot per second, unless an alternative velocity has been approved by ADF&G.	A.2.b. **MITIGATION MEASURE is SATISFIED**. AEA has been issued ADF&G Title 16 Fish Habitat Permit (FHP) FH17-III-0062-A1 and ADNR Temporary Water Use Authorization (TWUA) A2016-118 for water withdrawal from several sites along the Sag River (which contains fish) and gravel mine sites at MP381 & MP39 Dalton Highway. AEA has met permit conditions on water intake, including screen size & velocity requirements plus using screened fish pump inlets inspected & approved by ADF&G. AEA also has submitted TWUA and FHP applications for water withdrawal from up to 37 natural lakes along the TWR alignments. When issued, AEA will again adhere to water intake conditions plus screen size and velocity requirements. Additionally, AEA will only use screened fish pump inlets inspected and approved by the ADF&G. Finally, AEA also has consulted with ADNR/DML&W, ADF&G and NSB Planning Department on water withdrawal.
c. Removal of snow from fish-bearing rivers, streams and natural lakes shall be subject to prior written approval by ADF&G. Compaction of snow cover overlying fish-bearing waterbodies is prohibited except for approved crossings. If ice thickness is not sufficient to facilitate a crossing, ice or snow bridges may be required.	A.2.c. **MITIGATION MEASURE is SATISFIED.** All activities in fish-bearing water bodies, including snow removal, will be authorized under issued ADF&G Title 16 Fish Habitat Permits. Crossing fish and non-fish bearing streams will be at approved crossings only.

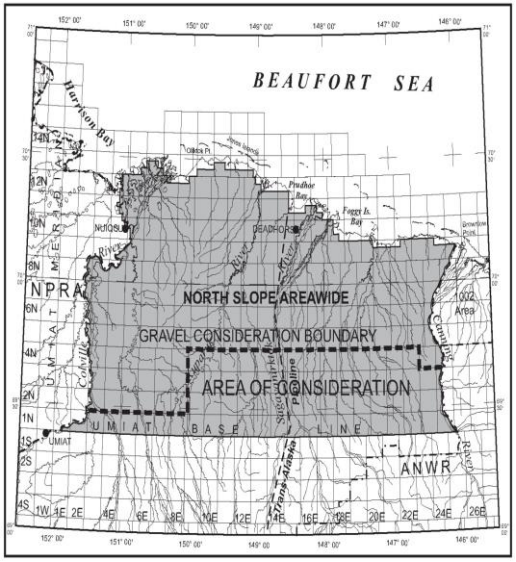
NORTH SLOPE **A. Mitigation Measures**	**Company Response**
d. Bears: i. Before commencement of any activities, lessees shall consult with ADF&G (907-459-7213) to identify the locations of known brown bear den sites that are occupied in the season of proposed activities. Exploration and production activities must not be conducted within one-half mile of occupied brown bear dens, unless alternative mitigation measures are approved by ADF&G. A lessee who encounters an occupied brown bear den not previously identified by ADF&G must report it to the Division of Wildlife Conservation, ADF&G, within 24 hours. Mobile activities shall avoid such discovered occupied dens by one-half mile unless alternative mitigation measures are approved by the Director, with concurrence from ADF&G. Non-mobile facilities will not be required to relocate.	A.2.d. **MITIGATION MEASURE is SATISFIED**. A.2.d.i. **MITIGATION MEASURE is SATISFIED**. AEA has consulted with ADF&G and identified locations of known occupied brown bear den sites in the Project area. None are within one-mile of the TWR alignments or ice pads. Further, staking of alignments and ice pads in August, AEA also avoided areas (especially S-SW facing stream embankments, pingos and drained lakes) that appeared to be prime brown bear den habitat, keeping in mind required buffer zones of one-half mile along the alignments. Reporting requirements in AEA's approved Bear Avoidance and Interaction Plan (see below) also include reporting newly discovered occupied brown bear dens to ADF&G/DW within 24 hours.
ii. Before commencement of any activities, lessees shall consult with the USFWS (907-786-3800) to identify the locations of known polar bear den sites. Operations must avoid known polar bear dens by 1 mile. A lessee who encounters an occupied polar bear den not previously identified by USFWS must report it to the USFWS within 24 hours and subsequently avoid the new den by 1 mile. If a polar bear should den within an existing development, off-site activities shall be restricted to minimize disturbance.	A.2.d.ii. **MITIGATION MEASURE is SATISFIED.** AEA has communicated with USFWS on locations of known polar bear dens sites of the Project area; none are within 1 mile. Finally, the Project area is 16 miles south of the Polar Bear Incidental Take Regulation Area, meaning the potential impacts to polar bears are negligible and a LOA is not required. Nonetheless, AEA's Bear Avoidance & Interaction Plan also addresses polar bears, and provides info and training complete with reporting forms.
iii. For projects in proximity to areas frequented by bears, lessees are required to prepare and implement a human-bear interaction plan designed to minimize conflicts between bears and humans. The plan should include measures to: A. minimize attraction of bears to facility sites; B. organize layout of buildings and work areas to minimize interactions between humans and bears; C. warn personnel of bears near or on facilities and the proper actions to take; D. if authorized, deter bears from the drill site; E. provide contingencies in the event bears do not leave the site; F. discuss proper storage & disposal of materials that may be toxic to bears; G. provide a systematic record of bears on site & immediate area.	A.2.d.iii.A to A.2.d.iii.G. **MITIGATION MEASURES are SATISFIED.** AEA has recently updated its approved Bear Avoidance and Interaction Plan to reflect the new winter drilling program. The plan includes the listed measures for AEA to protect brown bears and avoid human encounters. Further, AEA has added additional training during orientation to address listed measures A.2.d.iii.A., A.2.d.iii.C., and A.2.d.iii.F.
e. Permanent, staffed facilities must be sited to the extent practicable outside identified brant, white-fronted goose, snow goose, tundra swan, king eider, common eider, Steller's eider, spectacled eider, & yellow-billed loon nesting and brood rearing areas.	A.2.e. **Not Applicable.** There are not permanent facilities (staffed or not staffed) associated with the winter drilling program and related support operations.
3. Subsistence, Commercial and Sport Harvest Activities	

