



**Bureau of Land Management**

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**Environmental Assessment**

Land Use Permit (43 CFR 2920)

Triex Minerals (US) Inc.

McCarthy's Marsh/Rathlatulik River Project

AA-087534

AK-040-07-EA-031



**Location:**

Kateel River Meridian

T. 6 S., R. 20 W., Sec. 31-34,

T. 7 S., R. 20 W., Sec. 4

**Prepared By:**

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## I. INTRODUCTION

The largest known uranium deposit in Alaska occurs on the Seward Peninsula near Boulder Creek. Houston Oil & Minerals Corporation discovered it during ground follow-up of a 1977 airborne radiometric survey anomaly. Drilling between 1979 and 1981 outlined one million pounds of  $U_3O_8$  (Dickinson, Cunningham and Ager, 1987, *Economic Geology*, vol. 82, 1987, p. 1558-1574).

Houston completed 3,463 meters of core drilling in 52 holes; they also drilled a total of about 61 meters in 21 shallow, split-tube holes in the area. Select surface samples collected by previous operators assay up to 34%  $U_3O_8$ . Average grade is 0.27%  $U_3O_8$  and average thickness is 3 meters within an area approximately 1,000 meters long by 100 meters wide. Mineralization within the drill holes occurs at depths ranging from the surface to 120 meters. The deposit is not fully defined. The deposit is located approximately 31 miles from Elim and 106 miles from Nome.

The deposit includes 106 state mining claims and 11 federal mining claims that cover an area of 17,000 acres near Boulder Creek. There are an additional 76 state mining claims that cover an area of 12,000 acres near McCarthys Marsh.

Uranium 308 is feedstock ore for all subsequent Uranium processing and applications. It is basically Uranium ore after all other dirt and rocks have been removed. In August 2007, uranium 308 was at \$64.00/lb. on the global commodity market, up from \$10.00/lb. a little more than two years ago. Experts think there is a midterm supply crisis in uranium, which was exacerbated by a flood at the Cigar Lake Mine, the world's largest uranium mining and processing company in north central Saskatchewan. There are indications that 80 new nuclear power plants should be on line within ten years, which amounts to a 15% increase in demand for uranium for peaceful purposes. Canada is the world's largest uranium producer with 29% of the world's supply. Australia is next at 22% and Eastern Bloc countries produce another 25% of the world's supply.

Triex Minerals (US) Inc. (Triex) is engaged in the exploration, discovery and development of uranium deposits. Development of the Seward Peninsula uranium deposits is a joint venture between Full Metal Minerals and Triex as operator. Triex anticipates completing \$1,500,000 (US) of exploratory operations in the area before April 1, 2009.

Cumulative expenditures over the past two years at Boulder Creek by Triex were \$2 million focused on both advancing the Boulder Creek uranium deposit and exploring for additional deposits in the surrounding region – McCarthys Marsh.

Triex' 2007 core drilling program splits its exploration activity evenly between Boulder Creek and McCarthy Marsh.

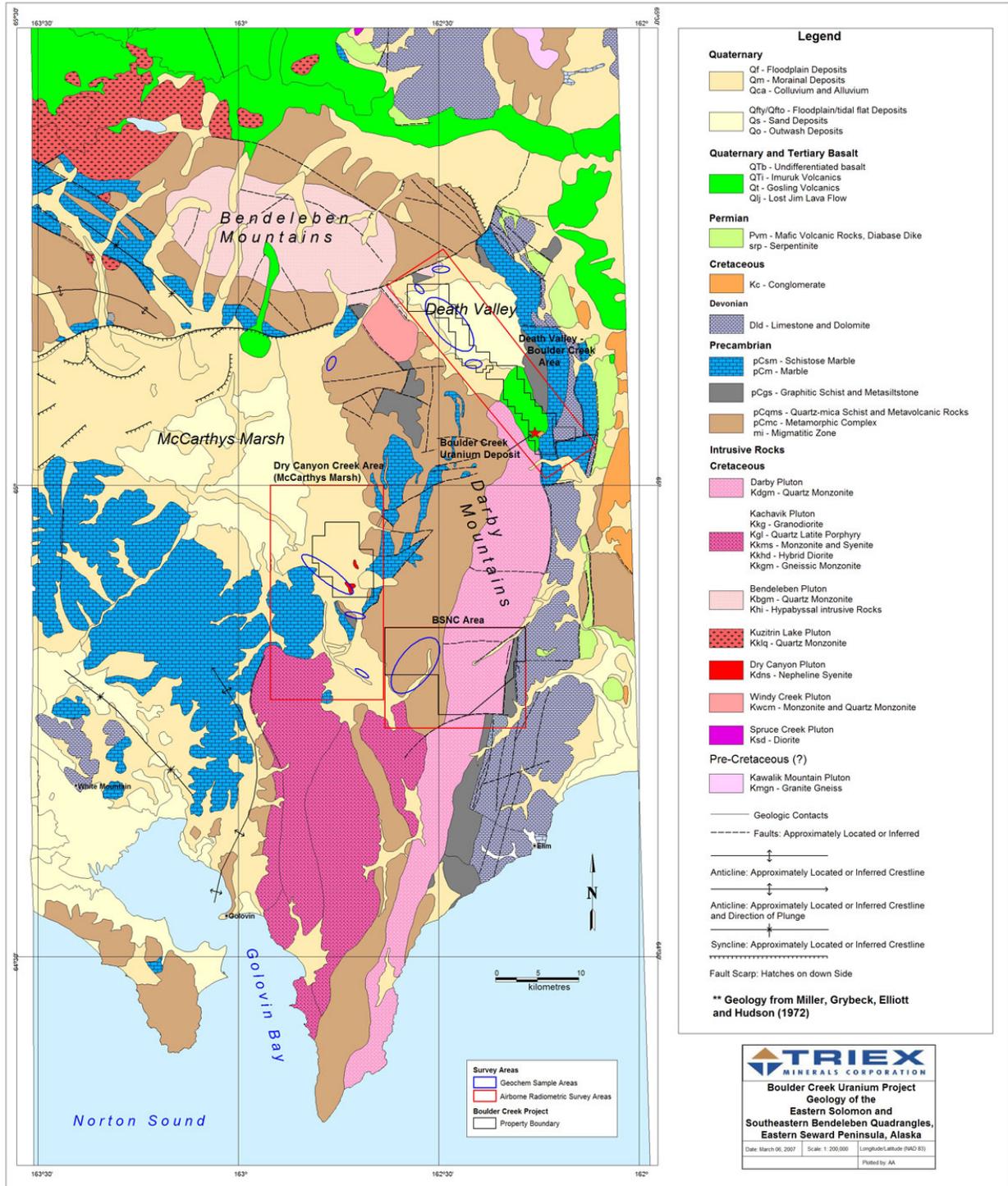


Figure 1 Geology near Boulder Creek and McCarthy's Marsh.

