Fiber Optic Cable Installation

Development Plan

Toolik Field Station to Anaktuvuk Pass, Alaska

November 2026

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1 INTRODUCTION

Arctic Slope Telephone Association Cooperative (ASTAC) is a member-owned telephone cooperative providing communications services to one of the most remote and isolated areas of the United States – the North Slope Arctic region of Alaska. Today, Arctic Slope serves more than 4,000 access lines, as well as the oilfields of Prudhoe Bay. ASTAC provides the critical link between these remote areas and the world, not only with basic telephone services, but also broadband internet access. ASTAC is organized as a rural telephone non-profit cooperative, wholly owned by its member customers of the North Slope and represented by a nine-seat board of directors from Atqasuk, Point Hope, Utqiaġvik, Kaktovik, Point Lay, Wainwright, Anaktuvuk Pass, Nuiqsut, and Prudhoe Bay.

1.1 PROJECT PURPOSE

According to a recent Federal Communications Commission (FCC) report, 34 million Americans (10% of the United States population) lack access to high-speed internet (FCC 2016). According to the American Planning Association, "the challenge is particularly acute in rural and tribal areas, where about 40% of the population has no high-speed internet access, compared to just 4% of urban residents" (Holywell 2016). Rural Alaska communities are disproportionately affected by lack of internet connectivity and efficiency. High-speed internet and bandwidth costs have been especially high in Alaska's Arctic Slope region. Access to robust and affordable broadband is pivotal to the economic future of the Arctic Slope region (Arctic Economic Council [AEC] 2016).

In response to these challenges and United States economic stimulus policies, telecommunications technology in the Arctic Slope region is advancing rapidly with faster internet speeds and increased bandwidth. In 2017, Quintillion (a wholesale bandwidth services provider) completed the first phase in their Subsea Cable System which aims to lay fiber optic cable from London to Tokyo via the Northwest Passage. Phase 1 connected Prudhoe Bay; the three Arctic Slope Regional Corporation (ASRC) coastal communities of Utqiaġvik, Wainwright, and Point Hope; and Bering Straits Native Corporation coastal community of Nome via subsea fiber optic cable. Prudhoe Bay is also connected to Fairbanks via terrestrial fiber optic cable.

As spurs from the mainline subsea fiber optic cable (Quintillion) make landfall near the coastal communities of Nome, Point Hope, Wainwright, Utqiaġvik, and Prudhoe Bay, ASTAC is extending telecommunications infrastructure to the remaining Arctic Slope communities. Consistent with the goals established by the U.S. Department of Commerce National Telecommunications and Information Administration (2018) and the Arctic Economic Council's broadband initiative (AEC 2016) ASTAC's broadband infrastructure upgrade will connect Atqasuk, Kaktovik, Anaktuvuk Pass, and Point Lay.

Residents of these communities now have access to affordable and reliable high-speed broadband internet providing enhanced environmental protection, higher quality education, improved health care, and more efficient business and government services. Telecommunication service providers now can connect to this cable to expand this network. ASTAC is in the process of planning, designing, and constructing several of these connections to improve service in the communities they serve. The focus of this Development Plan is the broadband upgrade to Anaktuvuk Pass. Doing so will provide Anaktuvuk Pass with the same services available to the other fiber fed ASTAC communities.

1.2 PROPOSED ACTION

This project proposes to connect Anaktuvuk Pass to existing middle mile fiber cable at Toolik Field Station. This ROW application is part of a larger ROW authorization by Alaska DNR (ADL 422366). The sections encompassed by this application were previously owned by BLM at the time of the original application and since have changed over to DNR ownership. Thus, a new ROW authorization for these sections is needed. Fiber optic cable cable will be laid on the surface of the snow-covered tundra during the winter months. The cable route will generally follow the Community Winter Access Trail (CWAT). After a growing season, cable will be engulfed by the tundra and will no longer be visible on the ground surface.

2 PROJECT DESCRIPTION

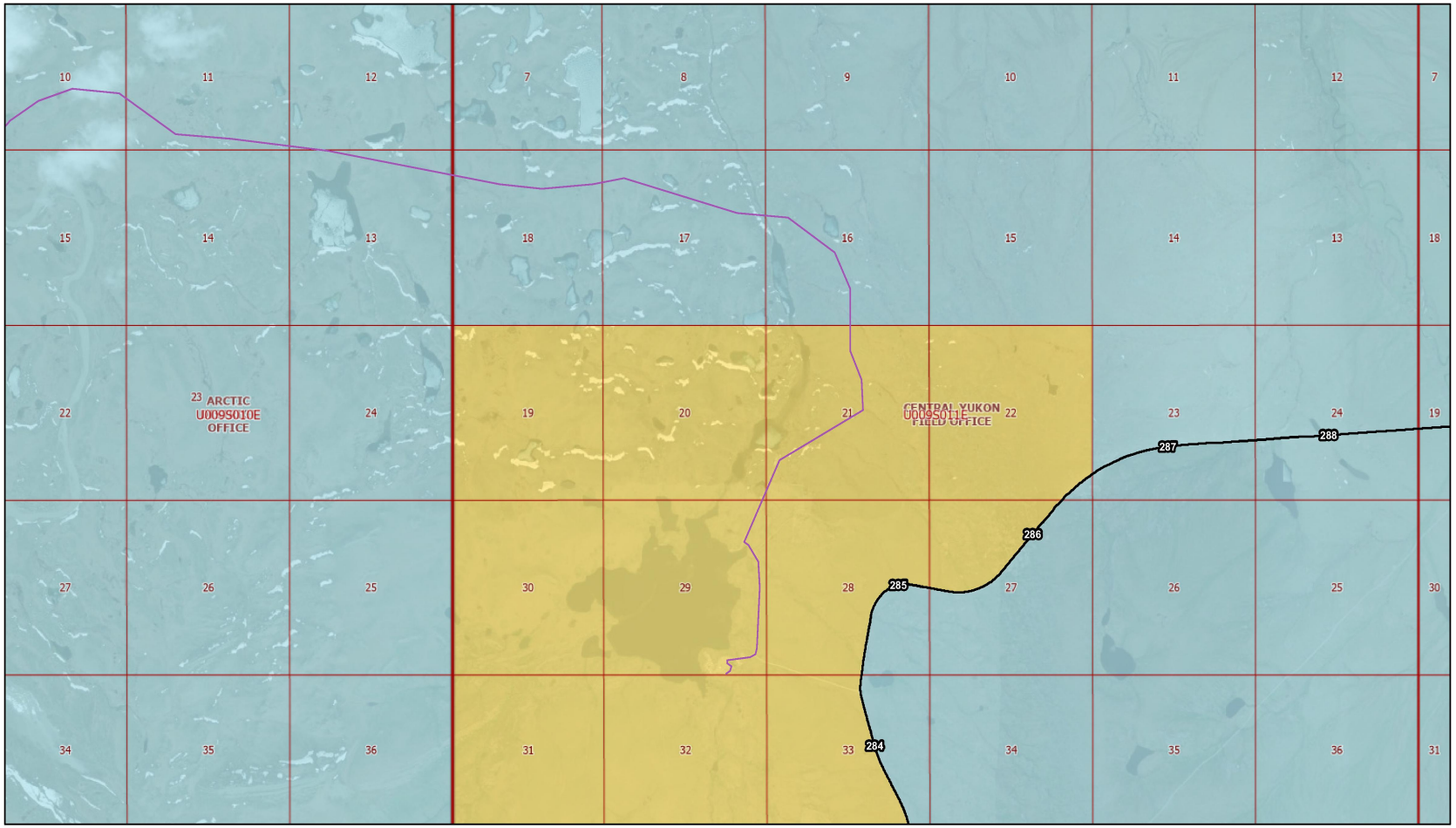
The proposed project area is in northern Alaska and spans between Toolik Field Station and Anaktuvuk Pass (Figure 2-1). The route traverses the Arctic region between the Brooks and Alaska ranges, which is comprised of tundra vegetation with undulating hills. From Toolik Field Station, the fiber optic cable routes west and generally follows the Community Winter Access Trail (CWAT) where possible, paralleling a commonly used winter travel corridor. The proposed route was selected based on ASTAC technical parameters and performance requirements, with input from the community. The route was planned to minimize the impact by avoiding culturally significant sites, cultural resources and to bypass privately owned lands and Native Allotments.

