



Demande de la CNER faisant l'objet d'un examen préalable #125994

Pelly Lake Remediation

Type de demande : New

Type de projet: Site Cleanup/Remediation

Date de la demande : 8/27/2024 11:32:10 AM

Period of operation: from 2025-07-01 to 2025-09-30

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DÉTAILS

Description non technique de la proposition de projet

Anglais: The Pelly Lake Site (the Site) is a former airstrip and fuel cache site. It was reportedly used as a base and airstrip from 1954 to 1956 by Spartan Air Services, who was contracted by the Federal Government to take aerial photographs of the region. The Site is located approximately 6 km to the northeast of Pelly Lake, within the Kivalliq region of Nunavut (7327399 N and 407062 E) (Lat: 66.053538° Long: -101.052295°). The nearest communities are Baker Lake (250 km southeast of Pelly Lake) and Gjoa Haven (350 km northeast of Pelly Lake). The Site is uninhabited and located on Crown land. Throughout the years, various materials and structures were left at the Site, the Remedial Action Plan (RAP) indicates several dilapidated structures, 49 x 1,000-gallon fuel tanks, 710 barrels of petroleum products (including oil lubricants, aviation fuel, oil, tar, and soil contaminated with tar, and 101 cans of aviation oil), pieces of equipment, and the remains of a "Mosquito" aircraft. Investigations confirm that the site contains impacted sediment that poses a risk to human and ecological health, as well as hazardous and non-hazardous debris. A limited cleanup was reportedly conducted in 1996 but did not remove everything from the Site. The project that is the subject of the environmental impact assessment (EIA) is the remediation of the Site (the "Project"). Crown-Indigenous and Northern Affairs Canada (CIRNAC) is the Proponent. The Project will involve the demolition of buildings, removal of hazardous and non-hazardous debris, the excavation and packaging of lead impacted sediments exceeding the ecological component values (70 mg/kg) from the Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health for agricultural land use (CCME 1999). Following the assessment of the site through scientific and traditional/local knowledge, the development of the Remedial Options Analysis, and the community engagement sessions, the recommended remediation option are excavation and southern off-site disposal of all impacted sediments, hazardous debris and non-hazardous debris with the exception of large non-hazardous debris that will be left on-site and unpainted wood debris that will be burned on-site. Due to challenging access to the site, equipment requirements will be kept to a minimum. The proposed work is anticipated to be completed in two stages encompassing two summers and one winter. Phase 1 will occur over 8-12 weeks in Summer 2025 with the mobilization of the project team and equipment, execution of the remedial works and demobilization of equipment. Phase 2 will occur over 4-8 weeks in Winter 2026 with the demobilization of waste materials and extend into Summer 2026 with a final inspection and removal of any remaining items. Personnel and staff will be housed during Summer 2025 on Site in a temporary camp and water, wastewater and waste management will be required. It is anticipated that the site cleanup will require approximately 12 to 15 workers on Site completing the cleanup activities. Wildlife monitors, equipment operators and labourers will be sourced from local communities where possible. In the short term, species and their habitats are expected to be impacted. The majority of this impact will be in the form of disturbance from the presence of humans and machinery and the accompanying noise, dust and activity. There is the possibility of more serious impacts from spills, fires, erosion and sedimentation and encounters with wildlife, however, these will be mitigated by the development of a comprehensive set of management plans developed, reviewed, and approved prior to commencing work. Ultimately, any short term negative impacts are anticipated to be offset by an overall improved environment and habitat to support species in their medium and long-term future. The execution of the remedial plan will be competitively procured, with the contractor making final decisions regarding the implementation strategy.

Français: Le site du lac Pelly (le Site) constitue une ancienne piste d'atterrissage ainsi qu'une cache à essence. Le Site était utilisé comme base d'opération entre 1954 et 1956 par Spartan Air Services, qui était mandaté par le gouvernement fédéral de prendre des photos aériennes de la région. Le Site se situe à environ 6 km au nord-est du lac Pelly, dans la région du Kivalliq au Nunavut (7327399 N and 407062 E) (Lat: 66.053538° Long: -101.052295°). Les communautés les plus proches sont Baker Lake (250 km au sud-est du lac Pelly) et Gjoa Haven (350 km au nord-est du lac Pelly). Le Site n'est actuellement pas occupé et se situe sur les terres de la couronne. Au fil des années, plusieurs matériaux et infrastructures ont été abandonnées sur le Site. Le plan d'assainissement indique plusieurs structures délabrées, 49 réservoirs à essence de 1,000 gallon, 710 barils de produits pétroliers (divers types), équipement varié et les restes d'un moteur d'avion Mosquito. Les évaluations confirment la présence de sédiment contaminés qui pose des risques pour la santé humaine et écologique, ainsi que d'autres débris dangereux et non-dangereux. Relation Couronne-Autochtones et Affaires du Nord Canada (RCAANC) est le proposant pour ce projet qui consiste à assainir le Site. Le projet impliquera de la démolition de

[illegible]

Closure Phase: from 2026-02-01 to 2026-07-31

Activités

Emplacement	Type d'activité	Statut des terres	Historique du site	Site à valeur archéologique ou paléontologique	Proximité des collectivités les plus proches et de toute zone protégée
Pelly Lake Site	Site Cleanup/Remediation	Crown	The Pelly Lake Site (the Site) is a former airstrip and fuel cache site. It was reportedly used as a base and airstrip from 1954 to 1956 by Spartan Air Services, who was contracted by the Federal Government to take aerial photographs of the region.	No archaeological features were identified during the archaeological investigation; however, details of a suspected burial site have been provided to the Proponent. The location of the suspected burial is sensitive and cannot be shared in a public document but will be provided to the Contractor.	250 km from Baker Lake, no protected area around
Drinking Water Lake	Site Cleanup/Remediation	Crown	The Pelly Lake Site (the Site) is a former airstrip and fuel cache site. It was reportedly used as a base and airstrip from 1954 to 1956 by Spartan Air Services, who was contracted by the Federal Government to take aerial photographs of the region.	No archaeological features were identified during the archaeological investigation; however, details of a suspected burial site have been provided to the Proponent. The location of the suspected burial is sensitive and cannot be shared in a public document but will be provided to the Contractor.	250 km from Baker Lake, no protected area around
Pelly Lake Site	Airstrip use or construction	Crown	Former Landstrip	No archaeological features were identified during the archaeological investigation; however, details of a suspected burial site have been provided to the Proponent. The location of the suspected burial is	250 km from Baker Lake, no protected area around