NORTH SLOPE **A. Mitigation Measures**	**Company Response**
a. i. Exploration, development and production operations shall be conducted in a manner that prevents unreasonable conflicts between lease-related activities and subsistence activities. Lease-related use will be restricted when the Director determines it is necessary to prevent conflicts with local subsistence, commercial and sport harvest activities. In enforcing this term DO&G will consult with other agencies, the affected local borough(s) and the public to identify and avoid potential conflicts that are brought to the division's attention both in the planning and operational phases of lease-related activities. In order to avoid conflicts with subsistence, commercial and sport harvest activities, restrictions may include alternative site selection, requiring directional drilling, seasonal drilling restrictions, and other technologies deemed appropriate by the Director.	A.3.a.i. **MITIGATION MEASURE is SATISFIED**. AEA's operations are near the Nuiqsut subsistence use area (Figure 8). Therefore, AEA will minimize effects on subsistence uses and avoid conflicts with private, commercial & industrial users. AEA has consulted with the NSB Planning Department when applying for Development Permits for past ICEWINE program exploration wells. And AEA will again consult with the NSB for the Bravo #1 and Charlie #1 exploration wells.
ii. Prior to submitting a plan of operations for either onshore or offshore activities which have the potential to disrupt subsistence activities, the lessee shall consult with the potentially affected subsistence communities and the NSB (collectively "parties") to discuss the siting, timing, and methods of proposed operations and safeguards or mitigating measures which could be implemented by the operator to prevent unreasonable conflicts. The parties shall also discuss the reasonably foreseeable effect on subsistence activities of any other operations in the area that they know will occur during the lessee's proposed operations. Through this consultation, the lessee shall make reasonable efforts to assure that exploration, development, and production activities are compatible with subsistence hunting and fishing activities and will not result in unreasonable interference with subsistence harvests.	A.3.a.ii. **MITIGATION MEASURE is SATISFIED**. AEA will continue to work together with the Director of the NSB Planning Department to prevent conflicts with local subsistence, commercial and sport harvest activities.
iii. A discussion of agreements reached or not reached during the consultation process and any plans for continued consultation shall be included in the plan of operations. The lessee shall identify who participated in the consultation and send copies of the plan to participating communities and the NSB when it is submitted to the division.	A.3.a.iii. **MITIGATION MEASURE is SATISFIED**. AEA will continue to document discussion or agreements reached or not reached during the NSB consultation process.
iv. If the parties cannot agree, then any of them may request the Commissioner of DNR or his/her designee to intercede. The commissioner may assemble the parties or take other measures to resolve conflicts among the parties.	A.3.a.iv. **MITIGATION MEASURE is SATISFIED**. AEA will request the Commissioner of DNR or his/her designee to intercede if parties cannot agree during the NSB consultation process.
v. The lessee shall notify the Director of all concerns expressed by subsistence hunters during operations and of steps taken to address such concerns.	A.3.a.v. **MITIGATION MEASURE is SATISFIED**. AEA will contact subsistence representative if potential subsistence issues are identified during drilling and testing operations to minimize impacts.

NORTH SLOPE **A. Mitigation Measures**	**Company Response**
b. Traditional and customary access to subsistence areas shall be maintained unless reasonable alternative access is provided to subsistence users. "Reasonable access" is access using means generally available to subsistence users. Lessees will consult the NSB, nearby communities, and native organizations for assistance in identifying and contacting local subsistence users.	A.3.b. **MITIGATION MEASURE is SATISFIED**. AEA will not restrict traditional and customary subsistence access to the Project area, except for a 100-foot safety zone around each ice pad . Note that although public access to these ice pads must be restricted due to safety concerns, AEA will provide shelter and assistance in emergency situations to subsistence users.
4. Fuel, Hazardous Substances and Waste	
a. Secondary containment shall be provided for the storage of fuel or hazardous substances.	A.4.a. **MITIGATION MEASURE is SATISFIED**. See description of the proposed operations, including the location and design of **Fuel and Hazardous Substances** in the Plan of Operation for more information. Also see Figures 7 in Appendix A for SCA locations during drilling. Fuel and hazardous substances will be stored within lined and diked secondary containment areas (SCAs) that hold 110% or more of the largest tank volume within plus seasonal precipitation. Secondary containment is discussed in detail in AEA's Oil Discharge Prevention and Contingency Plan ("Spill Plan"), which is approve by the State (ADEC Plan No. 15-CP-5241), and in AEA's Spill Prevention and Containment Contingency (SPCC) Plan.
b. Containers with an aggregate storage capacity of greater than 55 gallons which contain fuel or hazardous substances shall not be stored within 100 feet of a waterbody, or within 1,500 feet of a current surface drinking water source.	A.4.b. **MITIGATION MEASURE is SATISFIED**. Based on planned TWR alignments, ice pad locations and operations, fuel or hazardous substances will not be stored within 100 feet of a waterbody. Additionally, no surface drinking water sources are within 1,500 feet of the proposed operations.
c. During equipment storage or maintenance, the site shall be protected from leaking or dripping fuel and hazardous substances by the placement of drip pans or other surface liners designed to catch and hold fluids under the equipment, or by creating an area for storage or maintenance using an impermeable liner or other suitable containment mechanism.	A.4.c. **MITIGATION MEASURE is SATISFIED**. See description of the proposed operations, including the location and design of **Fuel and Hazardous Substances** in the Plan of Operation for more information. Additionally, AEA has adopted the Alaska Safety Handbook (ASH), the North Slope Environmental Field Handbook (NSEFH), and the Alaska Waste Disposal and Reuse Guide (Red Book) as guidance for standard operating procedures and best management practices for workplace health, safety and environmental and waste management. Drip pans or liners will be placed under parked vehicles of equipment to capture fluids
d. During fuel or hazardous substance transfer, secondary containment or a surface liner must be placed under all container or vehicle fuel tank inlet and outlet points,	A.4.d. **MITIGATION MEASURE is SATISFIED**. See description of the proposed operations, including the location and design of **Fuel and**

NORTH SLOPE **A. Mitigation Measures**	**Company Response**
hose connections, and hose ends. Appropriate spill response equipment, sufficient to respond to a spill of up to five gallons, must be on hand during any transfer or handling of fuel or hazardous substances. Trained personnel shall attend transfer operations at all times.	**Hazardous Substances** in the Plan of Operation for more information. AEA's spill response program requires all oil handlers to have spill response kits on hand during transfers, use a minimum of two personnel during fuel transfers >500 gallons, and undergo training prior to conducting fuel transfers. Fuel and hazardous substance transfers will be performed in accordance with Fluid Transfer Procedures included AEA's Spill Plan (Appendix B) and NFESH Fluid Transfer Guidelines. This includes: • Using surface liners under all potential spill points. • Verifying adequate sorbent and other spill response materials are on hand during fuel transfers • Training oil handler and other personnel in proper procedures for handling and transferring fuel and other hazardous fluids.
e. Vehicle refueling shall not occur within the annual floodplain, except as addressed and approved in the plan of operations. This measure does not apply to water-borne vessels.	A.4.e. **MITIGATION MEASURE is SATISFIED.** Based on planned TWR alignments, ice pad locations and operations, refueling will not occur within the annual floodplain of streams and rivers crossed during AEA's winter drilling program.
f. All independent fuel and hazardous substance containers shall be marked with the contents and the lessee's or contractor's name using paint or a permanent label.	A.4.f. **MITIGATION MEASURE is SATISFIED.** Per AEA's spill response program and OSHA-required hazcom program, all fuel and hazardous substance containers will be permanently marked (labeled) with the contents and AEA's name.
g. A fresh water aquifer monitoring well, and quarterly water quality monitoring, is required down gradient of a permanent storage facility, unless alternative acceptable technology is approved by ADEC.	A.4.g. **Not Applicable.** There are no permanent storage facilities proposed for this Project.
h. Waste from operations must be reduced, reused, or recycled to the maximum extent practicable. Garbage and domestic combustibles must be incinerated whenever possible or disposed of at an approved site in accordance with 18 AAC 60.	A.4.h. **MITIGATION MEASURE is SATISFIED**. See description on the proposed operations, including the location and design of **Solid Waste Sites** in the Plan of Operation for more information. Additionally, AEA has worked with both the NSB and ADEC on preparing and implementing an approved solid waste management program utilizing approved recycling and disposed facilities.
i. New solid waste disposal sites, other than for drilling waste, will not be approved or located on state property during the exploration phase of lease activities. Disposal sites may be provided for drilling waste if the facility complies with 18 AAC 60.	A.4.i. **Not Applicable**. No new solid waste disposal sites are planned or will be located on State property during these Project activities. Designed and approved temporary drilling waste storage sites will be used as part of AEA's solid waste management program. These meet requirements

