



United States Department of the  
Interior

BUREAU OF LAND MANAGEMENT  
Fairbanks District Office  
1150 University Avenue  
Fairbanks, AK 99709



ENVIRONMENTAL ASSESSMENT  
DOI-BLM-AK-03000-2012-0045-EA

FF096428 (360213)

Mile Post 219  
Along the Dalton Highway

Proposed action located in:  
The Fairbanks Meridian within:  
Sections 33 & 34, Township 35N, Range 10W,

Mineral Material Exploration Permit  
State of Alaska  
Department of Transportation and Public Facilities  
2301 Peger Road  
Fairbanks, AK 99701

## **A. INTRODUCTION**

### **1. Background**

Alaska Department of Transportation and Public Facilities (ADOT&PF) maintains the Dalton Highway with repair and upgrade projects for the road and various facilities along the highway. A geohazard in the form of a frozen debris lobe (FDL) is encroaching on the Dalton Highway near MP 219. FDLs appear to consist of soil and rock, debris, and potentially ice, although only preliminary surface investigations have been conducted on these features thus far. ADOT&PF's knowledge of FDLs is rudimentary, and we have more questions than answers about their internal stratigraphy and mechanisms of movement. This slide, referred to as Frozen Debris Lobe A (FDL-A) is on the order of 3-4million cubic yards in volume, is less than 230 feet from the highway, and has been approaching the highway at a historical rate of 12 feet per year. The rate of advance appears to have increased recently.

When it arrives at the highway, it will deliver about 22,000 tons of debris a year. For a sense of scale, imagine a 50-ton truck dumping 440 truck-loads of debris onto the highway annually. Should this mass of moving material further encroach upon the Dalton Highway, it may impede the flow of essential goods and services to the oil and gas fields on the North Slope, resulting in severe economic loss. Even before entering the highway right-of-way, this FDL is affecting the highway by depositing a large volume of sediment against the highway embankment, which has destroyed drainage by completely burying one culvert and partially burying a second.

The complete analysis of any landslide requires an understanding of its kinetics including knowledge of soil properties, direction and rate of movement, and the nature of the shear zone. Without this information, it is impossible to select correct mitigation techniques. At the present time, a comprehensive analysis is not possible for FDLs, as we do not possess this information. To better understand movement of frozen debris lobes, a drilling/sampling and monitoring program must be undertaken.

### **2. Purpose and Need for the Proposed Action**

a. ADOT&PF's Purpose and Need:

ADOT&PF proposes to conduct an investigation of Frozen Debris Lobe A (FDL-A), in conjunction with Alaska University Transportation Center (AUTC). The drilling is scheduled to coincide with the Dalton Highway 209-235 material site investigation planned for this summer, allowing the use of equipment that will already be in the area. Our intention is to drill six test holes on and around the west end of the lobe during July thru October of 2012. All test holes will be cased with PCY and be fitted with subsurface instrumentation such as inclinometers, thermistors and piezometers. Surface installations will include instrumentation such as data loggers, compact meteorological stations, iridium satellite communication equipment and solar panels. Data collection will be conducted over multiple years, depending on findings. Upon the completion of work, all installations above ground surface will be removed.

b. BLM's Purpose and Need:

The BLM administers mineral material resources along the Dalton Highway corridor to provide material for infrastructure projects by responding to applications for the use of the material. ADOT&PF filed an application conduct exploration on the frozen debris lobe and install scientific equipment in 2012, and the BLM needs to respond to the application under the authority of 43 CFR 3601 and 30 USC 601 (Materials Act of 1947).

c. Decision to be Made:

The BLM will decide whether or not to issue ADOT&PF a Free Use Exploration Permit to conduct exploration and install scientific equipment along this stretch of the Dalton Highway. The BLM will also determine the mitigation necessary to prevent undue and unnecessary degradation of the resources.

### **3. Potential Issues**

Specialists in the Central Yukon Field Office identified potential issues that involve air quality, Areas of Critical Environmental Concern, invasive non-native plants, hazardous and solid wastes, water quality, wetlands, access, visual resources, and wildlife. Of these, the most substantial concerns were:

1. Invasive plant seeds could be transported into previously uninfested areas.
2. Sediment from the frozen debris lobe could spread over the vegetative mat and increase water turbidity.
3. Material from the frozen debris lobe could cause public hazards along the Dalton Highway.