				sensitive and cannot be shared in a public document but will be provided to the Contractor.	
Pelly Lake Site	Quarry/Borrow pit	Crown	The Pelly Lake Site (the Site) is a former airstrip and fuel cache site. It was reportedly used as a base and airstrip from 1954 to 1956 by Spartan Air Services, who was contracted by the Federal Government to take aerial photographs of the region.	No archaeological features were identified during the archaeological investigation; however, details of a suspected burial site have been provided to the Proponent. The location of the suspected burial is sensitive and cannot be shared in a public document but will be provided to the Contractor.	250 km from Baker Lake, no protected area around
Pelly Lake Site	Camp	Crown	The Pelly Lake Site (the Site) is a former airstrip and fuel cache site. It was reportedly used as a base and airstrip from 1954 to 1956 by Spartan Air Services, who was contracted by the Federal Government to take aerial photographs of the region.	o archaeological features were identified during the archaeological investigation; however, details of a suspected burial site have been provided to the Proponent. The location of the suspected burial is sensitive and cannot be shared in a public document but will be provided to the Contractor.	250 km from Baker Lake, no protected area around
Pelly Lake Site	Access Road	Crown	The Pelly Lake Site (the Site) is a former airstrip and fuel cache site. It was reportedly used as a base and airstrip from 1954 to 1956 by Spartan Air Services, who was contracted by	No archaeological features were identified during the archaeological investigation; however, details of a suspected burial site have been provided to the Proponent. The location of the suspected burial is sensitive and cannot be shared in a public	250 km from Baker Lake, no protected area around

		the Federal Government to take aerial photographs of the region.	document but will be provided to the Contractor.	
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Engagement de la collectivité et avantages pour la région

Collectivité	Nom	Organisme	Date de la prise de contact
Baker Lake	27 members of the community during a public community meeting to discuss the site assessment results and the options for remediation plan	Hamlet of Baker Lake	2023-05-18

Autorisations

Indiquez les zones dans lesquelles le projet est situé:

Autorisations

Organisme de régulation	Description des autorisations	État actuel	Date de l'émission/de la demande	Date d'échéance
Affaires autochtones et Développement du Nord Canada	Land Use permit and Quarry permit	Not Yet Applied		
Government of Nunavut, Department of Culture, Language, Elders, and Youth	Arcaheological permit (2022-26A) to allow archaeological research at KW018 – Pelly Lake	Active		2023-03-31
Office des eaux du Nunavut	Water Licence	Not Yet Applied		

Project transportation types

Transportation Type	Utilisation proposée	Length of Use
Air	Between site and Baker Lake	
Water	Sealift to bring equipment to Baker Lake	
Land	Limited within the boundaries of the site to access waste area	

Project accomodation types

Temporary Camp

Utilisation de matériel

Équipement à utiliser (y compris les perceuses, les pompes, les aéronefs, les véhicules, etc.)

Type d'équipement	Quantité	Taille – Dimensions	Utilisation proposée
ATV & trailer	3	Honda	Summer transportation of personnel and waste
Snowmobile & sleds	3	Honda	Winter transportation of personnel and waste
Barrel crusher	1	DC500	Remediation and management of waste drums
Tank cleaning equipment	1	N/a	Remediation and management of waste drums/tanks
Acetylene Torch	3	n/a	Remediation of waste drums/tanks
Metal saws	3	Stihl TS700	Demolition and management of waste
Diesel Generator	2	80kw	Camp power/ electrical heating
Barrel pumps	2	n/a	fuel transfer
Water pump	1	2 Hoda	Non-potable water supply
Incinerator	1	Cyclonator	Solid waste disposal
Forklift/pump cart	1	n/a	Loading aircraft

Décrivez l'utilisation du carburant et des marchandises dangereuses

Décrivez l'utilisation de carburant :	Type de carburant	Nombre de conteneurs	Capacité du conteneur	Quantité totale	Unités	Utilisation proposée
Diesel	fuel	40	250	10000	Liters	Generator fuel for camp operations
Gasoline	fuel	10	250	2500	Liters	Vehicles
Other	fuel	1	50	50	Liters	Hydraulic and Motor Oil - Equipment and vehicle maintenance
Propane	fuel	1	45	45	Kg	Camp heating and cooking
Other	fuel	1	800	800	Cubic ft	Acetylene - Cutting metal debris
Other	fuel	1	1600	1600	Cubic ft	Oxygen - Cutting metal debris
Aviation fuel	fuel	495	250	123750	Liters	Aircraft use for moving personnel and waste

Consommation d'eau

Quantité quotidienne (m3)	Méthodes de récupération de l'eau proposées	Emplacement de récupération de l'eau proposé
50	pump with mesh screen	Drinking Water Lake

Déchets

Gestion des déchets

Activités du projet	Type des déchets	Quantité prévue	Méthode d'élimination	Procédures de traitement supplémentaires
Site Cleanup/Remediation	Déchets combustibles	45.6 m3	Incinerated on prepared burn pad	Ashes will be collected, packaged, and removed off-site for disposal in southern facility with the rest of Remediation waste
Camp	Déchets combustibles	1,088 kg	Burned in dedicated incinerator	Ashes will be collected, packaged, and removed off-site for disposal in southern facility with the rest of the Remediation waste
Site Cleanup/Remediation	Déchet dangereux	7.05 m3	Collected, packaged and removed off-site for disposal in southern facility with the rest of Remediation waste	Shipped to southern facility via sealift
Site Cleanup/Remediation	Déchets non combustibles	85.9 m3	Collected, packaged and removed off-site for disposal in southern facility with the rest of Remediation waste	Shipped to southern facility via sealift
Site Cleanup/Remediation	Déchets non combustibles	1,890 kg	Collected, packaged and removed off-site for disposal in southern facility with the rest of Remediation waste	Shipped to southern facility via sealift