NORTH SLOPE **A. Mitigation Measures**	**Company Response**
	promulgated in 18 AAC 60.
j. The preferred method for disposal of muds and cuttings from oil and gas activities is by underground injection. Drilling mud and cuttings cannot be discharged into lakes, streams, rivers, or important wetlands. On pad temporary cuttings storage will be allowed as necessary to facilitate annular injection and/or backhaul operations. Impermeable lining and diking, or equivalent measures, will be required for reserve pits. Surface discharge of drilling muds and cuttings into reserve pits shall be allowed only when the Director, in consultation with ADF&G, determines that alternative disposal methods are not practicable. Injection of non-hazardous oilfield wastes is regulated by AOGCC through its Underground Injection Control (UIC) Program for oil and gas wells. See also Mitigation Measure 8.a.vi.	A.4.j. **MITIGATION MEASURE is SATISFIED.** See description on the proposed operations, including the location and design of **Solid Waste Sites** in the Plan of Operation for more information. Additionally, AEA has worked with both the NSB and ADEC as well as other North Slope Operators on preparing and implementing a solid waste management program utilizing approved recycling and disposed facilities. Waste drilling muds and cuttings will either be hauled to the Prudhoe Bay Unit Grind and Inject (GPBU G&I) Facility or other approved facility for processing and disposal, or disposed of on-site by annular injection as approved by the AOGCC. Materials disposed at the PBU G&I Facility will be handled in accordance with the terms of the North Slope Ballot Agreement between AEA and GPBU (or other Operator if appropriate) and conditions found in AEA's 3rd party Waste Analysis Plan (WAP), also approved by GPBU operators. Drilling waste will be transported as it is generated to the extent practicable. Temporary Storage Permits will be obtained from ADEC for temporary storage of drilling waste if necessary.
k. Proper disposal of garbage and putrescible waste is essential to minimize attraction of wildlife. The lessee must use the most appropriate and efficient method to achieve this goal. The primary method of garbage and putrescible waste is prompt, on-site incineration in compliance with state of Alaska air quality regulations. The secondary method of disposal is on-site frozen storage in animal-proof containers with backhaul to an approved waste disposal facility. The tertiary method of disposal is on-site non-frozen storage in animal proof containers with backhaul to an approved waste disposal facility. Daily backhauling of non-frozen waste must be achieved unless safety considerations prevent it.	A.4.k. **MITIGATION MEASURE is SATISFIED.** See description on the proposed operations, including the location and design of **Solid Waste Sites** in the Plan of Operation for more information. Municipal solid waste (MSW), including garbage and putrescible waste, will be stored in covered 27-cubic yard dumpsters until full and then hauled to the NSB SA 10 Landfill for disposal.
5. Access	
a. Except for approved off-road travel, exploration activities must be supported only by ice roads, winter trails, existing road systems or air service. Wintertime off-road travel across tundra and wetlands may be approved in areas where snow and frost depths are sufficient to protect the ground surface. Summertime off-road travel across tundra and wetlands may be authorized subject to time periods and vehicle types approved	A.5.a. **MITIGATION MEASURE is SATISFIED**. AEA's winter drilling program will be supported only by approved TWRs (ice roads), winter trails, existing road systems or air service.

NORTH SLOPE **A. Mitigation Measures**	**Company Response**
 **Figure 7.1: Gravel Consideration Boundary** by DMLW. Exceptions may be granted by the director of the DMLW, and the Director, if an emergency condition exists; or, if it is determined, after consulting with ADF&G that travel can be accomplished without damaging vegetation or the ground surface. Exceptions, including the use of gravel, may also be granted on a site specific basis, if it is determined, after consulting with ADF&G and DMLW, that no practicable alternatives exist for constructing an exploration road or pad in the area south of the boundary described below and depicted in the map below: • Beginning at the NPR-A boundary, from the northeast corner of T 1N, R 2E, • east to the northwest corner of T 1N, R 9E, then • north to the northwest corner of T 4N, R 9E, then • east to the northwest corner of T 4N, R 23E, then • south to the southwest corner of T 4N, R 23E, and then • east along the top of T 3N to the ANWR boundary.	
b. Public access to, or use of, the lease area may not be restricted except within the immediate vicinity of drill sites, buildings, and other related facilities. Areas of restricted access must be identified in the plan of operations. Lease facilities and operations shall not be located so as to block access to or along navigable or public waters as defined in AS 38.05.	A.5.b. **MITIGATION MEASURE is SATISFIED**. AEA is requesting a 100-foot safety buffer zone around the TWR alignments and ice pads. Winter drilling and exploration operations will be located so that access to public waters is not blocked.

NORTH SLOPE **A. Mitigation Measures**	**Company Response**
6. Prehistoric, Historic, and Archeological Sites	
a. Prior to the construction or placement of any structure, road, or facility resulting from exploration, development, or production activities, the lessee must conduct an inventory of prehistoric, historic, and archeological sites within the area affected by an activity. The inventory must include consideration of literature provided by the NSB, nearby communities, Native organizations, and local residents; documentation of oral history regarding prehistoric and historic uses of such sites; evidence of consultation with the Alaska Heritage Resources Survey and the National Register of Historic Places; and site surveys. The inventory must also include a detailed analysis of the effects that might result from the activity.	A.6.a. **MITIGATION MEASURE is SATISFIED**. At the behest of AEA, Reanier & Associates (Reanier) conducted archaeological and cultural resource surveys in the Project area in June 2017 to identify prehistoric, historic, or archaeological sites. Reanier also obtained Traditional Land Use Inventory (TLUI) data obtained from the NSB Inupiat Heritage and Language Center (IHLC) as well as data from the ADNR Alaska Heritage Resources Survey from ADNR, State Historic Preservation Office (SHPO). Reanier also consulted local residents on the presence of historic or cultural resources in the Project area. A detailed analysis by Reanier of the effects that might result from the winter drilling program and support operations found that after buffer zones are established around known archaeological and cultural resources, these would remain unaffected by field operations. Therefore, he recommends in his report that cultural clearance be granted and that a determination of “no historic properties adversely affected” be made for this Project.
b. The inventory of prehistoric, historic, and archeological sites must be submitted to the Director, and to SHPO who will coordinate with the NSB for review and comment. If a prehistoric, historic, or archeological site or area could be adversely affected by a lease activity, the Director, after consultation with SHPO and the NSB, will direct the lessee as to the course of action to take to avoid or minimize adverse effects.	A.6.b. **MITIGATION MEASURE is SATISFIED**. AEA will submit a report prepared by Reanier with results of archaeological surveys, including potential impacts to ADNR SHPO and the NSB IHLC as part of the exploration drilling program authorization process for the ICEWINE Project.
c. If a site, structure, or object of prehistoric, historic, or archaeological significance is discovered during lease operations, the lessee must report the discovery to the Director as soon as possible. The lessee must make reasonable efforts to preserve and protect the discovered site, structure, or object from damage until the Director, after consultation with the SHPO and the NSB, has directed the lessee as to the course of action to take for its preservation.	A.6.c. **MITIGATION MEASURE is SATISFIED**. AEA will notify ADNR SHPO and NSB IHLC if prehistoric, historic, or archaeological resources are discovered during AEA winter drilling program operations. AEA also will stop all work in the vicinity until an archaeologist, ADNR-SHPO, and NSB-IHLC can provide guidance. Additionally, AEA will include training procedures covering the above as part of required onsite orientation.

