Phase I Environmental Site Assessment - Resolute Bay Wastewater Treatment Facility Site Selection, Resolute Bay, Nunavut

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Executive Summary

EXP Services Inc. (EXP) was retained by the Government of Nunavut (GN) Department of Community and Government Services to complete a Phase I Environmental Site Assessment (ESA) for an area proposed to be developed as the site of a new Wastewater Treatment Facility to service the Hamlet of Resolute Bay municipal effluent treatment requirements. The subject site is bordered to the east by existing wastewater treatment infrastructure (Macerator Building, abandoned Wastewater Treatment Plant building, and outfall), to the south by an unnamed roadway and undeveloped land, to the north by Tudjaat Ring Road, and to the west by undeveloped land followed by an above ground non-operational gasoline storage facility. The subject site itself is presently undeveloped and approximately 150 m from the Resolute Bay tide water mark. EXP understands that the client has requested this ESA as part of their due diligence.

The Phase I ESA was completed in general accordance with the Government of Nunavut Guideline for Contaminated Site Remediation (2009) and Canadian Standard's Association CAN/CSA Z768-01 (R2016). As per Z768-01, the scope of work included a review of historical land use, a visual reconnaissance of the subject site and surrounding properties; and interviews with person(s) having knowledge of past and present site activities.

The general environmental management and housekeeping practices were reviewed as part of this assessment insofar as they could impact the environmental condition of the property, however, a detailed review of regulatory compliance issues was beyond the scope of our investigation. This Phase I ESA does not constitute an audit of environmental management practices, indicate geotechnical conditions or identify geologic hazards.

Based on the findings of the Phase I ESA no areas of environmental concern for the subject site warranting further investigation were identified. Therefore, no further work is recommended.

This executive summary is a brief synopsis of the report and should not be read in lieu of reading the report in its entirety.

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1 Introduction

EXP Services Inc. (EXP) was retained by the Government of Nunavut (GN) Department of Community and Government Services (herein referred to as the GN) to complete a Phase I Environmental Site Assessment (ESA) for an area between the existing wastewater treatment system Macerator Building and a currently non-operational above ground gasoline storage facility. The area is located approximately 400 m southwest of the center of the Resolute community, and setback approximately 150 m from the shoreline of Resolute Bay. It is proposed that this area will serve as the location for construction of a new Wastewater Treatment Facility (WTF) to service the requirements of the community of Resolute Bay. The proposed location is hereinafter referred to as the 'subject site'. EXP understands that the client has requested this ESA as part of their due diligence. The community of Resolute Bay is located in the High Arctic on the south coast of Cornwallis Island and is part of the Qikiqtaaluk (Baffin) Region of Nunavut.

1.1 Objective

The purpose of the Phase I ESA is to identify actual and potential site contamination through non-intrusive means involving the evaluation and reporting of existing information collected through records review, site visit, and interviews.

A Phase I ESA is a systematic qualitative process to assess the environmental condition of a site based on its historical and current uses. The Phase I ESA was completed for environmental due diligence purposes, and it was undertaken in general accordance with the Government of Nunavut Guideline for Contaminated Site Remediation (2009) and Canadian Standard's Association CAN/CSA Z768-01 (R2016).

1.2 Site Description

The subject site is located on the south side of Tudjaat Ring Road and is approximately 400 m southwest of the central Resolute Bay community area. It is bordered to the east by a Macerator Building (part of the existing wastewater treatment system) and abandoned wastewater treatment building (understood to have never been operational), to the south by generally undeveloped land with approximately 150 m distance to the Resolute Bay, to the north by Tudjaat Ring Road, and to the west by undeveloped land followed by a non-operational above ground petroleum (gasoline) storage facility. The subject site on which the new WTF facility will be built is understood to be essentially undeveloped land.

A key plan and site plan are provided in Appendix 2.

2 Scope of Investigation

The scope of work for the Phase I ESA consisted of the following activities:

- Reviewing the historical occupancy of the subject site through the use of available archived and relevant municipal and business directories, fire insurance plans (FIPs), topographical maps, and aerial photographs;
- Review any previous environmental related reports;
- Contacting municipal and territorial agencies to inquire on the existence of records of environmental regulatory non-compliance, if any, and reviewing such records where available;
- Obtaining an EcoLog Environmental Risk Information Services Ltd. (ERIS) report for the subject site and surrounding properties within a 250 metre radius of the centre of the site;
- Reviewing available geological maps and zoning map for the vicinity of the subject site;
- Conducting a site reconnaissance of the subject site in order to identify the presence of actual and/or potential environmental contaminants or concerns of significance;
- A review of the subject site, without sampling or testing, for the possible presence of various designated substances including asbestos-containing materials, lead paint, and PCB-containing electrical equipment;
- Conducting interviews with designated site representative(s) and persons with general knowledge of the Resolute Bay area as a resource for current and historical site information, as well as to provide EXP staff with unrestricted access to all areas of the subject site (during a December 2-3, 2019 site visit, EXP met with Council and also had a public meeting to discuss the proposed WTF site location);
- Reviewing the current use of the subject site and any land use practices that may have impacted its environmental condition;
- Reviewing the current use of the surrounding properties and any land use practices that may have impacted the environmental condition of the subject site; and,
- Preparing a report to document the findings.

In completing the scope of work, the general environmental management and housekeeping practices were reviewed as part of this assessment insofar as they could impact the environmental condition of the property; however, a detailed review of regulatory compliance issues was beyond the scope of our investigation.

EXP personnel who conducted assessment work for this project included Tony Whalen, P.Eng. (site visit), Boris Allard, P.Eng. (site visit), John Sims, P.Eng., P.Geo. (NB) (site assessor and report writer), and Carl Hentschel, P.Eng., PMP (NU) (report reviewer). A summary of the key environmental site assessment staff and their qualifications is provided in Appendix 1.

3 Record Review

3.1 Phase I ESA Study Area Determination

EXP conducted a records review of available information in accordance with the Government of Nunavut Guideline for Contaminated Site Remediation (2009) and Canadian Standard's Association CAN/CSA Z768-01 (R2016) to establish the land use history of the subject site and the adjacent properties.

At the time of the site reconnaissance, land use within 250 metres of the site included undeveloped land, apart from local community roadways (e.g. Tudjaat Ring Road is located at the northern boundary of the site), a Macerator Building and former un-commissioned wastewater treatment plant building located to the immediate east, undeveloped land followed by a non-operational gasoline/ petroleum storage facility to the west, and ocean (Resolute Bay) to the south.

3.2 First Developed Use Determination

Based on a review of available historical aerial photographs, historical maps, and other records, it appears the subject site has not yet been developed.

3.3 Fire Insurance Plans

The *Catalogue of Canadian Fire Insurance Plans 1875 – 1975* (Catalogue) via a request to EcoLog ERIS was used to determine if fire insurance plans (FIPs) for the subject site existed. No FIPs were available for the subject site.

3.4 Chain of Title

Based on the historical information available, a chain of title was not considered necessary and therefore not completed.

3.5 Site Operating Records

Since the proposed subject site for construction of the new WTF was previously undeveloped there are no Site Operating Records for the subject site. Site operating records for adjacent land use to the east, notably the Macerator Building and the un-commissioned Wastewater Treatment Plant are understood to not be available or exist; no Site Operating Records if they exist were provided for review for the non-operational gasoline/ petroleum storage facility located to the west.

3.6 Previous Reports

EXP was not provided any previous environmental reports to review. *Note: It is EXP's informal understanding that the Government of Nunavut Department of the Environment's internal records may have environmental report(s) on the gasoline storage facility in a database. However, as this database is not publicly accessible, EXP cannot confirm this.*

3.7 Regulatory Information Environmental Source Information

Regulatory agencies at the territorial and municipal levels were contacted to obtain information regarding environmental permits, past or pending environmental control orders or complaints, outstanding environmental regulatory non-compliance issues and Sewer Use By-Law infractions. EXP did not identify the need to contact any federal agencies.

The following agencies were contacted:

- The Hamlet of Resolute Bay

- Government of Nunavut Petroleum Agency

3.7.1 Municipal Records

The Resolute Bay Lands Development Office was contacted to request any pertinent information about the history of the subject site and surrounding properties but as of the time of writing no response had been obtained. Should information be forthcoming which may alter the conclusions provided herein, EXP will provide an update. A GN zoning map of the community dated August 22, 2017 indicates the subject site is zoned industrial land use.

3.7.2 Hazardous Materials Spills Database

EXP consulted the online Hazardous Materials Spills Database (HMSD), maintained by the Government of Northwest Territories, Department of Environment and Natural Resources. The subject site address or site description was not found within the database.

The community of Resolute Bay was searched on the HMSD. While 26 spill report entries were found for the Hamlet of Resolute Bay (refer to list provided in Appendix 3), based on the (often imprecise) "Location Description" caption provided, most and possibly all of the larger spills appear to have been associated with the airport area, airport sewer lagoon, and tank farm area. From the subject site of the proposed new WTF location, the airport is located approximately 4.8 km to the northwest, and the tank farm (old and new facilities) is located 1.8 km on the opposite (west) side of the Bay. The likelihood of impacts from spills at these locations (airport and tank farm areas) to impact the subject property is considered extremely remote.

For the remaining spills, approximately 10 spills are identified "generically" with location descriptions entitled as "Resolute Bay". In general, these are small spills (e.g. generally fall within the range of 1 to 200 liters). Therefore, although the location of these spills relative to the subject site is not known, the relatively small volumes involved is expected to have low potential (if any) to impact the subject site. There were no spill incidents that could be conclusively associated with the former gasoline storage facility located west of the subject site.

Note: It is EXP's informal understanding that the Government of Nunavut Department of the Environment's internal records may have environmental report(s) on the gasoline storage facility in a database. However, as this database is not publicly accessible, EXP cannot confirm this.

3.8 EcoLog ERIS Database Search

A search of territorial and federal databases for records pertaining to the subject site and properties within 250 metres of the subject site was conducted by EcoLog Environmental Risk Information Services (or EcoLog ERIS). EcoLog ERIS is an environmental database and information service provider. EXP has confirmed neither the completeness nor the accuracy of the records that were provided. A copy of the EcoLog ERIS report is provided in Appendix 3.