Répercussions environnementales :

In the short term, species and their habitats are expected to be impacted. The majority of this impact will be in the form of disturbance from the presence of humans and machinery and the accompanying noise, dust and activity. There is the possibility of more serious impacts from spills, fires, erosion and sedimentation and encounters with wildlife, however, these will be mitigated by the development of a comprehensive set of management plans developed, reviewed, and approved prior to commencing work. Ultimately, any short term negative impacts are anticipated to be offset by an overall improved environment and habitat to support species in their medium and long-term future. See details in Environmental Impact Assessment Report

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

2.1 SUMMARY OF ITEMS REQUIRING REMEDIAL ACTIONBased on the findings of the Phase III ESA and the HHERA and feedback during the communityengagement session, the areas requiring remedial action are categorized into Impacted Sediment(Table 4), Hazardous Waste (Table 5) and Non-Hazardous Waste (Table 6). The volumes of wasteare outlined below, details are available in Appendix A and their locations are documented inFigures 3 and 4a-e.

Table 4: Impacted Sediment
Impacted Sediment Estimate Volume of SedimentTotal Estimated Volume of Contaminated Sediment 6.1 m³

Table 5: Hazardous Waste
Type of Waste Estimate Volume of WasteTotal Debris 0.10 m³Total Paint 0.52 m³Total Liquid and Drum/Tank Residues 6.64 m³Note: Includes the full barrel of liquid at Site#2 Fuel Cache

Table 6: Non-Hazardous Waste
Type of Waste Estimate Volume of WasteWood Debris 45.9 m³Metal Debris 70.8 m³Construction Debris 15.3 m³Household Debris 0.3 m³Tanks 27.5 m³Barrels 13.2 m³Total Liquid 0.35 m³

2.3 REMEDIATION STRATEGYThe remediation strategy was informed by previous studies including the Phase III ESA (BLM2023a), the HHERA (BLM 2023b), the ROA (BluMetric 2023c) and the community engagement(BluMetric 2023d) and was documented in the Remedial Action Plan (RAP) (BluMetric 2023e).The proposed work is anticipated to be completed in two stages encompassing two summers andone winter. Phase 1 will occur over 8-12 weeks in Summer 2025 with the mobilization of theproject team and equipment, execution of the remedial works and demobilization of equipment.Phase 2 will occur over 4-8 weeks in Winter 2026 with the demobilization of waste materials and extend into Summer 2026 with a final inspection and removal of any remaining items. Details areprovided below, and proposed work areas are shown on Figure 5.

Personnel and staff will be housed during Summer 2025/Winter 2026 on Site in a temporary campand water, wastewater and waste management will be required. It is anticipated that the sitecleanup will require approximately 12 to 15 workers to be on Site completing the cleanup activities.Workdays are expected to be 10 hours on site with 2 hours of additional time for travel and safety/administrative meetings that may occur on site or in the community. Wildlife monitors,equipment operators and labourers will be sourced from local communities where possible.Due to challenging access to the Site, equipment requirements will be kept to a minimum and areassumed to include: a drum crusher, drum and tank cleaning equipment, ATVs, trailers, and handtools.

Stage 1 (Summer 2025):

- Maintenance of the airstrip and on site trails;
- Mobilization of personnel, equipment, materials and support facilities, including fuel byfixed wing aircraft;
- Construction of a temporary construction camp including camp, fuel storage area, stagingareas and establishment of water intake;
- Excavation of impacted sediment;
- Inspection of large debris/equipment to be left on site and removal of all hazardousmaterials (e.g. paint, oils, fuel);
- Collection, cleaning and crushing of barrels/dismantling of tanks;
- Collection and sorting of debris;
- Burning of unpainted/untreated wood debris;
- Excavation of borrow material (aggregate) and regrading as required;
- Segregation, consolidation, packaging and containerization of all impacted sediment, debris(hazardous and non-hazardous) and equipment for shipment;
- Deconstruction of the temporary camp and packaging for removal. The temporary campwill be re-established for the winter demobilization program.

Weekly or biweekly shipments are expected throughout the duration of Summer 1. Demobilizationby air of hazardous wastes and other items equipment may occur in Stage 1 depending on the sizeand type of aircraft available and ability to land on site.

Stage 2 (Winter /Summer 2026):

- Construction of a temporary construction camp including camp, fuel storage area, stagingareas and establishment of water intake;
- Construction of a winter access trail and ice strip;
- Demobilization (winter) by fixed wing aircraft of all consolidated materials on siteincluding, but not limited to, fuel, equipment, materials, hazardous waste, non-hazardouswaste, and contaminated sediment;
- Deconstruction of the temporary camp (including all waste and fuel) and packaging forremoval.
- Final inspection and collection of any remaining small debris will occur following springthaw.

A Site-Specific Environmental Health and Safety Plan and Management Plans will be developed forthe project that will include (but are not limited to):

- On-site Contingency and Emergency Response Plan;
- Spill Contingency Plan;
- Fire Safety Plan;
- Wildlife Encounter and Management Plan;
- Fuel Management Plan;
- Historical, Archaeological and Cultural Resources Plan;
- Wildlife Protection Plan;
- Erosion Sediment and Drainage Control Plan;
- In Stream or Near Water Works Work Methodology Plan;
- Mobilization and Demobilization Plan; and
- Airstrip and Site Access Road Upgrading and Maintenance Plan.

