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## **NIRB Uuktuutinga Ihivriughikhamut #125186**

### **Kahuna Property Field Camp**

**Uuktuutinga Qanurittuq:** New  
**Havaap Qanurittunia:** Iglukakviit  
**Uuktuutinga Ublua:** 11/20/2017 4:45:03 PM  
**Period of operation:** from 0001-01-01 to 0001-01-01  
**Piumayaat Angirutinga:** from 0001-01-01 to 0001-01-01  
**Havauhikhaq Ikayuqtinga:** Chris Taylor  
Dunnedin Ventures Inc.  
1110, 1111 West Georgia St.  
Vancouver BC V6E 4M3  
Canada  
Hivayautit Nampanga:: 778 327 5799, Kayumiktukkut Nampanga:: 778 327 6675

## **QANURITTUT**

### **Tukihiannaqtunik havaariyauyumayumik uqauhiuyun**

**Qablunaatitut:** Please refer to the attached Non-Technical Project Summary in English under the document tab.

**Uiviitut:** The proposed project will not affect the city of Iqaluit.

**Inuktitut:** Please refer to the attached Non-Technical Project Summary in Inuktitut under the document tab.

**Inuinnaqtun:** The proposed project will not affect the communities of Cambridge Bay, Kugluktuk, Bay Chimo or Bathurst Inlet.

### **Personnel**

Personnel on site: 20

Days on site: 214

Total Person days: 4280

Operations Phase: from 2018-02-16 to 2018-03-16

Operations Phase: from 2018-03-02 to 2018-10-01

Post-Closure Phase: from to

## Hulilukaarutit

### Hulilukaarutit

Inigiya	Hulilukaarut Qanurittuq	Nunannga Qanurittaakhaanik	Initurlinga qanuritpa	Initurlinga utuqqarnitat unaluuniit Ingilraaqnitat Uyarannguqtut akhuurninnga	Qanitqiyauyuq qanitqiamut nunallaat kitulluuniit ahiruqtaliyainnit nuna
Temporary Field Camp Location	Camp	Crown	No known history. The proposed field camp is 4 km west of the PST diamond occurrence.	An archaeological survey was conducted by Golder Ltd. in 2016. Low level aerial passes along the 46 km long overland winter trail did not identify any archaeological features at the site. There are no archaeological features evident in high resolution air photos collected over the camp area in 2017. A ground examination was conducted by H. Aggark (Mayor Chesterfield) and J. Misherlak (HTO) in September 2017. There were no archaeological features noted. Both men recommended the camp location.	The proposed field camp is 40 km from Rankin Inlet and 50 km from Chesterfield Inlet.

### Nunaliin Ilauyun, Aviktuqhimayuniitunullu Ikayuuhiarunguyun

Nunauyuq	Atia	Timiuyuq	Upluani Uqaqatigiyaungmata
Igluligaaryuk	Simeonie Sammurtok, Mayor of Chesterfield Inlet	Hamlet Council of Chesterfield Inlet	2017-11-10
Kangirliniq	L.Manzo, J.Tulugak, B.Osmond (KIA).	Kivalliq Inuit Association	2017-10-26
Kangirliniq	L.Manzo, J.Tulugak, B.Osmond (KIA). J.Tattuinee, B.Sigurdson, H.Towtongie, C.Beardsall (CLARC). C.Tartak (HTO Manager)	Kivalliq Inuit Association. Community Lands and Resources Committee. Aqiggiag HTO.	2017-10-27
Igluligaaryuk	S.Sammurtok (Mayor). P.Kattegatsiak, P.Kadjuk, L.Mimialik, A.Kadluk, H.Aggark (CLARC). V.Ipkarnerk (KIA). R.Mullins, D.Kattegatsiak, L.Autut (Hamlet). J.Misherlak, J.Aggark, M.Arnauyok (HTO).	Community Meeting: CLARC, KIA, Hamlet of Chesterfield Inlet, Aqigiq HTO and members of the community.	2017-10-25
Kangirliniq	G.Karlik, J.Tulugak, L.Manzo (KIA)	Kivalliq Inuit Association	2017-09-30
Igluligaaryuk	H.Aggark (Deputy Mayor of Chesterfield Inlet), J.Misherlak (Aqigiq HTO)	Hamlet of Chesterfield Inlet, Aqigiq HTO	2017-09-29
Igluligaaryuk	S.Sammurtok (Mayor),	Community Meeting: Hamlet of	2017-08-17

