SITE DESCRIPTION

1.1 BAF-3, Brevoort Island, NU

1.1.1 Location, Terrain, and Topography

Latitude: 63° 20' 25.06"N Longitude: 64° 09' 29.21" W Elevation: 366 m

Location: This Long Range Radar (LRR) site is on 2,524 acres of land on Brevoort Island. The host LSS for BAF-3 is LSS-Q, Iqaluit, located 250 km to the West. A helipad is located on-site, as well as an abandoned gravel airstrip. Flight time from the LSS is 1 hour 15 minutes by helicopter under normal conditions.

Terrain: Brevoort Island is 40 km long and 10 km wide. It is an irregular, hilly island consisting of mostly igneous or metamorphic bedrock overlain in places by stony, sandy glacial fill intermixed with fluvial and marine deposits. Water and wind generated erosion move the poorly developed, thin mineral soil into valleys and hollows, leaving slopes and hilltops bare. There is a general lack of vegetation because much of the ground is barren or covered with a thin veneer of lichen.

Topography: Brevoort Island is a high, rocky prominence rising dramatically from the sea. Sheer sea cliffs surround most of the coastline. Low lands are present in the north and northwest sections of the island.

1.1.2 Climate

No average temperature and precipitation information is available from Environment Canada for this site.

Precipitation:

Annual Average: 600 mm

Snowfall: Unknown

Rainfall: Unknown

1.1.3 Site Population

This LRR site was transitioned to “unattended” status on 31 October 1995.

1.1.4 Land Use

Apart from the NWS site, there are no significant human uses of the land. Occasionally, far-ranging hunting parties from Allen Island, Pangnirtung, and Iqaluit visit to hunt polar bear, walrus, and seals. The site is located in the Nunavut Settlement Area in the Qikiqtaaluk administrative region. DND has been transferred the management, charge and direction of the property by DIAND for the life of the NWS.

Very little is known about the archaeology of Brevoort Island. Current use of the nearby areas by Inuit suggests that Brevoort Island may be a region of traditional camp sites used by hunters. The value of archaeological resources is greatly diminished if they are disturbed or moved before proper mapping can be done.

1.1.5 Wildlife

Land mammals are not abundant on Brevoort Island. Lemmings and arctic hare have been reported. Polar bears use coastal portions of the island extensively in winter and there is evidence of denning and the presence of young on the south side of the island. A few caribou, arctic foxes, and arctic wolves may come and go across the frozen Robinson Sound, but they are not thought to be resident on the island.

Marine mammals are more numerous than land mammals at Brevoort Island. Walrus make use of the straits between Brevoort Island and Lemieux Island east of Brevoort and 18 km north of the BAF-2 site. Walrus are present in the area all summer and a large scale movement into the Lemieux Island occurs in mid-September. Other marine mammals occurring in waters around Brevoort Island include harp seal, ringed seal, and bearded seal. Scattered whale sightings, including records of bowhead, killer, and beluga have been reported.

Bird life on and around Brevoort Island is limited. Nesting colonies of glaucous gulls have been reported. Nesting by black guillemot is suspected on the southeastern end of Brevoort Island. Only a few passerines have been observed on a casual basis. Shorebird records have been similarly sparse, and no evidence of raptors has been documented.

There are about 49 species of fish known to exist in Davis Strait, including Atlantic salmon and arctic char.

Table 1: Wildlife Species Encountered at or within range of BAF-3 and their classification under SARA, and Territorial Regulations

Taxon	Common Name	Scientific Name	Time frame of Occurrence on-site	SARA Status[1]	SARA Schedule[2]
Terrestrial Mammals	Arctic Fox	*Vulpes lagopus*	Annual	---	---
Terrestrial Mammals	Arctic Hare	*Lepus arcticus*	Annual	---	---
Terrestrial Mammals	Caribou, Barren Ground subspecies	*Rangifer tarandus groenlandicus*	Annual	---	---
Terrestrial Mammals	Grey Wolf	*Canis lupus*	Annual	---	---
Terrestrial Mammals	Red Fox	*Vulpes vulpes*	Annual	---	---
Terrestrial Mammals	Wolverine	*Gulo gulo*	Annual	Special Concern	1
Marine Mammals	Atlantic Walrus (Northwest Atlantic population)	*Odobenus rosmarus*	Seasonally	Extirpated	1
Marine Mammals	Beluga Whale (Cumberland	*Delphinapterus leucas*	Summer	Threatened	1