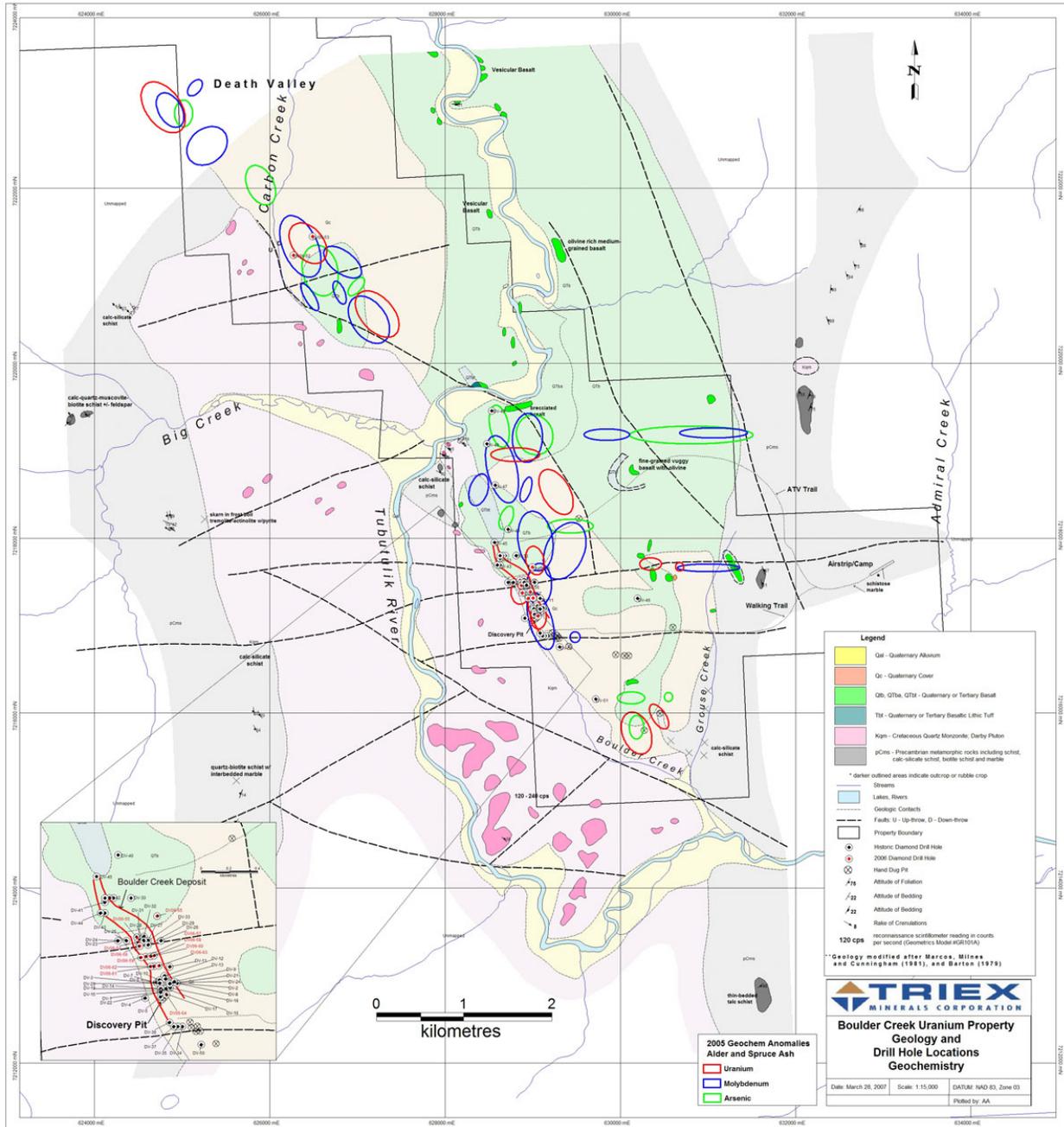


Figure 2 Boulder Creek Deposit.

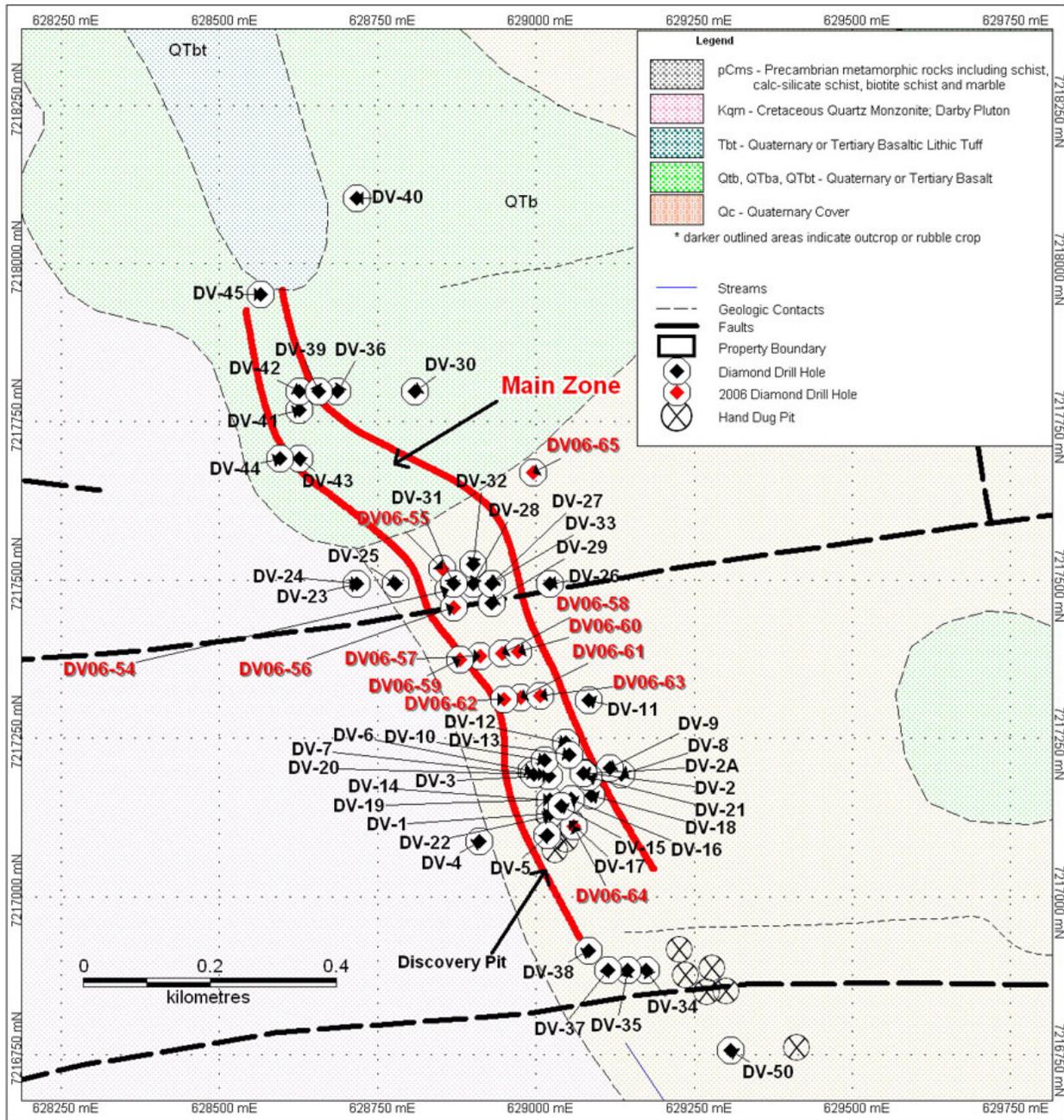


Figure 3 Boulder Creek Deposit.