Section, Township, Range Information

The easement will be located in the following section, township, and ranges in the Umiat meridian:

Borough	Township	Range	Section(s)
North Slope Borough	9S	11E	16, 17, 18

Land Ownership T9S R11E



10/29/2026, 5:57:44 PM

AKP_Final_Route_09.14.26

Road (DOT)

BLM AK Protracted Township

BLM AK Protracted Section

BLM AK Administrative Unit Boundary (Line)

District Office Boundary

BLM AK Administrative Unit Boundary (Label)

BLM AK Administered Lands (SMA)

Bureau of Land Management

State

1:97,655

0 0.45 0.9 1.8 mi

0 0.5 1 2 km

Bureau of Land Management, Alaska, Earthstar Geographics

Figure 2-1. Land ownership along cable route. Cable route shown in purple..

2.1 ALTERNATIVES ANALYSIS

Aerial utility poles were considered to install cable. The community of Anaktuvuk Pass objects to the visual effects of utility poles on the tundra. Thus, this alternative has not been carried forward as a viable option for cable installation.

2.2 PERMITTING PROCESS

The primary schedule driver for construction is acquisition of required permits and approvals. The project team has reviewed existing databases and studies for information related to protected resources in the project corridor, cultural and subsistence activities, and other potential environmental constraints. Table 2-1 summarizes the anticipated permits and authorizations for the proposed fiber optic cable lay, as well as those permits considered not applicable to the project.

Table 2-1

Agency	Permit/Authorization	Regulated Activity	Resp. Party	Status
ADF&G	Title 16 Fish Habitat Permit	Work within anadromous and/or resident fish streams	ASTAC	Will be applied for if steel encasements sinking cable to the bottom of streams are used for stream crossings.
ADNR DMLW	Temporary Water Use Authorization	Required for water withdrawal from rivers, streams, wells, etc.	N/A	Water withdraw is not required for construction.
ADNR/SHPO, OHA	Section 106 Consultation/Compliance	Authorization of work within NPR-A	ASTAC	In Progress
BLM	Federal ROW	Construction and operation of utility systems and facilities	BLM	In Progress
NSB	Title 19 Conditional Development Permit	Construction	NSB	✓
NSB	IHLC/TLUI	Construction	NSB	✓
USACE	Section 404 Permit	Fill/dredge activities in wetlands or waters of the U.S.	N/A	Activities in wetlands are anticipated under NWP 57 – Electric Utility Line and Telecommunications Activities. Disturbance will be less than 1/10 acre, therefore a PCN is not required.
USACE	Certificate of Reasonable Assurance (ADEC)	Water quality certification (CWA Section 401) for fill/dredge activities in wetlands.	N/A	Section 404 permit is not anticipated.
USFWS	Bear Interaction Plan	Construction and operational activities	ASTAC	✓

Agency	Permit/Authorization	Regulated Activity	Resp. Party	Status
		that have the potential to affect ESA-listed species		
USFWS	Section 7 ESA Consultation	Construction and operational activities that have the potential to affect ESA-listed species	ASTAC	USFWS confirmed no ESA-listed species present in project area. Formal consultation not required.

2.3 LAND USE

The proposed easement area on DNR land consists of undeveloped tundra land. Terrain along the project route consists of open tundra, with undulating hills. An NSB Conditional Development Permit for construction of the fiber optic cable route has been issued.

2.4 WILDLIFE

As determined by US Fish and Wildlife Service (USFWS) via email on April 25, 2023, no ESA-listed species occur in the Action Area. Therefore, section 7 consultation is not necessary. No adverse impacts to ESA-listed species are anticipated as a result of the proposed fiber optic cable installation.

Subsistence hunting was identified as a resource of concern related to project activities in the community and agency meetings, particularly related to potential helicopter use. Construction is planned for winter months and impacts to subsistence hunting activities are not anticipated. ASTAC will adhere to the project specific stipulations listed in the NSB Conditional Development Permit and will coordinate with the Village of Anaktuvuk Pass on timing of surveys and construction.

Some community members in Anaktuvuk Pass have expressed concern about possible caribou migration routes along the cable corridor. ASTAC conducts constant community outreach throughout all project phases. Community members are being consulted on historic caribou migration routes, present day hunting grounds, and specific areas of concern along the project route. ASTAC will continue to work with residents of Anaktuvuk Pass to ensure community support for the project and minimal effect to caribou populations.

