

**DECISION RECORD
and
FINDING OF NO SIGNIFICANT IMPACT**

I. Decision:

It is my decision to authorize a right of way communication site, AA-086836, to UNAVCO to conduct field studies addressing mechanisms for large and small scale tectonic features and processes for a period of ten years. Mitigation measures identified for the Proposed Action in the Environmental consequences section of the attached environmental assessment have been formulated into stipulations. The standard stipulations for communication sites and the 906(k) concurrence stipulations are attached to the Decision Record and the authorizing permit.

II. Rationale for the Decision:

The rationale for this decision is to support opportunity for furthering the scientific community's understanding of earth's physical processes and deformation events as described in Part I, Introduction, of the environmental assessment.

The lands described in the application are included in the BLM-Alaska's Southwest Planning Area Management Framework Plan, dated November 1981. The Proposed Action is in conformance with the plan.

This decision to allow issuance of the right of way grant does not result in any undue or unnecessary environmental degradation.

III. Finding of No Significant Impact (FONSI):

The proposed action is consistent with existing national environmental policies and objectives as set forth in Section 101 (a) of the National Environmental Policy Act of 1969 (NEPA). Further and based on the analysis of potential environmental impacts contained in the attached environmental assessment, it is my determination that the proposed action does not constitute a major Federal action significantly affecting the quality of the human environment and that an environmental impact statement is not required.

IV. ANILCA Section 810 Compliance:

These lands are not subject to Title VIII subsistence clearance under the definition of "public lands" under Alaska National Interest Lands Conservation Act (ANILCA).

The Proposed Action will not significantly restrict Federal Subsistence uses, decrease the abundance of Federal Subsistence resources, alter the distribution or movement of Federal Subsistence resources, or limit qualified Federal subsistence users access from currently existing conditions.

- V. Adverse Energy Impact Compliance:
This action has been analyzed as required by Washington Office Instruction Memorandum 2002-053 to determine if it will cause an adverse impact on energy development. The action will not have an adverse direct or indirect impact on energy development, production or distribution. The preparation of a Statement of Adverse Energy Impact is not required.
- VI. Compliance and Monitoring Plan: N/A

/s/ Elizabeth Maclean
Anchorage Field Manager

6/16/2008
Date



U.S. Department of the Interior Bureau of Land Management

Anchorage Field Office
6881 Elmore Road
Anchorage, Alaska 99507
<http://www.blm.gov/ak/st/en/fo/ado.html>

**Environmental Assessment
Continuous Global Positioning System Station
UNAVCO Inc., Plate Boundary Observatory
AK-010-08-EA-033**



Location:

Seward Meridian, T. 28 N., R. 23 W., Section 18

Prepared By:

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Realty Specialist

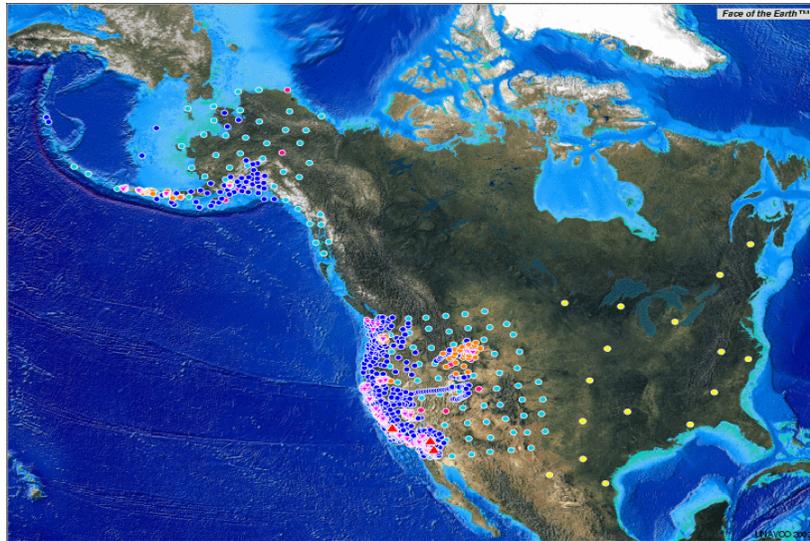
April 3, 2008

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1.0. INTRODUCTION

EarthScope is a broad scientific undertaking to apply modern observational, analytical, and telecommunications technologies to investigate the structure and evolution of the North American continent and the physical processes controlling earthquakes and volcanic eruptions. EarthScope is a partnership that includes more than 100 universities, the National Science Foundation, U.S. Geological Survey, National Aeronautics and Space Administration, Department of Energy, and State and local geological surveys. The program is being developed with funding provided by the National Science Foundation. Designing and building the physical infrastructure is the responsibility of the University NAVSTAR Consortium (UNAVCO) through the Plate Boundary Observatory (PBO) Project¹.