Triex' 2006 drilling program encountered encouraging grade and thickness at the Boulder Creek uranium deposit (0.317% U<sub>3</sub>O<sub>8</sub> over 6.0 meters in DV06-54, including 0.867% U<sub>3</sub>O<sub>8</sub> over 2.0 meters, and 0.317% U<sub>3</sub>O<sub>8</sub> over 2.0 meters within 5.0 meters of 0.1647% U<sub>3</sub>O<sub>8</sub> in Hole DV06-64). Some twelve holes for fifteen hundred meters are planned to complete delineation of known mineralized zones, and to further evaluate the nine

kilometer-long trend of geochemical anomalies along strike, both to the north and south of the deposit.

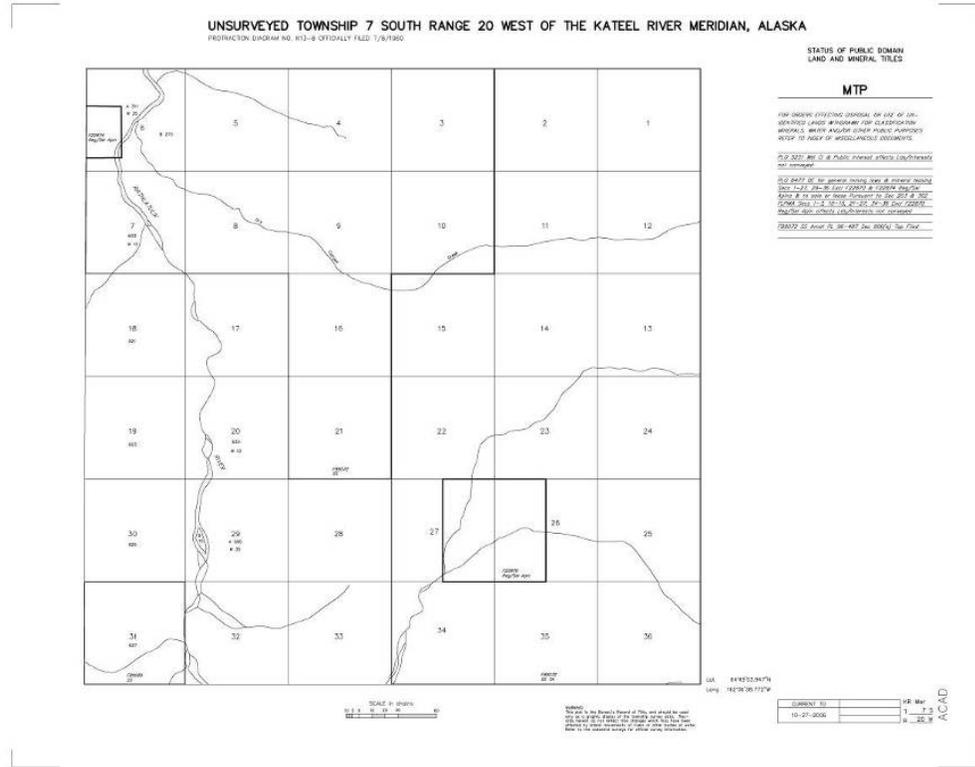
Three separate areas were blocked out at McCarthys Marsh for 2006 reconnaissance exploration. In the Northern Block, 13 airborne radiometric anomalies were identified. Approximately 227 biogeochemical samples were collected during ground follow-up. Twenty have anomalous uranium concentrations, and eight samples have anomalous molybdenum concentrations. In the Central Block, 19 airborne radiometric anomalies were identified. Approximately 49 biogeochemical samples were collected, with two anomalous samples located along the Rathlatulik River. In the Southern Block, 11 airborne radiometric anomalies were identified. Approximately 21 biogeochemical samples and nine rock samples were collected during ground follow up, but none have anomalous metal concentrations.

Triex' 2007 program includes drill testing of regional targets in the search for additional deposits in the district. Fifteen hundred meters of drilling are planned for the McCarthy Marsh claims. At the southeastern portion of McCarthy Marsh, Tertiary sediments occur adjacent to radioactive syenite intrusions on the western flanks of the Darby Mountains, in a geological setting similar to that found at Boulder Creek. The McCarthy Marsh basin is approximately 35 kilometers across, and the Boulder Creek basin is only about 2 kilometers across, so the volume of prospective Tertiary sediments at McCarthy Marsh is much greater than at Boulder Creek.

The Death Valley-Boulder Creek area contains sediment-hosted uranium deposits very similar to the extensive uranium deposits occurring on the Colorado Plateau. The uranium minerals at Boulder Creek are hosted within Tertiary-aged lacustrine and fluvial sedimentary rocks that accumulated in a structural basin adjacent to Late Cretaceous granitic source rocks. The deposit consists of a hypogene zone containing the uranium mineral coffinite with minor pyrite and marcasite and a secondary supergene zone containing the more common uranium mineral meta-autinite. The majority of the uranium-bearing material is hosted by carbonaceous sandstones and claystones of the hypogene zone. The organic materials in these rocks provided a reducing environment to trigger precipitation from uraniumiferous groundwater. In addition to uranium the geochemical data for the deposit shows a correlation between Strontium, manganese, and barium and possibly phosphate, arsenic, and molybdenum. A resource totaling 1 million pounds averaging 0.27%  $U_3O_8$  has been identified at the deposit (Dickenson et al., 1987).

The following is an environmental analysis of Triex' proposed exploration on Bureau of Land Management administered lands in the McCarthys Marsh basin. Assessment of Triex' 2007 work on the Federal mining claims associated with the Boulder Creek deposit was accomplished under the "Notice" provisions of 43 CFR §3809.





**Figure 5 T. 7 S., R. 20 W., KRM.**

The lands in Section 4 of Township 7 South, Range 20 West, Kateel River Meridian have also been selected by the State of Alaska for conveyance to the State under the Alaska Statehood Act, F-089072.

Although selected, the lands do not appear on the current version of the State’s list for priority conveyance under the Alaska Statehood Act.

B. Relationship to Statutes, Regulations, Policies, Plans or Other Environmental Analyses:

Where Federal public lands have been selected for conveyance to the State of Alaska, the Bureau of Land Management may permit an applicant's use of those lands; provided, the State concurs in the permit, Alaska National Interest Lands Conservation Act, Section 906 (k), Pub. L. 96-487, 94 Stat. 2371, December 2, 1980. However, lands selected by the State of Alaska are "... segregated from all appropriations based upon applications or settlement and location, including locations under the mining laws ....," 43 CFR §2627.4(b). Thus, acts that could lead to the perfection of property interests (claims) under the Federal Land Laws, including the Federal Mining Laws, are not afforded their legal effect as a consequence of the segregative effect of a State selection, 43 CFR §§ 3830.5; 3862.1-5; and regardless of the outcome of a permitted activity such as exploration followed by discovery, *the applicant is barred from perfecting a claim to the lands under the Federal Land Laws*, including the Federal Mining Laws, *see United States v. Consolidated Mines & Smelting Co.*, 455 F. 2d 432 (9<sup>th</sup> Cir. 1971).