The EcoLog ERIS report listed 14 spill records, all of which were also identified on the HMSD list (see above). All sites in the EcoLog report were identified as unplottable. Unplottables are defined in the EcoLog report as *"….records that could not be mapped due to various reasons, including limited geographic information. These records may not be in your study area, and are included as reference."*

3.8.1 Aerial Photographs

EcoLog ERIS was also requested to provide aerial photographs for the subject site and surrounding area for each decade of record, where available. A copy of the aerial photos and related report is provided in Appendix 4. The following table summarizes the EcoLogERIS aerial photo date search as provided in the report and summarizes development and land use history of the subject site and adjacent properties (where practical) as interpreted from the reviewed available aerial photographs (and related imagery, e.g. recent Google image).

Table 3.8: Development and Land Use History Summary

Aerial Photograph (year)	Details
1920	Not available.
1930	Not available.
1949	No development interpreted (very poor image quality).
1950	Not available.
1969	Minimal if any development on the subject property interpreted. Dark "pixels" to the southwest and northwest suggest the possibility of small structures (cabins or sheds?) to the northwest at distance in the range of 0.5 to 1 km.
1974	The subject property and surrounding areas remain essentially unchanged other than roadway to the west and south of the subject property. Possible small structures (cabin/ shed?) in the immediate area of the subject property.
1987	Image is very poor quality and essentially "whited out" in immediate area of interest. Building assumed to be the existing but never operational wastewater treatment plant building appears. Just to the west of this is the existing Macerator Building that is understood to currently form part of the existing wastewater treatment system. The trace of the generally north-south trending effluent and outfall piping from Ring Road to the shoreline can be seen. Possibly additional small cabin/ shed structures along the shoreline south and southwest of the subject site. Tudjaat Ring Road has been "constructed" and passes immediately to the north of the subject site.
1995	First reasonable quality image. Presence of above ground petroleum storage tank (understood to have been gasoline and non-operational since 2010) with perimeter containment berm – this infrastructure is located approximately 70 m west northwest of the subject site. In general, no other significant infrastructure other than the non operational wastewater treatment plant building noted in the 1987 image, and the small Macerator Building located immediately adjacent (west side) of the non-operational WWTP building. Existing (2019) roadway pattern essentially in place.
2000	Not available.
2019 (Google Earth)	The subject site and surrounding areas remain essentially unchanged.

The non-operational above ground storage tank is located approximately 70 m west northwest of the subject property and separated by a buffer of undeveloped land. It is understood (verbal communication to EXP staff, site visit September 28, 2019) that this tank was for gasoline storage and was taken out of service in 2010.

3.8.2 Geology, Hydrogeology and Topography

The following information sources were reviewed to determine the nature of the subsurface materials at the site:

1. Geological Survey of Canada (de Kemp, Gilbert and James, 2006), Geology Map of Nunavut (https://wp-uploads.cngo.ca/geology_of_nunavut.pdf).

According to the above map, the site is located within the Arctic Platform Geologic Province with bedrock geology at Resolute Bay consisting of Paleozoic Silurian carbonate and siliciclastic rock.

Topographically, the subject property's location has a general downslope towards the south. Elevation at the north "boundary" of the site adjacent Tudjaat Ring Road is approximately 7 m (https://en-ca.topographic-map.com/maps/rnjp/Resolute/) and over a distance of approximately 130 m, drops to 2 m elevation at the roadway to the south, and 0 m at the shoreline (located approximately 200 m south of Tudjaat Ring Road) (slope of 3 to 4 %). Based on this slope and the proximity of the shoreline approximately 200 m southward, the local direction of groundwater flow is inferred to be south to southwest. However due to the presence of permafrost and irregular topography, shallow groundwater is only able to migrate during the warm season when the active layer thaws in variable directions.

3.8.3 Water Bodies and Areas of Natural Significance (ANSI)

The nearest significant surface water body is Resolute Bay which lies approximately 150 to 200 meters to the south of the subject site. Approximately 110 m east of the Macerator Building and non-operational WWTP a seasonal drainage feature which appears from aerial photography to include shallow ponds and marshy areas is located. It is understood that a portion of this area is used by local hunters for cutting of meat from hunting activities (see section 4, below).

Based on information reviewed, there were no areas of natural or scientific interest identified as located in the vicinity of the subject site.

3.9 Summary of Records Review

Based on a review of the available records no areas of potential environmental concern (APECS) were identified.

4 Interviews

Interviews were conducted by EXP with the individuals identified to be the most knowledgeable about both the current and historical subject site uses. The interviews were conducted in order to obtain information to assist in identifying areas of potential environmental concern and identify details of potentially contaminating activities or potential contaminant pathways, in, on or below the subject site.

During the completion of this Phase I ESA, the EXP project environmental assessor spoke with or contacted by email EXP staff (Mr. Farrell McGovern) with a general knowledge of the community, and staff members who completed site visits (Mr. Tony Whalen, September 28, 2019, and Mr. Boris Allard, December 2-3, 2019), and local community members. Based on these discussions no files pertaining to present or historic environmental issues on or in the vicinity of the subject property were identified. The site reconnaissance report prepared for the September 28, 2019 site visit indicated that the non-operational petroleum tank located 70 m to the northwest was taken out of service in 2010, is owned by the GN, and has infrastructure still in place (EXP T. Whalen, personal communication with Mr. Philip Chubbs, ATCO Frontec Ltd. Site Manager – Resolute Bay).

During EXP's December 2-3, 2019 site visit, Mr. Boris Allard spoke with Council and had a public meeting relating to the location of the proposed new WTF. No issues were identified during these meeting regarding the proposed location of the new WTF. It was reported that the adjacent water body (drainage feature) to the east is used by local hunters for cutting up meat from hunting activities, and that this meat is used to feed sled dogs. Meat cut for human consumption is done at points at each side of the Bay and is therefore well removed from the existing and proposed wastewater infrastructure.

5 Site Reconnaissance

5.1 General Requirements

On September 28, 2019 Mr. Tony Whalen of EXP conducted a site visit in accordance with EXP's internal health and safety protocols. A follow-up site visit was conducted during December 2 – 3, 2019 by Mr. Boris Allard of EXP. The purpose of these site visits was to screen the subject site and nearby area regarding feasibility for location of the proposed WTF including observe general conditions of the subject site and adjacent areas.

The general observations of the subject site from these site visits constitute part of this Phase I environmental assessment insofar as they could have implications regarding the environmental condition of the property; however, a detailed review of regulatory compliance issues was beyond the scope of EXP's investigation.

Exterior observations of the subject property and surrounding properties were conducted. The exterior observations were recorded by walking over the grounds of the study area. Adjoining properties were observed from within the grounds of the subject site and adjacent areas.

Photographs of the subject site resulting from the two site visits and related image(s) are included in Appendix 5.

5.2 Visual Site Assessment

5.2.1 Site Description

The subject site is primarily undeveloped with an abandoned building (originally intended to have been a WWTP for the community), and Macerator Building (currently in service) to the immediate east. Further to the east the land was observed to be of a lower elevation and possibly susceptible to flooding and was observed to have significant activity in this lower lying area (lots of small boats and sled dogs; refer to Section 4 for land use in this area). To the west undeveloped land followed by a previously operational above ground gasoline facility which was reported to have been shut down in 2010 was observed. Some infrastructure was observed to be still in place at the non-operational gasoline storage facility (e.g tank, fencing). The non-operational gasoline storage facility is reported to be owned by the GN.

5.2.2 Heating and Cooling Systems

There is no heating or cooling system at the subject site.

5.2.3 Site Utilities and Services

In general, the site is not connected to any utilities. The Utilidor influent line to the Macerator Building, the Macerator Building and related effluent piping to the existing community sewer outfall is located east and south of the site (see September 28, 2019 site visit notes, Appendix 6). Power lines were noted in the area.

5.2.4 Site Use

The subject site is currently undeveloped.

5.2.5 Drains, Pits and Sumps

No sumps or pits are currently found on the subject site.

5.2.6 Storage Tanks

5.2.6.1 Underground Storage Tanks

EXP did not observe any evidence of underground storage tanks during the site reconnaissance.

5.2.6.2 Aboveground Storage Tanks

EXP observed one former above ground storage tank (AST) facility located approximately 70 m west northwest of the proposed WWTP subject site during the site reconnaissance. The AST was still observed as present and some related infrastructure was also observed. A buffer of undeveloped land separates this area from the subject site. No information on capacity or history of potential spills (if any) on the tank other than that it was taken out of service in 2010 and is still owned by the Government of Nunavut has been identified. *Note: It is EXP's informal understanding that the Government of Nunavut Department of the Environment's records could have environmental report(s) on this tank facility in a database. However, as this database is not publicly accessible, EXP cannot confirm this.* EXP contacted the Nunavut Petroleum Agency for information on this tank and spill history (if any) but as of the date of writing a response had not been received.

A former and an active above ground petroleum storage tank farms are located approximately 2 kilometers southwest and on the opposite side of the Bay. Previous spills from these facilities are expected to pose minimal potential to impact the subject property.

5.2.7 Chemical Storage and Handling and Floor Condition

There were no chemicals stored at the subject site.

5.2.8 Areas of Stained Soil, Pavement or Stressed Vegetation

No areas of stained soil were observed at the subject site although the site was covered in snow at the time of the site visits.

5.2.9 Fill, Debris and Methane

Methane gas-producing materials were not observed on the subject site.

5.2.10 Air Emissions

No air emissions concerns were identified at the time of the subject site visit.

5.2.11 Odours

No strong odours were noted in the subject site area during the site visits. It was reported that residents do note odours in the community which may be attributable to bad connections between residential sanitary service lines and the Utilidor system with some waste going into drainage ditches.

5.2.12 Noise

No excessive noise was detected at the subject site during the site visit.