2.5 WETLANDS

The fiber optic cable corridor is primarily located within mosaic wetlands in the Alaskan tundra. Construction will be conducted during winter months to avoid impacts to the tundra. During the summer survey, only DNR-approved vehicles will be used to minimize disturbance to the tundra and associated wetlands.

The project will be under the coverage of US Army Corps of Engineers Nationwide Permit (NWP) 57, effective March 15, 2021. NWP 57 covers “Activities required for the construction, maintenance, repair, and removal of electric utility lines, telecommunication lines, and associated facilities in waters of the United States, provided the activity does not result in the loss of greater than 1/2-acre of waters of the United States for each single and complete project.”

There are no river crossings on this portion of the cable route.

3 OPERATIONS

Permit approvals will initiate cable procurement, which is estimated at six to nine months lead time. Procuring the cable and meeting barge schedules for transport will be critical. Pending issuance of permits, construction will begin winter of 2027/2028 and will continue through the working season, which is defined further in Section 3.1.

3.1 SCHEDULE

ASTAC is planning to lay the fiber optic cable during the 2027/2028 winter construction season. ASTAC intends to mobilize equipment the summer prior to construction, pack snow on the CWAT trail in November 2027 to ensure enough ground cover and protection of tundra; and mobilize personnel in late December 2027 to commence the cable lay in January 2028. Exact start dates will be determined by ground conditions. The project will follow the ADNR requirements for off-road vehicle travel in the tundra which allows travel when the soil temperature one foot below the ground surface reaches 23 degrees Fahrenheit and there is a minimum of six inches of snow cover. Cable seating will occur during the summer via the use of summer approved tundra travel vehicles or helicopter. Table 3-1 provides a list of project milestones and scheduled completion dates.

Table 3-1

Milestone	Target
Meeting with NSB Department of Planning and Community Services	Completed February 3, 2023
NSB Planning Commission meeting in Utqiaġvik	Completed April 27, 2023,
BLM Right of Way pre-application meeting	April 28, 2023
NSB LMR Permit application submittal	December 2023
NSB final application hearing	January 2024
Agency review and public comment	Ongoing through Winter 2026
Environmental Assessment development	Winter 2023- Winter 2026
Permits Issued	March 2025
Mobilize equipment	July through August 2027
Construction	January 2028 – March 2028
Cable Seating and site inspections	Mid to late August 2028

3.2 PRE-CONSTRUCTION

A winter field survey was conducted March 2023 along the route to make note of any significant barriers or terrain that would impact the route. The survey resulted in no findings of obstructions or notable terrain. This was followed up by a spring aerial survey May 2023 during break up to confirm findings.

Table 3-2

Appendix	Plan
A	Waste Management Plan
B	Hazardous Materials Emergency Contingency Plan
C	Comprehensive Spill Prevention and Response Contingency Plan
D	Bear Interaction Plan
E	Subsistence Plan
F	Orientation Plan
G	Weed Control Plan

3.3 CONSTRUCTION

Cable will be placed in the winter months to minimize environmental impact. Operations will commence in January 2028, provided ground conditions are sufficient for tundra travel and permits have been issued. Low ground pressure vehicles (LGPVs), such as the Pisten Bully Sno-Cat (Figure 3-1) will be used to transport crews and equipment along the route. The LGPVs will transport personnel, camps, fuel, equipment, and cable spools. LGPVs will have ancillary lights to ensure sufficient lighting during winter operations when ambient light is minimal. Initial passes by LGPVs will delineate the trail by providing a packed snow surface.

Table 3-3

Equipment	Quantity
Pisten Bully Sno-Cat	Up to 3
Steiger Case tractor	1
Trencher	1
6-mile fiber optic spools	15
Spool trailer	1-2
Powered spool trailer	1-2
10-person sleigh camp	1-2
500-gallon sleigh mounted fuel tank	3
2,500-gallon sleigh mounted fuel tank	2
Light plants, heaters, pumps	2 per crew
Fiber Trailer	1-2
Sleds	1-2



Figure 3-1. Pisten Bully Sno-Cat. (photo courtesy ASTAC)

Crews will advance west from Toolik Field Station at a rate of approximately two to three miles per day. The cable will be spooled out directly on a prepacked trail via a powered spooler, and crew members will manually guide the cable to the center of the alignment. The cable will be laid with enough slack to accommodate the contour of the terrain.

The fiber optic cable will be armored and designed for extreme climate conditions. The cable itself consists of three main layers: the cable core, armoring, and the outer protection. The cable core houses 48 strands of optical fiber in a steel tube containing a water-blocking and hydrogen absorbing compound. The steel tube is encased in a copper layer for electroding. The final layer of the cable core is a black polyethylene inner sheath. The armoring layer consists of two parts: a 0.075-inch diameter galvanized steel wire, which is then encased in a more robust 0.1-inch diameter galvanized steel wire; and a final layer as the outer protection. This is a black, high-density polyethylene sheath. The overall cable thickness will be 0.5-inch to 1-inch. The cable is capable of being deployed at underwater depths of up to 10,000 ft and has a breaking load of 20,000 pounds (lbs.). The minimum bending radius for this cable is 2ft. A cross-section of a single armored cable is provided in Figure 3-2.

3.2 Cross Section of Cable

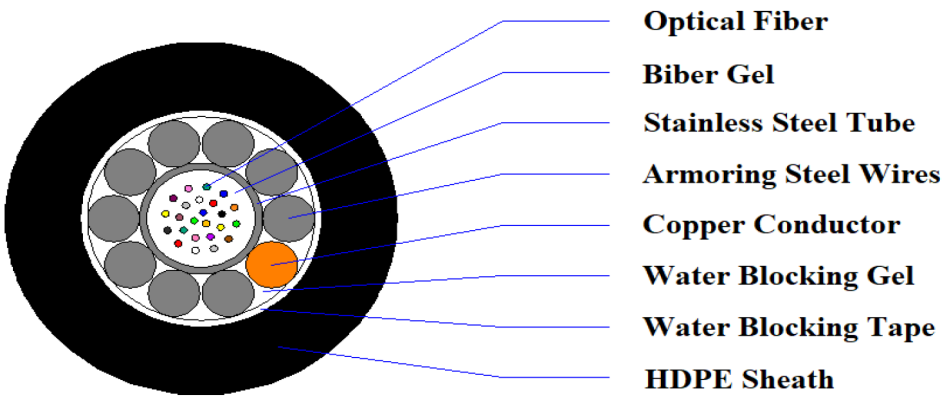




Figure 3-3. Cable spooled on reels.