NORTH SLOPE **A. Mitigation Measures**	**Company Response**
7. Local Hire, Communication, and Training	
a. Lessees are encouraged to employ local and Alaska residents and contractors, to the extent they are available and qualified, for work performed in the lease area. Lessees shall submit, as part of the plan of operations, a proposal detailing the means by which the lessee will comply with the measure. The proposal must include a description of the operator's plans for partnering with local communities to recruit, hire and train local and Alaska residents and contractors. The lessee is encouraged, in formulating this proposal, to coordinate with employment and training services offered by the State of Alaska and local communities to train and recruit employees from local communities.	A.7.a. **MITIGATION MEASURE is SATISFIED**. AEA will provide local employment opportunities and offer contracting opportunities to Alaska and North Slope Native-owned firms, partners, and corporate subsidiaries. In summary, AEA will make the hiring of local Alaskans a priority in the planning process
b. A plan of operations application must describe the lessee's past and prospective efforts to communicate with local communities and interested local community groups.	A.7.b. **MITIGATION MEASURE is SATISFIED**. As **described in Section X, Interacting with Local Communities and Local Community Groups.**
c. A plan of operations application must include a training program for all personnel including contractors and subcontractors. The program must be designed to inform each person working on the project of environmental, social, and cultural concerns that relate to that person's job. The program must use methods to ensure that personnel understand and use techniques necessary to preserve geological, archeological, and biological resources. In addition, the program must be designed to help personnel increase their sensitivity and understanding of community values, customs, and lifestyles in areas where they will be operating.	A.7.c. **MITIGATION MEASURE is SATISFIED**. As **described in Section X, Training Programs**, AEA has prepared and implemented an extensive ICEWINE training program for all personnel and contractors working along the TWR alignments and on the ice pads. This training is being updated and customized to reflect this upcoming winter drilling program and related support operations to ensure that all north slope based Project workers (e.g., employees, contractors, subcontractors) have appropriate training.

NORTH SLOPE **A. Mitigation Measures**	**Company Response**
8. Definitions	
a. In this document: i. "Facilities" means any structure, equipment, or improvement to the surface, whether temporary or permanent, including, but not limited to, roads, pads, pits, pipelines, power lines, generators, utilities, airstrips, wells, compressors, drill rigs, camps and buildings; ii. "Important wetlands" means those wetlands that are of high value to fish, waterfowl, and shorebirds because of their unique characteristics or scarcity in the region or that have been determined to function at a high level using the hydrogeomorphic approach; iii. "Minimize" means to reduce adverse impacts to the smallest amount, extent, duration, size, or degree reasonable in light of the environmental, social, or economic costs of further reduction; iv. "Plan of operations" means a lease Plan of operations under 11 AAC 83.158 and a unit Plan of operations under 11 AAC 83.346; v. "Practicable" means feasible in light of overall project purposes after considering cost, existing technology, and logistics of compliance with the standard; vi. "Secondary containment" means an impermeable diked area or portable impermeable containment structure capable of containing 110 percent of the volume of the largest independent container plus 12 inches of freeboard. Double walled tanks do not qualify as Secondary Containment unless an exception is granted for a particular tank. vii. "Temporary" means no more than 12 months.	

Appendix C Supplemental Pages Summary

Section V LAND STATUS

Land Status Supplemental Sections for State Mineral Estate for TWR Alignments, Bravo #1 & Charlie #1 Well Bores and Pads, and Lake Access Roads

TWR Alignment and Ice Pad GPS Waypoint Coordinates Section VIII PROJECT USE REQUIREMENTS

Subsection 10: All Other Facilities and Equipment – Heavy Equipment List

Subsection 11: Permit Requirements

Section XII GLOSSARY of TERMS

Appendix C Supplemental Pages

Section V LAND STATUS:

Land Status Supplemental Sections for State Mineral Estate for Bravo #1 & Charlie #1 Well Bores and Pads, and Lake Access Roads

LAND STATUS: SUPPLEMENTAL SECTION

1. State Mineral Estate:

Affected ADL: 392304 Date Effective: 10/1/2013 Date Assigned: 5/1/2015

Oil & Gas Lessee(s): GREAT BEAR PETROLEUM OPERATING, LLC

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: *None*

Other Considerations: See Fig. 10c Land Status Summary, Figs. 3c & 4c (MTRS) designation and Figs. 5c & 6c (ADLs) in Appendix A.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Main TWR	Umiat, T005N, R012E, Sect. 21	Varies – GPS coordinates in Appendix C
Main TWR & Lake A13 Access Road	Umiat, T005N, R012E, Sect. 20	Varies – GPS coordinates in Appendix C
Click here to enter text.	Click here to enter text.	Click here to enter text.

Affected ADL: 392303 Date Effective: 10/1/2013 Date Assigned: 5/1/2015

Oil & Gas Lessee(s): GREAT BEAR PETROLEUM OPERATING, LLC

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: None

Other Considerations: See Fig. 10c Land Status Summary, Figs. 3c & 4c (MTRS) designation and Figs. 5c & 6c (ADLs) in Appendix A.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Main TWR & Lake A14 Access Road	Umiat, T005N, R012E, Sect. 29	Varies – GPS coordinates in Appendix C
Main TWR & Lake A15 Access Road	Umiat, T005N, R012E, Sect. 30	Varies – GPS coordinates in Appendix C
Click here to enter text.	Click here to enter text.	Click here to enter text.

Affected ADL: 392779 Date Effective: 7/1/2015 Date Assigned:

Oil & Gas Lessee(s): ACCUMULATE ENERGY ALASKA, INC.

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: None

Other Considerations: See Fig. 10c Land Status Summary, Figs. 3c & 4c (MTRS) designation and Figs. 5c & 6c (ADLs) in Appendix A.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Lake A15 Access Road	Umiat, T005N, R012E, Sect. 30, 29	Varies – GPS coordinates in Appendix C
Main TWR	Umiat, T005N, R012E, Sect. 30	Varies – GPS coordinates in Appendix C
Lake A16 Access Road	Umiat, T005N, R012E, Sect. 31	Varies – GPS coordinates in Appendix C

LAND STATUS: SUPPLEMENTAL SECTION

1. State Mineral Estate:

Affected ADL: 393130 Date Effective: 6/1/2016 Date Assigned: Enter Date.

Oil & Gas Lessee(s): ACCUMULATE ENERGY ALASKA, INC

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: None

Other Considerations: See Fig. 10c Land Status Summary, Figs. 3c & 4c (MTRS) designation and Figs. 5c & 6c (ADLs) in Appendix A

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Main TW and Lake A16 Access Road	Umiat, T005N, R011E, Sect. 25	Varies – GPS coordinates in Appendix C
Main TWR and Lakes A16 & A17 Access Roads	Umiat, T005N, R011E, Sect. 36	Varies – GPS coordinates in Appendix C
Main TWR	Umiat, T005N, R011E, Sect. 35	Varies – GPS coordinates in Appendix C

Affected ADL: 393129 Date Effective: 6/1/2016 Date Assigned:

Oil & Gas Lessee(s): ACCUMULATE ENERGY ALASKA, INC

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: None

Other Considerations: See Fig. 10c Land Status Summary, Figs. 3c & 4c (MTRS) designation and Figs. 5c & 6c (ADLs) in Appendix A

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Main TW and Lake A19 Access Road	Umiat, T005N, R011E, Sect. 35	Varies – GPS coordinates in Appendix C
Main TWR and Lakes A18 & A18 Access Roads	Umiat, T005N, R011E, Sect. 34	Varies – GPS coordinates in Appendix C
Main TWR	Umiat, T005N, R011E, Sect. 35	Varies – GPS coordinates in Appendix C

Affected ADL: 393063 Date Effective: 6/1/2016 Date Assigned: Enter Date.

Oil &Gas Lessee(s): ACCUMULATE ENERGY ALASKA, INC.

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: None

Other Considerations: See Fig. 10c Land Status Summary, Figs. 3c & 4c (MTRS) designation and Figs. 5c & 6c (ADLs) in Appendix A

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Lake A20 Access Road	Umiat, T004N, R011E, Sect. 2	Varies – GPS coordinates in Appendix C

LAND STATUS: SUPPLEMENTAL SECTION

1. State Mineral Estate:

Affected ADL: 393062 Date Effective: 6/1/2016 Date Assigned: Enter Date.