5.2.13 Special Attention Items, Hazardous Building Materials and Designated Substances

5.2.13.1 Asbestos

Asbestos-containing materials (ACMs) are fibrous hydrated silicates and can be found in building materials as either "unbound" or "bound" asbestos. Friable asbestos refers to materials where the asbestos fibres can be separated from the material with which it is associated. Non-Friable asbestos refers to asbestos, which is associated with a binding agent (such as tar or cement). Friable asbestos is commonly found in boiler and pipe insulation. Non-Friable asbestos is typically found in roofing tars, floor and ceiling tiles, and asbestos-containing cement.

Occupational health and safety requirements with respect to ACMs are contained within the Government of Nunavut's *Safety Act* and more specifically *Consolidation of Asbestos Safety Regulations, R-016-92*. Additional

information pertaining to the management of waste ACM is provided in the Government of Nunavut's *Environmental Guideline for Waste Asbestos (January 2002)* and *Environmental Guideline for General Management of Hazardous Waste (January 2002.)*

No potential asbestos containing materials were identified on the subject site.

5.2.13.2 Lead

Lead has frequently been used in oil-based paints, roofing materials, cornices, tank linings, electrical conduits and soft solders for tinplate and plumbing. The use of lead-based paints (LBPs) was phased out circa 1976. Paint that was produced or used between 1976 and 1980 may contain small amounts of lead. Paint that was produced or used prior to 1950 may contain high levels of lead. The main concern regarding lead paint is its potential to become lead dust or chips either through deterioration and/or mechanical means (i.e., sanding, abrasion, etc.). Exposure to lead dust or chips occurs by ingestion or inhalation.

No potential lead containing paint or material was observed on the subject site. Possible lead based paint could be present on the non-operational petroleum storage tank to the west and on piping and structures of the Macerator Building and abandoned WWTP building to the east of the subject property.

5.2.13.3 Mercury

Mercury can be found in some batteries, light bulbs, old paints, thermostats, old mirrors, etc. Based on an investigation by Consumer and Corporate Affairs Canada, and an assessment of potential health risks by Health and Welfare Canada, in 1991 the decision was made to eliminate the use of mercury compounds in indoor latex paints. The Canadian Paint and Coatings Association (CPCA) supported the withdrawal and all Canadian manufacturers and formulators of the preservative voluntarily agreed to remove "interior uses" from their product labels.

No potential mercury containing equipment was identified on the subject site.

5.2.13.4 Polychlorinated Biphenyls

The manufacture of PCBs in North America was prohibited under the Toxic Substances Control Act (1977). Their use as a constituent of new products manufactured in or imported into Canada was prohibited by regulations in 1977 and 1980. As such, sites developed or significantly renovated after 1980 are unlikely to have PCBs-containing equipment on the Site. Potential equipment, which could contain PCBs include fluorescent mercury and sodium vapour light ballasts, oil filled capacitors and transformers. Any electrical equipment containing PCBs must be disposed in accordance with the Government of Nunavut's *Environmental Guideline for General Management of Hazardous Waste (January 2002)*. Ongoing operation of equipment containing PCBs is permissible.

No potential PCB containing equipment was identified on the subject site.

5.2.13.5 Urea Formaldehyde Foam Insulation

Formaldehyde is a pungent, colourless gas commonly used in water solution as a preservative and disinfectant. It is also a basis for major plastics, including durable adhesives. It occurs naturally in the human body and in the outdoor environment. Formaldehyde is used to bond plywood, particleboard, carpets and fabrics, and it contributes to "that new house smell.

Formaldehyde is also a by-product of combustion; it is found in tobacco smoke, vehicle exhaust and the fumes from furnaces, fireplaces and wood stoves. While small amounts of formaldehyde are harmless, it is an irritating and toxic gas in significant concentrations. Symptoms of overexposure to formaldehyde include irritation to eyes, nose and throat; persistent cough and respiratory distress; skin irritation; nausea; headache; and dizziness.

Urea-formaldehyde foam insulation (UFFI) was developed in Europe in the 1950s as an improved means of insulating difficult-to-reach cavities in the walls. It is typically made at a construction site from a mixture of urea-formaldehyde resin, a foaming agent and compressed air. When the mixture is injected into the wall, urea and formaldehyde unite and "cure" into an insulating foam plastic.

During the 1970s, when concerns about energy efficiency led to efforts to improve building insulation in Canada, UFFI became an important insulation product for existing buildings. The use of UFFI was banned in Canada in 1980.

No structures are present on the subject site, i.e. the presence of UFFI is not anticipated.

5.2.13.6 Radon

Radon is a colourless, odourless, radioactive gas that occurs naturally in the environment. It comes from the natural breakdown of uranium in soils and rocks. Exposure to high levels of radon increases the risk of developing lung cancer. This relationship has prompted concern that radon levels in some Canadian buildings may pose a health risk. Radon gas can move through small spaces in the soil and rock and seep into a building through cracks in concrete, sumps, joints and basement drains. Concrete-block walls are particularly porous to radon and radon trapped in water from wells can be released into the air when the water is used.

Due to the potential health concerns associated with radon, Health Canada released a guideline in June 2007 for a maximum acceptable level of radon gas of 200 Becquerels per cubic metre (Bq/m^3). Where radon gas is present and the annual radon concentration exceeds 200 Bq/m^3 in the normal occupancy area, Health Canada recommends taking the necessary actions to reduce radon levels.

The report *Cross-Canada Survey of Radon Concentrations in Homes, Final Report (https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/radiation/radon/survey-sondage-eng.pdf)* found that radon levels vary significantly across Canada, but that the Nunavut region and Prince Edward Island had the lowest percentages. Testing for radon gas is site specific. Radon gas is not anticipated to be a concern but relatively cost effective measures (e.g. sub-slab venting) can be put in place that minimize the potential for radon gas to accumulate in indoor air spaces. For example, for slab-on-grade construction, passive venting can be installed under the slab with vent riser which can be converted to active venting if needed should post-construction radon monitoring indicate potential problems.

5.2.13.7 Mould

Mould is found in the natural environment and is required for the breakdown of plant debris such as leaves and wood. Mould spores are found in the air in both the indoor and outdoor environments. In order for mould to grow it requires a food source (i.e. gypsum wallboard, carpets, wallpaper, wood, etc.) and moist conditions. Mould can have an impact on human health depending on the species and concentration of the mould. Health effects can include allergies and mucous membrane irritation.

Currently there are no regulations governing mould; however, there are several guidelines addressing mould assessments and abatement. At the moment the industry standards include the Canadian Construction Association (CCA) document 82-2004 titled “mould guidelines for the Canadian construction industry” and the Environmental Abatement Council of Ontario (EACO) guidelines titled “EACO Mould Abatement Guidelines, Edition 2 (2010)”.

No mould concerns were identified during the site visit.

5.2.13.8 Other Substances

No other special attention substances (such as acrylonitrile or isocyanates) were suspected to be present at the subject site at the time of the site visit.

5.2.14 Processing and Manufacturing Operations

There are no manufacturing operations on the subject site.

5.2.15 Hazardous Materials Use and Storage

There are no hazardous materials used/stored on the subject site.

5.2.16 Vehicle and Equipment Maintenance Areas

There are no vehicle maintenance or large equipment maintenance areas on the subject site.

5.2.17 Oil/Water Separators

No oil/water separators were observed or reported during the subject site visit.

5.2.18 Sewage and Wastewater Disposal

No sewage was being generated on the subject site. As noted above, existing Utilidor, Macerator Building and outfall piping are located immediately to the east of the subject site.

5.2.19 Solid Waste Generation, Storage & Disposal

No solid waste was being generated at the subject site.

5.2.20 Liquid Waste Generation, Storage & Disposal

There are no liquid wastes being generated at the subject site.

5.2.21 Unidentified Substances

No unidentified substances were present on the subject site.

5.2.22 Hydraulic Lift Equipment

Mechanical equipment such as piston type elevators, vehicle in-ground hoists, loading docks and compactors are typically hydraulically operated. As such, these types of equipment contain hydraulic oils which are operated under high pressures and can be released into the environment from leaks or equipment failures.

No hydraulic lift equipment was observed at the subject site.

5.2.23 Mechanical Equipment

No mechanical equipment was observed on the subject site.

5.2.24 Abandoned and Existing Wells

No apparent, abandoned or existing wells were observed at the subject site during the site visit.

5.2.25 Roads, Parking Facilities and Right of Ways

The subject site is bounded by roadways as indicated on Figures and imagery (e.g. aerial photos) included or appended to this report.

No apparent environmental issues with roadways in the area of the subject site were identified.

5.3 Adjacent and Surrounding Properties

A visual inspection of the adjacent properties and properties within 250 metres of the subject site was conducted from publicly accessible areas to identify the occupants and document the uses and sources of potential

environmental concerns that may impact the subject site. The findings of the adjacent property visual reconnaissance are as follows:

North: Tudjaat Ring Road to the immediate north; undeveloped in area north of this roadway for 230 m until south limit of Resolute developed community area is reached;

West: Minimal development – undeveloped land, then non-operational former gasoline/ petroleum storage tank approximately 70 m west, then unnamed roadway and undeveloped land to west;

East: Macerator Building, related Utilidor and piping, and abandoned never commissioned WWTP Building, then north-south oriented roadway and low area with boat and sled dog activity/use

South: Unnamed roadway, then shoreline and ocean approximately 130 m south of subject site.

No potentially contaminating activities were identified on the adjacent properties other than the non-operational (since reportedly 2010) gasoline storage tank, and existing wastewater infrastructure to the east.

5.4 Summary of Site Reconnaissance

The main potential APEC observed in the site and site area was the non-operational (since reportedly 2010) above ground gasoline storage facility to the west of the subject site. However, given the buffer of undeveloped land between the subject site and the former tank operation, and the observation that the tank is across gradient and that groundwater flow would be expected to be to the southwest toward the shoreline, this former storage tank and its operations are interpreted to have minimal potential to impact the subject site. Regarding the wastewater infrastructure, potential for environmental impact is interpreted to be low rationale including that it is understood the former Wastewater Treatment Plant was never brought into operation.

Note: It is EXP's informal understanding the Government of Nunavut Department of the Environment's records could have environmental report(s) on this tank farm facility in a database. However, as this database is not publicly accessible, EXP cannot confirm this.