Cable is spooled on reels in three to six-mile segments with weights ranging between 8,000 and 10,000 lbs. A cable spool is shown in Figure 3-3. The spools will be stored and transported in shipping containers mounted on sleighs. Splices at the six-mile intervals will be encased within a weatherproof splice enclosure that will cover and reinforce the joint. Cable weight and additional armor will be installed as required during the cable lay.

To reduce crew transport time, mobile camps will be used as the cable lay progresses along the alignment. Fuel will be hauled in quantities up to 2,500 gallons with the mobile camps and disbursed to field crews in quantities up to 500 gallons. Mobile camps will move directly with the fiber crews. It is assumed equipment fuel will come from Deadhorse for the entire project. This project may require the use of up to 20,000 gallons ultra-low sulfur diesel for heating and transportation. A Hazardous Materials Emergency Contingency Plan and Comprehensive Spill Prevention and Response Contingency Plan are provided in Appendices B and C, respectively.

A crew will return in the summer to ensure the cable is properly seated on the tundra. In medium to low hazard areas like trail crossings, the cable will be encased in a steel split pipe conduit to ensure it is not damaged and is heavy enough to sink into the tundra. In areas where the cable encounters lakes and slow- moving watercourses, heavy pre-formed wire and/or cast-iron weights will be used to ensure abrasion resistance and eliminate buoyancy. Once the cable has been seated, carsonite marker posts will be used to identify the cable location for maintenance. Access to the site in the summer will be via summer approved tundra travel.

All waste and refuse generated by the crews will be collected and disposed of in accordance with the Waste Management Plan provided in Appendix A. Upon project completion, the entire route will be inspected and cleared of any debris, litter, or garbage. The inspections will verify the cable is properly situated in the tundra over the entire route and that it will not pose any significant safety issues.

4 REFERENCES

Arctic Economic Council. Top of the World arctic Broadband Summit. July 2016. Barrow, Alaska.

Holywell, Ryan. "U.S. Broadband Lags Behind". Planning. American Planning Association. April 2016 Federal Communications Commission. January 29th, 2016. 2016 Broadband Progress

Safine, 2011. Technical Report: Breeding Ecology of Steller's and Spectacled Eiders Nesting Near Barrow, Alaska, 2008-2011.

National Telecommunications and Information Administration. National Broadband Map. (Retrieved from https://www.ntia.doc.gov. 2018.

CAPP 2004. Planning Horizontal Directional Drilling for Pipeline Construction, CAPP Publication 2004-0022 September +2004. Canadian Association of Petroleum Producers.

APPENDICES

APPENDIX A: WASTE MANAGEMENT PLAN

This Waste Management Plan provides guidance for personnel installing fiber optic cable from Toolik Field Station to Anaktuvuk Pass.

Waste will be managed according to the following principles:

- Anything brought in, will be brought out.
- Inspect your campsite and rest areas for trash or spilled foods. Pack out all trash, leftover food, and litter.
- Pack out toilet paper and hygiene products.
- Dish water will be carried 200 feet away from streams or lakes, strained, and scattered on the tundra. Biodegradable soap will be used.

Human waste will be managed utilizing Portable Environmental Toilets and WAG Bags manufactured by Cleanwaste and shown in Figure 1. All food waste and general refuse will be stored in leak-proof containers. Mobile camps may have more substantial human waste facilities. Food waste, general refuse, and human waste will be transported to proper disposal facilities at Toolik Field Station and Anaktuvuk Pass.

Figure 1 Portable Environmental Toilet



Cleanwaste. Retrieved from http://www.cleanwaste.com/products#pop on January 10, 2018.

APPENDIX B: HAZARDOUS MATERIALS EMERGENCY CONTINGENCY PLAN

Contractors installing fiber optic cable will not transport hazardous materials in excess of the amount necessary to ensure safe passage. Hazardous materials expected to be transported during cable installation include fuel tanks transported on sleighs by low ground pressure vehicles. The fuel tanks will be double-walled and fully transportable with a capacity of less than 2,500 gallons. Standard amounts of other hazardous material associated with the operation of equipment and housed within the body of the equipment for proper functionality will include diesel fuel, lubricants, and coolant. Small amounts of engine motor oil and hydraulic fluids may be carried within the cab of the equipment for routine equipment maintenance.

APPENDIX C: COMPREHENSIVE SPILL PREVENTION AND RESPONSE CONTINGENCY PLAN

Contractors installing fiber optic cable will not transport any hazardous materials Fuel will not be transported in excess of the amount necessary to ensure project completion. Sleigh-mounted fuel tanks will be used in addition to the fuel within tanks of the installation equipment. The fuel tanks will be towed behind equipment on sleds and will be used to refuel the equipment. These will be double-walled fully transportable fuel tanks with a fuel capacity of less than 2,500 gallons. Drip pans or duck ponds will be placed beneath all vehicles and equipment when not in use.

Refueling of equipment in the field will follow standard procedures to prevent fuel spills. Prior to any fuel transfer, duck ponds are placed beneath each connection point. The fuel handler will perform a visual observation of fuel levels during fuel transfer. The refueling operation and equipment is inspected for any leaks or drips and proceeds until the fuel handler stops pumping, typically when the tank is 90% full. After the fuel transfer is complete, the transfer hose is emptied manually draining the transfer hose towards the receiving tank. The fuel transfer area and equipment is then inspected for any dripped fuel, and cleaned using adsorbent pads.

A 2,500 gallon fuel sloop will be transported along the alignment between Dalton Highway and Anaktuvuk Pass. This fuel sloop will be used to refuel equipment in the field and to power and heat a mobile sleigh camp. This fuel sloop will be refueled in Deadhorse. Fuel will be moved with sleigh camps between Dalton Highway and Anaktuvuk Pass, lesser quantities may be transported to specific equipment locations along the alignment.

In the unlikely event of a spill, the operator will notify DNR and the Alaska Department of Environmental Conservation (DEC) oil spill report number is (800) 478-9300. DNR and DEC shall be supplied with all follow-up incident reports.