2.3.1 Impacted SedimentThe impacted sediment will be removed and disposed of off site. This was the preferred outcomein the ROA and the community engagement session. Due to the relatively small volume ofimpacted sediment (6.1 m³), impacted material will be removed by hand and packaged in suitablecontainers or drums for shipment off site. If possible, the impacted sediment will be removed atthe end of Phase 1. Alternatively, it will be shipped off site with the other materials in Phase 2(winter).

2.3.2 Hazardous MaterialsThe hazardous materials requiring removal include:

- Hazardous Debris – 0.10 m³;
- Total Lead Paint – 0.52 m³;
- Liquid (Fuel, Fuel Residues and Vehicle Fluids) – 6.63 m³.

The hazardous liquid waste to be removed from site is assumed to one drum of known PHCs, theestimated volume of fluids that remain in the machinery and vehicles on site and the sludgeresulting from the cleaning of the fuel drums and tanks.The hazardous materials will be collected

and placed into suitable containers or drums for shipment off site. If possible, the hazardous materials will be removed at the end of Phase 1. Alternatively, it will be shipped off site with the other materials in Phase 2 (winter). A summary of hazardous debris to be removed is found in Table 8. On-site treatment and discharge of water produced during tank and drum cleaning was assumed and would need to be permitted through a water license.

Table 8: Summary of hazardous debris to be removed from Site.

Item #	Area Description	APEC ID	Hazardous Debris	Batteries (m3)	Vehicle Fluids (m3)	Lead Paint (m3)	Liquid and Drum/Tank Residues (m3)	Total Volume (m3)
1	Campsite Food Cache	1	0.3	0.32				0.62
2	Immediately West of the Food Cache	1	0.01	0.25	0.315			0.58
3	Northwest of Food Cache	1	0.1	0.14				0.24
4	West of Food Cache	1	0.01	0.25	0.315			0.58
5	North of Food Cache	1	0.018					0.018
6	North of Food Cache	2	0.01					0.01
7	Southeast of Food Cache	1	0.01					0.01
8	Site #1 Fuel Cache (South Pile)	2	0.7	0.710				1.41
9	Site #1 Fuel Cache (Middle Pile)	2	0.7	0.710				1.41
10	Site #1 Fuel Cache (North Pile)	2	1.2	1.211				2.41
11	North of Site #1 Fuel Cache	2	0.01	0.15	0.2113			0.37
12	West of Site #1 Fuel Cache	2	0.01	0.15	0.2113			0.37
13	Site #1 Drum Pile (S)	2	0.12	0.117				0.237
14	Site #2 Fuel Cache	3	2.8	2.815				5.615
15	East of Site #2 Fuel Cache	3	0.12	0.117				0.237
16	Southwest of Site #2 Fuel Cache	3	0.12	0.117				0.237
17	Drinking Water Lake	4	0.1	0.119				0.219
18	Landing Lakes	5	0.1	0.119				0.219
19	Empty Fuel Drums Throughout the Site	n/a	1.3	1.3				2.6
20	Total Debris		0.10	0.03	0.52	6.40	7.05	7.10

Note: Totals may not add up due to rounding.

2.3.3 Non-Hazardous Debris

A significant volume of non-hazardous debris is present on site. Details are provided in Table 9. Clean wood debris (unpainted and/or untreated) will be burned on-site. Following incineration, ashes will be collected and placed into suitable containers or drums for shipment off site. If possible, the ash will be removed at the end of Phase 1. Alternatively, it will be shipped off site with the other materials in Phase 2 (winter). Large non-hazardous debris that will remain on-site includes the old D4 bulldozer, and a large steel cart with an old turbine aircraft engine on. These items will be inspected for any remaining fuels/liquids within the equipment and the paint will be tested for lead and PCBs. If there are any liquids within the large equipment, they will be drained, placed into suitable containers or drums for shipment off site. If the paint contains lead or PCBs, it will be scraped off and placed into suitable containers or drums for shipment off site. If possible, any hazardous materials will be removed at the end of Phase 1. Alternatively, it will be shipped with the other materials in Phase 2 (winter). All remaining non-hazardous debris on site will be packaged and consolidated for removal. Removal of non-hazardous materials is planned Phase 2 (Winter). During the staging period all debris will be packed in mega bags, on skids, or equivalent for removal by aircraft.

Table 9: Summary of Non-hazardous Debris Quantities Grouped by Management Strategy

Item #	Area Description	APEC ID	Non-Hazardous Total Debris for Removal	Total Debris Managed on Site
1	Campsite Food Cache	1	3.4	1.3
2	Immediately West of the Food Cache	1	0.5	0.25
3	Northwest of Food Cache	1	4.1	9.9
4	West of Food Cache	1	0.6	16.75
5	North of Food Cache	1	0.2	1
6	North of Food Cache	2	1	4
7	Southeast of Food Cache	1	2.6	0.66
8	Site #1 Fuel Cache (South Pile)	2	3.2	9
9	Site #1 Fuel Cache (Middle Pile)	2	3.2	10
10	Site #1 Fuel Cache (North Pile)	2	5.5	11
11	North of Site #1 Fuel Cache	2	2	7
12	West of Site #1 Fuel Cache	2	2	7
13	Site #1 Drum Pile (S)	2	0.1	14
14	Site #2 Fuel Cache	3	20.4	0.3
15	East of Site #2 Fuel Cache	3	2.7	7
16	Southwest of Site #2 Fuel Cache	3	12	17
17	Drinking Water Lake	4	0.2	18
18	Landing Lakes	5	0.9	18
19	Total Debris by Material		68.3	17.2
20	Total Debris for Removal and/or On-Site Management		85.9	87.3

Notes: Non-Hazardous Waste = tar paper, household items, glass, tires, and tubing; Totals may not add up due to rounding.

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

Description de l'environnement existant : Environnement physique

5.1 SITE LOCATION The Site is situated on a flat area approximately 200 metres above sea level (masl), falling to an elevation of approximately 180 masl within 1 km to the southwest of the Site and within 2 km to the northeast of the Site. A small unnamed lake is present on the downslope southern portion of the Site and several unnamed lakes are present to the east of the Site. The Site is uninhabited and is located on Crown land.