6 Findings and Recommendations of Phase I ESA

Based on the findings of the Phase I ESA no areas of environmental concern for the subject site warranting further investigation were identified. Therefore, no further work is recommended.

7 Limitation of Liability, Scope of Report, and Third Party Reliance

Basis of Report

This report ("Report") is based on site conditions known or inferred by the investigation undertaken as of the date of the Report. Should changes occur which potentially impact the condition of the site the recommendations of EXP may require re-evaluation. Where special concerns exist, or the Hamlet fo Cambridge Bay ("the Client") has special considerations or requirements, these should be disclosed to EXP to allow for additional or special investigations to be undertaken not otherwise within the scope of investigation conducted for the purpose of the Report.

Where applicable, recommended field services are the minimum necessary to ascertain that construction is being carried out in general conformity with building code guidelines, generally accepted practices and EXP's recommendations. Any reduction in the level of services recommended will result in EXP providing qualified opinions regarding the adequacy of the work. EXP can assist design professionals or contractors retained by the Client to review applicable plans, drawings, and specifications as they relate to the Report or to conduct field reviews during construction.

Reliance on Information Provided

The evaluation and conclusions contained in the Report are based on conditions in evidence at the time of site inspections and information provided to EXP by the Client and others. The Report has been prepared for the specific site, development, building, design or building assessment objectives and purpose as communicated by the Client. EXP has relied in good faith upon such representations, information and instructions and accepts no responsibility for any deficiency, misstatement or inaccuracy contained in the Report as a result of any misstatements, omissions, misrepresentation or fraudulent acts of persons providing information. Unless specifically stated otherwise, the applicability and reliability of the findings, recommendations, suggestions or opinions expressed in the Report are only valid to the extent that there has been no material alteration to or variation from any of the information provided to EXP. If new information about the environmental conditions at the Site is found, the information should be provided to EXP so that it can be reviewed and revisions to the conclusions and/or recommendations can be made, if warranted.

Standard of Care

The Report has been prepared in a manner consistent with the degree of care and skill exercised by engineering consultants currently practicing under similar circumstances and locale. No other warranty, expressed or implied, is made. Unless specifically stated otherwise, the Report does not contain environmental consulting advice.

Complete Report

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment form part of the Report. This material includes, but is not limited to, the terms of reference given to EXP by the Client, communications between EXP and the Client, other reports, proposals or documents prepared by EXP for the Client in connection with the site described in the Report. In order to properly understand the suggestions, recommendations and opinions expressed in the Report, reference must be made to the Report in its entirety. EXP is not responsible for use by any party of portions of the Report.

Use of Report

The information and opinions expressed in the Report, or any document forming part of the Report, are for the sole benefit of the Client. No other party may use or rely upon the Report in whole or in part without the written consent of EXP. Any use of the Report, or any portion of the Report, by a third party are the sole responsibility of

such third party. EXP is not responsible for damages suffered by any third party resulting from unauthorized use of the Report.

Where EXP has submitted both electronic file and a hard copy of the Report, or any document forming part of the Report, only the signed and sealed hard copy shall be the original documents for record and working purposes. In the event of a dispute or discrepancy, the hard copy shall govern. Electronic files transmitted by EXP utilize specific software and hardware systems. EXP makes no representation about the compatibility of these files with the Client's current or future software and hardware systems. Regardless of format, the documents described herein are EXP's instruments of professional service and shall not be altered without the written consent of EXP.

Appendix 1 –
Qualifications of Assessors

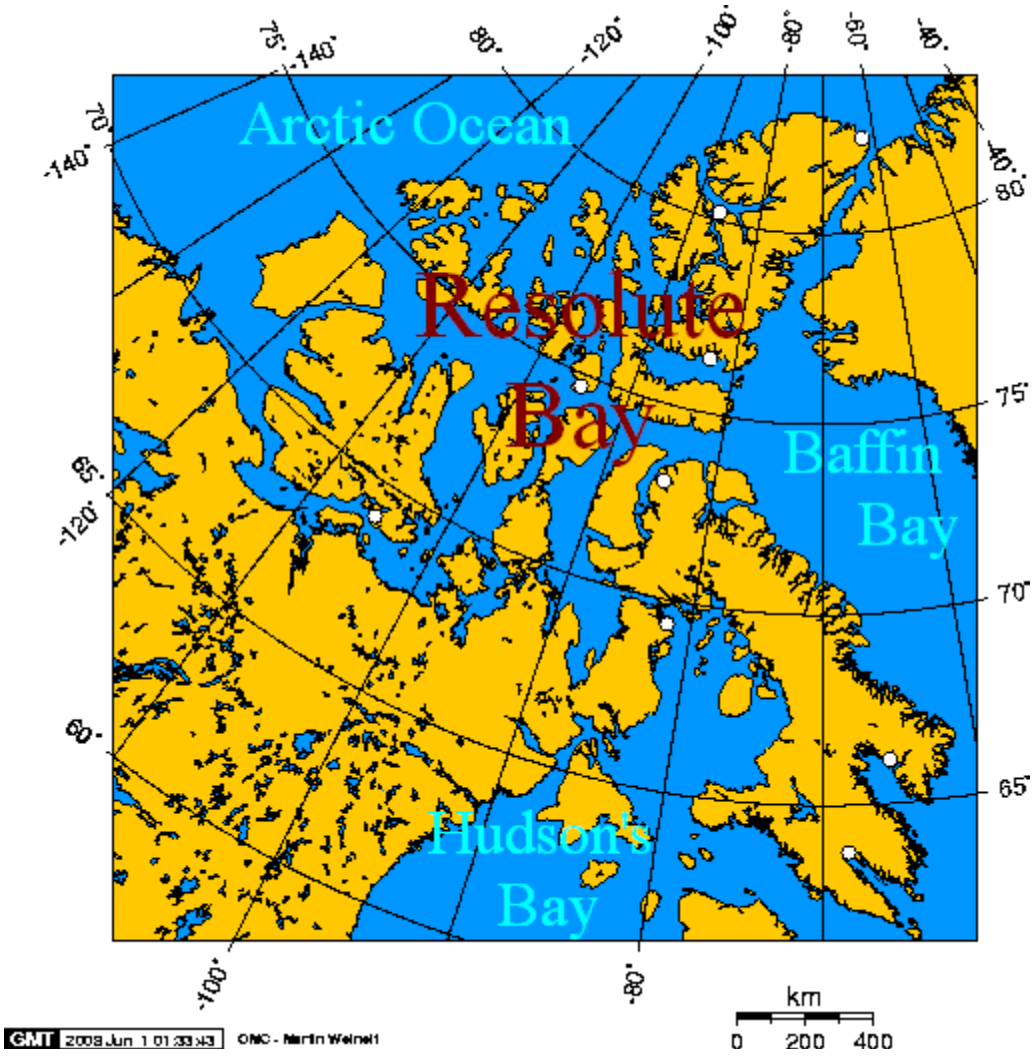
EXP provides a full range of environmental services through a full-time Environmental Services Group. EXP's Earth and Environment Group has developed a strong working relationship with clients in both the private and public sectors. Personnel in the numerous branch offices form part of a large network of full-time dedicated environmental professionals in the EXP organization.

The principal environmental professionals who completed this report included:

John Sims, M.Sc., P.Eng., P.Geo. (NB) – (Report Author), has 26 years of experience in the environmental consulting field working primarily in the Atlantic Canada Region, and prior to this mining and petroleum exploration work in the Arctic and Northwest Territories, Western Canada Sedimentary Basin and offshore Eastern Canada regions. He has managed and/or completed numerous Phase I Environmental Site Assessments (ESA); Phase II ESAs, soil and groundwater remediation projects, environmental impact assessments, and risk based corrective action contaminated site closures.

Carl Hentschel, P.Eng. (ON/NU/NWT), PMP, (Report Reviewer) has 18 years of experience in the environmental consulting field working primarily in Ontario, Quebec and the northern territories. He has managed and/or completed numerous Phase I Environmental Site Assessments (ESA); Phase II ESAs, soil and groundwater remediation projects, designated substance surveys, building demolition management, environmental effects evaluations (EEE), air quality assessments, bid specification preparation, and is an experienced technical report reviewer.

Appendix 2 – Figures


Arctic Ocean
Resolute Bay
Baffin Bay
Hudson's Bay
km
0
200
400

Legend

- Building
- Fence
- Pipeline
- Retaining Wall
- Park
- Dumpsite
- Gravel Road
- Trail
- Shoreline
- Watercourses
- Water Body

Parcels

- Community Use
- Industrial
- Open Space
- Quarry
- Residential
- Transportation

N

Scale: 1:3,500

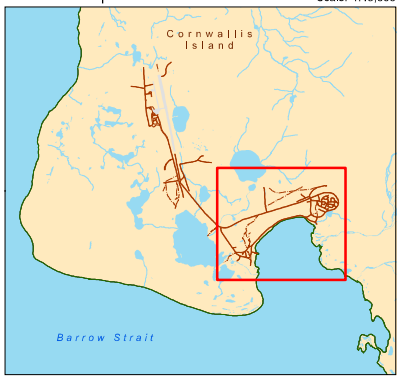
100 50 0 100 200 300 400 500 600 Metres

Coordinate System: NAD 1983 CSRS UTM Zone 15N
Projection: Transverse Mercator
Datum: North American 1983 CSRS
Longitude: 94°52'4"W
Latitude: 74°41'33"N
NTS Map Reference 058F11

Mapping Source
Control: NRCAN-CCCM, NAD 83
Cadastral: NRCAN-CCCM (August 2017)
Buildings, Infrastructure, Roads: August 2015
Compilation: Community and Government Services

Location Map

Scale: 1:45,000



Resolute Bay

Date: August 22, 2017	Author: T.Brewer
File Number: 260	Sheet Number: 1 of 1

Appendix 3 –
EcoLog ERIS Report

Spill Database Records for Resolute (Source: Environment and Natural Resources (ENR) (Government of the Northwest Territories (GNWT))

