



NIRB Application for Screening #125993

Renewal and Amendment of the Municipality of Resolute Bay Solid Waste Facility, Water License # 3BM-RES2025

Application Type: New

Project Type: Municipal and Industrial Development

Application Date: Thursday, July 3, 2025

Period of operation: from 2029-09-16 to 2048-09-15

Project Proponent: Municipal Works Division
Government of Nunavut
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Iqaluit Nunavut x0a0h0
Canada
Phone Number:: 867-975-5478, Fax Number::

Non-technical project proposal description

Inuinnaqtun: Ingilradjutit ukualu Aulapkaidjutit Nunavunmi, Haamlatkut Havaangit uuktuliqtut ihuaqhaqlugu imakktut laisit 3BM-RES2025 pidjutigiblugit Haamlangani Qausuittuq. Nutaag imakktut lasiani ilauniaqtut nutaat havaktauhimajut iqakktut najugait kitut tunihijut nunallaanun ihuarnikktut ikaquurvikhainik, anginirhakkut ihuaqhijuumirutiniagtut auladjutinun, ilaujut inuuhirmun gajangnautinunlu, auladjutinunlu nalaumaliqlugit maliganun maligahanun.

Nanminiqarnikkut pidjatauut nutaamun ikakuurvikhamun iniqtaujuq, kitut pitquidjutit havaktauniaqtut naunaijattiarnikkut idjuhiagut najugaani. Taimaali, atuqtaujuq iqakuurviup najugaa ihumagijaujuq nutaanguqtiqtauluni, kihimi kinguani pivalliadjutit nanminiqarnirmun pidjatauunun, ihumagijaujuq tamna nutaaq najugaa havaktauluni. Kinguani atuqtaujuq iqakkut najugaa umingniaqtuq, uvalu iqakkut katitiqtauniaqtut nutaamun najugahaanun, kihimi, utuqqat havigalgit iqakkut piinariaqaqtut Haamlatkunun tamajakhainun hunanik ihariagijamingnik. Nutaaq iqakuurvik ihuaqhijuumirniaqtut quliit, ihuaqtut imap qurluaqvikhait ihuaqhaqtaulutik, iqakunik hapumiutikhanik najugaani kikliqariangini angiqtauhimangitut itirnirmun. Najugaa piqarniaqtuqlu ilaliutihimajunik kuviraqvikhamik avikturiangini iqakkut, qagaqtaqtut hivuuranaqtullu iqakkut, ilaujut najugaa humi Haamlatkut iqakuurviit haujaujut pittailinirun ulapiqinirmun huradjanaun. Kinguliqpaaq, nutaaq apqutikhaq havaktauniaqtuq najugaanun iqakuurviup. Havalivikhaat niriugijaujuq uvani 2026mi iniqtauluni 2027mi.

Personnel

Personnel on site: 10

Days on site: 73

Total Person days: 730

Operations Phase: from 2026-06-15 to 2029-09-15

Operations Phase: from 2029-09-16 to 2048-09-15

Post-Closure Phase: from to

Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
New solid waste facility, located on the northwest side of the Municipality. A new access road will be constructed to reach the site.	Municipal and Industrial Development	Municipal	N/A	N/A	<10 kilometers

Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
Resolute Bay	Ian Dudla	Hamlet SAO	2024-08-21
Resolute Bay	Municipal Council for Resolute Bay	Council presentation was presented. Council Motion pending.	2025-03-24

Authorizations

Indicate the areas in which the project is located:

Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Nunavut Water Board	Water License 3BM-RES2025	Active	2020-03-30	2025-03-29

Project transportation types

Transportation Type	Proposed Use	Length of Use
Air	Personnel and goods will be flown in by air	
Water	Large items will arrive via Sealift	
Land	Items will be transported to site via road	

Project accomodation types

Community

Other,

Material Use

Equipment to be used (including drills, pumps, aircraft, vehicles, etc)

Equipment Type	Quantity	Size - Dimensions	Proposed Use
Heavy	2	xyz	Front end loader/bulldozer and excavator for ditching, grading, and material moving
Vibratory roller	1	xyz	Compaction of soils
Pick up truck	1	xyz	Transport of wastes from community to solid waste facility for operations phase
Aggregate	1	xyz	For the onsite earthworks. The source of the granular material will be the existing quarry as understood by the local Council. It is understood that there is sufficient quantities of material within the local quarry.
Granular	1	xyz	For the onsite earthworks during construction. For landfill cover material during operations. The source of the granular material will be the existing quarry as understood by the local Council
Waste Incinerator	1	xyz	For onsite waste burning and removal.

Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
Diesel	fuel	1	10000	10000	Liters	Used to fuel heavy equipment during construction

Water Consumption

Daily amount (m3)	Proposed water retrieval methods	Proposed water retrieval location
0	Water withdrawal and wastewater discharge are authorized under the water license 3AM-RUT2035.	

Waste

Waste Management

Project Activity	Type of Waste	Projected Amount Generated	Method of Disposal	Additional treatment procedures
Landfill	Combustible wastes	60 kg annually for the operations phase only	Incinerator	Capping
Landfill	Hazardous waste	0.62 cubic metres per capita per year	Store in sea cans. Backhaul to an approved facility for final disposal.	Segregate from household and non-combustible wastes.
Landfill	Non-Combustible wastes	3.16 cubic metres per capita per year	Store in landfill. Compact and cover with granular material.	Segregate from household (combustible) solid waste.

Environmental Impacts:

All environmental regulations will be followed as laid out in the water license 3BM-RES2025

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

This is critical municipal infrastructure within the municipal bounds.

Description of Existing Environment: Physical Environment

The physical environment can be described based on multiple assessments performed by Dillon Consulting. Both sites appear to consist of coarse-grained sand and gravel down to shallow bedrock. The bedrock surface was within 0.3 to 2.4 metres below grade (mbg) throughout Site A and was either exposed or within 0.6 m throughout the explored areas of Site B. As noted above, some extensive areas of severely fractured bedrock were observed at the borehole locations, resulting in a highly variable depth to sound bedrock at both sites. Some areas of thicker overburden/shattered bedrock may exist within the unexplored extents of the sites. Overall, it appears both sites are similar from a geotechnical perspective, and both do not appear to be in close proximity to a seismic fault, or a low-lying coastal area that could be affected by storm surges or sea level rise. The maximum active layer thickness throughout the sites was found to be approximately 0.7 m and the current Mean Annual Ground Temperature (MAGT) was found to be -11.9°C. Changes to the active layer thickness and MAGT throughout the life of the structure will be dependent on many variables. CSA PLUS 4011-19 provides that under a high greenhouse gas scenario the Mean Annual Air Temperature (MAAT) in Resolute Bay is estimated to increase by approximately 2.2°C over the next 30 years (by 2050) compared to the historic temperature trends which were available up to 2010. It is noted however, that recent research infers that greenhouse gas emissions over the next 30 years and beyond may be even higher than previously anticipated and new scenarios continue to be produced by global experts. Therefore, accurately estimating what the active layer thickness and MAGT will be 30 years from now was beyond the scope of the investigation. The historical temperature data was adjusted to incorporate the MAAT increase estimated by CSA PLUS 4011-19 and utilized simplified empirical methods to generate an estimated maximum active layer thickness for design. It was also assumed (conservatively) that the MAGT will rise in step with the MAAT. Based on the assessment, it was recommended that a design active layer thickness of 1.1 m and design MAGT of -9.7°C be used for design at the sites.

Description of Existing Environment: Biological Environment

Resolute Bay and the Project Study Area are located within the Parry Islands Plateau ecoregion, Northern Arctic ecozone (Environment and Climate Change Canada 1999). This region experiences a High Arctic ecoclimate and is characterized by sparse and patchy vegetative cover that includes mosses, low-growing herbs, and low-growing shrubs. The Project Study Area primarily consists of rocky terrain with very limited vegetation. Typical species found within this region include arctic poppy (*Papaver radicatum*), arctic willow (*Salix arctica*), *Dryas* spp., *Kobresia* spp., purple saxifrage (*Saxifraga oppositifolia*), and sedges (*Carex* spp.). Typical wildlife within this region includes Arctic Fox (*Vulpes lagopus*), Arctic Hare (*Lepus arcticus*), Caribou (*Rangifer tarandus*), Lemmings (*Lemmini* spp.), Muskox (*Ovibos moschatus*), Polar Bear (*Ursus maritimus*), and a variety of bird species. Specifically, 39 bird species have been identified with the potential to occur within this region. The Project Study Area primarily consists of terrestrial habitat with a variety of highly seasonal watercourses and waterbodies. Three named waterbodies are located south of the Resolute Bay

Airport and include Char Lake, Marida Lake, and Resolute Lake. These waterbodies have the potential to provide natural habitat for bird species. The western portion of the Project Study Area includes a stretch of approximately 5.8 km of marine shoreline from Cape Martyr to Allen Bay. This stretch is relatively exposed to oceanic conditions present through the Resolute Passage and is not likely to provide quality habitat for birds (e.g., waterfowl, shorebirds, etc.) that are typically associated with protected bays and inlets. Seabirds, which include many species of gulls, are known to travel and forage along exposed shorelines, such as these. From September to December, Polar Bears (*Ursus maritimus*) are observed at the local waste dump site because it is not fenced off and are known to cause issues within the community.

