

ALASKA LNG PROJECT	DOCKET No. CP17-____-000 RESOURCE REPORT No. 3 APPENDIX L PART 2 OF 10	Doc No: USAKE-PT-SRREG-00- 000006-000 APRIL 14, 2017 REVISION: 0
	PUBLIC	

Part 2 of 10 of Appendix L of Resource Report No. 3

ALASKA LNG PROJECT	DOCKET No. CP17-____-000 RESOURCE REPORT No. 3 APPENDIX L –FISHERIES SURVEY REPORTS	Doc No: USAI-PE-SRREG-00- 000003-000 DATE: APRIL 14, 2017 REVISION: 0
	PUBLIC	

APPENDIX L.2 2010 FISH COMPLETION REPORT PERMIT SF2010-199 (USAG-UR-SRWDF-000002)



2010 Fish Completion Report Permit SF2010-199

USAG-UR-SRWDF-000002

ERSS Authorization Page

PREPARED BY:

 FORStewart Seaberg
Physical and Biological Studies Lead

DATE:

5/6/11

CHECKED BY:

 FORDavid Erikson
Physical and Biological Studies Manager

DATE:

5-6-11

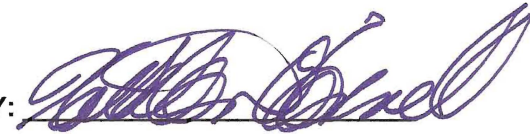
ENDORSED BY:

Mike Gray
Environmental & Regulatory Support Services Deputy Program Manager

DATE:


5-6-11

APPROVED BY:

Kathleen O'Connell
Environmental & Regulatory Support Services Program Manager

DATE:

5-6-11

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE II

Abstract

A total of 352 rivers and streams were surveyed in 2010 between Point Thomson and the Canadian Border in support of the Alaska Pipeline Project. Stream survey results will facilitate the evaluation of project-related direct, indirect, and cumulative impacts to assist satisfying project regulatory requirements.

Fisheries sampling methods included visual observations, electrofishing, minnow traps, angling, beach seines, fyke and hoop nets. General habitat characteristics including riparian vegetation, streambed substrate composition and stream morphology were collected and annual flow regimes were classified for all sites. Water quality parameters including pH, temperature (degrees Celsius), dissolved oxygen (DO) (milligrams / liter), specific conductance (microSiemens per centimeter [$\mu\text{S} / \text{cm}$]), turbidity, color, oxygen reduction potential, and ambient conductance ($\mu\text{S} / \text{cm}$) were also collected.

A total of nine fish species were positively identified and cataloged. Twenty one fish were visually observed but not positively identified and nine fish were classified as *Onchorhynchus* sp.. Anadromous fish were collected in ten streams, one of which was not previously documented (an unnamed tributary to the Jim River). This site will be nominated for inclusion in the Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes. Water chemistry data and habitat characteristics varied greatly depending on the stream and geographic area being sampled. Potential overwintering habitat was identified on site, the West Fork of the North Fork Chandalar River. Stream surveys will continue in 2011 focusing on the Delta Junction to Canadian border region.



	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE III

TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	Project Description	3
1.2	Survey Objectives	3
1.3	Regulatory requirements.....	4
1.3.1	Federal Energy Regulatory Commission.....	4
1.3.2	Essential Fish Habitat.....	4
1.3.3	National Environmental Policy Act NEPA.....	4
1.3.4	Alaska Department of Fish and Game (ADF&G) Title 16.....	4
1.3.5	Section 404 of the Clean Water Act and	5
1.3.6	Section 10 of the Rivers and Harbors Act.	5
1.4	Summary of Historical Data	5
2.0	METHODS.....	6
2.1	Overview	6
2.2	Crew Composition.....	6
2.3	Field Schedule	7
2.4	Health and Safety	7
2.4.1	General Field Safety	7
2.4.2	Electrofishing.....	7
2.5	Selection of of survey sites	8
2.6	Prioritization of survey Sites.....	8
2.7	Study Area Streams	8
2.8	Stream Survey Boundaries	9
2.9	Transporation of Field Crews.....	9
2.10	Fish Sampling	10
2.10.1	Data Collection, Recording, and Documentation	10
2.10.2	Field Quality Assessment / Quality Control Procedures.....	11
2.10.3	Post-Field Quality Assessment / Quality Control Procedures	11
2.10.4	Sampling Gear	12
2.10.5	Fish Habitat Sampling	15
3.0	RESULTS AND DISCUSSION	17
3.1	General Description of the Fish Resources	17
3.1.1	Perennial, Seasonal, and Intermittent Flows.....	17
3.1.2	Stream Crossings Supporting Resident and Anadromous Fish	17
3.2	Total Catch and Species Composition	17
3.2.1	Anadromous Fish Species	18
3.2.2	Resident Fish Species.....	21
3.2.3	Total Catch by Pipeline Spread.....	22
3.2.4	Total Catch by Gear Type	23
3.3	Sampling Mortality	24
3.4	Aquatic Habitats and Substrates.....	24
3.4.1	Potential Overwintering Habitat.....	25
3.5	Water Chemistry	26

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE IV

3.5.1	Precipitation and Stream Flow.....	26
4.0	REFERENCES:.....	28

APPENDICES

APPENDIX A: MAPS OF SITES

APPENDIX B: HISTORICAL DATA

APPENDIX C: FISH RESOURCE PERMIT

APPENDIX D: SUMMARY REPORT OF FISH COLLECTION ACTIVITY FOR 2010

APPENDIX E: STREAM SUBSTRATE

APPENDIX F: RIPARIAN VEGETATION

APPENDIX G: WATER QUALITY DATA

APPENDIX H: AQUATIC HABITATS

APPENDIX I: PRECIPITATION DATA

LIST OF TABLES

Table 2.1	Alaska Pipeline Project Fish Crew Field Schedule 2010
Table 2.2	Summary of Alaska Pipeline Project Spreads and Stream Crossings
Table 2.3	Gear Type Summary
Table 3.1	Stream Crossings Flow Regime by Pipeline Spread
Table 3.2	Fish Species Historically Within the Study Area and Documented During the 2010 Fish Survey
Table 3.3	Total Catch By Species, Age Class, and Gear Types
Table 3.4	Locations where Anadromous Fish were Captured
Table 3.5	Total Catch and Percent of Total Catch of Resident and Anadromous Fish
Table 3.6	Total Catch by Pipeline Spread
Table 3.7	Summary of Stream Substrates
Table 3.8	Summary of Aquatic Habitats Found
Table 3.9	Summary of Basic Water Quality Parameters Measured
Table 3.10	Precipitation for the Alaska Pipeline Project Stream Survey Corridor, Summer 2010


LIST OF FIGURES

Figure 1.	Overview Map of Study Area
Figure 2.	Fish Crew Electrofishing a High Velocity Stream
Figure 3.	Fish Team Member Deploying Minnow Trap
Figure 4.	Fish Crew Using a Beach Seine
Figure 5.	Fyke Net
Figure 6.	Unnamed Tributary Three to Jim River
Figure 7.	Fish Crew Member Measuring Arctic Grayling

ALASKA PipelineProject	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE V

Figure 8. Recording Channel Characteristics

Figure 9. Slimy Sculpin

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE VI

ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
µS / cm	microSiemens per centimeter
ADF&G	Alaska Department of Fish and Game
APP	Alaska Pipeline Project
AS	Alaska Statute
B.C.	British Columbia
BLM	Bureau of Land Management
DO	dissolved oxygen
DPR	Daily Progress Report
EFH	Essential Fish Habitat
EMAP	Environmental Mobile Application for Pipelines
FERC	Federal Energy Regulatory Commission
GPS	Global Positioning System
GTP	Gas Treatment Plant
ID	Identification
mV	millivolts
NEPA	National Environmental Policy Act
NHD	National Hydrology Dataset
NTU	Nephelometric Turbidity Unit
ORP	Oxidation Reduction Potential
ppm	parts per million
QA / QC	Quality Assessment / Quality Control
RR	Resource Report
SME	Subject Matter Expert
TAPS	Trans-Alaska Pipeline System
U.S.	United States
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey

ALASKA PipelineProject	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE 1

1.0 INTRODUCTION

During the summer of 2010, the Alaska Pipeline Project (APP) conducted field surveys for fish and fish habitat at streams and rivers crossed by the APP Alberta case. The Alaska portion of the pipeline route extends from Point Thomson west to Prudhoe Bay, from Prudhoe Bay south to Fairbanks along the Dalton Highway and Trans-Alaska Pipeline System (TAPS), from Fairbanks south along the Richardson Highway to Delta Junction, and then along the Alaska Highway from Delta Junction to the United States (U.S.) / Canada border (**Figure 1**). The Alberta case, Revision C, crosses approximately 500 streams and rivers (**Appendix A**). A second alternative alignment, the Valdez case, follows the same alignment from Prudhoe Bay to Delta Junction, but would be routed south at Delta Junction to Valdez. This report addresses only the Alberta case.

126220600 APP ERSSERSS Project Central Files18 - Geospatial18.04 - MXDPhysicalURSBiologicalAP-14-304-005-REV0.mxd

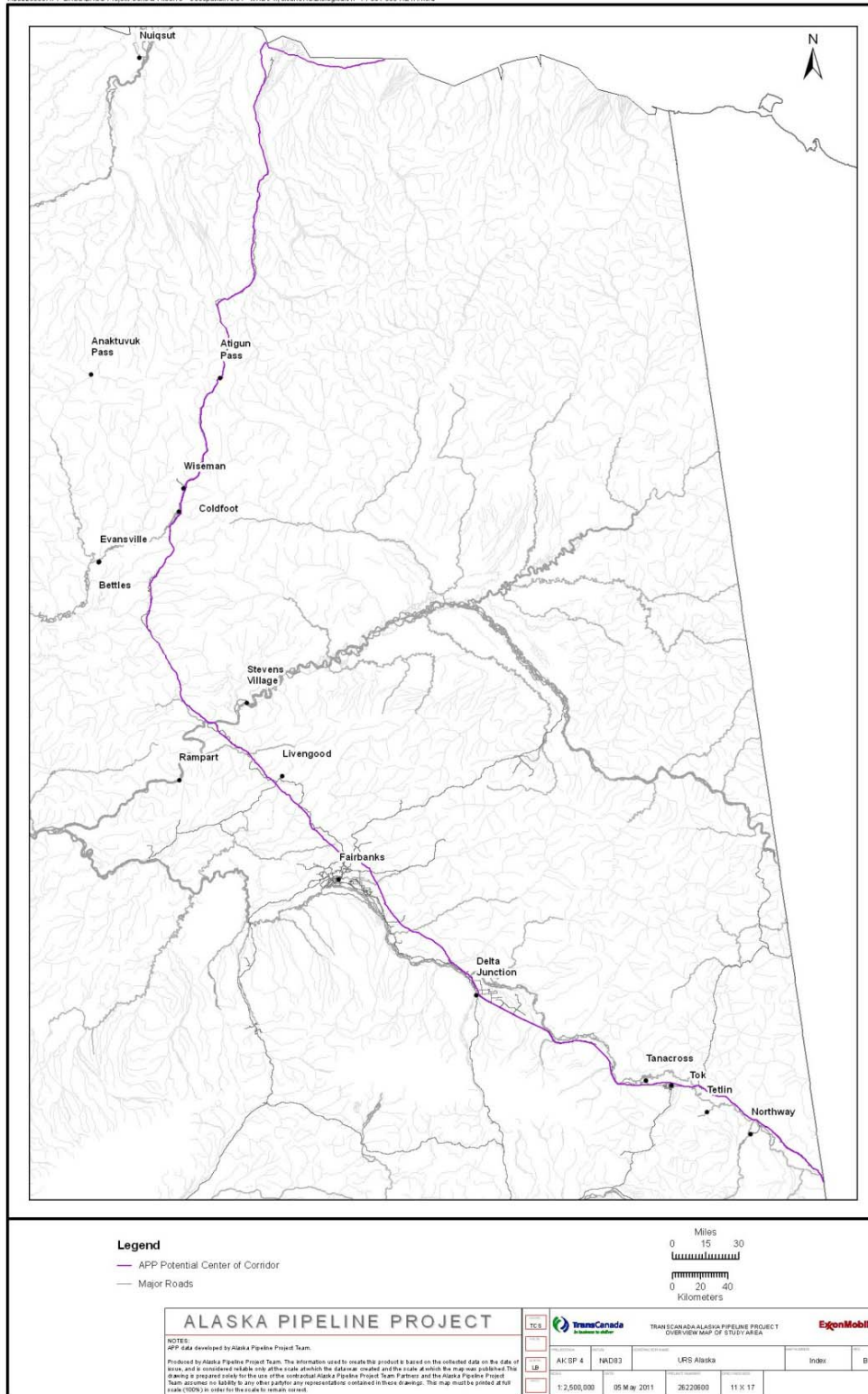



Figure 1. Overview Map of Study Area

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE 3

1.1 PROJECT DESCRIPTION

In the spring of 2009, TransCanada and ExxonMobil Alaska Midstream Gas Investments, LLC. agreed to form a Joint Project and undertake Joint Work to develop APP. APP proposes to condition natural gas from Alaska's North Slope and transport the gas to market. The scope of the Joint Project includes the following elements:

- A gas treatment plant (GTP) in the Prudhoe Bay area;
- A gas transmission pipeline from Point Thomson to the GTP;
- An export pipeline from the GTP to market connections at or near the British Columbia (B.C.) / Alberta border (the Alberta case) or to a third-party owned / operated liquefied natural gas terminal in Valdez, Alaska (the Valdez case); and
- Ancillary facilities and associated infrastructure.

Not included in the scope of the Joint Project are the following:

- Liquefaction terminal at Valdez;
- Connecting pipelines and facilities downstream of the export pipeline delivery point at or near the B.C. / Alberta border; and
- Natural gas liquids processing facilities.

Both options include opportunities for local off-takes in Alaska, and the Alberta option also provides opportunities for local off-takes in the Yukon Territory and / or B.C. / Alberta, Canada.


1.2 SURVEY OBJECTIVES

The primary objective of the 2010 APP Stream Surveys was to identify all resident and anadromous fish streams crossed by the APP Alberta case alignment. The 2010 field work focused on documenting fish presence or absence in wadeable streams where information is incomplete or currently not available. Wadeable streams and rivers are small enough to be safely sampled without the use of a boat or specialized sampling equipment.

Secondary objectives of the 2010 stream surveys were to:

- Identify specific stream crossing sites with critical fish habitat (fish spawning and potential overwintering habitat);
- Document general fish habitat characteristics at proposed pipeline crossing sites;
- Collect representative water quality parameters important to fish; and
- Describe streambed substrate, riparian vegetation, and stream channel morphology at each crossing site.

The data collected from the stream surveys will be used to develop specific stream crossing mitigation measures and recommendations for alignment adjustments to avoid critical fish habitat. The results of the 2010 Stream Survey will also assist APP in developing sampling strategies for the remainder of the streams to be sampled during the 2011 field season.

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE 4

1.3 REGULATORY REQUIREMENTS

Results of this field survey will facilitate the evaluation of project-related direct, indirect, and cumulative impacts under the National Environmental Policy Act (NEPA), the Federal Energy Regulatory Commission (FERC) Resource Report (RR) 3, Section 404 of the Clean Water Act, and Section 10 of the Rivers and Harbors Act. The documentation of resident and anadromous fish streams within the project corridor is required to establish the Alaska Department of Fish and Game's (ADF&G) regulatory authority under Alaska Statute (AS) 16.05.841 and 871. All anadromous fish streams in the project area are also subject to the Essential Fish Habitat (EFH) provisions of the Magnuson-Stevens Fishery Conservation and Management Act.

1.3.1 Federal Energy Regulatory Commission

As the designated lead agency, the FERC requires a RR3, which describes existing fish, wildlife, and vegetation resources directly and indirectly affected by project development. The RR requires analyses of anticipated impacts during construction and operation phases. The report also provides a description of proposed mitigation measures, and documents all federal and state consultation occurring throughout the course of the project. Data collected from the APP fish surveys will support the development of the RR.

1.3.2 Essential Fish Habitat


Section 305(b)(1)(D) of the Magnuson-Stevens Fishery Conservation and Management Act requires federal agencies to consult with the National Marine Fisheries Service on all actions that may adversely affect EFH. The designated EFH along the proposed pipeline corridor includes all freshwater rivers, streams, and lakes supporting Pacific salmon. These water bodies are identified in the 2010 Catalog of Waters Important to the Spawning, Rearing, or Migration of Fishes (Johnson et al. 2010a, 2010b). Under EFH, the National Marine Fisheries Service is required to make EFH Conservation Recommendations, which may include measures to avoid and minimize adverse effects to EFH.

1.3.3 National Environmental Policy Act

The NEPA is a federal law that was enacted in 1969 requiring federal agencies to evaluate potential impacts of a project or action. All fisheries and fish habitat data collected during the 2010 stream surveys will assist federal agencies in evaluating potential project impacts in accordance with NEPA. Literature and the 2010 field data is expected to be incorporated into the Environmental Impact Statement, which is the NEPA document required for this project.

1.3.4 Alaska Department of Fish and Game Title 16

Activities affecting anadromous fish streams, such as gravel removal, temporary water withdrawal, utility line crossings, stream diversion, bank stabilization, and blasting, must be approved by ADF&G, Division of Habitat. All specified anadromous fish streams are protected under AS 16.05.871, and require prior notification to "use, divert, obstruct, pollute, or change the natural flow or bed" of a specified stream. ADF&G ensures the proposed activity provides the proper protection of fish and game prior to authorizing the activity. In resident fish streams, AS 16.05.841 requires ADF&G authorization for any activity that may

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE 5

impede the efficient passage of fish. ADF&G requires permit approval for activities within or across resident fish streams when such activities could result in an impediment to fish passage.

1.3.5 United States Army Corps of Engineers Section 404 and Section 10

The U.S. Army Corps of Engineers (USACE) is responsible for maintaining the navigability of the nation's waterway in accordance with Section 10 of the Rivers and Harbors Act. The USACE also regulates the discharge of dredge and fill material into U.S. waters, including wetlands. The fishery and habitat data collected during the stream surveys will assist USACE in evaluating potential project impacts on wetlands and waters of the U.S. USACE will participate in project planning and development phases to minimize project impacts on waters of the U.S. at the early stages of project development.


1.4 SUMMARY OF HISTORICAL DATA

The proposed route for the APP has been well characterized for fisheries. Since the early 1970s, fish investigations have been conducted along the APP corridor in support of the construction and operation of TAPS and several other proposed oil and gas pipelines between Prudhoe Bay and the U.S. / Canada border. These studies have documented fish presence, distribution, seasonal abundance, and sensitive in-water periods for fish assemblages in or adjacent to the TAPS alignment area (U.S. Bureau of Land Management [BLM] 2003, 2010a and 2010b; Gnath et.al. 2002; McCart and Pepper 1969; DenBeste and McCart 1984).

Similar fisheries information was collected along the proposed alignments for other projects envisioned in the 1970s and 1980s, including The Alaska Highway Gas Pipeline (Foothills Pipeline Company), Alcan Gas Pipeline (Alcan Pipeline Company), Northwest Pipeline Company (Chihuly et.al 1979a, 1979b, 1980a, and 1980b; Schmidt et.al 1981), Arctic Gas, Trans-Alaska Gas System (Yukon Pacific Corporation), Alaska Natural Gas Transportation System and Alaskan Arctic Gas Study Company (Craig and McCart 1974a and 1974b; Van Hyning 1976a and 1976b) (Elliot 1980 and 1982).

There have been more recent studies of the freshwater fish in Arctic coastal streams east of Prudhoe Bay. These include surveys documenting summer fish distribution in the Badami development area (Winters and Morris 2004), stream crossing surveys for proposed pipeline routes from Point Thomson (URS Corporation 2001), and overwintering patterns of Dolly Varden in the Sagavanirktok River (Crane et.al 2005; Hemming 1996; and Woodward-Clyde Consultants and Alaska Biological Research 1983).

Federal and state agencies have also conducted fish passage, gravel pit rehabilitation, pipeline replacement, and other studies in support of TAPS and the oil and gas industry (Scanlon 2008; Morris and Winters 2004; Ott and Morris 1999; Winters 1990, and 1992; and U.S. Fish and Wildlife Service 1990). Several other pertinent studies unrelated to the oil and gas industry have been conducted within the vicinity of the APP corridor and are applicable to the project (Brown 2006, and 2008; Brown et.al 2002; and Viavant 2003).

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE 6

2.0 METHODS

2.1 OVERVIEW

The 2010 fishery field surveys were conducted at wadeable streams crossed by the APP Alberta case rev C.5. According to FERC, streams greater than 100-feet-wide are classified as major rivers, streams 10-feet to 100-feet-wide are intermediate streams, and streams less than 10-feet-wide are minor streams. The wadeable streams sampled in 2010 were generally intermediate and minor streams under this classification.

Stream surveys were conducted from June 17 through September 7, 2010. Crews documented fish presence or absence at each survey site using a combination of standard fish sampling techniques. Crews also collected baseline water quality data and characterized existing habitat conditions at each stream crossing. All field data and observations were recorded on hardcopy datasheets, field logbooks, and electronic data forms. This electronic data was then entered into an Oracle Geodatabase.


Approximately 500 river and stream crossings (sites) were identified along the Alberta case Revision (Rev) C.5 pipeline alignment spanning from Prudhoe Bay to the Canadian border.

The site selection process is detailed in Section 2.5. Water body crossings that had not been identified by the mapping process were noted by field crews, and were added to the database and surveyed along with the previously identified sites. Conversely, some sites that were previously identified and designated as streams were found to be dry stream channels, or channels that only have flow during breakup.

2.2 CREW COMPOSITION

The 2010 fish survey teams consisted of four four-person teams. Teams were composed of a Field Crew Chief, a fisheries technician, an electronic data and GIS technician, and a Bear Guard.

- Field Crew Chiefs were required to have proven field experience and a strong familiarity with Alaska fisheries. Field Crew Chiefs and fisheries technicians received technical training that provided a thorough review of fisheries field protocols and hardcopy data forms. Field Crew Chiefs were in charge of the field crews, and responsible for the collection, hardcopy documentation, and quality of the data collected. Field Crew Chiefs determined fish sampling strategy and effort at each sampling location. They also scheduled the sites to be surveyed, planned the workday for the team, and addressed any technical issues.
 - Fisheries technicians were required to be familiar with field work and fish sampling methods. They assisted the Field Crew Chiefs in data collection, fish identification, and documentation of fish habitat data, including channel morphology.
 - Electronic data and GIS technicians were required to have proven experience using Global Positioning System (GPS) survey equipment. All technicians attended one day of project-specific technical training. They were responsible for electronic data collection at each site and operating a backpack-mounted GPS-based instrument.
-

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE 7

- Bear Guards were responsible for the safety of the field crew with regard to animal encounters. The Bear Guard also functioned as the crew's emergency medical responder.

Each crew was issued a complete set of field gear, sampling equipment, and a vehicle. The crews were housed in commercial establishments or in field camps set up at strategic locations along the Dalton Highway. Housing locations included Coldfoot, Fairbanks, Yukon River, Livengood, Deadhorse, Delta Junction, and Tok.

2.3 FIELD SCHEDULE

Field crews were deployed from June 17 through June 29, and from July 15 through September 7. Early surveys were conducted using two field crews between Fairbanks and the U.S. / Canada border in June. Two additional crews were deployed in July, and stream surveys continued throughout the corridor at targeted water crossings until early September (Table 2.1).

Table 2.1 Alaska Pipeline Project Fish Crew Field Schedule for 2010

Spread Segment (Abbreviation)	Milepost Range	Approximate Length (miles)	Fish Sites Surveyed
Point Thomson to Prudhoe Bay (PP)	0-58	58	27
Prudhoe Bay to Atigun Pass (PA)	0-174	174	79
Atigun Pass to Yukon River (AY)	174-363	189	136
Yukon River to Fairbanks (YF)	363-476	113	44
Fairbanks to Delta Junction (FD)	476-549	73	39
Delta Junction to Tok (DT)	549-655	106	17
Tok to Canada Border (TC)	655-743	88	10
Totals		801	352

2.4 HEALTH AND SAFETY


2.4.1 General Field Safety

Health and safety was the utmost priority for all field crews. Each field crew member had the authority and responsibility to "stop work" and address safety concerns at any time. In addition to promoting a behavior based safety program, all field personnel were required to participate in project training courses.

Each crew was provided with discipline-specific personal protective equipment. At a minimum, each field team was equipped with one or more personal locator beacons, a satellite phone, and remote survival kits with three to four days of survival gear.

2.4.2 Electrofishing

All fisheries crew members completed an electrofishing training and safety course approved by ADF&G. Each electrofisher was equipped with two automatic, and one manual safety shutoffs, including an immersion detector and tilt sensor, and an emergency shutoff switch. All individuals actively electrofishing were required to wear personal protective equipment including non-breathable waders, non-slip footwear, personal floatation devices, and high-

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE 8

voltage rubber gloves. An Automated External Defibrillator was carried by each fisheries crew, as recommended by the manufacturer, in case of an electrofishing accident.

2.5 SELECTION OF OF SURVEY SITES

Stream crossings were identified based on review of topographic mapping, aerial photography, and cross-section selection criteria.

Site identification was an iterative process that used detailed aerial photography and maps. The preliminary compilation of streams crossed by the proposed alignment was based on the surface water features topographic map series from the National Hydrography Dataset (NHD) at the 1:100,000 scale. The Alyeska Pipeline Service Company Environmental Atlas (2002) was used to supplement the NHD and provide additional detailed information on crossings in the vicinity of TAPS. U.S. Geological Survey (USGS) 1:63,360 scale topographic maps were used to further compare and confirm site identification. It was only after all sites were cross-checked using the USGS topographic maps, that the total number of stream crossings was finalized for planning purposes.

Field surveys performed in 2010 were based on Alignment Revision C.5. Changes to the alignment were evaluated for the presence of stream crossing sites using the same identification methods. Stream crossings were either eliminated or added depending upon the results of the re-evaluation process. Future alignment revisions will undergo a similar re-evaluation process for stream crossing sites.

Each potential stream crossing site was given a unique identification (ID) number. This ID number was composed of a single or double letter and a number combination. Sites between Prudhoe Bay and the Canadian border were designated “AL” sites (e.g., AL197), while those between Prudhoe Bay and Point Thomson were designated as “F” sites (e.g., F468). Sites evaluated during the 2010 field season are shown in **Appendix A**.

2.6 PRIORITIZATION OF SURVEY SITES

Survey sites sampled in 2010 were prioritized based on an extensive literature search and a data gap analysis. Generally, the highest priority stream survey targets for 2010 consisted of streams lacking documentation of fish use, and sites not previously sampled. **Appendix B** provides a detailed summary of all historical data collected along the project corridor.

Previously documented fish streams were a lower priority for the 2010 survey. These streams were sampled primarily to document stream channel characteristics, collect water quality data, and assess fish habitat conditions at the proposed crossing site. In general, only limited fish sampling was conducted at these sites.

2.7 STUDY AREA STREAMS

The study area was divided into seven pipeline spreads within five hydrologic basins: Prudhoe Bay, Chandalar-Christian rivers, Koyukuk, Upper Yukon, and Tanana Rivers (USGS 1995). Within these basins, the alignment crosses 17 sub-basins and 64 watersheds. Major water body crossings within each spread are presented in **Table 2.2**.


	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE 9

Table 2.2 Summary of Alaska Pipeline Project Spreads and Stream Crossings

Pipeline Spread	Spread Length (miles)	Number of Streams Sampled	Primary Waterbody Crossings	
			Major ¹	Intermediate ²
Point Thomson to Prudhoe Bay	58	25	Kadleroshilik and Sagavanirktok	Shaviovik and Putuligayuk rivers
Prudhoe Bay to Atigun Pass	174	85	Atigun River	Putuligayuk and Kuparuk rivers
Atigun Pass to Yukon River	189	170	Dietrich, Middle Fork Koyukuk, Hammond, and Yukon rivers	South Fork Koyukuk, Jim, and Kanuti rivers and Nutirwik and North Fork Bonanza creeks
Yukon River to Fairbanks	113	45	Chatanika River	Little Chena and Tolovana rivers and Hess Creek
Fairbanks to Delta Junction	73	17	Chena, Salcha, and Tanana number 1 rivers	Little Salcha, Redmond and Shaw Creek
Delta Junction to Tok	106	7	Gerstle, Johnson Robertson rivers	Little Gerstle
Tok to Canada Border	88	3	Tanana number 2 and Tok rivers	Scottie Creek
Total	801	352		

¹ Potential “major” crossing under Federal Energy Regulatory Commission definitions (waterbody greater than 100 feet in width).

² Potential “intermediate” crossing Federal Energy Regulatory Commission definitions (waterbody greater than 10 feet and less than 100 feet in width).


2.8 STREAM SURVEY BOUNDARIES

The survey reach for each site was the width of the project corridor, which in most cases was 300 feet. The habitat characterization and water quality measurements were taken as close to the center of the corridor as possible. Fish sampling was conducted throughout the project corridor at each survey location. At certain sites, fish sampling was conducted upstream and / or downstream of the corridor if the lead fisheries biologist determined suitable fish habitat was present adjacent to the corridor.

The minimum stream reach lengths for electrofishing were established by multiplying the stream width times 20, or approximately 1 meander length. Electrofishing stream reaches of 20 channel widths or greater provides a sufficient level of detection to accurately document fish assemblages (Fitzpatrick et al. 1998).

2.9 TRANSPORTATION OF FIELD CREWS

Field crews accessed study sites by highway vehicles and helicopters. Vehicular access was by four-wheel drive trucks using existing highways, secondary roads, TAPS access roads and TAPS work pads. Crews used ground transportation to get as close to the study site as possible, and then accessed the survey sites by foot. A Bell 212 twin-engine helicopter was used to access the streams and rivers not readily accessible by ground transportation, or sites that could not be reached due to available land access.

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE 10

2.10 FISH SAMPLING

For each site, a fish sampling strategy was developed to ensure adequate effort was made and appropriate sampling techniques were used to capture fish species inhabiting the area. A range of gear types were used to sample all age classes and species at the site (**Table 2.3**). Electrofishing was prohibited in water bodies where adult fish were observed (see **Fish Resources Permit SF2010-199, Appendix C**). In addition to the gear types deployed, direct visual observations with the aid of polarized sunglasses were conducted at each site upon arrival.

Table 2.3 Gear Type Summary


Gear Type Used	Age Class Targeted	Habitat Type Targeted
Visual observation	All age classes and species	Pools, riffles, and runs; and near-shore bank habitats.
Backpack electrofisher	Fry and juveniles	Undercut banks, overhanging vegetation, large woody debris, submerged vegetation, riffle, run, and pool habitats.
Minnow trap	Fry and juveniles	Undercut banks, overhanging vegetation, large woody debris; submerged vegetation, water velocity shelters, riffles, and runs.
Angling	All age classes and species	Undercut banks, pools, riffles, and runs.
Beach seine	Juveniles all species	Slow-water velocity habitats with depths less than 4-feet-deep. Pools and near-shore habitats.
Fyke and hoop nets	All age classes and species	River and stream channels less than 4-feet-deep with slow water velocities.
Dipnet	Fry and juveniles	Shallow pools and velocity shelters where fish were visually observed.

2.10.1 Data Collection, Recording, and Documentation

All fish captured were identified by species and measured to the nearest millimeter fork length. A variety of fish keys and color photo placards were used by crews to positively identify fish species and life stage. In cases where fish species identification was uncertain, representative photos were taken and later provided to fisheries experts for species identification. If identification to species was uncertain, identification stopped at genera. Once identified and measured, fish were released near the point of capture.

Field data was recorded on “Rite-in-the-Rain” paper hardcopy field data forms, and electronically using a Trimble Nomad field computer and Trimble Pathfinder ProXRT GPS with an electronic data entry system.

Field data was uploaded to a project web site (SharePoint) through a dial-up Internet connection or satellite link for later Quality Assessment / Quality Control review, processing, and analysis. Data was uploaded to the SharePoint site daily or weekly depending on Internet access availability.

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE 11

2.10.2 Field Quality Assessment / Quality Control Procedures

Crew chiefs and electronic data technicians were directed to compare hardcopy forms and the electronic data on a daily basis for accuracy and completeness, and then copied data into a single Zip file along with a Daily Progress Report (DPR). The Zip file was uploaded to an online data repository (SharePoint site) at the end of each field day, or when an Internet connection was available.

DPRs were created and reviewed in the field. The DPRs summarized where and what types of data were collected, including supplemental datasets.

Geographic coordinates were independently collected by surveyors at all water crossings. These data were separately processed to verify the accuracy and precision of GPS coordinates.

Field Quality Audits were conducted at designated sites by a designee of the Quality Manager. The Quality Manager designee completed a field study quality checklist and recorded any deficiencies in data collection and documentation and maintenance of field equipment. Findings were classified as major, minor, or observation, and were translated into a Problem Resolution Form as necessary.

2.10.3 Post-Field Quality Assessment / Quality Control Procedures


Upon completion of the 2010 field season, teams of subject matter experts (SMEs) reviewed and confirmed the accuracy and completeness of the fisheries field data. SME reviews were conducted by field crew leaders, biologists and other scientists familiar with the field study protocols. A Quality Assessment / Quality Control (QA / QC) checklist (Microsoft Excel spreadsheet) was developed to document and track the review of the fisheries field data, including the hardcopy forms, data reports from the Oracle Geodatabase, geospatial data, site photographs, and field logbooks. All fisheries sites sampled in the 2010 field season were reviewed, and the SME comments were recorded on the QA / QC checklist. All data fields and calculations were verified for accuracy. Missing, inadequate, or improperly transcribed data were identified as a minor or major deficiency.

Minor deficiencies included those that could be resolved by the SME through cross-referencing data sources, and did not require additional consultation for resolution. All minor deficiency changes were tracked in the QA / QC checklist spreadsheet.

Major deficiencies included those that could not be resolved solely by the SME. This included all corrections or changes to electronic data housed in the Oracle Geodatabase. All major deficiencies were tracked in the QA / QC checklist spreadsheet. Comments described and identified the major deficiencies and recommended a course of action for resolution. Major deficiencies were corrected in the electronic Oracle Geodatabase, and corrected electronic data forms were regenerated.

During the QA / QC process, the SME confirmed:

- All data was consistent between the hardcopy forms and the electronic data forms;
- Hardcopy forms and electronic data forms were completed and data were representative of the site sampled;

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE 12

- Logbook entries were consistent with information recorded on hardcopy forms; and
- All photos were accounted for and correctly labeled.

2.10.4 Sampling Gear

2.10.4.1 Direct Visual Observations

Upon arrival at the site, field crews used polarized sunglasses to visually search the survey reach for adult and juvenile fish. When possible, fish were identified to species and life stage, counted, and observed behavior (spawning, feeding, and resting), and the information was recorded. Field crews also looked for evidence of spawning activities such as recently excavated redds, carcasses and / or fish displaying spawning behavior.

2.10.4.2 Electrofishing

Electrofishing was used to sample wadeable streams within the study area. Electrofishing was conducted with Model LR20B and LR24B Smith-Root backpack electrofishers. Electrofishing was not conducted in areas where adult fish were observed or known to be present. All field crew members actively engaged in electrofishing followed the sampling protocols recommended by ADF&G (Buckwalter et al. 2008), and attended formal training in electrofishing in accordance with the training requirements stipulated in the ADF&G Fish Resource Permit.

Electrofishing began at the downstream-end of each survey reach and field crews worked upstream. Electrofishing was conducted from bank to bank to ensure that all habitat types were adequately sampled in the survey effort. Crews avoided herding fish by electrofishing intermittently. After a continuous 5 to 10 second electrofishing pulse, crews advanced upstream before continuing to sample. Each stream was electrofished for no more than 30 minutes total, with a cumulative electrofishing total of no less than 300 seconds of electrofishing time per survey reach.

All captured fish were collected (using an insulated dipnet) immediately after they were stunned by the electric current, and placed into a 5-gallon bucket containing stream water. Numbers of fish captured, species, and individual lengths were recorded on the field data form and entered into the electronic dataset.



Figure 2. Fish Crew Electrofishing a High Velocity Stream

2.10.4.3 Minnow Traps

Minnow traps were also commonly used at stream survey sites. Field crews deployed one-quarter-inch mesh double entrance minnow traps (9 by 17.5 inches) baited with cured salmon roe at sampling locations. Cured salmon roe was used in accordance with the ADF&G Fish Resource Permit to prevent the potential introduction of fish pathogens into surveyed streams. Minnow traps were set for a minimum of 2 hours and a maximum of 24 hours.

Minnow traps were placed in habitats providing cover and velocity shelters to enhance sampling effectiveness. These habitats included undercut banks, overhanging vegetation, large boulders or cobble substrate, and large woody debris. Minnow traps were also placed in areas where fish survey teams visually observed juvenile fish. Each trap was secured to the shoreline and labeled with the project name, permit number, and researcher and contact information in accordance with requirements of the ADF&G Fish Resource Permit.

Total set time, location within the stream segment, number of fish captured, species, and fork lengths were recorded on hardcopy datasheets and entered into the electronic data forms.

ALASKA PipelineProject	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE 14



**Figure 3. Fish Team Member
Deploying Minnow Trap**

2.10.4.4 Angling

Angling can be an effective means of capture for some species of fish, such as Arctic grayling and Dolly Varden. Angling is typically less effective for smaller species, such as sculpin and stickleback. Angling was conducted on many of the larger streams and rivers where other sampling methods could not be used effectively. Sampling tackle consisted of spinners, spoons, and flies with barbless hooks. Angling was mainly used in conjunction with other sampling techniques, and at sites with deep channels, high-velocity currents, or steeply sloped banks. Total time angling and species lengths were recorded. Fish were released at the point of capture. All angling was conducted in accordance with ADF&G Sport Fishing Regulations, and was not conducted when local residents or other sport anglers were present. All field team members carried a valid ADF&G Sport Fishing License, as required by the permit.

2.10.4.5 Beach Seines

Beach seines, measuring 4-feet-deep by 10-feet-long with one-quarter-inch mesh, were used in areas with sand or gravel substrates. Beach seining was generally limited to areas with relatively slow water velocities and depths of less than 4 feet. Multiple beach seine hauls were made at survey sites. Numbers of fish captured, species, and lengths were recorded on the field data form, and all fish were released at the point of capture.



Figure 4. Fish Crew Using Beach Seine

2.10.4.6 Fyke Nets

Fyke nets were used at a small number of locations on larger North Slope streams with relatively low water velocities. The fyke nets deployed were constructed of one-quarter-inch mesh with a 3-foot square entrance, 25-foot wings, and a 30-foot center lead (**Figure 5**). Nets were set during the day and allowed to fish for two to six hours. Numbers of fish captured, species, and fork lengths were recorded.

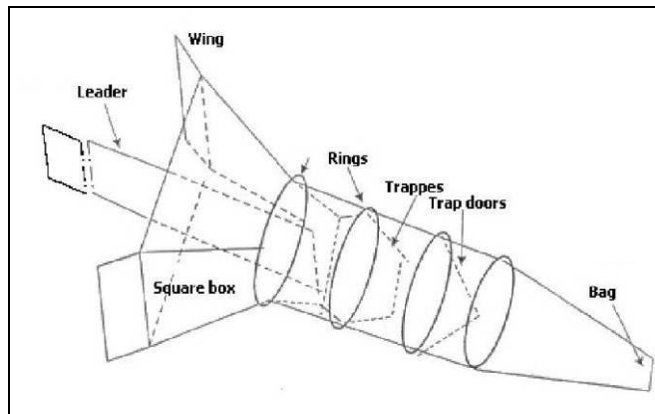



Figure 5. Fyke Net

2.10.4.7 Hoops Nets

Hoop nets were deployed in a manner similar to that used for fyke nets, and were used at a small number of locations where water velocities were relatively low. The hoop nets deployed were one-quarter-inch mesh, three-chambered hoop nets, with a 3-foot-diameter entrance.

2.10.5 Fish Habitat Sampling

Field crews also documented general fish habitat parameters during the stream surveys. Habitat data were recorded for streambed substrate (**Appendix E**), riparian vegetation

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE 16

(**Appendix F**), and water quality parameters (**Appendix G**) at the proposed alignment centerline. All standard aquatic habitat types within the 300-foot-wide project corridor were noted. Field crews paid particular attention to identifying fish spawning areas (spawning behavior or presences of redds) and potential overwintering fish habitat, as indicated by spring-fed areas or evidence of aufeis along the shoreline.

2.10.5.1 Habitat Characteristics

At the alignment centerline, crews recorded information about the riparian vegetation along both streambanks. Riparian vegetation was recorded as percentages for grasses / sedges, shrubs, and trees within a 5-meter zone from the ordinary high-water level of both streambanks. Streambed substrate composition was recorded and characterized as percentages of organic, silt, sand, gravel, cobble, and boulders at the alignment centerline.

General aquatic habitat characteristics recorded within the project corridor at each survey site included the presence of gravel bars, riffles, pools, undercut banks, large woody debris, overhanging vegetation, emergent vegetation, submerged vegetation, and contiguous wetlands (**Appendix H**).

Photographs were taken of both the left and right banks at the center of the corridor, showing the upstream and downstream views of each crossing from the proposed alignment centerline. These standard photos were entered into the electronic data system. Extra photos of the habitat within the corridor, or other notable features were also taken to supplement the standard photos, when applicable.


Site plan view and profile view sketches (**Appendix I**) were made for each crossing, illustrating the wetted width, thalweg depth, riparian vegetation, overhanging banks, location of photos, or any other distinctive habitat type located within the survey reach.

As expected, the overall fish habitat characteristics at stream crossing sites varied widely due to the different ecotypes within the project area. Many factors influence the wide variety of stream habitat characteristics found throughout the project area. These factors included, but are not limited to, stream gradient, depth, channel type, riparian vegetation, stream substrate, the presence of permafrost, and stream discharge. For example, streams on the North Slope lacked woody debris because there are no forests north of the Brooks Range.

2.10.5.2 Water Quality

A Yellow Springs Instruments 556 water quality meter, and a Yellow Springs Instruments model 2100 turbidity meter were used to measure water quality parameters. These parameters included temperature (degrees Celsius [$^{\circ}\text{C}$]), pH, dissolved oxygen (DO) (milligrams / liter), specific conductance (microSiemens per centimeter [$\mu\text{S} / \text{cm}$]), turbidity, color, oxygen reduction potential, and ambient conductance ($\mu\text{S} / \text{cm}$). Water quality data collected at each site was also entered into the electronic data forms.

The collected water quality data was reviewed by SMEs. Atypical data (such as unusually low or high pH, or DO above 100% saturation) was eliminated if the atypical value was not explained or explainable by review of the field data sheets.

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE 17

3.0 RESULTS AND DISCUSSION

3.1 GENERAL DESCRIPTION OF THE FISH RESOURCES

Fish inhabiting streams in the APP study area can be classified into two life history categories, anadromous and resident. Anadromous fish include Pacific salmon (*Oncorhynchus* sp.) and Dolly Varden (*Salvelinus malma*). Pacific salmon are represented by pink salmon (*O. gorbuscha*), chum (*O. keta*), coho (*O. kisutch*) and Chinook (*O. tshawytscha*). Resident species include Arctic grayling (*Thalymus arcticus*), Arctic char (*S. alpinus*), and northern pike (*Esox lucius*), among others. Salmon provide recreational, subsistence, and commercial opportunities for Alaskan residents. Resident species such as Arctic grayling, Arctic char, whitefish species (*Coregonus* spp.), and northern pike are also harvested by recreational and subsistence users.

3.1.1 Perennial, Seasonal, and Intermittent Flows

Streams and rivers can be classified as perennial, intermittent, or seasonal, depending on their annual flow regime. Those with continuous flow are classified as perennial. Those with flow for greater than three months of the year, but not year-round, are classified as seasonal. Those with flows for less than three months of the year are classified as intermittent (USGS, 2009). A total of 352 stream crossings were surveyed for fish and fish habitat by field crews during the 2010 field season (**Table 3.1**). Using the USGS Water Basics Glossary classification, 219 streams were classified as perennial, 44 as intermittent, and 89 as seasonal.

Table 3.1 Stream Crossings Flow Regime by Pipeline Spread

Spread	Perennial	Intermittent	Seasonal
Point Thomson to Prudhoe Bay	14	7	5
Prudhoe Bay to Atigun Pass	33	22	33
Atigun Pass to Yukon River	114	12	39
Yukon River to Fairbanks (Chena River)	37	2	7
Fairbanks to Delta Junction (Tanana River)	13	1	3
Delta Junction to Tok	7	0	0
Tok to U.S. / Canada border	1	0	2

3.1.2 Stream Crossings Supporting Resident and Anadromous Fish

The 2010 fish stream surveys identified 91 stream crossing sites that supported resident fish, 7 stream crossing sites that supported diadromous fish (fish that annually migrate between freshwater and coastal habitats), and 12 crossing sites supporting anadromous fish species (Johnson et al. 2010a, 2010b).

3.2 TOTAL CATCH AND SPECIES COMPOSITION

A total of 721 fish, representing 9 of the 26 anadromous and freshwater resident fish species known to occur in the project area, were captured at stream crossings surveyed in 2010 (**Table 3.2** and **3.3**). Of these, 9 percent (n=67) were determined to be anadromous fish species and 91 percent (n=654) were resident fish species (**Table 3.5**).