### **4. Conformance with Land Use Plan and Land Status**

The proposed action falls within the Utility Corridor Resource Management Plan (RMP) prepared by BLM. Mineral material extraction and exploration is dealt with specifically on Pg. 2-108 of the Utility Corridor RMP, "Mineral material (gravel) sales would be allowed throughout the planning area with certain safeguards for specific areas (e.g., within the Jim River and Prospect Creek floodplains and the Ivishak River ACEC)."

### **5. Relationship to Statutes, Regulations, or Other Plans**

The management of these lands, subject to valid existing rights, is in accordance with the 1947 Mineral Materials Act, applicable provisions of the Alaska National Interest Lands Conservation Act (ANILCA), the Federal Land Policy and Management Act of 1976 (FLPMA), and the Utility Corridor Resource Management Plan and the Record of Decision which covers the area within which the proposed action would take place.

The following list summarizes the principal laws and regulations that pertain to this analysis. This is not a comprehensive listing of all laws and regulations that may pertain to BLM's management responsibility.

- Materials Act of 1947 (61 Stat. 681).
- 43 Code of Federal Regulations (CFR) 3620.01
- Federal Land Policy and Management Act of 1976.
- Alaska National Interest Lands Conservation Act of 1980, as amended.
- Executive Order 11988 of 1977, as amended - Floodplains
- Executive Order 11990 of 1977 - Protection of Wetlands.
- Endangered Species Act of 1973, as amended.
- Antiquities Act of 1906.
- National Historic Preservation Act of 1966, as amended.
- Archaeological Resources Protection Act (ARPA) of 1979.
- Clean Air Act, as amended.
- Clean Water Act of 1977.
- Resource Conservation and Recovery Act (RCRA) of 1976 (Solid Waste Disposal Act), as amended.
- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1970, as amended.
- 40 CFR Subparts 110 and 112.
- Migratory Bird Treaty Act of 1918, as amended
- Executive Order 13186 for migratory birds
- Bald Eagle Protection Act of 1940

## **B. PROPOSED ACTION AND ALTERNATIVE**

### **1. Proposed Action**

ADOT&PF proposes to conduct an investigation of Frozen Debris Lobe A (FDL-A), in conjunction with Alaska University Transportation Center (AUTC). The drilling is scheduled to coincide with the Dalton Highway 209-235 material site investigation planned for this summer, allowing the use of equipment that will already be in the area. Their intention is to drill six test holes on and around the west end of the lobe during July thru October of 2012. Test holes will range in diameter from 4.5 inches to 6.6 inches. All test holes will be cased with PVC and fitted with subsurface instrumentation such as inclinometers, thermistors and piezometers. Surface installations will include instrumentation such as data loggers, compact meteorological stations, iridium satellite communication equipment and solar panels. Data collection will be conducted over multiple years, depending on findings. Upon the completion of work, all installations above ground surface will be removed. The PVC pipe will remain and will be backfilled with either clean silica or bentonite-cement slurry.

Equipment used will include a track-mounted CME-850X or CME-45 drill, a trailer mounted air compressor and a Case 1150-C dozer. Some grading is anticipated to create access drill and compressor to the top of the FDL and for construction of drill pads. Any graded areas will be reclaimed by returning the slope to its natural contour and replacing disturbed vegetation. The area will be re-seeded with a BLM approved weed-free seed mixture if necessary.

## 2. Alternatives

### No Action Alternative:

The No Action Alternative would deny the applicant's request to conduct a geotechnical exploration program. This alternative would not allow ADOT&PF locate new or expand existing mineral material sites along this section of the Dalton Highway for the continued highway maintenance and rehabilitation projects.