Specific Procedures for Fuel Sled Transfers include the following:

- Equipment or vehicle refueling shall not occur within the annual floodplain of a river or stream.
- Operator will position equipment in the fueling position to maintain safe margins from other structures and equipment.
- Inspection of tank(s) and fueling criteria will be done prior to pumping fuel.
- Operator will wear safety glasses and rubber gloves when handling fueling equipment.
- Operator will assist in making sure hoses and valves are in good repair for bladders.
- Operator will properly prepare for the fueling process by positioning drip trays/duck ponds as required.
- Operator will ensure spill response equipment is available and there are an adequate number of splash pans, drip guards, absorbent pads, shovels, and oily waste bags.

- Operator will properly connect the fuel fill/fuel pump line to the fuel bladder coupling.
- Operator will concentrate on the fueling process only and **NOT** perform any other tasks while fuel transfer is in process.
- Operator will stay in continuous communication with fuel fill/fuel pump operator at all times.

General requirement for all equipment operations include the following:

1. Throughout all trail operations, whenever equipment is stopped a drip pan will be placed under the engine.
2. Equipment will carry a fuel spill kit with absorbs, oily waste bags, and two shovels.
3. In case of loss of containment, the operator will adhere to standard clean up procedures, securely contain the waste, and bring the waste to Utqiaġvik or Atqasuk for proper disposal.

APPENDIX D: BEAR INTERACTION PLAN

Abbreviations

ADF&G	Alaska Department of Fish and Game
ESA	Endangered Species Act
MMPA	Marine Mammal Protection Act
mph	miles per hour
NSB	North Slope Borough
USC	United States Code
USFWS	United States Fish and Wildlife Service

1.0 INTRODUCTION

ASRC Energy Services Alaska, Inc. (AES Alaska) presents this Bear Interaction Plan for the planned Arctic Slope Telephone Association Cooperative (ASTAC) fiber optic cable installation from Dalton Highway to Anaktuvuk Pass. Portions of the construction activities and field operations will take place within polar bear and brown bear habitat. Crews may encounter a polar bear or brown bear during the course of the construction activities and associated field work. Therefore, AES Alaska developed this plan to:

- Guide construction and field personnel, including ASTAC employees and contractors to:
  - Prevent bears from associating humans and facilities with food
  - Prevent or minimize the potential for human-bear interactions
  - Understand controls to prevent interaction
  - Protect both field personnel and bears
  - Implement observation and reporting procedures
- Fulfill requirements of the North Slope Borough (NSB) Planning and Community Services Department Title 19 Approval.

1.1 Construction Activities and Field Operations

ASTAC is proposing to extend the telecommunications infrastructure from Toolik Field Station to Anaktuvuk Pass, to provide high-speed broadband internet to this community. The construction and associated field operations will consist of installing a terrestrial fiber optic cable laid on the ground surface along the proposed route from Toolik Field Station to Anaktuvuk Pass.

To minimize environmental impacts during the construction phase of this project, the cable will be installed on the ground surface during winter months. Cable installation will commence in January 2028, and is anticipated to take between 35 and 50 days to complete. Crews will initially be stationed out of Toolik Field Station, and then mobile camps will be utilized as the installation progresses along the alignment.

1.2 North Slope Borough Title 19 Requirement

The NSB requires the permittee to prepare and implement a polar bear and brown bear interaction plan to minimize conflicts between humans and bears, including measures to:

- Minimize the attraction of bears to operation use areas
- Organize the layout of construction and operation use areas to minimize human/bear interactions
- Warn personnel of bears near or in the construction areas and the proper procedures to take

- If authorized, deter bears from interactions with project workers to maintain a safe work environment
- Provide contingencies in the event bears do not leave the site or cannot be deterred by authorized personnel
- Discuss proper storage and disposal of materials that may be toxic to bears
- Provide a systematic record of bears within and adjacent to the construction area

Although AES Alaska developed this Plan for bear interactions, it is also beneficial in avoiding worker interactions with other wildlife. ASTAC field personnel will comply with all applicable local, state, and federal codes, statutes, and regulations including the Marine Mammal Protection Act of 1972 (MMPA) (16 United States Code [USC] 1361-1407) and the Endangered Species Act of 1973 (ESA) (16 USC 1531-1544).

2.0 BEARS AND IMPACTS OF HUMAN ACTIVITY

Human activity may attract wildlife. The biggest attractants for wildlife are associated with food, waste- handling practices, food associated byproducts, dumpsters and other waste disposal facilities. Bears in particular have learned to associate humans and facilities with food. Bears throughout Alaska have passed this human-food association through generations – sows teaching cubs.

Proper food and waste management practices are critical for preventing conditioning of all wildlife, and particularly bears, to associate human activity with food. When female bears and their cubs emerge from dens (April/May), they start looking for food. Extra care is necessary to properly store and dispose of food waste to prevent bear attraction and their entry into work areas at these times. Bears will generally avoid human activities if they are not attracted by food and wastes.

3.0 GENERAL POLICIES AND MITIGATION

All field personnel will be trained to adhere to several general procedures that deter wildlife species from entering work areas and potentially interacting with personnel. These procedures are necessary for the safety of both personnel and wildlife. The construction supervisor or field crew chief will maintain a file of wildlife observation forms that will be submitted to the appropriate agency (NSB, Alaska Department of Fish & Game [ADF&G], or United States Fish and Wildlife Service [USFWS]), if required.

3.1 Food Handling and Food Waste Management

Proper food handling and food waste management is imperative. ASTAC will implement the following measures in order to minimize interaction with bears:

- Personnel will not feed wildlife. Any personnel observed doing so will be subject to disciplinary action.
- When possible, personnel will not eat outside of buildings or vehicles.
- Personnel will segregate food waste from non-food waste and discard food waste only in designated receptacles.
- Personnel will remove food waste from the field and will not place it in dumpsters or receptacles that are not secure from wildlife access.
- Food in vehicles is discouraged, but if personnel must take food in vehicles, the food will be stored in containers that minimize odors, such as plastic bags or plastic containers with lids.
- Personnel will remove all garbage, including used food containers, from vehicles at the end of each shift, or more frequently if appropriate disposal receptacles are available.
- Personnel will contact the construction supervisor or field crew chief if any improperly managed food waste is observed or for answers to questions on refuse management.