Spill	Occurance Date	Spill Region	Location	Location Description	Product Spilled	Quantity	Measurem	Spill Cause	Lead Agency
spill-2019069	18-Feb-19	Baffin	Resolute, Comm	Near Resolute Bay Airport about 2.00 km	Wastewater (sewage, mine tailings)	14000	Litres	Overflow Event	GN - Government of Nunavut
spill-2017332	5-Sep-17	Keewatin		Resolute Bay	Petroleum - fuel oil (jet A, diesel, turbo A, heat)	205	Litres	Other	GN - Government of Nunavut
spill-2017127	25-Apr-17	Baffin	Resolute	Resolute Airport Sewage Lagoon, 74 42 00N 94 50 00W	Wastewater (sewage, mine tailings)	50000	Litres	Overflow Event	GN - Government of Nunavut
spill-2015316	27-Jul-15	Baffin	Resolute	Resolute Bay Airport Apron 2	Petroleum - fuel oil (jet A, diesel, turbo A, heat)	100	Litres	Other	GN - Government of Nunavut
spill-2013297	5-Aug-13	Baffin	Repulse Bay	Resolute Bay	Petroleum - fuel oil (jet A, diesel, turbo A, heat)	20	Litres	Tank Leak	GN - Government of Nunavut
spill-2013083	9-Mar-13	Baffin	Resolute	Resolute Bay	Petroleum - gasoline (aviation, turbo B, jet B)	200	Litres	Tank Leak	INAC - Indigenous and Northern Affairs Canada
spill-2012322	4-Aug-12	Baffin	Resolute	Resolute Bay	Petroleum - fuel oil (jet A, diesel, turbo A, heat)	1	Litres	Overflow Event	ECCC - Environment and Climate Change Canada
spill-2012103	1-Apr-12	Baffin	Resolute	Resolute Bay Tank Farm	Petroleum - fuel oil (jet A, diesel, turbo A, heat)	10	Litres	Overflow Event	GN - Government of Nunavut
spill-2011441	19-Nov-11	Baffin	Resolute	Resolute Bay, NU 3.5 Km Southeast of Airport	Petroleum - lubricating oil (lube, hydraulic)	15	Litres	Collision or Crash	GN - Government of Nunavut
spill-2011420	28-Oct-11	Baffin	Resolute	Resolute Bay Tank Farm 5KM from town	Petroleum - gasoline (aviation, turbo B, jet B)	87000	Litres	Deliberate Discharge	GN - Government of Nunavut
spill-2011337	20-Aug-11	Baffin		5 Km North of Resolute Bay	Petroleum - gasoline (aviation, turbo B, jet B)	8600	Litres	Collision or Crash	GN - Government of Nunavut
spill-2011318	9-Aug-11	Baffin	Resolute	Resolute Bay, NU	Petroleum - fuel oil (jet A, diesel, turbo A, heat)	105	Litres	Tank Leak	GN - Government of Nunavut
spill-2011059	14-Mar-11	Baffin	Resolute	Vehicle Fill Station - Tank Farm in Resolute Bay	Petroleum - gasoline (aviation, turbo B, jet B)	0	Litres	Pipe Leaks	GN - Government of Nunavut
spill-2010389	19-Sep-10	Baffin	Resolute	Resolute Bay Tank Farm	Petroleum - fuel oil (jet A, diesel, turbo A, heat)	100	Litres	Overflow Event	GN - Government of Nunavut
spill-2010340	15-Aug-10	Baffin	Resolute	Resolute Bay Airport	Petroleum - fuel oil (jet A, diesel, turbo A, heat)	1000	Litres	Pipe Leaks	GN - Government of Nunavut
spill-2010324	31-Jul-10	Baffin	Resolute	Resolute Airport	Petroleum - fuel oil (jet A, diesel, turbo A, heat)	40	Litres	Overflow Event	GN - Government of Nunavut
spill-2010157	12-May-10	Baffin	Resolute	Resolute Bay	Petroleum - fuel oil (jet A, diesel, turbo A, heat)	40	Litres	Overflow Event	GN - Government of Nunavut
spill-2009346	30-Nov-08	Baffin	Resolute	Resolute Bay	Petroleum - waste oil (slops, sludge)	205	Litres	Other	GN - Government of Nunavut
spill-2006302	30-Jun-06	Baffin	Resolute	Resolute Bay Tank Farm	Petroleum - gasoline (aviation, turbo B, jet B)	20	Litres	Tank Leak	GN - Government of Nunavut
spill-2005523	7-Nov-05	Baffin	Resolute	Resolute Bay	Petroleum - fuel oil (jet A, diesel, turbo A, heat)	60	Litres	Overflow Event	GN - Government of Nunavut
spill-2005390	16-Aug-05	Baffin	Resolute	Resolute Bay Airport	Petroleum - fuel oil (jet A, diesel, turbo A, heat)	30	Litres	Overflow Event	GN - Government of Nunavut
spill-2005338	7-Jul-05	Baffin	Resolute	Resolute Bay	Petroleum - fuel oil (jet A, diesel, turbo A, heat)	200	Litres	Deliberate Discharge	GN - Government of Nunavut
spill-1989075	5-Jun-89	Baffin		Bent Horn near Resolute Bay	Petroleum - crude oil	4500	Litres	Fitting Leak	INAC - Indigenous and Northern Affairs Canada
spill-2014084		Baffin	Resolute	2 Km North of Resolute Bay Airport	Wastewater (sewage, mine tailings)	14000	Litres	Pipe Leaks	INAC - Indigenous and Northern Affairs Canada
spill-2015241		Baffin	Resolute	Resolute Bay, PO Box 30 RCMP Garage	Petroleum - fuel oil (jet A, diesel, turbo A, heat)	0	Litres	Tank Leak	ECCC - Environment and Climate Change Canada
spill-2011130		Baffin	Resolute	Sewage Lagoon Located Northwest of Resolute Bay	Wastewater (sewage, mine tailings)	0	Litres	Overflow Event	INAC - Indigenous and Northern Affairs Canada

ENVIRONMENTAL RISK INFORMATION SERVICES

DATABASE REPORT

Project Property:	*Resolute, NU* *Resolute, NU* *Resolute NU*
Project No:	*FRE-00255934-A0*
Report Type:	*Standard Report NT,NU*
Order No:	*20191206132*
Requested by:	*exp Services Inc.*
Date Completed:	*December 10, 2019*

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

Table of Contents

Executive Summary

Property Information:

Project Property:	*Resolute, NU* *Resolute, NU Resolute NU*
Project No:	*FRE-00255934-A0*

Coordinates:

Latitude:	*74.694182*
Longitude:	*-94.840531*
UTM Northing:	*8,290,326.13*
UTM Easting:	*445,776.30*
UTM Zone:	*UTM Zone 15X*

Elevation:	*7 FT* *2.00 M*

Order Information:

Order No:	*20191206132*
Date Requested:	*December 6, 2019*
Requested by:	*exp Services Inc.*
Report Type:	*Standard Report NT,NU*

Historical/Products:

Aerial Photographs	*Aerials - National Collection*

Executive Summary: Report Summary

Database	Name	Searched	Project Property	Within 0.25 km	Total
AUWR	***Automobile Wrecking & Supplies***	*Y*	*0*	*0*	*0*
CDRY	***Dry Cleaning Facilities***	*Y*	*0*	*0*	*0*
CFST	***Crown Land Fuel Storage Tanks***	*Y*	*0*	*0*	*0*
CNG	***Compressed Natural Gas Stations***	*Y*	*0*	*0*	*0*
EHS	***ERIS Historical Searches***	*Y*	*0*	*0*	*0*
FCON	***Federal Convictions***	*Y*	*0*	*0*	*0*
FCS	***Contaminated Sites on Federal Land***	*Y*	*0*	*0*	*0*
FED TANKS	***Federal Identification Registry for Storage Tank Systems (FIRSTS)***	*Y*	*0*	*0*	*0*
GHG	***Greenhouse Gas Emissions from Large Facilities***	*Y*	*0*	*0*	*0*
IAFT	***Indian & Northern Affairs Fuel Tanks***	*Y*	*0*	*0*	*0*
MINE	***Canadian Mine Locations***	*Y*	*0*	*0*	*0*
MNR	***Mineral Occurrences***	*Y*	*0*	*0*	*0*
NATE	***National Analysis of Trends in Emergencies System (NATES)***	*Y*	*0*	*0*	*0*
NDSP	***National Defense & Canadian Forces Spills***	*Y*	*0*	*0*	*0*
NDWD	***National Defence & Canadian Forces Waste Disposal Sites***	*Y*	*0*	*0*	*0*
NEBI	***National Energy Board Pipeline Incidents***	*Y*	*0*	*0*	*0*
NEBT	***National Energy Board Wells***	*Y*	*0*	*0*	*0*
NEES	***National Environmental Emergencies System (NEES)***	*Y*	*0*	*0*	*0*
NPCB	***National PCB Inventory***	*Y*	*0*	*0*	*0*
NPRI	***National Pollutant Release Inventory***	*Y*	*0*	*0*	*0*
OGWE	***Oil and Gas Wells***	*Y*	*0*	*0*	*0*
RST	***Retail Fuel Storage Tanks***	*Y*	*0*	*0*	*0*
SCT	***Scott's Manufacturing Directory***	*Y*	*0*	*0*	*0*
SPL	***Spills***	*Y*	*0*	*0*	*0*
		Total:	*0*	*0*	*0*

Executive Summary: Site Report Summary - Project Property

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev diff (m)	Page Number

No records found in the selected databases for the project property.