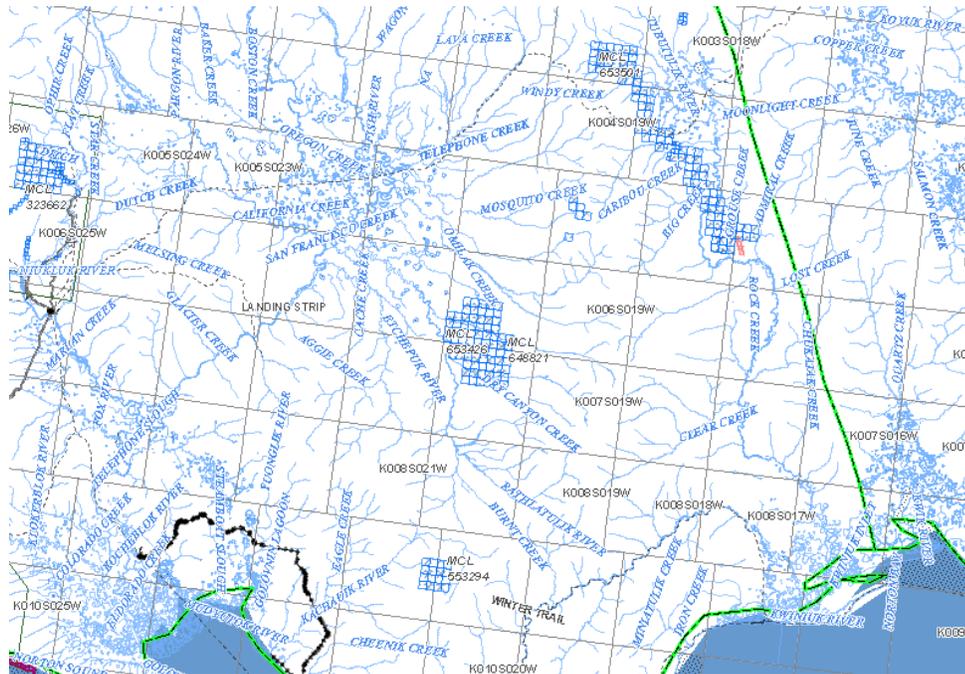
Nonetheless, the State of Alaska allows for the staking of mining claims on state selected lands, Alaska Statute 38.05.27. *Under State law* the staking of a mining claim establishes a preference right *against subsequent locators under the State's mining law*. Thus, if the locator complies with the State's requirements for maintaining such a claim then *when and if* the land is conveyed to the State, the locator's preference right ought to establish senior mineral rights against another State locator's claims. Under that scheme and upon conveyance of the selection, the locator gains rights of possession and extraction to a mineral deposit.

The State's "State Mining Location Notice/Certificate" however contains the following language: "Please note that locations on land selected by, but not yet conveyed to, the State are made at the locator's own risk."

The situation is all the more precarious for the mineral developer as up to 25% of the lands currently selected by the State are over selections and these lands may remain in Federal ownership once the State's entitlement is met.

The above notwithstanding, the lands have been subjected to the staking of State Mining Claims.





**Figure 8 State Mining Claims in T. 6 & 7 S., R 20 W., KRM., McCarthys Marsh, center of frame. The Boulder Creek claims and Triex' base camp are to the northeast of the McCarthys Marsh claims.**

The State mining claim owner is Alaska Earth Resources, Inc. of Anchorage, Alaska. The claims are leased to Full Metal Minerals, Ltd., a Canadian company and the developer or operator is Triex Minerals Corporation, also a Canadian company. Although a Canadian corporation, Triex is incorporated in Nevada under the name Triex Minerals (US) Inc. and licensed to do business in the state of Alaska. As such, Triex meets the citizenship requirement of 43 CFR §2920.0-5(h).

C. Conformance with the Land Use Plan:

Although subject to a Section 17(d)(1) classification withdrawal under the Alaska Native Claims Settlement Act, the lands were open to mineral entry under the Federal Mining Laws for metalliferous material. Uranium is regarded as metalliferous material. As stated above, the State's selection of the land for conveyance under the Alaska Statehood Act segregated the land from further appropriation under the Federal Land Laws, including the Federal Mining Laws.

The Proposed Action is in conformance with the Northwest Management Framework Plan (MFP) dated October 5, 1982, objective number 2, Lands, which allows for a non-settlement claim program of authorizing use of ... public lands for ... commercial use.

The Bureau of Land Management has developed a new Resource Management Plan for the area, the Kobuk Seward Resource Management Plan and Environmental Impact Statement, which is in the final stages of approval. Under the preferred alternative of the Resource Management Plan and Environmental Impact Statement, McCarthys Marsh will be open to mineral entry subject to minor constraints.

D. Purpose and Need for the Proposed Action:

Triex' 2006 reconnaissance exploration identified 53 airborne radiometric anomalies in the McCarthys Marsh block of claims. Ground sampling of the area resulted in 30 samples with anomalous metal concentrations. Mineral exploration of the McCarthys Marsh claims, through drilling and bore sampling, will allow Triex to evaluate the prospects' potential for future development.



**Figure 9 Bore samples at Triex' base camp.**

## II. PROPOSED ACTION AND ALTERNATIVE

### A. Proposed Action:

Triex proposes to drill eight, four-inch diameter, exploratory holes to a depth of approximately 1500 feet on the public lands identified above. Water for drilling operations will be drawn from four points on two streams in the vicinity of the targeted drill holes. The streams are unnamed tributaries of the Rathlatulik River. Operations will occur between August 15 and November 1, 2007. There will be ten crewmembers in the field. Operations will be conducted out of a base camp located on State land within Sec's 17 and 18, T. 5 S., R. 17 W., KRM. The base camp is approximately ten miles northeast of the area to be explored. Drilling will be done with a Hydracore drill rig or a drill rig with similar specifications. All equipment and supplies will be slung by helicopter into the field from the base camp. There will be no motorized cross-country movement of equipment, supplies or personnel. Personnel at drill sites will use pit privies. Solid waste will be burned at the drill sites or removed to an Alaska Department of Environmental Conservation approved disposal facility.



**Figure 10 Drill rig - Hydracore 2000**

Hydracore 2000 specifications:

Power:

- Diesel

Drill Head

- Type poly chain drive
- 2 hydraulic motors, high and low speed

Hydraulic pumps

- specifications feed cylinder head
- type pressure compensated closed loop variable
- volume 0.913 in<sup>3</sup>/rev 2.8 in<sup>3</sup>/rev
- relief pressure 2500 P.S.I. 5000 P.S.I.

Feed

- length: 67"
- Max Thrust 6,250 lbs. at 2500 P.S.I.
- Max pull: 12,500 lbs. at 2500 P.S.I.

Depth capacity

- 1100' NQ – 2000' BQ

Hydraulic Reservoir Capacity

- 8.5 gallons oil cooled by heat exchanger

Optional Equipment

- mud mixer: hydraulic operated
- water pump: 27 GPM hydraulic operated
- wire line winch: 2000' capacity

Weights

- powerpack: 1100lbs can be split into two pieces by removing 4 bolts (670 lbs)
- Drill: 870 lbs – aluminum skids: 240 lbs
- Winch: 120 lbs

The drill rig operates on diesel, which will be slung by helicopter into the field in 55-gallon drums or five-gallon containers.



**Figure 11 Triex drilling operation, Boulder Creek claims, Seward Peninsula, Alaska. Note bore samples to the left of the frame.**



Figure 12 Approximate location of exploratory drill holes and water draw down points, McCarthy's Marsh.