Taxon	Common Name	Scientific Name	Time frame of Occurrence on-site	SARA Status[1]	SARA Schedule[2]
	Sound Population)				
Marine Mammals	Bowhead Whale (Eastern Arctic Population)	*Balaena mysticetus*	Annual	Endangered	2
Marine Mammals	Bowhead Whale (Eastern Canada-West Greenland Population)	*Balaena mysticetus*	Annual	---	---
Marine Mammals	Harbour Seal	*Phoca vitulina concolor*	Seasonally	---	---
Marine Mammals	Killer Whale	*Orcinus orca*	Seasonally	---	---
Marine Mammals	Narwhal Whale	*Monodon monoceros*	Seasonally	---	---
Marine Mammals	Polar Bear	*Ursus maritimus*	Annual	Special Concern	1
Marine Mammals	Ringed Seal	*Phoca hispida*	Seasonally	---	---
Birds	American Pipit	*Anthus rubescens*	Summer	---	---
Birds	Arctic Tern	*Sterna paradisaea*	Summer	---	---
Birds	Baird's Sandpiper	*Calidris bairdii*	Summer	---	---
Birds	Black Guillemot	*Cepphus grylie*	Annual	---	---
Birds	Common Eider	*Somateria mollissima*	Summer	---	---
Birds	Common Loon	*Gavia immer*	Summer	---	---
Birds	Common Raven	*Corvus corax*	Annual	---	---
Birds	Common Redpoll	*Acanthis flammea*	Summer	---	---
Birds	Glaucous Gull	*Larus hyperboreus*	Summer	---	---
Birds	Gyrfalcon	*Falco rusticolus*	Annual	---	---
Birds	Harlequin Duck	*Histrionicus histrionicus*	Summer	Special Concern	1
Birds	Hoary Redpoll	*Acanhis hornemanni*	Annual	---	---
Birds	Horned Lark	*Eremophila alpestris*	Summer	---	---
Birds	Iceland Gull	*Larus glaucoides*	Summer	---	---
Birds	King Eider	*Somateria spectabilis*	Summer	---	---
Birds	Lapland Longspur	*Calcarius lapponicus*	Summer	---	---
Birds	Long-Tailed Duck	*Clangula hyemalis*	Summer	---	---
Birds	Long-Tailed Jaeger	*Stercorarius longicaudus*	Summer	---	---
Birds	Northern Wheatear	*Oenanthe oenanthe*	Summer	---	---
Birds	Pacific Loon	*Gavia pacifica*	Summer	---	---
Birds	Parasitic Jaeger	*Stercorarius parasiticus*	Summer	---	---
Birds	Peregrine Falcon, Anatum/Tundrius subspecies	*Falco peregrinus anatum/tundrius*	Annual	Special Concern	1