	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE 18

Table 3.2 Fish Species Historically Within the Study Area and Documented During the 2010 Fish Survey

Species	Scientific Name	Life History	Identified during 2010 Survey
Arctic lamprey	<i>Lampetra camtschatica</i>	resident/anadromous	NO
American brook lamprey	<i>Lampetra alaskense</i>	resident	NO
Lake chub	<i>Couesius plumbeus</i>	resident	NO
Longnose sucker	<i>Catostomus catostomus</i>	resident	YES
Northern pike	<i>Esox lucius</i>	resident	YES
Alaska blackfish	<i>Dallia pectoralis</i>	resident	NO
Rainbow smelt	<i>Osmerus mordax</i>	anadromous	NO
Arctic cisco	<i>Coregonus autumnalis</i>	anadromous	NO
Bering cisco	<i>Coregonus laurettae</i>	anadromous	NO
Broad whitefish	<i>Coregonus nasus</i>	anadromous	YES
Humpback whitefish	<i>Coregonus pidschian</i>	anadromous	NO
Least cisco	<i>Coregonus sardinella</i>	anadromous	NO
Round whitefish	<i>Prosopium cylindraceum</i>	resident	NO
Sheefish / Inconnu	<i>Stenodus leucichthys</i>	resident	NO
Arctic grayling	<i>Thymallus arcticus</i>	resident	YES
Pink salmon	<i>Onchorhynchus gorbuscha</i>	anadromous	NO
Chum salmon	<i>Onchorhynchus keta</i>	anadromous	YES
Coho salmon	<i>Onchorhynchus kisutch</i>	anadromous	NO
Chinook salmon	<i>Onchorhynchus tshawytscha</i>	anadromous	YES
Rainbow trout	<i>Onchorhynchus mykiss</i>	resident	NO
Lake trout	<i>Salvelinus namaycush</i>	resident	NO
Arctic char	<i>Salvelinus alpinus</i>	resident	NO
Dolly Varden	<i>Salvelinus malma</i>	resident/anadromous	YES
Burbot	<i>Lota lota</i>	resident	NO
Slimy sculpin	<i>Cottus cognatus</i>	resident	YES
Ninespine stickleback	<i>Pungitius pungitius</i>	resident	YES

3.2.1 Anadromous Fish Species

A total of 67 anadromous fish of 3 different species were captured in 2010. These fish consisted of 66 Pacific salmon (young of the year and juveniles) and 1 adult broad whitefish. Field crews captured 55 Chinook salmon, all juveniles (size range 50 to 91 millimeter), which accounted for 82 percent of anadromous fish captured. Two chum salmon juveniles (32 and 35 millimeter) and nine unidentified salmon juveniles (size range 29 to 32 millimeter) were also captured (**Table 3.3**).

Table 3.3 Total Catch By Species, Age Class, and Gear Types

Species	Backpack Electrofisher	Minnow Traps	Angling	Visual Observation	Beach Seine	Fyke Net	TOTAL
Anadromous							
Broad whitefish - adult						1	1
Chinook salmon - juvenile	7	42	6				55
Chum salmon - juvenile	2						2
Unidentified salmon	9						9
Resident							
Arctic grayling - adult	17	4	59	27		3	110
- juvenile	96	17	14	46	26		199
Dolly Varden - adult	3	7	1				11
-juvenile	3	13		5			21
Longnose sucker - juvenile	1	2					3
Ninespine stickleback - adult	12	65		4	1	6	88
-juvenile	19			3			22
Northern pike - adult				1			1
-juvenile			1	2			3
Slimy sculpin - adult	24	23		10			57
-juvenile	50	47		12	3	6	118
Unknown species				21			21
TOTAL	243	220	81	131	30	16	721

A total of 28 documented anadromous streams are crossed by the APP alignment. In 2010, anadromous fish were documented in a total of 10 streams, one of which had not been documented as an anadromous stream (**Table 3.4**). An unnamed tributary (number three to Jim River, AL 238, **Figure 6**) was documented to support Chinook salmon, and this site will be nominated for inclusion in the Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes.

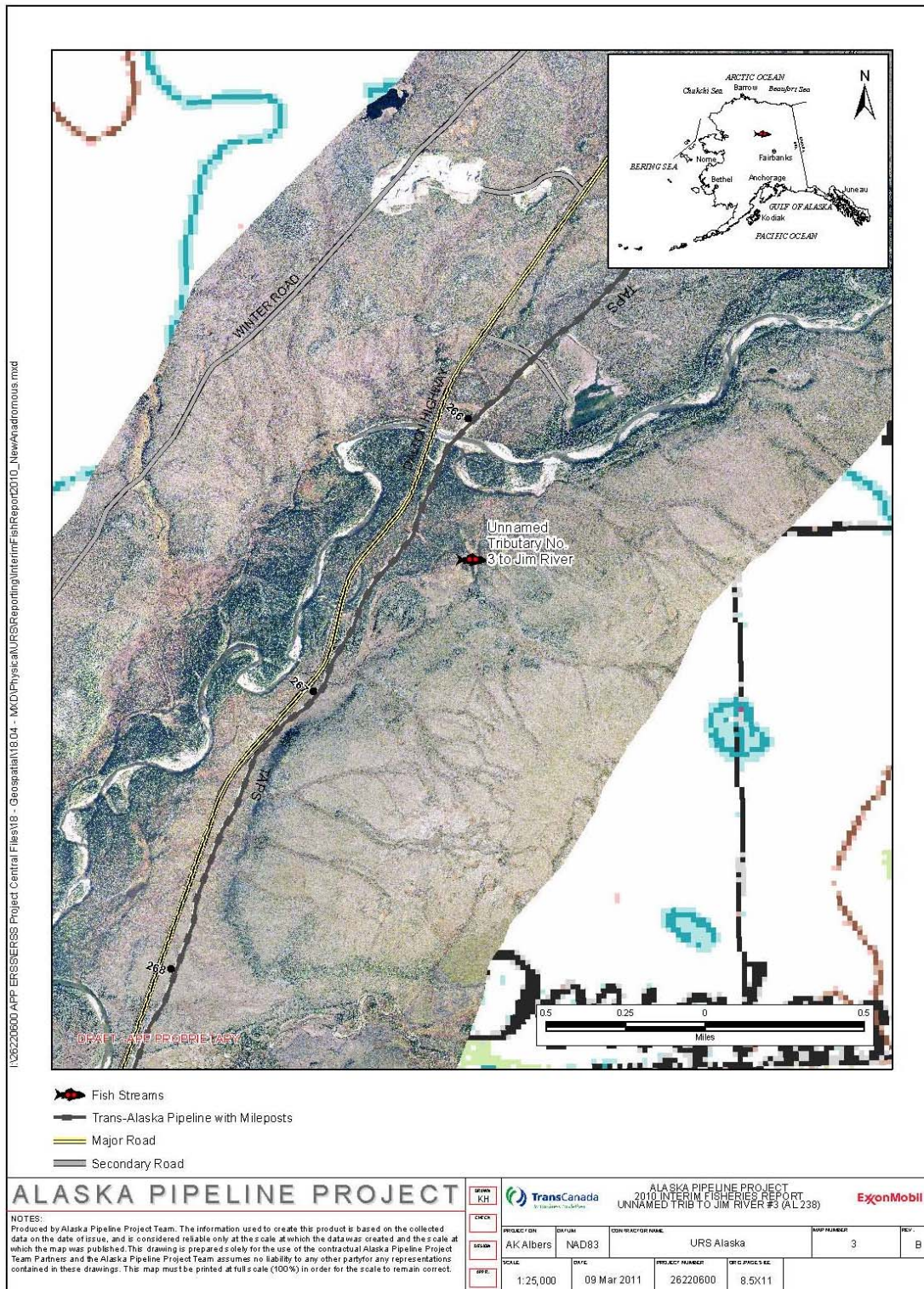


Figure 6. Unnamed Tributary Number Three to Jim River

Table 3.4 Locations Where Anadromous Fish Were Captured

Water Body Name	AL Number	Species	In Anadromous Stream Catalog ¹
Sagavanirktok River Tributary	F 473	Broad whitefish	Yes
Prospect Creek	AL 244	Chinook salmon	Yes
Prospect Creek Tributary #3	AL 245	Chinook salmon	Yes
Fish Creek Tributary #2	AL 305	Chum and Chinook salmon	Yes
Hess Creek	AL 306	Chum salmon	Yes
Jim River	AL 237	Chinook salmon	Yes
Jim River Tributary #3	AL 238	Chinook salmon	No
South Fork Koyukuk River	AL 226	Chinook salmon	Yes
Douglas Creek	AL 239	Chinook salmon	Yes
Marion Creek	AL 205	Chinook salmon	Yes

¹Catalog of Waters Important to Spawning, Rearing or Migration of Anadromous Fishes (Johnson et al., 2010a, 2010b)**Table 3.5 Total Catch¹ and Percent of Total Catch of Resident and Anadromous Fish**

Common Name	Total Number	Percent of Total
Chinook salmon juvenile	55	6.7%
Chum salmon juvenile	2	0.3%
Unidentifiable salmon species	9	1.2%
Broad whitefish	1	0.1%
Arctic grayling	309	42.9%
Dolly varden	32	4.4%
Longnose sucker	3	0.41%
Ninespine stickleback	110	15.3%
Northern pike	4	0.6%
Slimy sculpin	175	24.3%
Species unknown	21	3.9%

¹Catch includes visual observations

3.2.2 Resident Fish Species

Seven resident species representing juveniles and adults were documented in the 2010 surveys. The 309 Arctic grayling captured represented the largest number of fish captured by all gear types. Slimy sculpin were the next most frequently captured fish (with 175 captured), and 110 ninespine stickleback were also captured. **Table 3.5** provides a comprehensive list of fish captured.

ALASKA PipelineProject	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE 22



Figure 7. Fish Crew Member Measuring Arctic Grayling

3.2.3 Total Catch by Pipeline Spread

The majority of Arctic grayling were captured at sites located between Prudhoe Bay and the Yukon River. Nearly 70 percent of all grayling captured in 2010 were from sites located between Atigun Pass and the Yukon River (**Table 3.6**). More Arctic grayling, slimy sculpin, and Pacific salmon juveniles were captured in this area than any other pipeline spread surveyed in 2010. This was expected because the Atigun Pass to Yukon River spread is the longest spread, had the most survey sites in 2010, and has the greatest number of documented fish streams.

The greatest numbers of adult Arctic grayling were captured in the Atigun to Yukon spread. These high numbers occurred at Fish Creek (AL 253) and the south fork of Bonanza Creek (AL 250). Relatively high numbers of juvenile Arctic grayling were also captured at the West Fork of the North Fork Chandalar River (AL 145), South Branch West Fork of the Dall River (AL 271), and Beaver Brook Creek (AL 151).

Few stream crossings between Tok and the U.S. / Canada border were surveyed in 2010.

Table 3.6 Total Catch¹ by Pipeline Spread

	Size (millimeters)	Point Thomson to Prudhoe Bay	Prudhoe Bay to Atigun Pass	Atigun Pass to Yukon River	Yukon River to Fairbanks	Fairbanks to Delta Junction	Delta Junction to Tok	Tok to Canada Border	Total
Anadromous									
Broad whitefish - adult		1							1
Chinook salmon - juvenile				48	7				55
Chum salmon - juvenile					2				2
Unidentified salmon - juvenile					9				9
Resident									
Arctic grayling - adult			44	60	6				110
-juvenile	>230		24	147	26	2			199
Dolly Varden - adult			3	2			6		11
- juvenile	>235		9	12					21
Longnose sucker - adult				1					1
- juvenile				1	1				2
Ninespine stickleback - adult		80	8						88
- juvenile	>37	8	14						22
Northern pike - adult								1	1
- juvenile				2				1	3
Slimy sculpin - adult		1	2	45	4	5			57
- juvenile	>74	6		105	6	1			118
Unknown species - unknown age		4	8	6	3				21
TOTAL		100	112	429	64	8	6	2	721


¹ Catch includes visual observations

3.2.4 Total Catch by Gear Type

Total catch by species, age class, and gear type for resident and anadromous fish is presented in **Table 3.3**. Electrofishing collected the largest number of fish, followed by minnow traps, and visual observations. Electrofishing was generally effective on all juvenile fish; however, low specific conductance of the water in streams from the North Slope and the Yukon River watershed limited the effectiveness of the electrofishers by reducing electrical field strength to a relatively small area near the electrodes. Water temperatures lower than 7°C also reduces electrofishing efficiency (Johnson, et al. 2007).

Hoop nets were only used at two sites and fyke nets were only used at three sites, primarily because of inadequate water depths and high flow velocities. There was also a concern with leaving the gear for an extended period of time if the weather prevented retrieval within 24 hours as stipulated in the ADF&G Fish Resource Permit. No fish were caught using hoop nets.

Direct visual observations were effective in documenting fish presence. Generally, the water conditions at the small and intermediate sized streams were clear enough to readily observe fish within the water column. This method was less effective in streams with high turbidity. Most of the fish observed were adult and juvenile Arctic grayling.

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE 24

3.3 SAMPLING MORTALITY

Of the 721 fish captured during the 2010 field season, there were 8 fish listed as mortalities. Two of the eight were intentional, as they were taken as specimens to assist in positive identification. If all eight mortalities are considered, the fish mortality rate is 1.1 percent. Six of the eight mortalities were caused by using the backpack electrofisher (this includes two unidentified salmon taken as samples, one Arctic grayling, two slimy sculpins, and a ninespine stickleback). One Arctic grayling died while in a minnow trap, and another died while using the beach seine.

3.4 AQUATIC HABITATS AND SUBSTRATES

Habitat data were collected at or near the centerline of the corridor, which described the substrate composition, riparian vegetation within 16.4 feet (5 meters) of both banks, and aquatic habitat types (**Appendices E and H**). As expected, the streams within the study area supported a wide variety of aquatic habitats and substrate types. Streams and rivers with undercut banks, overhanging bank vegetation, and aquatic vegetation, generally provide good rearing areas for anadromous and resident fish species. Large woody debris also provides habitat for juvenile fish. Sites with pool riffle complexes provide good feeding and holding areas for adult fish. (See **Tables 3.7 and 3.8 for summary of data in appendix**).

Table 3.7 Summary of Stream Substrates

Type of Substrate Found	Boulder	Cobble	Gravel	Organic	Sand	Silt
Number of Streams	16	146	194	174	149	179

Table 3.8 Summary of Aquatic Habitats Found

TYPE OF AQUATIC HABITAT FOUND	Number of Streams
Boulders	50
Deep Pools	173
Fringing Wetlands	110
Gravel	146
Gravel Bars	93
In-Stream Emergent	125
In-Stream Submerged	76
Large Woody Debris	97
Mud Bar	57
Overhanging Trees/ Shrubs	155
Riffles	154
Sand Bars	43
Undercut Banks	140


3.4.1 Potential Overwintering Habitat

Field crews collected thalweg depth and pool habitat information at each survey site to identify areas with the potential to support overwintering fish habitat. The only site where potential overwintering habitat was identified was the West Fork of the North Fork Chandalar River (AL145). This river has gravel and cobble substrate with groundwater upwelling, and shallow pools ranging between 18 and 24 inches deep. Although this stream may not be considered deep enough for fish to overwinter in, aufeis has been found in this area historically, suggesting groundwater upwellings or springs, which may provide suitable habitat for overwintering fish. The West Fork of the North Fork Chandalar River was found to support young of the year, juvenile and adult Arctic grayling during the survey.

Larger river systems in the APP proposed corridor are known to support overwintering fish populations, therefore additional investigation is not warranted. Some of these systems include the Sagavanirktok, Bonanza, Jim, Yukon, Chena, Tanana, and Salcha rivers (J. Winters, ADF&G personal communication 2011). A reconnaissance fish overwintering survey is planned for late March / early April of 2011 to investigate potential fish overwintering habitat.



Figure 8. Recording Channel Characteristics

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE 26

3.5 WATER CHEMISTRY

Baseline water chemistry data was collected at 317 stream crossings. A summary of the results is presented in **Table 3.9**, with complete data tables in **Appendix G**.

Table 3.9 Summary of Basic Water Quality Parameters Measured

Statistic	Water Temp (°C)	Air Temp (°C)	pH	Dissolved Oxygen (ppm)	Specific Conductance (µS/cm)	Color	Turbidity (NTU)	ORP (mV)
n=	261	250	255	180	247	249	231	262
Minimum	1.4	2	4.3	2.5	20	0	0.1	-292
Maximum	19.7	30	8.8	12.8	885	275	149	758
Mean	7.9	16	7.0	10.5	204.5	40.9	6.4	115.4
Notes: °C – degrees Celcius µS/cm – microSiemens per centimeter					mV – millivolt NTU –Nephelometric Turbidity Units ORP – Oxygen Reduction Potential			

Water temperatures averaged 7.9 °C (mean). Dissolved oxygen averaged 10.5 milligrams per liter (mean), and was generally high in most streams, as expected. The pH averaged 7.0 (mean); turbidity averaged 6.4 Nephelometric Units. Due to the dramatic effects that rain events can have on turbidity readings, streams measured during rain events that appeared to affect turbidity were excluded from the average and range calibrations. Specific conductance averaged 204.5 microSiemens per centimeter.

3.5.1 Precipitation and Stream Flow

One major factor influencing the sampling effectiveness of the gear was the water level. Stream discharge is a direct function of precipitation and therefore, stream flow was less during dry periods than during rainy periods. Some of the targeted streams were dry, or the water was so low that fish sampling was not possible. At other streams, recent precipitation produced high water levels making fish sampling unsafe. In general, seasonal precipitation within the project corridor was near average for the summer of 2010 (**Table 3.10**). Complete precipitation data for all survey reaches are presented in **Appendix I**.


Table 3.10 Precipitation for the Alaska Pipeline Project Stream Survey Corridor, Summer 2010¹

Weather Station	Spread	June	July	August	September
Imnaviut	Prudhoe Bay to Atigun Pass	Normal	Normal	Normal	Dry
Coldfoot	Atigun Pass to Yukon River	Normal	Wet	Normal	Normal
Fairbanks	Yukon River to Fairbanks	Normal	Dry	Normal	Wet
Fairbanks	Fairbanks to Delta Junction	Normal	Dry	Normal	Wet
Granite Creek	Delta Junction to Tok	Wet	Normal	Normal	Wet

¹ Relative to the normal monthly range of precipitation for each weather station.



Figure 9. Slimy Sculpin

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE 28

4.0 REFERENCES:

Brown R.J. 2006. Humpback whitefish in the Upper Tanana River drainage. Alaska Fisheries Technical Report Number 90. U.S. Fish and Wildlife Service, Fairbanks Fish and Wildlife Office. Fairbanks, AK. 41 pp.

Brown, R.J. 2008. Life History and Demographic Characteristics of Arctic Cisco, Dolly Varden, and Other Fish Species in the Barter Island Region of Northern Alaska. Alaska Fisheries Technical Report Number 101. U.S. Fish and Wildlife Service. Fairbanks, AK. 54pp.

Brown R.J., C. Lunderstadt, and B. Schultz. 2002. Movement patterns of radio tagged adult humpback whitefish in the Upper Tanana river drainage. Alaska Fisheries Data series 2002-1. U.S. Fish and Wildlife Service, Region 7. Anchorage, AK. 23 pp.

U.S. Bureau of Land Management (BLM). 2003. Zones of restricted activity for protection of key fish areas along the Trans-Alaska Pipeline System on federally administered lands, Second Edition. U.S. Department of the Interior, Bureau of Land Management, Office of Pipeline Management. Anchorage, AK.

BLM. 2010a. Zones of restricted activity for protection of key fish areas along the Trans-Alaska Pipeline System on federally administered lands. BLM Alaska Open File Report 104, Fourth Edition. U.S. Department of the Interior, Bureau of Land Management. Anchorage, AK.


BLM. 2010b. Zones of restricted activity for protection of key fish areas along the Trans-Alaska Pipeline System on federally administered lands. BLM Alaska Open File Report 105, Fifth Edition. Prepared by the Alaska Department of Fish and Game, Joint Pipeline Office, and U.S. Department of the Interior, Bureau of Land Management, Office of Pipeline Monitoring. Anchorage, AK.

Buckwalter, J.D., J. Krisch, D. Reed. 2008. Fish Inventory and Anadromous Cataloging in the Lower Yukon River Drainage, 2008. Fishery Data Series Number 10-76. Alaska Department of Fish and Game, Divisions of Sport Fish and Commercial Fisheries. 603pp.

Chihuly, M., D. Ward, P. Craig, R. McMillan, and R. Morrison. 1979a. Spring fisheries survey and provisional list of waterbodies along the Alaskan gas pipeline route (Prudhoe Bay to Yukon Territory) proposed by Northwest Pipeline Company. Prepared for Northwest Pipeline Company by LGL Ecological Research Associates, Inc. 210 pp.

Chihuly, M., D. Ward, P. Craig, and R. McMillan. 1979b. Winter fisheries survey and provisional list of waterbodies along the Alaskan gas pipeline route (Prudhoe Bay to Yukon Territory) proposed by Northwest Pipeline Company. Prepared for Northwest Pipeline Company by LGL Ecological Research Associates, Inc. 274 pp.

Chihuly, M., D. Ward, R. McMillan, R. Morrison, T. Olson, and A. Sekerak. 1980a. Fall fisheries survey and provisional list of waterbodies along the Alaskan gas pipeline route (Prudhoe Bay to Yukon Territory) proposed by Northwest Pipeline Company. Prepared for Northwest Pipeline Company by LGL Ecological Research Associates, Inc. 178 pp.

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE 29

Chihuly, M., R. McMillan, R. Morrison, T. Olson, A. Sekerak, R. Neterer, and J. Burro. 1980b. Fisheries resources along the Alaskan route (Prudhoe Bay to Yukon Territory) proposed by Northwest Pipeline Company. Prepared for Northwest Pipeline Company by LGL Ecological Research Associates, Inc. Fairbanks, AK. 136 pp.

Craig, P., and P. McCart. 1974a. Fall spawning and overwintering areas of fish populations along routes of the proposed pipeline between Prudhoe Bay and Mackenzie Delta, 1972-1973. Biological Report Series 15(3). Canadian Arctic Gas Study Limited. Calgary, AB. 37 pp.

Craig, P.C., and P.J. McCart. 1974b. Classification of stream types in Beaufort Sea drainages and the distribution of fish in arctic and sub-arctic drainages. Biological Report Series Volume 17. Prepared for Canadian Arctic Gas Study Limited and Alaska Arctic Gas Study Company by Aquatic Environments Limited.

Crane, P., T. Viavant, and J. Wenburg. 2005. Overwintering patterns of Dolly Varden *Salvelinus malma* in the Sagavanirktok River in the Alaskan North Slope inferred using mixed-stock analysis. Alaska Fisheries Technical Report Number 84. U.S. Fish and Wildlife Service, Anchorage, AK. 24 pp.

DenBeste, J. and P. McCart. 1984. Catalog of streams associated with the Tran-Alaska Pipeline System in the northern district, Volume IV. Prepared for the Alyeska Pipeline Service Company by Aquatic Environments Inc. Anchorage, AK. 67 pp.

Elliot, G.V. 1980. First interim report on the evaluation of stream crossings and effects of channel modification on fishery resources along the Trans-Alaska Pipeline. U.S. Fish and Wildlife Service. Anchorage, AK. 77 pp.

Elliot, G.V. 1982. Final report on the evaluation of stream crossings and effects of channel modification on fishery resources along the Trans-Alaska Pipeline. U.S. Fish and Wildlife Service. Anchorage, AK. 110 pp.


Fitzpatrick, F.A., I. R. Waite, P. J. D'Arconte, M. R. Meador, M. A. Maupin, and M.E. Gurtz. 1998. Revised Methods for Characterizing Stream Habitat in the National Water-Quality Assessment Program. Water-Resources Investigations Report 98-4052. United States Department of the Interior, Geological Survey. Raleigh, NC.

Gnath, D.G., D.B. Lieb, and M. Wiedmer. 2002. Trans-Alaska Pipeline System 2002 fish habitat survey. Technical Report Number 02-07. Prepared for Alyeska Pipeline Service Company by the Alaska Department of Fish and Game, Habitat and Restoration Division. Anchorage, AK. 755 pp.

Hemming, C. 1996. Fish surveys of selected coastal streams Sagavanirktok River to Bullen Point, 1995. Technical Report Number 96-3. Alaska Department of Fish and Game, Habitat and Restoration Division. 36 pp.

Johnson, J., Blanche, P., Alaska Department of Fish and Game. 2010a. Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes-Arctic Region, effective June 1, 2010. Special Publication Number 10-04. 128pp.

Johnson, J., Blanche, P., Alaska Department of Fish and Game. 2010b. Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes-Interior Region, effective June 1, 2010. Special Publication Number 10-05. 141pp.

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE 30

Johnson, David H., Shries, Brianna M., O'Neal, Jennifer S., Knutzen, John A., Augerot, Xanthippe, O'Neil, Thomas A., Pearsons, Todd N.. 2007. Salmonid Field Protocols Handbook, American Fisheries Society in association with State of the Salmon. 478pp.

McCart, P., and V.A. Pepper. 1969. Report of fish investigations along part of the Trans-Alaska pipeline, June – August 1969. Trans-Alaska Pipeline system. Anchorage, AK. 36 leaves.

Morris, W., and J. Winters. 2004. Evaluations of stream crossing structures for providing fish passage in a tundra stream; fish sampling of Fawn Creek, Prudhoe Bay, Alaska, 2004. Technical Report Number 04-05. Prepared for BP Exploration (Alaska) Inc., Environmental Study Group by the Alaska Department of Natural Resources, Office of Habitat Management and Permitting. 31 pp.

Ott, A.G., and W.A. Morris. 1999. West channel Sagavanirktok River Spine Road crossing fisheries investigations, 1997-1999. Technical Report Number 99-5. Alaska Department of Fish and Game, Habitat and Restoration Division. 85 pp.

Scanlon, B. 2008. Fishery management report for sport fisheries in the Northwest/North Slope management area, 2006. Fishery Management Report Number 08-35. Alaska Department of Fish and Game, Division of Sport Fish and Commercial Fisheries. 107 pp.

Schmidt, D., R. Neterer, C. Welling, D. Troy, and T. Olson. 1981. Fisheries resources along the Alaskan gas pipeline route (Prudhoe Bay to Yukon Territory) proposed by Northwest Alaskan Pipeline Company. Final Report. Prepared for by Northwest Alaskan Pipeline Company by LGL Alaska Research Associates. Fairbanks, AK. 608 pp.

URS Corporation 2001. Point Thomson gas cycling project environmental report. Prepared for ExxonMobil Production Company, Alaska Interest – Joint Interest U.S. by URS Corporation, Alaska Operations. Anchorage, AK. 338 pp.

U.S. Fish and Wildlife Service. 1990. U.S. Fish and Wildlife Service Tetlin National Wildlife Refuge Fishery Management Plan. Fairbanks Fishery Assistance Office. Fairbanks, AK. 88 pp.

U.S. Geological Survey. 1995. Hydrologic Unit Codes (HUC) for State of Alaska, Revised. U.S. Geological Survey EROS Alaska Field Office, Alaska Geospatial Data Clearinghouse.

U.S. Geological Survey . 22 Apr. 2009. Water Basics Glossary, Available online at http://water.usgs.gov/water-basics_glossary.html Accessed February 02 2011

Van Hying, J.M. 1976a. A reconnaissance of the fish resources of the Northwest Pipeline Corporation corridor: Alaska border to Delta Junction. Prepared for Gulf Interstate Engineering Company. Fairbanks, AK.

Van Hying, J.M. 1976b. Salmon surveys of the Upper Tanana River, 1976. Prepared for Gulf Interstate Engineering Company. Fairbanks, AK. 31 pp.

Viavant, T. 2003. Eastern North Slope Dolly Varden genetic stock identification and stock assessment. Annual report for Study 01-113. U.S. Fish and Wildlife Service, Federal Office of Subsistence Management, Federal Subsistence Fishery Monitoring Program Report. 41 pp.

ALASKA PipelineProject	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	PAGE 31

Winters, J. 2011. Alaska Department of Fish and Game, (division is habitat). Personal Communication with (entitiy, ex: ERSS). 02/01/2011. Winters, J.F. 1990. A transplant of Arctic grayling to a flooded gravel mine site in the Kuparuk River oilfield. Technical Report No. 90-04. Alaska Department of Fish and Game, Habitat Division. 26 pp.

Winters, J.F. 1992. Fisheries investigations in the Upper Atigun River drainage in relation to Alyeska Atigun mainline pipe replacement project. Technical Report Number 92-2. Prepared by Alaska Department of Fish and Game, Division of Habitat. Juneau, AK. 121 pp.

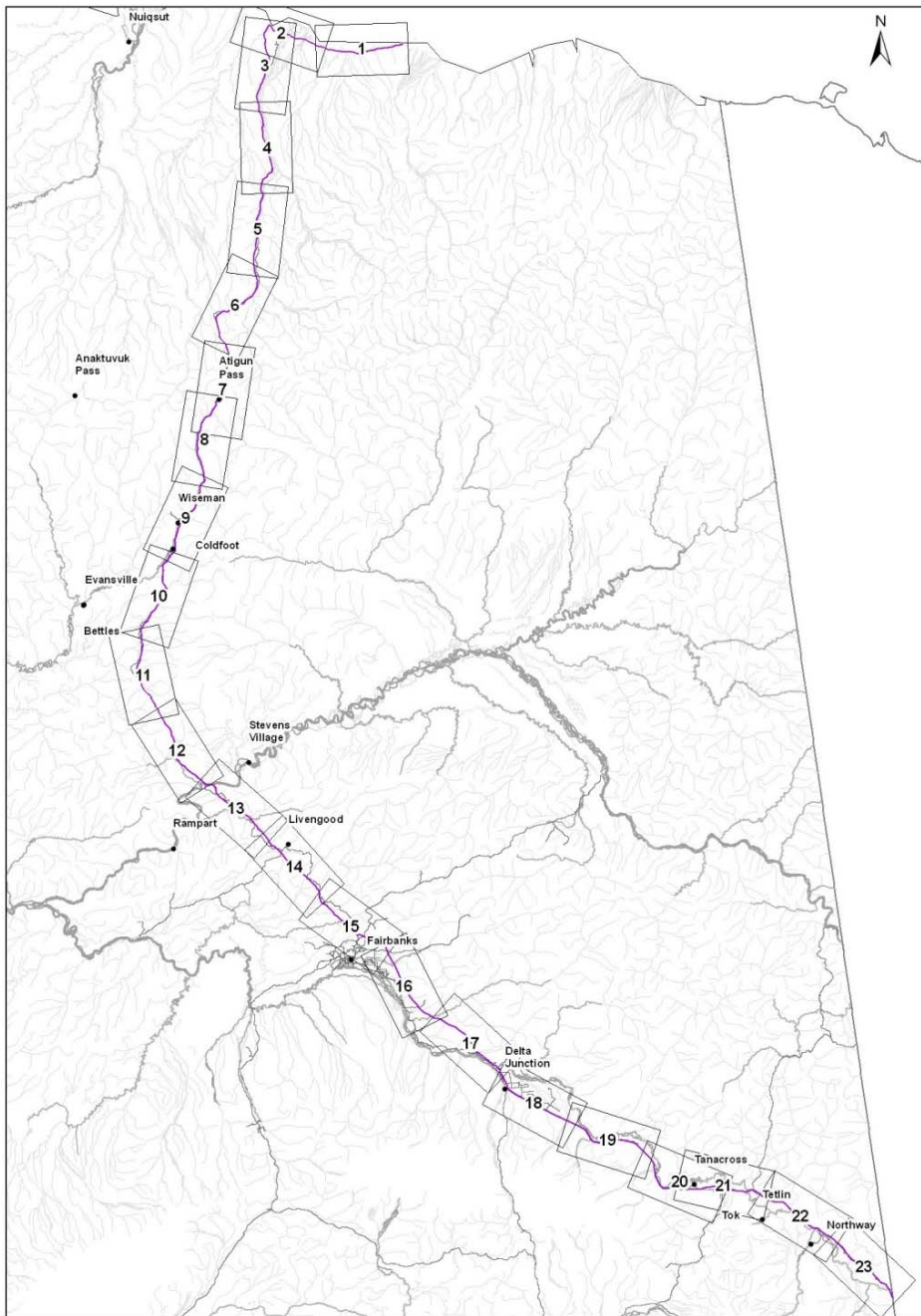
Winters, J. and W.A. Morris. 2004. Fisheries investigations in streams crossed by the proposed Point Thomson Gas Recycling Project. Technical Report Number 04-03. Alaska Department of Fish and Game, Office of Habitat Management and Permitting. 26 pp.

Woodward-Clyde Consultants and Alaska Biological Research. 1983. Terrestrial environmental study for Point Thomson Development Project. Final Report. Prepared for Exxon Company USA by Woodward-Clyde Consultants, Anchorage, AK and Alaska Biological Research, Fairbanks, AK.

ALASKA PipelineProject	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

APPENDIX A: MAPS OF SITES

\\26220600\APP\ERS\ERS\Project Central Files\16 - Geospatial\15.04 - MCD\Physical\URS\Biological\AP-16-004-000-REVA.mxd



Legend

- APP Potential Center of Corridor
- Major Roads



ALASKA PIPELINE PROJECT

NOTES:
APP data developed by Alaska Pipeline Project Team.

Produced by Alaska Pipeline Project Team. The information used to create this product is based on the collected data in the data set, and is considered reliable only at the scale at which the data was created and the scale at which the map was published. This drawing is prepared solely for the use of the Alaska Pipeline Project Team. The Alaska Pipeline Project Team assumes no liability for any other purpose or any representation contained in these drawings. This map must be printed at full scale (100%) in order for the scale to remain correct.

URS

TransCanada

ExxonMobil

AK-SP-4

NA063

URS Alaska

Index

1:2,500,000

05 May 2011

26220600

11 X 17

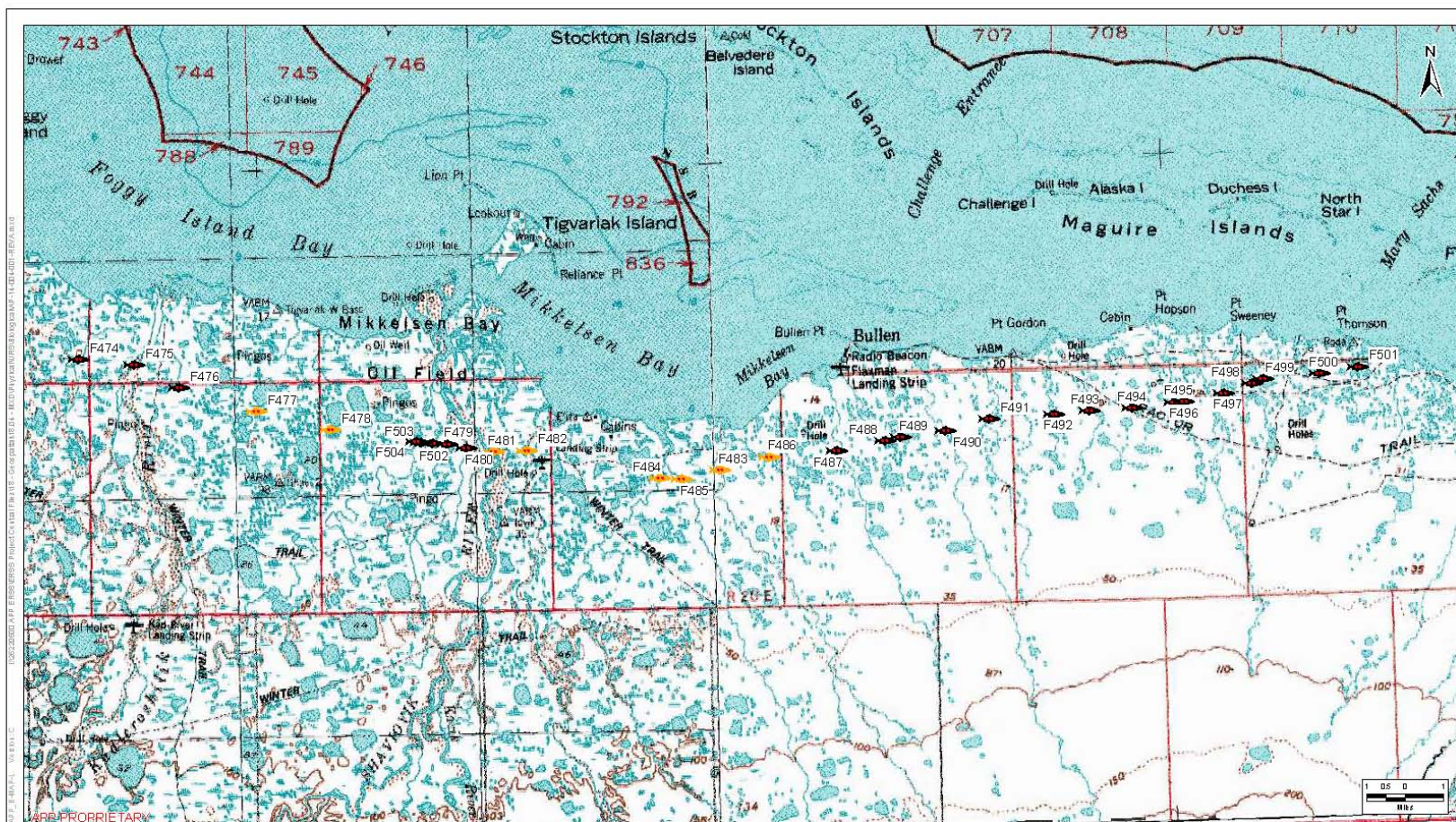
TRANS CANADA ALASKA PIPELINE PROJECT

APPENDIX A - SUMMER 2010 FISH SURVEY LOCATIONS

POINT THOMSON TO CANADA INLET

Index



B

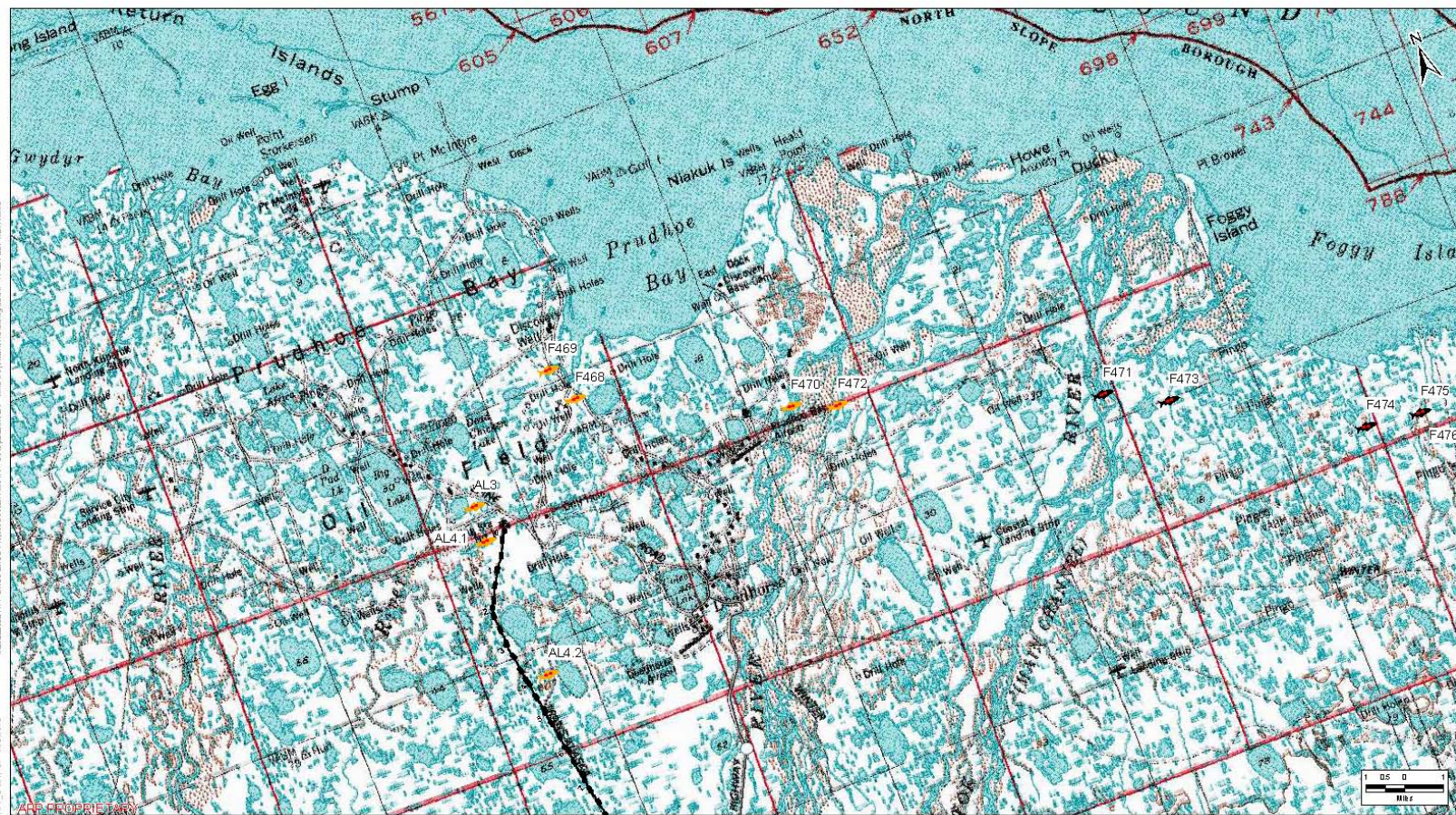


- Surveyed
- Not Surveyed
- Trans-Alaska Pipeline with Mileposts

ALASKA PIPELINE PROJECT

NOTES:
APP data developed by Alaska Pipeline Project Team.
This document is the property of TransCanada. The information contained herein is confidential and is to be used only for the purpose for which it was prepared. It is not to be distributed outside the project area without the written consent of TransCanada. The information contained herein is not to be used for any other purpose without the written consent of TransCanada. This map must be printed at full scale (100%) in order for the scale to remain correct.