UNAVCO, on behalf of the National Science Foundation and EarthScope, is in the process of developing a network of permanent GPS and strainmeter stations to monitor earth processes associated with earthquakes and volcanic activity. The network being constructed is called the Plate Boundary Observatory (PBO)².

UNAVCO is proposing 151 new GPS stations to be installed throughout the state within a 5 year period beginning in 2004. The GPS stations vary between use, some will be tectonic cluster stations, others will be volcanic GPS stations. In addition, there will be borehole strain/tilt stations that will be added to the network in Alaska.

These areas were chosen to better understand deformation events associated with plate movement - events similar to Alaska's Good Friday Earthquake that occurred in 1964.

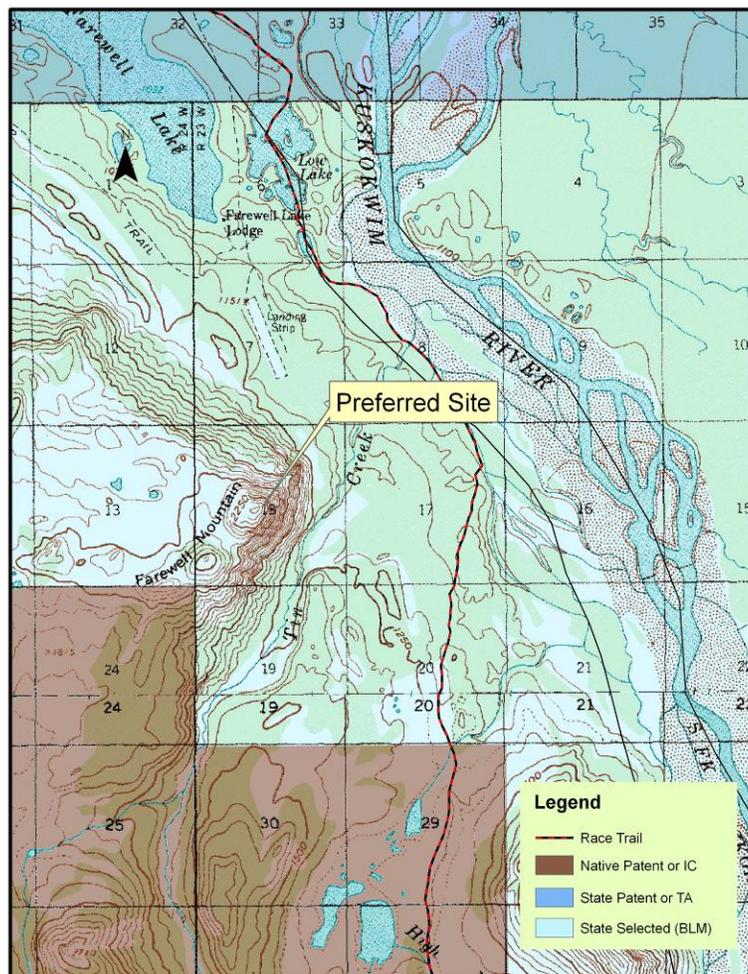
¹ <http://pbo.unavco.org/~kyleb/images/POD.pdf>

² <http://pbo.unavco.org/~kyleb/blm.htm>

1.1 Land Status

The land ownership pattern in Alaska has been evolving since passage of the Alaska Statehood Act.³ Presently, there are two categories of BLM lands: BLM *administered* lands - lands selected from the Federal public domain for conveyance to either the State of Alaska⁴ or the Native community;⁵ and BLM *managed* lands - lands of the Federal public domain that have not been set aside for conservation⁶ or for conveyance to either the State of Alaska or the Native community. In this instance, the lands are BLM *administered* lands.

The lands in Section 18, of Township 28 North, Range 23 West, Seward Meridian are selected for conveyance by and to the State of Alaska under the Alaska Statehood Act, BLM Case File: F-015380.



³ Alaska Statehood Act, Public Law 85-508, 72 Stat. 339, July 7, 1958.

⁴ *Id.*

⁵ Alaska Native Claims Settlement Act, December 18, 1971; *see also* the Native Allotment Act of May 17, 1906.

⁶ Alaska National Interest Lands Conservation Act, Public Law 96-487, 94 Stat. 2371, December 2, 1980.

1.2 Relationship to Statutes, Regulations, Policies, Plans or Other Environmental Analyses

1.2.1 Statutory and Regulatory Authority

The Federal Land Policy and Management Act (FLPMA) directs the Secretary of the Interior to manage the public lands under principles of multiple use and sustained yield through the issuance of permits or other appropriate legal instruments while preventing unnecessary or undue degradation of the lands, 43 U.S.C. §1732.

Title V of FLPMA, 43 U.S.C. § 1761, and the regulations found at 43 CFR Part 2800 authorizes the Secretary of Interior to issue rights-of-way to address the GPS site proposed by UNAVCO.