**Proffered Mitigation Measures:**

The wooden drill pads level the equipment to facilitate drilling operations and extraction of core samples. The platforms have the latent effect of mitigating the impacts of ground activity on the tundra thereby reducing the risk of tundra damage and resultant melting of permafrost. Strainers will be used on intakes in natural watercourses to protect fish. Drill holes will be backfilled with drill cuttings and plugged with bentonite slurry or equivalent for a minimum of 10 feet from the surface. Fuel in excess of an amount necessary for immediate operations will not be stored on Federal public lands. Operational quantities of fuel may be stored adjacent to the drill rig in fuel containment systems. Fuel will be moved to work sites by helicopter. All equipment, supplies and personnel will be moved to work sites by helicopter.



**Figure 13 Aerial of a Triex field drilling operation, Boulder Creek Claims**



**Figure 14 Triex wooden drill pad, Boulder Creek Claims – post drilling activity.  
Note drill mud effluent in foreground.**

- B. No Action Alternative:  
Under the no action alternative, Triex would be denied a land use permit.  
Evaluation of the McCarthys Marsh prospect may then be delayed until the State acquires title to the property or the State’s claims to the property are terminated.

### III. AFFECTED ENVIRONMENT

The following material was extracted from *Ecoregions of Alaska*, Alisa L. Gallant, Emily F. Binnian, James M. Omernik, and Mark B. Shasby, U.S. Geological Survey Professional Paper 1567, (1995):

#### 110 SEWARD PENINSULA

**Distinctive Features** - Some of the oldest geologic formations in Alaska provide a backdrop for the 47,000-kd, predominantly treeless Seward Peninsula Ecoregion. Mesic graminoid herbaceous communities and low scrub communities occupy extensive areas. The ecoregion is surrounded on three sides by water, yet this has little ameliorating effect on the climate. Winters tend to be long and harsh and summers short and cool.

**Climate** - Long, severe winters are typical of this ecoregion. Overall climatic characteristics range from maritime (a narrow strip along the coast), to transitional between maritime and continental influences (most of the region), to continental (in the eastern portion). Winds are persistent and strong throughout the region. Approximately 10 weeks are frost-free, each summer. All weather stations in the region are located at the lower elevations. Annual precipitation is heaviest in late summer and early fall, occurring as rain. Mean annual precipitation ranges from 250 mm to 510 mm at lower elevations, with 100 cm to 190 cm of snowfall occurring. Mean annual precipitation for the highlands, interpolated from lowland data, exceeds 1,000 mm, and snowfall may be as much as 250 cm. Average daily minimum temperature in winter ranges from -24°C to -19°C, and average daily maximum from -16°C to -11°C. Average daily minimum temperature in summer ranges from 1°C to 6°C, and maximum from 13°C to 17°C. Temperatures are generally warmer in the southern portions of the region.

**Terrain** - The ecoregion has narrow strips of coastal lowlands that grade into extensive uplands of broad convex hills and flat divides. Small, isolated groups of rugged mountains occur in a few locations. Elevation ranges from sea level to 500 m for most of the region; the higher mountains climb to 1,400 m. Slope gradients are generally from 0° to 5° in the lowlands and hills, but typically from 5° to 15° in the mountains. Geologic parent materials include Paleozoic sediments and metamorphosed volcanic rocks and Precambrian volcanic rocks. Highland areas are possible Cenozoic uplifts of these formations. An extensive area of Quaternary or Tertiary volcanic rock occurs in the northeastern part of

the ecoregion. Permafrost is continuous throughout the ecoregion, ranging from a thin to a moderately thick layer. Related features, such as gelifluction lobes and stone stripes on sloping areas, frost scars on low knolls, and polygons in level valley bottoms, are common. Streams draining interior basins travel through narrow canyons across broad uplands. Lowlands have numerous thaw lakes, but lakes are rare in the highlands. Except for the highest elevations, the region was unglaciated during the Pleistocene epoch.

**Soils** - Predominant soils are Histic Pergelic Cryaquepts, Pergelic Cryaquepts, Typic Cryochrepts, Pergelic Cryumbrepts, Lithic Cryorthents, and Pergelic Cryorthents. Soils are generally poorly drained and shallow over permafrost. Soils on hillslopes and ridges formed in very gravelly residual materials over weathered bedrock. Soils in valleys and on lower slopes formed mainly in colluvial and alluvial sediments.

**Vegetation** - The coastal beaches, rolling hills, and mountains in this ecoregion provide a variety of climate and substrate characteristics. Mesic graminoid herbaceous communities (fig. 23) and low scrub communities occupy extensive areas on hills and lower mountain slopes. Saturated or flooded soils sustain wet graminoid herbaceous communities. Tall scrub vegetation occurs along streams and on floodplains. Ridgetops and higher elevations are barren or support dwarf scrub communities. Mesic graminoid herbaceous communities are dominated by tussock-forming sedges. Low scrub communities result when woody species colonize the area between tussocks. Principal sedges are *Eriophorum vaginatum* and *Carex bigelowii*. Woody species include dwarf arctic birch (*Betula nana*), resin birch (*B. glandulosa*), mountain-cranberry (*Vaccinium vitis-idaea*), bog blueberry (*K. uliginosum*), diamondleaf willow (*Salix planifolia*), netleaf willow (*S. reticulata*), and crowberry (*Empetrum nigrum*). Mosses (for example, *Pkurozium schreberi*, *Hylocomium splendens*, *Aulacomnium* spp., and *Sphagnum* spp.) are prevalent, and lichens (for example, *Cetraria cucullata*, *C. islandica*, *Cladonia* spp., *Cladina rangiferina*, and *Thamnolia subulifomzis*) can be common. Wet graminoid herbaceous communities consist of sedges (for example, *Carex aquatilis*, *C. lyngbyaei*, *C. rostrata*, *C. saxatilis*, *C. sitchensis*, and *Eriophorum angustifolium*) and grasses (for example, *Calamagrostis Canadensis* and *Arctophila fulva*). Tall scrub communities are dominated by willow (for example, *Salix alrucensis*, *S. glauca*, *S. planifolia*, and *S. lanata*). Birch (for example, *Betula nana*) may codominate with willow in some areas. Other woody constituents include alder (*Alnus sinuata* and *A. crispa*) and shrubby cinquefoil (*Potentillafruticosa*). A dense herb layer

may be present, typically including oxytrope (*Oxytropis* spp.), vetch (*Astragalus* spp.), dwarf fireweed (*Epilobium latifolium*), wormwood (*Artemisia* spp.), and bluejoint (*Calamagrostis canadensis*). Mosses (for example, *Polytrichum* spp., *Hylocomium splendens*, and *Drepanocladus uncinatus*) can be abundant. Dwarf scrub communities are composed of low shrubs, grasses, and lichens. Communities are dominated by mountain-avens (*Dryas octopetala* and *D. integrifolia*) or codominated by a combination of mountain-avens and sedge (for example, *Carex scirpoidea*, *C. misandra*, and *C. bigelowii*) or mountain-avens and lichens (for example, *Alectoria* spp., *Cetraria* spp., and *Cladina* spp.). Other typical shrubs occurring in these communities are willows (*Salix reticulata* and *S. phlebophylla*) and ericads (for example, *Cassiope tetragona*, *Empetrum nigrum*, *Arctostaphylos* spp., *Vaccinium vitis-idaea*, and *V. uliginosum*). Mosses (for example, *Tomenthypnum nitens*, *Rhytidium rugosum*, and *Hylocomium splendens*) can be common.