Oil & Gas Lessee(s): ACCUMULATE ENERGY ALASKA, INC.

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: None

Other Considerations: See Fig. 10d Land Status Summary, Figs. 3d & 4d (MTRS) designation and Figs. 5d & 6d (ADLs) in Append. A.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Main TWR	Umiat, T004N, R011E, Sect. 2	Varies – GPS coordinates in Appendix C
Main TWR and Lakes A21 & A22 Access Roads	Umiat, T004N, R011E, Sect. 3	Varies – GPS coordinates in Appendix C

Affected ADL: 393067 Date Effective: 6/1/2016 Date Assigned: Enter Date.

Oil And Gas Lessee(s): ACCUMULATE ENERGY ALASKA, INC.

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: None

Other Considerations: See Fig. 10d Land Status Summary, Figs. 3d & 4d (MTRS) designation and Figs. 5d & 6d (ADLs) in Append. A.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Main TWR and Lake A23 Access Road	Umiat, T004N, R011E, Sect. 4	Varies – GPS coordinates in Appendix C
Bravo TWR Spur	Umiat, T004N, R011E, Sect. 9, 8	Varies – GPS coordinates in Appendix C
Charlie TWR Spur & Lake A24 Access Road	Umiat, T004N, R011E, Sect. 9, 8	Varies – GPS coordinates in Appendix C

Affected ADL: 393066 Date Effective: 6/1/2016 Date Assigned: Enter Date.

Oil And Gas Lessee(s): ACCUMULATE ENERGY ALASKA, INC.

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: None

Other Considerations: See Fig. 10d Land Status Summary, Figs. 3d & 4d (MTRS) designation and Figs. 5d & 6d (ADLs) in Append. A.

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Charlie TWR Spur & Lake A25 Access Road	Umiat, T004N, R011E, Sect. 5	Varies – GPS coordinates in Appendix C
Charlie TWR Spur & Lake A26 Access Road	Umiat, T004N, R011E, Sect. 6	Varies – GPS coordinates in Appendix C
Bravo TWR Spur	Umiat, T004N, R011E, Sect. 8	Varies – GPS coordinates in Appendix C

LAND STATUS: SUPPLEMENTAL SECTION

1. State Mineral Estate:

Affected ADL: 393068 Date Effective: 6/1/2016 Date Assigned: Enter Date.

Oil & Gas Lessee(s): ACCUMULATE ENERGY ALASKA, INC.

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: None

Other Considerations: See Fig. 10d Land Status Summary in Appendix A. See Figs. 3d & 4d (MTRS) designation and Figs. 5d & 6d (ADLs) in Append. A

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Bravo TWR Spur	Umiat, T004N, R011E, Sect. 8	Varies – GPS coordinates in Appendix C
Bravo TWR Spur & Lake A28 Access Road	Umiat, T004N, R011E, Sect. 7	Varies – GPS coordinates in Appendix C
Bravo TWR Spur & Lake A27 Access Road	Umiat, T004N, R011E, Sect. 18	Varies – GPS coordinates in Appendix C

Affected ADL: 393049 Date Effective: 6/1/2016 Date Assigned: Enter Date.

Oil & Gas Lessee(s): ACCUMULATE ENERGY ALASKA, INC.

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: None

Other Considerations: See Fig. 10d Land Status Summary in Appendix A. See Figs. 3d & 4d (MTRS) designation and Figs. 5d & 6d (ADLs) in Append. A

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Bravo TWR Spur	Umiat, T004N, R010E, Sect. 13	Varies – GPS coordinates in Appendix C

Affected ADL: 393059 Date Effective: 6/1/2016 Date Assigned: Enter Date.

Oil And Gas Lessee(s): ACCUMULATE ENERGY ALASKA, INC.

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: None

Other Considerations: See Fig. 10d Land Status Summary in Appendix A. See Figs. 3d & 4d (MTRS) designation and Figs. 5d & 6d (ADLs) in Append. A

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Bravo #1 Ice Pad	Umiat, T004N, R010E, Sect. 24	69.688200° / 149.566100° (Pad Centroid)
Bravo #1 Well Bore	Umiat, T004N, R010E, Sect. 24	69.687484° / 149.566942°
Bravo TWR Spur	Umiat, T004N, R010E, Sect. 24	Varies – GPS coordinates in Appendix C

LAND STATUS: SUPPLEMENTAL SECTION

1. State Mineral Estate:

Affected ADL: 393047 Date Effective: 6/1/2016 Date Assigned: Enter Date.

Oil And Gas Lessee(s): ACCUMULATE ENERGY ALASKA, INC.

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: None

Other Considerations: See Fig. 10d Land Status Summary in Appendix A. See Figs. 3d & 4d (MTRS) designation and Figs. 5d & 6d (ADLs) in Append. A

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Charlie TWR Spur	Umiat, T004N, R010E, Sect. 1	Varies – GPS coordinates in Appendix C
Charlie TWR Spur & Lake A29 Access Road	Umiat, T004N, R010E, Sect. 2, 11	Varies – GPS coordinates in Appendix C

Affected ADL: 393046 Date Effective: 6/1/2016 Date Assigned: Enter Date.

Oil And Gas Lessee(s): ACCUMULATE ENERGY ALASKA, INC.

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: None

Other Considerations: See Fig. 10d & 10e Land Status Summary in Appendix A. See Figs. 3d & 3e, 4d & 4e (MTRS) designation and Figs. 5d & 5e, 6d & 6e (ADLs) in Append. A

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Charlie TWR Spur & Lake A31 Access Road	Umiat, T004N, R010E, Sect. 2	Varies – GPS coordinates in Appendix C
Charlie TWR Spur & Lake A32 Access Road	Umiat, T004N, R010E, Sect. 3	Varies – GPS coordinates in Appendix C

Affected ADL: 393051 Date Effective: 6/1/2016 Date Assigned: Enter Date.

Oil And Gas Lessee(s): ACCUMULATE ENERGY ALASKA, INC.

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: None

Other Considerations: See Fig. 10e Land Status Summary in Appendix A. See Figs. 3e & 4e (MTRS) designation and Figs. 5e & 6e (ADLs) in Append. A

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Charlie TWR Spur & Lake A33 Access Road	Umiat, T004N, R010E, Sect. 4	Varies – GPS coordinates in Appendix C
Charlie TWR Spur	Umiat, T004N, R010E, Sect. 5	Varies – GPS coordinates in Appendix C

LAND STATUS: SUPPLEMENTAL SECTION

1. State Mineral Estate:

Affected ADL: 393052 Date Effective: 6/1/2016 Date Assigned: Enter Date.

Oil & Gas Lessee(s): ACCUMULATE ENERGY ALASKA, INC.

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: None

Other Considerations: See Fig. 10e Land Status Summary, Figs. 3e & 4e (MTRS) designation and Figs. 5e & 6e (ADLs) in Append. A

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Charlie TWR Spur	Umiat, T004N, R010E, Sect. 7	Varies – GPS coordinates in Appendix C

Affected ADL: 393043 Date Effective: 6/1/2016 Date Assigned: Enter Date.

Oil & Gas Lessee(s): ACCUMULATE ENERGY ALASKA, INC.