1.2.2 Plans

UNAVCO's proposed land use will occur within the boundary of BLM-Alaska's Southwest Management Framework Plan Area, dated November 1981.

1.2.2.1 Plan Conformance

The Bureau's multiple use planning regulations provide that:

Until superseded by resource management plans, management framework plans may be the basis for considering proposed actions and ...

3) ... [a] determination shall be made by the District or Area Manager whether the proposed action is in conformance with the management framework plan. Such determination shall be in writing and shall explain the reasons for the determination.

[43 CFR §1610.8 (a) (3)]

Lands objective, L-1 of the Southwest Management Framework Plan provides for meeting "the needs for . . . communications facilities to facilitate the development of public and private resources within the planning area."

UNAVCO's proposed land use is in conformance with BLM – Alaska's Southwest Management Framework Plan.

1.2.3 Environmental Analysis

The National Environmental Policy Act of 1969 requires that the BLM analyze the environmental effects of activities it authorizes on the public lands to determine whether they will have a significant affect on the quality of the human environment, 42 U.S.C. §4332. In managing the environment, the BLM is required to "... prevent unnecessary or undue degradation of the lands," 43 U.S.C. §1732(b). In Alaska the BLM is also required "... to cause the least

adverse impact possible on rural residents who depend upon subsistence uses of the resources of [the public] lands," 16 U.S.C. §3112(1).

1.3

Purpose and Need for the Proposed Action

The purpose of the proposed action is to more completely monitor and integrate the lands of Alaska in the PBO project by installing a GPS site at the proposed location. The need for the proposed action is to enable scientists to detect subtle ground motions that reveal weak points in the Earth's crust known as faults. It will also measure ground shifts by volcanic and tectonic processes. Currently, a very sparse geodetic network exists in the western U.S. and Alaska. The limited geographic coverage of this network contributes to a lack of understanding of basic earth processes resulting in public safety risks, stranded natural resources and gaps in human understanding of fundamental earth processes.

2.0 PROPOSED ACTION AND ALTERNATIVES

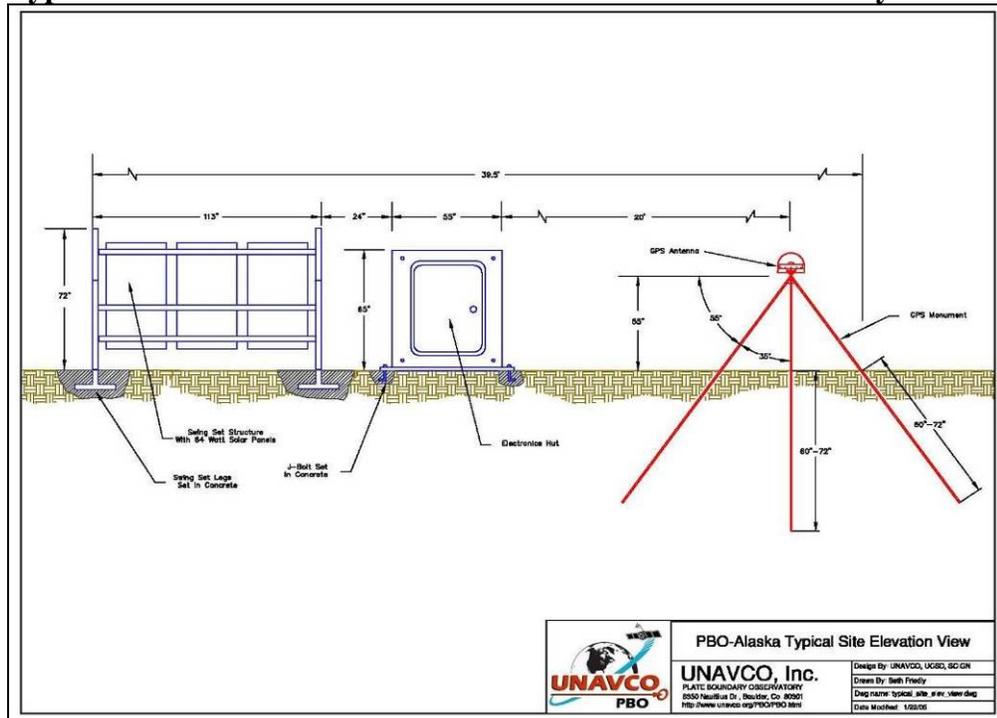
2.1 Federal Action

The BLM *proposes* to issue a ROW grant pursuant to FLPMA for the placement of a continuous global positioning system station; this will assist in the scientific understanding of the geologic process and to promote the scientific study of the earth's crust.

2.2 Proposed Action: Farewell Mountain

The BLM proposes to authorize UNAVCO's use of the proposed site through the issuance of a Right of Way Grant that will incorporate appropriate provisions aimed at preventing unnecessary or undue degradation of the lands and protection of resources.