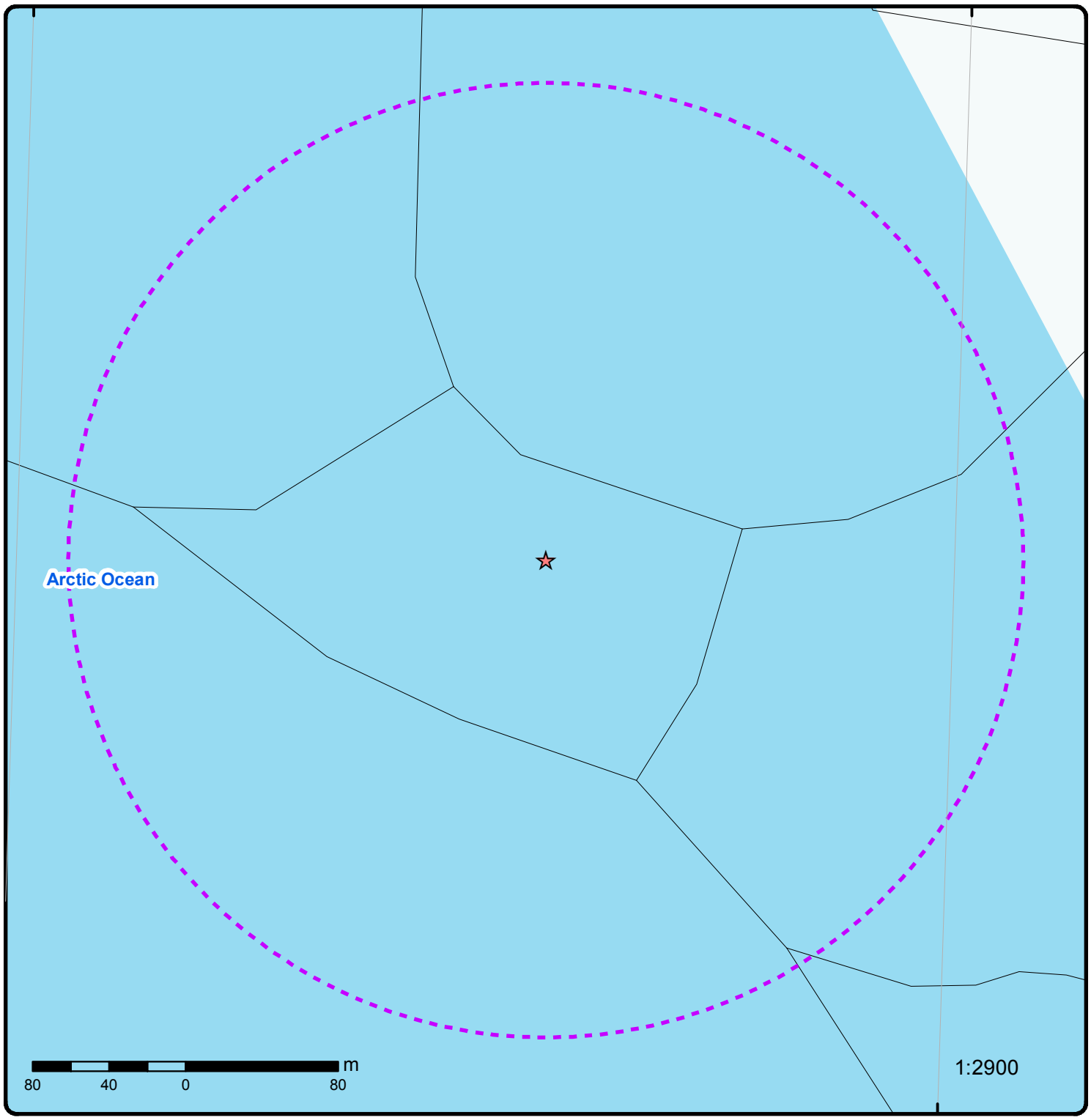
Executive Summary: Site Report Summary - Surrounding Properties

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number

No records found in the selected databases for the surrounding properties.

Executive Summary: Summary By Data Source

No records found in the selected databases for the project property or surrounding properties.



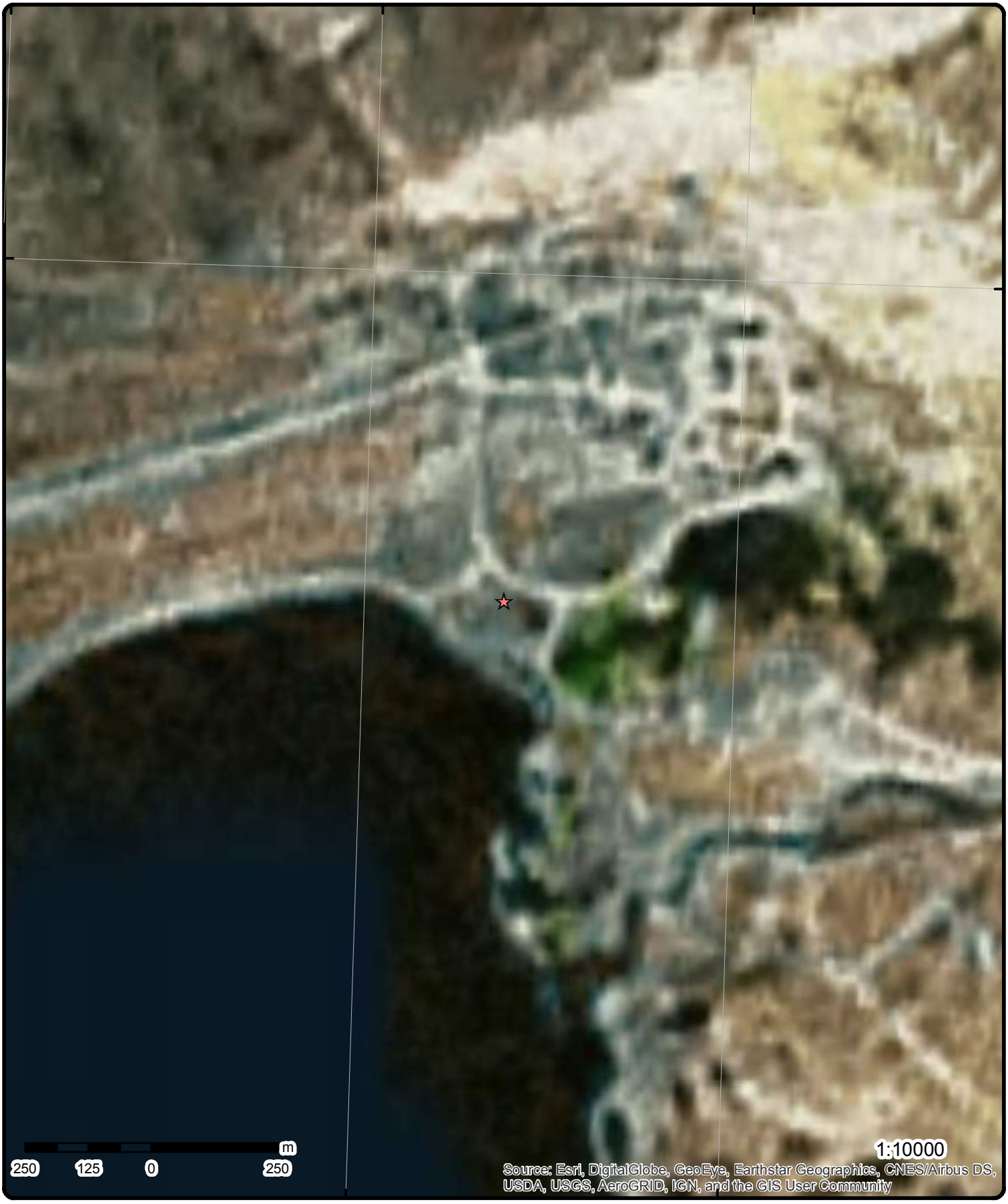
Map : 0.25 Kilometer Radius

Order No: 20191206132
Address: Resolute, NU, Resolute, NU

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

- Project Property
- Buffer Outline
- Eris Sites with Higher Elevation
- Eris Sites with Same Elevation
- Eris Sites with Lower Elevation
- Eris Sites with Unknown Elevation
- Expressway
- Principal Highway
- Secondary Highway
- Major Road
- Local road
- Trail
- Proposed Road
- Ferry Route/Ice Road
- Industrial and Resource - Regions
- Main Line
- Sidetrack
- Transit Line
- Abandoned Line
- National Park
- Provincial or Territorial Park
- Other Park
- Golf Course or Driving Range
- Park or Sports Field
- Other Recreation Area

Source: © 2015 DMTI Spatial Inc.



Aerial

Address: Resolute, NU, Resolute, NU

Source: ESRI World Imagery

Order No: 20191206132

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Topographic Map

Address: Resolute, NU, Resolute, NU

Source: ESRI World Topographic Map

Order No: 20191206132

ERIS ENVIRONMENTAL RISK INFORMATION SERVICES

Detail Report

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

No records found in the selected databases for the project property or surrounding properties.

Unplottable Summary

Total: 15 Unplottable sites

DB	Company Name/Site Name	Address	City	Postal
SPL		Resolute Bay	Resolute NU	
SPL		Resolute Bay	Resolute NU	
SPL		Resolute Bay Tank Farm 5KM from town	Resolute NU	
SPL		Resolute Bay, NU 3.5 Km Southeast of Airport	Resolute NU	
SPL		Resolute Bay	Resolute NU	
SPL		Resolute Bay Tank Farm	Resolute NU	
SPL		Resolute Bay	Resolute NU	
SPL		Resolute Bay, PO Box 30 RCMP Garage	Resolute NU	
SPL		Resolute Bay, NU	Resolute NU	
SPL		Sewage Lagoon Located Northwest of Resolute Bay	Resolute NU	
SPL		Vehicle Fill Station - Tank Farm in Resolute Bay	Resolute NU	
SPL		Resolute Bay Tank Farm	Resolute NU	
SPL		Resolute Bay	Resolute NU	
SPL		Resolute Bay	Resolute NU	
SPL		Resolute Bay Tank Farm	Resolute NU	

Unplottable Report

Site:
Resolute Bay Resolute NU

Database:
SPL

Spill No:	spill-2009346	***Land Sea Indicator:***	Land
Spill Date:		***Potential Spill:***	No
Spill Quantity:	205.00	***Received Method:***	
Measurement:	Litres	***Involved Parties Type:***	Other
Spill Cause:	Other	***Spill Region:***	Baffin
Spill Source:	Drum or Barrel		
Product Spilled:	Petroleum - waste oil (slops, sludge)		
Product Spilled Description:	Used Oil		
Area of Contamination:			
Spill Location Description:	Resolute Bay		
Known Hazards:			
Occurrence Date/Time:	Sunday, November 30, 2008 - 00:00		
Reporting Date And Time:	Monday, June 29, 2009 - 18:00		
Support Info Un No:			
Supp Info Describe Any Assi:			
Support Info Water Use Permit:			
Supp Info Land Use Permit N:			
Support Info Factors Affecting:			
Support Info Additional Inform:			
Lead Agency:	GN - Government of Nunavut		
URL:	https://www.enr.gov.nt.ca/en/spill/spill-2009346		