Taxon	Common Name	Scientific Name	Time frame of Occurrence on-site	SARA Status[1]	SARA Schedule[2]
Birds	Pomarine Jaeger	*Stercorarius pomarinus*	Summer	---	---
Birds	Purple Sandpiper	*Calidris maritima*	Summer	---	---
Birds	Red-Breasted Merganser	*Mergus serrator*	Summer	---	---
Birds	Red-Necked Phalarope	*Phalaropus lobatus*	Summer	Special Concern	1
Birds	Red-Throated Loon	*Gavia stellata*	Summer	---	---
Birds	Rock Ptarmigan	*Lagopus muta*	Winter	---	---
Birds	Rough-Legged Hawk	*Buteo lagopus*	Summer	---	---
Birds	Ruddy Turnstone	*Arenaria interpres*	Summer	---	---
Birds	Semipalmated Plover	*Charadrius semipalmatus*	Summer	---	---
Birds	Short-eared Owl	*Asio flammeus*	Summer	Special Concern	1
Birds	Snow Bunting	*Plectrophenax nivalis*	Summer	---	---
Birds	Snow Goose	*Chen caerulescens*	Summer	---	---
Birds	Snowy Owl	*Bubo scandiacus*	Annual	---	---
Birds	White Rumped Sandpiper	*Calidris fuscicollis*	Summer	---	---
Fish	Atlantic Cod (Arctic Marine Population)	*Gadus morhua*	Annual	Special Concern	3
1 = SARA Status. The federal Species At Risk Act (SARA) classifies species as extinct, extirpated, endangered, threatened, or special concern.					
2 = SARA Schedule. The federal Species at Risk Act (SARA) assigns species to Schedule 1, 2 or 3. Schedule 1 is the official List of Wildlife Species at Risk. Schedule 1 species and their residences and critical habitats are protected. Species in Schedule 2 or 3 are not protected under SARA, but they are monitored and their designation is subject to re-assessment.					
5 = Under Nunavut's Wildlife Act, a List of Species at Risk can be established. No species have been listed yet.					
--- Means there is no classification					

1.1.6 Water Supply

Water is pumped from the water lake through a pipeline to the water tanks at the summit during the summer months as required.

1.1.7 Sewage Disposal

Sewage is collected in holding tanks, and the waste water is pumped to the sewage outfall sump south of the site.

1.1.8 Waste Disposal

Domestic waste is incinerated in the on-site incinerator. Ash from the incinerator along with all the waste that cannot be incinerated is sent to LSS-Q, where it is then disposed of in the

community landfill in Iqaluit. The City of Iqaluit has authorized the disposal of non-hazardous waste from the North Warning System Radar sites in the city landfill.

1.1.9 Electrical Power

Power is generated at this site through four generators, which have the capacity to be synchronized together. Total capacity can vary depending on the site load and the number of DEGs online. This range can vary from 175 kW to 700 kW.

1.1.10 Fire Protection

Components: The fire protection system consists of:

a. Fire Alarm & Detection System;
b. CO_2 Fire Suppression Systems;
c. FM-200 Fire Suppression System; and
d. Portable Fire Extinguisher.

Description: The Fire Alarm Control Panel (FACP) for the main detection system (GE quick start) is located in the dining area.

If the FACP fire alarm is activated, the system will:

a. activate the fire doors in the activated zone;
b. set off the alarm bells and horns throughout the site;
c. activate the station siren to notify personnel outside; and
d. send a signal to notify the NWSCC.

The Pyrene CO_2 system is located in the C&E and the Power Plant area.

If a single detector from the Pyrene System is activated, the system will:

a. set off the alarm bells and horns in that area;
b. send a signal to the main FACP, which activates the main fire
c. alarm panel and will set off the alarm bells and horns throughout the site; and
d. send a signal to notify the NWSCC.

If a second device in the C&E area is activated, the following will occur:

a. the FACP will initiate shutdown of the exhaust fans and radar;
b. the FACP will initiate the discharge of CO2 into the zone where alarm initiated from;
c. the FACP will activate the discharge strobes above the entrance way to the fire zone;
d. the discharge pressure switch will activate; and
e. send a signal to notify the NWSCC.

If a second device in the Power Plant on the site is activated, the following will occur:

a. the FACP will initiate the shutdown of the exhaust fan & power;
b. the FACP will initiate the generator shut down;
c. the FACP will initiate CO2 discharge into the power plant;
d. the FACP will initiate the discharge strobes above the entrance way to the fire zone;
e. the discharge pressure switch will activate; and
f. send a signal to notify the NWSCC.

The FM-200 Suppression System is located in the Communications Room (Comms Room), and is made up of two 60 lbs cylinders with 48 lbs of agent. The system is supervised by the GE Quick Start Fire Alarm Panel.

If a single device in the Comms Room is activated, the following will occur:

a. the FACP will initiate evacuation bell within the Comms Room;
b. the FACP will send a signal to the GE Quick Start FACP which will activate the sites Fire Alarm System; and
c. the FACP will send a signal to notify the NWSCC.