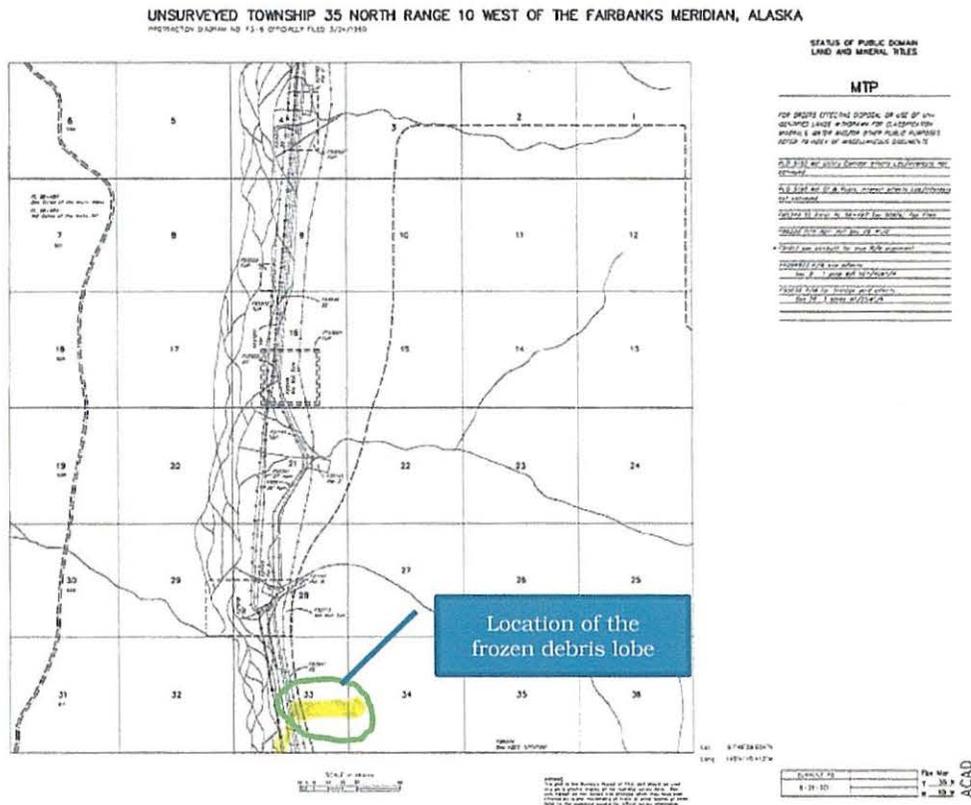
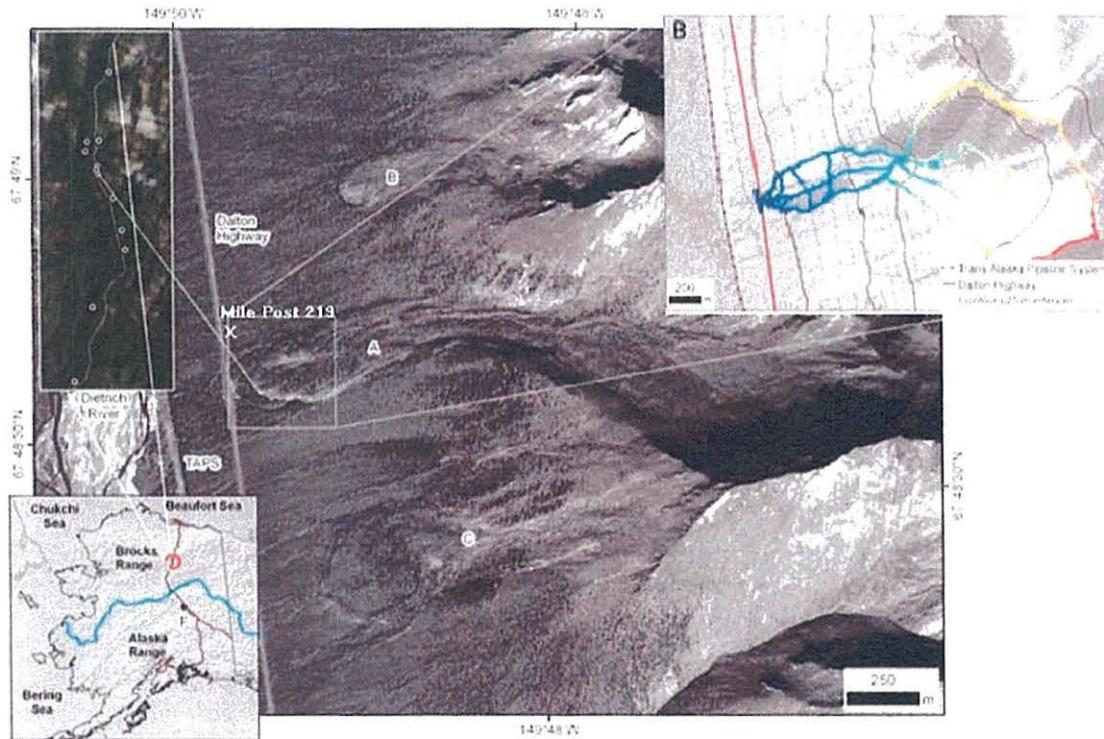


Figure 1: MTP for Geotechnical exploration location



Location of FDI.