5.2 CLIMATE No weather station is present near the Pelly Lake Site, and the closest weather station is the Environment Canada Station at Robertson Lake, Nunavut, approximately 125 km southwest of Site. The daily average temperatures varied between -31.9°C in February 2021 and 9.2°C in August 2021 (data corresponding to the period from January to December 2021 (Government of Canada 2022)). The average yearly precipitation has not been recorded. The total amount of precipitation received in 2021 was 207.7 millimetres (mm). Daily average temperatures were above 0°C during four months of the year in 2021 (June - September). Precipitation in the form of snow can occur any time throughout the year, although it is less likely in July and August.

5.3 GEOLOGY The Site is located on a glacial outwash plain (Canadian Geoscience Map 274, 2015). West of the camp area, this consists of ice-contact sediments, which are described as mainly sand with gravel, moderately to well sorted, massive to stratified, 2 to 15 m thick. East of the camp area are outwash sediments, described as sand with gravel, moderately to well sorted and stratified, and greater than 2 m thick. The primary surficial geology observed during the Phase III ESA was sand, with gravel and cobbles observed in areas to the east of the eastern airstrip. The previous Phase II ESA for the Site (WESA, 2006) describes the bedrock beneath the Site consisting of Archean gneiss granite, as indicated on the map titled "Geology – Northeastern District of Mackenzie, NWT" (GSC, 1963). Additionally, the Geological Survey of Canada also confirmed the bedrock beneath the Site consists of Archean gneiss rock, describing it as Archean undivided gneiss (de Kemp, et al. 2006). The area of the Site is generally flat and plateaus above the surrounding area of hummocky terrain and rolling hills. The Site is located within a zone of continuous permafrost (90% - 100% of this zone is underlain by permafrost) (Heginbottom, J.A., 1995). Soil and geological conditions were confirmed during the 2022 site visit. Field staff recorded ground conditions as predominantly sand with gravel with cobbles. Trace organic material was also noted in the top 0-15 centimetres (cm) of several locations at APEC 1, 2 and 3. No permafrost was encountered during the environmental test pitting, completed to a maximum of 1 meter below ground surface (mbgs). The geotechnical test pitting reported permafrost between 0.9 and 1.2 mbgs but was not present at all test pit locations. Locations where permafrost was indicated were to the southeast, west and northwest of APEC 2 (Site #1), outside of the main runway area but on the sandy plateau.

5.4 HYDROGEOLOGY Groundwater was not observed in any of the test pits excavated during the BluMetric field investigation but was present in the two piezometers installed at APEC 3 (Site #2). Regional groundwater flow is expected to be influenced by permafrost which generally follows regional topography. Regional groundwater is inferred to flow generally northward, with local groundwater flow direction influenced by local topography, as many hills, valleys and lakes are present in the area. Permafrost in the area is classified as continuous with low (<10%) ground ice content in the upper 10-20 m of the ground (Geological Survey of Canada (GSC), 1995). Neither permafrost nor bedrock was encountered in any of the environmental test pits dug at the Site, however permafrost was encountered at approximately 0.9 to 1.2 m depth in several of the geotechnical test pits. The permeability of the sandy soils present at the Site is expected to be relatively high. Evidence of a confining layer above the permafrost was not observed, therefore surface water is anticipated to infiltrate through the upper layers to reach the permafrost that defines the active layer (the layer that thaws in warmer months and freezes in colder months). Infiltrated surface water and groundwater is expected to readily flow through the active layer of these soils.

5.5 SURFACE WATER Pelly Lake is a large lake that is located approximately 6 km southwest of the Site. There are also many lakes located in the area, some of which are interconnected. The Campsite Area is located approximately 10 m from an inland pond (Campsite Area Pond) that drains northward to the smaller of the lakes in the Landing Lakes Area approximately 570 m to the north of the Site. Runoff from the Campsite Area is anticipated to flow into the pond, as indicated by drainage channels observed on the eastern slope of the pond. Drinking Water Lake is located approximately 650 m west of the Campsite Area Pond. An inlet stream flows into the lake from the north end and an outlet stream flows southeastward from the southeast end of the lake. The area identified as Site #2 (APEC 3) is located approximately 450 m to the northwest of Drinking Water Lake. Runoff from Site #2 is anticipated to flow into Drinking Water Lake, as indicated by drainage channels observed in the area.

Description de l'environnement existant : Environnement biologique

5.6 VEGETATION The Pelly Lake Site is within the Southern Arctic Ecozone and the Garry Lake Lowland Ecoregion, which can be characterized as a gently sloping plain with a low Arctic ecoclimate and shrub tundra vegetation. The Project Site and surrounding area are characterized as a mosaic of sand and gravel glacial deposits with thinly dispersed vegetation that is primarily composed of sedges, dwarf shrubs, herbaceous plant species, lichens, and mosses (inferred from Site photographs and drone

imagery). There are multiple lakes and ponds present at the Site and surrounding area that are bordered by sedges and dwarf shrubs but do not appear to support aquatic or emergent vegetation (inferred from Site photographs and drone imagery). There are no vascular plant or moss SAR expected to occur within the Pelly Lake area (Appendix B). Rare plants have not been recorded in the region; however, detailed inventories have not been conducted. A Site visit and environmental investigation was conducted during August 2022, where vegetation was sampled to determine the uptake of contaminants of concern to inform future risk assessment work. A partial list of vegetation present at the Site (based on identifications from Site photographs), is provided below:

- Black Crowberry (*Empetrum nigrum*);
- Dwarf Birch (*Betula pumila glandulifera*);
- Labrador Tea (*Rhododendron (Ledum) palustre*);
- Cloudberry (*Rubus chamaemorus*);
- Arctic Cranberry (*Vaccinium vitis-idaea*);
- Willows (*Salix* species);
- Sedges (*Carex* species);
- Lichens;
- Mosses.