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: None

Other Considerations: See Fig. 10e Land Status Summary, Figs. 3e & 4e (MTRS) designation and Figs. 5e & 6e (ADLs) in Append. A

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Charlie #1 Ice Pad	Umiat, T004N, R009E, Sect. 13	69.696930° / 149.831800° (Pad Centroid)
Charlie #1 Well Bore	Umiat, T004N, R009E, Sect. 13	69.696106° / 149.831637°
Charlie TWR Spur & Lake A37 Access Road	Umiat, T004N, R009E, Sect. 12	Varies – GPS coordinates in Appendix C
Charlie TWR Spur & Lakes A35 & A36 Access Roads	Umiat, T004N, R009E, Sect. 13	Varies – GPS coordinates in Appendix C
Lake A36 Access Road	Umiat, T004N, R009E, Sect. 14	Varies – GPS coordinates in Appendix C

Affected ADL: 393050 Date Effective: 6/1/2016 Date Assigned: Enter Date.

Oil And Gas Lessee(s): ACCUMULATE ENERGY ALASKA, INC.

Surface Ownership: State of Alaska

Do you have, or anticipate having an Access Agreement: ☒ Yes ☐ No

Special Use Lands: ADL 50666

Jointly Managed Lands: None

Other Considerations: See Fig. 10e Land Status Summary in Appendix A, Figs. 3e & 4e (MTRS) designation and Figs. 5e & 6e (ADLs) in Append. A

Project Components	Meridian, Township, Range, And Section(s)	GPS Coordinates
Charlie TWR Spur & Lake A30 Access Road	Umiat, T004N, R010E, Sect. 6	Varies – GPS coordinates in Appendix C
Charlie TWR Spur & Lakes A30 & A34 Access Roads	Umiat, T004N, R010E, Sect. 7	Varies – GPS coordinates in Appendix C

Appendix C Supplemental Pages

Section V LAND STATUS:

TWR Alignment and Ice Pad GPS Waypoint Coordinates

As-staked Main Tundra Winter Ice Road (TWR) Centerline

Waypoint ID	GPS Coordinates (WGS84) lat°	lon°	Description
Start	69.84621	148.761487	MP 0 (at MP386.5 Dalton Highway)
121	69.84148	148.777351	MP .5
122	69.83911	148.785609	MP .75
123	69.83439	148.801182	MP 1.25
124	69.83202	148.809282	MP 1.5
125	69.82972	148.816918	MP 1.75
173	69.82726	148.825266	MP 2
174	69.82499	148.832947	MP 2.25
175	69.82266	148.840679	MP 2.5
176	69.82029	148.848806	MP 2.75
224	69.81796	148.856531	MP 3
225	69.81557	148.864469	MP 3.25
226	69.81366	148.873550	MP 3.5
260	69.81224	148.883233	MP3.75
230	69.81071	148.893271	MP 4
231	69.80933	148.902325	MP 4.25
232	69.80791	148.911945	MP 4.5
233	69.80648	148.921503	MP 4.75
234	69.80513	148.930804	MP 5
235	69.80363	148.940315	MP 5.25
236	69.80219	148.950029	MP 5.5
237	69.80076	148.959541	MP 5.75
238	69.79930	148.969017	MP 6
239	69.79801	148.977126	MP 6.25
240	69.79636	148.988442	MP 6.5
241	69.79493	148.997946	MP 6.75
242	69.79349	149.007271	MP 7
247	69.79201	149.016891	MP 7.25
248	69.79060	149.026701	MP 7.5
249	69.78917	149.035947	MP 7.75
250	69.78769	149.045598	MP 8
251	69.78626	149.055062	MP 8.25
252	69.78466	149.064806	MP 8.5
253	69.78308	149.075560	MP 8.75
257	69.78203	149.084070	MP 9
254	69.78067	149.093981	MP 9.25
255	69.77944	149.103842	MP 9.5
256	69.77844	149.113751	MP 9.75
129	69.77713	149.123939	MP 10
126	69.77614	149.131693	MP 10.25
127	69.77504	149.141489	MP 10.5
128	69.77351	149.150572	MP 10.75
133	69.77166	149.156705	MP 11
130	69.77059	149.170095	MP 11.25
131	69.77063	149.181881	MP 11.5

As-staked Main Tundra Winter Ice Road (TWR) Centerline

Waypoint	GPS Coordinates (WGS84)		
ID	lat°	lon°	Description
132	69.76955	149.186661	MP 11.75
134	69.76668	149.193016	MP 12
135	69.76370	149.199669	MP 12.25
136	69.76236	149.208555	MP 12.5
137	69.76109	149.216539	MP 12.75
138	69.75916	149.227909	MP 13
139	69.75778	149.236548	MP 13.25
258	69.75603	149.247197	MP.13.5
140	69.75460	149.256383	MP 13.75
141	69.75312	149.264974	MP 14
142	69.75149	149.275267	MP 14.25
259	69.74981	149.285088	MP14.5
143	69.74841	149.294094	MP 14.75
144	69.74703	149.302760	MP 15
145	69.74529	149.312859	MP 15.25
146	69.74390	149.321696	MP 15.5
147	69.74263	149.329496	MP 15.75
154	69.74084	149.341153	MP 16
151	69.73957	149.351297	MP 16.25
152	69.73797	149.360950	MP 16.5
153	69.73610	149.369304	MP 16.75
155	69.73451	149.379216	MP 17
156	69.73299	149.388987	MP 17.25
157	69.73164	149.396928	MP 17.5
158	69.72996	149.407167	MP 17.75
159	69.72843	149.416982	MP 18
160	69.72690	149.426005	MP 18.25
161	69.72539	149.434933	MP 18.5
162	69.72379	149.444838	MP 18.75
163	69.83665	148.793507	MP 19
181	69.72548	149.510601	MP 20.5

As-staked Bravo TWR Spur Centerline

Waypoint	GPS Coordinates (WGS84)		
ID	lat°	lon°	Description
164	69.72222	149.453953	MP 19 B
165	69.72062	149.463763	MP 19.25 B
167	69.71852	149.472072	MP 19.5 B
171	69.71760	149.482762	MP 19.75 B
177	69.71619	149.491024	MP 20 B
179	69.71445	149.501452	MP 20.25 B
182	69.71305	149.509758	MP 20.5 B
183	69.71182	149.517608	MP 20.75 B
185	69.70944	149.527406	MP 21 B
186	69.70639	149.533329	MP 21.25B
187	69.70348	149.538694	MP 21.5 B
188	69.70021	149.544815	MP 21.75 B
189	69.69737	149.550274	MP 22 B
191	69.69424	149.556013	MP 22.25 B
193	69.69145	149.561309	MP 22.5 B

As-staked Charlie TWR Spur Centerline

Waypoint	GPS Coordinates (WGS84)		
ID	lat°	lon°	Description
166	69.72268	149.461220	MP 19.25 C
169	69.72251	149.471386	MP 19.5 C
172	69.72268	149.482300	MP 19.75 C
178	69.72468	149.491553	MP 20 C
180	69.72564	149.500342	MP 20.25 C
184	69.72525	149.520382	MP 20.75 C
190	69.72490	149.532625	MP 22 C
192	69.72476	149.541598	MP 22.25 C
194	69.72440	149.551861	MP 22.5 C
195	69.72417	149.561690	MP 22.75 C
196	69.72383	149.573154	MP 23 C
197	69.72357	149.583228	MP 23.25 C
198	69.72322	149.594035	MP 23.5 C
199	69.72309	149.603755	MP 23.75 C
200	69.72381	149.615725	MP 24 C
201	69.72505	149.623625	MP 24.25 C
202	69.72564	149.636411	MP 24.5 C
203	69.72490	149.643003	MP 24.75 C
204	69.72663	149.652662	MP 25 C
205	69.72931	149.657630	MP 25.25 C
206	69.72912	149.667546	MP 25.5 C
207	69.72950	149.678704	MP 25.75 C
208	69.72826	149.689086	MP 26 C
209	69.72848	149.698312	MP 26.25 C
210	69.72864	149.709176	MP 26.5 C