Figure 2: Overview of Geotechnical exploration location map and air photo

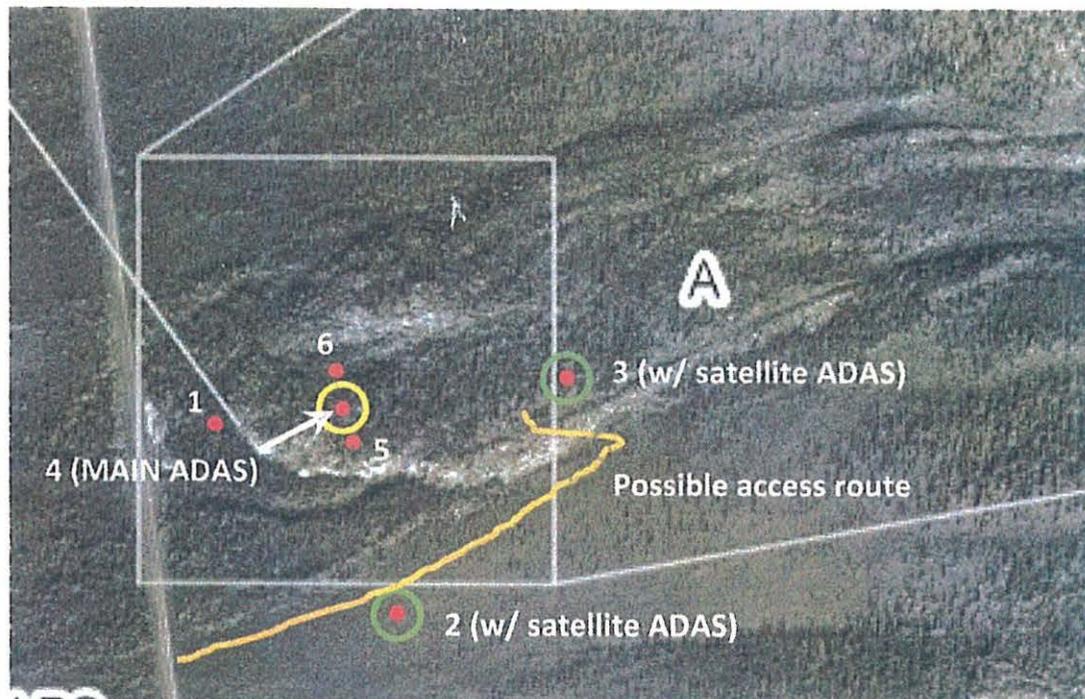


Figure 3: Drill hole locations and dozer trail. The switchback below drill hole 3 will most likely require some cutting into the slope with the dozer. The rest of the trail will most likely not require ground disturbance.

## **C. AFFECTED ENVIRONMENT**

### **1. General Setting**

The project is located along the Dalton Highway, at milepost 219; access is from the Dalton Highway. The sites are within the view-shed of the Dalton Highway and border the Snowden Mountain Area of Critical Environmental Concern. The exploration area access is generally through spruce forest/shrub habitat and occurs in relatively flat terrain. Average elevation is about 1,300 to 1,400 ft.

### **2. Affected Resources**

Elements that may be affected are further described in this EA. Those elements marked as not being affected will not be considered further in this Environmental Assessment.

#### Invasive, Non-native species:

Surveys along the Dalton Highway for invasive plants (NIP) have occurred annually since 2004; 28 species have been documented. Invasive plants in Alaska are ranked on a scale of 0-100, with 100 being the most invasive. The most pervasive and invasive species recorded in this area are: *Melilotus alba* and *Vicia cracca*. *Melilotus alba* (white sweetclover; ranking: 80), has been rapidly expanding its range northward along the Dalton Highway and has been found as far north as the Hammond River (MP 190). *Vicia cracca* (Bird Vetch; ranking: 73), has been found in more than three places, and as far north as Rosie Creek (~MP 170).