Site:
Resolute Bay Resolute NU

Database:
SPL

Spill No:	spill-2005338	***Land Sea Indicator:***	Land
Spill Date:		***Potential Spill:***	No
Spill Quantity:	200.00	***Received Method:***	
Measurement:	Litres	***Involved Parties Type:***	Municipal Government
Spill Cause:	Deliberate Discharge	***Spill Region:***	Baffin
Spill Source:	Storage tank < 4000 Litre		
Product Spilled:	Petroleum - fuel oil (jet A, diesel, turbo A, heat)		
Product Spilled Description:	Diesel P-50		
Area of Contamination:			
Spill Location Description:	Resolute Bay		
Known Hazards:			
Occurrence Date/Time:	Thursday, July 7, 2005 - 00:00		
Reporting Date And Time:	Thursday, July 7, 2005 - 18:00		
Support Info Un No:			
Supp Info Describe Any Assi:			
Support Info Water Use Permit:			
Supp Info Land Use Permit N:			
Support Info Factors Affecting:			
Support Info Additional Inform:			
Lead Agency:	GN - Government of Nunavut		
URL:	https://www.enr.gov.nt.ca/en/spill/spill-2005338		

Site:
Resolute Bay Tank Farm 5KM from town Resolute NU

Database:
SPL

Spill No:	spill-2011420	***Land Sea Indicator:***	
Spill Date:		***Potential Spill:***	No
Spill Quantity:	87000.00	***Received Method:***	
Measurement:	Litres	***Involved Parties Type:***	Terrotirial Government Department

Spill Cause: Deliberate Discharge
Spill Region: Baffin
Spill Source: Storage tank < 4000 Litre
Product Spilled: Petroleum - gasoline (aviation, turbo B, jet B)
Product Spilled Description: Gasoline
Area of Contamination:
Spill Location Description: Resolute Bay Tank Farm 5KM from town
Known Hazards:
Occurrence Date/Time: Friday, October 28, 2011 - 00:00
Reporting Date And Time: Thursday, October 27, 2011 - 18:00
Support Info Un No:
Supp Info Describe Any Assi:
Support Info Water Use Permit:
Supp Info Land Use Permit N:
Support Info Factors Affecting:
Support Info Additional Inform:
Lead Agency: GN - Government of Nunavut
URL: https://www.enr.gov.nt.ca/en/spill/spill-2011420

Site:
Resolute Bay, NU 3.5 Km Southeast of Airport Resolute NU

Database: ***SPL***

Spill No: spill-2011441
Land Sea Indicator: Land
Spill Date:
Potential Spill: No
Spill Quantity: 15.00
Received Method:
Measurement: Litres
Involved Parties Type: Other
Spill Cause: Collision or Crash
Spill Region: Baffin
Spill Source: Truck
Product Spilled: Petroleum - lubricating oil (lube, hydraulic)
Product Spilled Description: Oil from Engine
Area of Contamination:
Spill Location Description: Resolute Bay, NU 3.5 Km Southeast of Airport
Known Hazards:
Occurrence Date/Time: Saturday, November 19, 2011 - 00:00
Reporting Date And Time: Friday, November 18, 2011 - 17:00
Support Info Un No:
Supp Info Describe Any Assi:
Support Info Water Use Permit:
Supp Info Land Use Permit N:
Support Info Factors Affecting:
Support Info Additional Inform:
Lead Agency: GN - Government of Nunavut
URL: https://www.enr.gov.nt.ca/en/spill/spill-2011441

Site:
Resolute Bay Resolute NU

Database: ***SPL***

Spill No: spill-2012322
Land Sea Indicator: Land
Spill Date:
Potential Spill: No
Spill Quantity: 1.00
Received Method:
Measurement: Litres
Involved Parties Type: Federal Government Department
Spill Cause: Overflow Event
Spill Region: Baffin
Spill Source: Storage tank < 4000 Litre
Product Spilled: Petroleum - fuel oil (jet A, diesel, turbo A, heat)
Product Spilled Description: Heating Fuel P-50
Area of Contamination:
Spill Location Description: Resolute Bay
Known Hazards:
Occurrence Date/Time: Saturday, August 4, 2012 - 00:00
Reporting Date And Time: Thursday, August 16, 2012 - 18:00
Support Info Un No:
Supp Info Describe Any Assi:
Support Info Water Use Permit:
Supp Info Land Use Permit N:
Support Info Factors Affecting:
Support Info Additional Inform:
Lead Agency: ECCC - Environment and Climate Change Canada
URL: https://www.enr.gov.nt.ca/en/spill/spill-2012322

Site:
Resolute Bay Tank Farm Resolute NU

Database:
SPL

Spill No:	spill-2012103	***Land Sea Indicator:***	Land
Spill Date:		***Potential Spill:***	No
Spill Quantity:	10.00	***Received Method:***	
Measurement:	Litres	***Involved Parties Type:***	Unknown
Spill Cause:	Overflow Event	***Spill Region:***	Baffin
Spill Source:	Storage tank < 4000 Litre		
Product Spilled:	Petroleum - fuel oil (jet A, diesel, turbo A, heat)		
Product Spilled Description:	Diesel P-50		
Area of Contamination:			
Spill Location Description:	Resolute Bay Tank Farm		
Known Hazards:			
Occurrence Date/Time:	Sunday, April 1, 2012 - 00:00		
Reporting Date And Time:	Saturday, March 31, 2012 - 18:00		
Support Info Un No:			
Supp Info Describe Any Assi:			
Support Info Water Use Permit:			
Supp Info Land Use Permit N:			
Support Info Factors Affecting:			
Support Info Additional Inform:			
Lead Agency:	GN - Government of Nunavut		
URL:	https://www.enr.gov.nt.ca/en/spill/spill-2012103		

Site:
Resolute Bay Resolute NU

Database:
SPL

Spill No:	spill-2013083	***Land Sea Indicator:***	Land
Spill Date:		***Potential Spill:***	No
Spill Quantity:	200.00	***Received Method:***	
Measurement:	Litres	***Involved Parties Type:***	Other
Spill Cause:	Tank Leak	***Spill Region:***	Baffin
Spill Source:	Drum or Barrel		
Product Spilled:	Petroleum - gasoline (aviation, turbo B, jet B)		
Product Spilled Description:	Gasoline		
Area of Contamination:			
Spill Location Description:	Resolute Bay		
Known Hazards:			
Occurrence Date/Time:	Saturday, March 9, 2013 - 00:00		
Reporting Date And Time:	Tuesday, April 9, 2013 - 18:00		
Support Info Un No:			
Supp Info Describe Any Assi:			
Support Info Water Use Permit:			
Supp Info Land Use Permit N:			
Support Info Factors Affecting:			
Support Info Additional Inform:			
Lead Agency:	INAC - Indigenous and Northern Affairs Canada		
URL:	https://www.enr.gov.nt.ca/en/spill/spill-2013083		

Site:
Resolute Bay, PO Box 30 RCMP Garage Resolute NU

Database:
SPL

Spill No:	spill-2015241	***Land Sea Indicator:***	Land
Spill Date:		***Potential Spill:***	No
Spill Quantity:	0.00	***Received Method:***	
Measurement:	Litres	***Involved Parties Type:***	Unknown
Spill Cause:	Tank Leak	***Spill Region:***	Baffin
Spill Source:	Storage tank < 4000 Litre		
Product Spilled:	Petroleum - fuel oil (jet A, diesel, turbo A, heat)		
Product Spilled Description:	Fuel		
Area of Contamination:			
Spill Location Description:	Resolute Bay, PO Box 30 RCMP Garage		
Known Hazards:			

Occurrence Date/Time:
Reporting Date And Time: Thursday, June 4, 2015 - 18:00
Support Info Un No:
Supp Info Describe Any Assi:
Support Info Water Use Permit:
Supp Info Land Use Permit N:
Support Info Factors Affecting:
Support Info Additional Inform:
Lead Agency: ECCC - Environment and Climate Change Canada
URL: https://www.enr.gov.nt.ca/en/spill/spill-2015241

Site:
Resolute Bay, NU Resolute NU

Database: ***SPL***

Spill No: spill-2011318
Spill Date:
Spill Quantity: 105.00
Measurement: Litres
Spill Cause: Tank Leak
Spill Source: Storage tank < 4000 Litre
Land Sea Indicator: Land
Potential Spill: No
Received Method:
Involved Parties Type: Other
Spill Region: Baffin
Product Spilled: Petroleum - fuel oil (jet A, diesel, turbo A, heat)
Product Spilled Description: Diesel P-50
Area of Contamination:
Spill Location Description: Resolute Bay, NU
Known Hazards:
Occurrence Date/Time: Tuesday, August 9, 2011 - 00:00
Reporting Date And Time: Monday, August 8, 2011 - 18:00
Support Info Un No:
Supp Info Describe Any Assi:
Support Info Water Use Permit:
Supp Info Land Use Permit N:
Support Info Factors Affecting:
Support Info Additional Inform:
Lead Agency: GN - Government of Nunavut
URL: https://www.enr.gov.nt.ca/en/spill/spill-2011318

Site:
Sewage Lagoon Located Northwest of Resolute Bay Resolute NU

Database: ***SPL***

Spill No: spill-2011130
Spill Date:
Spill Quantity: 0.00
Measurement: Litres
Spill Cause: Overflow Event
Spill Source: Sewage Lagoon
Land Sea Indicator: Land
Potential Spill: No
Received Method:
Involved Parties Type: Other
Spill Region: Baffin
Product Spilled: Wastewater (sewage, mine tailings)
Product Spilled Description: Sewage
Area of Contamination:
Spill Location Description: Sewage Lagoon Located Northwest of Resolute Bay
Known Hazards:
Occurrence Date/Time:
Reporting Date And Time: Monday, April 18, 2011 - 18:00
Support Info Un No:
Supp Info Describe Any Assi:
Support Info Water Use Permit:
Supp Info Land Use Permit N:
Support Info Factors Affecting:
Support Info Additional Inform:
Lead Agency: INAC - Indigenous and Northern Affairs Canada
URL: https://www.enr.gov.nt.ca/en/spill/spill-2011130