	R.Mullins, D.Kattsegatsiak (Hamlet)	Chesterfield Inlet and members of the community.	
Igluligaaryuk	S.Sammurtok (Mayor), R.Mullins, D.Kattsegatsiak, J.Krako, L.Autut (Hamlet), H.Aggark (HTO Chair), S.Autut	Hamlet of Chesterfield Inlet, Aqigiq HTO	2017-08-16
Igluligaaryuk	S.Sammurtok, R.Mullins, D.Kattsegatsiak (Hamlet)	Hamlet of Chesterfield Inlet	2017-08-16
Igluligaaryuk	T.Sammurtok (MLA), P.Kattegatsiak, V.Ipkarnerk (KIA), S.Sammurtok (Mayor), H.Aggark (Deputy Mayor/HTO Chair)	Community Meeting: Hamlet of Chesterfield Inlet, Kivalliq Inuit Association, Aqigiq HTO and members of the community.	2017-06-20
Igluligaaryuk	S.Sammurtok (Mayor of Chesterfield Inlet), J.Misherlak (HTO)	Site Visit: Hamlet of Chesterfield Inlet, Aqigiq HTO	2017-06-20

## Angiuttauvaktunik

### Naunaiqlugu nunanga talvani havauhikhaq ittuq

Transboundary  
Kivalliq

## Angiuttauvaktunik

Munariniqmut Ayuittiaqtuq	Angirutinga Qanurittuq	Tadja Qanurittaakhaanik	Ublua Tuniyauyuq/Uuktuqtuq	Umikvikhaa Ublua
Nunaqaqaqhimayunut Inuliqinimut Kanata	N2015C0019. Class A Land Use Permit for Mining (Exploration) for rock, till and soil sampling, prospecting and geological mapping, ground geophysical surveying, diamond drilling, reverse circulation drilling and bulk sampling.	Active	2015-07-16	2019-07-17
Kivalliq Inuit Katimayit	KVL315B01. Land Use License for Staking & Prospecting, Exploration, Drilling, Bulk Sampling on Inuit Owned Land Parcel CI-15.	Active	2017-07-14	2019-11-02
Kivalliq Inuit Katimayit	KVRW16F01. Right of Way Land Use License for an Overland Winter Trail from Rankin Inlet to the Kahuna Property.	Active	2017-04-02	2018-04-02
Nunavut Imaligiyyit Katimayit	2BE-KDP1722. Type B Water Licence for the use of water on the Kahuna Project. Quantity of water use not to excess: one hundred (100) cubic metres per day.	Active	2017-06-01	2022-05-31
Nunaqaqaqhimayunut Inuliqinimut Kanata	An INAC amendment application has submitted to NIRB and upon screening decision will be submitted to INAC to add a	Applied, Decision Pending		

	temporary field camp on Crown Lands under N2015C0019.			
Nunavut Imaligiyyit Katimayit	A NWB amendment application has submitted to NIRB and upon screening decision will be submitted to NWB to authorize domestic water use not exceeding three (3) cubic metres per day for the temporary field camp under Water Licence 2BE-KDP1722.	Applied, Decision Pending		

#### Project transportation types

Transportation Type	Qaffiuyut	Qanuq Atuqtauniarmangaa	Length of Use
Air	0	Helicopter-supported	
Land	0	Caterpillar Challengers with sleds, snowmobiles	

#### Project accomodation types

Temporary Camp

## Ihuaqutivaluin Atuqtauyukhan

Hanalrutit atuqtaunahuat (ukuallu ikuutat, pampiutainnik, tingmitinik, akhaluutinik, hunaluuniit)

Hanalrutit Qanurittuq	Qaffiuyut	Aktikkulaanga – Qanurittullu	Qanuq Atuqtauniarmangaa
Helicopter Long Ranger (or similar)	1	12.9m x 3.1m	Transportation and drill moves.
Water Pumps	2	0.5m x 0.3m x 0.3m	Provide water for the temporary field camp.
Snowmobile	4	3m x 1m x 1m	Transportation
Caterpillar Challenger	2 to 4	3m x 5m	Mobilization/Demobilization of drill, fuel & equipment
Generators	2	1m x 2m	Power generation