		TRANSCANADA ALASKA PIPELINE PROJECT APPENDIX A - SUMMER 2010 FISH SURVEY LOCATIONS POINT THOMSON TO CANADA MAPS												
PROJECT	UTM Z6	DATE	29 Apr 2011	CONTRACTOR NAME	URS Alaska	PROJECT NUMBER	26220600	ORIGINAL SIZE	11X17	MAP NUMBER	AP-14-002-01	REV.	B	
SCALE	1:150,000	DATE			29 Apr 2011		PROJECT NUMBER		26220600		ORIGINAL SIZE		11X17	
FINAL														

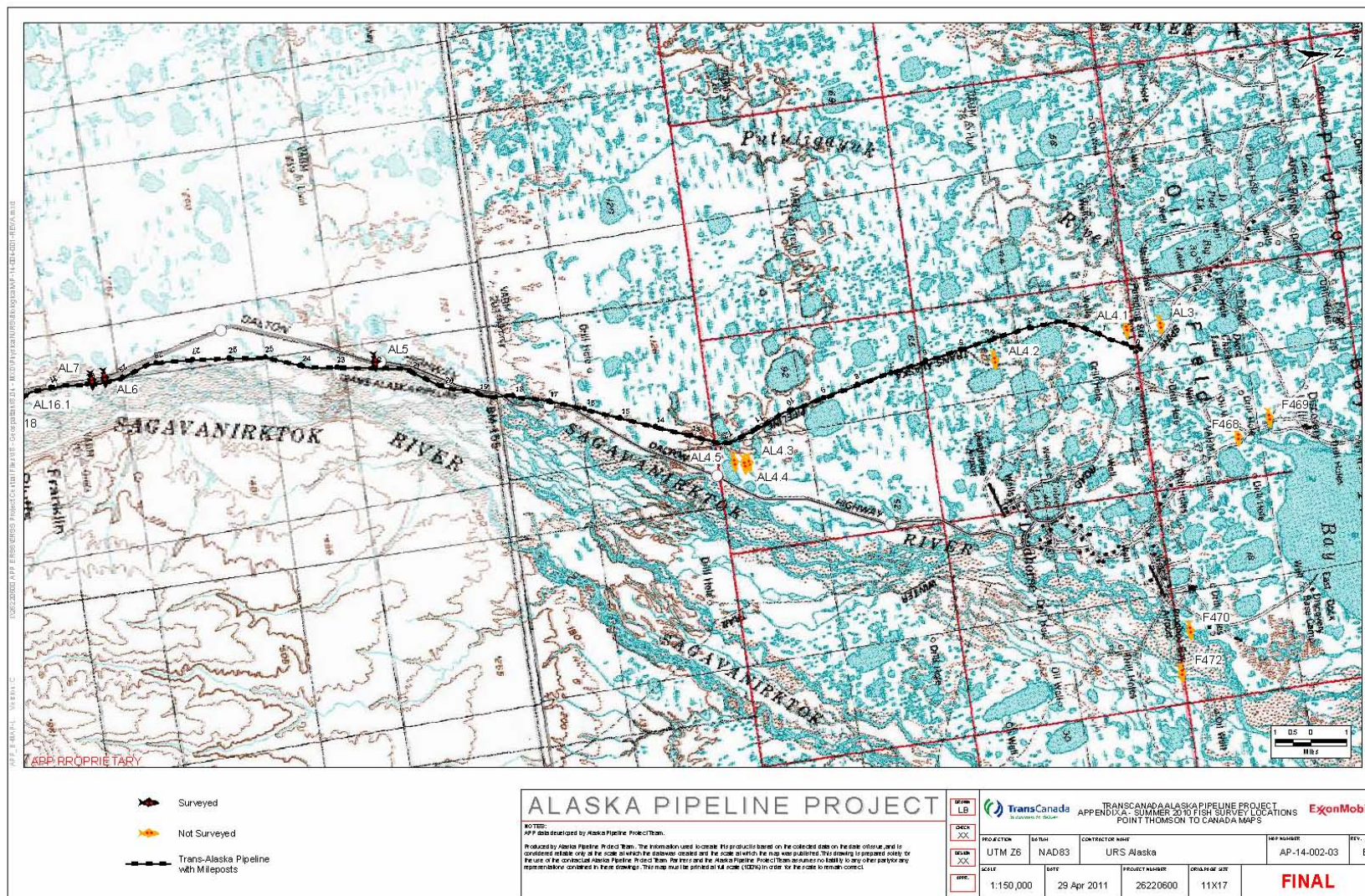


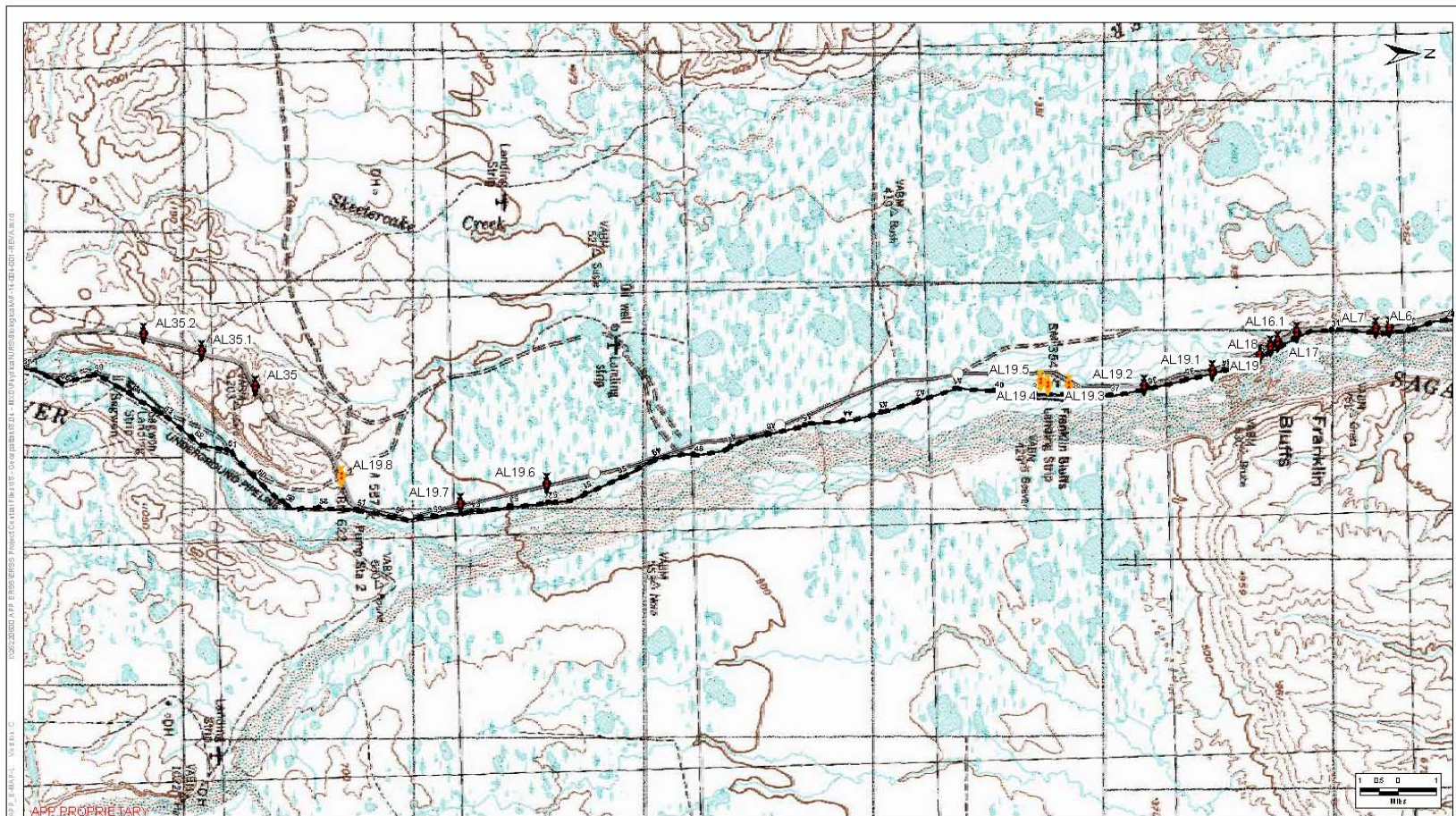
- Surveyed
- Not Surveyed
- Trans-Alaska Pipeline with Mileposts

ALASKA PIPELINE PROJECT

NOTES:
APP data designed by Alaska Pipeline Project Team.
Produced by Alaska Pipeline Project Team. The information used to create this product is based on the collected data on the date of release, and is considered reliable only at the scale at which the database was created and the scale at which the map was published. This drawing is prepared solely for the use of the Trans-Alaska Pipeline Project Team. The user and the Alaska Pipeline Project Team disavow any liability to any other party for any representations contained in these drawings. This map must be printed at full scale (1:500,000) in order for the scale to remain correct.

		TRANSCANADA ALASKA PIPELINE PROJECT APPENDIX A - SUMMER 2010 FISH SURVEY LOCATIONS POINT THOMSON TO CANADA MAPS			
PROJECT	DATUM	CONTRACTOR NAME	SHEET NUMBER	REV.	
UTM Z6	NAD83	URS Alaska	AP-14-002-02	B	
SCALE	DATE	PROJECT NUMBER	ORIGINATOR	STATUS	
1:150,000	29 Apr 2011	26220600	11X17	FINAL	





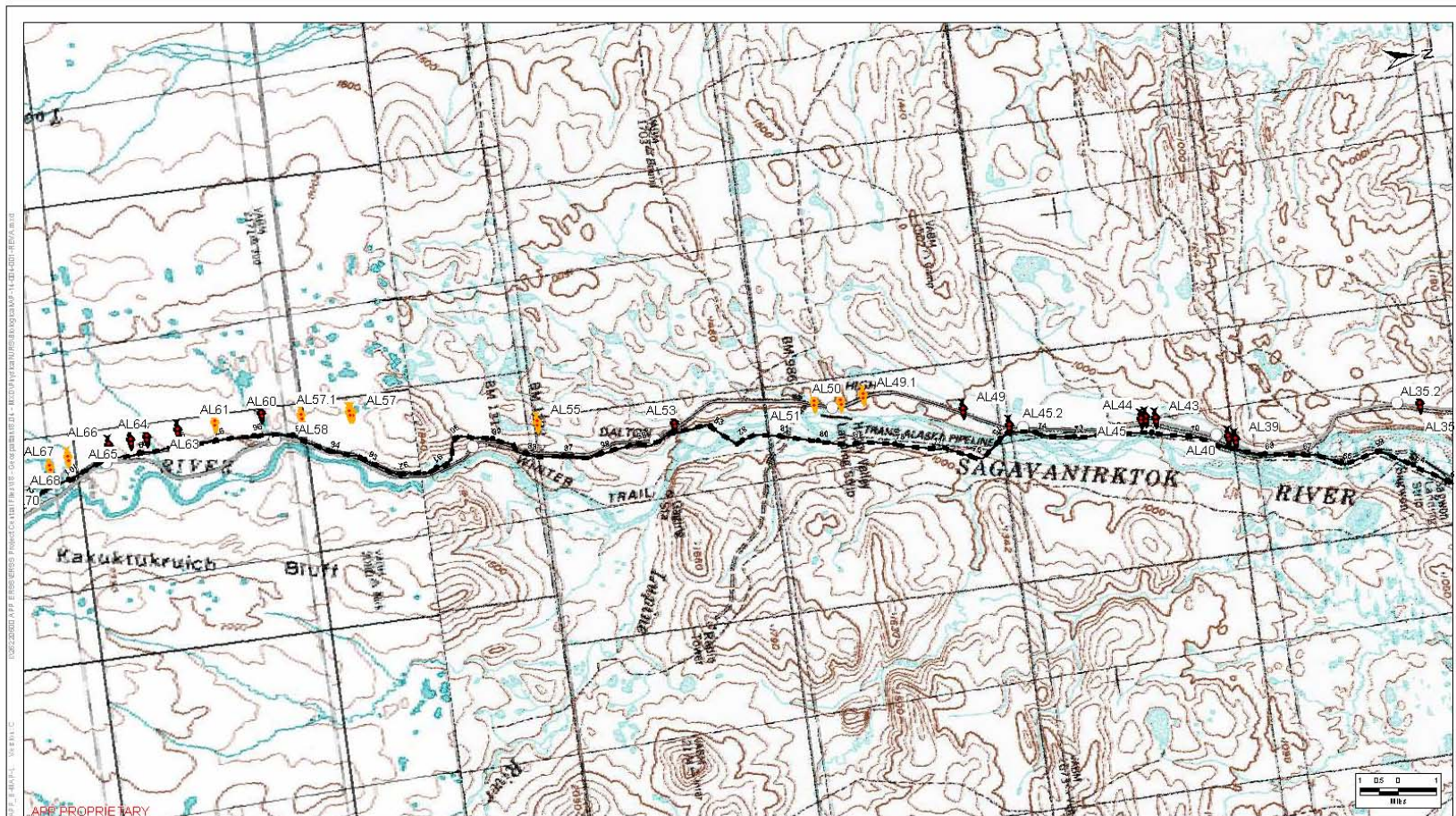


- Surveyed
- Not Surveyed
- Trans-Alaska Pipeline with Mileposts

ALASKA PIPELINE PROJECT

NOTES:
APP data developed by Alaska Pipeline Project Team.
Produced by Alaska Pipeline Project Team. The information used to create this product is based on the collected data on the date of issue, and is considered reliable only as the scale at which the customer created and the scale at which the map was published. This drawing is prepared solely for the use of the customer Alaska Pipeline Project Team. The user and the Alaska Pipeline Project Team disavow any liability to any other party for any representations contained in these drawings. This map must be printed at full scale (1:5000) in order for the scale to remain correct.



 TransCanada SUSTAINABLE ENERGY		TRANSCANADA ALASKA PIPELINE PROJECT APPENDIX A - SUMMER 2010 FISH SURVEY LOCATIONS POINT THOMSON TO CANADA MAPS			 ExxonMobil
PROJECT UTM Z6	DATE NAD83	CONTRACTOR NAME URS Alaska	MAP NUMBER AP-14-002-04	REV.	
SCALE 1:150,000	DATE 29 Apr 2011	PROJECT NUMBER 262206000	ORIGIN OF JDT 11X17	FINAL	

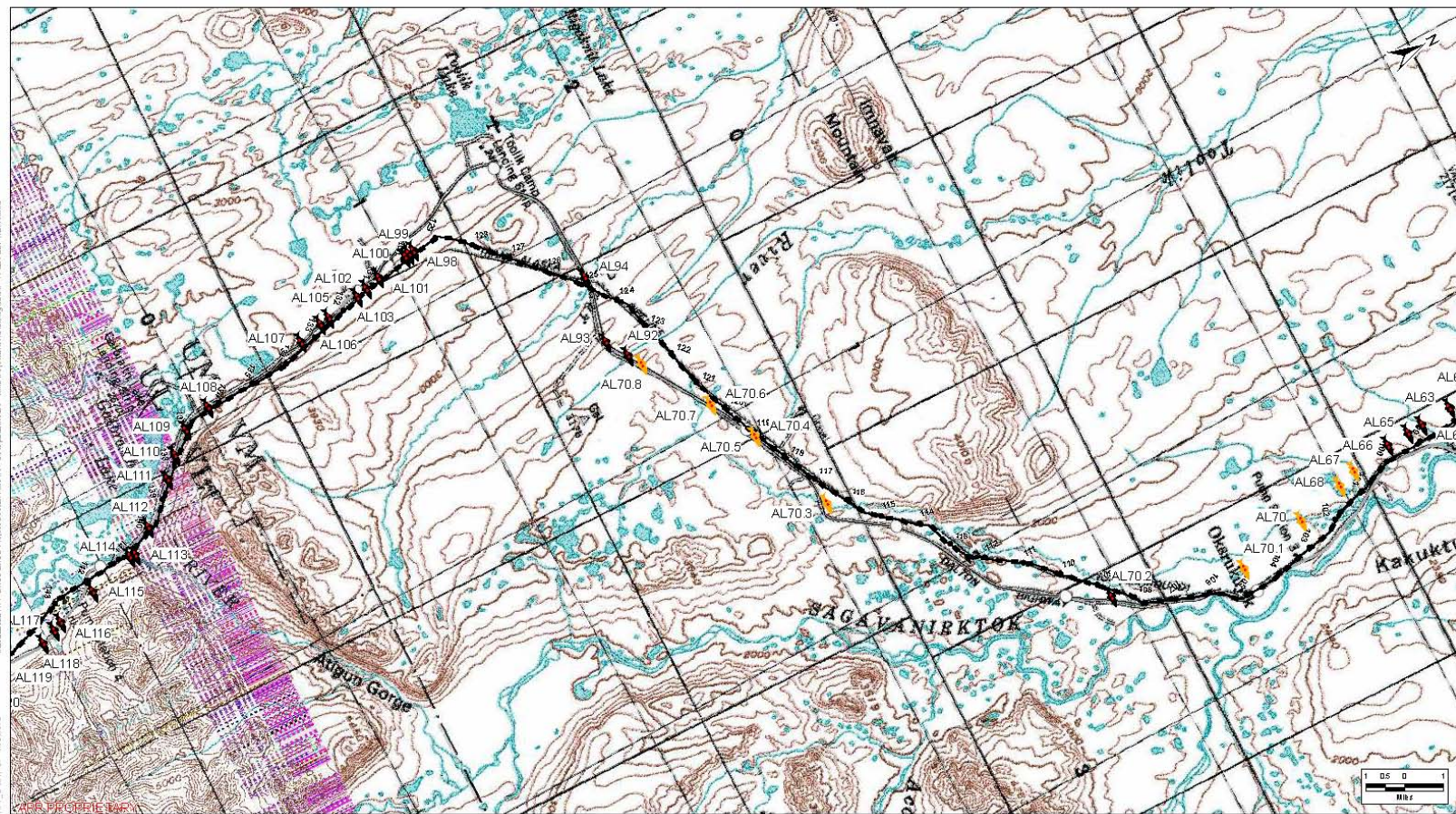


- Surveyed
- Not Surveyed
- Trans-Alaska Pipeline with Mileposts

ALASKA PIPELINE PROJECT

NOTES:
APP data developed by Alaska Pipeline Project Team.
Produced by Alaska Pipeline Project Team. The information used to create this product is based on the collected data on the date of issue, and is considered reliable only as the scale at which the customer ordered and the scale at which the map was published. This drawing is prepared solely for the use of the customer Alaska Pipeline Project Team. The user and the Alaska Pipeline Project Team disavow any liability to any other party for any representations contained in these drawings. This map must be printed at a scale of 1:150,000 in order for the scale to remain correct.



 TRANSCANADA a consortium of Suncor		TRANSCANADA ALASKA PIPELINE PROJECT APPENDIX A - SUMMER 2010 FISH SURVEY LOCATIONS POINT THOMSON TO CANADA MAPS			
PROJECT UTM Z6		CONTRACTOR NAME URS Alaska		APP NUMBER AP-14-002-05	
SCALE 1:150,000		DATE 29 Apr 2011		PROJECT NUMBER 26220600	
ORIGINATOR 11X17		ORIGINATOR 11X17		REV. B	
FINAL					

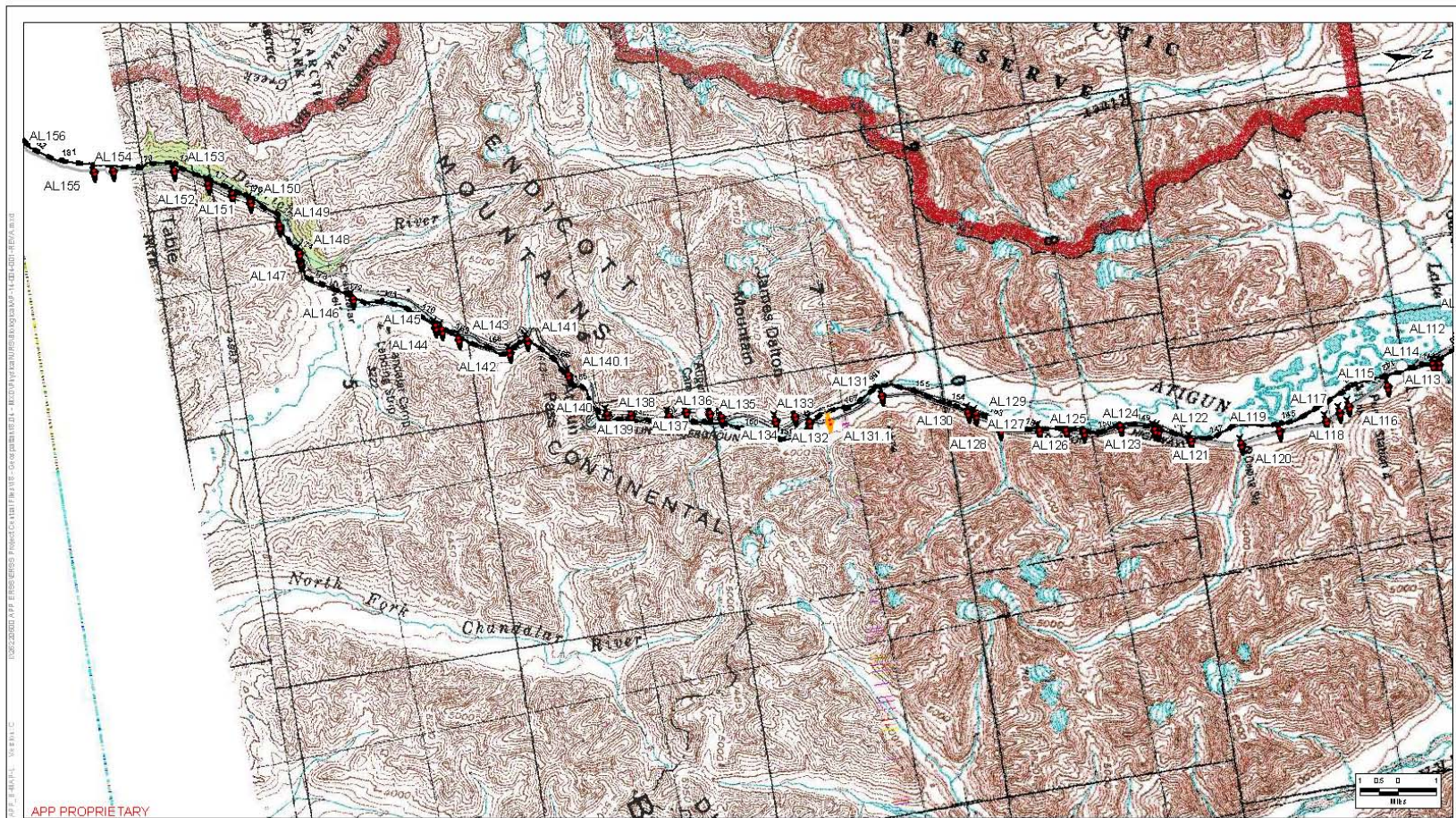


- Surveyed
- Not Surveyed
- Trans-Alaska Pipeline with Mileposts

ALASKA PIPELINE PROJECT

NOTES:
APP data designed by Alaska Pipeline Project Team.
Produced by Alaska Pipeline Project Team. The information used to create this product is based on the collected data on the date of issue, and is considered reliable only at the scale at which the data was collected and the scale at which the map was published. This drawing is prepared solely for the use of the Trans-Alaska Pipeline Project Team. The data and the Alaska Pipeline Project Team do not warrant its use for any other purpose or representation contained in these drawings. This map must be printed at full scale (1:50,000) in order for the scale to remain correct.



		TRANSCANADA ALASKA PIPELINE PROJECT APPENDIX A - SUMMER 2010 FISH SURVEY LOCATIONS POINT THOMSON TO CANADA MAPS							
PROJECT INFORMATION									
PROJECT	UTM Z6	DATE	NAD83	CONTRACTOR NAME	URS Alaska	MAP NUMBER	AP-14-002-06	REV.	B
SCALE	1:150,000	DATE	29 Apr 2011	PROJECT NUMBER	26220600	ORIS PAGE SIZE	11X17	FINAL	

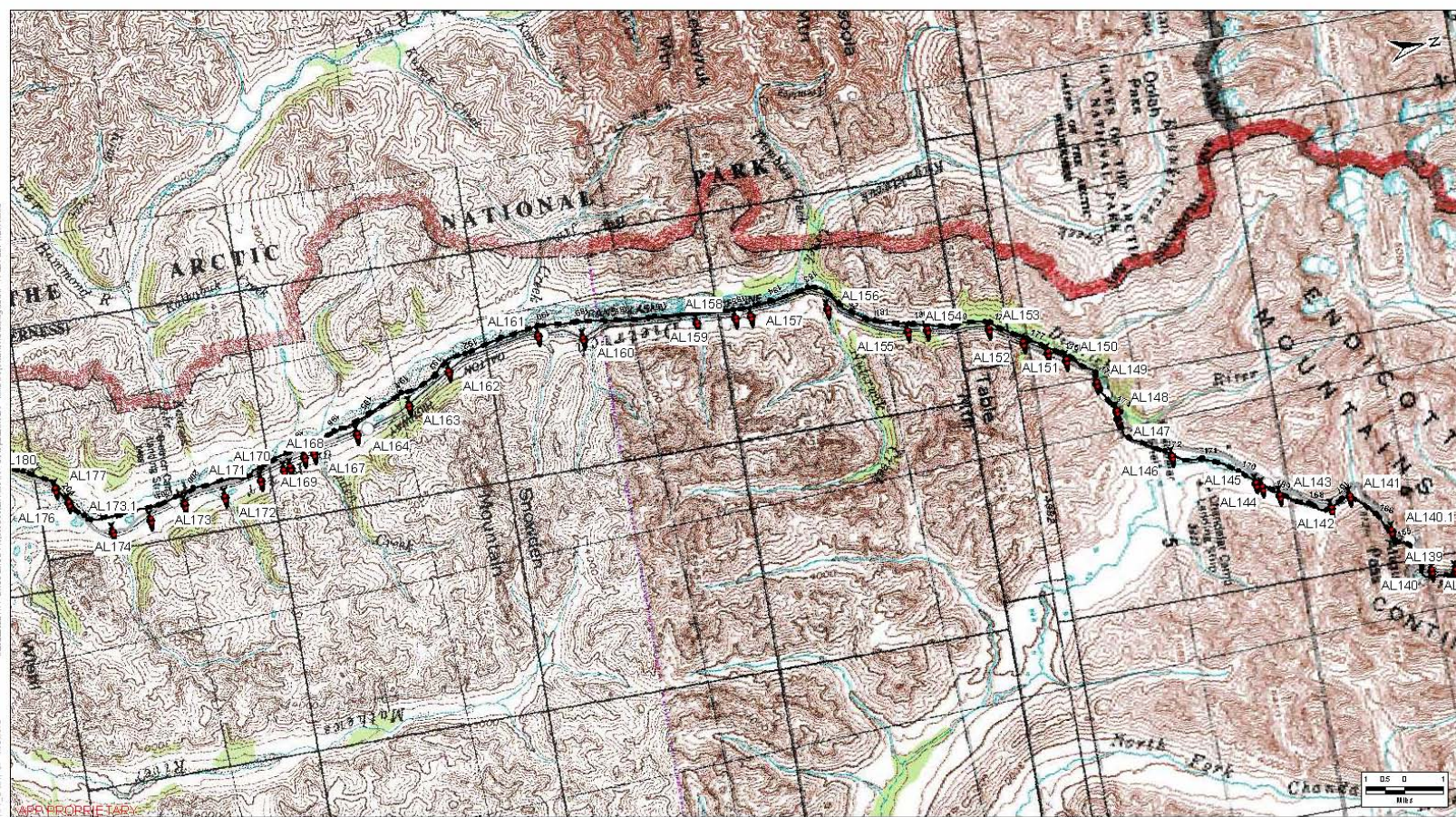


- Surveyed
- Not Surveyed
- Trans-Alaska Pipeline with Mileposts

ALASKA PIPELINE PROJECT

NOTES:
APP data developed by Alaska Pipeline Project Team.
Produced by Alaska Pipeline Project Team. The information used to create this product is based on the collected data on the date of issue, and is considered reliable only as the scale at which the database created and the scale at which the map was published. This drawing is prepared solely for the use of the Trans-Alaska Pipeline Project Team. The error and the Alaska Pipeline Project Team disclaims any liability to any other party for any representations contained in these drawings. This map must be printed at full scale (1:50,000) in order for the scale to remain correct.



 TransCanada <small>TRANSCANADA ENERGY</small>		TRANSCANADA/ALASKA PIPELINE PROJECT APPENDIX A - SUMMER 2010 FISH SURVEY LOCATIONS POINT THOMSON TO CANADA MAPS		 ExxonMobil	
PROJECT	DATE	CONTRACTOR NAME	MAP NUMBER	REV.	
UTM Z6	NAD83	URS Alaska	AP-14-002-07	P	
SCALE	DATE	PROJECT NUMBER	ORIS PAGE SIZE		
1:150,000	29 Apr 2011	26220600	11X17	FINAL	
DATE					

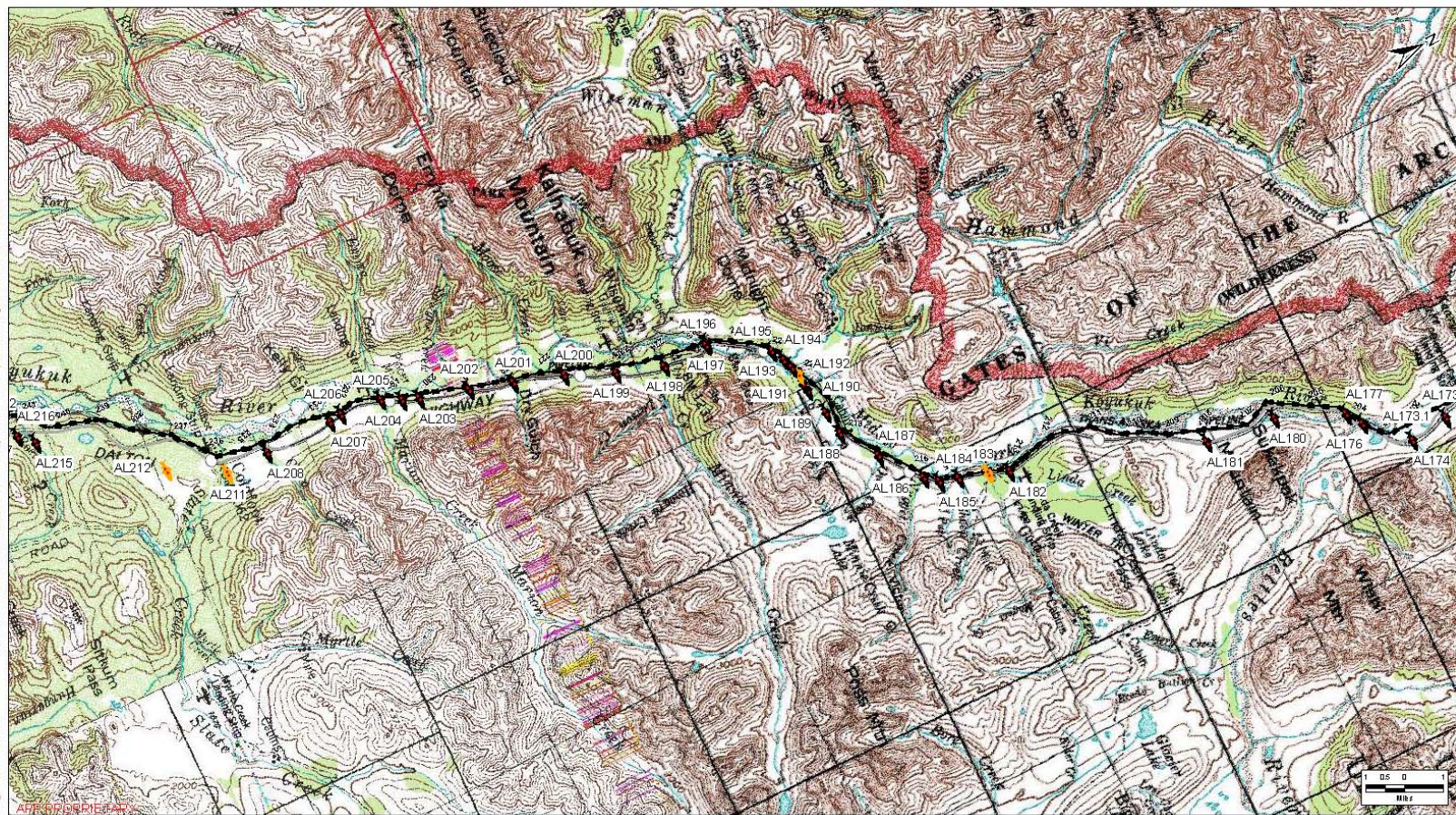


- Surveyed
- Not Surveyed
- Trans-Alaska Pipeline with Mileposts

ALASKA PIPELINE PROJECT

NOTES:
APP data developed by Alaska Pipeline Project Team.
Produced by Alaska Pipeline Project Team. The information used to create this product is based on the collected data on the date of release, and is considered reliable only as the scale at which the data was collected and the scale at which the map was published. This drawing is prepared solely for the use of the contractor Alaska Pipeline Project Team. The user and the Alaska Pipeline Project Team disavow any liability to any other parties for any representations contained in these drawings. This map must be printed at full scale (1:1000) in order for the scale to remain correct.



 TransCanada <small>ENERGY SERVICES</small>		TRANSCANADA ALASKA PIPELINE PROJECT APPENDIX A - SUMMER 2010 FISH SURVEY LOCATIONS POINT THOMSON TO CANADA MAPS			
PROJECT UTM Z6	DATUM NAD83	CONTRACTOR NAME URS Alaska	MAP NUMBER AP-14-002-08	REV. B	
SCALE 1:150,000	DATE 29 Apr 2011	PROJECT NUMBER 26220600	ORIGINATOR 11X17	FINAL	

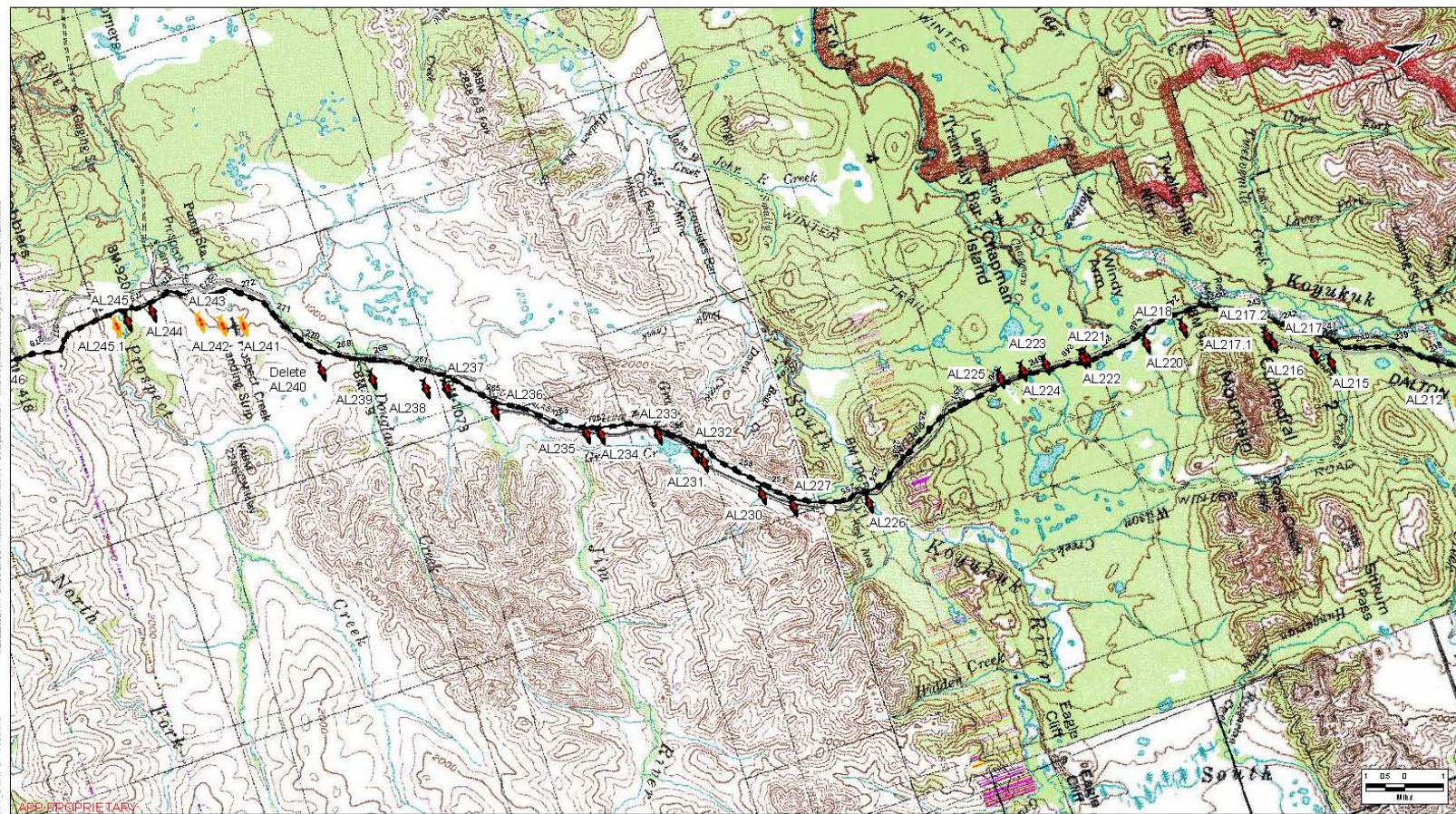




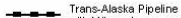
- Surveyed
- Not Surveyed
- Trans-Alaska Pipeline with Mileposts

ALASKA PIPELINE PROJECT

NOTES:
APP data designed by Alaska Pipeline Project Team.
Produced by Alaska Pipeline Project Team. The information used to create this product is based on the collected data on the date of release, and is considered reliable only as the scale at which the data was collected and the scale at which the map was published. This drawing is prepared solely for the use of the Trans-Alaska Pipeline Project Team. The data and the Alaska Pipeline Project Team do not warrant or hold liable to any other parties any representations contained in these drawings. This map must be printed at full scale (1:5000) in order for the scale to remain correct.



 TRANSCANADA A subsidiary of Suncor		TRANSCANADA ALASKA PIPELINE PROJECT APPENDIX A - SUMMER 2010 FISH SURVEY LOCATIONS POINT THOMSON TO CANADA MAPS			
PROJECT UTM Z6	DATUM NAD83	CONTRACTOR NAME URS Alaska		MAP NUMBER AP-14-002-09	REV. B
SCALE 1:150,000	DATE 29 Apr 2011	PROJECT NUMBER 26220600	ORIGINATOR 11X17	FINAL	



-  Surveyed
-  Not Surveyed
-  Trans-Alaska Pipeline with Mileposts

ALASKA PIPELINE PROJECT

NOTES:
APP data developed by Alaska Pipeline Project Team.
Produced by Alaska Pipeline Project Team. The information used to create this product is based on the collected data on the date of release, and is considered reliable only as the scale at which the customer ordered and the scale at which the map was published. This drawing is prepared solely for the use of the customer Alaska Pipeline Project Team. The user and the Alaska Pipeline Project Team disavow any liability to any other parties or representatives contained in these drawings. This map must be printed at full scale (1:100%) in order for the scale to remain correct.

 A subsidiary of Baker Hughes		TRANSCANADA ALASKA PIPELINE PROJECT APPENDIX A - SUMMER 2010 FISH SURVEY LOCATIONS POINT THOMSON TO CANADA MAPS			
PROJECT	DATE	CONTRACTOR NAME	MAP NUMBER	REV.	
UTM Z6	NAD83	URS Alaska	AP-14-002-010	B	
SCALE	DATE	PROJECT NUMBER	ORIGINATOR		
1:150,000	29 Apr 2011	26220600	11X17	FINAL	



- Surveyed
- Not Surveyed
- Trans-Alaska Pipeline with Mileposts

ALASKA PIPELINE PROJECT

NOTES:
APP data designed by Alaska Pipeline Project Team.
Produced by Alaska Pipeline Project Team. The information used to create this product is based on the collected data on the date of issue, and is considered reliable only as the scale at which the customer created and the scale at which the map was published. This drawing is prepared solely for the use of the Trans-Alaska Pipeline Project Team. The user and the Alaska Pipeline Project Team disavow any liability to any other party for any representations contained in these drawings. This map must be printed at full scale (1:5000) in order for the scale to remain correct.



TRANS CANADA In partnership with		EXXONMOBIL	
PROJECT	DATE	CONTRACTOR NAME	MAP NUMBER
UTM Z6	NAD83	URS Alaska	AP-14-002-011
SCALE	DATE	PROJECT NUMBER	ORIS/PAGE SIZE
1:150,000	29 Apr 2011	26220600	11X17
FINAL			

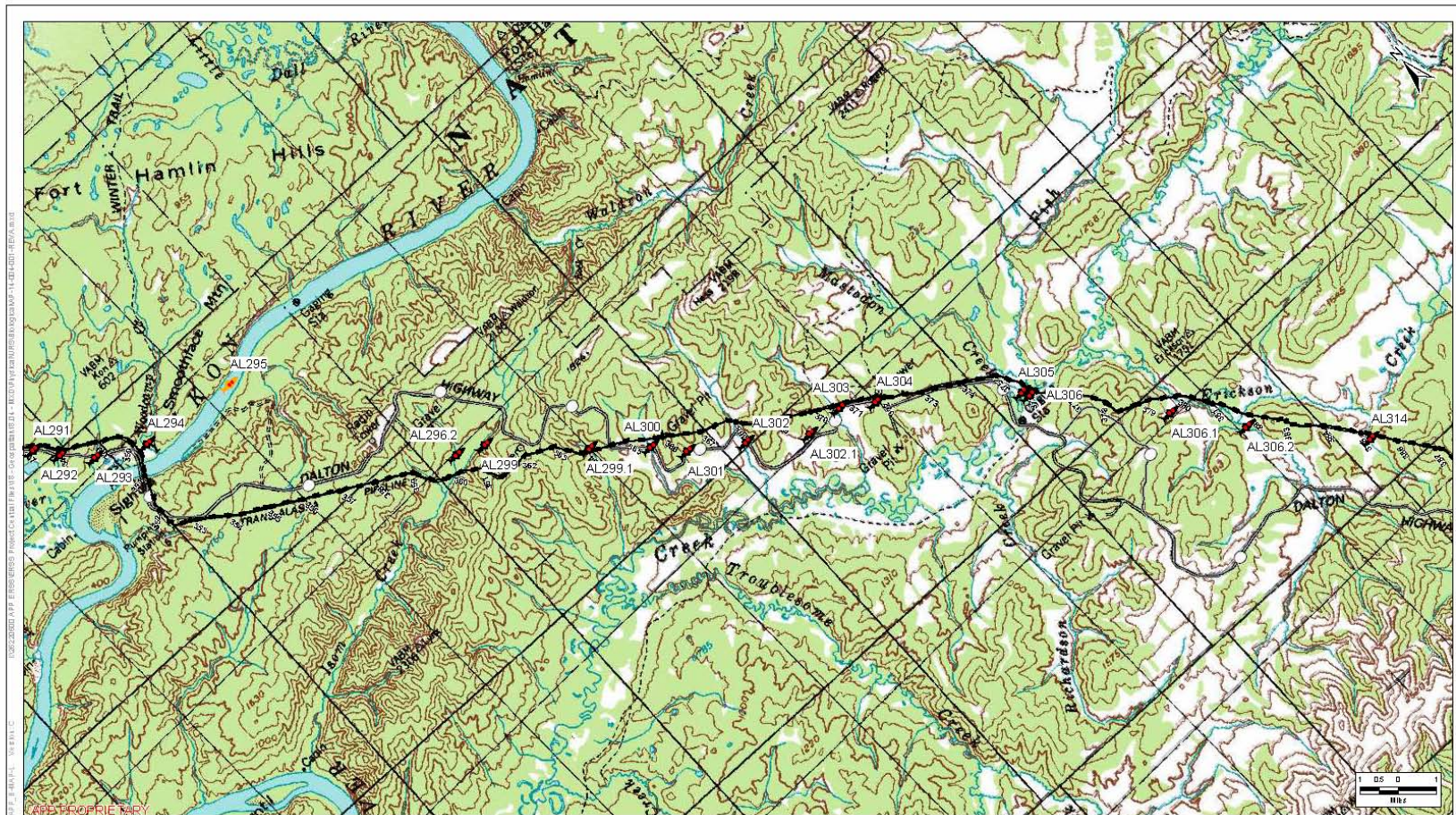


- Surveyed
- Not Surveyed
- Trans-Alaska Pipeline with Mileposts

ALASKA PIPELINE PROJECT

NOTES:
APP data designed by Alaska Pipeline Project Team.
Produced by Alaska Pipeline Project Team. The information used to create this product is based on the collected data on the date of issue, and is considered reliable only as the scale at which the database was created and the scale at which the map was published. This drawing is prepared solely for the use of the contractor Alaska Pipeline Project Team. The user and the Alaska Pipeline Project Team disavow any liability to any other party for any representations contained in these drawings. This map must be printed at full scale (1:5000) in order for the scale to remain correct.



 TransCanada <small>in partnership with</small>		 ExxonMobil			
TRANSCANADA ALASKA PIPELINE PROJECT APPENDIX A - SUMMER 2010 FISH SURVEY LOCATIONS POINT THOMSON TO CANADA MAPS					
<div>VIEW LB</div> <div>CHECK XX</div> <div>VIEW XX</div> <div>DATE 0000</div>	PROJECT UTM Z6	DATE NAD83	CONTRACTOR NAME URS Alaska	MAP NUMBER AP-14-002-012	REV. E
SCALE 1:150,000	DATE 29 Apr 2011	PROJECT NUMBER 26220600	ORIGINATOR 11X17	FINAL	

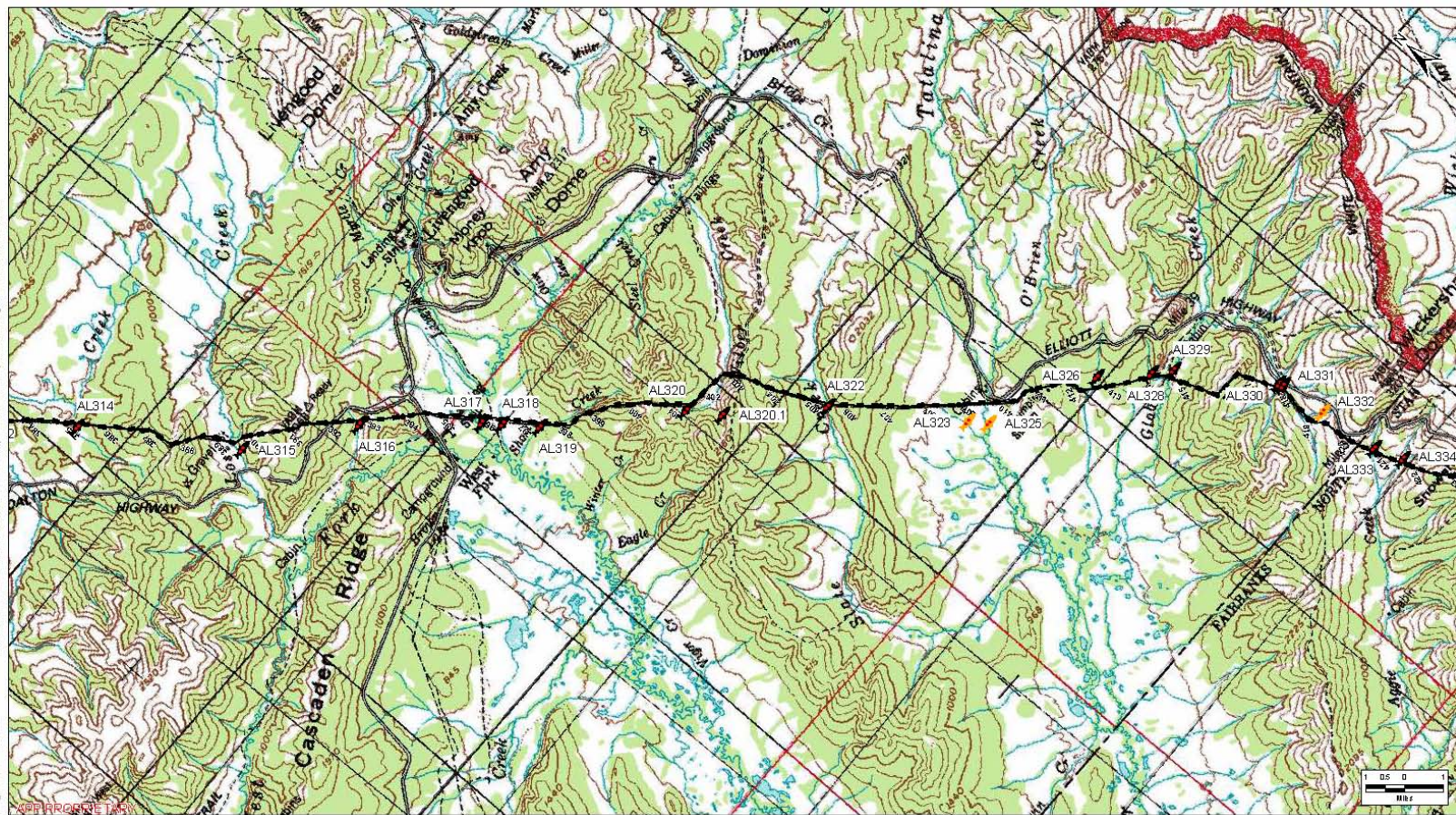


- Surveyed
- Not Surveyed
- Trans-Alaska Pipeline with Mileposts

ALASKA PIPELINE PROJECT

NOTES:
APP data developed by Alaska Pipeline Project Team.
Produced by Alaska Pipeline Project Team. The information used to create this product is based on the collected data on the date of issue, and is considered reliable only at the scale at which the database was created and the scale at which the map was published. This drawing is prepared solely for the use of the contractor Alaska Pipeline Project Team. The error and the Alaska Pipeline Project Team disclaims no liability to any other party for any representations contained in these drawings. This map must be printed at full scale (1:5000) in order for the scale to remain correct.