#### Wildlife:

BLM Surveys have identified that three sticknest sites are located within two miles of the proposed drilling pad. Two of these have been identified as golden eagle nests. The "taking of" these nests is restricted under the Bald and Golden Eagle Protection Act. The Act's definition of "to take" includes "to disturb" meaning "agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause....a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or.... nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior". The proposed exploration of the frozen debris lobe is not likely to disturb with these nest sites. However, impacts to these nests should be taken into consideration if any further development occurs in this area. Additionally, 4 sensitive bird species have been detected in the vicinity of the proposed development (blackpoll warbler, gray checked thrush, olive-sided flycatcher and Townsend's warbler). The proposed exploration is not likely to impact these species but their presence should be noted if future mineral extraction is considered.

Snowden Mountain ACEC (Area of Critical Environmental Concern) is located immediately (< .2 miles) adjacent to the proposed drilling pad. One of the two primary management objectives of this ACEC is "to protect Dall's sheep habitat and mineral lick sites." One of the three known mineral lick sites in the Snowden ACEC is located within 1.7 miles of the proposed exploration. Although the proposed preliminary drilling

activity is not likely to interfere with Dall sheep activity, the close proximity of these mineral licks to the debris lobe should be taken into consideration if future mineral extraction is considered.

## **D. ENVIRONMENTAL IMPACTS**

### **1. Impacts of the Proposed Action (Direct, Indirect and Cumulative)**

#### Invasive, Non-native species:

*Direct effects:* Highways are corridors for the spread of invasive plants since seeds ‘hitchhike’ on vehicles and equipment. In the Dalton Highway Corridor disturbed areas such as material extraction pits are common places for invasive plant species to colonize since the invasive species in this area are adapted to the conditions present in recently human-disturbed areas. Both the drill pad access extending from the Dalton Highway and the drill pad itself are likely to be infested by invasive plants since invasive plants have infested the roadside at MP 219 on the Dalton Highway.

*Indirect effects:* Invasive plants are likely to colonize the new drill pad and access routes which will be established in previously natural and un-infested areas. Once the invasive plants have become established, natural vectors (e.g. animals, wind and water) may transport invasive plant seeds away from the human-disturbed area and in to areas which have not been disturbed by human activity. The risk of spread into adjacent areas not disturbed by human activity may be particularly high in this case since natural disturbance from the frozen debris lobe has exposed bare mineral soil in the vicinity. Bare mineral soil is the preferred substrate for colonization by the two most common invasive plants in the area (white sweetclover and bird vetch).

*Cumulative effects:* This proposed geotechnical exploration for material extraction from a frozen debris lobe located at MP 219 of the Dalton Highway will occur on land that has not been disturbed by human activity and is currently free of invasive plants. Issuance of this permit will allow for the creation a drill pad and associated access routes from the highway; both which are likely to be vulnerable to invasive plant colonization. The risk of invasive plant spread from the human-impacted areas on the debris lobe and into the natural environment may be heightened in this case since natural disturbance from the frozen debris lobe has resulted in exposure of bare mineral soil. Bare mineral soil is the preferred substrate of both of the most pervasive invasive species in the vicinity.

### **3. Mitigation Measures**

Mitigation measures are most often derived from the standard operating procedures and site specific stipulations developed from the accumulated staff knowledge gained in the management of lands and resources in the Central Yukon Field Office.

All activities within the scope of this permit shall conform the site specific stipulations found attached to the Free Use Permit that have been developed by the BLM. In addition, all activities shall conform to the regulations contained within 43 CFR 3620, and all written orders of the Authorized Officer.

The following guidelines should be observed to minimize disturbance to woody vegetation and wetlands in these areas:

- a) Minimum radius turns (i.e. turns made by locking the track or wheel on one side and turning the other) shall be avoided where possible.
- b) Multiple passes over the same ground shall be avoided.
- c) Tracked vehicles will be used only to access specific locations where test holes or trenches will be dug.
- d) Routes to drilling pad will be plotted using existing roads/trails wherever possible.