## Qanurittuq Urhuqyuaq unalu Qayangnaqtut Hunavaluit Aturninnga

Qanurittuq urhuqyuaq hunavaluit aturninnga:	Urhuqyuaq Qanurittuq	Qaffiuyut qattaryut	Qattaryuk Aktikkulaanga	Atautilmut Qaffiuyut	Ilanga	Qanuq Atuqtauniarmangaa
Aviation fuel	fuel	150	205	30750	Liters	Fuel helicopters
Diesel	fuel	150	205	30750	Liters	Power generators, heating and drilling.
Gasoline	fuel	10	205	2050	Liters	Fuel for water pumps and snow mobiles.
Propane	fuel	20	100	2000	Lbs	Fuel for kitchen stoves and dryer.
Hydraulic/Motor Oil	hazardous	10	4	40	Liters	Lubricant for generators, helicopters, etc.
Solvents	hazardous	20	1	20	Liters	Cleaning products

## Imaqmik Aturninnga

Ubluq qanuraaluk (m3)	Aturumayain imavaluin utiqittagaani qanuq	Atulirumayain imavaluin utiqittagani humi
3	Portable, gasoline-powered water pump. Refer to the attached NWB Amendment Application under the documents tab for detailed description of the water retrieval methods.	Refer to the attached NWB Amendment Application under the documents tab for detailed description of the water retrieval locations.

## Iqqakuq

### Ikkakunik Munakgiyauyunik

Havauhikhaq Hulilukaarut	Qanurittuq Iqqakut	Ihumagiyauyuq Qanuraaluktut Atuqtait	Qanuq Iqqakuurniarmangaa	Halummaqfirarnirutikhan piyutin
Camp	Ikulalaaqtun iqqakuuvaluin	~0.05m3/day	Duel-walled fuel-fired incinerator	Ash collected and removed from site for authorized disposal.
Camp	Qimarivyaktuq imaq	<3m3/day	Greywater sump	Sump backfilled upon final closure.
Camp	Hivuuranagtun iqqakuuvaluin	0.005m3/day	Collected in sealed and labelled drums.	Removed from site to a registered hazardous waste receiver.
Camp	Ikulalimanngittun iqqakuuvaluin	0.05m3/day	Collection	Transported off site for authorized recycling/disposal.

Camp	Anaagun (inuin anaaguin)	0.05m <sup>3</sup> /day	Incinerated and ash collected.	Ash transported off site for authorized disposal.
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#### **Avatiliriniqmut Ayurhautingit:**

Camp activities are not likely to significantly impact the permafrost, soil and sediment quality. Camp structures will be elevated to prevent permafrost thaw. Soil quality can be impacted by hazardous materials spills and waste discharge and will be treated as per the Spill Prevention and Response Plan. The camp grey water sump will be outfitted with a grease trap and screen to ensure food grease and solids do not enter the waste water sump. No contamination of the water supply is predicted. Upon final closure, the sump will be infilled and re-contoured. The camp location was chosen in a location with minimal vegetation to reduce the need for clearing. Due to the short duration of the program and the remote location of the field camp, measurable impacts to the air quality are not anticipated. Noise quality may be effected by helicopters and generators which can disturb wildlife. Helicopters are to maintain a minimum altitude of 610 metres where wildlife is observed to mitigate impacts by noise. The predicted impacts to wildlife due to the presence of the Kahuna Property field camp include attracting wildlife and habitat disturbance. Dunnedin will discourage attracting wildlife by minimize all waste and properly storing attractants until they can be removed from camp. Habitat disturbance from the field camp is temporary and upon final closure the site will be reclaimed and restored to its original state. Camp layout will be designed to minimize its footprint and limit its impact. No birds, eggs or nests are to be disturbed. Flight restrictions are in place where colonies of birds are observed. Positive socioeconomic impacts are anticipated from employment opportunities for local Inuit and increased business for northern companies and services. Please see the Environmental and Wildlife Management Plan and other management plans included in the project documents for additional details.