3.2 Handling Non-Food Materials and Non-Food Waste

Non-food materials (e.g., plastic, rubber, motor oil, and chemicals such as antifreeze) can be attractive to some wildlife species. If these materials are not handled properly, they can increase the likelihood of wildlife encounters. Proper waste handling procedures will include the following:

- Personnel will store potentially harmful materials in secure containers (e.g., 55-gallon steel drums) or inside a secure building.
- Storage containers will be inspected periodically to ensure they are secure, in good condition, and no spills have occurred.
- All waste will be disposed of properly.
- Personnel will contact the construction supervisor or the field crew chief if any improperly managed non-food materials or waste is observed or for answers to questions on waste management.

3.3 Infrastructure Design and Maintenance

Infrastructure can potentially provide nesting or denning cover for wildlife. The planned field operations will not involve permanent infrastructure design or construction.

3.4 Injured Bears

If field personnel observe a bear or other wildlife that is injured or stressed, they will maintain a safe distance from the animal, will not approach it, and will not attempt to provide assistance in any form. Injured bears can be aggressive. All field personnel must immediately notify the construction supervisor or the field crew chief with observation details, such as the species, location of the animal, and type of injury or problem.

The construction supervisor or field crew chief will contact the appropriate agency immediately, either the ADF&G (Mark Nelson, (mark.nelson@alaska.gov)) or the USFWS (Christopher Putnam, 907-786-3844), and work with that agency to take necessary action. Presence of a potentially dangerous predatory species may require agency supervision before any action can be taken.

3.5 Brown Bears

Brown bears (*Ursus arctos*), commonly referred to as grizzly bears on the North Slope, occur throughout Alaska. They are present in small populations in and around the project area. Therefore, a possibility exists that field programs or project activities at certain times of the year may encounter a brown bear.

Typically, brown bears are active in the summer and occupy dens during the late fall (October or November), throughout winter, and into early spring (April). All occupy winter dens; pregnant females enter dens earlier and emerge later with their cubs. Males and non-pregnant females hibernate for a shorter duration. Den destruction or abandonment can cause mortality since a bear that has been displaced from its den may not be able to dig a new den in frozen ground. Additionally, the next spring's cubs could also be lost if a replacement den is not found quickly.

3.5.1 Early Detection and Avoidance

To minimize the potential for human-bear interactions, field personnel will follow early detection and avoidance procedures. Activities related to the field operations that may attract brown bears include field staff handling of food and waste. Even when garbage and other

non-natural foods are not available, brown bears are curious about their surroundings and will investigate camps, vehicles, and buildings. Darkness, vegetation cover, blind corners, noise, wind, precipitation, fog, and other conditions may make it difficult to see or hear a bear. All project personnel should remain alert for the presence of bears while in the field and at camp facilities. Personnel will take the following precautions during construction activities and field operations:

- Manage all potential bear attractants, particularly food, waste, and chemicals, in accordance with NSB waste management and chemical storage policies. Refer to Sections 3.1 and 3.2 for associated guidance.
- Be especially alert when weather prevents good visibility. Make a lot of noise before walking into an area with poor visibility.
- Use the buddy system when working outdoors and, if necessary, designate a "Bear Watch" to
  regularly inspect surroundings and scan for bears.
- Coordinate with others, if present, working in the area to assure each other's actions are
  compatible with providing protection from and avoidance of bears.
- Maintain visual or radio contact with other team members when working outdoors to receive any brown bear sighting alerts.
- Report all brown bear sightings to the construction supervisor, crew chief or the project manager.
- Delay field operations if bears, or other wildlife, are encountered along the project route during construction activities.

3.5.2 Interaction and Response

If field personnel observe a bear in the project area, they will follow the precautions:

- Depending on the distance between the bear and activities, personnel may need to retreat to vehicles, equipment emergency shelter, or temporary buildings for safety.
- Personnel must never approach or crowd a bear. Each bear is unique in its comfort level with humans; the more distance between personnel and the bear, the better for conflict avoidance.
- If a bear is encountered at a close distance, personnel are to remain calm. Attacks are rare. Most bears are interested only in protecting food, cubs, or their "personal space". Once the threat is removed, they will move on. Personnel are reminded of the following:
  - **Identify Yourself:** Let the bear know you are human. Talk to the bear in a normal voice. Wave your arms. Help the bear recognize you. If a bear cannot tell what you are, it may come closer or stand on its hind legs to get a better look or smell. A standing bear is usually curious, not threatening. You may try to back away slowly diagonally, but if the bear follows, stop and hold your ground.
  - **Don't Run:** You cannot outrun a bear. They have been clocked at speeds up to 35 miles per hour (mph), and like dogs, they will chase fleeing animals.
  - **If the Bear Moves Toward You:** Stand your ground and talk calmly. Monitor the bear's movement. If you move away, you may indicate to the bear that you are prey and it may follow you.

- **If a Bear Charges:** Stand your ground. Bears often make bluff charges, sometimes to within 10 feet of their adversary without making contact. Continue waving your arms and talking to the bear. If the bear gets too close, raise your voice and be more aggressive. Make noise, but never imitate bear sounds or make a high-pitched squeal. Use bear deterrent spray if within range.
- **If Attacked:** If a deliberately approaching bear actually makes contact, it may be a predatory attack. Fight back vigorously.

Brown bear hazing may be conducted at any time when the bear is perceived to be too close for personal safety. Vehicles will not be used to herd bears away from work locations.

3.5.3 Monitoring and Reporting

Construction and field personnel will likely be the primary source of brown bear sighting information. If a worker observes a bear or fresh bear sign (e.g., tracks or scat) in or near the project area, they must first ensure their own safety by returning to a secure location, if necessary. Then they will report the sighting to the construction supervisor or the crew chief. Personnel should never remain in an exposed position in order to view or photograph a bear.

When a bear sighting is reported, workers in the area will be contacted immediately and directed to move to a secure location. Secure areas may include the project equipment, vehicles, or buildings (although few buildings exist within the project area). If only a vehicle is available, personnel should drive at least 50 yards from the bear and observe the bear with the vehicle engine running.

While the bear is in the vicinity, a state of alert will be imposed. The alert will consist of voice communication that provides specific information on the location of the bear, instructions on where to move to for safety, and other evacuation instructions. Only when the construction supervisor or the field crew chief determines the bear is no longer present in the work area will the alert be lifted.

The field crew chief will verify the brown bear sighting and complete a Brown Bear Reporting Form (Appendix A). Additionally, the crew chief will complete a North Slope Borough Department of Wildlife Management Wildlife Observation Form. This form is available online at: http://www.north-slope.org/departments/wildlife-management/wildlife-observation-form.
The brown bear contact at ADF&G is Mark Nelson (mark.nelson@alaska.gov).