In areas of discontinuous forest, the route to the drilling pad will be plotted to avoid willow stands and trees wherever possible. In areas covered by continuous forest, routes to test drilling pad will be plotted to avoid damage to trees that are 6 inches DBH (diameter at breast height) or larger whenever possible.

Disturbed vegetation will be stockpiled while the drill access route is in use. The stockpiled vegetation will be replaced over the re-contoured access route for final reclamation.

Reclamation of disturbed areas shall take place as quickly as possible after exploration is complete. Reclamation includes re-contouring the drill access route to match the original topography and replacing stockpiled vegetation over the disturbance area.

Bare, erosion prone areas may require grass seeding, fertilizing or planting of willow cuttings (per Authorized Officers discretion) to enhance growth of vegetation.

If BLM identifies locations where federally listed sensitive plants occur, the permittee will avoid ground-disturbing activities in those areas.

The only plausible defense against the further spread of invasive plants is early detection and removal. The applicant, employees and contractors shall learn to identify the primary invasive plant species in vicinity and report to them to the BLM. These measures will reduce help reduce the chances of a large infestation occurring, or the

further spread of invasive plants into the surrounding area.

Under the Migratory Bird Treaty Act (MBTA) it is illegal for anyone to “take” migratory birds, their nests, or their eggs. Destruction of active bird nests, eggs, or nestlings that can result from spring and summer vegetation clearing, grubbing, and other site preparation and construction activities would violate the MTBA. The recommended time frame for avoiding vegetation clearing in Interior Alaska is May 1-July 15.

To avoid disturbance of raptors, including golden eagles, during the nesting season, drilling activities near nesting territories should be conducted in late fall and winter (August 2 - April 15).

PVC casing will be cut slightly (2- 4 inches) below ground surface and will require some form of capping to prevent small wildlife from entering the tube.

The permittee will keep garbage or other wildlife attractants secured while awaiting their use or incineration. Specifically, we recommend they use bear-proof containers for all garbage and other wildlife attractants.

The permittee and their contractor will avoid harassing wildlife.

Utilization of drip pans/pads under equipment with leaks, or during refilling operations will minimize the potential for release of petroleum products to the environment. The contractor shall have absorbent material readily available on site to contain any spills. Secondary containment of fuel storage containers shall be utilized in a safe location to avoid damage by equipment. Minor equipment repair on site may be conducted to eliminate the release of POLs to the environment and shall be conducted over an impermeable liner. All wastes associated with spill cleanup will be disposed of in accordance with all applicable regulations. Adherence to proper safety procedures and spill prevention plans shall establish mitigating measures.

A central location for the collection of solid waste shall be identified. Waste shall be disposed of within an Alaska Department of Environmental Conservation (ADEC) approved landfill on a regular basis.

Waste, Human: The contractor shall provide temporary portable facilities.

## **E. CONSULTATION AND COORDINATION**

### **List of Preparers**

Table 2. Preparers (BLM Specialists)

<b>Area of Expertise</b>	<b>Name</b>
Air Quality	Bob Karlen
ACECs	Darrel VandeWeg
Cultural Resources (Paleontology)	Bill Hedman
Environmental Justice	Darrel VandeWeg
Engineering	Rodd Moretz
Essential Fish Habitat/Fisheries	Bob Karlen
Farmlands	Darrel VandeWeg
Floodplains	Bob Karlen
Invasive, Nonnative Species	Jennifer McMillan
Native American Religious Concerns	Bill Hedman
Threatened and Endangered Species	Jennifer McMillan
Wastes, Hazardous and Solid	Rebecca Hile
Water Quality/Drinking and Ground	Bob Karlen
Wetlands/Riparian	Bob Karlen
Wild and Scenic Rivers	Kelly Egger
Wilderness	Lisa Shon Jodwalis
Minerals	Darrel VandeWeg
NEPA	Gary Foreman
Subsistence	Merben Cebrian / Bob Karlen
Wildlife	Merben Cebrian
Visual Resource Management	Cal Westcott
Reality/Lands	Peggy Thigpen
Recreation	Kelly Egger
Vegetation	Jennifer McMillan
Boundary Issues	Michael Schoder

## **F. ATTACHMENTS**

1. Standard and Site-Specific Stipulations
2. ANILCA Section 810 Evaluation and Findings
3. Essential Fish Habitat Assessment
4. Assessment of Archaeological and Historical Resources
5. Alaska DOT Dalton Highway Geotechnical Exploration Request