**Wildfire** - Occurrence of wildfires in the Seward Peninsula Ecoregion is common. Burns range in size from less than 1 ha to 109,260 ha, with an average size of 2,815 ha. Mosses and lichens dry out during summer, allowing fire to spread readily through the tundra. Fire season is usually from June through August.

**Land Use and Settlement** - Population is low and small settlements are scattered throughout the region. The land has been historically used for subsistence hunting and fishing by the Bering Strait Inuit. Their livelihood has depended on large marine mammals, such as bowhead whales, beluga whales, and walrus. Winter ice fishing and seal hunting are important to supplement spring and summer ocean catches. Away from the coast, streams provide salmon and freshwater fish. Large game (for example, caribou) and smaller mammals (for example, rabbits, squirrels, muskrats, and beaver) are also taken. Reindeer herding is unique to this area. A number of metallic elements, including antimony, barium, gold, lead, silver, tin, tungsten, and zinc occur in the region. Numerous mines, including many gold mines, are scattered throughout large parts of the region. Other important metals include copper, mercury, platinum, and uranium. Antimony, bismuth, and coal have also been mined.

**Delineation Methods** - The ecoregion boundary delineates a break between the forested ecosystems of interior Alaska and the nonforested peninsula. One of the characteristic features of the Seward Peninsula is the age of the bedrock geologic formations; the transitional area on the

ecoregion map excludes the more recent geologic formations along the eastern portion of the ecoregion from the older formations throughout the core of the region.

References - The information provided in this regional description has been compiled from Beilunan (1980), Coulter and others (1962), Ferrians (1965), Gabriel and Tande (1983), Joint Federal-State Land Use Planning Commission for Alaska (1973), Karlstrom and others (1964), Langdon (1993), Larson and Bliss (written commun., 1992), Moore (written commun., 1993), Morgan (1979), Ping (written commun., 1993), Pittman (1992), Reiger and others (1979), Selkregg (1974), U.S. Bureau of Mines (1992a, 1992b), U.S. Geological Survey (1964, 1987a), Viereck and Little (1972), Viereck and others (1992), Wahrhaftig (1965), and WeatherDisc Associates, Inc. (1990).

The following material was extracted from the Bureau of Land Management's final version of the Kobuk Seward Resource Management Plan:

#### MCCARTHY'S MARSH

McCarthy's Marsh [is] a critical wintering area for moose on the Seward Peninsula and is also frequently utilized by wintering caribou of the Western Arctic Caribou Herd. Moose and caribou are some of the most important subsistence resources on the Seward Peninsula. Winter in the sub arctic is a nutritionally demanding time for ungulates. If energy reserves cannot be maintained at a sufficient level during this critical period, cows may abort their pregnancies. This can have serious repercussions on the population dynamics of moose and caribou and therefore the ability of rural residents to be successful in their subsistence lifestyle.

The marsh also supports a wide array of bird species during the short summer months. It provides important habitat for waterfowl. This includes the yellow-billed loon, a BLM sensitive species. Based on ground brood counts between 1989 and 1993, the average number of duck broods per square kilometer in McCarthy's Marsh was 9.7. American wigeon, mallard, green-winged teal, northern shoveler, and northern pintail were the predominate dabbling ducks found. Greater scaup, long-tailed duck (previously known as oldsquaw), and black scoters were the most common diving ducks. Other species observed during the surveys included tundra swan, red-necked grebes, Arctic loons, common loons, pacific loons, greater white-fronted geese, Canada geese, and sandhill cranes (Jandt and Morkill 1994, Anderson and Robinson 1991).



**Figure 15** Aerial of prospect area, predominantly open tundra and riparian zones.



**Figure 16** Private parcel in Secs. 34 & 35., T. 6 S., R. 20 W., KRM  
Terrain is predominately open tundra and riparian zones.

A. Critical Elements:

1. 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:

Air Quality  
Environmental Justice  
Farmlands (Prime or Unique)  
Flood Plains  
Invasive Non-native Plants/Noxious Weeds  
Native American Religious Concerns  
Wetlands/Riparian Zones  
Wild and Scenic Rivers  
Wilderness

Areas of Critical Environmental Concern:

McCarthy's Marsh is under consideration for Area of Critical Environmental Concern (ACEC) designation under Alternative C of the Bureau of Land Management's Kobuk Seward Resource Management Plan. The marsh is proposed for such designation as it provides wintering habitat for both moose and caribou. An ACEC designation of McCarthy's Marsh would minimally result in the prohibition of "Notice" level mineral entry on the Federal Public Lands. However, Alternative C is not the preferred alternative under the Kobuk Seward Resource Management Plan and Environmental Impact Statement, Alternative D is. McCarthy's Marsh is not promoted for ACEC designation under Alternative D of the plan and Environmental Impact Statement.

Cultural Resources:

Cultural resources are known to be located in the general area, but none are located within the Area of Potential Effect. While this area has not been intensively surveyed for cultural resources, the drill hole locations are in areas of relatively low potential (i.e. open tundra, at least 100 feet from stream beds, and not on obvious overlook areas).

Subsistence:

The Alaska Department of Fish & Games' Community Profile database indicates that residents of White Mountain, Golovin, Nome, Koyuk, and Elim harvest both moose and caribou. Caribou from the Western Arctic herd are generally available for residents to harvest west of the Darby Mountains during the winter months. Salmon are also an important food source. Other subsistence resources harvested by residents of the area include: non salmon fish species such as white fish, herring, and tomcod; marine mammals such as beluga whale, spotted, ring, and bearded seals; various migratory birds (geese, ducks), ptarmigan; and small game such as snowshoe hares. Trapping and hunting also occurs for wolf, wolverine, lynx and other small furbearers.

The lands are selected by the State of Alaska, F-088800 and F-089072. As such, they do not meet the definition of "public lands" under Section 102 (3)(A) of the Alaska National Interest Lands Conservation Act and the proposed action is not subject to the subsistence provisions of Title VIII of the act.

Threatened & Endangered Species:

There is no reason to believe that:

1. an endangered or a threatened species is present in the area affected by the proposed action;
2. implementation of the proposed action will jeopardize the continued existence of an endangered or threatened species;
3. implementation of the proposed action will result in the destruction or adverse modification of critical habitat of such species;
4. implementation of the proposed action will jeopardize the continued existence of any species proposed to be listed as endangered or threatened;
5. 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.

2. The following critical elements of the human environment have been analyzed and may be affected by the Proposed Action or the No Action Alternative:

Wastes, Hazardous/Solid:

There are no known solid or hazardous waste sites within the area under consideration.

Water Quality, Surface/Ground:

Water quality data is lacking throughout this region of Alaska. It is presumed that water quality is good due to no known sources of municipal or industrial contamination.

B. Non-Critical Elements of the Human Environment:

The following non-critical elements of the human environment have been analyzed and may be affected by the Proposed Action or the No Action Alternative:

Noise:

Noise levels in McCarthys Marsh are presumed to be those associated with the serenity of a wilderness environment.