 TransCanada Energy Services of Canada		TRANSCANADA ALASKA PIPELINE PROJECT APPENDIX A - SUMMER 2010 FISH SURVEY LOCATIONS POINT THOMSON TO CANADA MAPS		 ExxonMobil	
PROJECT UTM Z6	SCALE 1:150,000	CONTRACTOR NAME URS Alaska	APP NUMBER AP-14-002-013	REV. B	
DATE 29 Apr 2011	PROJECT NUMBER 26220600	ORIGINAL SIZE 11X17	FINAL		

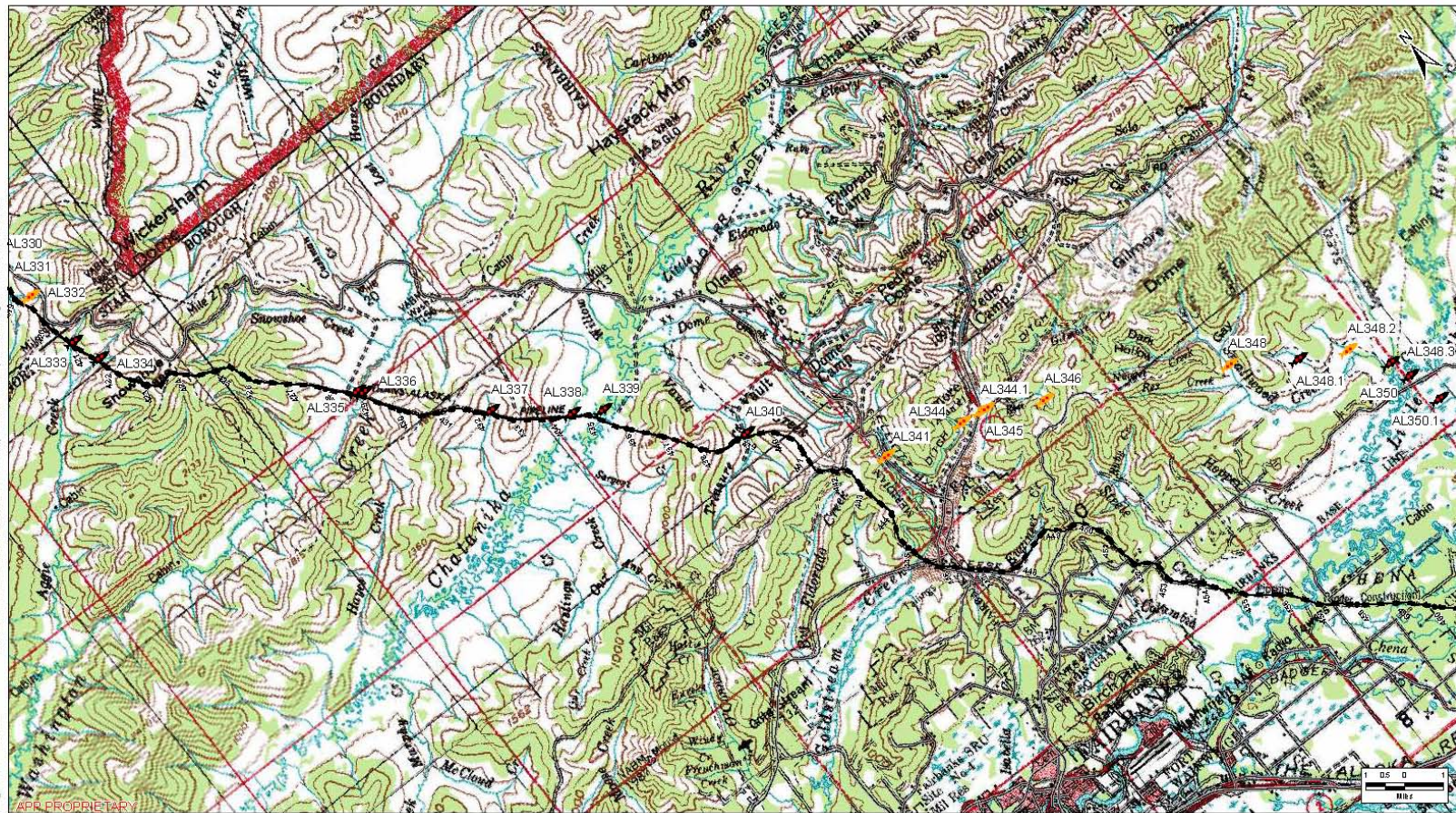


- Surveyed
- Not Surveyed
- Trans-Alaska Pipeline with Mileposts

ALASKA PIPELINE PROJECT

NOTES:
APP data developed by Alaska Pipeline Project Team.
Produced by Alaska Pipeline Project Team. The information used to create this product is based on the collected data on the date of release, and is considered reliable only as the scale at which the database created and the scale at which the map was published. This drawing is prepared solely for the use of the Trans-Alaska Pipeline Project Team. The user and the Alaska Pipeline Project Team disavow any liability to any other party for any representations contained in these drawings. This map must be printed at full scale (1:500,000) in order for the scale to remain correct.



 TRANSCANADA ALASKA PIPELINE PROJECT			
APPENDIX A - SUMMER 2010 FISH SURVEY LOCATIONS POINT THOMSON TO CANADA MAPS			
PROJECT	DATE	CONTRACTOR NAME	MAP NUMBER
UTM Z6	NAD83	URS Alaska	AP-14-002-014
SCALE	DATE	PROJECT NUMBER	ORIGINATOR
1:150,000	29 Apr 2011	26220600	11X17
			FINAL

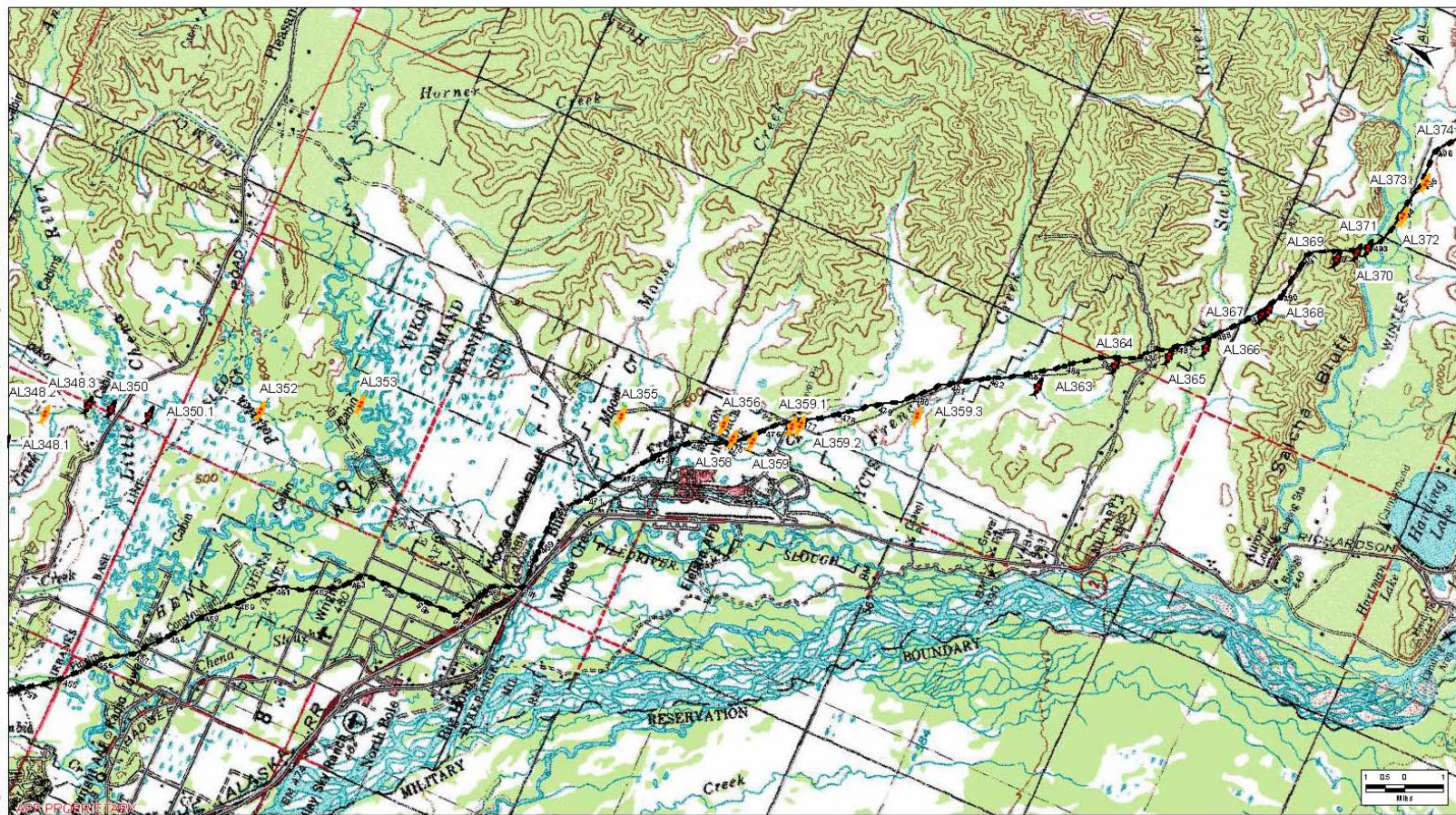


- Surveyed
- Not Surveyed
- Trans-Alaska Pipeline with Mileposts

ALASKA PIPELINE PROJECT

NOTES:
APP data developed by Alaska Pipeline Project Team.
Produced by Alaska Pipeline Project Team. The information used to create this product is based on the collected data on the date of issue, and is considered reliable only as the scale at which the database created and the scale at which the map was published. This drawing is prepared solely for the use of the Trans-Alaska Pipeline Project Team. The error and the Alaska Pipeline Project Team disclaims any liability to any other party for any representations contained in these drawings. This map must be printed at full scale (1:5000) in order for the scale to remain correct.



		TRANSCANADA ALASKA PIPELINE PROJECT APPENDIX A - SUMMER 2010 FISH SURVEY LOCATIONS POINT THOMSON TO CANADA MAPS			
PROJECT	DATE	CONTRACTOR NAME	MAP NUMBER	REV.	
UTM Z6	NAD83	URS Alaska	AP-14-002-015	B	
SCALE	DATE	PROJECT NUMBER	ORIGINATOR		
1:150,000	29 Apr 2011	26220600	11X17	FINAL	

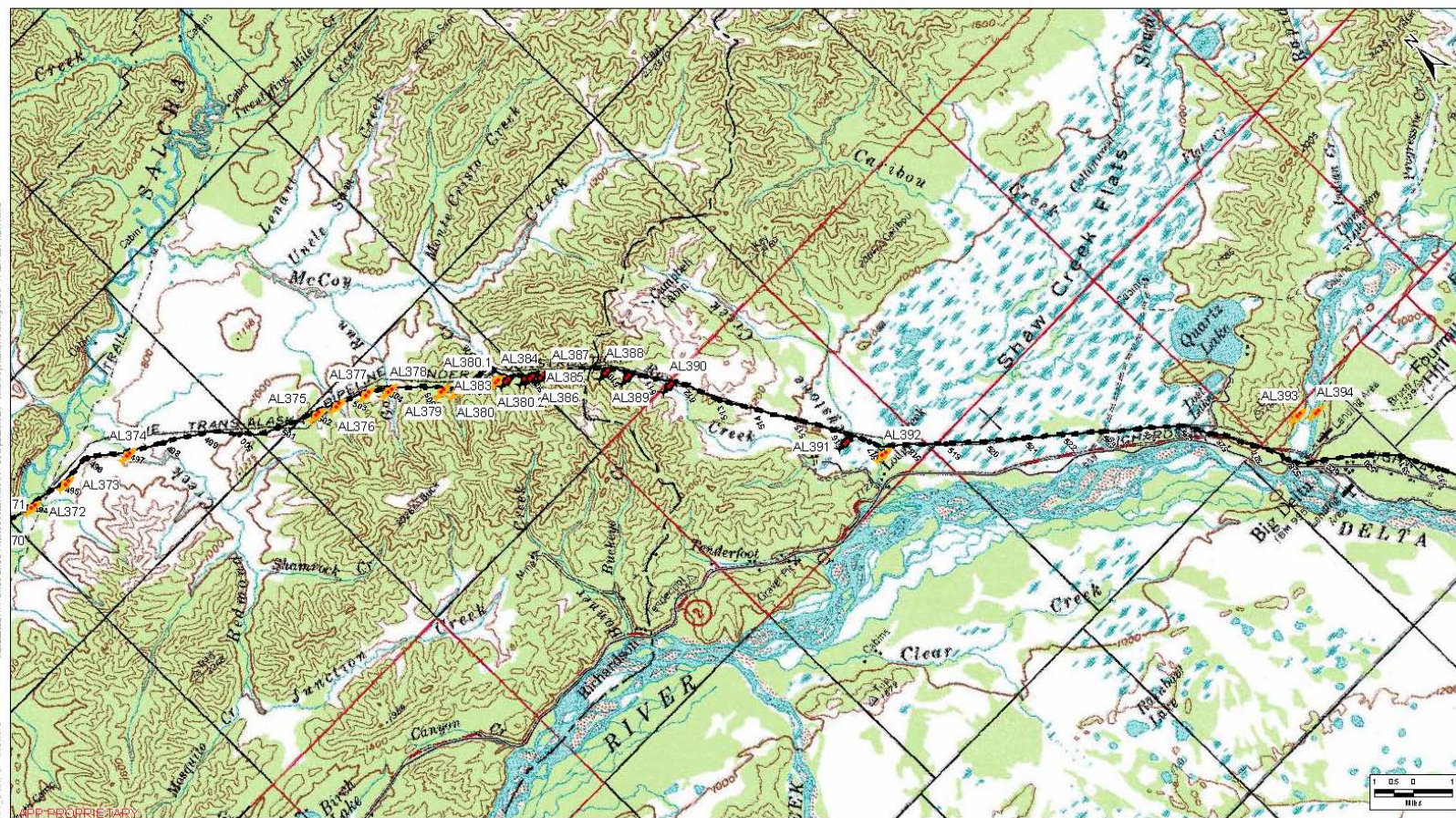


- Surveyed
- Not Surveyed
- Trans-Alaska Pipeline with Mileposts

ALASKA PIPELINE PROJECT

NOTES:
APP data designed by Alaska Pipeline Project Team.
Produced by Alaska Pipeline Project Team. The information used to create this product is based on the collected data on the date of issue, and is considered reliable only at the scale at which the data was collected and the scale at which the map was published. This drawing is prepared solely for the use of the contractor Alaska Pipeline Project Team. The user and the Alaska Pipeline Project Team disavow any liability to any other party for any representations contained in these drawings. This map must be printed at full scale (1:50,000) in order for the scale to remain correct.

 TransCanada A subsidiary of Suncor		TRANSCANADA ALASKA PIPELINE PROJECT APPENDIX A - SUMMER 2010 FISH SURVEY LOCATIONS POINT THOMSON TO CANADA MAPS		 ExxonMobil	
PROJECT	DATE	CONTRACTOR NAME	MAP NUMBER	REV.	
UTM Z6	NAD83	URS Alaska	AP-14-002-016	B	
SCALE	DATE	PROJECT NUMBER	ORIS PAGE SIZE		
1:150,000	29 Apr 2011	26220600	11X17	FINAL	



- Surveyed
- Not Surveyed
- Trans-Alaska Pipeline with Mileposts

ALASKA PIPELINE PROJECT

NOTES:
APP data designed by Alaska Pipeline Project Team.

Produced by Alaska Pipeline Project Team. The information used to create this product is based on the collected data on the date of issue, and is considered reliable only as the scale at which the customer ordered and the scale at which the map was published. This drawing is prepared solely for the use of the Trans-Alaska Pipeline Project Team. The user and the Alaska Pipeline Project Team disavow any liability to any other party for any representations contained in these drawings. This map must be printed at full scale (1:5000) in order for the scale to remain correct.

UTM
Z6
NAD83
SCALE
1:150,000

DATE
29 Apr 2011

PROJECT NUMBER
26220600

ORIS/PGW SIZE
11X17

TRANS CANADA ALASKA PIPELINE PROJECT
APPENDIX A - SUMMER 2010 FISH SURVEY LOCATIONS
POINT THOMSON TO CANADA MAPS
E.ON MOBIL
MAP NUMBER
AP-14-002-017
REV.
B
FINAL

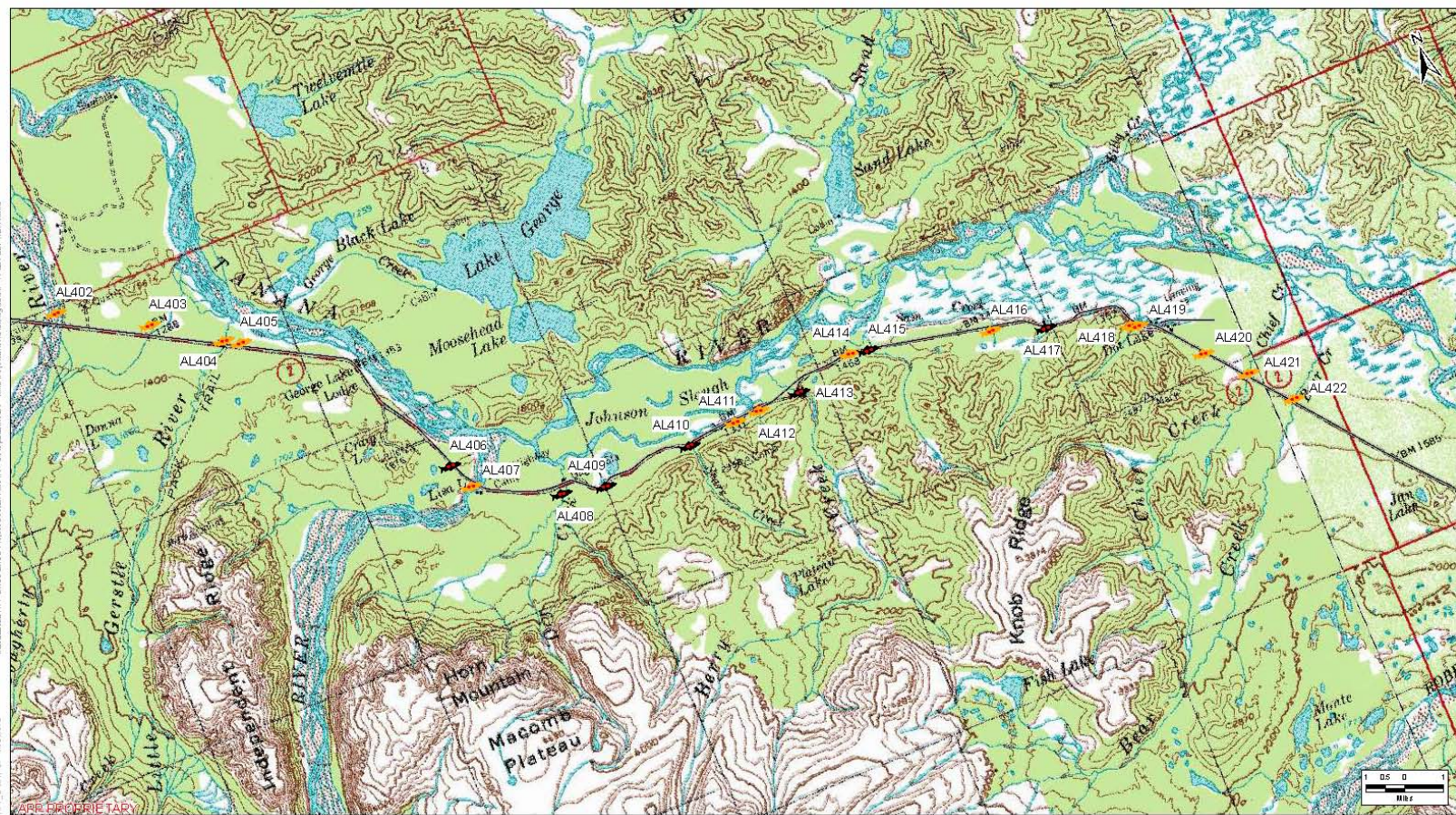


- Surveyed
- Not Surveyed
- Trans-Alaska Pipeline with Mileposts

ALASKA PIPELINE PROJECT

NOTES:
APP data developed by Alaska Pipeline Project Team.
Produced by Alaska Pipeline Project Team. The information used to create this product is based on the collected data on the date of issue, and is considered reliable only as the scale at which the database created and the scale at which the map was published. This drawing is prepared solely for the use of the contractor Alaska Pipeline Project Team. The user and the Alaska Pipeline Project Team disavow any liability to any other person or representative contained in these drawings. This map must be printed at full scale (1:5000) in order for the scale to remain correct.



TRANS CANADA ALASKA PIPELINE PROJECT APPENDIX A - SUMMER 2010 FISH SURVEY LOCATIONS POINT THOMSON TO CANADA MAPS			
PROJECT UTM Z6	DATUM NAD83	CONTRACTOR NAME URS Alaska	MAP NUMBER AP-14-002-018
SCALE 1:150,000	DATE 29 Apr 2011	PROJECT NUMBER 26220600	ORIS/PAGE SIZE 11X17
<div>FINAL</div>			

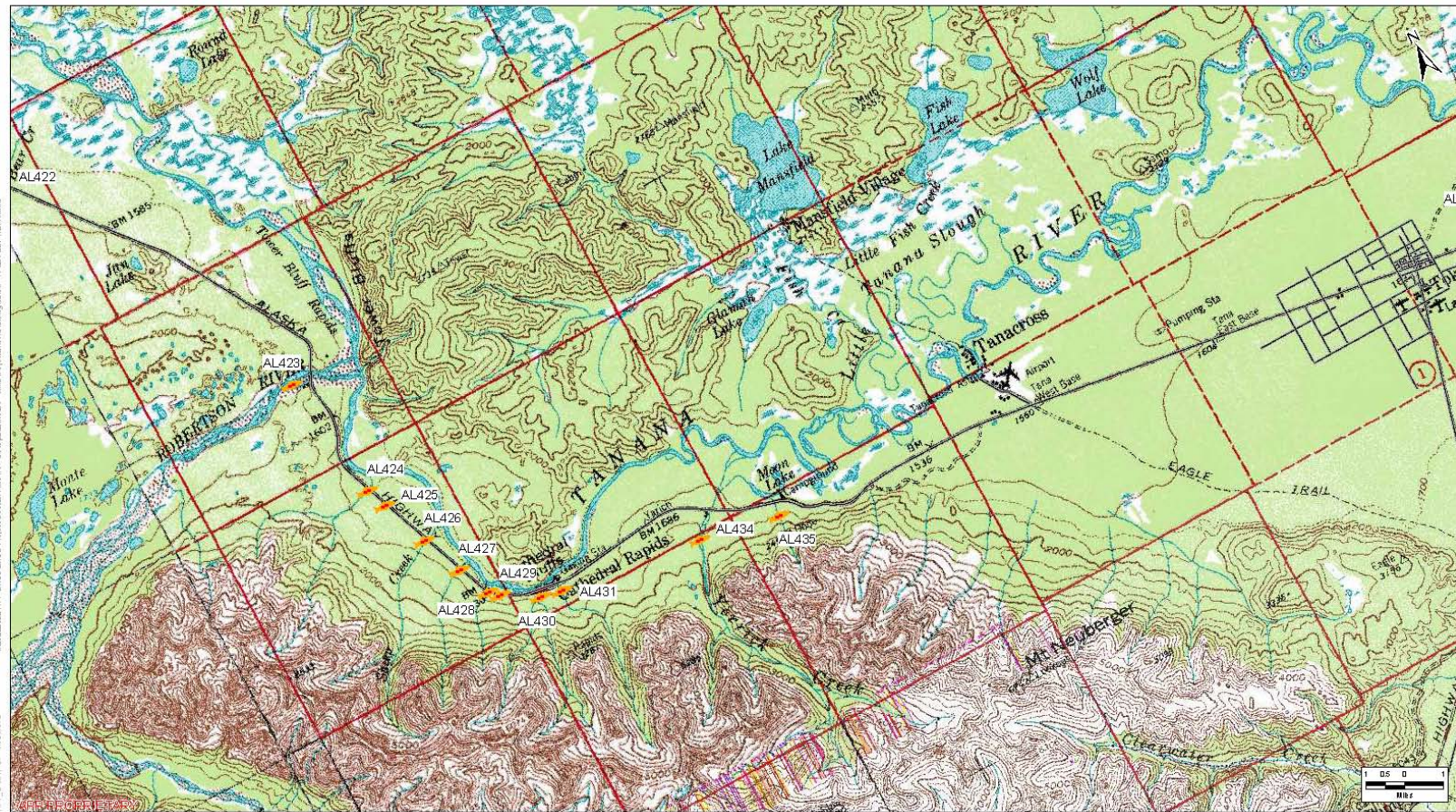





- Surveyed
- Not Surveyed
- Trans-Alaska Pipeline with Mileposts

ALASKA PIPELINE PROJECT

NOTES:
APP data designed by Alaska Pipeline Project Team.
Produced by Alaska Pipeline Project Team. The information used to create this product is based on the collected data on the date of issue, and is considered reliable only at the scale at which the database was created and the scale at which the map was published. This drawing is prepared solely for the use of the Trans-Alaska Pipeline Project Team. The error and the Alaska Pipeline Project Team disclaims any liability to any other party for any representation contained in these drawings. This map must be printed at full scale (1:100,000) in order for the scale to remain correct.






		TRANSCANADA ALASKA PIPELINE PROJECT APPENDIX A - SUMMER 2010 FISH SURVEY LOCATIONS POINT THOMSON TO CANADA MAPS							
PROJECT	UTM Z6	DATE	NAD83	CONTRACTOR NAME	URS Alaska	MAP NUMBER	AP-14-002-019	REV.	B
SCALE	1:150,000	DATE	29 Apr 2011	PROJECT NUMBER	26220600	ORIGINATOR SIZE	11X17	FINAL	

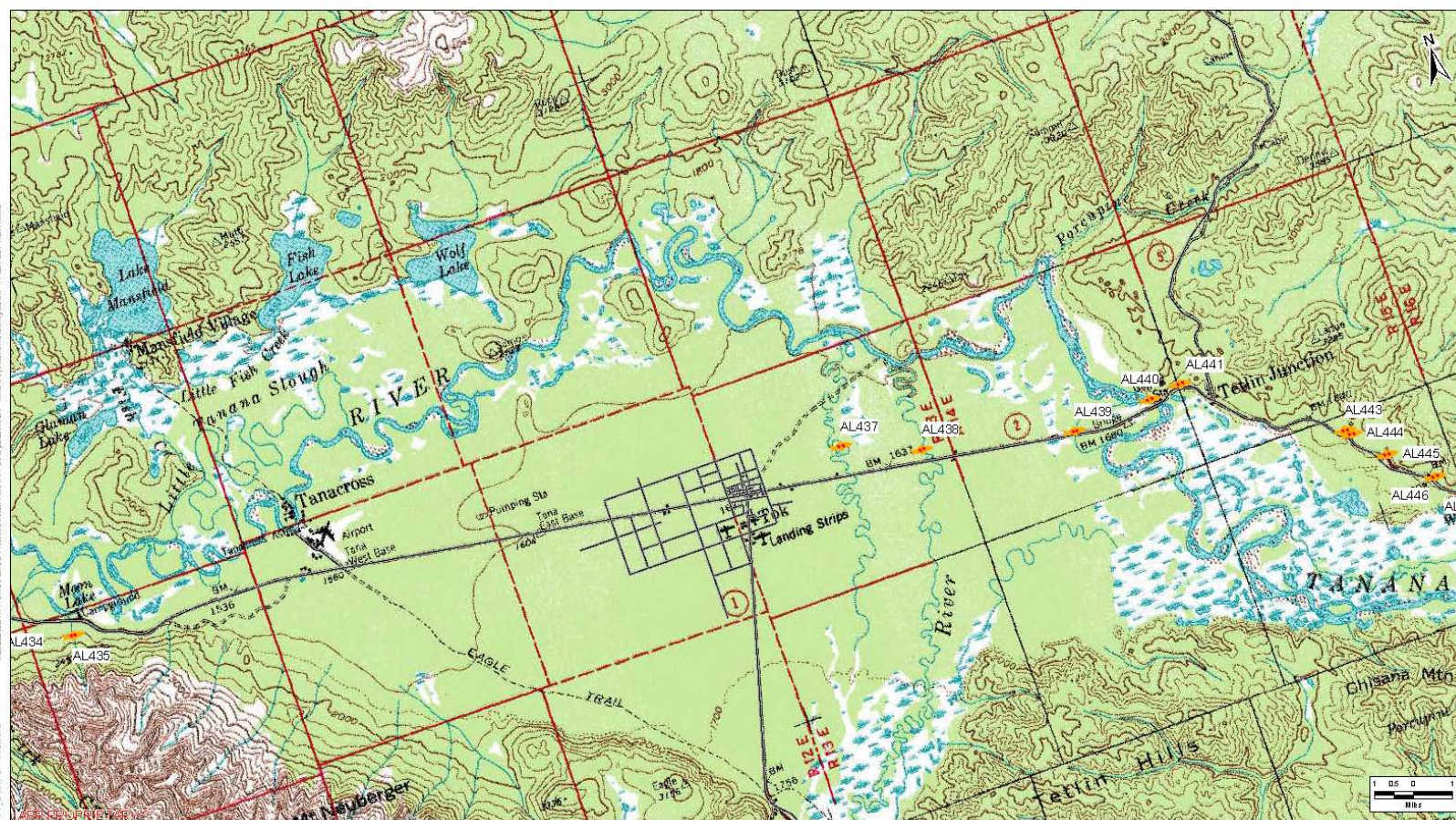


-  Surveyed
-  Not Surveyed
-  Trans-Alaska Pipeline with Mileposts

ALASKA PIPELINE PROJECT

NOTES:
APP data designed by Alaska Pipeline Project Team.
Produced by Alaska Pipeline Project Team. The information used to create this product is based on the collected data on the date of issue, and is considered reliable only at the scale at which the data was collected and the scale at which the map was published. This drawing is prepared solely for the use of the Trans-Alaska Pipeline Project Team. The user and the Alaska Pipeline Project Team disavow any liability to any other person or organization for any errors or omissions contained in these drawings. This map must be printed at full scale (1:5000) in order for the scale to remain correct.



 <small>IN CANADA WE OIL</small>		TRANSCANADA ALASKA PIPELINE PROJECT APPENDIX A - SUMMER 2010 FISH SURVEY LOCATIONS POINT THOMSON TO CANADA MAPS			
 DATA XX					
 SHEET XX					
 APP.					
PROJECTION	DATUM	CONTRACTOR NAME	SHEET NUMBER		REV.
UTM Z6	NAD83	URS Alaska	AP-14-002-020		B
SCALE	DATE	PROJECT NUMBER	ORIS/PAGE SIZE		
1:150,000	29 Apr 2011	262206000	11X17	FINAL	

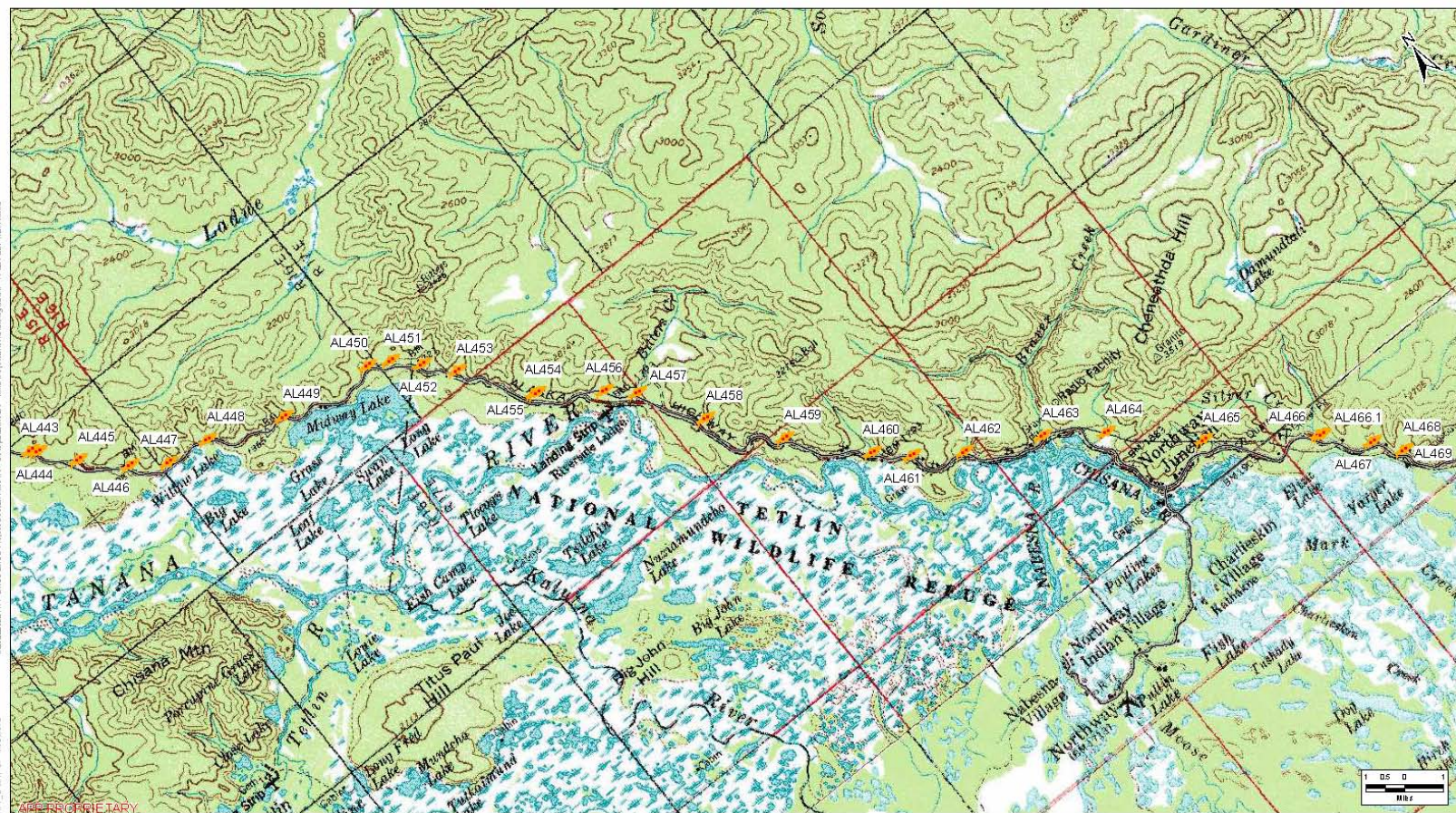


- Surveyed
- Not Surveyed
- Trans-Alaska Pipeline with Mileposts

ALASKA PIPELINE PROJECT

NOTES:
APP data developed by Alaska Pipeline Project Team.
Produced by Alaska Pipeline Project Team. The information used to create this product is based on the collected data on the date of collection, and is considered reliable only as the scale at which the data was collected and the scale at which the map was published. This drawing is prepared solely for the use of the Trans-Alaska Pipeline Project Team. The data and the Alaska Pipeline Project Team disclaimer no liability to any other party for any representations contained in these drawings. This map must be printed at full scale (1:5000) in order for the scale to remain correct.



		TRANSCANADA ALASKA PIPELINE PROJECT APPENDIX A - SUMMER 2010 FISH SURVEY LOCATIONS POINT THOMSON TO CANADA MAPS			
PROJECT					
DATE	LOCATION	UTM	CONTRACTOR NAME	MAP NUMBER	REV.
0000 XX	UTM Z6	NAD83	URS Alaska	AP-14-002-021	
REVISION	SCALE	DATE	PROJECT NUMBER	ORIGINATOR	
0000 XX	1:150,000	29 Apr 2011	26220600	11X17	
					FINAL

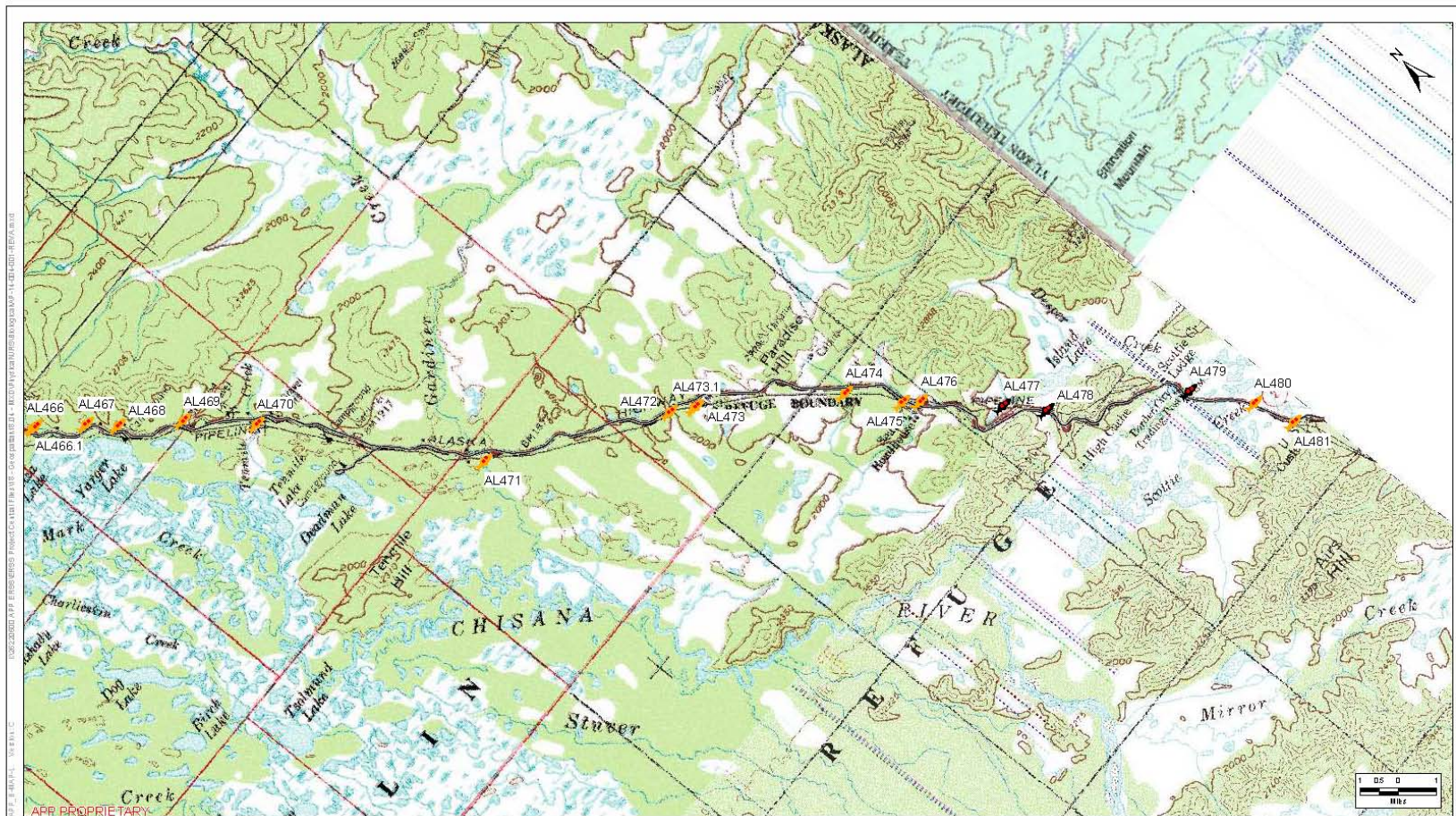


- Surveyed
- Not Surveyed
- Trans-Alaska Pipeline with Mileposts

ALASKA PIPELINE PROJECT

NOTES:
APP data developed by Alaska Pipeline Project Team.
Produced by Alaska Pipeline Project Team. The information used to create this product is based on the collected data on the date of issue, and is considered reliable only at the scale at which the data was collected and the scale at which the map was published. This drawing is prepared solely for the use of the contractor Alaska Pipeline Project Team. The data and the Alaska Pipeline Project Team disclaimer no liability to any other parties for any representations contained in these drawings. This map must be printed at full scale (1:1000) in order for the scale to remain correct.



 					
TRANSCANADA ALASKA PIPELINE PROJECT APPENDIX A - SUMMER 2010 FISH SURVEY LOCATIONS POINT THOMSON TO CANADA MAPS					
PROJECT	DATE	CONTRACTOR NAME	MAP NUMBER	REV.	
UTM Z6	NAD83	URS Alaska	AP-14-002-022	B	
SCALE	DATE	PROJECT NUMBER	ORIS/PGR. SIZE		
1:150,000	29 Apr 2011	26220600	11X17	FINAL	



- Surveyed
- Not Surveyed
- Trans-Alaska Pipeline with Mileposts


ALASKA PIPELINE PROJECT

NOTES:
APP data designed by Alaska Pipeline Project Team.
Produced by Alaska Pipeline Project Team. The information used to create this product is based on the collected data on the date of issue, and is considered reliable only at the scale at which the data was collected and the scale at which the map was published. This drawing is prepared solely for the use of the Trans-Alaska Pipeline Project Team. The user and the Alaska Pipeline Project Team disavow any liability to any other parties for any representations contained in these drawings. This map must be printed at full scale (1:500,000) in order for the scale to remain correct.

		TRANSCANADA ALASKA PIPELINE PROJECT APPENDIX A - SUMMER 2010 FISH SURVEY LOCATIONS POINT THOMSON TO CANADA MAPS			
PROJECT		DATE	CONTRACTOR NAME	MAP NUMBER	REV.
UTM Z6		NAD83	URS Alaska	AP-14-002-023	B
SCALE		DATE	PROJECT NUMBER	ORIS PAGE SIZE	
1:150,000		29 Apr 2011	26220600	11X17	FINAL


ALASKA PipelineProject	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	UASG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

APPENDIX B: HISTORICAL DATA

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

INTRODUCTION: SUMMARY OF HISTORICAL FISH SURVEY DATA FOR THE ALASKA PIPELINE PROJECT AREA

Information describing the spatial and temporal distribution of resident and anadromous fish species, and the critically sensitive time periods for fish assemblages along or adjacent to the Alaska Pipeline Project (APP) alignment was compiled from numerous public documents.

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

SYNOPSIS OF PREVIOUS WORK

FISHERIES INVESTIGATIONS: 1969 - 2000

Early investigations of fisheries resources at water body crossings in support of several proposed oil and gas pipelines in Alaska were conducted by McCart and Pepper (1969), Craig and McCart (1974a and 1974b), Chihuly et al. (1979a, 1979b, 1980a, and 1980b), Elliot (1980 and 1982), Van Hying (1976a, 1976b, and 1978), Valdez (1976), Aquatic Environments Limited (1974a and 1974b), and Dames and Moore (1978).

McCart and Pepper (1969) conducted the first fish investigations along the proposed route for the Trans-Alaska Pipeline System (TAPS). In this study, only 15 streams and rivers and 6 lakes were sampled between Fairbanks and Prudhoe Bay. Fish were collected with dipnets, seines, and experimental gillnets. Seven fish species were documented, including Arctic grayling, Arctic char, lake trout, round whitefish, longnose sucker, northern pike, and sculpin. Arctic grayling were the most common fish species captured during the investigation. This study formed the basis for additional future fishery investigations of the TAPS route by federal and state agencies.