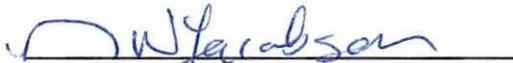
## FINDING OF NO SIGNIFICANT IMPACT

### Background:

Alaska Department of Transportation and Public Facilities (ADOT&PF) maintains the Dalton Highway with repair and upgrade projects for the road and various facilities along the highway. This requires the use of mineral material sites located along the highway for the materials needed to protect the Dalton Highway. The encroachment of a frozen debris lobe could cause damage to the highway. The exploration of this frozen debris lobe will provide valuable information on how best to remove the threat to the highway.

### Finding of No Significant Impact:

Based on the analysis of the potential impacts contained in DOI-BLM-AK-03000-2012-0045-EA and considering the significance criteria in 40 CFR 1508.27, I have determined that the proposed action will not have significant impacts on the human environment and preparation of an environmental impact statement is not required.

  
\_\_\_\_\_  
Nichelle W. Jacobson  
Manager, Central Yukon Field Office

9/14/12  
Date

## DECISION RECORD

### Decision:

It is my decision to issue a permit to Alaska Department of Transportation for a geotechnical exploration program along the Dalton Highway MP 219. Mitigation measures from NEPA document DOI-BLM-AK-03000-2012-0045-EA are being carried forward as stipulations attached to the permit (Attachment 1).

### Rationale for Decision:

- The exploration of the encroachment of the frozen debris lobe will provide valuable information on how best to remove the threat to the highway.
- There are no anticipated impacts to cultural resources. See attachment # 4.
- The Proposed Action will not significantly restrict subsistence uses. See attachment # 2.
- The proposed action is in compliance with the Utility Corridor RMP and consistent with the use of public lands under the authority of the Utility Corridor RMP Record of Decision.
- The environmental effects of this action were considered in NEPA document DOI-BLM-AK-03000-2012-0045-EA and were found to have no significant impacts, thus an environmental impact statement is not required.

### Appeal Procedures

Authorized Official:



Nichelle W. Jacobson  
Manager, Central Yukon Field Office

Date:

9/19/12

## **Attachment # 1**

### **Site-Specific Stipulations**

1. Once sampling is completed, the results must be submitted to the Bureau of Land Management (BLM), per 43 CFR 3601.30(b) for review.
2. The permittee/contractor shall not expand or work outside of your permitted area without additional archeological clearances being done by a qualified archeologist
3. The permittee/contractor shall immediately report to the BLM all paleontologic and cultural materials encountered during your geotechnical exploration operation.
4. The permittee/contractor must stop all operations in the area of these discovered paleontologic and cultural materials until the resources are evaluated and mitigation measures to prevent the loss of significant cultural or scientific resources are developed by a BLM archeologist.
5. The permittee/contractor shall pay all the costs, as determined by the BLM archeologist, associated with the evaluation and mitigation of the paleontologic and cultural resources.
6. The BLM and the permittee/contractor will develop the amount of fertilizer and seeding mixtures to be used when reclaiming the disturbed areas of this site as determined necessary.
7. The permittee/contractor shall not "take" migratory birds, their nests, or their eggs. To be sure nesting migratory birds are not disturbed, the permittee should avoid modifying vegetation between May 1 and July 15. Exploration activities near nesting raptor territories should be done during the non-nesting season (August 2 – April 14) (see: *ADVISORY: Recommended Time Periods for Avoiding Vegetation Clearing in Alaska to Protect Migratory Birds*. US Fish and Wildlife Service. Anchorage Fish and Wildlife Field Office (907) 786-3672).
8. A site Spill Prevention Control and Countermeasure Plan (SPCC) shall be written for the site if the amount of petroleum products stored or potential to store exceeds 1,320 gallons. The plan will be submitted to the Authorized Officer Representative (Darrel VandeWeg) for review and approval prior to storage of petroleum products greater than 1,320 gallons.
9. Transportation and storage of petroleum, oil and lubricants (POLs) shall be handled in a manner to ensure the products minimize the effects to the environment and human health. Gasoline, diesel, oils, greases and hydraulic fluids are a few of the most common POLs. All containers that are transferred to remote locations for everyday operations are to be stored within a containment area which has been constructed to contain 110% of the volume of the largest container. The containment area should be lined with an impermeable liner which is free of cracks or gaps and sufficiently impervious to contain leaks or spills. The containers shall be covered to

eliminate the collection of rainwater within the containment area throughout the storage period.