As-staked Charlie TWR Spur Centerline

Waypoint	GPS Coordinates (WGS84)		
ID	lat°	lon°	Description
211	69.72893	149.719680	MP 26.75 C
212	69.72893	149.730794	MP 27 C
213	69.72874	149.740237	MP 27.25 C
214	69.72840	149.750339	MP 27.5 C
215	69.72699	149.760371	MP 27.75 C
216	69.72528	149.769914	MP 28 C
217	69.72344	149.778192	MP 28.25 C
218	69.72088	149.785728	MP 28.5 C
219	69.71751	149.789895	MP 28.75 C
220	69.71362	149.794271	MP 29 C
221	69.71101	149.799040	MP 29.25 C
222	69.70799	149.804837	MP 29.5 C
223	69.70503	149.810987	MP 29.75 C
227	69.70251	149.817826	MP 30 C
228	69.70015	149.824841	MP 30.25 C
229	69.69794	149.832060	MP 30.5 C

As-staked Wellbore Locations

Waypoint	GPS Coordinates (WGS84)		
ID	lat°	lon°	Description
112	69.68820	149.567000	Bravo #1
113	69.69693	149.831800	Charlie #1

As-staked Stream Crossings Centerline

Waypoint	GPS Coordinates (WGS84)			
ID	lat°	lon°	Description	Depth
243	69.79346	149.006180	MP 7 Creek Crossing Pt 1	1.9'
244	69.79346	149.006200	MP 7 Creek Crossing Pt 2	1.9'
245	69.79348	149.006240	MP 7 Creek Crossing Pt 3	1.5'
246	69.79349	149.006260	MP 7 Creek Crossing Pt 4	1.3'
261	69.77122	149.158220	Toolik River Xing Pt 1	1.6'
262	69.77114	149.158330	Toolik River Xing Pt 2	1.2'
263	69.77097	149.158550	Toolik River Xing Pt 3	2.7'
264	69.77087	149.158660	Toolik River Xing Pt 4	3.0'
265	69.77082	149.158710	Toolik River Xing Pt 5	2.2'
266	69.77079	149.158740	Toolik River Xing Pt 6	1.6'
267	69.77077	149.158770	Toolik River Xing Pt 7	1.1'
148	69.73944	149.354900	MP 16.25 Creek Xing Pt 1	2.1'
149	69.73945	149.354870	MP 16.25 Creek Xing Pt 2	1.4'
150	69.73946	149.354860	MP 16.25 Creek Xing Pt 3	1.9'
170	69.72271	149.475485	MP 19.5 Charlie Creek Xing	1.5'
168	69.71855	149.471940	MP 19.5 Bravo Creek Xing	1.5'

As-staked Stream Crossings Centerline

Waypoint	GPS Coordinates (WGS84)			
ID	**lat°**	**lon°**	**Description**	**Depth**
114	69.72967	149.681240	Kuparuk River Xing Pt 1	<1'
115	69.72957	149.683840	Kuparuk River Xing Pt 2	2.3'
116	69.72954	149.685606	Kuparuk River Xing Pt 3	1.0'
117	69.72932	149.686176	Kuparuk River Xing Pt 4	1.3'
118	69.72896	149.686868	Kuparuk River Xing Pt 5	5.1'
119	69.72882	149.687041	Kuparuk River Xing Pt 6	5.4'

Water Sources & Water Source Access

Waypoint	GPS Coordinates (WGS84)		
ID	**lat°**	**lon°**	**Description**
1	69.84366	148.780784	A1
68	69.83413	148.758748	A3 Lake Access
95	69.83361	148.759106	A4 Lake Access
96	69.83371	148.759739	A4 Lake Entrance
94	69.83326	148.762594	A4
69	69.83074	148.770708	A3 Lake Entrance
67	69.82917	148.772581	A3
2	69.84188	148.775906	A1 Access
3	69.84252	148.776810	A1 Lake Entrance
34	69.83492	148.785279	A2
36	69.83613	148.789583	A2 Lake Entrance
35	69.83715	148.791639	A2 Access
97	69.81074	148.848898	A5
99	69.81274	148.869908	A5 Lake Entrance
98	69.81397	148.871515	A5 Lake Access
100	69.78664	148.947561	A6
102	69.79626	148.952587	A6 Lake Entrance
101	69.80099	148.957213	A6 Lake Access
103	69.79620	148.968285	A7
105	69.79716	148.977655	A7 Lake Entrance
104	69.79777	148.978488	A7 Lake Access
106	69.78224	149.030994	A8
108	69.78627	149.041591	A8 Lake Entrance
107	69.78767	149.043668	A8 Lake Access
109	69.76762	149.057299	A9
111	69.77048	149.066276	A9 Lake Entrance
4	69.78919	149.075858	A10
110	69.78243	149.081335	A9 Lake Access
5	69.78227	149.082741	A10 Lake Access
6	69.78396	149.084518	A10 Lake Entrance

Waypoint	GPS Coordinates (WGS84)		
ID	lat°	lon°	Description
7	69.77657	149.110074	A11
9	69.77782	149.111853	A11 Lake Entrance
8	69.77848	149.112460	A11 Lake Access
10	69.77353	149.117833	A12
12	69.77482	149.119327	A12 Lake Entrance
11	69.77754	149.122281	A12 lake Access
13	69.76811	149.181105	A13
16	69.76115	149.183809	A14
15	69.76963	149.184093	A13 Lake Entrance
14	69.77018	149.184878	A13 Lake Access
18	69.76279	149.195157	A14 Lake Entrance
17	69.76475	149.197514	A14 Lake Access
19	69.75364	149.208318	A15
21	69.75585	149.211954	A15 Lake Entrance
20	69.76058	149.219333	A15 Lake Access
22	69.74685	149.252335	A16
24	69.74918	149.256524	A16 Lake Entrance
23	69.75312	149.264349	A16 Lake Access
26	69.74864	149.293252	A17 Lake Access
27	69.75091	149.295401	A17 Lake Entrance
25	69.75283	149.297288	A17
33	69.73748	149.335019	A191
32	69.73794	149.335620	A19 Lake Entrance
31	69.74106	149.339317	A19 Lake Access
28	69.73787	149.346923	A18
30	69.73848	149.347612	A18 Lake Entrance
29	69.73965	149.348754	A18 Lake Access
37	69.73476	149.361107	A20
39	69.73647	149.362020	A20 Lake Entrance
38	69.73739	149.362230	A20 Lake Access
41	69.73142	149.395399	A21 Lake Entrance
40	69.73187	149.396054	A21 Lake Access
42	69.73093	149.396100	A211
44	69.73164	149.398001	A22 Lake Access
45	69.73331	149.399354	A22 Lake Entrance
43	69.73456	149.400595	A22
48	69.72284	149.438299	A23 Lake Entrance
47	69.72466	149.439751	A23 Lake Acces
46	69.71937	149.441384	A23
50	69.72274	149.467024	A24 Lake Access
51	69.72306	149.467195	A24 Lake Entrance
49	69.72447	149.469496	A24
53	69.72498	149.492637	A25 Lake Access