Typical Short Drill-Braced Monument with Hut and Solar Array



UNAVCO's procedures for the placement of the GPS will consist of a Short Drill Braced Monument Installation (monument). The monument installation requires a hand held rotary drill and operator, needing approximately 30 feet clearing for maneuvering around the proposed monument location. A center hole and 3 or 4 perimeter holes are drilled at an angle such that steel pipes inserted in the holes meet above ground to form a tripod/quad pod monument. These types of monuments can be installed in bedrock only. Installation time is approximately 1-2 days.

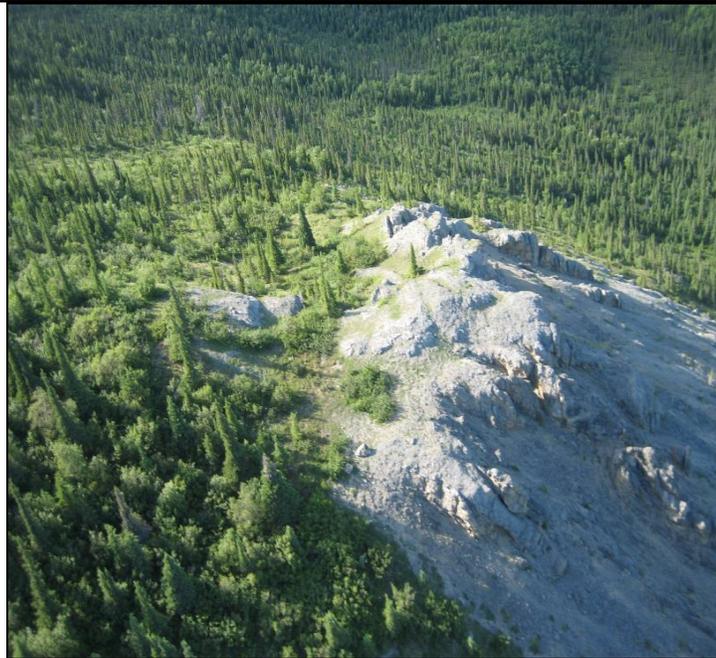
The monument, made of 5 sections of stainless steel rod, consist of a vertical leg

braced by four diagonal legs inclined at approximately 55 degrees to the ground. All the legs extend approximately 6 feet into the earth. A handheld drill prepares the holes to accommodate the stainless steel legs, which are epoxied within. Since the drilling operation uses a handheld rock drill, no drilling fluids or muds are used in the process. All cuttings come out of the ground dry, are placed in containers, and transported off site for disposal.

The legs converge approximately 4-feet above ground surface. A leveling adapter, geodetic grade GPS antenna and radome (16" diameter) are attached to the threaded top of the vertical leg. The entire above ground assembly is approximately 5-feet high and has a footprint approximately 5-feet in diameter.

The GPS station also consists of a mast-mounted equipment enclosure and solar panels, which will be located within 30-feet of the monument. In the 4 foot by 4 foot by 5 foot steel enclosure are the GPS receiver, radio transceiver, solar power regulator, and battery backup. An antenna cable is placed in trenched PVC conduit between the monument and the enclosure. A two-way satellite ground station may be added, if necessary, to transmit data to Colorado. Data is downloaded daily and processed by the PBO Operations Center in Boulder, Colorado via data connection. All materials for the construction of the GPS site are brought in sling-load style by helicopter to the crown of the mountain and then removed the same way upon completion of the project.

Typical GPS installation requires approximately 300 square ft or .007 acres of space for the installation of a stable GPS site, equipment enclosures, power systems and data communications. For GPS monument installation, cables are run underground for protection and all electronics are placed in weatherproof enclosures. A finished site, including the VSAT, requires only 3.5 square feet of space. Once complete, the site is re-vegetated as necessary.



Farewell Mountain Site



Step 1: Equipment for a short, drill-braced monument is brought to the site and the site is prepared for Installation



Step 2: Using a hand-operated drill, four holes are drilled into the rock to a depth of 6 feet



Step 3: Steel rods are cut to appropriate length and inserted into the holes. Rods are held in place with epoxy



Step 4: The rods are welded together to form a tripod



Step 5: A GPS antenna is attached to the tripod base. To protect the antenna, a dome cover is installed.



Step 6: An equipment enclosure is erected near the GPS monument. The enclosure houses GPS, communications, and power equipment.



The finished site: ready to record and transmit data.

2.3

Alternative B: No action alternative

Under the No Action Alternative, the installation of the GPS would not be installed and the integration of the PBO project would have a large hole in its PBO network for Alaska. Without the GPS installation, the area would not have the increased benefit of further data collected on the region and the abilities that the site would provide for the use of the general public⁷.