3.6 Polar Bears

Polar bears (*Ursus maritimus*) are considered arctic marine mammals and are protected from hunting or harassment under the MMPA. They are also designated as a threatened species under the ESA. Polar bears are excellent swimmers and can run up to 25 mph. Because of their size, speed, and curious nature, any encounter with a polar bear is potentially dangerous. During the summer months, polar bears normally hunt seals for food far out on the pack ice. As winter approaches, newly formed ice bridges may bring them closer to land. Only pregnant females use dens during the winter months, and they emerge with their cubs in March.

Polar bears are coastal animals, and in their natural setting they eat only meat, mostly seals. However, in areas with human activity, they may be attracted to plastic, rubber, motor oil, and chemicals such as antifreeze. Bears may visit work sites because of curiosity or food odor, but their visits will be transitory if they are not rewarded with food.

The likelihood of a polar bear encounter in the project area is low. Field operations are scheduled during winter months, but not along the coast. Polar bears have been documented far inland, but this is a rare occurrence.

3.6.1 Early Detection and Avoidance

Polar bear early detection and avoidance procedures are similar to those for brown bears. Polar bears are attracted to food and waste. They are also curious creatures that may investigate camp sites, vehicles, and buildings simply because of their curiosity. The polar bear's white fur makes it exceptionally difficult to see when there is snow cover. Darkness, blind corners, noise, wind, precipitation, and fog will also add to the difficulty to see or hear a polar bear. All field personnel must be alert to the possibility that a polar bear may enter the project area, and all personnel shall follow the general early detection and avoidance precautions presented for brown bears in Section 3.5.1.

3.6.2 Interaction and Response

Refer to Section 3.5.2 for guidance on interaction and response in the event a polar bear is sighted. Polar bear hazing will be done or approved by the field crew chief only after consultation with the USFWS or in the event of a life threating situation and the USFWS cannot be reached. Vehicles will not be used to herd bears away from work locations.

3.6.3 Monitoring and Reporting

Refer to Section 3.5.3 for the alert system that will be implemented if a bear (polar or brown) or fresh bear sign is sighted. Reporting a polar bear sighting will differ slightly from the required reporting for brown bear. When a polar bear is sighted, the construction supervisor or field crew chief will verify the sighting and must complete a Polar Bear Sighting Report (Appendix B). A copy of the completed report will be retained at AES Alaska Anchorage office, and a copy will be faxed to Christopher Putnam of the USFWS. As a courtesy, AES Alaska will send a copy to Dick Shideler with ADF&G.

The field crew will report any polar bear observations to Christopher Putnam (907-786-3844) of the USFWS within 24 hours.

3.7 Training and Meetings

All personnel working on the project construction or on the associated field programs will receive environmental orientation before beginning work. This orientation will cover the information included in this Plan and will reinforce the importance of proper waste handling and food management to minimize human-wildlife interactions. Additionally, contractors will disseminate information specific to human- wildlife interactions in the form of environmental alerts and updates, safety bulletins, and safety meeting briefings during construction activities and field operations. The project manager will be responsible for maintaining completed copies of specific human-wildlife interaction forms on site and routing forms as necessary to the NSB, ADF&G, or USFWS. Blank copies of all applicable forms are provided as appendices.

3.8 At-Risk Locations and Situations

The following are lists of locations, situations and activities where bear encounter risks may be higher and where attention to mitigating risks is essential.

Possible bear encounter locations include:

- Near water courses
- Access roads
- Camp facilities
- Food consumption areas
- “Blind” areas at camps that are obscured by facilities, equipment, or other obstacles

At-risk bear encounter situations and activities include:

- Survey work
- Solid waste handling and disposal
- Inexperienced crews
- Dark/unlighted and visually obscured areas

APPENDIX E: SUBSISTENCE PLAN OF COOPERATION

Within the project area, caribou are hunted by local community residents. The area where much of the construction activities and field operations will be conducted is open for the taking of big game, small game, and fur animals.

AES Alaska is committed to minimizing the potential for field operations interfering with subsistence activities and subsistence resources. Subsistence hunters are expected to be active near the proposed construction area during the fall and winter.In the event that subsistence hunters are present, a Field Environmental Coordinator will monitor all construction activities and will work to avoid potential subsistence hunting conflicts between the field operations and subsistence users and activities. Field Environmental Coordinator duties will include the following:

- Provide guidance on avoiding potential impacts to subsistence users, areas, and resources
- Observe and document wildlife including caribou and bears
- Act as a liaison between construction personnel and local residents; relay concerns and information from residents to the ASTAC Project Manager.

Arctic Slope Telephone Association Corporation (ASTAC) is committed to developing a program that minimizes and prevents unreasonable conflicts with subsistence activities, in accordance with Best Management Practice H-1 found in the Bureau of Land Management's (BLM's) National Petroleum Reserve-Alaska Integrated Activity Record of Decision (ROD). ASTAC is committed to working closely with the North Slope Borough (NSB), communities, stakeholders, and agencies throughout the life of the project to achieve this goal and commitment.

Early in the initial stages of the project, ASTAC developed a Stakeholder and Community Relations Plan. This Plan identified potential stakeholders and community issues relevant to the project. ASTAC is committed to working closely with various stakeholder groups and regulatory agencies to establish positive relationships. By identifying key stakeholders and issues early in the process, ASTAC has established a successful outreach strategy to ensure stakeholders are informed at critical project check points.

1.0 Minimize Impacts

ASTAC's policy will closely follow the procedures and polices implemented by the NSB Capital Improvements Program Management for the Broadband Project, of which fish, wetlands, and cultural resource surveys were conducted on behalf of in 2014 and 2015. Route development for the current project is approximately 90 miles in length and generally follows the winter trail from the Dalton Highway to Anaktuvuk Pass.

The proposed route was chosen based on field surveys, input from the NSB, and ASTAC technical parameters. The majority of the route is located within seasonal tundra mosaic wetlands. Potential impacts are minimized through the following precautions:

- Avoiding wolf denning areas
- Minimizing larger stream crossings
- Avoiding camps and cabins
- Avoiding traditional hunting and fishing locations
- Avoiding cultural resources
- Construction during winter months

Aircraft are not expected to be involved in the project. However, if it does become necessary to involve aircraft for an emergency supply mission or recovery, aircraft will avoid hunting parties and will fly above 2,000 feet, except during landing approach and takeoff. If helicopters are used, aircraft information along with a log of takeoffs and landings will be maintained for reporting to the agency.

