SITE DESCRIPTION

1.1 FOX-3, Dewar Lakes, NU

1.1.1 Location and Topography

Latitude: 68° 38' 39.21" N Longitude: 71° 11' 16.59" W Elevation: 518 m

Location**:** This Long Range Radar (LRR) site, including the summit and lower sites, occupies about 1,643 hectares of land. The airstrip in the valley is approximately 152 m above sea level. The host Logistics Support Site (LSS) for FOX-3 is LSS-F, Sanirajak (Hall Beach). Flight time from the LSS is 3 hours 30 minutes by helicopter under normal conditions. An abandoned airstrip is located at this site, as well as a helipad. The airstrip requires minimal repair in order to be in suitable conditions for the annual C-130 airlift re-supply of fuel.

Terrain: The hill top (about 518 m above sea level) is in an area indicating general glacial scouring. Surface materials include bedrock, till, and fluvial materials with till being the most common. The area is strewn with boulders up to 1 m across. The airstrip area features fluvial deposits of gravels, sands, and silts. Vegetation is relatively scarce with some patches of wood rush, grass, and wildflowers. The wetter areas may consist of sedges and moss.

Topography**:** The most prominent topographical features include rolling hills, separated by broad intervening depressions, and an interconnecting lake system (the Dewar Lakes) running through a deep valley.

1.1.2 Climate

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

Precipitation**:**

- Annual Average: 244 mm
- Snowfall: 145 cm
- Rainfall: 99 mm

1.1.3 Site Population

This LRR site is current not attended year-round. It was transitioned to “unattended” status on 29 August 1995. However, staffing levels at FOX-3 are planned to increase beginning April 1st 2022 and to gradually increase to year-round attendance of at least nine staff members as of October 1st 2023.

Present to April 1, 2022:

During this time FOX-3 is not planned to be attended year-round. It will be visited by staff from FOX-M on quarterly maintenance trips, and on an as needed basis. During the months of May to September the site may have an average of 5 to 20 personnel on-site due to seasonal project activity and occasional Third Party visitors.

April 1 2022 to September 30 2023:

During this time FOX-3 is planned to be attended by at least 9 staff for the summer months (182 days of the year). During the winter (October 1 to March 31) it will be visited by staff from FOX-M on quarterly maintenance trips.

1 Oct 2023 onward:

As of 1 Oct 2023 FOX-3 is planned to be attended full time (365 days of the year) by at least 9 staff.

1.1.4 Land Use

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. Auyuittuq National Park is about 200 km to the southeast.

Three archaeological sites have been documented at FOX-3. On the north end of Dewar Lakes, approximately 1.5 km south of the airstrip, tent rings, caches, and hearths have been reported. At least some of these features may be Thule in affiliation. Although the site is undisturbed, abandoned machinery was observed in the site area. Another site is located north of the airstrip. An inukshuk and a cache were reported at this location. No disturbance was observed at this site. The remaining recorded site is to the west of the runway and adjacent to the fuel line. There is a grave with an associated cache recorded at this site.

1.1.5 Wildlife

Caribou from the Baffin Island herd migrate through the Dewar Lakes area. Arctic foxes and wolves are also seen at FOX-3.

Waterfowl that nest in small shallow ponds in the area include the red-throated loon, tundra swan, greater snow goose, king eider, and oldsquaw. To the south and west of the station are colonies of Sabine's gulls.

Arctic char and lake trout occupy the Dewar Lakes.

Table 1 Wildlife Species Encountered at or within range of FOX-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
Birds	American Golden Plover	*Pluvialis dominica*	Summer	---	---
Birds	American Pipit	*Anthus rubescens*	Summer	---	---
Birds	Arctic Tern	*Sterna paradisaea*	Summer	---	---
Birds	Baird's Sandpiper	*Calidris bairdii*	Summer	---	---
Birds	Black-Bellied Plover	*Pluvialis squatarola*	Summer	---	---
Birds	Brant	*Branta bernicla*	Summer	---	---
Birds	Common Eider	*Somateria mollissima*	Summer	---	---
Birds	Common Raven	*Corvus corax*	Annual	---	---
Birds	Common Redpoll	*Acanthis flammea*	Summer	---	---
Birds	Glaucous Gull	*Larus hyperboreus*	Summer	---	---