If a second device in the Comms room is activated, the following will occur:

a. the FACP will initiate the discharge sequence; and
b. the discharge strobes will activate above the entrance way to the Comms Rooms.

The Kitchen Range Guard System is located in the dining area, and is made up of one cylinder containing 11.3 L (2.5 Gal) of agent. The system is supervised by the GE Quick Start Fire Alarm Panel.

If the system is activated by either the release of a fusible link in the canopy which will flood the grills and canopy with agent, or by a manual pull station located on the canopy, the main FACP will:

a. will be signaled;
b. will set off the alarm bells and horns; and
c. send a signal to notify the NWSCC.

1.1.11 Kits

Kit	Location	Note
Fire Fighting Equipment	Strategic locations throughout site	
Safety Boards	TSM, ACC Module, RCM	
Search and Rescue	TSM	
Disaster/Survival	Emergency Shelter	
POL Spill	Garage	The contents of this kit on-site are listed in the Spill Contingency Plan (PLN-EHS-2).
Chemical Spill	TSM	The contents of this kit on-site are listed in the Spill Contingency Plan (PLN-EHS-2).
First Aid Supplies	ACC Module First Aid Room	

1.1.12 Bulk Fuel Storage and Distribution

Fuel is delivered to the site annually. The ship pumps directly into the beach tanks via a 200 mm diameter fuel transfer line. Bulk Fuel Technicians transfer fuel annually from the beach tanks to the summit bulk tanks using a 50 mm diameter fuel transfer line. After each transfer, the majority of the fuel line is drained back to the beach tanks and is empty during the remainder of the year.

Table 2 BAF-3 Bulk Fuel Storage

LOCID	Location	Fuel Usage	Tank Size (L)	Max Fill Volume (L)	Usable Volume (L)
Environment Canada ID # & System Name: EC-00004481, BAF-3 Beach to Summit					
BREW22G	Summit	PGS	90,000	84,528	82,857
BREW22H	Summit	PGS	90,000	84,528	82,857
BREW22I	Summit	PGS	90,000	84,528	82,857
BREW22J	Summit	PGS	90,000	84,528	82,857
BREW22K	Summit	PGS	90,000	84,528	82,857
BREW22Q	Summit	PGS	50,000	46,917	45,981
BREW22R	Summit	PGS	50,000	46,917	45,981
BREW21C	Summit	Vehicle Refueller	9,000	8,472	8,277
BREW20A	Summit	Aviation	46,000	43,259	42,129
BREDAYT1	Summit	PGS	379	356	356
BREDAYT2	Summit	PGS	379	356	356
BREDAYT3	Summit	PGS	379	356	356
BREDAYT4	Summit	PGS	379	356	356
BREDAYT5	Summit	PGS	379	356	356
BREDAYT6	Summit	PGS	379	356	356
BREDAYT7	Garage	PGS	1,135	1,067	1,067
BREDAYT8	Garage	PGS	1,135	1,067	1,067
Environment Canada ID # & System Name:EC-00040291, BAF-3 Beach					
BREW22L	Beach	PGS	90,000	84,528	82,857
BREW22M	Beach	PGS	90,000	84,528	82,857
BREW22N	Beach	PGS	90,000	84,528	82,857
BREW22O	Beach	PGS	90,000	84,528	82,857
BREW22P	Beach	PGS	90,000	84,528	82,857
Environment Canada ID # & System Name: EC-00004483, BAF-3 ES					
BREW22F	Summit	PGS	9,000	8,472	8,277
BREDAYT10	Summit	PGS	379	356	356
		Summit Totals:	**616,653**	**579,169**	**567,422**
		Beach Totals:	**450,000**	**422,640**	**414,285**
		Site Totals:	**1,066,653**	**1,001,809**	**981,707**