Waypoint ID	GPS Coordinates (WGS84) lat°	lon°	Description
54	69.72442	149.492783	A25 Lake Entrance
52	69.72350	149.496505	A25
55	69.72153	149.521261	A26
57	69.72386	149.521970	A26 Lake Entrance
56	69.72515	149.523128	A26 Lake Access
62	69.71052	149.525840	A28 Lake Access
63	69.71115	149.528020	A28 Lake Entrance
61	69.71527	149.541311	A28
59	69.70158	149.542369	A27 Lake Access
60	69.70180	149.543022	A27 Lake Entrance
58	69.70259	149.544686	A27
66	69.72274	149.591273	A29 lake Entrance
65	69.72322	149.591337	A29 Lake Access
64	69.72162	149.594657	A29
74	69.72512	149.624116	A31 Lake Access
75	69.72505	149.624286	A31 Lake Entrance
73	69.72399	149.626297	A31
77	69.72938	149.656837	A32 Lake Access
78	69.72898	149.658081	A32 Lake Entrance
76	69.72829	149.660991	A32
81	69.72777	149.703393	A33 Lake Entrance
80	69.72876	149.703584	A33 Lake Access
79	69.72446	149.706789	A33
70	69.72867	149.745213	A30 Lake Access
71	69.72222	149.748589	A30 Lake Entrance
72	69.71585	149.751592	A302
82	69.72076	149.776997	A34
84	69.72271	149.779869	A34 Lake Entrance
83	69.72294	149.780291	A34 Lake Access
92	69.70925	149.802553	A37 Lake Access
85	69.70188	149.810576	A35
87	69.70346	149.814465	A35 Lake Entrance
86	69.70373	149.814884	A35 Lake Access
93	69.71223	149.819192	A37 Lake Entrance
91	69.71257	149.825290	A37
88	69.69828	149.831745	A36 Lake Access
89	69.70125	149.850368	A36 Lake Entrance
90	69.70164	149.865811	A36

Appendix C Supplemental Pages

Section VIII PROJECT USE REQUIREMENTS:

Subsection 10: All Other Facilities and Equipment – Heavy Equipment List

Section VIII Project Use Requirements

Section 10: All Other Facilities and Equipment – Heavy Equipment List

The number and types of vehicles and equipment generally used in construction and maintenance of the ice road, and drilling operations include the following:

- Tucker Snow-Cats with portable ice auger drills (2)
- Caterpillar motor graders (1)
- Caterpillar 966 loaders (4)
- Snow blowers and ice trimmers – loader mounted (2)
- Caterpillar D-6 dozers (1)
- Tractor/Maxi-Haul (30cy) dump trailers and Cat hard tail end dumps (6)
- Crew buses, vans and pickups (8)
- Tractor/325-bbl vacuum trucks (3) and
- 15 cy super suckers (3)
- 130-bbl conventional water tanker trucks and 200-bbl water buffaloes (3)
- Mechanic field service trucks (1)
- 5000-gal fuel tanker trucks (1)

Appendix C Supplemental Pages

Section VIII PROJECT USE REQUIREMENTS:

Subsection 11: Permit Requirements

PROJECTED USE REQUIREMENTS: SUPPLEMENTAL SECTION- Section 11 Permit Requirements				
Agency	**Permit Type**	**Permit Number**	**Application Status**	**Projected Use Requirement(s)**
ADNR/DML&W	LNO from GREAT BEAR PETROLEUM OPERATING LLC to cross ADLs 391658, 391660, 391661, 391680, 392303, 392304 & 392305 (see Figures 2, 5a, 5b, & 5c and 6a, 6b & 6c in Appendix A)	TBD	In Preparation	8
ADNR/DML&W	LNO from Quintillion Holdings LLC to cross fiber optic cable ROW (Note Quintillion is in Dalton Highway ROW; see Figure 10a in Appendix A)	TBD	In Preparation	8
ADNR/DML&W	LNO from GCI Fiber Optic Company to cross fiber optic cables (Note GCI is in Dalton Highway ROW; see Figure 10a in Appendix A)	TBD	In Preparation	8
ADNR/DML&W	LNO from ASPC Fuel Gas Line (Note GCI is in Dalton Highway ROW; see Figure 10a in Appendix A)	TBD	In Preparation	8
Enter Agency.	Enter Permit Type.	Enter Permit Number.	Enter Application Status.	Enter Projected Use Requirement(s).
Enter Agency.	Enter Permit Type.	Enter Permit Number.	Enter Application Status.	Enter Projected Use Requirement(s).
Enter Agency.	Enter Permit Type.	Enter Permit Number.	Enter Application Status.	Enter Projected Use Requirement(s).
Enter Agency.	Enter Permit Type.	Enter Permit Number.	Enter Application Status.	Enter Projected Use Requirement(s).
Enter Agency.	Enter Permit Type.	Enter Permit Number.	Enter Application Status.	Enter Projected Use Requirement(s).
Enter Agency.	Enter Permit Type.	Enter Permit Number.	Enter Application Status.	Enter Projected Use Requirement(s).
Enter Agency.	Enter Permit Type.	Enter Permit Number.	Enter Application Status.	Enter Projected Use Requirement(s).
Enter Agency.	Enter Permit Type.	Enter Permit Number.	Enter Application Status.	Enter Projected Use Requirement(s).

Appendix C Supplemental Pages

Section XII GLOSSARY of TERMS

GLOSSARY OF TERMS: SUPPLEMENTAL SECTION		
Term #	**Term**	**Term Definition**
11	ADNR	Alaska Department of Natural Resources
12	ADNR/DML&W	ADNR Division of Mining, Land and Water
13	ADNR/OHA	ADNR Division of Parks & Recreation, Office of History and Archaeology
14	ADNR/DOG	ADNR Division of Oil and Gas
15	ADOT&PF	Alaska Department of Transportation & Public Facilities
16	AEA	Accumulate Energy Alaska, Inc.
17	AOGCC	Alaska Oil and Gas Conservation Commission
18	APDES	Alaska Pollutant Discharge Elimination System
19	ASH	Alaska Safety Handbook
20	AST	Aboveground storage tank
21	bbls	barrels
22	BMPs	Best Management Practices
23	C&D	Construction & Demolition
24	CFR	Code of Federal Regulations
25	CWA	Clean Water Act
26	E&P	Exploration & Production
27	ft	feet
28	G&I	Grind & Inject
29	gpd	gallons per day
30	IFC	International Fire Code
31	ILHC	Inupiat Heritage and Language Center
32	Kuparuk River Unit	KRU
33	LNO	Letter of non-objection
34	LUP	Land Use Permit
35	MD	Measured Depth
36	MP	Mile Post
37	MSW	Municipal Solid Waste
38	NRO	Northern Regions Office
39	NS	North Slope
40	NSB	North Slope Borough
41	NSB/Planning	NSB Department of Planning
42	NSB SA-10	North Slope Borough Service Area 10
43	NSBMC	North Slope Borough Municipal Code
44	NSEFH	North Slope Environmental Field Handbook
45	NSTC	NS Training Cooperative
46	ODPCP	Oil Discharge and Contingency Plan
47	RCRA	Resource Conservation and Recovery Act
48	Redbook	Alaska Waste Disposal & Reuse Guide
49	SAAs	Satellite Accumulation Areas

GLOSSARY OF TERMS: SUPPLEMENTAL SECTION		
Term #	Term	Term Definition
47	SCAs	Secondary containment areas
48	SHPO	State Historic Preservation Office
49	SPCC	Spill Prevention Control and Countermeasure
50	SWPPP	Storm Water Pollution Prevention Plan
51	TLUI	Traditional Land Use Inventory
52	TVD	True vertical depth
53	TWR	Tundra winter ice road
54	TWUAs	Temporary Water Use Authorizations
55	UIC	Underground Injection Cell (Disposal Injection Well)
56	USACOE/AK	US Army Corps of Engineers/Alaska
57	EPA	US Environmental Protection Agency
58	USLD	Ultra-low sulfur diesel
59	WBM	Water-based mud
60	WMP	Waste Management Plan
	Enter Term.	Enter Term Definition.
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