Description of Existing Environment: Socio-economic Environment

The relevant setback distances, siting considerations, topography, and areas of known interest to the community were illustrated on a constraints map. This map was used to identify areas for investigation and discussion as potential sites for future development. A version of this map was presented to the SAO, Mayor, and Council, and during the open house hosted on February 19, 2019. Additional information shared by the community was subsequently added to the map for completeness, such as the drop-off area. The application of the siting constraints on the map of the study area indicated that favourable sites for site development were limited. The airport setback requirements, combined with the setback from the drinking water source, occupy the majority of the land available to the west of the Municipality. The remaining available land located along the coastline is occupied by an archeological site, a cemetery, and the Relocation Monument. The east side of the Municipality is only accessible up to the river, which is reported to be impassable by truck. The area directly north-east of the Municipality is a popular picnic and recreational area. The area directly north of the Municipality is very steep, and considered to be unsuitable for development due to challenges associated with construction and road maintenance. Despite the airport setback requirements on the west side for the Municipality, this area was identified as the best area for future development, due mainly to accessibility. The large number of lakes and cultural sites further limits the options for site development. The current dump site was reviewed as part of the Study, and was determined to be unsuitable for future development.

Miscellaneous Project Information

The decommissioning of a disposal site, such as the uncontrolled dump site located in Resolute Bay, will require the preparation of a closure and post-closure plan. It is recommended that closure and post-closure activities outlined in the SWMNRC –Guidance Document be followed as best management practices. Once the new engineered landfill is operational, closure of the existing waste sites can commence. The final cover should consist, at a minimum, 600 mm of locally sourced soil material. Alternatively, a geosynthetic liner system may be considered subject to geosynthetic performance specification for cold environments. The final grades shall be sloped to promote positive drainage without erosion and allow for the future long-term use of the site. As part of the closure activities, the construction of drainage ditches, installation of groundwater wells, signs to avoid dumping, and possibly a fence to prevent unauthorized entry or illegal dumping at the site shall be considered. As part of the post-closure phase, a report describing the final cover system and maintenance schedule, monitoring program, and remediation measures should be undertaken. Remediation measures should include contingencies and repair instructions for settlement and erosion of the cover system, surface and groundwater impacts, and repair instructions for leachate seepage. The environmental monitoring of the groundwater and surface water should be performed on an annual basis and be adjusted over time based on the findings. As well, site inspections should be performed at regular intervals to confirm any maintenance requirements (i.e., final cover, monitoring wells, drainage, and fencing). It is important that the records associated with this post-closure plan are kept for reference in the event of future redevelopment of the site or the land surrounding it.

Identification of Impacts and Proposed Mitigation Measures

Proposed facility upgrades have been developed based on the deficiencies noted in the stamped Business Case, which summarizes compliance concerns regarding current practices and conditions at the MSW dump and burning site, operational concerns, health and safety concerns, potential impacts to the environment, and based on previous reports and discussion with the community and the GN. The improvements proposed in the proceeding sections are aimed at rectifying the numerous deficiencies noted, including, primarily, the lack of a suitable MSW disposal facility in the community of Resolute Bay. The improvements centre on the construction of a new solid waste management facility. Due to historic waste burning and burying practices at the MSW dump and burning site, it is not feasible to upgrade the

site to a suitable condition for long-term use. The objective of the facility upgrade is to provide the community with a suitable MSW disposal site that will bring waste management operations in Resolute Bay in line with best practices and create a safer facility for the community and for the environment. The required facility improvements include the construction of a new waste management site at a new location. The new site is the preferred site (Alternative Site A) identified in the 2021 Resolute Bay Solid Waste Facility Planning Study (Dillon, 2021). The use of the existing MSW dump and burning site and drop-off area will be discontinued and the site will be closed. The new site will meet the waste management needs of the community for a minimum of 20 years and will allow for the consolidation of the existing sites into one fully functioning waste management facility. It is recommended that the scrap metals storage site be closed to the public but remain available to municipal staff to serve the Hamlet for their materials laydown needs.