Craig and McCart (1974a and 1974b) completed a series of reports for Arctic Gas describing the physical, chemical, and biological characteristics of Arctic streams in the Beaufort Sea drainages from Prudhoe Bay to the Mackenzie River delta. Prior to this study, little was known about the limnology of flowing water in the Arctic. During the summers of 1971 to 1973, investigators collected fish, benthic invertebrates, and water samples, from 57 locations in 17 Beaufort Sea drainages, with the principle areas of study in the Sagavanirktok and Canning river drainages. Fish were collected with seines, dipnets, gillnets, hook-and-line angling, electrofishing, and fish weirs. The majority of streams were repeatedly sampled throughout the open-water season.

In 1973, Craig identified fish spawning and overwintering areas along routes of a proposed pipeline between Prudhoe Bay and the Mackenzie Delta. The first overwintering study in this area was completed in 1973, and a follow-up study of the Shaviovik River drainage, with emphasis on Arctic char in the Kavik River, was conducted in 1976.

Johnson and Rockwell (1973) compiled the first comprehensive list of streams and other water bodies along the proposed Trans-Alaska Pipeline for the Pipeline Division, Alaska State Office, U.S. Bureau of Land Management (BLM), with updates in 1979 and 1980 (Johnson and Rockwell 1979 and 1980).

In 1974, a group of Lower 48 pipeline companies, and a large Canadian pipeline company, formed the consortium, Arctic Gas, and shortly thereafter a subsidiary of the El Paso Company filed a competing plan to transport natural gas along the TAPS route (Hass 1979). The Arctic Gas project was proposed to be routed east along the Beaufort Sea coast from Prudhoe Bay to the Mackenzie River and south to California. The proposed El Paso route would follow the TAPS alignment south to Point Gravina, Alaska.

In 1975, a third alternative was proposed by Northwest Energy, the parent company of the Northwest Pipeline Company and the Canadian consortium Foothills Pipe Line (Hass 1979). Under this alternative, the proposed Alcan project route would follow the TAPS alignment to Delta Junction, and continue east to Canada along the Alaska Highway.

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

The Alaskan Northwest Natural Gas Transportation Company (ANNGTC) was formed in 1978 to construct and operate the Alaska Natural Gas Transportation System, pursuant to the Alaska Natural Gas Transportation Act of 1976. ANNGTC consisted of eleven partners, including the Northwest Alaskan Pipeline Company and TransCanada Pipelines, Ltd. The proposed alignment followed the route proposed by the Northwest Pipeline Company from Prudhoe Bay to Delta Junction along the TAPS alignment, and east along the Alaska Highway to Canada.

ANNGTC funded the fisheries investigation by Van Hyning (1976a and 1978), Valdez (1976), and Dames and Moore (1978), documenting species composition, distribution, seasonal abundance, and timing windows for construction.

Four fisheries studies were initiated by ANNGTC in 1976. The first study by Van Hyning (1976a) was a preliminary examination of the aquatic systems crossing the Alaska Highway between Delta Junction and Canada. Observations were made on the general characteristics of each water body, and were supplemented by existing literature and interviews with Alaska Department of Fish and Game (ADF&G) employees familiar with the area.


A second fishery survey of the Tanana River tributaries and lakes adjacent to the pipeline corridor between Delta Junction and the Yukon border was conducted by Valdez (1976). In addition, physical data and macroinvertebrate samples were also collected and recorded. Unpublished information from local residents and employees of ADF&G were also included in the report.

A third report produced in 1976 identified fish species present and their critical periods of sensitivity in streams crossed by the project. This study incorporated both data from the Joint State / Federal Fish and Wildlife Advisory Team along that portion of the proposed route where it paralleled the construction of TAPS, as well as fish survey data collected along the proposed ANNGTC route between Delta Junction and Canada (Valdez 1976).

The final report by Van Hyning (1976b) consisted of aerial and ground peak-spawning surveys of Pacific salmon in the upper Tanana River. Although salmon are abundant in the lower Tanana River and its tributaries, little information was available on spawning areas. Van Hyning reported that very few spawning salmon were observed between Delta Junction and the Canadian border.

During 1977 and 1978, two studies were conducted. The first investigation involved the fall and winter fish study of the upper Tanana River based on ground and aerial visual observations by Van Hyning (1978). Van Hyning recorded unconfirmed observation of salmon carcasses in Sheep Creek on the upper Chisana River. Van Hyning suggested salmon are spawning over groundwater upwellings in the deep water of the mainstem Tanana River, with most spawning occurring below the Tok area. Some baseline water chemistry information was also collected. This was the first fish overwintering study conducted in this area. No significant overwintering areas were observed in any tributaries to the Tanana River.

A second study by Dames and Moore (1978) involved field validation of fish streams between Delta Junction and Canada crossing the proposed alignment of the Northwest Alaska Pipeline Company. Streams not previously known to support fish were investigated. This

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

report summarized the stream, physical, chemical, and fisheries data based on the survey and existing literature.

An integrated program of seasonal water body studies between Prudhoe Bay and the Yukon Territory was initiated in 1979 by LGL Ecological Research Associates, Inc. (Chihuly et al. 1979a, 1979b, and 1980a). The objective of these studies was to better describe species composition during all seasons along the proposed route centerline for the Northwest Alaskan Pipeline Company.


The survey conducted by Chihuly in the winter of 1979 represents one of the first efforts to characterize early and late winter habitat at select crossings between Prudhoe Bay and Canada. With the exception of the Scottie Creek, Sears Creek, Little Salcha River, and Washington Creek, most water crossings only provided marginal winter habitat.

In 1979, ADF&G completed a study describing fish and wildlife resources between Delta Junction and Canada in response to proposed pipeline projects in the area (ADF&G 1979). This report was based largely on existing resource data taken from the ADF&G fish and wildlife atlases and Van Hynning (1978). ADF&G identified the Tanana, Salcha, Delta, Goodpaster, and Delta Clearwater rivers as important systems for supporting runs of Chinook, coho, and chum salmon. The report also concluded the upper Chisana and Nebesna rivers, both tributaries of the upper Tanana and located entirely within the Tetlin National Wildlife Refuge, likely support small runs of salmon in some years. The report continues with the discussion of the distribution of anadromous and resident humpback whitefish, and round whitefish in the upper Tanana River drainage, and their roles in the subsistence harvest. The report also addresses, but with very little detail, fish distribution and the role of resident species in the sport and subsistence fisheries in the upper Tanana drainage.

In 1980, LGL Ecological Research, funded by the Northwest Alaska Pipeline Company, analyzed the current fisheries status of each water body potentially affected by pipeline construction near the TAPS alignment and along the Haines Product Pipeline to the Yukon border. The report describes life histories, known fish summer and winter distribution; spawning, rearing, and migrational time periods, and recommends preferred and alternate timing for construction activities (Chihuly et al. 1980b). The preferred timing of construction avoids critical periods where in-stream disturbance would likely result in fairly significant mortality to a portion of the population, and sensitive periods where in-stream construction should be limited. Alternate recommendations avoid critical periods, but may encompass sensitive times when fish are rearing. These definitions are nearly identical to those used by the Alyeska Pipeline Service Company (APSC), ADF&G, and the BLM for TAPS.

This report represents the first comprehensive effort to identify critical and sensitive periods for water bodies between Delta Junction and the U.S. / Canada border. Many crossings in this area were classified as critical and / or sensitive on a seasonal basis, but some are considered as being critical and sensitive year-round, including the Gerstle, Little Gerstle, Johnson, Tanana, and Robertson rivers; and Sears, Berry, Yerrick, Beaver, Gardiner, and Scottie creeks.

Twenty-seven species of resident and anadromous fish were identified between Prudhoe Bay and Canada along the Northwest Alaska Pipeline Company alignment, which is consistent with other studies conducted for TAPS. Chinook, coho and chum salmon occur in the upper

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

Tanana River watershed, but the distribution is limited to the Salcha, Delta, Goodpaster, and Delta Clearwater rivers. Sockeye and pink salmon were not documented between Delta Junction and Canada

The U.S. Fish and Wildlife Service (USFWS) (Elliot 1982) conducted fisheries surveys of water bodies along the proposed route of the Northwest Alaskan Pipeline Company between Delta Junction and Canada. This work represents a continuation of the work by Chihuly et al. (1979b) documenting summer fish distribution east of Delta Junction. Elliot noted fish presence based on fish captured or visually observed in 1981. The report provides additional guidance regarding critical and sensitive time periods for fish, and mirrors the timing windows identified by Chihuly et al. (1980b) for in-water work between Delta Junction and Canada. Elliot's investigation did not include any water crossings north of Delta Junction to Prudhoe Bay.

FISHERIES INVESTIGATIONS: 2001 - 2008


From the early 1980s to 2000, no major studies were conducted in support of proposed gas pipeline projects in Alaska to the Lower 48, or export from tidewater to Asian markets. Beginning in 2000, there was a renewed interest in developing a gas pipeline between Prudhoe Bay and Point Thomson. Three studies of significance occurred during this period, the first by ExxonMobil, followed by ADF&G and the Alaska Department of Natural Resources (ADNR).

In 2001, ExxonMobil completed the environmental review for the Point Thomson Gas Cycling Project (URS Corporation [URS] 2001). The report provided a general summary of the earlier work in the Canning, Staines, No Name, Kavik, and Shaviovik rivers; and East Badami Creek, by Hemming (1996), Craig and McCart (1974a and 1974b), and Ward (1974).

These earlier studies determined the Staines, Canning, Shaviovik, and Kavik rivers support Dolly Varden and ninespine stickleback. In addition, the report indicated the Canning River supported round whitefish, burbot, and slimy sculpin. The Staines and Canning rivers were reported to support important summer feeding habitat for Dolly Varden and Arctic char. The report also concluded overwintering habitat was generally limited by dissolved oxygen concentrations in Alaska's North Slope drainages for Dolly Varden and Arctic grayling, with noted exceptions by Craig and McCart (1974a and 1974b). In the 1974 study, the authors reported Dolly Varden overwintering areas in the Canning River, and, to a more limited extent, in the Shaviovik and Kavik rivers.

ADNR completed an environmental report as part of the application for a conditional right-of-way (ROW) lease for oil and gas pipelines from Point Thomson to Prudhoe Bay (ADNR 2006). Very little information on freshwater fisheries in the project area was provided in the report. At least 14 species of freshwater and anadromous fish might inhabit water bodies in the project area including Dolly Varden, Arctic char, round whitefish, broad whitefish, humpback whitefish, least cisco, lake trout, Arctic grayling, fourhorn sculpin, burbot, slimy sculpin, chum and pink salmon (URS 2001).

Morris and Winters (2004) completed the first comprehensive fish surveys east of Prudhoe Bay since Hemming (1996). The investigations in 2002 and 2003 focused on documenting fish presence or absence at water body crossings for the proposed Point Thomson Gas Cycling Project pipeline between Point Thomson and the Badami Oilfield. The 2004 study

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

documented ninespine stickleback, fourhorn sculpin, Arctic grayling, and Dolly Varden within the general area of the Point Thomson Project, from the Staines River on the east to the Badami Oilfield to the west. Ninespine stickleback were the most numerous fish species present in the study area.

Alaska Gas Producers Pipeline Team: 2001 - 2002

In 2001, ExxonMobil, BP, and ConocoPhillips, known as the Alaska Gas Producer Pipeline Team (AGPPT) conducted environmental studies in 2001 from the Point Thomson area to Prudhoe Bay, and south to the U.S. / Canada border.

The proposed pipeline crossed 30 perennial streams supporting resident coldwater and anadromous fish populations during all or parts of the year. Sixteen freshwater and anadromous fish species were documented in the eastern Arctic Slope region, and 21 fish species in the Yukon River drainage (Natural Resource Group, Inc. [NRG] 2002).

A total of 376 water body crossings were surveyed by AGPPT from July 9 through August 8, 2001. AGPPT crews sampled each crossing during this time period using a combination of electrofishing, minnow traps, hook and line, and visual observations. Approximately 147 of the AGPPT water body crossings corresponded to the TAPS crossings and the proposed APP crossings (Revision [Rev] C) identified by AECOM Environment (AECOM), and WorleyParsons in 2009.


Alaska Gas Pipeline – Denali Project 2008

In 2008, BP and ConocoPhillips, two major Alaska energy producers, launched Denali – The Alaska Gas Pipeline. The proposed pipeline follows the TAPS alignment south from Prudhoe Bay to Delta Junction, and continues east along the Alaska Highway to the U.S. / Canada border, and south to Alberta. Hydrologic, archeological, wetland, and stream crossing surveys were conducted in 2008, however, this information is not publically available.

Alaska Pipeline Project 2009

In 2009, AECOM was contracted by TransCanada Alaska Company, LLC (TransCanada) to identify and analyze environmental information needs, and compile and examine available environmental and resource data, including fisheries for the pipeline portion of APP. This information needs analysis of identified fisheries information currently available in the present body of literature, and through agencies, to support the preparation of permits and the FERC RR 3 – Fish, Wildlife, and Vegetation.

As part of the analysis, AECOM and WorleyParsons developed a technical memorandum listing water body crossings and fisheries resources along the Rev C alignment. This memorandum was derived from information gathered from the Environmental Atlas (APSC 2002); BLM Open File Reports (BLM 2005, 2010a, and 2010b); ADF&G Atlas to the Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes” (Atlas) (Johnson and Klein 2009a and 2009b); and historical data collected by industry consultants, federal, and state resource agencies for several gas pipeline projects proposed in the 1970s and 1980s. The water crossing list includes pipeline milepost location, fish species, and designation of critical, sensitive, and non-sensitive time periods by month. The technical

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

memorandum was intended as a first step in providing TransCanada and WorleyParsons with an initial overview of the timing windows for water crossings within the project area.

The critical, sensitive and non-sensitive designations in the technical memorandum for water crossings between Prudhoe Bay and Delta Junction were based entirely on the Environmental Atlas and BLM Open File Reports. These designations were synthesized for the APP water crossings between Delta Junction and the U.S. / Canada border based on professional experience using the criteria described in the Environmental Atlas, and information provided by studies conducted by USFWS (Elliot 1982) and industry consultants (Dames and Moore 1978; Schmidt et al. 1981).

The proposed Rev C alignment crossed approximately 468 water bodies between Prudhoe Bay and the U.S. / Canada border. The 2009 analysis did not include the water crossings for the pipeline corridor between Point Thomson and the proposed gas treatment plant in Prudhoe Bay.

At least 22 species of anadromous and freshwater fish exist within the project area. Detailed information on fish species composition, spawning, rearing, and winter habitat; and the timing of critical and sensitive periods were available for approximately 303 crossings where the APP alignment coincides with the TAPS alignment (AECOM 2009).

LATEST INFORMATION ON FISH USE IN THE PROJECT AREA

Catalog of Waters Important to Spawning, Rearing, or Migration of Anadromous Fish


Alaska Statute 16.05.871(a) requires ADF&G to specify the various rivers, lakes, and streams, or parts of them, that are important for spawning, rearing, or migration of anadromous fishes. Adopted by reference, under 5 Alaska Administrative Code 95.011 the “Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes” is the legal document identifying the specified streams.

The Catalog and the Atlas are the most authoritative sources of information currently available on the distribution of anadromous fish in the project area. The Catalog is a numerically-ordered list of water bodies with documented use by anadromous fish. The Atlas is a compilation of topographic maps with the location, name, identification number of the water body, species, and the life history phases – spawning, rearing, and migration. All freshwater water bodies identified in the Catalog supporting Alaska stocks of Pacific salmon have been designated by the National Marine Fisheries Service as Essential Fish Habitat.

Periodically, the Catalog and companion Atlas are updated by ADF&G. Procedures are in place that provide for regular updating of the Atlas and Catalog. Water bodies, or particular stream reaches, can be added or deleted, and the upper range of anadromous water bodies has changed as more current surveys document the presence or absence of anadromous fish.

Environmental Atlas Trans-Alaska Pipeline System

The Environmental Atlas (APSC 2002) is the single most important source of information describing the spatial and temporal distribution of resident and anadromous fish along and

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

near the TAPS ROW. The Environmental Atlas was prepared by APSC to identify important fish habitat and other resources in and near the TAPS corridor. Earlier versions of the Environmental Atlas and other catalogs were developed and compiled based on studies initiated after the discovery of oil on the North Slope (Johnson and Rockwell 1973, 1979, and 1980).

Water bodies supporting fish along the TAPS corridor have been classified as designated zones of restricted activity, with sensitivity to environmental disturbance varying with the time of year. BLM classifies water bodies as either not sensitive, sensitive, or critically sensitive for the fish species inhabiting those water bodies. These definitions were originally established by BLM on the basis of spawning, migration, and rearing activities of important fish species and assemblages along the pipeline route.

The sensitive periods were based on an integrated view of spawning, incubation, emergence, rearing, migration, and movements of fish assemblages within a stream. These periods address the direct sensitivities of fish affecting reproduction, survival, and growth, based on their presence and the time of year.

“Critical” is defined as the time period when fish are most sensitive to disturbance and likely to suffer high mortality from construction activities within the stream channel. Eggs and sack fry are especially sensitive to changes in dissolved oxygen concentrations. Factors influencing dissolved oxygen concentrations include water flows, temperature, turbidity levels, and sediment loads.

Primary information sources used to compile descriptions of fish habitat and usage along TAPS and APP include documents from the APSC, ADF&G, BLM, environmental impact statements and summary reports for the above mentioned gas pipeline projects, and the Catalog.


SUMMARY OF FISHERIES RESOURCES IN THE PROJECT AREA

Because the fish communities in streams and rivers crossed by the pipeline differ in the major hydrological regions, the fish resources along the APP alignment are broadly divided into three regions: North Slope, including the pipeline segment between Point Thomson and Prudhoe Bay and south from Prudhoe Bay to Atigun Pass; the Yukon River drainage, including waters south of Atigun Pass; and tributaries between the Yukon River and Tanana River and the Upper Tanana River watershed from Delta Junction to U.S. / Canada border.

At least 25 species of fish are known to, or could potentially exist, in streams, rivers and other water bodies near the APP alignment near the TAPS ROW between Prudhoe Bay and Delta Junction (BLM 2002; NRG 2002). At least nine species occur in water bodies near the APP alignment between Delta Junction and Canada (Elliot 1980, Dames and Moore 1978, Schmidt 1981).

North Slope - Point Thomson to Prudhoe Bay

Limited freshwater fish investigations have been conducted in the area between Point Thomson and Prudhoe Bay. Major water bodies include the Putuligayuk River, Sagavanirktok River, East Badami Creek, No Name River, Shaviovik River, West Shaviovik River, Kadleroshilik, and East Sagavanirktok Creek.

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

At least 11 species of resident and anadromous fish have been documented in this area including ninespine stickleback, rainbow smelt, Dolly Varden, Arctic grayling, broad whitefish, slimy sculpin, least cisco, humpback whitefish, whitefish species, pink and chum salmon (Morris and Winters 2004; Morris and Winters 2008; Vivant 2003; Hemming 1993 and 1996; Woodward-Clyde Consultants and Alaska Biological Research 1983; Craig 1976; and Johnson and Klein 2009a). The Sagavanirktok River is the only documented water body known to support pink and chum salmon for this segment of the pipeline (Johnson and Klein 2009a).

Woodward-Clyde Consultants and Alaska Biological Research (1983) surveyed seven tundra streams for suitable fish habitat, and documented ninespine stickleback throughout the surveyed stream reaches. Fourhorn sculpin were found in the estuarine portion of one stream.

Hemming's (1996) surveys of drainages to the west, from the Badami Oilfield to the Sagavanirktok River, documented mostly ninespine stickleback, with the occasional Arctic grayling, Dolly Varden, round whitefish, and fourhorn sculpin.


In the summers of 2002 and 2003, Morris and Winters (2004) conducted some of the most extensive surveys of stream crossings in the APP area for the potential pipeline corridor for the Point Thomson Gas Cycling Project. All 15 stream systems sampled in 2002 contained ninespine stickleback, as did the flooded gravel mine site. Similarly, all but 2 of 17 streams sampled in 2003 contained ninespine stickleback. Juvenile Dolly Varden were the most dominate fish species captured by Morris and Winters (2004) in water bodies east of Badami. Seven of the 15 streams sampled in 2002 supported anadromous juvenile Dolly Varden, and 4 streams had Dolly Varden in 2003. No other freshwater fish studies of stream crossings along the pipeline corridor have occurred since 2003.

Prudhoe Bay to Atigun Pass

Extensive freshwater fish investigations have frequently been conducted between Prudhoe Bay and Atigun Pass in association with the construction and operations of TAPS (APSC 1993 and 2002; BLM 2002 and 2010a). Major water bodies include the Putuligayuk, Sagavanirktok, and Kuparuk rivers. At least 15 species of fish have been documented in this area including burbot, lake trout, Arctic char, round whitefish, Arctic cisco, least cisco, ninespine stickleback, rainbow smelt, Dolly Varden, Arctic grayling, broad whitefish, slimy sculpin, least cisco, humpback whitefish, whitefish species, pink and chum salmon (APSC 1993 and 2002; Johnson and Klein 2009a; BLM 2002; Hemming 1993; Ott and Morris 1999; Morris and Winters 2004; and Gnath et al. 2002).

Yukon River Drainage - Atigun Pass to Fairbanks

Extensive information on freshwater fish spatial and temporal distribution is available for many stream and river crossings between Atigun Pass and Fairbanks (APSC 1993 and 2002; Johnson and Klein 2009a and 2009b; Gnath et al. 2002; and BLM 2002, 2003, 2005, 2010a, and 2010b). Most of this information was collected to support the TAPS operation and maintenance activities. Major water bodies include the Atigun, Dietrich, Middle Fork Koyukuk, Yukon, Chatanika, and Chena rivers.

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

At least 19 species of fish have been documented in this area including American brook lamprey, Arctic lamprey, longnose sucker, sucker family, northern pike, burbot, Alaskan blackfish, lake chub, Dolly Varden, lake trout, Arctic grayling, slimy sculpin, innconnu, pond smelt, round whitefish, whitefish species, cisco species, Arctic cisco, pink, coho, Chinook, and chum salmon.

Fairbanks to Tanana River

Major water bodies in this area include the Salcha and Tanana rivers. Thirteen species of fish have been documented in this area including the Arctic lamprey, longnose sucker, northern pike, burbot, lake chub, Dolly Varden, Arctic grayling, slimy sculpin, innconnu, round whitefish, whitefish species, Chinook, and chum salmon (APSC 1993 and 2002; Johnson and Klein 2009b; Gnath et al. 2002; and BLM 2002, 2003, 2005, 2010a, and 2010b).


Upper Tanana River Drainage - Delta Junction to U.S. / Canada Border

Limited freshwater fish investigations have been conducted in the area between Delta Junction and the U.S. / Canada border, with most studies occurring in the late 1970s and early 1980s in association with the Northwest Alaskan Pipeline Company's proposed gas pipeline.

Major water bodies include the Goodpaster, Gerstle, Little Gerstle, Robertson, and Tanana rivers; and the Clearwater, Sears, Chief, Yerrick, Bitters, Beaver, Gardiner, and Scottie creeks. The proposed APP alignment currently does not cross the Goodpaster River and Clearwater Creek, but both drainages are recognized as providing high-value coho rearing habitat (Johnson and Klein 2009b).

At least 12 species of fish have been documented in this area including the longnose sucker, northern pike, burbot, lake chub, Dolly Varden, Arctic grayling, slimy sculpin, round whitefish, humpback whitefish, and coho and chum salmon (ADNR 2006; ADF&G 1979; Chihuly et al. 1979a 1979b, and 1980a, 1980b; Elliot 1982 and 1980).

More recent studies conducted by USFWS confirmed humpback whitefish in Scottie, Little Scottie and Desper creeks, and chum salmon in Scottie Creek (USFWS 1990; Brown 2006; and Brown et al. 2002).

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

LITERATURE CITED

Alaska Department of Natural Resources (ADNR). 2006. Environmental report eastern North Slope oil and gas pipelines. Alaska Department of Natural Resources, Office of Project Management and Permitting. Anchorage, AK. 66 pp.

AECOM. 2009. Alaska Pipeline Project environmental information needs analysis. Prepared for TransCanada Alaska Company, LLC by AECOM Environmental. Anchorage, AK. 108 pp. plus appendices.

Alaska Department of Fish and Game (ADF&G). 1979. Fish, wildlife, and habitat resources and the potential impact of oil transportation; Alaska Highway (Delta Junction to Canadian Border). Alaska Department of Fish and Game, Habitat Protection Section Marine and Coastal Habitat Management. 63 pp.

Alyeska Pipeline Service Company (APSC). 1993. Environmental Atlas of the Trans-Alaska Pipeline System, First Edition. Alyeska Pipeline Service Company. Anchorage, AK. 20 pp. plus 25 color maps.

APSC. 2002. Environmental Atlas of the Trans-Alaska Pipeline System, Second Edition. Alyeska Pipeline Service Company. Anchorage, AK. 24 pp. plus 27 color maps.

Aquatic Environments Limited. 1974a. Fisheries research associated with proposed gas pipeline routes in Alaska, Yukon, and Northwest territories. Peter J. McCart editor, Second Edition. Prepared by Aquatic Environment Limited for Canadian Arctic Gas Study. 255 pp.

Aquatic Environments Limited. 1974b. Classification of streams in Beaufort Sea drainages and distribution of fish in arctic and sub-arctic drainages. Prepared by Aquatic Environment Limited for Canadian Arctic Gas Study and Alaskan Arctic Gas Study Company.


U.S. Bureau of Land Management (BLM). 2002. Final environmental impact statement: renewal of the federal grant for the Trans-Alaska Pipeline System Right-of-Way. U.S. Department of the Interior, Bureau of Land Management, Alaska State Office. Anchorage, AK.

BLM. 2003. Zones of restricted activity for protection of key fish areas along the Trans-Alaska Pipeline System on federally administered lands, Second Edition. U.S. Department of the Interior, Bureau of Land Management, Office of Pipeline Management. Anchorage, AK.

BLM. 2005. Fish streams along the Trans-Alaska Pipeline System; a compilation of selected references with current TAPS stationing. BLM Alaska Open File Report 105, Fourth Edition. Prepared by the Alaska Department of Fish and Game, Joint Pipeline Office, and U.S. Department of the Interior, Bureau of Land Management, Office of Pipeline Monitoring. Anchorage, AK.

BLM. 2010a. Zones of restricted activity for protection of key fish areas along the Trans-Alaska Pipeline System on federally administered lands. BLM Alaska Open File Report 104, Fourth Edition. U.S. Department of the Interior, Bureau of Land Management. Anchorage, AK.

BLM. 2010b. Zones of restricted activity for protection of key fish areas along the Trans-Alaska Pipeline System on federally administered lands. BLM Alaska Open File Report 105,

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

Fifth Edition. Prepared by the Alaska Department of Fish and Game Joint Pipeline Office and U.S. Department of the Interior, Bureau of Land Management, Office of Pipeline Monitoring. Anchorage, AK.

Brown R.J. 2006. Humpback whitefish in the Upper Tanana River drainage. Alaska Fisheries Technical Report Number 90. U.S. Fish and Wildlife Service, Fairbanks Fish and Wildlife Office. Fairbanks, AK. 41 pp.

Brown R.J., C. Lunderstadt, and B. Schultz. 2002. Movement patterns of radio tagged adult humpback whitefish in the Upper Tanana river drainage. Alaska Fisheries Data series 2002-1. U.S. Fish and Wildlife Service, Region 7. Anchorage, AK. 23 pp.

Chihuly, M., D. Ward, P. Craig, R. McMillan, and R. Morrison. 1979a. Spring fisheries survey and provisional list of waterbodies along the Alaskan gas pipeline route (Prudhoe Bay to Yukon Territory) proposed by Northwest Pipeline Company. Prepared for Northwest Pipeline Company by LGL Ecological Research Associates, Inc. 210 pp.

Chihuly, M., D. Ward, P. Craig, and R. McMillan. 1979b. Winter fisheries survey and provisional list of waterbodies along the Alaskan gas pipeline route (Prudhoe Bay to Yukon Territory) proposed by Northwest Pipeline Company. Prepared for Northwest Pipeline Company by LGL Ecological Research Associates, Inc. 274 pp.

Chihuly, M., D. Ward, R. McMillan, R. Morrison, T. Olson, and A. Sekerak. 1980a. Fall fisheries survey and provisional list of waterbodies along the Alaskan gas pipeline route (Prudhoe Bay to Yukon Territory) proposed by Northwest Pipeline Company. Prepared for Northwest Pipeline Company by LGL Ecological Research Associates, Inc. 178 pp.

Chihuly, M., R. McMillan, R. Morrison, T. Olson, A. Sekerak, R. Neterer, and J. Burro. 1980b. Fisheries resources along the Alaskan route (Prudhoe Bay to Yukon Territory) proposed by Northwest Pipeline Company. Prepared for Northwest Pipeline Company by LGL Ecological Research Associates, Inc., Fairbanks, AK. 136 pp.

Craig, P.C, and P.J McCart. 1974a. Fall spawning and overwintering areas of fish populations along routes of the proposed pipeline between Prudhoe Bay and Mackenzie Delta, 1972-1973. Biological Report Series 15(3). Canadian Arctic Gas Study Limited. Calgary, AB. 37 pp.

Craig, P.C., and P.J. McCart. 1974b. Classification of stream types in Beaufort Sea drainages and the distribution of fish in arctic and sub-arctic drainages. Biological Report Series Volume 17. Prepared for Canadian Arctic Gas Study Limited and Alaska Arctic Gas Study Company by Aquatic Environments Limited.

Craig, P.C. 1976. Fisheries investigations in the Shaviovik River drainage, Alaska, with emphasis on Arctic char in the Kavik River. Aquatic Environments Limited.

Dames and Moore. 1978. Field validation of fish streams between the Canadian border and Delta Junction. Prepared for Northwest Alaskan Pipeline Company by Dames and Moore, Inc. Anchorage, AK. 15 pp.

Elliot, G.V. 1980. First interim report on the evaluation of stream crossings and effects of channel modification on fishery resources along the Trans-Alaska Pipeline. U.S. Fish and Wildlife Service. Anchorage, AK. 77 pp.

ALASKA PipelineProject	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

Elliot, G.V. 1982. Final report on the evaluation of stream crossings and effects of channel modification on fishery resources along the Trans-Alaska Pipeline. U.S. Fish and Wildlife Service. Anchorage, AK. 110 pp.

Gnath, D.G., D.B. Lieb, and M. Wiedmer. 2002. Trans-Alaska Pipeline System 2002 fish habitat survey. Technical Report Number 02-07. Prepared for Alyeska Pipeline Service Company. Alaska Department of Fish and Game, Habitat and Restoration Division, Anchorage, AK. 755 pp.

Hass, Jerome. E. 1979. The ANGTS primer: all you wanted to know about ANGTS and more. Cornell University. 70 pp. plus appendices.

Hemming, C. 1993. Tundra stream fish habitat investigations in North Slope oil fields. Technical Report No. 93-1. Alaska Department of Fish and Game, Habitat and Restoration Division. 71 pp.

Hemming, C. 1996. Fish surveys of selected coastal streams Sagavanirktok River to Bullen Point, 1995. Technical Report Number 96-3. Alaska Department of Fish and Game, Habitat and Restoration Division. 36 pp.

Johnson, J., and K. Klein. 2009a. Catalog of waters important for spawning, rearing, or migration of anadromous fishes – arctic region, effective June 1, 2009. Special Publication Number 09-01. Alaska Department of Fish and Game, divisions of Sport Fish and Habitat. 132 pp.

Johnson, J., and K. Klein. 2009b. Catalog of waters important for spawning, rearing, or migration of anadromous fishes – interior region, effective June 1, 2009. Special Publication Number 09-02. Alaska Department of Fish and Game, divisions of Sport Fish and Habitat. 144 pp.


Johnson, R.L., and J.R. Rockwell Jr. 1973. List of streams and other waterbodies along the Trans-Alaska pipeline route, Third Revision. U.S. Bureau of Land Management, Pipeline Division, Alaska State Office, Anchorage, AK.

Johnson, R.L., and J.R. Rockwell Jr. 1979. List of streams and other waterbodies along the Trans-Alaska pipeline route, Fourth Revision Draft. U.S. Bureau of Land Management, Pipeline Division, Alaska State Office, Anchorage, AK. 420 leaves.

Johnson, R.L., and J.R. Rockwell Jr. 1980. List of streams and other waterbodies along the Trans-Alaska pipeline route, Fourth Revision Draft. U.S. Bureau of Land Management, Pipeline Division, Alaska State Office, Anchorage, AK.

McCart, P., and V.A. Pepper. 1969. Report of fish investigations along part of the Trans-Alaska pipeline, June – August 1969. Trans-Alaska Pipeline system. Anchorage, AK. 36 leaves.

Morris, W., and J. Winters. 2004. Evaluations of stream crossing structures for providing fish passage in a tundra stream; fish sampling of Fawn Creek, Prudhoe Bay, Alaska, 2004. Technical Report Number 04-05. Prepared by the Alaska Department of Natural Resources, Office of Habitat Management and Permitting for BP Exploration (Alaska) Inc., Environmental Study Group. 31 pp.

	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

Morris, W., and J. Winters. 2008. A survey of stream crossing structures in the North Slope oilfields. Technical Report Number 08-01. Alaska Department of Natural Resources, Office of Habitat Management and Permitting. 392 pp.

Natural Resource Group, Inc (NRG). 2002. Federal Energy Regulatory Commission, draft resource report 3 – fish, wildlife, and vegetation. Prepared for the Alaska Gas Producers Pipeline Team by Natural Resource Group, Inc, Draft 2, Revision 2. February 28, 2009. 84 pp. plus appendices. ExxonMobil independent information (EMII), from TransCanada Alaska Pipeline SharePoint site. AGPPT Reference information>AGPPT Reference Information>16.5 Env Reg US (13 October 2009).

Ott, A.G., and W.A. Morris. 1999. West channel Sagavanirktok River Spine Road crossing fisheries investigations, 1997-1999. Technical Report Number 99-5. Alaska Department of Fish and Game, Habitat and Restoration Division. 85 pp.

Schmidt, D., R. Neterer, C. Welling, D. Troy, and T. Olson. 1981. Fisheries resources along the Alaskan gas pipeline route (Prudhoe Bay to Yukon Territory) proposed by Northwest Alaskan Pipeline Company Final Report. Prepared for Northwest Alaskan Pipeline Company by LGL Alaska Research Associates. Fairbanks, AK. 608 pp.

U.S. Fish and Wildlife Service (USFWS). 1990. U.S. Fish and Wildlife Service Tetlin National Wildlife Refuge Fishery Management Plan. Fairbanks Fishery Assistance Office. Fairbanks, AK. 88 pp.

URS Corporation (URS). 2001. Point Thomson gas cycling project environmental report. Prepared for ExxonMobil Production Company, Alaska Interest – Joint Interest U.S. Anchorage, AK. URS Corporation, Alaska Operations. Anchorage, AK. 338 pp.

Valdez, R.A. 1976. Fisheries surveys of Tanana River tributaries along the Alcan gas pipeline route. Prepared for Gulf Interstate Engineering Company, Fairbanks, AK. Bio/West Inc., Logan, UT. 59 pp.

Van Hyning, J.M. 1976a. A reconnaissance of the fish resources of the Northwest Pipeline Corporation corridor: Alaska border to Delta Junction. Prepared for Gulf Interstate Engineering Company, Fairbanks, AK.

Van Hyning, J.M. 1976b. Salmon surveys of the Upper Tanana River, 1976. Prepared for Gulf Interstate Engineering Company. Fairbanks, AK. 31 pp.

Van Hyning, J.M. 1978. Fall and winter fish studies on the Upper Tanana River drainage. Prepared for Northwest Alaskan Pipeline Company. Aquabionics. Fairbanks, AK. 77 pp.

Viavant, T. 2003. Eastern North Slope Dolly Varden genetic stock identification and stock assessment. Annual report for Study 01-113. U.S. Fish and Wildlife Service, Federal Office of Subsistence Management, Federal Subsistence Fishery Monitoring Program Report. 41 pp.

Ward, D. 1974. Catalogue of streams, lakes, and coastal areas in Alaska along routes of the proposed gas pipeline from Prudhoe Bay, Alaska to the Alaskan/Canadian border. Canadian Arctic Gas Study Limited, Calgary, AB. Alaskan Arctic Gas Study Company.

ALASKA PipelineProject	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

Woodward-Clyde Consultants and Alaska Biological Research. 1983. Terrestrial environmental study for Point Thomson Development Project, Final Report. Prepared for Exxon Company USA. Woodward-Clyde Consultants, Anchorage, AK, and Alaska Biological Research, Fairbanks, AK.

APPENDIX C: FISH RESOURCE PERMIT**STATE OF ALASKA**
DEPARTMENT OF FISH AND GAME
P.O. BOX 115525
JUNEAU, ALASKA 99811-5525Permit #: **SF2010-199**Expires: **10/30/2010**Collections Report Due: **11/30/2010****FISH RESOURCE PERMIT**
(For Scientific/Educational Purposes)**This permit authorizes** Stewart Seaberg (whose signature is required on page 2 for permit validation)
personof ASRC Energy Service, Alaska, Inc at 2700 Gambell St., Suite 200, Anchorage, AK 99503
agency or organization addressto conduct the following activities from June 15, 2010 to September 30, 2010 in accordance with AS 16.05.930:**Purpose:** To collect baseline information for the development of engineering design, NEPA documentation and Alaska Pipeline Project permitting.**Location:** Rivers and streams within and adjacent to proposed natural gas pipeline alignments from approximately Prudhoe Bay to Valdez and Fairbanks to Port Alcan.**Species Collected:** Local species**Method of Capture:** Beach seine, minnow trap, fyke net, hook-and-line, backpack electrofisher (**Stipulation #9**)**Final Disposition:** Any number and species captured in each sampling stretch (**Stipulation #2**) may identified, measured and immediately released alive at capture site.
All accidental mortalities must be recorded and returned to the stream at the capture site.**-Continued on Back-**

COLLECTIONS REPORT DUE November 30, 2010. The report, using a template furnished by ADF&G, shall include species, numbers, dates, and locations of collection (datum/GPS coordinates in the decimal degrees format (dd.ddddd)) and disposition, and if applicable, sex, age, and breeding condition, and lengths and weights of fish. It must also include the date/time the local biologist was contacted for final authorization to carry out collecting activities. A completion report (abstract, background, methods, data, analysis), if not submitted with the collection report described above, must be submitted to the department by: April 2011. Data from such reports are considered public information. The report shall also include other information as may be required under the permit stipulations section.

GENERAL CONDITIONS, EXCEPTIONS AND RESTRICTIONS

1. This permit must be carried by person(s) specified during approved activities who shall show it on request to persons authorized to enforce Alaska's fish and game laws. This permit is nontransferable and will be revoked or renewal denied by the Commissioner of Fish and Game if the permittee violates any of its conditions, exceptions or restrictions. No redelegation of authority may be allowed under this permit unless specifically noted.
2. No specimens taken under authority hereof may be sold or bartered. All specimens must be deposited in a public museum or a public scientific or educational institution unless otherwise stated herein. Subpermittees shall not retain possession of live animals or other specimens.
3. The permittee shall keep records of all activities conducted under authority of this permit, available for inspection at all reasonable hours upon request of any authorized state enforcement officer.
4. Permits will not be renewed until the department has received detailed reports, as specified above.
5. **UNLESS SPECIFICALLY STATED HEREIN, THIS PERMIT DOES NOT AUTHORIZE the exportation of specimens or the taking of specimens in areas otherwise closed to hunting and fishing; without appropriate licenses required by state regulations; during closed seasons; or in any manner, by any means, at any time not permitted by those regulations.**

Fish Resource Permit Coordinator
Division of Sport Fish
Director
Division of Sport Fish4/9/10
Date

SF2010-199 continued (page 2 of 2)

Authorized Personnel: The following persons may perform collecting activities under terms of this permit:

Stacey Aughe, Wendell Brower, Josh Buckmaster, Lawrence Dugan, Dave Erikson, Dennis Gnath, Kim Holmes, Kathryn Johnson, Megan Larson, Darrin Lawless, Mark Norman, Marianne Profita, Stephen Rideout, Michelle Russell, Mac Salway, Stewart Seaberg, Al Townsend, Michelle Turner, David Waltemyer, John Westlund, Simon Wigren

Employees and volunteers under the direct supervision of, and in the presence of, one of the authorized personnel listed above may participate in collecting activities under terms of this permit.

Permit Stipulations:

- 1) The local Area Management Biologist (AMB), Dan Bosch (267-2153; dan.bosch@alaska.gov) Anchorage; Audra Brase (459-7244; audra.brase@alaska.gov) Tanana River; John Burr (459-7220; john.burr@alaska.gov) Yukon River; Sam Hochhalter (424-3212 or 398-1457; samuel.hochhalter@alaska.gov) Cordova; Brendan Scanlon (443-5796 or 460-7567; brendan.scanlon@alaska.gov) Northwest/Arctic; Mark Somerville (822-3309; mark.somerville@alaska.gov), Upper Copper/Upper Susitna Rivers, must be notified prior to you engaging in any collecting activities. *The time/date of this contact must be included in your collections report (using the "data submission form" furnished by ADF&G).* These AMBs can modify collecting methods, as well as limit collections by species by number, time and location.
- 2) One to three stretches of stream should be sampled per system the pipeline will cross. The dimensions of each sampled stretch should be stream-width wide by 40 times the stream width.
- 3) A valid Alaska sport-fishing license must be in the possession of any individual using hook-and-line gear.
- 4) Any instance of >10% collecting mortality requires sampling at a site to cease and the AMB contacted.
- 5) Each piece of unattended sampling gear must be: 1) labeled with the permittee's name, telephone number, and permit number, 2) securely tied to substrate, 3) allowed to soak no more than twenty-four hours at a time, 4) located with GPS coordinates, and 5) accounted for/ removed at the conclusion of sampling.
- 6) Salmon eggs used as bait in traps must either be: sterilized commercial eggs or, if raw, be disinfected prior to use. A 10-minute soak in 1/100 Betadine solution or some other iodophor disinfectant is adequate.
- 7) Gloves (cotton, etc.), boots, and collecting gear should be disinfected between streams to reduce the potential of pathogen transmission. A wash/rinse in 1/100 Betadine solution is adequate.
- 8) If anadromous fish species new to permitted streams and rivers are found, the permit holder will work closely with ADF&G to see that information is included in the database for the *Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes*. Anadromous fish include *Oncorhynchus spp.*, Arctic char, Dolly Varden, sheefish, smelts, lamprey, whitefish, and sturgeon. Please direct questions to J. Johnson, 267-2337 or j.johnson@alaska.gov
- 9) Electroshocking is currently discouraged, but not prohibited by the department. *Electroshockers may not be used in anadromous waters in the presence of adult salmonids, adult trout or adult char. Snorkel a stream stretch before sampling if fish of concern may be present.* In areas where other means of capture are not feasible, only one pass is allowed. Mortalities or injuries must be reported on the DATA SUBMISSION FORM. Operators of electroshockers must have formal training.
- 10) Atlantic salmon and other non-native invasive aquatic species encountered should be killed. Contact the nearest ADF&G office (**Stipulation # 1**) immediately with species identification or description, capture or sighting location, number captured, size, and sex. Preserve/turn in the whole specimen to the nearest ADF&G office.
- 11) A copy of this permit, including any amendments, must be made available at all field collection sites and project sites for inspection upon request by a representative of the department or a law enforcement officer.
- 12) Issuance of this permit does not absolve the permittee from compliance in full with any and all other applicable federal, state, or local laws, regulations, or ordinances.
- 13) A report of collecting activities, referenced to this fish resource permit number, must be submitted to the Alaska Department of Fish and Game, Division of Sport Fish HQ, P.O. Box 115525, Juneau, AK 99811-5525, Attention: Bob Piorkowski (465-8109; Robert.Piorkowski@alaska.gov), and to the AMBs listed under Stipulation #1 within 30 days after the expiration of this permit. This report must summarize the number of fish captured by date, by location (provide GPS coordinates and datum), and by species, and the fate of those fish. Fish length, weight, sex, and age data should be included if collected. A completion report (abstract/background/methods /data/analysis), if not submitted with the collection report described above, must be submitted to the department within six months of the expiration of the permit. Data from such reports are considered public information. A report is required whether or not collecting activities were undertaken.

PERMIT VALIDATION requires permittee's signature agreeing to abide by permit conditions before beginning collecting activities:

Signature of Permittee

cc: Audra Brase, Division of Sport Fish, Fairbanks
Brendan Scanlon, Division of Sport Fish, Fairbanks
Mark Somerville, Division of Sport Fish, Glennallen
Sam Hochhalter, Division of Sport Fish, Cordova
Bert Lewis, Division of Com Fish, Cordova
Mike Daigneault, Division of Habitat, Anchorage

Dave Rutz, Division of Sport Fish, Palmer
John Burr, Division of Sport Fish, Fairbanks
Dan Bosch, Division of Sport Fish, Palmer
Bonnie Borba, Division of Com Fish, Fairbanks
Mac McLean, Division of Habitat, Fairbanks
Fish and Wildlife Protection, Fairbanks/Palmer

ALASKA PipelineProject	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

APPENDIX D: SUMMARY REPORT OF FISH COLLECTION ACTIVITY FOR 2010

Page 1 of 9

ADF&G permit no. SF2010-189

Summary report of fish collection activity.