Taxon	Common Name	Scientific Name	Time frame of Occurrence on-site	SARA Status[1]	SARA Schedule[2]
Birds	Gyrfalcon	*Falco rusticolus*	Annual	---	---
Birds	Hoary Redpoll	*Acanhis hornemanni*	Annual	---	---
Birds	Horned Lark	*Eremophila alpestris*	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	Parasitic Jaeger	*Stercorarius parasiticus*	Summer	---	---
Birds	Peregrine Falcon, Anatum/Tundrius subspecies	*Falco peregrinus anatum/tundrius*	Annual	Special Concern	1
Birds	Purple Sandpiper	*Calidris maritima*	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	Sandhill Crane	*Grus canadensis*	Summer	---	---
Birds	Semipalmated Plover	*Charadrius semipalmatus*	Summer	---	---
Birds	Snow Bunting	*Plectrophenax nivalis*	Summer	---	---
Birds	Snow Goose	*Chen caerulescens*	Summer	---	---
Birds	Snowy Owl	*Bubo scandiacus*	Summer	---	---
Birds	Thayer's Gull	*Larus thayeri*	Summer	---	---
Birds	White Rumped Sandpiper	*Calidris fuscicollis*	Summer	---	---
Birds	Willow Ptarmigan	*Lagopus lagopus*	Annual	---	---
Birds	Yellow-Billed Loon	*Gavia adamsii*	Summer	---	---
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 trucked from a nearby freshwater lake during the summer.

1.1.7 Sewage Disposal

Sewage is piped from the holding tank system to the sewage outfall area.

1.1.8 Waste Disposal

Domestic waste is accumulated on site, then transported to LSS-F for disposal in the Hamlet of Sanirajak (Hall Beach) landfill.

1.1.9 Electrical Power

Power is generated at this site through three 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 525 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 CO2 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

Table 2 FOX-3 Kits and Locations

Kit	Location	Notes
Fire Fighting Equipment	Garage, Mod 11, Mod 19	
Safety Boards	Garage, Mod 01, Mod 05 & Heated Vehicle Storage	
Search and Rescue	Mod 12, Receiving Room	
Fuel Spill Kit	Warehouse B13A/Storage Building B27A	The contents of this kit on-site are listed in the Spill Contingency Plan (PLN-EHS-2).
Chemical Spill Kit	Warehouse B13A	The contents of this kit on-site are listed in the Spill Contingency Plan (PLN-EHS-2).
Asbestos Response Kit	Warehouse B13A	The contents of this kit are listed in the Spill Contingency Plan (PLN-EHS-2).
First Aid Kits	Strategic locations throughout site	

1.1.12 Bulk Fuel Storage and Distribution

Fuel is delivered to the site annually via C-130 Hercules airlift from FOX-M. The fuel is transferred directly into the apron tanks and then transferred to the summit tanks, via the 50 mm fuel transfer line. After each transfer, the majority of the fuel is drained from the line and all the valves are locked.

Table 3 FOX-3 Bulk Fuel Storage

LOCID	Location	Fuel Usage	Tank Size (L)	Max Fill Volume (L)	Usable Volume (L)
Environment Canada ID # & System Name: EC-00004272, FOX-3 Apron to Summit					
DEWW22A	Summit	PGS	69,200	65,084	63,427
DEWW22B	Summit	PGS	69,200	65,084	63,427