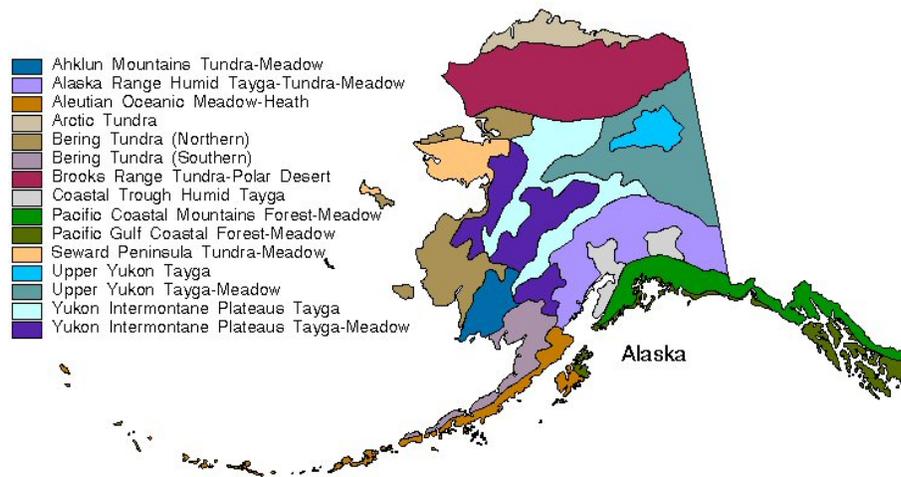
⁷ Unavco would provide at no cost to the public, data on the GPS site so that they may use it as a reference monument in locating their lands and in finding their location. With that, and modification by either BLM or the State, with Unavco's approval, the GPS could be modified to add extra features. One of these features would be the Real Time Kinematic⁷ ability. Through improvements like this, the entire surrounding area will benefit from the GPS installation.

3.0 Affected Environment—General Setting

Farewell Mountain is situated approximately three miles south of Farewell Lake and approximately two miles west of the south fork of the Kuskokwim River. This area can be characterized as within the rain shadow effect of the Alaska Range. The towering peaks to the east give way to broad, flat valley formations with occasional glaciated outcroppings forming the foreground immediately west of the Alaska Range. The vegetation typifying the area is characterized as boreal forest or Taiga and is typical of interior Alaska. The boreal forest ecosystem is permafrost based and is comprised of forests, wetlands, bogs, fens, peatlands, rivers and lakes. Soils are cold and often very shallow. Water tables are high. Growing seasons are short. Biological processes are slow. Nutrient availability is low. This open country supports a wide range of wildlife: from black and grizzly bears, moose, caribou, to small rodents, weasels, lemmings, ground squirrels and a wide range of both migratory and non-migratory birds.

3.0.1 Ecosystem Provinces

The proposed action will impact the Alaska Range Humid Tayga-Tundra-Meadow Province. The Alaska Range is the dominate feature within this Ecosystem Province and is a continuation of the Pacific Coast Mountains extending in an arc across the northern Pacific. The towering, glaciated peaks of the Wrangell Mountains and of the Alaska Range--which includes Mt. McKinley at 20,320 ft (6,194 m)--typify the ruggedness of the area. A description of this Ecosystem Province is incorporated by reference and may be found at: http://www.fs.fed.us/colorimagemap/ecoreg1_akprovinces.html.



Alaska's Ecosystem Provinces

3.1 Critical Elements of the Human Environment

The following discussion is organized around the Ten Significance Criteria described in 40 CFR §1508.27 and incorporated into BLM's 14 Critical Elements of the Human Environment list (H-1790-1), and supplemental Instruction Memorandums, Acts, Regulations and Executive Orders. There is a fifteenth Critical Element of the Human Environment for consideration by BLM-Alaska, Subsistence, ANILCA Title VIII, Sections 801 and 802.

3.1.1 Unaffected Critical Elements of the Human Environment

The following Critical Elements of the human environment have been analyzed and are either not present or will not be affected by the Proposed Action or the No Action Alternative:

1. Areas of Critical Environmental Concern
2. Cultural Resources
3. Environmental Justice
4. Farmlands (Prime or Unique)
5. Flood Plains
6. Native American Religious Concerns
7. Subsistence, ANILCA Title VIII

The lands to be effected by the actions are selected for conveyance by and to the State, F-15380. They do not meet the ANILCA Section 102(3) definition of Federal Public Lands and are outside the jurisdiction of the Federal Subsistence board and the scope of ANILCA Title VIII.

8. Threatened & Endangered Species

There is no reason to believe that:

- a. an endangered or a threatened species is present in the area affected by the proposed action;
- b. implementation of the proposed action will jeopardize the continued existence of an endangered or threatened species;
- c. implementation of the proposed action will result in the destruction or adverse modification of critical habitat of such species;
- d. implementation of the proposed action will jeopardize the continued existence of any species proposed to be listed as endangered or threatened;
- e. implementation of the proposed action will result in destruction or adverse modification of critical habitat proposed to be designated for such species;

therefore, no consultation with the U.S. Fish and Wildlife Service is considered necessary pursuant to Section 7 of the Endangered Species Act of 1973, 16 U.S.C. §1536.