5.7 MAMMAL, AVIAN, AND FISH SPECIES

Many characteristic Arctic tundra mammal and bird species including barren-ground caribou (*Rangifer tarandus groenlandicus*), muskox (*Ovibos moschatus*), grizzly bear (*Ursus arctos horribilis*), Arctic fox (*Vulpes lagopus*), Arctic wolf (*Canis lupus arctos*), wolverine (*Gulo gulo*), ermine (*Mustela erminea*), Arctic hare (*Lepus arcticus*), Arctic ground squirrel (*Spermophilus parryi*), brown lemming (*Lemmus sibiricus*), gyrfalcon (*Falco rusticolus*), snow geese (*Chen caerulescens*), Canada goose (*Branta canadensis*), willow ptarmigan (*Lagopus lagopus*) and rock ptarmigan (*Lagopus mutus*), are likely to inhabit the Site and surrounding area. Wildlife species observed during the August 2022 Site visit included barren-ground caribou, Arctic hare, Arctic ground squirrel, brown lemming, Canada goose (*Branta canadensis*), and ptarmigan species. Other evidence of wildlife (bones or tracks) observed during the August 2022 Site visit included Arctic wolf, barren-ground caribou, muskox and a bear species (most likely grizzly bear). Given the size of the Project Site and the existing habitat conditions available, larger mammals including barren-ground caribou, muskox, and grizzly bear likely only occupy the area seasonally in search of forage (e.g., lichen, sedges, herbaceous plants, berries), and/or small mammal prey (e.g., Arctic hare, brown lemming), water or resting places. Similarly, wolverines are a wide-ranging species and likely only occasionally occupy the site in search of prey or carrion, however, the substrates and habitat characteristics present at the site and surrounding area (e.g., eskers, sand and gravel banks and debris) may provide suitable winter denning habitat. Polar bears (*Ursus maritimus*) may very rarely pass through the Site if animals are forced inland due to loss of sea ice during summer. The Project area is located at the southern border of the species' range, and therefore the occurrence of polar bears is expected to be very low. Smaller mammals including Arctic hare, Arctic ground squirrel and brown lemmings can be expected to inhabit the Project Site and surrounding area during all seasons. Arctic ground squirrels may burrow within the eskers, gravel or sandy banks and lakeshores present at the site and surrounding area. A diversity of migratory bird species can be expected to utilize habitats within the Project Site and surrounding area for breeding and/or staging during spring to fall. The Pelly Lake area is known to support large flocks of moulting Canada geese (*Branta canadensis*) and snow geese (Latour et al., 2008). Pre-moulting flocks can be expected to arrive around mid-June and to begin to depart in mid-August when animals have regained their ability to fly (Latour et al., 2008). Geese feed on sedge meadows and use water to avoid predation. Moulting geese are sensitive to disturbance. The study area is in migratory birds Zone N9, which has a nesting period of May 15 to August 17 (ECCC, 2018). Numerous fish species including burbot (*Lota lota*), northern pike (*Esox lucius*), slimy sculpin (*Cottus cognatus*), longnose sucker (*Catostomus catostomus*), Arctic char (*Salvelinus alpinus*), Arctic grayling (*Thymallus arcticus*), lake cisco (*Coregonus artedii*) and lake whitefish (*Coregonus clupeaformis*) are likely present in ponds and lakes within the Project Site and surrounding area. All wildlife in Nunavut and their habitat are protected from direct harm and/or harassment unless for regulated or traditional harvest and/or protection of life and property under the Nunavut Wildlife Act (2003). Migratory birds are protected under the Migratory Birds Convention Act (1994). Fish and fish habitat are protected under the federal Fisheries Act. SAR and their habitat are protected under the federal Species at Risk Act (2002). Mammal and bird SAR with potential to utilize the Project Site and surrounding area are discussed in Section 5.9 and outlined in Appendix 1 (Government of Canada, 2023a). There are no fish SAR expected to occur within the Pelly Lake area (Government of Canada, 2023b).

5.8 SOIL AND AQUATIC INVERTEBRATES

The Project Site provides minimal habitat for soil invertebrate communities, due to the presence of permafrost that limits soil structure and depth. Soil invertebrates include organisms such as worms, springtails, spiders, and insects. As a result, soil invertebrates are uncommon in terrestrial Arctic ecosystems (Danks et al., 1997). Aquatic invertebrates in northern areas include a wide range of species, primarily larvae of insect species such as Dragonflies/Damselflies (Order Odonata), Mayflies (Order Ephemeroptera), Stoneflies (Order Plecoptera), and Midges (Order Diptera). There is no information available to base estimates of their abundance or species diversity. Aquatic invertebrates in northern areas generally prefer warm, shallow water habitats. Flying adults lay eggs in water, at various times during the summer (depending on the species). The eggs hatch into larvae that may spend multiple years maturing into adults that emerge from the water at various times during the summer. It can be expected that species of aquatic invertebrates are present in the water bodies present at the Project Site. There are no soil or aquatic invertebrate SAR expected within the Pelly Lake area (Government of Canada, 2023a).

5.9 SPECIES AT RISK

Species at Risk (SAR) are identified by both the federal government and the Nunavut government. The Committee on the Status of Endangered

Wildlife in Canada (COSEWIC) is an independent body of experts that uses criteria to critically evaluate and recommend status rank for each species in Canada. Following this, a federal government Minister then decides whether to place the species on Schedule 1 of the Species at Risk Act (SARA) after a consultation process. Once a species has been placed on Schedule 1 of SARA, it is legally a SAR. A species can be at risk within Nunavut, while not being at risk within Canada as a whole; however, no such species have been identified by the Government of Nunavut. There are 28 non-marine animal and plant SAR known to occur in Nunavut, which are provided in Appendix B (Government of Canada, 2023b). Marine species were omitted from this assessment because marine habitats do not occur within the Project Site or surrounding area. First, each species was evaluated to determine whether it may be present in the vicinity of the Pelly Lake area. Following this, it was determined whether a species may occur at the site or surrounding area, based on existing habitat conditions. Some SAR species are unlikely to occur in the vicinity of the Site and are noted as "nil" occurrence in Appendix 1. There are nine SAR potentially present at the Site, including one insect species, four bird species, and four mammal species (Table 15).