Stakeholder Engagement

The project will require Subsistence Advisors for on-ground operations throughout the project. These individuals will serve as liaisons between communities, subsistence users, and contractors and will help identify and avoid sites and areas important to subsistence lifestyles.

Subsistence users and local stakeholders have been provided with opportunities to learn about the fiber optic cable project and to provide input to reduce conflicts. A local subsistence expert was present on the aerial survey trip to determine the cable route. Stakeholder engagement is ongoing and will continue throughout the life of the project.

The table below is a summary of public involvement that has occurred and is planned:

Milestone	Schedule
Pre-application meeting: BLM, USFWS, USACE, USFWS, NSB, DNR	April 28, 2023
Meeting with NSB Dept. of Planning & Community Services	February 3, 2023
NSB Planning commission presentation	April 27, 2023
Community Meeting to discuss project route (community tragedy interrupted meeting and needed to be continued at later date)	May 10, 2023
Aerial Survey and creating route with resident expert	May 25, 2023
Meeting with Nunamiut Corporation President	June 22, 2023
NSB final pre-application meeting	July 7, 2023

Community Meeting	September 28, 2023
Community Meeting	November 29, 2023
NSB LMR Permit applications submittal	December 8, 2023
Agency review & public comment	January-February 2024
NSB Community Meetings Anaktuvuk Pass	January 2024
Environmental Assessment development	February 2024
Agency permits received	June 1, 2024
Mobilize equipment and barge	July – August 2024
Construction begins	January 2025
Construction completed	April 2027

ASTAC will also meet with the following entities to discuss the proposed project:

- BLM Arctic Field Office
- U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service (USFWS), Alaska Department of Fish and Game (ADFG)
- North Slope Borough Department of Planning and Community Services
- Anaktuvuk Pass: City of Anaktuvuk Pass, Nunamiut Corporation, Native Village of Anaktuvuk Pass
- Arctic Slope Regional Corporation
- Nunamiut Iñupiat Corporation
- Iñupiat Community of the Arctic Slope (ICAS)

Through coordination with NSB Planning Department and the Alaska Heritage Resources Survey, ASTAC has located camps, cabins, historic winter sites, schoolteacher sites and Native allotments. During the analysis of potential corridors for the fiber optic cable, there was a concerted effort to avoid subsistence use areas and Native allotments. ASTAC has contacted Allotment holders and cabin owners within five miles of the corridor with a letter notifying them of the intended activities and a means to notify ASTAC staff should they have any questions or comments about the project. Additionally, a 500ft buffer has been placed around all Native allotments and historic and cultural resources.

A continuation of these discussions will be ongoing in an effort to address concerns that may arise and determine the best ways to address avoidance of subsistence activities.

ASTAC will continue to communicate with stakeholders through public announcements, project information newsletters, community meetings, and the NPR-A subsistence advisory panel. Public announcements, along with notices posted at the village liaison office, police department and ASTAC village office will be used to notify residents of the schedule. The service announcements will describe the location of work, timing, and means of communication. Should NSB residents require additional information or have concern, ASTAC will also contact the NSB Planning and Wildlife Management Departments with information on activities and schedule and provide a means of notification.

1.2 Communication and Supervision

When subsistence hunters or local residents communicate their concerns to ASTAC, ASTAC will investigate and mitigate the reported impact through operational changes and emergency assistance. ASTAC is willing to cooperate and remedy conflicts that arise with subsistence hunters or local residents.

An ASTAC representative will be available during operations. Contact information will be provided for the volunteer SAR coordination staff and NSB Planning Department inspectors as soon as it is available. General ASTAC contact information is provided below:

- Arthur Stevens – Project Manager: 907-885-4094
- Paul Fairbanks – Project Manager: 907-350-4868

APPENDIX F: ORIENTATION PLAN

Arctic Slope Telephone Association Corporation (ASTAC) and all contractor and subcontractor personnel will receive an orientation to minimize cultural and subsistence resource conflicts, in accordance with Best Management Practice I-1 for the Bureau of Land Management's (BLM) National Petroleum Reserve-Alaska Integrated Activity Plan Record of Decision. The proposed orientation will be submitted to DNR for approval prior to its implementation. It will be designed to increase sensitivity and understanding of personnel to community values, customs, and lifestyles in areas in which personnel will be operating.

The Orientation will be of sufficient detail to ensure personnel are notified of applicable stipulations and best management practices. Individuals working on the project will also be informed of specific types of environmental, social, traditional, and cultural concerns that relate to the region.

The Orientation will include the following:

- A discussion of the importance of not disturbing archaeological and biological resources and habitats – this will include endangered species, fisheries, bird colonies, and marine mammals and provide guidance on how to avoid disturbance
- Guidance on the preparation, production, and distribution of information cards on endangered and/or threatened species
- Information concerning avoidance of conflicts with subsistence and pertinent mitigation
- A module discussing the Bear Interaction Plan to minimize conflicts between bears and humans

The Orientation will be designed to ensure strict compliance with local and corporate drug and alcohol policies. The Orientation will be offered to the North Slope Borough Health Department for review and comment.

The Orientation will also be developed to train employees on how to prevent transmission of communicable diseases, including sexually transmitted diseases, to local communities. The Orientation will be offered to the North Slope Borough Health Department for review and comment.

ASTAC will include on-site records of all personnel who attend the program for so long as the project is active, though not to exceed the five most recent years of operations. This record shall include the name and dates(s) of attendance of each attendee. ASTAC will provide a copy of 43 Code of Federal Regulations 3163 regarding Non-Compliance Assessment and Penalties to on-site personnel.

APPENDIX G: WEED CONTROL PLAN

Arctic Slope Telephone Association Cooperative, Inc. (ASTAC) and all contractor and subcontractor personnel will work to prevent the introduction or spread of non-native, invasive plant species in the Project Area, in accordance with Best Management Practice M-2 in the Bureau of Land Management's National Petroleum Reserve-Alaska Integrated Activity Plan Record of Decision.

ASTAC will certify all equipment and vehicles are weed-free prior to transporting them into the Project Area. As part of the vehicle inspection protocol, equipment and vehicles using the route will be inspected for weeds.