The area biologist was contacted on: Various Contacts Made

Location ID (optional)	Latitude	Longitude	Date	Coordinate collection method	Name of water body	Date	Observer name (first name, middle initial, last name)	Fish collection method	Species	Life stage	Length (mm) in estimates/range	Length method	Weight (g)	Sex	Age	Age method	ADP&S CCL	Additional count (1)	Disposition (1)	Additional count (2)	Disposition (2)	Comments
ALC32	88.811	-46.0861	NA388	GPS	Polygon Creek	8/8/2010	David P. Pearce, D.V. Marios, Josh Buckmaster	Minnow Trap	Arctic grayling	adult	100	fork								measured and released		
ALC33	88.847	-46.3436	NA388	GPS	EF Koozuvik River	8/8/2010	Jim E. Starnes, Josh Buckmaster	Minnow Trap	Arctic grayling	juvenile	125	fork								measured and released		
ALC34	88.847	-46.3436	NA388	GPS	EF Koozuvik River	8/8/2010	Jim E. Starnes, Josh Buckmaster	Minnow Trap	Arctic grayling	juvenile	148	fork								measured and released		
ALC35	88.848	-46.4114	NA388	GPS	Kuparuk River	8/8/2010	Jim E. Starnes, Josh Buckmaster	Angling	Arctic grayling	adult	261	fork								measured and released		
ALC36	88.895	-46.3813	NA388	GPS	Galbreath Lake Tributary #5	8/11/2010	Jim E. Starnes, Josh Buckmaster	Angling	Arctic grayling	adult	160	fork								measured and released		
ALC37	88.895	-46.3813	NA388	GPS	Galbreath Lake Tributary #5	8/11/2010	Jim E. Starnes, Josh Buckmaster	Angling	Arctic grayling	adult	160	fork								measured and released		
ALC38	88.895	-46.3813	NA388	GPS	Galbreath Lake Tributary #5	8/11/2010	Jim E. Starnes, Josh Buckmaster	Angling	Arctic grayling	adult	260	fork								measured and released		
ALC39	88.895	-46.3813	NA388	GPS	Galbreath Lake Tributary #5	8/11/2010	Jim E. Starnes, Josh Buckmaster	Angling	Arctic grayling	adult	260	fork								measured and released		
ALC40	88.895	-46.3813	NA388	GPS	Galbreath Lake Tributary #5	8/11/2010	Jim E. Starnes, Josh Buckmaster	Angling	Arctic grayling	adult	260	fork								measured and released		
ALC41	88.895	-46.3813	NA388	GPS	Galbreath Lake Tributary #5	8/11/2010	Jim E. Starnes, Josh Buckmaster	Angling	Arctic grayling	adult	260	fork								measured and released		
ALC42	88.895	-46.3813	NA388	GPS	Galbreath Lake Tributary #5	8/11/2010	Jim E. Starnes, Josh Buckmaster	Angling	Arctic grayling	adult	260	fork								measured and released		
ALC43	88.895	-46.3813	NA388	GPS	Galbreath Lake Tributary #5	8/11/2010	Kimberly A. Holmes, Josh Buckmaster	Visual Observation, Ground	general fish observation - no species information	juvenile	56	total								Dead and released		
ALC44	88.895	-46.3813	NA388	GPS	Galbreath Lake Tributary #5	8/11/2010	Kimberly A. Holmes, Josh Buckmaster	Visual Observation, Ground	general fish observation - no species information	adult	260	total								Dead and released		
ALC45	88.895	-46.3813	NA388	GPS	Galbreath Lake Tributary #5	8/11/2010	Kimberly A. Holmes, Josh Buckmaster	Minnow Trap	Arctic grayling	adult	86	fork								measured and released		
ALC46	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC47	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC48	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC49	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC50	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC51	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC52	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC53	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC54	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC55	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC56	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC57	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC58	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC59	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC60	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC61	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC62	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC63	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC64	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC65	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC66	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC67	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC68	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC69	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC70	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC71	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC72	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC73	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC74	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC75	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC76	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC77	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC78	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC79	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC80	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC81	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC82	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC83	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC84	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC85	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC86	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC87	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC88	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC89	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC90	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC91	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC92	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC93	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC94	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC95	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC96	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC97	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC98	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC99	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total								Dead and released		
ALC100	88.895	-46.3813	NA388	GPS	Vanish And Holder Creeks	8/25/2010	David P. Pearce, B.I.V. Marios, Josh Buckmaster	Visual Observation, Ground	Dolly Varden	adult	100	total						</				

ADFG & log summary report of fish collection activity																						
The area biologist was contacted on: Various Contacts Made																						
acronym ID (optional)	Latitude	Longitude	Date	Coordinate reference method	Name of water body	Date	Observer name (first name, middle initial, last name)	Fish collection method	Species	Life stage	Length (mm) to estimate/range	Length method	Weight (g)	Sex	Age	Age method	ADFG & CCL	Adult count (1)	Disposition (1)	Additional count (2)	Disposition (2)	Comments
ALI-14	37.8596	-122.7152	NA-2000	GPS	Badman Creek	8/22/2010	David P. Pearce, Adrienne Stutes	Minnow Trap	Dolly Varden	juvenile	160	fork							reassured and released			
ALI-14	37.8596	-122.7152	NA-2000	GPS	Badman Creek	8/22/2010	David P. Pearce, Adrienne Stutes	Angling	Dolly Varden	adult	240	fork							reassured and released			
ALI-14	37.8596	-122.7152	NA-2000	GPS	Badman Creek	8/22/2010	David P. Pearce, Adrienne Stutes	Minnow Trap	silvery sculpin	juvenile	56	fork							reassured and released			
ALI-14	37.8596	-122.7152	NA-2000	GPS	Badman Creek	8/22/2010	David P. Pearce, Adrienne Stutes	Minnow Trap	silvery sculpin	juvenile	66	fork							reassured and released			
ALI-14	37.8596	-122.7152	NA-2000	GPS	Badman Creek	8/22/2010	David P. Pearce, Adrienne Stutes	Minnow Trap	silvery sculpin	juvenile	66	fork							reassured and released			
ALI-77	37.6422	-124.7632	NA-2000	GPS	Evans Area Creek	8/22/2010	Bill V. Morris, Josh Euckmaster	Angling	Arctic grayling	adult	280	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	48	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	51	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	57	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	58	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643	NA-2000	GPS	W.F. Koyukuk River #1	8/21/2010	David P. Pearce, Adrienne Stutes	Seining	Arctic grayling	juvenile	82	fork							reassured and released			
ALI-96	37.6146	-124.7643																				

ADFG permit no. SF2010-189 Summary report of fish collection activity.																						
The area biologist was contacted on: Various Contacts Made																						
Incident ID (Optional)	Latitude	Longitude	Date	Coordinate confirmation method	Name of water body	Date	Observer name (first name, middle initial, last name)	Fish collection method	Species	Life stage	Length (mm) in estimate/range	Length (mm)	Weight (g)	Sex	Age	Age method	ADFG's OCL	Additional count (1)	Disposition (1)	Additional count (2)	Disposition (2)	Comments
AL131	37.430	-50.008	NA200	GPS	One-Cone Creek	7/21/2010	Bill V. Mawds Simon Wagon	Backpack Electrofishing	Arctic sculpin	Juvenile	70	totk							released and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Backpack Electrofishing	Arctic grayling	Juvenile	50	totk							released and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008	NA200	GPS	Union Gulch	7/22/2010	Bill V. Mawds Simon Wagon	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Dead and released			
AL136	37.430	-50.008																				

APP PROPRIETARY

ADF&G permit no. SF2010-189 Summary report of fish collection activity. The area biologist was contacted on: Various Contacts Made																						
Incon ID (opt anal)	Latitude	Longitude	Date	Channel contaminant method	Name of water body	Date	Observer name (first name, middle initial, last name)	Fish collection method	Species	Life stage	Length (mm) n.a. estimate/range	Length method	Weight (g)	Sex	Age	Agn method	ADFS COL	Additional count (1)	Disposition (1)	Additional count (2)	Disposition (2)	Comments
AL237-1	88.0916	-56.5100	NAD83 GPS		Lm River	8/14/2010	John P. O'Brien, Collie Gates	Minnow Trap	Sinysculpin	adult	82	total							measured and released			
AL237-1	88.0916	-56.5100	NAD83 GPS		Lm River	8/14/2010	John P. O'Brien, Collie Gates	Minnow Trap	Sinysculpin	adult	109	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	80	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	80	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	80	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron	Minnow Trap	Chinook salmon	juvenile	85	total							measured and released			
AL237-2	88.8945	-56.5250	NAD83 GPS		Lm River	7/26/2010	Bil V. Mawds, Simon Wlgron															

ADP&G permit no. SF2010-169																						
Summary report of fish collection activity																						
The area biologist was contacted on: Various Contacts Made																						
acronym ID (if present)	Latitude	Longitude	Date	Coordinate collection method	Name of water body	Date	Observer name (first name, middle initial, last name)	Fish collection method	Species	Life stage	Length (mm) in estimate/range	Length method	Weight (g)	Sex	Age	Age method	ADP&G CCL	Adriatic count (1)	Disposition (1)	Adriatic count (2)	Disposition (2)	Comments
AL252	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	50	total							Died and released			
AL253	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	50	total							Died and released			
AL254	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	50	total							measured and released			
AL255	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	51	total							Died and released			
AL256	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	52	total							Died and released			
AL257	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	53	total							Died and released			
AL258	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	54	total							Died and released			
AL259	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	55	total							Died and released			
AL260	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	56	total							Died and released			
AL261	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	57	total							Died and released			
AL262	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	58	total							Died and released			
AL263	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	59	total							measured and released			
AL264	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	59	total							measured and released			
AL265	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	60	total							Died and released			
AL266	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	60	total							measured and released			
AL267	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	61	total							Died and released			
AL268	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	62	total							Died and released			
AL269	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	62	total							measured and released			
AL270	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	63	total							Died and released			
AL271	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	63	total							measured and released			
AL272	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	64	total							Died and released			
AL273	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	64	total							measured and released			
AL274	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	65	total							Died and released			
AL275	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	65	total							measured and released			
AL276	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	66	total							Died and released			
AL277	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	66	total							measured and released			
AL278	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	67	total							Died and released			
AL279	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	67	total							measured and released			
AL280	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	68	total							Died and released			
AL281	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	68	total							measured and released			
AL282	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	69	total							Died and released			
AL283	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	69	total							measured and released			
AL284	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	70	total							Died and released			
AL285	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	70	total							measured and released			
AL286	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	71	total							Died and released			
AL287	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	71	total							measured and released			
AL288	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	72	total							Died and released			
AL289	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	72	total							measured and released			
AL290	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	73	total							Died and released			
AL291	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	73	total							measured and released			
AL292	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	74	total							Died and released			
AL293	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	74	total							measured and released			
AL294	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							Died and released			
AL295	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	75	total							measured and released			
AL296	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	76	total							Died and released			
AL297	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	76	total							measured and released			
AL298	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	77	total							Died and released			
AL299	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	77	total							measured and released			
AL300	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	78	total							Died and released			
AL301	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	78	total							measured and released			
AL302	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	79	total							Died and released			
AL303	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	79	total							measured and released			
AL304	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	80	total							Died and released			
AL305	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	80	total							measured and released			
AL306	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	81	total							Died and released			
AL307	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	81	total							measured and released			
AL308	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	82	total							Died and released			
AL309	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	82	total							measured and released			
AL310	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	83	total							Died and released			
AL311	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	83	total							measured and released			
AL312	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	84	total							Died and released			
AL313	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	84	total							measured and released			
AL314	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	85	total							Died and released			
AL315	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	85	total							measured and released			
AL316	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	86	total							Died and released			
AL317	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	86	total							measured and released			
AL318	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	87	total							Died and released			
AL319	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	87	total							measured and released			
AL320	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	88	total							Died and released			
AL321	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	88	total							measured and released			
AL322	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	89	total							Died and released			
AL323	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	89	total							measured and released			
AL324	33.5472	-50.7190	NA200	GPS	Fish Creek	01/16/2010	John P. O'Brien, Collie Gates	Visual Observation, Ground	Arctic grayling	Juvenile	90	total										

AF&G permit no. SF2010-109

Summary report of fish collection activity.

The area biologist was contacted on: Various Contacts Made

Location ID (GPS point)	Latitude	Longitude	Date	Channel name, contaminant or method	Name of water body	Date	Observer name (first name, middle initial, last name)	Fish collection method	Species	Life stage	Length (mm) k = estimates/ranges	Length method	Weight (g)	Sex	Age	Age method	ADP&S CCL	Additional occurrence (1)	Disposition (1)	Additional count (2)	Disposition (2)	Comments
AL250	83.4410	-60.8302	NA-D00	GPS	Kanai River	8/26/2010	John P. O'Brien, Callie Gates	Anchovy	Arctic grayling	adult	265	total							measured and released			
AL250	83.4410	-60.8302	NA-D00	GPS	Kanai River	8/26/2010	John P. O'Brien, Callie Gates	Visual Observation, Ground	Arctic grayling	adult	265	total							Died and released			
AL250	83.4410	-60.8302	NA-D00	GPS	Kanai River	8/26/2010	John P. O'Brien, Callie Gates	Visual Observation, Ground	Arctic grayling	adult	265	total							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	47	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	50	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	52	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	55	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Waltenryer, Kimberly A. Holmes	Searing	Arctic grayling	juvenile	56	fork							measured and released			
AL271	83.2376	-60.3483	NA-D00	CPS	SF WF Dall River	8/25/2010	David L. Wal															

AF&G permit no. SF2010-100

Summary report of fish collection activity

The area biologist was contacted on: Various Contacts Made

Location ID (optional)	Latitude	Longitude	Date	Channel name, collector or method	Name of water body	Date	Observer name (first name, middle initial, last name)	Fish collection method	Species	Life stage	Length (mm) estimate/range	Length method	Weight (g)	Sex	Age	Age method	ADFS/CCL	Additional count (1)	Disposition (1)	Additional count (2)	Disposition (2)	Comments
AL117	35.4302	-46.8513	NA000	GPS	Tobovine River	8/26/2010	David L. Watteryer, Katherine Johnson	Backpack Electrofishing	Arctic grayling	juvenile	26	fork							measured and released			
AL117	35.4302	-46.8513	NA000	GPS	Tobovine River	8/26/2010	David L. Watteryer, Katherine Johnson	Backpack Electrofishing	Arctic grayling	juvenile	22	fork							measured and released			
AL117	35.4302	-46.8513	NA000	GPS	Tobovine River	8/26/2010	David L. Watteryer, Katherine Johnson	Backpack Electrofishing	Arctic grayling	juvenile	28	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	35	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	35	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	42	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	42	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA000	GPS	Tobovine River	7/17/2010	Stephen D. Robour, Callie Gates	Backpack Electrofishing	Arctic grayling	juvenile	45	fork							measured and released			
AL117	35.4304	-46.8527	NA00																			



2010 FISH COMPLETION REPORT, PERMIT SF2010-199

APP PROPRIETARY

USAG-UR-SRWDF-000002
MAY 2011
REVISION 0

ADFG permit no. SF2010-169																						
Summary report of fish collection activity																						
The area biologist was contacted on: Various Contacts Made																						
Recorder ID (last, first)	Latitude	Longitude	Date in	Channel collection method	Name of water body	Date	Observer name (first name, middle initial, last name)	Fish collection method	Species	Life stage	Length (mm) L x S (mm) (range)	Length (mm)	Weight (g)	Sex	Age	Age method	ADFG SCL	Additional count (1)	Disposition (1)	Additional count (2)	Disposition (2)	Comments
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	55	55	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	56	56	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	56	56	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	56	56	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	56	56	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson	Minnow Trap	minnow stickleback	adult	57	57	100						measured and released			
F400	70.1426	-147.2553	NA200	GPS	Side Channel Shallow River	7/25/2010	Kimberly A. Holmes, Josh Dickinson															

ALASKA PipelineProject	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	UASG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

APPENDIX E: STREAM SUBSTRATE

FIELD TARGET	SPREAD	LOCATION NAME	Boulder	Cobble	Gravel	Organic	Sand	Silt
AL215	Atigun Pass to Yukon River	ROSIE CREEK		X	X		X	
AL216.1	Atigun Pass to Yukon River	UNMARKED STREAM				X	X	X
AL217	Atigun Pass to Yukon River	N.B. TRIB. TO JACKSON SLOUGH		X	X		X	
AL217.1	Atigun Pass to Yukon River	M.B. TRIB. TO JACKSON SLOUGH		X	X		X	
AL230	Atigun Pass to Yukon River	ELWOOD CREEK #3		X	X		X	
AL231.1	Atigun Pass to Yukon River					X		X
AL225	Atigun Pass to Yukon River	CROSSROAD CREEK #2				X		X
AL224	Atigun Pass to Yukon River	CROSSROAD CREEK #1				X		X
AL239	Atigun Pass to Yukon River	DOUGLAS CREEK		X	X		X	
AL238	Atigun Pass to Yukon River	UNNAMED TRIB. #3 TO JIM RIVER			X	X		X
AL234	Atigun Pass to Yukon River	UNNAMED TRIB. #3 TO GRAYLING LAKE				X	X	X
AL245	Atigun Pass to Yukon River	PROSPECT CREEK		X	X		X	
AL246	Atigun Pass to Yukon River	LITTLE NASTY CREEK				X	X	X
AL251	Atigun Pass to Yukon River	PUNG'S CROSSING CREEK		X	X	X		
AL252	Atigun Pass to Yukon River	ALDER MOUNTAIN CREEK				X		X
AL255	Atigun Pass to Yukon River	S.F. FISH CREEK		X	X		X	
AL256	Atigun Pass to Yukon River	UNNAMED TRIB. #1 KANUTI RIVER		X	X	X		
AL263	Atigun Pass to Yukon River	UNNAMED TRIB. TO FINGER MOUNTAIN CREEK				X	X	
AL266	Atigun Pass to Yukon River	SMOKEY CREEK				X		
AL262	Atigun Pass to Yukon River	OLSON'S LAKE CREEK		X		X	X	X
AL267	Atigun Pass to Yukon River	M.B. FINGER MOUNTAIN CREEK				X	X	
AL271	Atigun Pass to Yukon River	S.B. W.F. DALL RIVER		X	X	X	X	
AL274	Atigun Pass to Yukon River	FORT HAMLIN CREEK #1				X	X	
AL293	Atigun Pass to Yukon River	BURBOT CREEK			X	X	X	X
AL216	Atigun Pass to Yukon River	S.F. ROSIE CREEK			X			X
AL221	Atigun Pass to Yukon River	N.B. S.F. WINDY CREEK				X		
AL222	Atigun Pass to Yukon River	S.F. WINDY CREEK				X		
AL218	Atigun Pass to Yukon River	TRENT'S TRICKLE CREEK	X	X	X		X	
AL223	Atigun Pass to Yukon River	CHAPMAN CREEK			X	X		
AL226	Atigun Pass to Yukon River	S.F. KOYUKUK RIVER		X	X			
AL227	Atigun Pass to Yukon River	ABA-DABA CREEK	X	X	X		X	
AL232	Atigun Pass to Yukon River	UNNAMED TRIB. #1 TO GRAYLING LAKE			X	X		
AL233	Atigun Pass to Yukon River	UNNAMED TRIB. #2 TO GRAYLING LAKE				X		
AL236	Atigun Pass to Yukon River	UNNAMED TRIB. #2 TO JIM RIVER			X	X		
AL237	Atigun Pass to Yukon River	JIM RIVER		X	X			
AL237	Atigun Pass to Yukon River	JIM RIVER		X	X	X		
AL244	Atigun Pass to Yukon River	UNNAMED TRIB. #1 TO PROSPECT CREEK				X		
AL247	Atigun Pass to Yukon River	UNNAMED TRIB. #1 TO LITTLE NASTY CREEK			X	X	X	
AL250	Atigun Pass to Yukon River	S.F. BONANZA CREEK		X	X			
AL253	Atigun Pass to Yukon River	FISH CREEK		X	X			
AL254	Atigun Pass to Yukon River	M.F. FISH CREEK	X	X	X			
AL257	Atigun Pass to Yukon River	UNNAMED TRIB. #2 KANUTI RIVER		X		X	X	
AL258	Atigun Pass to Yukon River	KANUTI RIVER	X	X	X	X		
AL261	Atigun Pass to Yukon River	UNNAMED TRIB. #2 TO OLSON'S LAKE CREEK				X		
AL260.1	Atigun Pass to Yukon River	UNNAMED TRIB. #1 TO OLSON'S LAKE CREEK				X		
AL264	Atigun Pass to Yukon River	FINGER MOUNTAIN CREEK			X	X	X	
AL265	Atigun Pass to Yukon River	EIGHT-FIVE CREEK				X	X	

FIELD TARGET	SPREAD	LOCATION NAME	Boulder	Cobble	Gravel	Organic	Sand	Silt
AL268	Atigun Pass to Yukon River	M.B. W.F. DALL RIVER				X		
AL272	Atigun Pass to Yukon River	UNNAMED TRIB. #1 TO S.B. W.F. DALL RIVER		X			X	X
AL273	Atigun Pass to Yukon River	DALL LAKES CREEK			X	X	X	X
AL196	Atigun Pass to Yukon River	UNION GULCH		X	X			X
AL206	Atigun Pass to Yukon River	MARY ANGLE CREEK		X	X	X		X
AL208	Atigun Pass to Yukon River	CLARA CREEK			X		X	X
AL182	Atigun Pass to Yukon River	LINDA CREEK		X	X		X	
AL181	Atigun Pass to Yukon River	N.F. SUKAPACK CREEK		X	X		X	
AL186	Atigun Pass to Yukon River	NUGGET CREEK		X	X		X	
AL184	Atigun Pass to Yukon River	SHEEP CREEK #1			X		X	X
AL198	Atigun Pass to Yukon River	MINNIE CREEK		X	X		X	X
AL205	Atigun Pass to Yukon River	MARION CREEK		X	X		X	X
AL237	Atigun Pass to Yukon River	JIM RIVER		X	X		X	
AL145	Atigun Pass to Yukon River	W.F. N.F. CHANDALAR RIVER		X	X		X	
AL141	Atigun Pass to Yukon River	UNNAMED TRIB. #1 TO W.F. N.F. CHANDALAR RIVER		X	X		X	X
AL142	Atigun Pass to Yukon River	UNNAMED TRIB. #2 TO W.F. N.F. CHANDALAR RIVER		X	X		X	X
AL143	Atigun Pass to Yukon River	W.F. N.F. CHANDALAR RIVER		X	X	X	X	X
AL144	Atigun Pass to Yukon River	W.F. N.F. CHANDALAR RIVER		X	X		X	
AL146	Atigun Pass to Yukon River	W.F. N.F. CHANDALAR RIVER		X	X		X	X
AL147	Atigun Pass to Yukon River	ANDY'S CREEK		X	X		X	
AL148	Atigun Pass to Yukon River	TRUCK STOP CREEK #1		X	X		X	
AL149	Atigun Pass to Yukon River	UNNAMED TRIB. #1 TO DIETRICH RIVER		X	X	X	X	X
AL150	Atigun Pass to Yukon River	ONE-SEVEN-SIX MILE CREEK		X	X		X	
AL151	Atigun Pass to Yukon River	BEAVER BROOK CREEK		X	X		X	X
AL152	Atigun Pass to Yukon River	BEAR TRACK CREEK		X	X		X	
AL154	Atigun Pass to Yukon River	UNNAMED TRIB. #3 TO DIETRICH RIVER		X	X		X	X
AL155	Atigun Pass to Yukon River	UNNAMED TRIB. #4 TO DIETRICH RIVER		X	X		X	
AL156	Atigun Pass to Yukon River	NUTIRWIK RIVER		X	X		X	
AL159	Atigun Pass to Yukon River	TRACEY'S TRICKLE OR UNNAMED CREEK #1		X	X		X	
AL157	Atigun Pass to Yukon River	UNNAMED TRIB. #5 TO DIETRICH RIVER		X	X	X	X	X
AL246	Atigun Pass to Yukon River	LITTLE NASTY CREEK			X	X	X	
AL172	Atigun Pass to Yukon River	DISASTER CREEK		X	X		X	
AL176	Atigun Pass to Yukon River	DIETRICH RIVER		X	X		X	X
AL177	Atigun Pass to Yukon River	EVA'S ALVA CREEK		X	X		X	
AL181	Atigun Pass to Yukon River	N.F. SUKAPACK CREEK		X	X		X	X
AL218	Atigun Pass to Yukon River	TRENT'S TRICKLE CREEK		X	X	X	X	X
AL244	Atigun Pass to Yukon River	UNNAMED TRIB. #1 TO PROSPECT CREEK			X	X		X
AL250	Atigun Pass to Yukon River	S.F. BONANZA CREEK		X	X		X	
AL251	Atigun Pass to Yukon River	PUNG'S CROSSING CREEK		X	X	X		X
AL247	Atigun Pass to Yukon River	UNNAMED TRIB. #1 TO LITTLE NASTY CREEK			X		X	
AL240	Atigun Pass to Yukon River	UNNAMED TRIB. TO GAS BUBBLE SLOUGH			X	X		X
N/A	Atigun Pass to Yukon River	TRIB. TO CHANDALAR		X	X		X	X
AL193	Atigun Pass to Yukon River	M.F. KOYUKUK RIVER #2		X	X			X
AL194	Atigun Pass to Yukon River	HAMMOND RIVER		X	X			X
AL197	Atigun Pass to Yukon River	M.F. KOYUKUK RIVER #3		X	X		X	X
AL293	Atigun Pass to Yukon River	BURBOT CREEK				X		X

FIELD TARGET	SPREAD	LOCATION NAME	Boulder	Cobble	Gravel	Organic	Sand	Silt
AL292	Atigun Pass to Yukon River	WOOD CHOPPER CREEK			X	X		X
AL289	Atigun Pass to Yukon River	5 MILE AIRSTRIP CREEK			X	X		X
AL288	Atigun Pass to Yukon River	PHelps CREEK		X	X	X	X	X
AL279	Atigun Pass to Yukon River	N.F. RAY RIVER		X	X			X
AL288.1	Atigun Pass to Yukon River					X		X
AL287	Atigun Pass to Yukon River	UNNAMED TRIB. #3 TO RAY RIVER			X	X		X
AL286	Atigun Pass to Yukon River	UNNAMED TRIB. #2 TO RAY RIVER			X	X		X
AL284	Atigun Pass to Yukon River	EIGHT-O-CLOCK CREEK		X	X			X
AL285	Atigun Pass to Yukon River	UNNAMED TRIB. #1 TO RAY RIVER		X	X	X		X
AL284.1	Atigun Pass to Yukon River			X	X	X		X
AL283	Atigun Pass to Yukon River	FORT HAMLIN HILLS CREEK			X	X		X
AL282	Atigun Pass to Yukon River	UNNAMED TRIB. #2 TO NF RAY RIVER						X
AL278	Atigun Pass to Yukon River	W.F. FED CREEK			X	X		X
AL294	Atigun Pass to Yukon River	WOODCAMP CREEK			X	X		X
AL281	Atigun Pass to Yukon River	UNNAMED TRIB. #1 TO N.F. RAY RIVER				X		X
AL274	Atigun Pass to Yukon River	FORT HAMLIN CREEK #1			X	X		X
AL273	Atigun Pass to Yukon River	DALL LAKES CREEK			X	X		X
AL272	Atigun Pass to Yukon River	UNNAMED TRIB. #1 TO S.B. W.F. DALL RIVER		X	X	X		X
AL271	Atigun Pass to Yukon River	S.B. W.F. DALL RIVER			X			X
AL262	Atigun Pass to Yukon River	OLSON'S LAKE CREEK		X	X	X	X	
AL160	Atigun Pass to Yukon River	RUFF CREEK		X				X
AL161	Atigun Pass to Yukon River	STEEP CREEK		X				X
AL162	Atigun Pass to Yukon River	UGH CREEK		X	X			X
AL163	Atigun Pass to Yukon River	UNNAMED TRIB. #7 TO DIETRICH CREEK		X	X		X	X
AL164.1	Atigun Pass to Yukon River			X	X			X
AL168	Atigun Pass to Yukon River	UNNAMED TRIB. #8 TO DIETRICH CREEK			X	X	X	X
AL167	Atigun Pass to Yukon River	SNOWDEN CREEK		X	X		X	X
AL169	Atigun Pass to Yukon River	UNNAMED TRIB. #9 TO DIETRICH CREEK		X	X			X
AL170	Atigun Pass to Yukon River	UNNAMED TRIB. #10 TO DIETRICH CREEK		X	X	X	X	X
AL180	Atigun Pass to Yukon River	MF KOYUKUK RIVER #1		X	X		X	
AL171	Atigun Pass to Yukon River	UNNAMED TRIB. #11 TO DIETRICH CREEK		X	X		X	
AL173.1	Atigun Pass to Yukon River	UNNAMED TRIB. #12 TO DIETRICH CREEK				X		X
AL174	Atigun Pass to Yukon River	BOCKMAN CREEK		X	X		X	X
AL164	Atigun Pass to Yukon River	STANZIA CREEK		X	X			X
N/A	Atigun Pass to Yukon River			X	X			X
AL409	Delta Junction to Tok	UNNAMED CREEK TO LAKE				X	X	X
AL417	Delta Junction to Tok					X		
AL410	Delta Junction to Tok	SEARS CREEK	X		X		X	
AL406	Delta Junction to Tok	UNNAMED TRIB. #4 TANANA RIVER				X		
AL408	Delta Junction to Tok	DRY CREEK		X	X		X	
AL391	Fairbanks to Delta Junction	ROSA CREEK #2		X		X	X	X
AL390	Fairbanks to Delta Junction	ROSA CREEK #1				X	X	X
AL389	Fairbanks to Delta Junction	W.B. #2 ROSA CREEK			X		X	X
AL388	Fairbanks to Delta Junction	W.B. #1 ROSA CREEK				X		X
AL371	Fairbanks to Delta Junction	SALCHA RIVER		X	X	X	X	X
AL369	Fairbanks to Delta Junction	MILLION DOLLAR CREEK #1				X		
AL365	Fairbanks to Delta Junction	UNNAMED TRIB. TO LITTLE SALCHA RIVER				X		
AL363	Fairbanks to Delta Junction	MILLION DOLLAR CREEK #4				X		

FIELD TARGET	SPREAD	LOCATION NAME	Boulder	Cobble	Gravel	Organic	Sand	Silt
AL364	Fairbanks to Delta Junction	MILLION DOLLAR CREEK #5				X		
AL383	Fairbanks to Delta Junction	UNNAMED TRIB. #3 TO S.F. MINTON CREEK				X		X
AL384	Fairbanks to Delta Junction	S.F. MINTON CREEK				X		X
AL386	Fairbanks to Delta Junction	UNNAMED TRIB. #5 TO S.F. MINTON CREEK				X		X
AL370	Fairbanks to Delta Junction	UNNAMED TRIB. #1 TO SALCHA RIVER					X	X
AL366	Fairbanks to Delta Junction	LITTLE SALCHA RIVER			X		X	X
AL368	Fairbanks to Delta Junction	UNNAMED TRIB TO KANPEOVER CREEK					X	X
AL367	Fairbanks to Delta Junction	KANPEOVER OR 219 CREEK #1					X	X
F501	Point Thomson to Prudhoe Bay	POINT THOMSON			X	X	X	X
F480	Point Thomson to Prudhoe Bay	POINT THOMSON			X	X	X	X
F479	Point Thomson to Prudhoe Bay	POINT THOMSON			X	X		X
F503	Point Thomson to Prudhoe Bay	POINT THOMSON		X		X	X	X
F504	Point Thomson to Prudhoe Bay	POINT THOMSON			X	X		X
F493	Point Thomson to Prudhoe Bay	POINT THOMSON		X	X	X	X	X
F476	Point Thomson to Prudhoe Bay	POINT THOMSON		X	X	X	X	X
F500	Point Thomson to Prudhoe Bay	POINT THOMSON			X	X		
F475	Point Thomson to Prudhoe Bay	POINT THOMSON			X		X	
F474	Point Thomson to Prudhoe Bay	POINT THOMSON				X		
F497	Point Thomson to Prudhoe Bay	POINT THOMSON			X			
F496	Point Thomson to Prudhoe Bay	POINT THOMSON			X	X		
F495	Point Thomson to Prudhoe Bay	POINT THOMSON			X	X		
F476	Point Thomson to Prudhoe Bay	POINT THOMSON			X	X		
F473	Point Thomson to Prudhoe Bay	POINT THOMSON			X	X		
F471	Point Thomson to Prudhoe Bay	POINT THOMSON			X		X	
F498	Point Thomson to Prudhoe Bay	POINT THOMSON		X		X		X
F499	Point Thomson to Prudhoe Bay	POINT THOMSON				X		X
F494	Point Thomson to Prudhoe Bay	POINT THOMSON		X		X		X
F492	Point Thomson to Prudhoe Bay	POINT THOMSON		X		X		X
F490	Point Thomson to Prudhoe Bay	POINT THOMSON		X	X	X		X
F491	Point Thomson to Prudhoe Bay	POINT THOMSON		X		X		X
F489	Point Thomson to Prudhoe Bay	POINT THOMSON				X		X
F488	Point Thomson to Prudhoe Bay	POINT THOMSON				X		X
F487	Point Thomson to Prudhoe Bay	POINT THOMSON		X		X		X
F502	Point Thomson to Prudhoe Bay	POINT THOMSON				X		X
AL005	Prudhoe Bay to Atigun Pass	SIDE CHANNEL B TO SAG RIVER		X	X	X	X	X
N/A	Prudhoe Bay to Atigun Pass				X	X	X	X
N/A	Prudhoe Bay to Atigun Pass					X	X	X
AL019.1	Prudhoe Bay to Atigun Pass	SIDE CHANNEL TO SAG RIVER				X	X	X
AL019.2	Prudhoe Bay to Atigun Pass	SIDE CHANNEL TO SAG RIVER				X	X	X
N/A	Prudhoe Bay to Atigun Pass					X	X	X
AL019.6	Prudhoe Bay to Atigun Pass	SIDE CHANNEL TO SAG RIVER (WOOD CREEK COMPLEX)				X	X	X
AL035	Prudhoe Bay to Atigun Pass	UNNAMED CREEK		X	X	X	X	X
AL019.7	Prudhoe Bay to Atigun Pass	SIDE CHANNEL TO SAG RIVER (WOOD CREEK COMPLEX)			X	X	X	X
AL004.7	Prudhoe Bay to Atigun Pass				X	X	X	X
AL043	Prudhoe Bay to Atigun Pass	UNNAMED CREEK		X	X	X	X	X
AL053	Prudhoe Bay to Atigun Pass	DAN CREEK		X	X	X		X

FIELD TARGET	SPREAD	LOCATION NAME	Boulder	Cobble	Gravel	Organic	Sand	Silt
AL044	Prudhoe Bay to Atigun Pass	UNNAMED CREEK		X	X	X	X	X
AL045	Prudhoe Bay to Atigun Pass	UNNAMED CREEK		X	X	X	X	X
AL045.1	Prudhoe Bay to Atigun Pass	UNNAMED CREEK				X		
AL045.2	Prudhoe Bay to Atigun Pass	UNNAMED TRIB TO SAG RIVER		X	X	X		X
AL131	Prudhoe Bay to Atigun Pass	157 MILE CREEK		X	X			
AL129	Prudhoe Bay to Atigun Pass	UNNAMED TRIB. #5 TO ATIGUN RIVER				X	X	X
AL127	Prudhoe Bay to Atigun Pass	TRIB. TO TYLER CREEK				X		
AL123	Prudhoe Bay to Atigun Pass	UNNAMED TRIB. #3 TO ATIGUN RIVER				X		
AL121	Prudhoe Bay to Atigun Pass	UNNAMED TRIB. #1 TO ATIGUN RIVER			X	X	X	X
AL119	Prudhoe Bay to Atigun Pass	MAINLINE SPRING CREEK				X		
AL115	Prudhoe Bay to Atigun Pass	TEE LAKE INLET #1		X	X			
AL109	Prudhoe Bay to Atigun Pass	GALBRAITH LAKE TRIB. #2				X		
AL113	Prudhoe Bay to Atigun Pass	ATIGUN RIVER #1			X	X	X	X
AL107	Prudhoe Bay to Atigun Pass	JILL CREEK				X		X
AL107	Prudhoe Bay to Atigun Pass	JILL CREEK						
AL111	Prudhoe Bay to Atigun Pass	GALBRAITH LAKE TRIB. #4		X	X	X	X	X
AL019	Prudhoe Bay to Atigun Pass	SYLVIA CREEK				X		
AL007	Prudhoe Bay to Atigun Pass	THELMA CREEK			X	X		X
AL006	Prudhoe Bay to Atigun Pass	UNNAMED TRIB. TO SAG RIVER				X		
AL4.5.1	Prudhoe Bay to Atigun Pass	UNNAMED TRIB. #4 TO SAG RIVER				X		X
AL035	Prudhoe Bay to Atigun Pass	UNNAMED CREEK			X	X		X
AL035.1	Prudhoe Bay to Atigun Pass	UNNAMED CREEK			X			
AL040	Prudhoe Bay to Atigun Pass	UNNAMED CREEK		X	X			
AL039	Prudhoe Bay to Atigun Pass	MARK CREEK		X	X			
AL049	Prudhoe Bay to Atigun Pass	UNNAMED TRIB. TO SAG RIVER			X			
AL128	Prudhoe Bay to Atigun Pass	TYLER CREEK	X	X	X			
AL120	Prudhoe Bay to Atigun Pass	UNNAMED CREEK (ONE-ONE-THREE CREEK)	X	X				
AL132	Prudhoe Bay to Atigun Pass	ATIGUN RIVER #2	X	X	X			
AL094	Prudhoe Bay to Atigun Pass	KUPARUK RIVER	X	X	X	X		
AL140.1	Prudhoe Bay to Atigun Pass	ATIGUN RIVER FLOODPLAIN		X	X		X	X
AL092	Prudhoe Bay to Atigun Pass	TOOLIK RIVER		X	X	X	X	X
AL093	Prudhoe Bay to Atigun Pass	EF KUPARUK RIVER		X	X		X	X
AL094	Prudhoe Bay to Atigun Pass	KUPARUK RIVER		X	X		X	
AL098	Prudhoe Bay to Atigun Pass	YAN CREEK #1		X	X			
AL101	Prudhoe Bay to Atigun Pass	MOSS CREEK		X	X		X	X
AL102	Prudhoe Bay to Atigun Pass	TERRY CREEK #1						X
AL103	Prudhoe Bay to Atigun Pass	TERRY CREEK #2					X	X
AL108	Prudhoe Bay to Atigun Pass	GALBRAITH LAKE TRIB. #1		X	X		X	
AL112	Prudhoe Bay to Atigun Pass	GALBRAITH LAKE TRIB. #5		X	X	X		X
AL104	Prudhoe Bay to Atigun Pass	TERRY CREEK #3		X	X	X		X
AL105	Prudhoe Bay to Atigun Pass	MACK CREEK		X	X		X	X
AL106	Prudhoe Bay to Atigun Pass	ED CREEK		X	X		X	X
AL114	Prudhoe Bay to Atigun Pass	LAKE OUTLET TO ATIGUN RIVER #1						X
AL117	Prudhoe Bay to Atigun Pass	UNNAMED INTERMITTEN CREEK #2		X	X		X	X
AL127	Prudhoe Bay to Atigun Pass	TRIB TO TYLER CREEK						X
AL128	Prudhoe Bay to Atigun Pass	TYLER CREEK	X	X	X		X	X
AL128.1	Prudhoe Bay to Atigun Pass	TREVOR CREEK						X
AL140	Prudhoe Bay to Atigun Pass	UNNAMED TRIB. #15 TO ATIGUN RIVER		X	X			X

FIELD TARGET	SPREAD	LOCATION NAME	Boulder	Cobble	Gravel	Organic	Sand	Silt
AL139	Prudhoe Bay to Atigun Pass	UNNAMED TRIB. #14 TO ATIGUN RIVER		X	X			
AL138	Prudhoe Bay to Atigun Pass	UNNAMED TRIB. #13 TO ATIGUN RIVER						
AL137	Prudhoe Bay to Atigun Pass	UNNAMED TRIB. #12 TO ATIGUN RIVER SOUTH CHANNEL		X	X			X
AL136.1	Prudhoe Bay to Atigun Pass	UNNAMED TRIB. #12 TO ATIGUN RIVER NORTH CHANNEL		X	X		X	X
AL136	Prudhoe Bay to Atigun Pass	UNNAMED TRIB. #11 TO ATIGUN RIVER		X	X			X
AL135	Prudhoe Bay to Atigun Pass	UNNAMED TRIB. #10 TO ATIGUN RIVER		X	X		X	
AL134	Prudhoe Bay to Atigun Pass	UNNAMED TRIB. #9 TO ATIGUN RIVER		X	X			
AL133	Prudhoe Bay to Atigun Pass	UNNAMED TRIB. #8 TO ATIGUN RIVER		X	X		X	
AL126	Prudhoe Bay to Atigun Pass	153 MILE CREEK		X	X	X	X	X
AL125	Prudhoe Bay to Atigun Pass	WATERHOLE CREEK		X	X		X	X
AL118	Prudhoe Bay to Atigun Pass	VANISH AND HOLDEN CREEKS	X	X	X		X	
AL063	Prudhoe Bay to Atigun Pass	POLYGON CREEK		X	X			X
AL064	Prudhoe Bay to Atigun Pass	POISON PIPE CREEK		X		X		
AL065	Prudhoe Bay to Atigun Pass	CLIMB CREEK				X		
AL066	Prudhoe Bay to Atigun Pass	DENISE CREEK			X	X	X	
AL060	Prudhoe Bay to Atigun Pass	GUSTAFSON GULCH				X		X
AL070.2	Prudhoe Bay to Atigun Pass	UNNAMED TRIB. TO SAG RIVER				X		X
AL479	Tok to Canada Border					X	X	X
AL477	Tok to Canada Border	ISLAND INLET #1						
AL350	Yukon River to Fairbanks	LITTLE CHENA RIVER					X	X
AL317	Yukon River to Fairbanks	TOLOVANA RIVER		X	X		X	X
AL315	Yukon River to Fairbanks	LOST CREEK			X	X	X	X
AL306.1	Yukon River to Fairbanks	TRIB. #1 TO ERICKSON CREEK			X	X	X	X
AL306.2	Yukon River to Fairbanks	TRIB. #2 TO ERICKSON CREEK		X	X		X	X
AL314	Yukon River to Fairbanks	ERICKSON CREEK				X		X
AL328	Yukon River to Fairbanks	TRIB. TO GLOBE CREEK				X	X	X
AL326	Yukon River to Fairbanks	UNNAMED TRIB. #1 TO GLOBE CREEK		X	X	X	X	X
AL329	Yukon River to Fairbanks	GLOBE CREEK		X	X	X	X	X
AL339	Yukon River to Fairbanks	CHATANIKA RIVER		X	X		X	
AL330	Yukon River to Fairbanks	WB LITTLE GLOBE CREEK				X		X
AL334	Yukon River to Fairbanks	AGGIE CREEK	X	X			X	
AL333	Yukon River to Fairbanks	N.F. AGGIE CREEK	X	X			X	
AL322	Yukon River to Fairbanks	SLATE CREEK		X	X		X	
AL320.1	Yukon River to Fairbanks	S.F. WILBER CREEK		X	X			
AL320	Yukon River to Fairbanks	N.F. WILBER CREEK				X		
AL306	Yukon River to Fairbanks	HESS CREEK			X		X	
AL305	Yukon River to Fairbanks	FISH CREEK #2			X	X	X	
AL336	Yukon River to Fairbanks	WASHINGTON CREEK		X	X		X	
AL350.1	Yukon River to Fairbanks	UNNAMED SLOUGH LITTLE CHENA RIVER				X	X	X
AL348.3	Yukon River to Fairbanks	IOWA CREEK					X	X
AL350	Yukon River to Fairbanks	LITTLE CHENA RIVER				X	X	X
AL340	Yukon River to Fairbanks	TREASURE CREEK					X	X
AL338	Yukon River to Fairbanks	SHOCKER CREEK					X	X
AL337	Yukon River to Fairbanks	UNNAMED TRIB. TO CHATANIKA RIVER				X	X	X
AL348.1	Yukon River to Fairbanks	UNNAMED TRIB. #1 TO SMALLWOOD CREEK				X		X
AL306	Yukon River to Fairbanks	HESS CREEK		X	X	X	X	X