## **Additional Information**

### **SECTION A1: Project Info**

### **SECTION A2: Allweather Road**

### **SECTION A3: Winter Road**

### **SECTION B1: Project Info**

### **SECTION B2: Exploration Activity**

### **SECTION B3: Geosciences**

### **SECTION B4: Drilling**

### **SECTION B5: Stripping**

### **SECTION B6: Underground Activity**

### **SECTION B7: Waste Rock**

### **SECTION B8: Stockpiles**

### **SECTION B9: Mine Development**

### **SECTION B10: Geology**

### **SECTION B11: Mine**

### **SECTION B12: Mill**

### **SECTION C1: Pits**

### **SECTION D1: Facility**

### **SECTION D2: Facility Construction**

### **SECTION D3: Facility Operation**

### **SECTION D4: Vessel Use**

### **SECTION E1: Offshore Survey**

### **SECTION E2: Nearshore Survey**

### **SECTION E3: Vessel Use**

### **SECTION F1: Site Cleanup**

## **SECTION G1: Well Authorization**

## **SECTION G2: Onland Exploration**

## **SECTION G3: Offshore Exploration**

## **SECTION G4: Rig**

## **SECTION H1: Vessel Use**

## **SECTION H2: Disposal At Sea**

## **SECTION I1: Municipal Development**

### **Qanurittuq Ittunik Avatinga: Avatingalluanga**

The Kahuna Property is located within the Maguse River Upland Ecoregion within the Southern Arctic Ecozone. This ecoregion is an area that is often referred to as the “barren lands.” This name reflects the largely treeless nature of the Ecozone as most of it lies to the north of the tree line. Glaciation released a huge volume of soil and rocks debris creating a bouldery moraine and long sinuous eskers which may extend up to 100km. Occurring less frequently are outwash aprons of crudely sorted sand and gravel and raised beaches along pre-existing shorelines. The resulting undulating terrain is studded with abundant interconnected lakes and ponds. Local relief varies between 80 and 240 metres above sea level. Permafrost occurs continuously throughout the Southern Arctic Ecozone. Lying sometimes just a few centimeters below the surface, permafrost acts as a dam that stops the downward flow of water. Even though there is little precipitation, the soils are often waterlogged or frozen. Repeated freezing and thawing of these soils create surface features such as cell like polygons, bulging hummocks and bare mud boils where the soil is so active that no plants can take root. Intense frost heaving often splits apart the underlying bedrock and forces large angular boulders to the surface. Occasionally emerging through the thick mantle of glacial till is the Canadian Shield. The current limits of the Kahuna claim group lie almost exclusively within the west trending metasedimentary paragneiss belt consisting of metasedimentary rocks including semipelite/psammite with garnet + biotite +/- aluminosilicate schist/paragneiss and the weakly to well foliated, biotite-muscovite Leucogranite unit made up of biotite-muscovite Leucogranite, in part contains xenocrystic garnet and includes layered tonalite gneiss and garnet-kyanite-sillimanite schist paragneiss. Water, soil and air quality remain in a pristine state, affected only by global factors. There are no national, territorial or wildlife parks or sanctuaries within or closely bounding the boundaries of the Kahuna Diamond project. Of special interest to the communities of Chesterfield Inlet and Rankin inlet is the Char bearing habitat of Josephine Lake located in the northeast quadrant of the Kahuna claim group. Josephine Lake is the only lake within the claim group which is deep enough to supply fresh water during the winter months and is one of only a few lakes within the claim group that does not freeze to bottom. Although this area is typically characterized by long, cold winters and continuous permafrost, climate change is rapidly altering the arctic environment. In the future climate in the north could continue to trend towards warmer temperatures and decrease of summer ice.

### **Qanurittuq Ittunik Avatinga: Inuuhimayunut Avatinga**

Vegetation within the Southern Arctic Ecozone is adapted to short, cold growing seasons; high persistent winds and acidic soils over permafrost. The Ecozone is bounded to the south by the tree line, a broad ecological division between the taiga forest and the treeless arctic tundra. Low precipitation and extremely low winter temperatures are among the factors that discourage tree growth. The near continuous blowing of cold, dry winds and the presence of permafrost also restricts plant growth. Low shrubs such as the Shrub Birch, Willow and Labrador Tea are well adapted to these conditions. On the most exposed sites, low shrubs give way to mats of lichens, mosses, and ground-hugging shrubs such as Mountain Cranberry and Least Willow. Low biological productivity, a short growing season, and extremely cold long winters are demanding on wildlife so those found in the area are well adapted to arctic living. Wildlife includes Muskox, Caribou, Wolf, Barren Land Grizzly Bear, Polar Bear (Coastal Regions), Arctic Fox, Wolverine, Arctic Ground Squirrel and Brown Lemming. The Kahuna Property is within range of the Qamanirjuaq and Lorillard Caribou Herds, but outside critical migrating, calving and crossing areas. According to Key Migratory Bird Terrestrial Habitat Sites in the Northwest Territories and Nunavut (2008), published by the Canadian Wildlife Service, there are no critical migratory paths or nesting areas within the Kahuna Property. Freshwater aquatic species common to the Kivalliq Region of Nunavut include Arctic Char, Lake Trout and Arctic Grayling. The network of lakes and rivers provide abundant habitat for fish. The Species at Risk Act protects certain listed mammals, reptiles, amphibians, molluscs and plants on federal lands and certain listed birds and fish on all lands of Canada. Species that are legally protected under SARA are those listed as endangered or Threatened and are listed in Schedule 1 of the act.