Table 15: Species at Risk Potentially Present at the Project Site

Species	Common Name	COSEWIC Status	SARA Status	SARA Schedule	Habitat Description	Transverse
Lady Beetle	Special Concern	Special Concern	Schedule 1	Within species range but has not been documented in the Pelly Lake region.	Species live on the foliage of herbs that are infested with aphids, which may be present at the site.	Harris's Sparrow
Harris's Sparrow	Special Concern	No Status	schedule No	Within species breeding range. Insects and nests in small, isolated wooded areas with trees or tall shrubs that Harris's sparrows feed on seeds, berries, and may be present in the surrounding area.	Lesser Yellowlegs	
Lesser Yellowlegs	Threatened	No Status	Schedule No	Within species breeding range. The provide suitable breeding and foraging habitat.	waterbodies present in the Project area may	Red-necked Phalarope
Red-necked Phalarope	Special Concern	Special Concern	Schedule 1	Within species breeding range. Quality habitats are ponded areas dominated by grasses and sedges, emergent aquatic vegetation, and open freshwater.	The water bodies present in the Project area may provide suitable breeding and foraging habitat.	Short-eared Owl
Short-eared Owl	Threatened	Concern	Special	Schedule 1	Within species breeding range. birds, nest in dense vegetation on Short the-eared owls predate on small rodents and ground and may utilize human disturbed sites. The Project area may provide suitable hunting and breeding habitat.	Barren ground Caribou
Barren ground Caribou	Threatened	No status	No	Schedule	Within species range. Vegetation within the Project area may provide suitable forage during summer and fall seasons.	Grizzly Bear
Grizzly Bear	Special Concern	Special Concern	Schedule 1	Within species range. Grizzly bears forage on berries, herbaceous plants, mammals, waterfowl, and eggs that may be present in the Project area during spring, summer, and fall.	Polar Bear	
Polar Bear	Special Concern	Special Concern	Schedule 1	Within species range. Polar bears may be forced inland during summer due to loss of sea ice. During summer, polar bears consume berries, caribou, waterfowl, and eggs that may be present in the Project area.	Wolverine	
Wolverine	Special Concern	Special Concern	Schedule 1	Within species range. Wolverine prey on mammals that may be present at the site during all seasons. The eskers, sand and gravel banks and debris present in the Project area may provide suitable denning habitat.		

Description de l'environnement existant : Environnement socio-économique

5.10 SITE SPECIFIC LAND USE

5.10.1 Past The Site had never been visited by archaeologists prior to 2022, but surveys conducted in the region in the 1970s confirm Early Pre-Inuit and fur trade era Inuit occupation with traces of typical inland caribou hunting activities. The main group living here were Hanningayurmiut, with Hanningayuq being the name for the Pelly and Garry lakes area. Three other Inuit groups are known to have historically used the area for fishing and caribou hunting: Kivallirmiut, Innuinait and Netsilingmiut. With the onset of the commercial fur trade, the area became used for not only traditional subsistence but also commercial trapping for fur bearing animals. In 1949, a Catholic mission was set up on an island in Garry Lake, not far from the Site. The Site itself is a former airstrip and fuel cache site. It was reportedly used as a base and airstrip from 1954 to 1956 by Spartan Air Services, who was contracted by the Federal Government to take aerial photographs of the region. A few Hanningayurmiut families living at the airstrip location and near the mission were relocated to Baker Lake, Whale Cove, Rankin Inlet, Gjoa Haven and Cambridge Bay following a starvation event in 1958. Later, a land use permit was granted to Bathurst Inlet Developments Ltd. In 1993 (unknown end date) to rehabilitate the two airstrips at the Site and operate a fuel cache. Throughout the years, various materials and structures were left at the Site. Three small lakes are present at the Site and several debris areas are located around these lakes. A limited cleanup was reportedly conducted in 1996 but was focused upon the Mosquito airplane crash site.

5.10.2 Present The Site is currently abandoned but it is still visited occasionally in winter by people from Baker Lake and Gjoa Haven for hunting and trapping.

5.11 CULTURAL FEATURES AND SPECIAL PLACES No ecological features were identified at the Site. No archaeological features were identified during the archaeological investigation; however, details of a suspected burial site have been provided to the Proponent. The location of the suspected burial is sensitive and cannot be shared in a public document but will be provided to the

Contractor.

Miscellaneous Project Information

Identification des répercussions et mesures d'atténuation proposées

See Environmental Impact Assessment report for details

Répercussions cumulatives

11 CUMULATIVE ENVIRONMENTAL EFFECTS
11.1 PAST AND EXISTING STRESSORS Since the 1950s when the Site was abandoned, its use has been relatively limited. A land use permit was granted to Bathurst Inlet Developments Ltd. in 1993 (unknown end date) to rehabilitate the two airstrips at the Site and operate a fuel cache. The site may be used occasionally as a campsite during hunting and trapping visits from Baker Lake or Gjoa Haven.
11.2 RESULTING CONTRIBUTION This project involves the removal of all impacted sediment and the majority of debris on Site. Clean (unpainted and untreated) wood waste will be burned, and the ash removed. Any large equipment that cannot be removed from Site will be cleaned and consolidated into a single location if possible. The overall goal is to enhance the quality of habitats and wildlife and to remove human health and ecological health risks at the Site.
11.3 EFFECTS ON RENEWABLE RESOURCES While natural resources will be used (e.g., borrow, water) and impacted (e.g., borrow sources, wildlife, vegetation) during the course of work, the impacts will be limited to the 10-16 weeks over 1.5 years. Further, the intent of the project is to improve the natural environment and thus is anticipated to have a positive long-term effect on fish and wildlife species and their habitat. With proper mitigation measures in place, no negative cumulative impacts are anticipated on natural resources.
11.4 EFFECTS ON HERITAGE VALUES No archaeological sites requiring protection have been identified on Site, however, a suspected burial site has been identified. With the implementation of a buffer and "no go zone", no negative impacts are expected.
11.5 MITIGATION MEASURES No negative cumulative impacts have been identified and no unique mitigation measures have been developed to address cumulative impacts.