2010 FISH COMPLETION REPORT,
PERMIT SF2010-199

USAG-UR-SRWDF-000002
MAY 2011
REVISION 0

APP PROPRIETARY

FIELD TARGET	SPREAD	LOCATION NAME	Boulder	Cobble	Gravel	Organic	Sand	Silt
AL319.1	Yukon River to Fairbanks	SHORTY CREEK		X	X		X	X
AL303	Yukon River to Fairbanks	UNNAMED TRIB. #5 TO HESS CREEK			X	X	X	X
AL300	Yukon River to Fairbanks	UNNAMED TRIB. #2 TO HESS CREEK			X	X		X
AL315	Yukon River to Fairbanks	LOST CREEK			X	X	X	X
AL299.1	Yukon River to Fairbanks	UNNAMED TRIB. #1 TO HESS CREEK						X
AL316	Yukon River to Fairbanks	UNNAMED TRIB. WF TOLOVANA RIVER			X	X		
AL317	Yukon River to Fairbanks	TOLOVANA RIVER			X	X		X
AL304	Yukon River to Fairbanks	UNNAMED TRIB. #6 TO HESS CREEK				X		X
AL302	Yukon River to Fairbanks	HOTCAT CREEK		X	X	X		X
AL305	Yukon River to Fairbanks	FISH CREEK #2			X	X		X
AL305.2	Yukon River to Fairbanks	MASTODON CREEK		X	X			X
AL301	Yukon River to Fairbanks	UNNAMED TRIB. #3 TO HESS CREEK				X		X
AL299	Yukon River to Fairbanks	ISOM CREEK			X	X		X
AL296.2	Yukon River to Fairbanks	UNNAMED TRIB. TO ISOM CREEK			X	X		X

B – Branch, F – Fork, M – Middle, N – North, S – South, Trib – Tributary, W – West

ALASKA PipelineProject	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

APPENDIX F: RIPARIAN VEGETATION

FIELD TARGET	SPREAD	LOCATION NAME	VEG LAYERS	BARE AREA
AL215	AY	ROSIE CREEK	HERBS/SHRUBS	NO
N/A	AY	UNMARKED STREAM	HERBS/SHRUBS	NO
AL217	AY	N.B. TRIB. TO JACKSON SLOUGH	HERBS/SHRUBS/TREES	NO
AL217.1	AY	M.B. TRIB. TO JACKSON SLOUGH	HERBS/SHRUBS/TREES	NO
AL217.2	AY	S.B. TRIB. TO JACKSON SLOUGH		N/A
AL217.3	AY	M.F. KOYUKUK RIVER		N/A
AL230	AY	ELWOOD CREEK #3	HERBS/SHRUBS/TREES	NO
N/A	AY		HERBS/SHRUBS/TREES	NO
AL225	AY	CROSSROAD CREEK #2	HERBS/SHRUBS	NO
AL224	AY	CROSSROAD CREEK #1	HERBS/SHRUBS/TREES	NO
AL239	AY	DOUGLAS CREEK	HERBS/SHRUBS/TREES	NO
AL238	AY	UNNAMED TRIB. #3 TO JIM RIVER	HERBS/SHRUBS/TREES	NO
AL235	AY	UNNAMED TRIB. #1 TO JIM RIVER		N/A
AL234	AY	UNNAMED TRIB. #3 TO GRAYLING LAKE	SHRUBS	NO
AL245	AY	PROSPECT CREEK	HERBS/SHRUBS/TREES	NO
AL246	AY	LITTLE NASTY CREEK	HERBS/SHRUBS/TREES	NO
AL251	AY	PUNG'S CROSSING CREEK	HERBS/SHRUBS/TREES	NO
AL252	AY	ALDER MOUNTAIN CREEK		NO
AL255	AY	S.F. FISH CREEK	HERBS/SHRUBS/TREES	NO
AL256	AY	UNNAMED TRIB. #1 KANUTI RIVER	HERBS/SHRUBS/TREES	NO
AL263	AY	UNNAMED TRIB. TO FINGER MOUNTAIN CREEK	HERBS/SHRUBS	NO
AL266	AY	SMOKEY CREEK	HERBS/SHRUBS/TREES	NO
AL262	AY	OLSON'S LAKE CREEK	HERBS/SHRUBS/TREES	NO
AL267	AY	M.B. FINGER MOUNTAIN CREEK	HERBS/SHRUBS/TREES	NO
AL270	AY	UNNAMED TRIB. S.B. W.F. DALL RIVER	HERBS/SHRUBS	NO
AL271	AY	S.B. W.F. DALL RIVER	HERBS/SHRUBS/TREES	NO
AL274	AY	FORT HAMLIN CREEK #1	HERBS/SHRUBS/TREES	NO
AL276.1	AY	E.F. FED CREEK	HERBS/SHRUBS/TREES	NO
AL293	AY	BURBOT CREEK	HERBS/SHRUBS/TREES	YES
AL413	DT	UNNAMED TRIB. #1 TO GRAYLING LAKE	SHRUBS/TREES	NO
AL409	DT	BERRY CREEK	SHRUBS/TREES	N/A
AL391	FD	UNNAMED CREEK TO LAKE	HERBS/SHRUBS/TREES	NO
AL390	FD	ROSA CREEK #2	HERBS/SHRUBS/TREES	NO
AL389	FD	ROSA CREEK #1	HERBS/SHRUBS/TREES	NO
AL388	FD	W.B. #2 ROSA CREEK	HERBS/SHRUBS/TREES	NO
AL371	FD	W.B. #1 ROSA CREEK	HERBS/SHRUBS/TREES	NO

FIELD TARGET	SPREAD	LOCATION NAME	VEG LAYERS	BARE AREA
AL369	FD	SALCHA RIVER	HERBS/SHRUBS/TREES	NO
AL365	FD	MILLION DOLLAR CREEK #1	HERBS/SHRUBS/TREES	NO
AL363	FD	UNNAMED TRIB. TO LITTLE SALCHA RIVER	HERBS/SHRUBS/TREES	NO
AL364	FD	MILLION DOLLAR CREEK #4	HERBS/SHRUBS/TREES	NO
AL005	PA	MILLION DOLLAR CREEK #5	HERBS/SHRUBS	NO
N/A	PA	SIDE CHANNEL B TO SAG RIVER	HERBS/SHRUBS	NO
N/A	PA		HERBS/SHRUBS	NO
AL019.1	PA		HERBS/SHRUBS	NO
AL019.2	PA	SIDE CHANNEL TO SAG RIVER	HERBS/SHRUBS	YES
N/A	PA	SIDE CHANNEL TO SAG RIVER	HERBS/SHRUBS	NO
AL019.6	PA		HERBS/SHRUBS	NO
AL035	PA	SIDE CHANNEL TO SAG RIVER (WOOD CREEK COMPLEX)	HERBS/SHRUBS	NO
AL019.7	PA	UNNAMED CREEK	HERBS/SHRUBS	NO
N/A	PA	SIDE CHANNEL TO SAG RIVER (WOOD CREEK COMPLEX)	HERBS/SHRUBS	NO
AL043	PA		HERBS/SHRUBS	NO
AL053	PA	UNNAMED CREEK	HERBS/SHRUBS	NO
AL044	PA	DAN CREEK	HERBS/SHRUBS	NO
AL045	PA	UNNAMED CREEK	HERBS/SHRUBS	NO
AL045.1	PA	UNNAMED CREEK	HERBS/SHRUBS	NO
AL045.2	PA	UNNAMED CREEK	HERBS/SHRUBS	NO
AL131	PA	UNNAMED TRIB. TO SAG RIVER	SHRUBS	YES
AL129	PA	157 MILE CREEK	HERBS/SHRUBS	NO
AL127	PA	UNNAMED TRIB. #5 TO ATIGUN RIVER	HERBS/SHRUBS	NO
AL123	PA	TRIB. TO TYLER CREEK	HERBS/SHRUBS	NO
AL121	PA	UNNAMED TRIB. #3 TO ATIGUN RIVER	HERBS/SHRUBS	NO
AL119	PA	UNNAMED TRIB. #1 TO ATIGUN RIVER	HERBS/SHRUBS	NO
AL115	PA	MAINLINE SPRING CREEK	HERBS/SHRUBS	NO
AL109	PA	TEE LAKE INLET #1	HERBS/SHRUBS	NO
AL113	PA	GALBRAITH LAKE TRIB. #2	HERBS/SHRUBS	NO
AL107	PA	ATIGUN RIVER #1	HERBS/SHRUBS	NO
AL111	PA	JILL CREEK	HERBS/SHRUBS	NO
F501	PP	GALBRAITH LAKE TRIB. #4	HERBS	NO
F480	PP	POINT THOMSON	HERBS	YES
F479	PP	POINT THOMSON	HERBS	NO
F503	PP	POINT THOMSON	HERBS	NO

FIELD TARGET	SPREAD	LOCATION NAME	VEG LAYERS	BARE AREA
F504	PP	POINT THOMSON	HERBS	NO
F493	PP	POINT THOMSON	HERBS	NO
F476	PP	POINT THOMSON	HERBS	NO
AL479	TC	POINT THOMSON	HERBS/SHRUBS/TREES	NO
AL350	YF		HERBS/SHRUBS/TREES	NO
AL317	YF	LITTLE CHENA RIVER	HERBS/SHRUBS/TREES	YES
AL315	YF	TOLOVANA RIVER	HERBS/SHRUBS/TREES	NO
AL306.1	YF	LOST CREEK	HERBS/SHRUBS/TREES	NO
AL306.2	YF	TRIB. #1 TO ERICKSON CREEK	HERBS/SHRUBS/TREES	NO
AL314	YF	TRIB. #2 TO ERICKSON CREEK	HERBS/SHRUBS/TREES	NO
AL328	YF	ERICKSON CREEK	HERBS/SHRUBS/TREES	NO
AL326	YF	TRIB. TO GLOBE CREEK	HERBS/SHRUBS/TREES	NO
AL329	YF	UNNAMED TRIB. #1 TO GLOBE CREEK	HERBS/SHRUBS/TREES	NO
AL339	YF	GLOBE CREEK	HERBS/SHRUBS/TREES	NO
AL216	AY	CHATANIKA RIVER	HERBS/SHRUBS/TREES	NO
AL221	AY	S.F. ROSIE CREEK	HERBS/SHRUBS/TREES	NO
AL222	AY	N.B. S.F. WINDY CREEK	HERBS/SHRUBS	
AL218	AY	N.F. OF WINDY CREEK	HERBS/SHRUBS/TREES	NO
AL223	AY	S.F. WINDY CREEK	HERBS/SHRUBS/TREES	NO
AL226	AY	TRENT'S TRICKLE CREEK	HERBS/SHRUBS/TREES	NO
AL227	AY	CHAPMAN CREEK	HERBS/SHRUBS/TREES	NO
AL232	AY	S.F. KOYUKUK RIVER	HERBS/SHRUBS/TREES	NO
AL233	AY	ABA-DABA CREEK	SHRUBS/TREES	NO
AL236	PA	UNNAMED TRIB. #1 TO GRAYLING LAKE	HERBS/SHRUBS/TREES	NO
AL237	AY	UNNAMED TRIB. #2 TO GRAYLING LAKE	HERBS/SHRUBS/TREES	YES
AL237	AY	UNNAMED TRIB. #2 TO JIM RIVER	HERBS/SHRUBS/TREES	NO
AL244	AY	JIM RIVER	HERBS/SHRUBS/TREES	NO
AL247	AY	JIM RIVER	HERBS/SHRUBS	NO
AL250	AY	UNNAMED TRIB. #1 TO PROSPECT CREEK	HERBS/SHRUBS/TREES	NO
AL253	AY	UNNAMED TRIB. #1 TO LITTLE NASTY CREEK	HERBS/SHRUBS/TREES	NO
AL254	AY	S.F. BONANZA CREEK	HERBS/SHRUBS/TREES	NO
AL257	AY	FISH CREEK	HERBS/SHRUBS	NO
AL258	AY	M.F. FISH CREEK	HERBS/SHRUBS	NO
AL261	AY	UNNAMED TRIB. #2 KANUTI RIVER	HERBS/SHRUBS	NO
AL260.1	AY	KANUTI RIVER	HERBS/SHRUBS	NO
AL264	AY	UNNAMED TRIB. #2 TO OLSON'S LAKE CREEK	HERBS/SHRUBS	NO
AL265	AY	UNNAMED TRIB. #1 TO OLSON'S LAKE CREEK	SHRUBS	NO

FIELD TARGET	SPREAD	LOCATION NAME	VEG LAYERS	BARE AREA
AL268	AY	FINGER MOUNTAIN CREEK	HERBS/SHRUBS/TREES	NO
AL272	AY	EIGHT-FIVE CREEK	HERBS/SHRUBS/TREES	NO
AL273	AY	UNNAMED TRIB. M.B. W.F. DALL RIVER	HERBS/SHRUBS/TREES	NO
AL417	DT	M.B. W.F. DALL RIVER	HERBS/SHRUBS/TREES	NO
AL415	DT	UNNAMED TRIB. #1 TO S.B. W.F. DALL RIVER	HERBS/SHRUBS/TREES	NO
AL410	DT	DALL LAKES CREEK	SHRUBS/TREES	NO
AL406	DT		SHRUBS/TREES	NO
AL408	DT	UNNAMED TRIB. #6 TO TANANA RIVER	HERBS/SHRUBS/TREES	
AL383	FD	SEARS CREEK	HERBS/SHRUBS	NO
AL384	FD	UNNAMED TRIB. #4 TANANA RIVER	HERBS/SHRUBS	NO
AL386	FD	DRY CREEK	HERBS/SHRUBS/TREES	NO
AL370	FD	UNNAMED TRIB. #3 TO S.F. MINTON CREEK	HERBS/TREES	NO
AL366	FD	S.F. MINTON CREEK	HERBS/SHRUBS/TREES	NO
AL368	FD	UNNAMED TRIB. #4 TO S.F. MINTON CREEK	HERBS/SHRUBS/TREES	NO
AL367	FD	UNNAMED TRIB. #5 TO S.F. MINTON CREEK	HERBS/TREES	NO
AL019	PA	UNNAMED TRIB. #1 TO SALCHA RIVER	GRASS	
AL007	PA	LITTLE SALCHA RIVER	GRASS	NO
AL006	PA	UNNAMED TRIB. TO KANPEOVER CREEK	GRASS	NO
AL004.5.1	PA	KANPEOVER OR 219 CREEK #1	GRASS	NO
AL035	PA	SIDE CHANNEL TO SAG RIVER	HERBS/SHRUBS	NO
AL035.1	PA	SIDE CHANNEL TO SAG RIVER	HERBS/SHRUBS	NO
AL040	PA	SIDE CHANNEL TO SAG RIVER	HERBS/SHRUBS	NO
AL039	PA	SYLVIA CREEK	HERBS/SHRUBS	NO
AL049	PA	THELMA CREEK	HERBS/SHRUBS	NO
AL116	PA	UNNAMED TRIB. TO SAG RIVER	HERBS/SHRUBS	NO
AL130	PA	UNNAMED TRIB. #4 TO SAG RIVER	SHRUBS	NO
AL128	PA	UNNAMED CREEK	SHRUBS	NO
AL124	PA	UNNAMED TRIB. TO SAG RIVER	HERBS	N/A
AL122	PA	UNNAMED CREEK	HERBS	N/A
AL120	PA	UNNAMED CREEK	SHRUBS	N/A
AL132	PA	MARK CREEK	HERBS/SHRUBS	NO
AL094	PA	UNNAMED TRIB. TO SAG RIVER	HERBS/SHRUBS	NO
F500	PP	UNNAMED INTERMITTEN CREEK #1	GRASS	NO
F475	PP	UNNAMED TRIB. #6 TO ATIGUN RIVER		N/A
F474	PP	TYLER CREEK	GRASS	N/A
F497	PP	UNNAMED TRIB. #4 TO ATIGUN RIVER	GRASS	N/A
F496	PP	UNNAMED TRIB. #2 TO ATIGUN RIVER	GRASS	N/A

FIELD TARGET	SPREAD	LOCATION NAME	VEG LAYERS	BARE AREA
F495	PP	UNNAMED CREEK (ONE-ONE-THREE CREEK)	GRASS	NO
F476	PP	ATIGUN RIVER #2	GRASS	NO
F473	PP	KUPARUK RIVER	GRASS	NO
F471	PP	POINT THOMSON	GRASS	NO
AL477	TC	POINT THOMSON	HERBS/SHRUBS	N/A
AL331	YF	POINT THOMSON	HERBS/TREES	NO
AL330	YF	POINT THOMSON	TREES	NO
AL334	YF	POINT THOMSON	HERBS/SHRUBS	NO
AL333	YF	POINT THOMSON	HERBS/SHRUBS	NO
AL322	YF	POINT THOMSON	HERBS/SHRUBS/TREES	NO
AL320.1	YF	POINT THOMSON	HERBS/SHRUBS/TREES	NO
AL320	YF	POINT THOMSON	HERBS/SHRUBS/TREES	NO
AL306	YF	ISLAND INLET #2	HERBS/SHRUBS/TREES	NO
AL305	YF	ISLAND INLET #1	HERBS/SHRUBS/TREES	NO
AL336	YF	E.B. LITTLE GLOBE CREEK	HERBS/SHRUBS/TREES	NO
AL350.1	YF	W.B. LITTLE GLOBE CREEK	HERBS/SHRUBS	NO
AL348.3	YF	AGGIE CREEK	HERBS/SHRUBS/TREES	NO
AL350	YF	N.F. AGGIE CREEK	HERBS/SHRUBS/TREES	NO
AL340	YF	SLATE CREEK	HERBS/TREES	NO
AL338	YF	S.F. WILBER CREEK	HERBS/SHRUBS/TREES	NO
AL337	YF	N.F. WILBER CREEK	HERBS/TREES	NO
AL348.1	YF	HESS CREEK	HERBS/SHRUBS/TREES	NO
AL193	AY	FISH CREEK #2		N/A
AL194	AY	SNOWSHOE CREEK		N/A
AL191	AY	WASHINGTON CREEK		N/A
AL190	AY	UNNAMED SLOUGH LITTLE CHENA RIVER		N/A
AL196	AY	IOWA CREEK	HERBS/SHRUBS/TREES	YES
AL197	AY	LITTLE CHENA RIVER		N/A
AL199	AY	TREASURE CREEK		N/A
AL200	AY	SHOCKER CREEK		N/A
AL201	AY	UNNAMED TRIB. TO CHATANIKA RIVER		N/A
AL202	AY	UNNAMED TRIB. #1 TO SMALLWOOD CREEK		N/A
AL203	AY	CONFEDERATE GULCH		N/A
AL204	AY	M.F. KOYUKUK RIVER #2		N/A
AL206	AY	HAMMOND RIVER	HERBS/SHRUBS	NO
AL208	AY	ONE-O-ONE CREEK	HERBS/SHRUBS/TREES	NO
AL207	AY	COON GULCH		N/A

FIELD TARGET	SPREAD	LOCATION NAME	VEG LAYERS	BARE AREA
N/A	AY	UNION GULCH		N/A
AL182	AY	M.F. KOYUKUK RIVER #3	HERBS/SHRUBS	YES
AL181	AY	CONFUSION CREEK	HERBS/SHRUBS	YES
AL186	AY	UNNAMED TRIB. #2 TO M.F. KOYUKUK RIVER	HERBS/SHRUBS/TREES	YES
AL185	AY	DRY GULCH		N/A
AL184	AY	UNNAMED TRIB. #3 TO M.F. KOYUKUK RIVER	HERBS/SHRUBS	YES
AL187	AY	UNNAMED TRIB. #4 TO M.F. KOYUKUK RIVER		N/A
AL188	AY	PENCE'S POND #1		N/A
AL189	AY	MARY ANGLE CREEK		N/A
N/A	AY	CLARA CREEK		N/A
AL198	AY	TEXAS SLOUGH COMPLEX	SHRUBS/TREES	YES
AL205	AY	N.F. BONANZA CREEK	HERBS/SHRUBS/TREES	YES
AL237	AY	LINDA CREEK	HERBS/SHRUBS/TREES	YES
AL145	AY	N.F. SUKAPACK CREEK	HERBS/SHRUBS	NO
AL141	AY	NUGGET CREEK	SHRUBS	YES
AL142	AY	WOLF PUP CREEK	HERBS/SHRUBS	NO
AL143	AY	SHEEP CREEK #1	HERBS/SHRUBS	NO
AL144	AY	OVER CREEK	HERBS/SHRUBS	NO
AL146	AY	RAINBOW GULCH CREEK	SHRUBS	NO
AL147	AY	UNNAMED TRIB. #1 TO M.F. KOYUKUK RIVER	HERBS/SHRUBS	YES
AL148	AY	OVER CREEK WETLAND COMPLEX	HERBS/SHRUBS	NO
AL149	AY	MINNIE CREEK	HERBS/SHRUBS	NO
AL150	AY	MARION CREEK	HERBS/SHRUBS	NO
AL151	AY	JIM RIVER	HERBS/SHRUBS/TREES	NO
AL152	AY	W.F. N.F. CHANDALAR RIVER	HERBS/SHRUBS	N/A
AL153	AY	UNNAMED TRIB. #1 TO W.F. N.F. CHANDALAR RIVER		N/A
AL154	AY	UNNAMED TRIB. #2 TO W.F. N.F. CHANDALAR RIVER	SHRUBS	YES
AL155	AY	W.F. N.F. CHANDALAR RIVER	HERBS/SHRUBS/TREES	NO
AL156	AY	W.F. N.F. CHANDALAR RIVER	HERBS/SHRUBS/TREES	NO
AL158	AY	W.F. N.F. CHANDALAR RIVER		N/A
AL159	AY	ANDY'S CREEK		YES
AL157	AY	TRUCK STOP CREEK #1	HERBS/SHRUBS/TREES	NO
AL246	AY	UNNAMED TRIB. #1 TO DIETRICH RIVER	HERBS/SHRUBS	NO
AL172	AY	ONE-SEVEN-SIX MILE CREEK	HERBS/SHRUBS/TREES	YES
AL173	AY	BEAVER BROOK CREEK		N/A

FIELD TARGET	SPREAD	LOCATION NAME	VEG LAYERS	BARE AREA
AL176	AY	BEAR TRACK CREEK	HERBS/SHRUBS	YES
AL177	AY	UNNAMED TRIB. #2 TO DIETRICH RIVER	SHRUBS/TREES	YES
AL181	AY	UNNAMED TRIB. #3 TO DIETRICH RIVER	HERBS	YES
AL218	AY	UNNAMED TRIB. #4 TO DIETRICH RIVER	HERBS/SHRUBS/TREES	NO
AL244	AY	NUTIRWIK RIVER	HERBS/SHRUBS	NO
AL250	AY	UNNAMED TRIB. #6 TO DIETRICH RIVER	HERBS/SHRUBS/TREES	NO
AL251	AY	TRACEY'S TRICKLE OR UNNAMED CREEK #1	HERBS/SHRUBS/TREES	NO
AL247	AY	UNNAMED TRIB. #5 TO DIETRICH RIVER	HERBS/SHRUBS	NO
AL240	AY	LITTLE NASTY CREEK	HERBS/SHRUBS/TREES	NO
N/A	AY	DISASTER CREEK	HERBS/SHRUBS	NO
AL193	AY	AIRPORT CREEK	HERBS/SHRUBS	YES
AL194	AY	DIETRICH RIVER	HERBS/SHRUBS	YES
AL197	AY	EVA'S ALVA CREEK	HERBS/SHRUBS/TREES	YES
AL205	AY	EVA'S ALVA CREEK		N/A
AL249	AY	NF SUKAPACK CREEK		N/A
AL140.1	AY	TRENT'S TRICKLE CREEK		YES
AL092	PA	UNNAMED TRIB. #1 TO PROSPECT CREEK	HERBS/SHRUBS	NO
AL093	PA	S.F. BONANZA CREEK	HERBS/SHRUBS	NO
AL094	PA	PUNG'S CROSSING CREEK	HERBS/SHRUBS	NO
AL098	AY	UNNAMED TRIB. #1 TO LITTLE NASTY CREEK	HERBS/SHRUBS	NO
AL099	AY	UNNAMED TRIB. TO GAS BUBBLE SLOUGH		N/A
AL100	PA	TRIB. TO CHANDALAR		N/A
AL101	PA	M.F. KOYUKUK RIVER #2	HERBS/SHRUBS	NO
AL102	PA	HAMMOND RIVER	HERBS/SHRUBS	NO
AL103	PA	M.F. KOYUKUK RIVER #3	HERBS/SHRUBS	NO
AL108	AY	MARION CREEK	HERBS/SHRUBS	NO
AL112	PA	N.F. BONANZA CREEK	HERBS/SHRUBS	NO
AL104	PA	ATIGUN RIVER FLOODPLAIN		
AL105	PA	TOOLIK RIVER	HERBS/SHRUBS	NO
AL106	PA	E.F. KUPARUK RIVER	HERBS/SHRUBS	NO
AL110	PA	KUPARUK RIVER	HERBS/SHRUBS	NO
AL114	PA	YAN CREEK #1	HERBS	NO
AL117	PA	YAN CREEK #2	HERBS/SHRUBS	NO
AL127	PA	YAN CREEK	HERBS	NO
AL128	PA	MOSS CREEK	HERBS/SHRUBS	NO
AL128.1	PA	TERRY CREEK #1	HERBS/SHRUBS	NO
AL140	PA	TERRY CREEK #2	HERBS/SHRUBS	YES

FIELD TARGET	SPREAD	LOCATION NAME	VEG LAYERS	BARE AREA
AL139	PA	GALBRAITH LAKE TRIB. #1	HERBS	NO
AL138	PA	GALBRAITH LAKE TRIB. #5	HERBS/SHRUBS	NO
AL137	PA	TERRY CREEK #3	HERBS/SHRUBS	YES
N/A	PA	MACK CREEK	HERBS/SHRUBS	YES
AL136	PA	ED CREEK	HERBS/SHRUBS	NO
AL135	PA	GALBRAITH LAKE TRIB. #3		NO
AL134	PA	LAKE OUTLET TO ATIGUN RIVER #1		NO
AL133	PA	UNNAMED INTERMITTEN CREEK #2	HERBS/SHRUBS	NO
AL126	PA	TRIB. TO TYLER CREEK	HERBS/SHRUBS	NO
AL125	PA	TYLER CREEK	HERBS/SHRUBS	NO
AL119	PA	TREVOR CREEK	HERBS/SHRUBS	NO
AL118	PA	UNNAMED TRIB. #15 TO ATIGUN RIVER	SHRUBS	YES
AL063	PA	UNNAMED TRIB. #14 TO ATIGUN RIVER	HERBS/SHRUBS	NO
AL064	PA	UNNAMED TRIB. #13 TO ATIGUN RIVER	HERBS/SHRUBS	NO
AL065	PA	UNNAMED TRIB. #12 TO ATIGUN RIVER SOUTH CHANNEL	HERBS/SHRUBS	NO
AL066	PA	UNNAMED TRIB. #12 TO ATIGUN RIVER NORTH CHANNEL	HERBS/SHRUBS	NO
AL306	YF	UNNAMED TRIB. #11 TO ATIGUN RIVER	SHRUBS/TREES	NO
AL319	YF	UNNAMED TRIB. #10 TO ATIGUN RIVER		N/A
N/A	YF	UNNAMED TRIB. #9 TO ATIGUN RIVER	HERBS/SHRUBS/TREES	NO
AL318	YF	UNNAMED TRIB. #8 TO ATIGUN RIVER		N/A
AL303	YF	153 MILE CREEK	HERBS/SHRUBS/TREES	NO
AL302.1	YF	WATERHOLE CREEK		N/A
AL300	YF	MAINLINE SPRING CREEK	HERBS/SHRUBS/TREES	NO
AL315	YF	VANISH AND HOLDEN CREEKS	HERBS/SHRUBS/TREES	NO
AL299.1	YF	POLYGON CREEK	HERBS/SHRUBS/TREES	NO
AL293	AY	POISON PIPE CREEK	HERBS/SHRUBS/TREES	NO
AL292	AY	CLIMB CREEK	HERBS/SHRUBS/TREES	YES
AL291	AY	DENISE CREEK		N/A
AL289	AY	HESS CREEK	HERBS/SHRUBS	NO
AL288	AY	SHORTY CREEK	HERBS/SHRUBS/TREES	NO
AL279	AY	SHORTY CREEK	HERBS/SHRUBS/TREES	NO
N/A	AY	UNNAMED TRIB. TO TOLOVANA RIVER	HERBS/SHRUBS	YES
AL287	AY	UNNAMED TRIB. #5 TO HESS CREEK	HERBS/SHRUBS/TREES	NO
AL286	AY	UNNAMED TRIB. #4 TO HESS CREEK	HERBS/SHRUBS	NO
AL284	AY	UNNAMED TRIB. #2 TO HESS CREEK	HERBS/SHRUBS/TREES	YES

FIELD TARGET	SPREAD	LOCATION NAME	VEG LAYERS	BARE AREA
AL285	AY	LOST CREEK	HERBS/SHRUBS	NO
N/A	AY	UNNAMED TRIB. #1 TO HESS CREEK	HERBS/SHRUBS	NO
AL283	AY	BURBOT CREEK	HERBS/SHRUBS/TREES	NO
AL282	AY	WOOD CHOPPER CREEK	HERBS/SHRUBS	YES
AL278	AY	UNNAMED CREEK TO LAKE	HERBS/SHRUBS	NO
AL277	AY	5 MILE AIRSTRIP CREEK	HERBS/SHRUBS	YES
AL294	AY	PHELPS CREEK	HERBS/SHRUBS/TREES	NO
AL281	AY	N.F. RAY RIVER	HERBS	NO
AL274	AY		HERBS/SHRUBS	NO
AL273	AY	UNNAMED TRIB. #3 TO RAY RIVER	HERBS/SHRUBS	NO
AL272	AY	UNNAMED TRIB. #2 TO RAY RIVER	HERBS/SHRUBS/TREES	NO
AL271	AY	EIGHT-O-CLOCK CREEK	HERBS/SHRUBS	NO
AL262	AY	UNNAMED TRIB. #1 TO RAY RIVER	HERBS/SHRUBS	NO
AL160	AY		SHRUBS/TREES	YES
AL161	AY	FORT HAMLIN HILLS CREEK	SHRUBS/TREES	YES
AL162	AY	UNNAMED TRIB. #2 TO NF RAY RIVER	HERBS/SHRUBS/TREES	YES
AL163	AY	W.F. FED CREEK	SHRUBS/TREES	NO
N/A	AY	M.F. FED CREEK	SHRUBS/TREES	NO
AL168	AY	FORT HAMLIN CREEK #3	HERBS/SHRUBS	NO
AL167	AY	FORT HAMLIN CREEK #2	SHRUBS/TREES	YES
AL169	AY	WOODCAMP CREEK	SHRUBS/TREES	NO
AL170	AY	UNNAMED TRIB. #1 TO N.F. RAY RIVER	SHRUBS/TREES	NO
AL180	AY	FORT HAMLIN CREEK #1	HERBS/SHRUBS/TREES	NO
AL171	AY	DALL LAKES CREEK	SHRUBS/TREES	NO
AL173.1	AY	UNNAMED TRIB. #1 TO S.B. W.F. DALL RIVER	HERBS/SHRUBS	NO
AL174	AY	S.B. W.F. DALL RIVER	SHRUBS/TREES	YES
AL164	AY	OLSON'S LAKE CREEK		NO
N/A	AY	RUFF CREEK		NO
AL060	PA	STEEP CREEK	GRASS	NO
AL070.2	PA	UGH CREEK	GRASS	NO
F498	PP	UNNAMED TRIB. #7 TO DIETRICH CREEK	GRASS	NO
F499	AY		GRASS	NO
F494	PP	UNNAMED TRIB. #8 TO DIETRICH CREEK	GRASS	NO
F492	PP	SNOWDEN CREEK	GRASS	NO
F490	PP	UNNAMED TRIB. #9 TO DIETRICH CREEK	GRASS	NO
F491	PP	UNNAMED TRIB. #10 TO DIETRICH CREEK	GRASS	NO
F489	PP	MF KOYUKUK RIVER #1	GRASS	NO

FIELD TARGET	SPREAD	LOCATION NAME	VEG LAYERS	BARE AREA
F488	PP	UNNAMED TRIB. #11 TO DIETRICH CREEK	GRASS	NO
F487	PP	UNNAMED TRIB. #12 TO DIETRICH CREEK	GRASS	NO
F502	PP	BOCKMAN CREEK	GRASS	NO
AL316	YF	STANZIA CREEK	HERBS/SHRUBS/TREES	NO
AL317	YF		HERBS/SHRUBS	NO
AL304	YF	GUSTAFSON GULCH	HERBS/SHRUBS/TREES	NO
AL302	YF	UNNAMED TRIB. TO SAG RIVER	HERBS/SHRUBS/TREES	NO
AL305	AY	POINT THOMSON	HERBS/SHRUBS/TREES	YES
N/A	YF	POINT THOMSON	HERBS/SHRUBS/TREES	NO
AL301	YF	POINT THOMSON	HERBS/SHRUBS/TREES	NO
AL299	YF	POINT THOMSON	HERBS/SHRUBS/TREES	NO
AL296.2	YF	POINT THOMSON	HERBS/SHRUBS/TREES	NO
<p>AY – Atigun Pass to Yukon River, B – Branch, DT – Delta Junction to Tok, E – East, F – Fork, FD – Fairbanks to Delta Junction, M – Middle, N – North, PA – Prudhoe Bay to Atigun Pass, PP – Point Thomson to Prudhoe Bay, S – South, TC – Tok to Canada, Trib – Tributary, W – West, YF – Yukon River to Fairbanks</p>				

ALASKA PipelineProject	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

APPENDIX G: WATER QUALITY DATA

FIELD TARGET	SPREAD	LOCATION NAME	WATER TEMP	PH	DISSOLVED OXYGEN	SPECIFIC CONDUCTIVITY	TURBIDITY	COLOR	OXIDATION REDUCTION POTENTIAL	SHEEN	ODOR	FLOW TYPE
AL215	AY	ROSE CREEK	564	641		87	96	20	605	NO	NONE	PERENNIAL
AL216.1	AY	UNMARKED STREAM	642	572		81	15	55	80	NO	NONE	PERENNIAL
AL217	AY	N.B. TRIB. TO JACKSONS LOUGH	478	607		65	18	25	65	NO	NONE	PERENNIAL
AL217.1	AY	M.B. TRIB. TO JACKSONS LOUGH	543	681		125	08	10	83	NO	NONE	PERENNIAL
AL230	AY	ELWOOD CREEK#3	416	561				10	496	NO	NONE	PERENNIAL
AL231.1	AY		948	559	892	24	12	97	66	NO	NONE	PERENNIAL
AL225	AY	CROSSROAD CREEK#2	125	672	95	164		40	47	NO	SIGHT SULFUR ODOR	PERENNIAL
AL224	AY	CROSSROAD CREEK#1	13	605	53	96		200	35.1	NO	SIGHT SULFUR ODOR	PERENNIAL
AL239	AY	DOUGLAS CREEK	456	61		29	03	20	153	NO	NONE	PERENNIAL
AL238	AY	UNNAMED TRIB.#3 TO JIM RIVER	132	606	99	51	01	10	75	NO	NONE	PERENNIAL
AL234	AY	UNNAMED TRIB.#3 TO GRAYLING LAKE	105	653	791	88	28	35	148	NO	NONE	SEASONAL
AL245	AY	PROSPECT CREEK	974	605	945	110	12	5	127	NO	NONE	PERENNIAL
AL246	AY	LITTLE NASTY CREEK	51		119	72	23	5	-232	NO	NONE	PERENNIAL
AL251	AY	PUNGUS CROSSING CREEK	425	571	123	57	15	35	106	NO	NONE	PERENNIAL
AL252	AY	ALDER MOUNTAIN CREEK	357	494	123	25		35	157	NO	NONE	SEASONAL
AL255	AY	SFRSH CREEK	88	581	102	48		5	110	NO	NONE	PERENNIAL
AL256	AY	UNNAMED TRIB.#1 KANUTI RIVER	527	604	117	56	01	20	153	NO	NONE	PERENNIAL
AL263	AY	UNNAMED TRIB. TO FINGER MOUNTAIN CREEK	608	461	882	26		50	783	NO	NONE	EPHEMERAL
AL262	AY	OLSON LAKE CREEK	408	511	116	33		30	888	YES	YES	SEASONAL
AL271	AY	S.B.W.F. DALL RIVER	767	579	11	65	3	110	81.1	NO	NONE	PERENNIAL
AL274	AY	FORTHAMUN CREEK#1	18	56		41	04	10	148	NO	NONE	INTERMITTENT
AL413	DT	BERRY CREEK	496	78			36		231	NO	NONE	PERENNIAL
AL409	DT	UNNAMED CREEK TO LAKE	57	7	11		06		225	NO	NONE	PERENNIAL
AL391	FD	ROSA CREEK#2	71	755		555	38	40	192	NO	NONE	PERENNIAL
AL390	FD	ROSA CREEK#1	804	682		221	25	30	162	NO	NONE	PERENNIAL
AL389	FD	W.B.#2 ROSA CREEK	257		788	221		0	133	NO	NONE	PERENNIAL
AL388	FD	W.B.#1 ROSA CREEK	309	701		240	0	0	868	YES	YES	SEASONAL
AL371	FD	SALCH-HARMER	671	692		167	07	0	78	NO	NONE	PERENNIAL
AL363	FD	MILLION DOLLAR CREEK#4	666	622		130	92	100	773	NO	NONE	PERENNIAL
AL364	FD	MILLION DOLLAR CREEK#5	666	796		140	33	105	489	NO	NONE	PERENNIAL
AL005	PA	SIDE CHANNEL BTOSAG RIVER	10	7	105	328	14	0	251	NO	NONE	PERENNIAL
AL019.61	PA	UNNAMED CREEK	115	72	116	300	31	0	217	NO	NONE	PERENNIAL
AL004.7	PA		113	811	117	247	16	20	209	NO	NONE	SEASONAL
AL043	PA	UNNAMED CREEK	112	744	118	63	22	60	218	NO	NONE	PERENNIAL
AL053	PA	DANC CREEK	152	697	107	64	24	70	218	NO	NONE	PERENNIAL
AL044	PA	UNNAMED CREEK	125	812	117	33	22	25	233	NO	NONE	PERENNIAL
AL045	PA	UNNAMED CREEK	58	71	11	220	74	20	234	NO	NONE	PERENNIAL
AL113	PA	ATGUN RIVER#1	973		118	192	16	0	182	NO	NONE	PERENNIAL
AL107	PA	JILL CREEK	649		124	35	22	15	171	NO	NONE	EPHEMERAL
AL111	PA	GALBRAITH LAKE TRIB.#4	524	881		139	22	0	290	NO	NONE	EPHEMERAL
F501	PP	POINT THOMSON	122	665	127	184	17	50	208	NO	NONE	PERENNIAL
F480	PP	POINT THOMSON	164	76	985	166	17	30	228	NO	NONE	PERENNIAL
F479	PP	POINT THOMSON	111		11	100	22	50	198	NO	NONE	PERENNIAL
F503	PP	POINT THOMSON	129	73	108	108	15	45	239	NO	NONE	PERENNIAL
F504	PP	POINT THOMSON	119	702	113	100	18	45	254	NO	NONE	PERENNIAL

FIELD TARGET	SPREAD	LOCATION NAME	WATER TEMP	PH	DISSOLVED OXYGEN	SPECIFIC CONDUCTIVITY	TURBIDITY	COLOR	OXIDATION REDUCTION POTENTIAL	SHEEN	ODOR	FLOW TYPE
F488	FP	POINT THOMSON	125	746	123	200	09	35	162	NO	NONE	PERENNIAL
F476	FP	POINT THOMSON	163	7	855	225	21	70	163	NO	NONE	SEASONAL
AL479	TC		162	719	818	163	18		210	NO	NONE	PERENNIAL
AL350	YF	LITTLE CHENAR RIVER	106	75	103		21		32	NO	NONE	PERENNIAL
AL317	YF	TOLOVAN RIVER	13	67	107		43		185	NO	NONE	PERENNIAL
AL315	YF	LOST CREEK	9	71	103		11		176	NO	NONE	PERENNIAL
AL306.1	YF	TRIB.#1 TO ERICKSON CREEK	369	782		307	11	60	125	NO	NONE	PERENNIAL
AL306.2	YF	TRIB.#2 TO ERICKSON CREEK	59	431		338	2	35	128	NO	NONE	PERENNIAL
AL328	YF	TRIB. TO GLOBE CREEK	4	713		988		10	149	NO	NONE	PERENNIAL
AL326	YF	UNNAMED TRIB.#1 TO GLOBE CREEK	311	665		222	31	65	608	NO	NONE	PERENNIAL
AL329	YF	GLOBE CREEK	47	728		189		10	594	NO	NONE	PERENNIAL
AL339	YF	CHATANKA RIVER	815	66		182	08	0	441	NO	NONE	PERENNIAL
AL216	AY	SF ROSIE CREEK	298	659		24		35	638	NO	NONE	PERENNIAL
AL221	AY	NBSF WINDY CREEK	15	697	673	75		40	145	NO	NONE	PERENNIAL
AL222	AY	SF WINDY CREEK	111	645		84		50	561	NO	NONE	PERENNIAL
AL218	AY	TRENT'S TRICKLE CREEK	47	788		122		20	875	NO	NONE	PERENNIAL
AL223	AY	CHAPMAN CREEK	135	692		125		65	373	NO	NONE	PERENNIAL
AL226	AY	SF KOKUK RIVER	106	754		144		30	90	NO	NONE	PERENNIAL
AL227	AY	ABA DABA CREEK	552	659				15	115	NO	NONE	PERENNIAL
AL232	AY	UNNAMED TRIB.#1 TO GRAYLING LAKE	61	648		39		65	119	NO	NONE	PERENNIAL
AL233	AY	UNNAMED TRIB.#2 TO GRAYLING LAKE	543	749		82	07	40	131	NO	NONE	PERENNIAL
AL237	AY	JIM RIVER	111	77		46	07	10	461	NO	NONE	PERENNIAL
AL237.1	AY	JIM RIVER	633	697		37		55	684	NO	NONE	PERENNIAL
AL244	AY	UNNAMED TRIB.#1 TO PROSPECT CREEK	917	578		88	18	125	175	NO	NONE	PERENNIAL
AL247	AY	UNNAMED TRIB.#1 TO LITTLE NASTY CREEK	913	614			55	175	125	NO	NONE	PERENNIAL
AL250	AY	SF BONANZA CREEK	843	659		40		10	165	NO	NONE	PERENNIAL
AL253	AY	FSH CREEK	914	654		21	06	15	174	NO	NONE	PERENNIAL
AL254	AY	M.F. FSH CREEK	809	658		21	07	15	142	NO	NONE	PERENNIAL
AL257	AY	UNNAMED TRIB.#2 KANUT RIVER	353	665		36	55	30	741	YES	NONE	PERENNIAL
AL258	AY	KANUT RIVER	111	675		20	18	35	155	NO	NONE	PERENNIAL
AL261.1	AY	UNNAMED TRIB.#2 TO OLSON'S LAKE CREEK	74	551			16	100	154	NO	NONE	PERENNIAL
AL260.2	AY	UNNAMED TRIB.#1 TO OLSON'S LAKE CREEK	11	669	119	122	26	150	164	YES	NONE	PERENNIAL
AL264	AY	FINGER MOUNTAIN CREEK	582	563			08	60	199	NO	NONE	PERENNIAL
AL265	AY	BIGHT FIVE CREEK	628	528			15	95	237	NO	NONE	PERENNIAL
AL268	AY	M.B.W.F. DALL RIVER	654	614			37	200	142	NO	NONE	SEASONAL
AL272	AY	UNNAMED TRIB.#1 TO S.B. W.F. DALL RIVER	538	629		70	81	50	113	NA	NONE	PERENNIAL
AL273	AY	DALL LAKES CREEK	464	696		145	22	40	168	NO	NONE	PERENNIAL
AL417	DT		79	642	98	38	18	12	-128	NO	NONE	PERENNIAL
AL415	DT	UNNAMED TRIB.#6 TO TANAN RIVER	301	626	107	30	101	32	-230	NO	NONE	PERENNIAL
AL410	DT	SEARS CREEK	299	701	118	42	44	34	-196	NO	NONE	PERENNIAL
AL406	DT	UNNAMED TRIB.#4 TANAN RIVER	68	599	783	41	52	30	-157	NO	NONE	PERENNIAL
AL408	DT	DRY CREEK	779	712	104	34	22	10	12	NO	NONE	PERENNIAL
AL383	FD	UNNAMED TRIB.#3 TO SF. MINTON CREEK	139	688	111	151	3	25	778	NA	NONE	PERENNIAL
AL384	FD	SF. MINTON CREEK	514	677	122	199	05	26	512	YES	NONE	SEASONAL
AL386	FD	UNNAMED TRIB.#5 TO SF. MINTON CREEK	379	735		180	32	30	477	NO	NONE	PERENNIAL
AL370	FD	UNNAMED TRIB.#1 TO SALCH RIVER	464	753		116	28	40	226	NO	NONE	PERENNIAL
AL366	FD	LITTLE SALCH RIVER	505	742		50	71	50	634	NO	NONE	PERENNIAL
AL368	FD	UNNAMED TRIB. TO KANPEOVER CREEK	607	74		66	85	125	352	NO	NONE	PERENNIAL
AL367	FD	KANPEOVER OR Z19 CREEK #1	583	766		111	56	90	477	NO	NONE	PERENNIAL
AL019	PA	SYLVIA CREEK	118	68	83	371	93	50	66	NA	NONE	SEASONAL
AL007	PA	THELVAC CREEK	116	76	105	258	88	25	779	NO	NONE	SEASONAL
AL006	PA	UNNAMED TRIB. TO SAGRIVER	116	739	916	365	89	40	958	NO	NONE	EPHEMERAL
AL004.5.1	PA	UNNAMED TRIB.#4 TO SAGRIVER	114	787	106	257	33	0	812	YES	NONE	SEASONAL