9. Water Quality, Surface/ground

- 10. Wetlands/Riparian Zones
- 11. Wild and Scenic Rivers
- 12. Wilderness

3.1.2 Affected Critical Elements of the Human Environment

The following Critical Element of the human environment may be affected by the Proposed Action or the No Action Alternative.

3.1.2.1 Air Quality

Given its low population density and relatively sparse industrial activity, air quality in Alaska, particularly interior Alaska, is good. Decreases in air quality are attributable to volcanic activity, wildfire and sources outside of the geographic boundary of the State. International transport pathways bring low concentrations of airborne contaminants across the Arctic and Pacific Oceans from Europe and Asia. Other pathways bring contaminants north from the industrialized and agricultural zones of the North American Continent. These pollutants originate from power plants, metal smelters, other industrial sources and agricultural activity and are eventually deposited onto the snow, vegetation, and soils and ultimately into the waters of Alaska.⁸ During temperature inversions in winter, air quality in the Westernized urban areas of Fairbanks and Anchorage occasionally fails to meet federal standards.

3.1.2.2 Invasive, non-native species

With increased trade and travel, invasions by introduced vascular plants are becoming commonplace and are widely recognized as one of the most serious threats to biodiversity and to economies. Introduced plants can have wide-ranging negative effects on ecosystems. These include alterations to the physical structure of habitats, nutrient cycling, fertility and productivity, hydrological regimes, and food webs.

Arctic tundra and Taiga habitats have remained relatively insulated from the negative ecological, economic, and social impacts due to invasive non-native plant species. Most non-native plant populations in Alaska are small and largely restricted to areas of human disturbance. However, arctic and boreal habitats are generally subject to significant natural substrate disturbances, making them susceptible to invasion by weedy non-native species that are primarily disturbance specialists. Further, the natural disturbances display high connectivity. Areas of human disturbance may act as foci for invasions into arctic and boreal habitats.

3.1.2.3 Hazardous Waste/Materials

There are no known hazardous waste sites in the area.

⁸ See <http://www.akaction.org/PDFs/contaminantsinalaska.pdf> and <http://www.columbia.edu/~pjs2002/arctic/pages/pollution.html>

3.2 Non-critical Elements of the Human Environment

The following Non-critical Elements of the Human Environment may be affected by the Proposed Action or the No Action Alternative.

3.2.1 Visual Resources

The BLM has not formally inventoried or designated Visual Resource Management (VRM) classes for the lands traversed by the route. The BLM generally attempts to adhere to VRM Class II visual quality objectives for areas similar to these lands. The objective of a VRM class II classification is: “change is visible but does not attract attention.”

Ground-based observers are generally traversing the Iditarod Trail during the snow season, which passes immediately east of both mountains, then trends to the northwest, passing north of McGrath.

3.2.2 Vegetation⁹

Vertical vegetational zonation characterizes the Alaska Range and Wrangell Mountains. Tundra systems of low shrubs and herbaceous plants form discontinuous mats among the rocks and rubble above timberline. White mountain-avens may cover entire ridges in the Alaska Range, associated with moss campion, black oxytrope, arctic sandwort, lichens, grasses, and sedges. These tundra systems stop short of the permanent ice caps on the highest peaks.

3.2.3 Soils¹⁰

Permafrost is continuous on northfacing slopes, discontinuous on southfacing ones. Soils that support the moister tundra areas range from wet Inceptisols to Histosols. Alpine Inceptisols are generally shallow and poorly developed, with discontinuous or continuous permafrost.

3.2.4 Wildlife¹¹

The animals of interior Alaska must deal with nine to ten months of snow and cold. Most are migratory species that migrate to lower and warmer climates in the winter. Some year round residents cope by hibernating. Bears store fat during the summer months and pass the winter in hibernation. Some rodents live beneath the snow in tunnels and burrows.

Characteristic wildlife along the route are beaver, muskrat, mink, caribou, moose, bison, coyote, wolf, wolverine, black bear, grizzly bear, marten, weasel, lemming, lynx, weasel, Arctic hare, and Arctic ground squirrel. In interior Alaska, caribou, and moose are the dominant large grazers, feeding on grass, sedge, lichen, and

⁹ See: <http://www.fs.fed.us/colorimagemap/images/131.html>

¹⁰ See note 9 above

¹¹ See: http://www.eoearth.org/article/Interior_Alaska-Youkon_lowland_tiaga

willow. Arctic hare, or snowshoe rabbit, and lemming feed on grass and sedge.

Eighteen Bison were introduced in the Farewell area in 1965. The herd grew to 350 animals by 1999 and was stable through 2003.