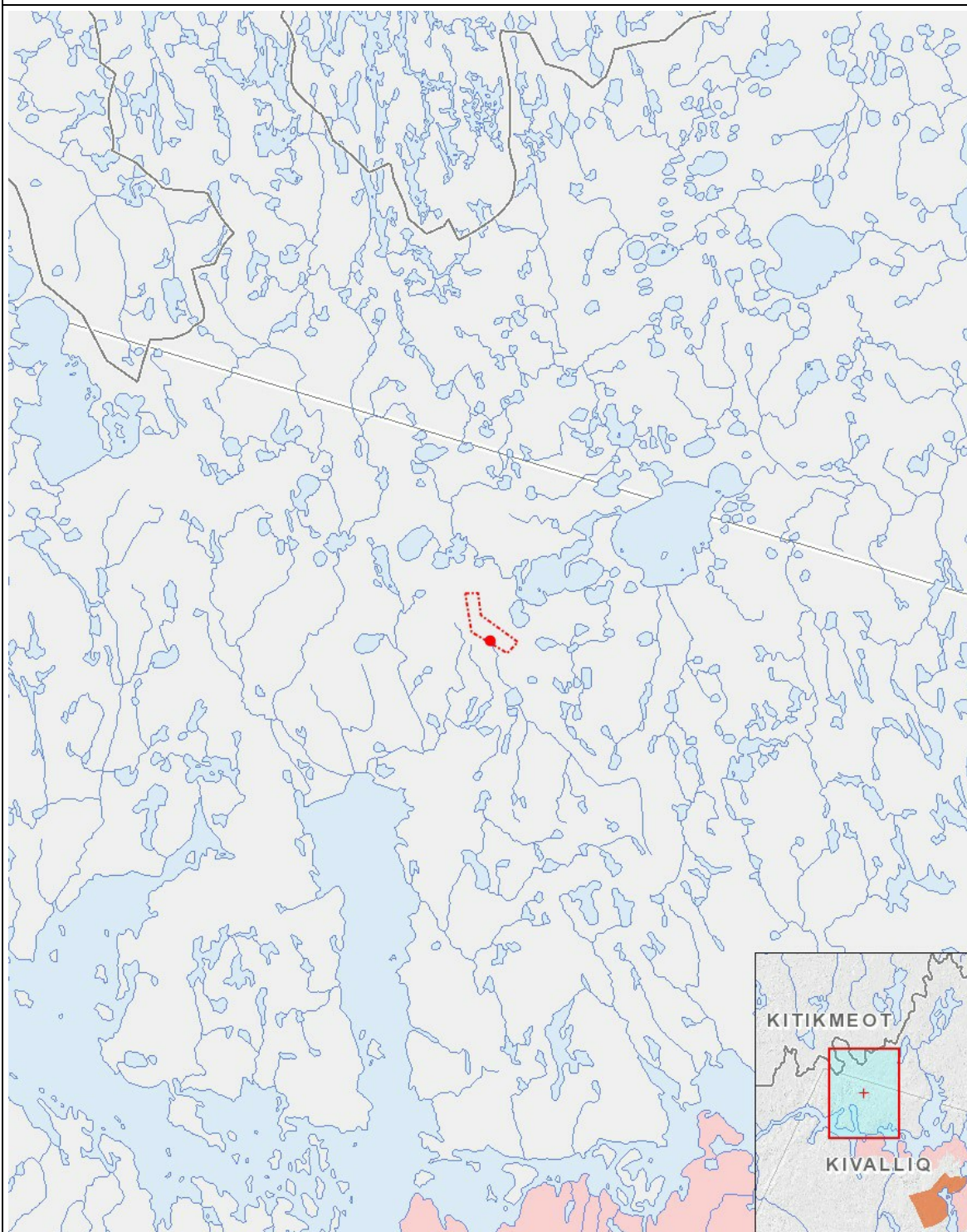
Impacts

Identification des répercussions environnementales

	PHYSICAL	Designated environmental areas	Ground stability	Permafrost	Hydrology / Limnology	Water quality	Climate conditions	Eskers and other unique or fragile landscapes	Surface and bedrock geology	Sediment and soil quality	Tidal processes and bathymetry	Air quality	Noise levels	BIOLOGICAL	Vegetation	Wildlife, including habitat and migration patterns	Birds, including habitat and migration patterns	Aquatic species, incl. habitat and migration/spawning	Wildlife protected areas	SOCIO-ECONOMIC	Archaeological and cultural historic sites	Employment	Community wellness	Community infrastructure	Human health
Construction																									
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Exploitation																									
Airstrip use or construction	-	M	-	-	M	N	-	M	M	-	N	N	N	N	N	M	M	-	-	M	-	-	-	-	-
Camp	-	M	-	-	M	N	-	M	M	-	N	N	N	M	M	M	M	-	-	M	-	-	-	-	-
Quarry/Borrow pit	-	M	M	-	M	N	-	M	M	-	N	N	N	M	M	M	M	-	-	M	-	-	-	-	-
Access Road	-	-	-	-	M	N	-	-	M	-	N	N	N	M	M	-	M	M	-	M	-	-	-	-	-
Site Cleanup/Remediation	-	M	-	-	P	N	-	M	P	-	N	N	N	M	P	P	P	-	-	M	P	P	-	P	P
Désaffectation																									
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

(P = Positive, N = Négative et non gérable, M = Négative et gérable, U = Inconnue)

Site du projet



Liste des géométries de projet

- | | | |
|---|----------|---------------------|
| 1 | polyline | Pelly Lake Site |
| 2 | point | Drinking Water Lake |