FIELD TARGET	SPREAD	LOCATION NAME	WATER TEMP	PH	DISSOLVED OXYGEN	SPECIFIC CONDUCTIVITY	TURBIDITY	COLOR	OXIDATION REDUCTION POTENTIAL	SHEEN	ODOR	FLOW TYPE
AL035.1	PA	UNNAMED CREEK	113	527	86	48	83	85	727	NO	NONE	SEASONAL
AL040	PA	UNNAMED CREEK	956	725	112	170	17	2	442	NO	NONE	PERENNIAL
AL039	PA	MARK CREEK	817	719	115	117	10	76	642	NO	NONE	PERENNIAL
AL049	PA	UNNAMED TRIB. TOSAG RIVER	106	615	79	69	11	0	281	NO	NONE	PERENNIAL
AL128	PA	TYLER CREEK	655		115	137	10	100	673	NO	NONE	PERENNIAL
AL132	PA	ATGUN RIVER #2	396	709	116	157	75	5	799	NO	NONE	PERENNIAL
AL094	PA	KUPARUK RIVER	84	568	109	121	10	30	130	NO	NONE	PERENNIAL
F500	PP	POINT THOMSON	131	703	108	190	11	5	463	NO	NONE	PERENNIAL
F475	PP	POINT THOMSON	102	763	114	167	04	11	644	NO	NONE	PERENNIAL
F474	PP	POINT THOMSON	129	73	108	134	13	0	576	NO	NONE	PERENNIAL
F497	PP	POINT THOMSON	114	754	102	267	16	0	191	NO	NONE	PERENNIAL
F496	PP	POINT THOMSON	13	694	117	226	25	0	313	NO	NONE	PERENNIAL
F495	PP	POINT THOMSON	135	669	107	235	17	5	371	NO	NONE	INTERMITTENT
F476	PP	POINT THOMSON	656	631	248	191	2	0	685	NO	NONE	INTERMITTENT
F473	PP	POINT THOMSON	147	697	10	209	49	0	886	NO	NONE	PERENNIAL
F471	PP	POINT THOMSON	157	787	104	225		0	577	NO	NONE	PERENNIAL
AL477	TC	ISLAND INLET #1	654	675	686	105	03	15	-198	NO	NONE	EPHEMERAL
AL331	YF	EBLITTLE GLOBE CREEK	331	625	107	104	49	25	758	NO	NONE	PERENNIAL
AL330	YF	WB LITTLE GLOBE CREEK	487	614	117	127	28	18	-240	NO	NONE	PERENNIAL
AL334	YF	AGGIE CREEK	228	678	12	109	05	15	-119	NO	NONE	PERENNIAL
AL333	YF	NF AGGIE CREEK	309	599	122	100	05	15	-202	NO	NONE	PERENNIAL
AL322	YF	SLATE CREEK	747	709	969	70	38	45	-139	NO	NONE	PERENNIAL
AL320.1	YF	SF WILBER CREEK	417	678	117	42	54	60	-207	NO	NONE	PERENNIAL
AL320	YF	NF WILBER CREEK	516	641	102	39	15	55	-194	NO	NONE	PERENNIAL
AL306	YF	HESS CREEK	15	722	777	148	24	15	-144	NO	NONE	PERENNIAL
AL305	YF	FSH CREEK #2	133	698	605	125	27	25	-160	NO	NONE	PERENNIAL
AL336	YF	WASHINGTON CREEK	947	787		171	39	55	130	NO	NONE	PERENNIAL
AL350.1	YF	UNNAMED SLOUGH LITTLE CHENAR RIVER	119	643	41	111	52	275	104	N/A	NONE	SEASONAL
AL348.3	YF	LOWA CREEK	129	791		116	26	60	184	NO	NONE	PERENNIAL
AL350	YF	LITTLE CHENAR RIVER	724	72		89	31	20	62	NO	NONE	PERENNIAL
AL340	YF	TREASURE CREEK	572	787		408	36	50	161	NO	NONE	PERENNIAL
AL338	YF	SHOCKER CREEK	867	657	512	78		70	133	NO	NONE	PERENNIAL
AL337	YF	UNNAMED TRIB. TO CHATANKA RIVER	612	745	125	180	33	60	-14	NO	NONE	INTERMITTENT
AL348.1	YF	UNNAMED TRIB. #1 TO SMALL WOOD CREEK	62	706	125	85	85	150	101	NO	NONE	SEASONAL
AL196	AY	UNION GULCH	59	75	69	367	13	15	146	NO	NONE	PERENNIAL
AL206	AY	MARY ANGLE CREEK	113	691	983	189	19	50	154	NO	NONE	PERENNIAL
AL208	AY	CLARA CREEK	325	67		106		15	230	NO	NONE	PERENNIAL
AL182	AY	LINDA CREEK	103	82	107	333	17	5	178	NO	NONE	PERENNIAL
AL183	AY	NF SUKAPACK CREEK	112	85	114	568	13	15	190	NO	NONE	PERENNIAL
AL186	AY	NUGGET CREEK	83	84	121	557	55	25	182	NO	NONE	PERENNIAL
AL184	AY	SHEEP CREEK #1	113	82	109	584	29	75	108	NO	NONE	PERENNIAL
AL198	AY	MINNIE CREEK	87	8	119	175	12	5	182	NO	NONE	PERENNIAL
AL205	AY	MARION CREEK	791	711	118	161	27	5	117	NO	NONE	PERENNIAL
AL237.2	AY	JIM RIVER	944	739	111	39		5	862	NO	NONE	PERENNIAL
AL145	AY	WF NF CHANDALAR RIVER								NO	NONE	EPHEMERAL
AL141	AY	UNNAMED TRIB. #1 TO WF NF CHANDALAR RIVER	643	678		197	28	0	215	NO	NONE	PERENNIAL
AL142	AY	UNNAMED TRIB. #2 TO WF NF CHANDALAR RIVER	489	679	12	293	07	10	234	NO	NONE	PERENNIAL
AL143	AY	WF NF CHANDALAR RIVER	849	668	112	343	2	0	242	NO	NONE	PERENNIAL
AL143.1	AY	WF NF CHANDALAR RIVER	745	694	112	227	23	10	231	NO	NONE	SEASONAL
AL146	AY	WF NF CHANDALAR RIVER	10	706	103	331	19	15	239	NO	NONE	PERENNIAL
AL147	AY	ANDY CREEK	906	742	107	676	26	10	235	NO	NONE	PERENNIAL

FIELD TARGET	SPREAD	LOCATION NAME	WATER TEMP	PH	DISSOLVED OXYGEN	SPECIFIC CONDUCTIVITY	TURBIDITY	COLOR	OXIDATION REDUCTION POTENTIAL	SHEEN	ODOR	FLOW TYPE
AL148	AY	TRUCKSTOP CREEK#1	102	727	113	737	22	35	228	NO	NONE	PERENNIAL
AL149	AY	UNNAMED TRIB.#1 TO DIETRICH RIVER	962	723	114	769	53	0	232	NO	NONE	PERENNIAL
AL150	AY	ONE SEVEN SKIMMIE CREEK	613	698	124	487	17	0	223	NO	NONE	PERENNIAL
AL152	AY	BEAR TRACK CREEK	833	797	114	646	25	0	181	NO	NONE	PERENNIAL
AL154	AY	UNNAMED TRIB.#8 TO DIETRICH RIVER	86	796	111	885	17	10	196	NO	NONE	PERENNIAL
AL155	AY	UNNAMED TRIB.#8 TO DIETRICH RIVER	691	784	116	496	24	0	196	NO	NONE	PERENNIAL
AL156	AY	NUTRIUM RIVER	103	801		750			185	NO	NONE	PERENNIAL
AL157	AY	UNNAMED TRIB.#5 TO DIETRICH RIVER	10	757	117	407	73		190	NO	NONE	PERENNIAL
AL246	AY	LITTLE NASTY CREEK	34	771		51	24	20	110	NO	NONE	PERENNIAL
AL172	AY	DISASTER CREEK	456	771	117		65	20	196	NO	NONE	PERENNIAL
AL176	AY	DIETRICH RIVER	678	778	118	700	20	15	208	NO	NONE	PERENNIAL
AL177	AY	EVA SALVA CREEK	582	83	122		38	15	197	NO	NONE	PERENNIAL
AL181	AY	N.F. SUKAPACK CREEK	605	772	117	343	15	75	192	NO	NONE	PERENNIAL
AL218	AY	TRENT'S TRICKLE CREEK	305	696	117	180	2	15	204	NO	NONE	PERENNIAL
AL244	AY	UNNAMED TRIB.#1 TO PROSPECT CREEK	63	639	105	56	21	85	111	YES	NONE	PERENNIAL
AL250	AY	S.F. BONANZA CREEK	75	614	119	52	05	20	198	NO	NONE	PERENNIAL
AL251	AY	PUNG'S CROSSING CREEK	205	574		49	25	60	190	NO	NONE	PERENNIAL
AL247	AY	UNNAMED TRIB.#1 TO LITTLE NASTY CREEK	665	551	101	32	4	150	170	NO	YES	PERENNIAL
AL240	AY	UNNAMED TRIB. TO GAS BUBBLES LOUGH	518	546	805	118	86	200	125	YES	NONE	PERENNIAL
AL14601	AY	TRIB. TO CHANDALAR	564	648	115	430	05	5	230	NO	NONE	PERENNIAL
AL193	AY	M.F. KOMUKUK RIVER#2	684	697	122	613	83	10	201	NO	NONE	PERENNIAL
AL194	AY	HAMMOND RIVER	577	717	125	849	89	10	205	NO	NONE	PERENNIAL
AL197	AY	M.F. KOMUKUK RIVER#3	76	697	128	751	59	10	203	NO	NONE	PERENNIAL
AL205	AY	MARION CREEK	645	849	122	211	26	10	160	NO	NONE	PERENNIAL
AL249	AY	N.F. BONANZA CREEK	821	587	104	43	1	30	170	NO	NONE	
AL1401	AY	ATIGUN RIVER FLOODPLAIN	69	7	126	132	21	2	231	NO	NONE	
AL092	PA	TOOUK RIVER	733	697	892	34	27	100	184	NO	NONE	PERENNIAL
AL093	PA	E.F. KUPARUK RIVER	773	705	912	90	16	55	202	NO	NONE	PERENNIAL
AL094	PA	KUPARUK RIVER	77	724	112	38	37	25	217	NO	NONE	PERENNIAL
AL098	AY	YAN CREEK#1	784	72	109	32	29	40	210	NO	NONE	EPHEMERAL
AL101	PA	MOSS CREEK	718	776	109	52	19		175	NO	NONE	SEASONAL
AL102	PA	TERRY CREEK#1				111	11		176	NO	NONE	INTERMITTENT
AL103	PA	TERRY CREEK#2	924	775	103	54	15		149	NO	NONE	SEASONAL
AL108	AY	GALBRATH LAKE TRIB.#1	613	788	112	41	17	15	140	NO	NONE	EPHEMERAL
AL112	PA	GALBRATH LAKE TRIB.#5	643	817	112	91	16	40	133	NO	NONE	INTERMITTENT
AL104	PA	TERRY CREEK#3	749	746	893	51	15	15	142	NO	NONE	SEASONAL
AL105	PA	MACK CREEK	643	725	112	32	25	25	141	NO	NONE	PERENNIAL
AL106	PA	ED CREEK	719	721	987	35	13	25	145	NA	NONE	PERENNIAL
AL110	PA	GALBRATH LAKE TRIB.#3	408	764	121	411	72	20	147	NO	NONE	PERENNIAL
AL117	PA	UNNAMED INTERMITTENT CREEK#2	417	835		275	11	0	142	NO	NONE	SEASONAL
AL127	PA	TRIB. TO TYLER CREEK	482	707	113	269	1	15	140	NO	NONE	SEASONAL
AL128	PA	TYLER CREEK	67	835	119	360	64	20	142	NO	NONE	PERENNIAL
AL1283	PA	TREVOR CREEK	524	774	109	201	24	5	161	NO	NONE	SEASONAL
AL137	PA	UNNAMED TRIB.#12 TO ATIGUN RIVER SOUTH CHANNEL	443	647	109	316	15	0	221	NO	NONE	PERENNIAL
AL1361	PA	UNNAMED TRIB.#12 TO ATIGUN RIVER NORTH CHANNEL	521	649	11	299	05	0	215	NO	NONE	PERENNIAL
AL136	PA	UNNAMED TRIB.#11 TO ATIGUN RIVER	26	63	121	226	06	5	214	NO	NONE	PERENNIAL
AL133	PA	UNNAMED TRIB.#8 TO ATIGUN RIVER	402	656		367	05	0	198	NO	NONE	PERENNIAL
AL126	PA	153 MILE CREEK	293	581	118	320	05	0	193	NO	NONE	PERENNIAL
AL125	PA	WATERHOLE CREEK	269	579	128	737	37	0	212	NO	NONE	PERENNIAL
AL119	PA	MAIN LINE SPRING CREEK	435	593	118	179	05	10	167	NO	NONE	PERENNIAL
AL118	PA	VANISH AND HOLDEN CREEKS	512	69	118	368	1	0	196	NO	NONE	PERENNIAL

FIELD TARGET	SPREAD	LOCATION NAME	WATER TEMP	PH	DISSOLVED OXYGEN	SPECIFIC CONDUCTIVITY	TURBIDITY	COLOR	OXIDATION REDUCTION POTENTIAL	SHEEN	ODOR	FLOW TYPE
AL063	PA	POLYGON CREEK	619	611	125	58	2	60	160	NO	NONE	PERENNIAL
AL064	PA	POISON PIPE CREEK	725	595	119	75	09	35	141	NO	NONE	PERENNIAL
AL065	PA	CLIMB CREEK	732	601	12	86	13	35	153	YES	NONE	PERENNIAL
AL066	PA	DENSE CREEK	796	611	111	51	3	30	137	NO	NONE	PERENNIAL
AL306	YF	HESS CREEK	136	74	965	126	2	75	100	NO	NONE	PERENNIAL
AL319.1	YF	SHORTY CREEK	65	69	128	185	3	75	131	NO	NONE	PERENNIAL
AL303	YF	UNNAMED TRIB.#5 TO HESS CREEK	69	73	121	133	15	100	140	NO	NONE	PERENNIAL
AL300	YF	UNNAMED TRIB.#2 TO HESS CREEK	81	74	8	241	06	40	174	NO	NONE	PERENNIAL
AL315	YF	LOST CREEK	103	69	103	42	32	150	130	NO	NONE	PERENNIAL
AL299.1	YF	UNNAMED TRIB.#1 TO HESS CREEK								NO	NONE	PERENNIAL
AL293	AY	BURBOT CREEK	705	652	532	268	11	100	135	NO	NONE	SEASONAL
AL292	AY	WOOD CHOPPER CREEK	111	748	914	388	16	55	184	NO	NONE	PERENNIAL
AL289	AY	5 MILE AIR STRIP CREEK	48	7.5		180	66	30	174	NO	NONE	PERENNIAL
AL288	AY	PHILIPS CREEK	612	73		108	09	20	151	NO	NONE	PERENNIAL
AL279	AY	N.F. RAY RIVER	127	737	105	117	94	90	109	NO	NONE	PERENNIAL
AL288.1	AY		12	796		292	16	45	111	NO	NONE	PERENNIAL
AL287	AY	UNNAMED TRIB.#3 TO RAY RIVER	605	662		62	74	85	162	NO	NONE	PERENNIAL
AL286	AY	UNNAMED TRIB.#2 TO RAY RIVER	277	691		95	62	30	173	NO	NONE	PERENNIAL
AL284	AY	BIGHT-O-CLOCK CREEK	567	67		58	94	75	141	NO	NONE	PERENNIAL
AL285	AY	UNNAMED TRIB.#1 TO RAY RIVER	14	684		105	44	15	117	NO	NONE	PERENNIAL
AL284.1	AY		204	705		200	54	25	8	YES	NONE	PERENNIAL
AL283	AY	FORTHAM LIN HILLS CREEK	988	703		123	7.7	80	553	NO	NONE	PERENNIAL
AL282	AY	UNNAMED TRIB.#2 TO N.F. RAY RIVER	52	686		167			67.7	NO	NONE	PERENNIAL
AL278	AY	W.F. FED CREEK	612	697		119	14	30	132	NO	NONE	PERENNIAL
AL294	AY	WOOD CAMP CREEK	102	735	112	214	15	70	186	NO	NONE	PERENNIAL
AL281	AY	UNNAMED TRIB.#1 TO N.F. RAY RIVER	162	645		92	19	150	177	NO	NONE	NORFLOW
AL274	AY	FORTHAM LIN CREEK #1	362	582			16	40	174	NO	NONE	PERENNIAL
AL273	AY	DALL LAKES CREEK	442	681		135	57	35	105	NO	NONE	PERENNIAL
AL272	AY	UNNAMED TRIB.#1 TO S.B. W.F. DALL RIVER	975	629		49	84	50	714	YES	NONE	PERENNIAL
AL271	AY	S.B. W.F. DALL RIVER	118	64		66	67	200	103	NO	NONE	PERENNIAL
AL262	AY	OLSON LAKE CREEK	466	553			18	50	144	NO	NONE	PERENNIAL
AL160	AY	RUFF CREEK	64	781	115	751		150	180	NO	NONE	PERENNIAL
AL161	AY	STEEP CREEK	739	783	114	487		90	882	NO	NONE	PERENNIAL
AL162	AY	UGH CREEK	62	769	118	456	29	20	662	NO	NONE	PERENNIAL
AL163	AY	UNNAMED TRIB.#7 TO DIETRICH CREEK	797	767	114	253	16	5	214	NO	NONE	PERENNIAL
AL164.1	AY		579	815	118	577	149	35	186	NO	NONE	EPHEMERAL
AL168	AY	UNNAMED TRIB.#8 TO DIETRICH CREEK	341	707	129	172	51	40	25	NO	NONE	PERENNIAL
AL167	AY	SNOWDEN CREEK	545	824	12	664	12	8	126	NO	NONE	PERENNIAL
AL169	AY	UNNAMED TRIB.#9 TO DIETRICH CREEK	294	738		256	27	35	449	NO	NONE	PERENNIAL
AL170	AY	UNNAMED TRIB.#10 TO DIETRICH CREEK	37	732	302	170	24	45	145	NO	NONE	PERENNIAL
AL180	AY	M.F. KOYUK RIVER #1	112	769	106	397	23	10	-11	NO	NONE	PERENNIAL
AL171	AY	UNNAMED TRIB.#11 TO DIETRICH CREEK	316	74		328			36	NO	NONE	PERENNIAL
AL173.1	AY	UNNAMED TRIB.#12 TO DIETRICH CREEK	865	737	102	435	89	35	62	NO	NONE	PERENNIAL
AL174	AY	BOCKMAN CREEK	639	784	124	410	95	15	34	NO	NONE	PERENNIAL
AL060	PA	GUSTAFSON GULCH	171	654	757	73	27	40	462	NO	NONE	SEASONAL
AL070.2	PA	UNNAMED TRIB. TO SAG RIVER	121	66	945	78	09	20	154	NO	NONE	SEASONAL
F498	PP	POINT THOMSON	142	714	102	291	15	20	138	NO	NONE	PERENNIAL
F499	AY	POINT THOMSON	179	704	101	250	92	55	124	NO	NONE	EPHEMERAL
F494	PP	POINT THOMSON		7.75	111	355	24	10	146	NO	NONE	SEASONAL
F492	PP	POINT THOMSON	158	742	982	256	3	28	79	NO	NONE	SEASONAL
F490	PP	POINT THOMSON	159	726	909	286	06	8	872	NO	NONE	SEASONAL
F491	PP	POINT THOMSON	197	716	107	339	27	15	836	NO	NONE	INTERMITTENT
F489	PP	POINT THOMSON	141	667	79	305	48	50	312	YES	NONE	INTERMITTENT



2010 FISH COMPLETION REPORT,
PERMIT SF2010-199

USAG-UR-SRWDF-000002
MAY 2011
REVISION 0

APP PROPRIETARY

[illegible]

ALASKA PipelineProject	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

APPENDIX H: AQUATIC HABITATS

FIELD TARGET	LOCATION NAME	BOULDERS	DEEP POOLS	FRINGING WETLANDS	GRAVEL	GRAVEL BARS	IN-STREAM EMERGENT	IN-STREAM SUBMERGED	LARGE WOODY DEBRIS	MUD BAR	OVERHANGING TREES/ SHRUBS	RIFLES	SAND BARS	UNDERCUT BANKS
AL215	ROSIE CREEK		X		X	X	X				X	X	X	
N/A	UNMARKED STREAM		X	X			X			X	X	X	X	
AL217	N.B. TRIB. TO JACKSON SLOUGH		X		X	X			X		X	X	X	X
AL217.1	M.B. TRIB. TO JACKSON SLOUGH		X		X	X			X		X	X	X	X
AL230	ELWOOD CREEK #3		X		X	X	X		X		X	X	X	X
N/A			X	X			X	X		X				
AL225	CROSSROAD CREEK #2		X	X			X	X		X				
AL224	CROSSROAD CREEK #1		X	X			X	X		X				
AL239	DOUGLAS CREEK										X	X		X
AL238	UNNAMED TRIB. #3 TO JIM RIVER		X				X	X						
AL234	UNNAMED TRIB. #3 TO GRAYLING LAKE		X				X			X	X			
AL245	PROSPECT CREEK		X		X	X	X					X		
AL246	LITTLE NASTY CREEK									X			X	X
AL251	PUNG'S CROSSING CREEK		X		X	X	X	X	X	X	X	X		X
AL252	ALDER MOUNTAIN CREEK			X			X	X	X	X	X			
AL255	S.F. FISH CREEK		X		X				X		X	X		X
AL256	UNNAMED TRIB. #1 KANUTI RIVER				X		X	X			X	X		X
AL263	UNNAMED TRIB. TO FINGER MOUNTAIN CREEK			X			X	X			X		X	
AL266	SMOKEY CREEK			X							X			
AL262	OLSON'S LAKE CREEK		X		X					X		X		X
AL267	M.B. FINGER MOUNTAIN CREEK										X		X	
AL271	S.B. W.F. DALL RIVER				X		X							X
AL274	FORT HAMLIN CREEK #1						X	X	X		X	X		X
AL293	BURBOT CREEK								X		X			
AL413	BERRY CREEK										X	X		X
AL409	UNNAMED CREEK TO LAKE		X								X			X
AL391	ROSA CREEK #2		X						X	X	X			X
AL390	ROSA CREEK #1		X				X	X	X	X	X	X		X
AL389	W.B. #2 ROSA CREEK								X		X		X	
AL388	W.B. #1 ROSA CREEK										X			
AL371	SALCHA RIVER				X							X		X
AL369	MILLION DOLLAR CREEK #1								X		X			
AL365	UNNAMED TRIB. TO LITTLE SALCHA RIVER						X			X				
AL363	MILLION DOLLAR CREEK #4						X	X			X			X
AL364	MILLION DOLLAR CREEK #5						X				X			X
AL005	SIDE CHANNEL B TO SAG RIVER		X	X	X	X	X	X					X	X
N/A				X			X							
N/A				X			X							
AL019.1	SIDE CHANNEL TO SAG RIVER			X			X							
AL019.2	SIDE CHANNEL TO SAG RIVER			X			X							
N/A				X										
AL019.6	SIDE CHANNEL TO SAG RIVER (WOOD CREEK COMPLEX)			X										
AL035	UNNAMED CREEK		X		X	X	X	X						X
AL019.7	SIDE CHANNEL TO SAG RIVER (WOOD CREEK COMPLEX)			X			X	X						

FIELD TARGET	LOCATION NAME	BOULDERS	DEEP POOLS	FRINGING WETLANDS	GRAVEL	GRAVEL BARS	IN-STREAM EMERGENT	IN-STREAM SUBMERGED	LARGE WOODY DEBRIS	MUD BAR	OVERHANGING TREES/ SHRUBS	RIFLES	SANDBARS	UNDERCUT BANKS
N/A			X	X	X	X	X	X		X	X			X
AL043	UNNAMED CREEK		X	X	X	X	X	X		X	X	X		X
AL053	DAN CREEK	X	X	X	X		X	X		X		X		
AL044	UNNAMED CREEK		X	X	X		X	X			X	X		X
AL045	UNNAMED CREEK		X		X	X					X	X		X
AL045.1	UNNAMED CREEK			X										
AL045.2	UNNAMED TRIB. TO SAG RIVER				X									
AL131	157 MILE CREEK	X			X									
AL129	UNNAMED TRIB. #5 TO ATIGUN RIVER			X			X							
AL127	TRIB. TO TYLER CREEK			X			X							
AL123	UNNAMED TRIB. #3 TO ATIGUN RIVER			X			X							
AL121	UNNAMED TRIB. #1 TO ATIGUN RIVER			X	X	X	X							
AL119	MAINLINE SPRING CREEK			X			X							
AL115	TEE LAKE INLET #1				X									
AL109	GALBRAITH LAKE TRIB. #2						X							
AL113	ATIGUN RIVER #1		X		X	X				X		X	X	X
AL107	JILL CREEK		X	X			X	X						
AL111	GALBRAITH LAKE TRIB. #4				X	X	X				X			X
F501	POINT THOMSON		X	X	X	X	X	X		X		X	X	X
F480	POINT THOMSON		X		X	X	X					X	X	X
F479	POINT THOMSON		X	X	X	X	X	X		X		X	X	X
F503	POINT THOMSON		X	X	X	X	X	X		X	X	X		X
F504	POINT THOMSON		X		X	X	X	X		X		X		X
F493	POINT THOMSON		X	X	X	X				X		X		
F476	POINT THOMSON		X	X	X	X	X							X
AL479								X	X					X
AL350	LITTLE CHENA RIVER								X	X	X		X	X
AL317	TOLOVANA RIVER		X		X	X			X	X	X	X		X
AL315	LOST CREEK		X		X	X				X	X			X
AL306.1	TRIB. #1 TO ERICKSON CREEK		X					X	X	X	X	X		X
AL306.2	TRIB. #2 TO ERICKSON CREEK		X		X	X			X		X			X
AL314	ERICKSON CREEK								X		X			
AL328	TRIB. TO GLOBE CREEK		X				X	X	X	X	X	X	X	X
AL326	UNNAMED TRIB. #1 TO GLOBE CREEK			X							X			
AL329	GLOBE CREEK		X		X				X		X	X	X	X
AL339	CHATANIKA RIVER		X		X				X			X	X	X
AL216	S.F. ROSIE CREEK				X	X			X		X	X		X
AL221	N.B. S.F. WINDY CREEK		X	X			X	X						
AL222	S.F. WINDY CREEK			X			X							
AL218	TRENT'S TRICKLE CREEK	X	X		X	X					X	X		X
AL223	CHAPMAN CREEK		X				X	X	X					X
AL226	S.F. KOYUKUK RIVER				X	X					X	X		X
AL227	ABA-DABA CREEK	X			X						X	X		X
AL232	UNNAMED TRIB. #1 TO GRAYLING LAKE		X	X					X		X	X		X
AL233	UNNAMED TRIB. #2 TO GRAYLING LAKE		X								X			X

FIELD TARGET	LOCATION NAME	BOULDERS	DEEP POOLS	FRINGING WETLANDS	GRAVEL	GRAVEL BARS	IN-STREAM EMERGENT	IN-STREAM SUBMERGED	LARGE WOODY DEBRIS	MUD BAR	OVERHANGING TREES/ SHRUBS	RIFLES	SAND BARS	UNDERCUT BANKS
AL236	UNNAMED TRIB. #2 TO JIM RIVER		X	X	X				X		X			X
AL237	JIM RIVER				X						X	X		X
AL237	JIM RIVER		X								X			
AL244	UNNAMED TRIB. #1 TO PROSPECT CREEK		X	X			X	X				X		
AL247	UNNAMED TRIB. #1 TO LITTLE NASTY CREEK		X	X			X					X	X	X
AL250	S.F. BONANZA CREEK		X		X	X			X		X	X		X
AL253	FISH CREEK	X			X	X			X		X	X		X
AL254	M.F. FISH CREEK	X			X	X					X	X		X
AL257	UNNAMED TRIB. #2 KANUTI RIVER	X	X								X	X		X
AL258	KANUTI RIVER	X	X								X			
AL261	UNNAMED TRIB. #2 TO OLSON'S LAKE CREEK		X	X			X	X			X			
AL260.1	UNNAMED TRIB. #1 TO OLSON'S LAKE CREEK		X	X			X							
AL264	FINGER MOUNTAIN CREEK		X		X		X				X	X		X
AL265	EIGHT-FIVE CREEK		X				X				X	X	X	X
AL269	UNNAMED TRIB. M.B. W.F. DALL RIVER			X										
AL268	M.B. W.F. DALL RIVER		X								X	X		X
AL272	UNNAMED TRIB. #1 TO S.B. W.F. DALL RIVER		X											X
AL273	DALL LAKES CREEK				X		X	X			X	X		
AL417			X	X			X	X	X		X	X		X
AL415	UNNAMED TRIB. #6 TO TANANA RIVER		X						X	X	X	X		X
AL410	SEARS CREEK								X		X	X		X
AL406	UNNAMED TRIB. #4 TANANA RIVER		X				X	X			X	X		X
AL408	DRY CREEK		X		X	X			X		X	X		X
AL383	UNNAMED TRIB. #3 TO S.F. MINTON CREEK			X			X	X						
AL384	S.F. MINTON CREEK			X			X	X						
AL386	UNNAMED TRIB. #5 TO S.F. MINTON CREEK							X	X		X			
AL370	UNNAMED TRIB. #1 TO SALCHA RIVER			X			X				X			X
AL366	LITTLE SALCHA RIVER		X						X	X	X	X		X
AL368	UNNAMED TRIB. TO KANPEOVER CREEK		X	X				X	X					X
AL367	KANPEOVER OR 219 CREEK #1		X	X				X	X			X		X
AL019	SYLVIA CREEK			X			X							
AL007	THELMA CREEK			X			X		X					
AL006	UNNAMED TRIB. TO SAG RIVER		X	X			X	X						
AL4.5.1	UNNAMED TRIB. #4 TO SAG RIVER		X	X			X	X						
AL035	UNNAMED CREEK										X	X		
AL035.1	UNNAMED CREEK		X	X		X	X	X			X			
AL040	UNNAMED CREEK	X	X									X		X
AL039	MARK CREEK	X			X		X				X			
AL049	UNNAMED TRIB. TO SAG RIVER	X	X		X	X			X		X	X		X
AL116	UNNAMED INTERMITTEN CREEK #1		X				X				X			
AL130	UNNAMED TRIB. #6 TO ATIGUN RIVER			X										
AL128	TYLER CREEK	X	X		X							X		
AL124	UNNAMED TRIB. #4 TO ATIGUN RIVER			X										
AL120	UNNAMED CREEK (ONE-ONE-THREE CREEK)	X										X		
AL132	ATIGUN RIVER #2	X	X		X	X						X		

FIELD TARGET	LOCATION NAME	BOULDERS	DEEP POOLS	FRINGING WETLANDS	GRAVEL	GRAVEL BARS	IN-STREAM EMERGENT	IN-STREAM SUBMERGED	LARGE WOODY DEBRIS	MUD BAR	OVERHANGING TREES/ SHRUBS	RIFLES	SANDBARS	UNDERCUT BANKS
AL094	KUPARUK RIVER	X	X									X		
F500	POINT THOMSON		X	X			X							
F475	POINT THOMSON				X	X						X		
F474	POINT THOMSON		X				X	X						X
F497	POINT THOMSON		X		X							X		
F496	POINT THOMSON		X		X							X		
F495	POINT THOMSON		X	X			X							
F476	POINT THOMSON		X				X	X						
F473	POINT THOMSON		X		X					X				
F471	POINT THOMSON		X		X	X						X	X	
AL477	ISLAND INLET #1			X										
AL331	E.B. LITTLE GLOBE CREEK		X							X	X	X		X
AL330	W.B LITTLE GLOBE CREEK		X						X		X	X		X
AL334	AGGIE CREEK	X	X								X	X		X
AL333	N.F. AGGIE CREEK	X	X						X		X	X		X
AL322	SLATE CREEK	X	X		X	X			X		X	X	X	X
AL320.1	S.F. WILBER CREEK	X	X						X		X	X		X
AL320	N.F. WILBER CREEK		X	X			X	X	X	X	X	X		X
AL306	HESS CREEK		X		X	X			X			X		X
AL305	FISH CREEK #2		X		X	X			X	X	X		X	X
AL336	WASHINGTON CREEK		X		X	X		X	X		X	X	X	X
AL350.1	UNNAMED SLOUGH LITTLE CHENA RIVER			X			X	X						X
AL348.3	IOWA CREEK								X		X			X
AL350	LITTLE CHENA RIVER								X		X			
AL340	TREASURE CREEK		X						X		X			X
AL338	SHOCKER CREEK		X				X	X	X		X			X
AL337	UNNAMED TRIB. TO CHATANIKA RIVER			X			X	X						
AL348.1	UNNAMED TRIB. #1 TO SMALLWOOD CREEK		X	X			X	X						
AL196	UNION GULCH		X		X		X	X	X		X	X		
AL206	MARY ANGLE CREEK		X	X	X		X	X	X					X
AL208	CLARA CREEK		X		X	X		X	X		X	X	X	X
N/A	N.F. BONANZA CREEK											X		
AL182	LINDA CREEK	X			X	X						X		
AL181	N.F. SUKAPACK CREEK	X			X	X						X	X	
AL186	NUGGET CREEK	X			X	X					X	X	X	X
AL184	SHEEP CREEK #1				X	X						X	X	
AL198	MINNIE CREEK	X	X		X				X			X	X	X
AL205	MARION CREEK	X	X		X	X			X		X	X	X	X
AL237	JIM RIVER	X	X		X	X			X		X	X		X
AL145	W.F. N.F. CHANDALAR RIVER				X									
AL141	UNNAMED TRIB. #1 TO W.F. N.F. CHANDALAR RIVER				X	X						X		
AL142	UNNAMED TRIB. #2 TO W.F. N.F. CHANDALAR RIVER	X		X	X	X						X		
AL143	W.F. N.F. CHANDALAR RIVER				X							X		
AL144	W.F. N.F. CHANDALAR RIVER			X	X	X					X	X		
AL146	W.F. N.F. CHANDALAR RIVER		X		X	X				X	X	X	X	X

FIELD TARGET	LOCATION NAME	BOULDERS	DEEP POOLS	FRINGING WETLANDS	GRAVEL	GRAVEL BARS	IN-STREAM EMERGENT	IN-STREAM SUBMERGED	LARGE WOODY DEBRIS	MUD BAR	OVERHANGING TREES/ SHRUBS	RIFLES	SAND BARS	UNDERCUT BANKS
AL147	ANDY'S CREEK				X	X						X		
AL148	TRUCK STOP CREEK #1				X	X					X	X		
AL149	UNNAMED TRIB. #1 TO DIETRICH RIVER	X	X		X	X					X	X	X	
AL150	ONE-SEVEN-SIX MILE CREEK				X						X			
AL151	BEAVER BROOK CREEK				X						X	X		
AL152	BEAR TRACK CREEK	X				X								
AL153	UNNAMED TRIB. #2 TO DIETRICH RIVER	X												
AL154	UNNAMED TRIB. #3 TO DIETRICH RIVER	X												
AL155	UNNAMED TRIB. #3 TO DIETRICH RIVER				X	X			X			X	X	
AL156	UNNAMED TRIB. #4 TO DIETRICH RIVER	X	X		X							X		X
AL159	NUTIRWIK RIVER	X	X		X	X					X	X	X	X
AL157	TRACEY'S TRICKLE OR UNNAMED CREEK #1	X			X									
AL246	UNNAMED TRIB. #5 TO DIETRICH RIVER	X			X				X			X		X
AL172	LITTLE NASTY CREEK		X		X	X			X		X		X	X
AL176	DISASTER CREEK	X			X	X						X		
AL177	DIETRICH RIVER				X	X			X	X		X	X	
AL177	EVA'S ALVA CREEK	X												
AL181	EVA'S ALVA CREEK				X	X			X			X		
AL218	N.F. SUKAPACK CREEK		X		X	X				X	X	X	X	X
AL244	TRENT'S TRICKLE CREEK	X		X	X	X					X	X	X	X
AL250	UNNAMED TRIB. #1 TO PROSPECT CREEK			X			X				X			
AL251	S.F. BONANZA CREEK		X		X				X		X	X		X
AL247	PUNG'S CROSSING CREEK		X		X	X			X		X	X		X
AL240	UNNAMED TRIB. #1 TO LITTLE NASTY CREEK		X	X			X				X			X
N/A	UNNAMED TRIB. TO GAS BUBBLE SLOUGH			X	X						X			
AL193	TRIB. TO CHANDALAR		X		X				X		X	X		
AL194	M.F. KOYUKUK RIVER #2		X		X	X								
AL197	HAMMOND RIVER		X		X	X						X		
AL140.1	M.F. KOYUKUK RIVER #3	X	X		X	X						X		
AL092	ATIGUN RIVER FLOODPLAIN	X										X		
AL093	TOOLIK RIVER		X	X		X	X	X						
AL094	E.F. KUPARUK RIVER	X	X	X	X		X	X				X		
AL098	KUPARUK RIVER		X	X	X							X		
AL101	YAN CREEK #1	X		X	X							X		
AL102	MOSS CREEK			X	X		X	X			X			
AL103	TERRY CREEK #1		X	X			X	X						
AL108	TERRY CREEK #2		X	X			X	X				X		
AL112	GALBRAITH LAKE TRIB. #1	X		X	X		X	X			X	X		
AL104	GALBRAITH LAKE TRIB. #5			X			X	X			X	X		
AL105	TERRY CREEK #3		X	X	X		X	X				X		X
AL106	MACK CREEK		X	X	X		X				X	X		
AL110	ED CREEK		X	X	X		X					X		X
AL114	GALBRAITH LAKE TRIB. #3		X	X	X		X				X	X		
AL117	LAKE OUTLET TO ATIGUN RIVER #1			X				X						
AL127	UNNAMED INTERMITTEN CREEK #2		X	X	X		X					X		X

FIELD TARGET	LOCATION NAME	BOULDERS	DEEP POOLS	FRINGING WETLANDS	GRAVEL	GRAVEL BARS	IN-STREAM EMERGENT	IN-STREAM SUBMERGED	LARGE WOODY DEBRIS	MUD BAR	OVERHANGING TREES/ SHRUBS	RIFLES	SAND BARS	UNDERCUT BANKS
AL128	TRIB. TO TYLER CREEK			X			X	X						
AL128.1	TYLER CREEK	X	X		X						X	X		X
AL138	TREVOR CREEK						X							
AL137	UNNAMED TRIB. #13 TO ATIGUN RIVER				X									
N/A	UNNAMED TRIB. #12 TO ATIGUN RIVER SOUTH CHANNEL	X	X		X	X						X		
AL136	UNNAMED TRIB. #12 TO ATIGUN RIVER NORTH CHANNEL		X		X						X	X		
AL135	UNNAMED TRIB. #11 TO ATIGUN RIVER				X						X			
AL133	UNNAMED TRIB. #10 TO ATIGUN RIVER				X						X			
AL126	UNNAMED TRIB. #8 TO ATIGUN RIVER	X	X											
AL125	153 MILE CREEK			X							X	X		
AL119	MAINLINE SPRING CREEK		X	X			X							
AL118	VANISH AND HOLDEN CREEKS	X	X											
AL063	POLYGON CREEK	X	X		X	X	X	X			X	X		X
AL064	POISON PIPE CREEK	X		X			X				X	X		X
AL065	CLIMB CREEK		X	X			X	X						
AL066	DENISE CREEK		X	X			X	X						
AL306	HESS CREEK		X		X	X			X	X		X	X	X
N/A	SHORTY CREEK		X		X	X				X	X	X	X	X
AL303	UNNAMED TRIB. #5 TO HESS CREEK		X							X	X	X		X
AL300	UNNAMED TRIB. #2 TO HESS CREEK		X	X			X	X	X	X	X	X		X
AL315	LOST CREEK		X			X			X	X		X	X	X
AL299.1	UNNAMED TRIB. #1 TO HESS CREEK								X	X	X			X
AL293	BURBOT CREEK		X	X			X		X	X				X
AL292	WOOD CHOPPER CREEK		X		X	X			X		X	X		X
AL289	5 MILE AIRSTRIP CREEK		X	X	X				X		X			X
AL288	PHELPS CREEK		X		X	X			X	X	X	X		X
AL279	N.F. RAY RIVER				X				X		X			X
N/A			X	X						X				
AL287	UNNAMED TRIB. #3 TO RAY RIVER		X		X	X			X	X	X	X		X
AL286	UNNAMED TRIB. #2 TO RAY RIVER		X		X	X			X		X	X		X
AL284	EIGHT-O-CLOCK CREEK				X	X			X			X		
AL285	UNNAMED TRIB. #1 TO RAY RIVER		X		X				X	X	X	X		X
N/A					X				X		X			
AL283	FORT HAMLIN HILLS CREEK		X		X	X			X	X	X	X		X
AL282	UNNAMED TRIB. #2 TO NF RAY RIVER									X				
AL278	W.F. FED CREEK		X		X		X		X	X	X	X		X
AL294	WOODCAMP CREEK		X		X				X	X	X			X
AL281	UNNAMED TRIB. #1 TO N.F. RAY RIVER		X	X										
AL274	FORT HAMLIN CREEK #1		X	X			X	X	X		X			
AL273	DALL LAKES CREEK		X	X	X		X		X	X	X			
AL272	UNNAMED TRIB. #1 TO S.B. W.F. DALL RIVER	X	X	X	X		X		X	X	X	X		
AL271	S.B. W.F. DALL RIVER		X	X	X		X					X		X
AL262	OLSON'S LAKE CREEK	X	X		X	X	X		X		X	X	X	

FIELD TARGET	LOCATION NAME	BOULDERS	DEEP POOLS	FRINGING WETLANDS	GRAVEL	GRAVEL BARS	IN-STREAM EMERGENT	IN-STREAM SUBMERGED	LARGE WOODY DEBRIS	MUD BAR	OVERHANGING TREES/ SHRUBS	RIFFLES	SAND BARS	UNDERCUT BANKS
AL160	RUFF CREEK					X								
AL161	STEEP CREEK					X			X			X		
AL162	UGH CREEK					X					X	X		
AL163	UNNAMED TRIB. #7 TO DIETRICH CREEK		X		X	X					X	X		X
N/A											X	X		
AL168	UNNAMED TRIB. #8 TO DIETRICH CREEK		X						X		X			
AL167	SNOWDEN CREEK				X	X						X		X
AL169	UNNAMED TRIB. #9 TO DIETRICH CREEK										X			X
AL170	UNNAMED TRIB. #10 TO DIETRICH CREEK										X	X		X
AL180	M.F. KOYUKUK RIVER #1		X		X	X			X			X	X	
AL171	UNNAMED TRIB. #11 TO DIETRICH CREEK		X						X		X			X
AL173.1	UNNAMED TRIB. #12 TO DIETRICH CREEK		X	X			X							X
AL174	BOCKMAN CREEK				X	X			X			X		
AL164	STANZIA CREEK								X		X			
N/A									X		X			
AL060	GUSTAFSON GULCH			X			X				X			
AL070.2	UNNAMED TRIB. TO SAG RIVER			X			X							
F498	POINT THOMSON		X	X			X							
F499	POINT THOMSON			X			X							
F494	POINT THOMSON		X	X			X							
F492	POINT THOMSON		X				X	X						
F490	POINT THOMSON				X	X	X	X						X
F491	POINT THOMSON						X	X						
F489	POINT THOMSON			X			X							
F488	POINT THOMSON			X			X							
F487	POINT THOMSON		X				X	X						X
F502	POINT THOMSON		X	X			X	X						
AL316	UNNAMED TRIB. W.F. TOLOVANA RIVER		X		X		X	X	X		X	X		X
AL317	TOLOVANA RIVER		X		X	X			X	X	X	X		X
AL304	UNNAMED TRIB. #6 TO HESS CREEK		X	X			X	X	X		X			
AL302	HOTCAT CREEK		X		X	X	X		X	X	X	X		X
AL305	FISH CREEK #2				X	X	X		X	X	X			X
N/A	MASTODON CREEK		X		X	X		X	X	X	X	X		X
AL301	UNNAMED TRIB. #3 TO HESS CREEK		X	X			X	X						
AL299	ISOM CREEK		X		X					X	X	X		X
AL296.2	UNNAMED TRIB. TO ISOM CREEK		X	X	X						X			X

B – Branch, E – East, F – Fork, M – Middle, N – North, S – South, Trib – Tributary, W – West

ALASKA PipelineProject	2010 FISH COMPLETION REPORT, PERMIT SF2010-199	USAG-UR-SRWDF-000002 MAY 2011 REVISION 0
	APP PROPRIETARY	

APPENDIX I: PRECIPITATION DATA