Interior Alaska ecoregions are largely intact, with little habitat loss or fragmentation. Subsistence and recreational hunting and fishing account for minor habitat loss. Metallic element ore and sand and gravel deposits have been mined, and there has been limited agricultural use along major rivers. There has been little historic fragmentation, but interior Alaska, experiences enormous natural disturbances from fire.

Occurrence of lightning-ignited wildfire is common throughout. Soils are very susceptible to wildfire alteration, due to the relatively warm (-1.5°C) and shallow permafrost. Organic mat disturbance from wildfire can warm soils, significantly lower permafrost tables, alter soil properties and hydrology, and change vegetation composition.

Subsistence, commercial, and recreational hunting and trapping are common activities on BLM lands in this area. Interior Alaska wildlife is vulnerable to habitat destruction, overhunting, and extinction through loss of any of the animal or plant species that make up fragile, highly individual food chains.

3.2.5

Noise

The areas affected by the Proposed Action and the No Action Alternative are relatively serene, disturbed only by subsistence and casual use of rural Alaskans. Most noise disturbance in this area occurs during the winter months with the use of snowmobiles on the winter trail systems. In addition to ground type vehicles, the air space in this region is impacted by intermittent small aircraft. Near the proposed site there are several rural Alaska airstrips. These include the Farwell Lodge, Farwell FAA site, and Tin Creek airstrips. These airstrips receive infrequent traffic throughout the summer and winter flying seasons. The affect to the surrounding environment is slight because the noise dissipates quickly in the vast open spaces and noises are transient, as snowmobiles, other winter use vehicles, and aircraft are moving in a liner fashion to or from villages and subsistence use areas. Thus, the disturbances are short in duration and have minimal impacts to the human environment.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Impacts of the Proposed Action

4.1.1 Critical Elements of the Human Environment

4.1.1.1 Air Quality

A necessary increase in particulate matter (dust emissions) will be present for less than one week as the GPS station is installed. Due to its low volume and intermittent presence, it has little or not direct impact on the human environment. No further analysis is necessary.

4.1.1.2 Invasive, non-native species

There is a potential for the introduction of invasive non-native plants from drilling equipment used for the installation of the GPS station. Cleaning the equipment prior to transport to and from the area will reduce the possible introduction of invasive, non-native species.

4.1.1.3 Hazardous Waste/Materials

The batteries are a backup power source for the GPS station. Without the batteries, power will be disrupted and data lost. The potential for battery replacement exists and should be accounted for during maintenance of the station. The batteries are necessary for the operation of the station. The batteries used as a backup power source are Solar Deka Gel Cell Batteries that are a valve regulated lead acid battery¹².

4.1.2 Non-Critical Elements of the Human Environment

4.1.2.1 Visual Resources

Although the area is quite remote, limited numbers of observers commonly view the peak from the air and ground. Ground-based observers are generally traversing the Iditarod Trail during the snow season, which passes immediately east the mountain, then travels to the northwest, passing north of McGrath. Additional ground-based observers may be found in the area in August and September, basing their seasonal hunting activities out of the Farewell Lake Lodge area. The visual impact to these observers will be slight because maximum height of the equipment is 5 feet and the color of the equipment will be painted grey to blend with the natural terrain and transition colors of the skyline. There will be some glare during sunny days cause by metallic fittings on the apparatus but these visual impacts are slight when compared to other unnatural features (ie. Farewell Lodge and airstrip) in the surrounding area.

¹² <http://www.eastpenn-deka.com/default.aspx?pageid=468>

4.1.2.2 Vegetation

During the installation and maintenance of the GPS station, damage may occur to the surrounding vegetation. The disturbance to the surrounding vegetation will be minimal because the station will be installed in the rock at the crown of the mountain and not in the vegetation itself. The installation does not require any surface clearing or brushing of any vegetative material. Proper sitting of the apparatus on the mountain crown will prevent the need to clear live vegetation. Any disturbance to the vegetation will be from light foot traffic traversing around the crown of the mountain during the construction and maintenance activities of the site.

4.1.2.3 Soils

The soils found on Farewell Mountain are shallow or not present at the proposed project location. The proposed location is upon the crown of the mountain where exposed rock deposits dominate the area. The proposed project will not cause impacts to the soil because the proposed action will mount the equipment directly into the rock formation on the crown of the mountain. Here, there are only negligible impacts expected to the rock composite. The depth of the mounting brackets are relatively shallow (approx. 6 feet) and the rock composite is durable enough that this type of intrusion into the rock will not cause erosion or deterioration of the mountain.

4.1.2.4 Wildlife

The peak of Farewell Mountain is mostly devoid of wildlife. Most wildlife are found below the open rocky crown of the mountain. However, there are expected various small populations of ground dwelling mammals like rodents and ground squirrels that may live in the vicinity of the crown of the mountain. The intrusion into the ecosystem of this proposed structure will not cause any long-term impacts into the daily occurrences of these animals. Within hours after the installation of the equipment, the surrounding mammals will adjust to the equipment's placement on the mountain. The mammals will resume daily routines and not be affected by this equipment because it emanates no known audible or visible threats to the wildlife, thus the local animal inhabitants will consider this apparatus as part of the normal surroundings and coexist with the installed equipment.