10. Transfer of POLs to equipment shall be completed in a secure manner to minimize the possibility of contamination to the surrounding environment. At a minimum POL type absorbent pads shall be placed under the location to catch overflow or assist the operator in containing a spill, if one occurs. Fuel storage within 100 feet of a waterbody should be avoided where possible. If a refueling site is within 100 feet of a waterbody the holder shall exercise caution to ensure no release of POLs. Equipment that has been identified as having a fluid leak should have a drip basin under the leak area to ensure no release to the surrounding environment.
11. All hazardous materials storage containers must be labeled with the following information: permittee's/contractor's name, contents of the container (name of the product that you put in the container, if not in the original container from the manufacturer), date the product was purchased/put in the container. (e.g. ADOT&PF, Diesel Fuel, 2012)
12. Equipment repair by the permittee/contractor is allowed on the basis of the necessity to operate equipment on the site located within this permit. Equipment repair that has the potential to release fluids should be completed over an impermeable liner to ensure fluid migration to the environment does not occur.
13. All spills shall be contained and cleaned up as soon as the release has been identified. The release of POLs to any water body is to be reported to the Alaska Department of Environmental Conservation (ADEC) as soon as the person has knowledge of the release (in Fairbanks 457-2121 or 1-800-478-9300 outside normal business hours). Within 48 hours of a spill on public lands the permittee/contractor shall contact the Authorized Officer Representative, Darrel VandeWeg (907-474-2325) or Rebecca Hile (907-474-2371)
14. Attracting wildlife to food and garbage is prohibited. The permittee/contractor shall keep garbage or other wildlife attractants secured while awaiting their use or incineration. Specifically, it is recommend that they use bear-proof containers, elevated caches or, where possible, suspend attractants from a tree or structure 10 feet up in the air and 12 feet away from the tree if attractants are stored on site.
15. Wildlife will not be harassed by the permittee/contractor, any of their employees or contractors.
16. Burial of garbage on public lands is not authorized. All solid waste (garbage), including incinerated ash shall be removed by the permittee/contractor from public lands and disposed of in an Alaska Department of Environmental Conservation (ADEC) approved waste disposal facility, unless otherwise specified. Solid waste combustibles may be incinerated in a contained and controlled manner.

17. Areas of operation shall be kept in a neat and sanitary condition at all times. Specific written instructions will be provided by the authorized officer's representative should it be required.
18. The permittee/contractor is responsible for familiarizing him/herself and affiliates with the identification of invasive plant species that may occur in the area, particularly the ones listed in this document. The permittee/contractor will promptly report to the BLM, the location and extent any invasive plant infestations observed at, or near, the permitted exploration site.
19. The federal government shall not be held responsible for protection of the permittee/contractors structures or their personal property from wildfire. The permittee/contractors will be held financially responsible for any actions or activity that results in a wildfire. Costs associated with wildfire include but are not limited to; Damage to natural resources and costs associated with suppression action taken on the fire.
20. Minimum radius turns (i.e. turns made by locking the track or wheel on one side and turning the other) shall be avoided where possible.
21. Multiple passes over the same ground shall be avoided.
22. Tracked vehicles will be used only to access specific locations where test holes or trenches will be dug.
23. Routes to test holes and trenches will be plotted using existing roads/trails wherever possible.
24. In areas of discontinuous forest, routes to test holes and trenches will be plotted to avoid willow stands and trees wherever possible. In areas covered by continuous forest, routes to test holes and trenches will be plotted to avoid damage to trees that are 6 inches DBH or larger whenever possible.
25. Disturbed vegetation will be stockpiled while the drill access route is in use. The stockpiled vegetation will be replaced over the re-contoured access route for final reclamation.
26. Reclamation of disturbed areas shall take place as quickly as possible after exploration is complete. Reclamation includes re-contouring the drill access route to match the original topography and replacing stockpiled vegetation over the disturbance area.
27. PVC casing will be cut slightly (2- 4 inches) below ground surface and will require some form of capping to prevent small wildlife from entering the tube.