Cumulative Effects

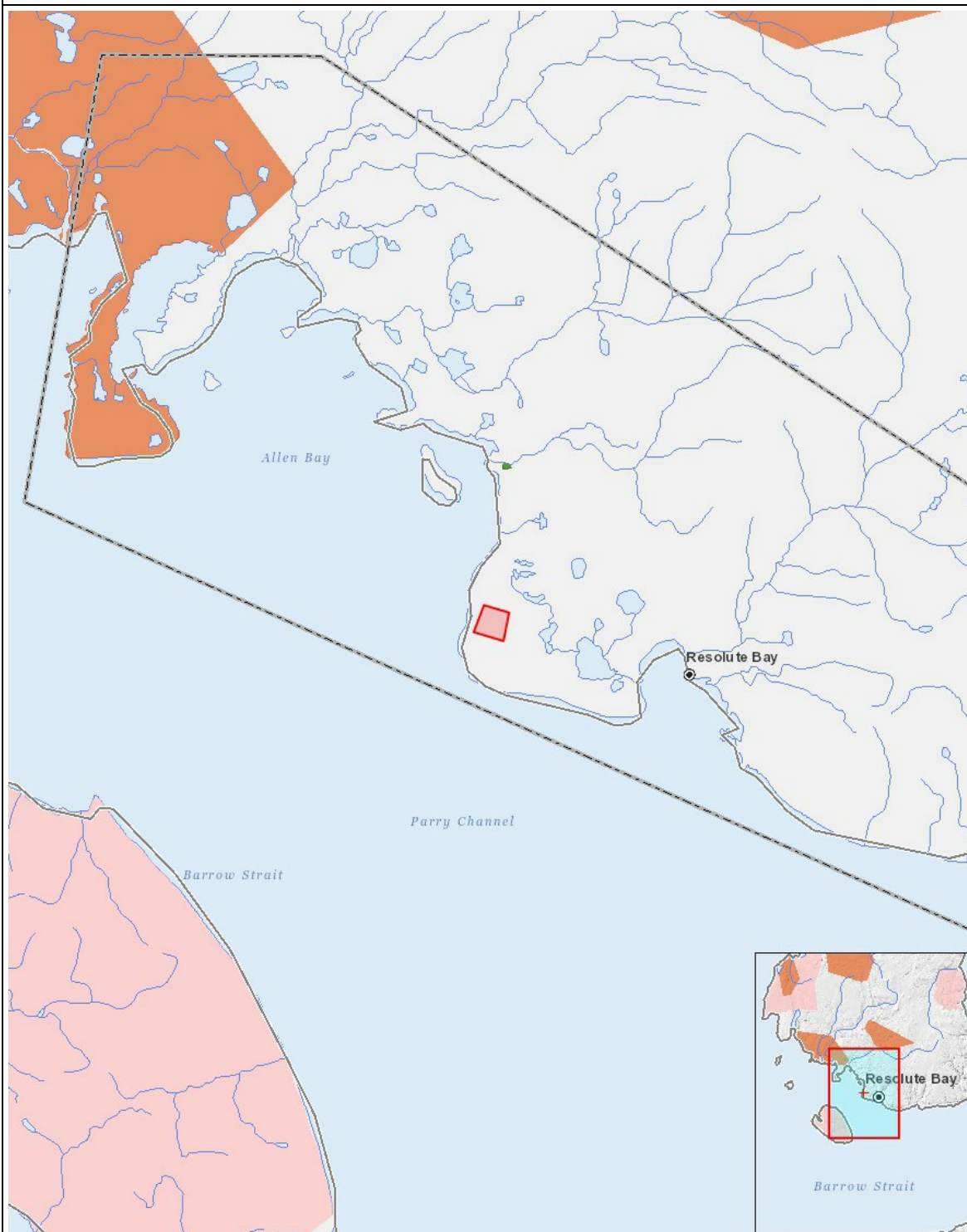
Impacts

Identification of Environmental Impacts

	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																									
Municipal and Industrial Development	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operation																									
Municipal and Industrial Development	-	-	-	-	P	-	-	-	-	-	-	P	-	-	P	P	P	P	P	-	P	P	P	P	P
Decommissioning																									
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

(P = Positive, N = Negative and non-mitigatable, M = Negative and mitigatable, U = Unknown)

Project Location



List of Project Geometries

- 1 polygon New solid waste facility, located on the northwest side of the Municipality. A new access road will be constructed to reach the site.