Table 3 BAF-3 Bulk Fuel System Components

Component	Use	Description
Tank BRE W22A (removed)	PGS	Field-erected, vertical, coated, steel beach tank (DEW Line vintage) contained in a gravel dike with impermeable liner (1986-87) shared with BRE W22B. This tank was permanently withdrawn and physical removed in 2013
Tank BRE W22B (removed)	PGS	Field-erected, vertical, coated, steel Beach tank (1986-87) contained in a gravel dike with impermeable liner (1986-87) shared with BRE W22A. This tank was permanently withdrawn and physical removed in 2013.
Tank BRE W22C (removed)	PGS	Field-erected, vertical, coated, steel beach tank (DEW Line vintage) contained in a gravel dike with impermeable liner (1986-87) shared with BRE W22D. This tank was permanently withdrawn in 2011 and physical removed in 2012.
Tank BRE W22D (removed)	PGS	Field-erected, vertical, coated, steel beach tank (1986-87) contained in a gravel dike with impermeable liner (1986-87) shared with BRE W22C. This tank was permanently withdrawn in 2011 and physical removed in 2012.
Tank BRE W21D (withdrawn from service)	Vehicle Refueller	Self-diked, horizontal, steel tank located adjacent to the Airstrip Terminal Building(1986-1987) was permanently withdrawn from service in 2016.
Tank BRE W22F	PGS	Self- diked, horizontal, steel tank at the Emergency shelter (1986-1987).
Tanks BRE W22G to BRE W22K;	PGS	90,000 L double walled tanks installed at the BAF-3 summit in 2013.
Tanks BRE W22Q and BRE W22R	PGS	50,000 L double walled tanks installed at the BAF-3 summit in 2013.
Tanks BRE W22L to BRE W22P	PGS	90,000 L double walled tanks installed at the BAF-3 Beach in 2012. These tanks are connected to the beach pumphouse with a temporary hose to transfer fuel from the beach to the summit.
Tank BRE W21C	Vehicle Refueller	Self-diked, horizontal, steel tank located adjacent to the TSM (1986-1987). Serves purpose of vehicle refueller with attached Gas Boy pump
BRE W20A	Aviation	Self- diked, horizontal, steel tank at the helipad (1993-1994).
Pipeline BRE W08A		Note: All underground piping is double-walled and drained to a sump a. 50 m of 200 mm aboveground piping from beach intake to beach tanks (1986-87) b. 1850 m of 50 mm aboveground piping from beach to summit tanks (1986 & 1998) B3-66023 c. 100 m of 25 mm aboveground piping from summit pumphouse to site (1986-87) d. 75 m of 25 mm aboveground piping from summit pumphouse to site (1998) B3-66023 e. 250 m of 50 mm aboveground piping from summit pumphouse to helipad tank (1998) B3-66023 f. 30 m of 50 mm aboveground piping from helipad tank to helipad (1998) B3-66023

Component	Use	Description
		g. 80 m of 25 mm underground piping from TSM to vehicle storage building (1986-87). Decommissioned but probably has not been drained. Does not meet CEPA requirements (see NWS Site Fuel Distribution & Storage Facility Current Conditions June 21, 2002). h. 75 m of 25 mm underground piping from summit pumphouse to site (1986-87). No documentation stating condition of line or if it was removed in project B3-66023.
Beach Pumphouse		Pumps P-43 & P-44: Union Pump Company, Model 1-5/8 x 2-1/4 TX-10B Triplex Pump 57.2mm stroke, 15HP, 575/3/60, Frame 245T, 1800RPM, 1.26 L/s
Summit Pumphouse		Pumps P-45 & P-46: Viking Pump Company of Canada Limited, Pump Model GG-190, Frame 145T 51 L/s at 345Kpa, 1.5 HP 575/3/60, 1800 RPM, 0DP Motor

Sources Include:

1. Initial Environmental Evaluation of the North Warning System Project, Vols 1 & 2. Monenco-Eyretechnics Group, 1987 (Vol. 1), 1989 (Vol.2).
2. Nunavut Land Claims Agreement, 1993.
3. NWS Site Record Drawings.
4. Nunavut Wildlife Resource and Habitat Values. Nunami Jacques Whitford Limited. October 2008.

1.1.13 Site Plan

A copy of the site plan is included. Refer to the site record drawings for the current revisions of any drawings.