Recreation:

The riparian habitat of the Fish River drainage and its major tributaries show expanses of willow, birch and alder, with occasional strands of white and black spruce trees in a nearly undisturbed state. Most of these areas are inaccessible during the snow free season except by aircraft. The relative inaccessibility combined with the lack of trails to these areas limits the amount of recreation use that occurs. Most hunting and fishing occurs on the lower reaches of the Fish River. Limited amounts of boating and rafting occur on the lower elevations of the Fish River. Some climbing, hiking, camping, and hunting occur in the high areas above timberline but these uses usually rely on aircraft for access.

There are three permitted hunting guides within the portion of GMU 22B managed by the Anchorage Field Office, Harry "Bob" Hannon (FF-86238), Tom Gray (FF-93637), and James Smith (AA-86400). Mr. Gray and Mr. Smith are known to use the Fish River area for operations during the fall and spring bear season.

Soils:

A dominant factor in defining soils on the Seward Peninsula is the presence or absence of permafrost. Permafrost is defined as soil, sand,

gravel, or bedrock that has remained below 32° F for two or more years (Muller 1945). Almost continuous throughout the Seward Peninsula, permafrost can exist as massive ice wedges and lenses in poorly drained soils or as a relatively dry matrix in well-drained gravel or bedrock. During the short Arctic summer, these soils thaw, forming a shallow unfrozen zone termed the active layer. Permafrost forms a confining barrier that prevents infiltration of surface water and keeps the active layer of soils saturated. Permafrost also provides the structural integrity to hillsides and stream channel banks.

Large marshy areas, such as McCarthy's Marsh, are interspersed between rugged mountainous uplands. These upland soils are formed in thick colluvial and glacial deposits, gravelly and stony residual materials, and partially weathered bedrock. Most upland soils are shallow over permafrost with solifluction lobes, polygonal ground, and other frost-scarred features common. The finer-grained valley sediments are rich in organic materials and are generally shallow over ice-rich permafrost.

#### Vegetation:

The riparian corridors of the Fish River drainage and its tributaries are characterized by willow, birch and alder, plus some white and black spruce trees. Habitat outside the riparian area is primarily a mix of wet and dry tundra (dwarf shrub, herbaceous perennials, grasses and sedges, lichen, moss, and sparse black spruce), with scattered stands of white and black spruce. The rocky peaks of the Darby Mountains are sparsely vegetated.

#### Visual Resources:

The Bureau of Land Management evaluates visual values based on a rating system that looks at:

- Scenic Quality: the visual appeal of a piece of land,
- Sensitivity Level: the public concern for the scenic qualities of the land, and
- Distance zones: the relative visibility from access routes and observation points.

Based on these factors, lands are placed in one of four visual resource inventory classes. Inventory classes II through IV (the lowest) are assigned based upon the combined scores from the three factors, while class I is reserved for lands previously designated by Congress or administratively to preserve a natural landscape, such as a Wilderness area or a wild portion of a Wild and Scenic River.

Tentatively, the Bureau of Land Management intends to manage the area impacted by the proposed action as VRM Class IV, see BLM Kobuk Seward Resource Management Plan and Environmental Impact Statement, Map 2-3.

VRM Class IV Objective. The objective of this class is to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location and minimizing disturbance.

Expansive and scenic views of the Fish River drainages and its tributaries are available from high vantage points. There are a few established camps on the lower stretches of the Fish River mainly on White Mountain Native Corporation owned lands or on Native Allotments. The area to be impacted by the applicant is generally not visible from any established ground travel routes, but is visible from the air.

Wildlife:

McCarthy's Marsh [is] a critical wintering area for moose on the Seward Peninsula and is also frequently utilized by wintering caribou of the Western Arctic Caribou Herd.

IV. ENVIRONMENTAL CONSEQUENCES

The following figures were utilized to evaluate the environmental issues associated with the proposed action:



**Figure 17 Drilling and core sample operations**



**Figure 18 Drill platform post operations - cleanup**

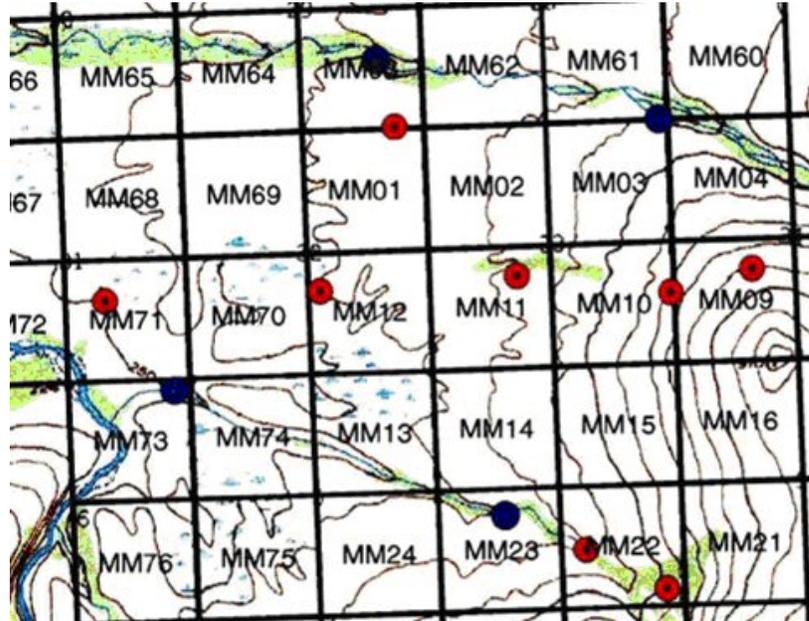


Figure 19 Drill hole locations, McCarthy's Marsh



Figure 20 McCarthy's Marsh, open Tundra and Riparian Zones.

A. Impacts of the Proposed Action:

1. Critical Elements of the Human Environment:

Wastes, Hazardous/Solid:

The proposed activities will use regulated materials and will generate some solid and sanitary wastes. The potential for harm to the environment is presented by risks associated with spills of fuel, oil and/or hazardous substances during the operation of machinery. Accidents and mechanical breakdown of machinery are also possible.

Water Quality, Surface/Ground:

Residual drill mud, Figure 19 - foreground, has the potential of entering watercourses from all proposed drill sites with particular concern for the drill sites in zone M22, Figure 20. The season of operations followed by winter and breakup will likely reduce and mitigate increases in sedimentation and turbidity resulting in a mild increase of those impacts in the early spring with little or no long term sedimentation or turbidity impacts to the watercourses.

2. Non-Critical Elements of the Human Environment:

Noise:

The noise associated with drilling will temporarily disturb the natural serenity of McCarthys Marsh. It may displace sensitive wildlife populations during the period of operations and it may inconvenience the guiding operations of licensed and permitted hunting guides in the area.

Recreation:

The level of human intrusion associated with the presence of a drilling platform and the noise associated with drilling operations may undermine the wilderness or recreation experience of recreational users of the public lands. Similarly and depending on the level of daily aircraft support, air traffic too may undermine the experiences of recreational users in the vicinity of operations.

Soils:

Since permafrost is an integral component of the soils of the Seward Peninsula, any surface disturbance that removes the overlying vegetation can initiate melting of ice-rich permafrost and result in surface subsidence (termed thermokarsting), drastically altering the surface topography, hydrological regime, and temperature of the underlying soils. As permafrost begins to thaw near the surface, it warms to greater depths, forming thaw ponds, gullies, and beaded streams. The hydrologic and thermal regime of the soil is the primary factor controlling the vegetation.