LOCID	Location	Fuel Usage	Tank Size (L)	Max Fill Volume (L)	Usable Volume (L)
DEWW22C	Summit	PGS	246,000	231,211	213,882
DEWW22D	Summit	PGS	246,000	231,211	213,882
DEWW22F	Airstrip	PGS	90,000	84,528	82,857
DEWW22G	Airstrip	PGS	90,000	84,528	82,857
DEWW22H	Airstrip	PGS	90,000	84,528	82,857
DEWW22I	Airstrip	PGS	90,000	84,528	82,857
DEWW22J	Airstrip	PGS	90,000	84,528	82,857
DEWW21E	Summit	Vehicle Refueller	4,125	3,878	3,770
DEWW20D	Airstrip Apron	PGS	69,200	65,084	63,427
DEWW20E	Airstrip Apron	PGS	69,200	65,084	63,427
DEWDAYT1	PGS	A-train	1,135	1,067	1,067
DEWDAYT2	PGS	Garage	1,135	1,067	1,067
DEWDAYT3	PGS	Garage	1,135	1,067	1,067
DEWDAYT4	PGS	HVS	1,135	1,067	1,067
DEWDAYT5	PGS	HVS	1,135	1,067	1,067
DEWDAYT6	PGS	Warehouse	1,135	1,067	1,067
DEWDAYT7	PGS	Warehouse	1,135	1,067	1,067
		Summit Totals:	**778,600**	**731,971**	**690,577**
		Airstrip Totals:	**452,270**	**424,774**	**416,419**
		Site Totals:	**1,230,870**	**1,156,745**	**1,106,996**

Table 4 FOX-3 Bulk Fuel Components

Component	Use	Description
Tanks DEW W22A & DEW W22B	PGS	Single walled, horizontal, steel 69,200L tanks at the summit contained in a single gravel dike with impermeable liner (1995). Dike volume meets the required code capacity with membrane under the tank. Used for both PGS and Aviation fuel (DEW Line Vintage)
Tanks DEW W22C & DEW W22D	PGS	Field-erected, vertical, single bottom, steel 246,000L Summit tanks (1956-1957) contained in a single gravel dike with impermeable liner (1995). The dike volume meets the required code capacity. The membrane in the dike attaches to the perimeter of the tank concrete foundation but does not pass under bottom of tank
Tank DEW W22E	PGS	Field-erected, vertical, single bottom, steel 246,000L Apron tank (1956-1957) contained in a gravel dike with impermeable liner (1995). This tank was permanently removed from service and was physically removed in 2012.
Tank DEW W21C	PGS	Double-walled, horizontal, steel 4,125 L tank at the summit (2006).
Tanks DEW W22F to DEW W22J	PGS	90,000 L double walled, horizontal, tanks at summit. Installed in 2012.
Tanks		Single walled, horizontal, steel 69,200L tanks at the Apron

Component	Use	Description
DEW W20D & DEW W20E		(DEW Line vintage) contained in a single gravel dike with impermeable liner (1995). Dike volume meets the required code capacity with membrane under the tank.
Pipelines DEW W08A		a. 9,000 m of 50 mm aboveground piping from apron tanks to summit tanks (1956-57) b. 46.8 m of 50 mm underground piping from B-Train to Armco (1956-57) c. 50 mm aboveground piping from B-Train to Armco (1956-57) d. 140 m of 50 mm aboveground and underground piping from summit pumphouse to DEW W22A & DEW W22B e. 22 m of 50 mm aboveground piping from DEW W20E to abandoned Helipad f. 40 m of 50 mm underground piping from summit pumphouse to warehouse g. 75 m of 50 mm underground piping from summit pumphouse to garage h. 10 m of 50 mm aboveground piping from garage to vehicle refueller i. 10 m of 50 mm aboveground piping from DEW W22A & DEW W22B to TSB (mid-1990s) j. 40 m of 100 mm underground piping from refueling point to DEW W20D & DEW W20E k. 420 m of aboveground and underground piping from apron pumphouse to/from DEW W22E
Summit pumphouse DEW B06A		Roper 3600GHBRV no.2A rotary gear type positive displacement electric pump. Maximum allowed pressure from pressure relief valve setting is 55 p.s.i.
Apron pumphouse DEW B06A		Perkins Diesel Engine Model4-236, Pump Roper 1-H 75, Type 15 Spec 5

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. Environmental Cleanup Study of 21 DEW Line Sites in Canada. UMA, June 1991.
3. NWS Environmental Study, Vol. 2: Site Analysis. Royal Roads Military College Environmental Sciences Group (Reimer), June 1991.
4. Nunavut Land Claims Agreement, 1993.
5. NWS Site Fuel Distribution & Storage Facility Current Conditions Report. June 2002.
6. NWS Site Record Drawings.
7. Nunavut Wildlife Resource and Habitat Values. Nunami Jacques Whitford Limited. October 2008.
8. NWS Site Fuel Storage Requirements Report. October 2009.

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.