During routine maintenance and the initial installation, the project proponent will access Farewell Mountain with a helicopter. The helicopter will cause temporary disturbance to the wildlife immediately surrounding the mountain., The impacts related to altering wildlife movement will be short, and there are no expected wildlife losses from this minimal intrusion of helicopter landing operations for installation and subsequent routine maintenance.

The low profile nature of the proposed equipment (approx. 5 feet) will not cause any impacts into bird flight patterns or cause any concern for bird mortality. Thus, there are no proposed mitigation needs for the equipment to increase visibility for aviary mortality concerns.

4.1.2.5 Noise

During the installation of the equipment and routine maintenance, a helicopter will be used to access the site. This will add an additional aircraft to the noise level of the human environment. The noise produced by the additional aircraft will be indiscernible from the current baseline of aircraft utilizing the area. In addition to aircraft noise, there is expected to be power tools utilized during the installation process. These tools are basic hand held power tools for drilling and assembling the structures. The noise from these tools will not travel more than one-quarter mile (1/4) from the proposed project site and will only last for a short duration (approx. 2-4 hours). There are no expected effects to wildlife or interference with pristine wilderness values. This is because the project site location is not within a designated or proposed wilderness area and the sound produced from installation will dissipate into the high level open space and cause no intrusion into the human environment.

4.1.3 Cumulative Impacts of the Preferred Alternative

Cumulative impacts result from the incremental impact of human activity when added to other past, present, and reasonably foreseeable future human activity. They can result from individually minor but collectively significant actions taking place over a period of time.¹³ (40 CFR § 1508.7)

The proposed action will introduce a new resource to the area. The GPS will provide data of the lands in the surrounding area that was not previously known. When tied together with the rest of the EarthScope network, it will provide a more comprehensive review of the mechanisms for large and small scale tectonic features and processes that shape the crust of the Earth.

In addition to tectonic plate data, throughout this time of continuous data collection on the movement of the land and its processes, this site will have established a verifiable and reliable history of its location, or commonly known as a surveying benchmark.

¹³ 40 CFR § 1508.7

Unavco would provide at no cost to the public, data on the GPS site so that they may use it as a reference monument in locating their lands and in finding their location. With that, and modification by either BLM or the State, with Unavco's approval, the GPS could be modified to add extra features. One of these features would be the Real Time Kinematic¹⁴ ability. Through improvements like this, the entire surrounding area will benefit from the GPS installation.

4.1.3 Mitigation Measures

The following mitigation measures are recommended and are either in addition to or an enhancement of the mitigation measures contained in the proposed action:

1. Reduce the air particulate matter by removing all loose drilled materials from the site and storing in a sealed containers and removing from the site.
2. Installation gear, including operator's boots and clothing should be free of all vegetation material from prior installations before descending on the proposed site.
3. All personal and work waste materials shall be properly stored and removed from the site to remove any unnecessary form of contaminant from the area.
4. Batteries shall be inspected prior to installation at the site for deficiencies and subsequently checked in annual or bi-annual inspection of the site for any leaks which could introduce contaminants to the area. Any batteries found deficient shall be removed immediately in a secure manner so as not to introduce contamination during the removal, and then replaced with a battery in good working order if necessary for the continued operation of the station.
5. Care in traversing the mountain during installation shall be taken to reduce the impacts to the vegetation near the crown of the mountain.
6. Thought of the placement of the cabinet and peripheral equipment for the site should be taken to reduce the visual impacts to the surrounding area. Painting the equipment casings and other areas of the station should be performed to reduce contrasting lines of the station from the surrounding area.

4.2 Impacts of Alternative B: No Action Alternative

Under the No Action Alternative, the proposed action would not take place on BLM lands. The resource impacts environmental risks discussed above and associated with the proposed action would not occur on BLM lands. The impacts associated with, casual, and recreation use of the area would continue.

¹⁴ Source http://en.wikipedia.org/wiki/Real_Time_Kinematic

Failure to allow this action on the land will not result in its placement in another location off of federally administered lands. The end of the projects funding for construction is September, 2008. Without this authorization, there will be no positive or negative impacts to this location or any subsequent area near to this site on private or public lands.

5.0 CONSULTATION AND COORDINATION

5.0.1 Consultation

Geoff Beyersdorf	Subsistence
Laurie Thorpe	Vegetation, Invasive/Non-Native Species
Larry Beck	Waste, Hazardous/Solid
Donna Redding	Cultural Resources
James Moore	NEPA Coordinator
David Krantz	Acting NEPA Coordinator

5.0.2 List of Preparers

The following BLM specialist participated in the preparation of this analysis:

Jayme Lopez	Realty Specialist
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