These changes to the thermal regime of the soil initiate a long process of recovery with perhaps 20-50 years of cumulative impacts (Hinzman et al. 2000).

Vegetation:

The Arctic, tundra environment is especially sensitive. The low levels of solar energy encourage growth processes yet the region's cold temperatures slow rates of photosynthesis and decomposition. Since Arctic species are naturally under constant stress to survive, they are especially vulnerable to any additional sources of stress, both natural and human induced. This is particularly true with regard to the tundra's vegetative mat.

Visual Resources:

The Proposed Action will result in minimal impacts on scenic values and meets the objectives of a BLM VRM classification IV. The drill rig will temporarily impact scenic views in the area of operations as will air support of those operations. Any scarring of the tundra left as a result of the exploration may also impact scenic views depending on the extent of scarring.

Wildlife:

Resident wildlife such as moose will likely be temporarily displaced during operations due to human presence, noise and air support. Migrating wildlife such as the caribou of the Western Arctic Caribou herd may avoid the areas of operation until operations are terminated and the equipment and platforms are removed from the field.

At the drill sites some wildlife habitat will be impacted through trampling or cut to accommodate drilling. It is anticipated that these impacts will be nominal. With proper cautions, forage (lichen) should recover; however, lichen can take up to 40 years to fully recover.

The presence of food could attract bears and other scavengers if not properly secured. Such encounters may result in the unplanned harvest of bears in defense of life and property.

B. Impacts of the No Action Alternative:

1. Critical Elements of the Human Environment:

Wastes, Hazardous/Solid:

Denial of a permit to conduct drilling and core sampling will reduce the risks associated with the use of drilling apparatus in the field. However,

exploration and core sampling may only be delayed until such time as land ownership is settled.

If the State fails to prioritize conveyance of the area, the lands will remain in Federal ownership. As such and unless otherwise closed to mineral entry they would remain open to mineral entry for metalliferous mineral exploration, discovery and location, PLO 5180. Uranium is regarded as a metalliferous metal.

If the State does prioritize conveyance of the area, the State mining claims will become viable and the right to explore and extract the resource will vest in the State mining claim owner.

Thus and depending on global energy demands, exploration of the prospect is probable.

Water Quality, Surface/Ground:

The risks to watercourses in the vicinity of the proposed operations would be eliminated under the no action alternative. However, as with the risks of waste contamination, these risks too may only be delayed until the land status in the project area is settled.

Water Quality, Surface/Ground:

The risks to watercourses in the vicinity of the proposed operations would be eliminated under the no action alternative. However, as with the risks of waste contamination, these risks too may only be delayed until the land status in the project area is firmly established.

2. Non Critical Elements of the Human Environment:

Noise:

Under the no action alternative the noise associated with exploration would not occur. As with impacts associated with wastes and the risks to water courses, affects on the serenity of McCarthys Marsh may only be delayed until the area's land status is settled.

Recreation:

Impacts to recreation associated with this endeavor would not occur under the no action alternative although they may simply be delayed.

Soils:

The potential impacts or risks to the soils and permafrost in the area would not be present under the no action alternative although they may only be

delayed.

Vegetation:

With denial of the permit, the risks of tundra disturbance from the proposed activity would be non-existent. However, it remains that exploration is a very real possibility once land status in the area is settled.

Visual Resources:

The temporary affect on the scenic value in the area from drilling would not occur under the no action alternative although as in the preceding categories, it may only be delayed.

Wildlife:

Wildlife would not be displaced and there would be a reduced risk of bear harvest in the absence of the permitted activity.

C. Cumulative Impacts:

As indicated in the introduction prospectors have been aware of the uranium deposit in the Boulder Creek area for some time. The global demand for the ore has likely lead to the current interest in its development. A second discovery in the McCarthys Marsh area could lead to the implementation of production on the Seward Peninsula and the development of infrastructure necessary to support the operation.

Development on Federal public lands would be regulated under 43 CFR §3809 and would be subjected to further environmental analysis under the National Environmental Policy Act.

D. Mitigation Measures:

1. The authorization should include explicit notice to the applicant that exploration and/or discovery will vest no property rights in the applicant under Federal Land or Mining Laws.
2. The drill platforms must be recycled and slung to subsequent drill sites to conserve timber.
3. Except when conducting sling load operations, it is recommended that helicopter guidelines and regulations set forth in US DOT Advisory Circular AC No.: 91-36D and 14 CFR 91.119 be followed during ingress and egress to the project area. Flight paths should be altered if wildlife is observed in the area (e. g. moose, caribou, etc.) to avoid harassment.
4. Harassment of wildlife is prohibited.
5. All holes must be plugged.
6. The drilling machine's need to have drip pans or pads placed under them

during operations and storage to prevent oil leaks onto the ground. Having on-hand appropriate spill response kits, and employees trained in emergency spill response (HAZWOPER, etc.) will mitigate any damage to the environment caused by accidental releases of oil/fuel. Solid and sanitary waste pollution will be prevented by daily backhaul of all trash, worn equipment parts, and use of a properly maintained toilet facility at the shelter sites.

6. Removal of tundra mat in excess of sufficient amounts to accommodate the actual drilling of exploratory holes is prohibited.
7. Every effort will be made to limit vegetation and soil disturbance to the minimal amount necessary to accomplish exploratory operations.
8. Drill muds and cuttings left on the surface will be tested for petroleum products and hazardous substances and removed from the field where warranted. If practicable and where feasible, drill muds and cuttings left in the field will be sufficiently disbursed to allow the vegetative mat to recover from operations.
9. Drilling within 100 feet of stream beds is prohibited.
10. Recommended disposal of human waste:
  - go at least 200 feet from all potential water sources.
  - choose a site in organic soil to promote decomposition.
  - dig a small hole 6 to 8 inches deep.
  - after use, bury completely and replace the tundra.
  - all paper products should be packed out or burned.
10. Cooking  
Gas or propane stoves for cooking are strongly recommended. Fires are often impractical. Tree growth in the Arctic is very slow; a spruce tree only inches in diameter may be hundreds of years old. In some areas wood is scarce or nonexistent. A gas or propane stove is also good for emergencies since it is easy to light.

Keep a clean camp. Avoid food spills and other animal attractants. Proper food storage is required. Bears that become accustomed to human food and products present a hazard to people traveling in the backcountry and often have to be destroyed.

11. Water  
Alaska's rivers and lakes contain Giardia lamblia, or other intestinal parasites. It is recommended that you drink only boiled, filtered or chemically treated water. To protect the water quality, bathe and wash dishes at least 100 feet from sources of drinking water and use biodegradable soaps. Go at least 200 yards from the water to use the restroom.
12. Firearms  
Firearms may be discharged in defense of life and property but do not take the place of proper precautions in bear country.

13. Drill site reclamation will be bonded through the Alaska Mining Bonding pool. The bond shall not be released until the sites have been inspected and found satisfactory in 2008.
14. Triex will provide the Bureau of Land Management with the GPS coordinates for each drill site and each water draw down site within the area of planned operations. The coordinates will be provided in the WGS84 datum.

V. CONSULTATION AND COORDINATION

A. Persons and Agencies Consulted:

Alaska Department of Fish & Games, Nome  
Bureau of Land Management, Anchorage Field Office staff  
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