### **Qanurittuq Ittunik Avatinga: Inungit-maniliurutingit Avatinga**

The Kahuna Property field camp is located 40 kilometres northeast of Rankin Inlet and 50 kilometres southwest of Chesterfield Inlet. There are no roads in the project area, minimizing the potential for local or regional traffic except during the winter months. Transportation in remote areas such as the Kahuna Property is conducted by helicopter access and during the winter months by Caterpillar Challenger and snowmobiles. Local employment opportunities are generally with the Government of Nunavut, local Hamlets, the Northern Store, the Co-op as well as with Agnico Eagle's Meadowbank Gold Mine near Baker Lake and their Meliadine



Project near Rankin Inlet. No human health factors are known for this region. Dunnedin Ventures contracted Golder and Associates to conduct a preliminary archaeological assessment for the purpose of identification, avoidance and planning purposes, including the winter trail route and is aware of the culturally significant arctic char fish habitat located at Josephine Lake utilized by the communities of Chesterfield Inlet and Rankin Inlet. To mitigate daily helicopter transits to and from Rankin Inlet, and for safety reasons associated with winter work conditions, Dunnedin is seeking authorization for a temporary field camp located centrally on the Kahuna Property. Basing operations out of a field camp will create additional employment opportunities for local communities. Dunnedin will be supporting the local economy by utilizing local businesses for goods and services.

### **Naunaiyainiq ukuninnga Ayurhautingit unalu Piumayaat Ikikliyuumiutinahuarutit**

Camp activities are not likely to significantly impact the permafrost, soil and sediment quality. Camp structures will be elevated to prevent permafrost thaw. Soil quality can be impacted by hazardous materials spills and waste discharge and will be treated as per the Spill Prevention and Response Plan. The camp grey water sump will be outfitted with a grease trap and screen to ensure food grease and solids do not enter the waste water sump. No contamination of the water supply is predicted. Upon final closure, the sump will be infilled and re-contoured. The camp location was chosen in a location with minimal vegetation to reduce the need for clearing. Due to the short duration of the program and the remote location of the field camp, measurable impacts to the air quality are not anticipated. Noise quality may be effected by helicopters and generators which can disturb wildlife. Helicopters are to maintain a minimum altitude of 610 metres where wildlife is observed to mitigate impacts by noise. The predicted impacts to wildlife due to the presence of the Kahuna Property field camp include attracting wildlife and habitat disturbance. Dunnedin will discourage attracting wildlife by minimizing all waste and properly storing attractants until they can be removed from camp. Habitat disturbance from the field camp is temporary and upon final closure the site will be reclaimed and restored to its original state. Camp layout will be designed to minimize its footprint and limit its impact. No birds, eggs or nests are to be disturbed. Flight restrictions are in place where colonies of birds are observed. Positive socioeconomic impacts are anticipated from employment opportunities for local Inuit and increased business for northern companies and services. A strict no drugs or alcohol policy will be enforced to ensure the safety and well-being of employees. Please see the EWMP and other plans included in the project documents for additional details.

### **Tamatkiuumayunik Ihuikgutivaktunik**

The Kahuna Property field camp operates for a short duration seasonally and is a temporary fixture. All potential environmental effects associated with the camp are considered minor, localized effects that can be mitigated. No significant residual impacts to the environment are expected to occur as a result of the camp activities.

## Impacts

## Ilitariyauniq Avatiliriniqmut Ayurhautingit

Havakvinga																									
Camp		-	-	N	-	-	-	-	-	N	-	N	M		N	N	N	-	-		P	-	-	-	-
Aulapkaininnga																									
Camp		-	-	N	-	N	-	-	-	N	-	N	M		N	N	N	-	-		P	-	-	-	-
Piiqtauniq																									
-		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-

(P = Nakuuyuq, N = Nakuungittut unalu mikhilimaittuq, M = Nakuungittut unalu mikhittaaqtuq, U = Naluyauyuq)