Site:
Vehicle Fill Station - Tank Farm in Resolute Bay Resolute NU

Database: ***SPL***

Spill No: spill-2011059
Land Sea Indicator: Land

Spill Date:		***Potential Spill:***	No
Spill Quantity:	0.00	***Received Method:***	
Measurement:	Litres	***Involved Parties Type:***	Other
Spill Cause:	Pipe Leaks	***Spill Region:***	Baffin
Spill Source:	Pipe or Line		

Product Spilled: Petroleum - gasoline (aviation, turbo B, jet B)
Product Spilled Description: Gasoline
Area of Contamination:
Spill Location Description: Vehicle Fill Station - Tank Farm in Resolute Bay
Known Hazards:
Occurrence Date/Time: Monday, March 14, 2011 - 00:00
Reporting Date And Time: Sunday, March 13, 2011 - 18:00
Support Info Un No:
Supp Info Describe Any Assi:
Support Info Water Use Permit:
Supp Info Land Use Permit N:
Support Info Factors Affecting:
Support Info Additional Inform:
Lead Agency: GN - Government of Nunavut
URL: https://www.enr.gov.nt.ca/en/spill/spill-2011059

Site:
Resolute Bay Tank Farm Resolute NU

Database: ***SPL***

Spill No:	spill-2010389	***Land Sea Indicator:***	Land
Spill Date:		***Potential Spill:***	No
Spill Quantity:	100.00	***Received Method:***	
Measurement:	Litres	***Involved Parties Type:***	Other
Spill Cause:	Overflow Event	***Spill Region:***	Baffin
Spill Source:	Storage tank < 4000 Litre		

Product Spilled: Petroleum - fuel oil (jet A, diesel, turbo A, heat)
Product Spilled Description: Diesel P-50
Area of Contamination:
Spill Location Description: Resolute Bay Tank Farm
Known Hazards:
Occurrence Date/Time: Sunday, September 19, 2010 - 00:00
Reporting Date And Time: Saturday, September 18, 2010 - 18:00
Support Info Un No:
Supp Info Describe Any Assi:
Support Info Water Use Permit:
Supp Info Land Use Permit N:
Support Info Factors Affecting:
Support Info Additional Inform:
Lead Agency: GN - Government of Nunavut
URL: https://www.enr.gov.nt.ca/en/spill/spill-2010389

Site:
Resolute Bay Resolute NU

Database: ***SPL***

Spill No:	spill-2010157	***Land Sea Indicator:***	Land
Spill Date:		***Potential Spill:***	No
Spill Quantity:	40.00	***Received Method:***	
Measurement:	Litres	***Involved Parties Type:***	Other
Spill Cause:	Overflow Event	***Spill Region:***	Baffin
Spill Source:	Storage tank < 4000 Litre		

Product Spilled: Petroleum - fuel oil (jet A, diesel, turbo A, heat)
Product Spilled Description: Diesel P-50
Area of Contamination:
Spill Location Description: Resolute Bay
Known Hazards:
Occurrence Date/Time: Wednesday, May 12, 2010 - 00:00
Reporting Date And Time: Tuesday, May 11, 2010 - 18:00
Support Info Un No:
Supp Info Describe Any Assi:
Support Info Water Use Permit:
Supp Info Land Use Permit N:
Support Info Factors Affecting:

Support Info Additional Inform:
Lead Agency: GN - Government of Nunavut
URL: https://www.enr.gov.nt.ca/en/spill/spill-2010157

Site:
Resolute Bay Resolute NU

Database:
SPL

Spill No: spill-2005523
Spill Date:
Spill Quantity: 60.00
Measurement: Litres
Spill Cause: Overflow Event
Spill Source: Storage tank < 4000 Litre
Land Sea Indicator: Land
Potential Spill: No
Received Method:
Involved Parties Type: Petroleum Companies
Spill Region: Baffin
Product Spilled: Petroleum - fuel oil (jet A, diesel, turbo A, heat)
Product Spilled Description: Diesel P-50
Area of Contamination:
Spill Location Description: Resolute Bay
Known Hazards:
Occurrence Date/Time: Monday, November 7, 2005 - 00:00
Reporting Date And Time: Sunday, November 6, 2005 - 17:00
Support Info Un No:
Supp Info Describe Any Assi:
Support Info Water Use Permit:
Supp Info Land Use Permit N:
Support Info Factors Affecting:
Support Info Additional Inform:
Lead Agency: GN - Government of Nunavut
URL: https://www.enr.gov.nt.ca/en/spill/spill-2005523

Site:
Resolute Bay Tank Farm Resolute NU

Database:
SPL

Spill No: spill-2006302
Spill Date:
Spill Quantity: 20.00
Measurement: Litres
Spill Cause: Tank Leak
Spill Source: Storage tank < 4000 Litre
Land Sea Indicator: Land
Potential Spill: No
Received Method:
Involved Parties Type: Terrotirial Government Department
Spill Region: Baffin
Product Spilled: Petroleum - gasoline (aviation, turbo B, jet B)
Product Spilled Description: Gasoline
Area of Contamination:
Spill Location Description: Resolute Bay Tank Farm
Known Hazards:
Occurrence Date/Time: Friday, June 30, 2006 - 00:00
Reporting Date And Time: Tuesday, August 1, 2006 - 18:00
Support Info Un No:
Supp Info Describe Any Assi:
Support Info Water Use Permit:
Supp Info Land Use Permit N:
Support Info Factors Affecting:
Support Info Additional Inform:
Lead Agency: GN - Government of Nunavut
URL: https://www.enr.gov.nt.ca/en/spill/spill-2006302

Appendix: Database Descriptions

Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ***Note:*** *Databases denoted with " * " indicates that the database will no longer be updated. See the individual database description for more information.*

Automobile Wrecking & Supplies: Private AUWR

This database provides an inventory of known locations that are involved in the scrap metal, automobile wrecking/recycling, and automobile parts & supplies industry. Information is provided on the company name, location and business type.

Government Publication Date: 1999-Jul 31, 2019

Dry Cleaning Facilities: Federal CDRY

List of dry cleaning facilities made available by Environment and Climate Change Canada. Environment and Climate Change Canada's Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations (SOR/2003-79) are intended to reduce releases of tetrachloroethylene to the environment from dry cleaning facilities.

Government Publication Date: Jan 2004-Dec 2017

Crown Land Fuel Storage Tanks: Territorial CFST

The Department of Indian and Northern Affairs Canada mandates that all fuel storage tanks on Crown Land be recorded, when an individual applies for a land use permit or surface lease. Please note that there are numerous records in the database where the "Commencement Date" is previous to 1997. However, since INAC only began registering tank locations in 1997, any tanks installed previous to that may or may not be in the database, due to lack of regulations. Note the following descriptions: Commencement Date is the original file date, Fuel Application Date is the date an application was submitted for a tank, and the Fuel Confirmation Date is the date the department accepted the application and confirmed the information submitted.

Government Publication Date: Oct 1997-Feb 2019

Compressed Natural Gas Stations: Private CNG

Canada has a network of public access compressed natural gas (CNG) refuelling stations. These stations dispense natural gas in compressed form at 3,000 pounds per square inch (psi), the pressure which is allowed within the current Canadian codes and standards. The majority of natural gas refuelling is located at existing retail gasoline that have a separate refuelling island for natural gas. This list of stations is made available by the Canadian Natural Gas Vehicle Alliance.

Government Publication Date: Dec 2012 - Nov 2019

ERIS Historical Searches: Private EHS

ERIS has compiled a database of all environmental risk reports completed since March 1999. Available fields for this database include: site location, date of report, type of report, and search radius. As per all other databases, the ERIS database can be referenced on both the map and "Statistical Profile" page.

Government Publication Date: 1999-Oct 31, 2019

Federal Convictions: Federal FCON

Environment Canada maintains a database referred to as the "Environmental Registry" that details prosecutions under the Canadian Environmental Protection Act (CEPA) and the Fisheries Act (FA). Information is provided on the company name, location, charge date, offence and penalty.

Government Publication Date: 1988-Jun 2007*

Contaminated Sites on Federal Land: Federal FCS

The Federal Contaminated Sites Inventory includes information on known federal contaminated sites under the custodianship of departments, agencies and consolidated Crown corporations as well as those that are being or have been investigated to determine whether they have contamination arising from past use that could pose a risk to human health or the environment. The inventory also includes non-federal contaminated sites for which the Government of Canada has accepted some or all financial responsibility. It does not include sites where contamination has been caused by, and which are under the control of, enterprise Crown corporations, private individuals, firms or other levels of government.

Government Publication Date: Jun 2000-Aug 2019

Federal Identification Registry for Storage Tank Systems (FIRSTS): Federal FED TANKS

A list of federally regulated Storage tanks from the Federal Identification Registry for Storage Tank Systems (FIRSTS). FIRSTS is Environment and Climate Change Canada's database of storage tank systems subject to the Storage Tank for Petroleum Products and Allied Petroleum Products Regulations. The main objective of the Regulations is to prevent soil and groundwater contamination from storage tank systems located on federal and aboriginal lands. Storage tank systems that do not have a valid identification number displayed in a readily visible location on or near the storage tank system may be refused product delivery.

Government Publication Date: May 31, 2018

Greenhouse Gas Emissions from Large Facilities: Federal GHG

List of greenhouse gas emissions from large facilities made available by Environment Canada. Greenhouse gas emissions in kilotonnes of carbon dioxide equivalents (kt CO2 eq).

Government Publication Date: 2013-Dec 2017

Indian & Northern Affairs Fuel Tanks: Federal IAFT

The Department of Indian & Northern Affairs Canada (INAC) maintains an inventory of aboveground & underground fuel storage tanks located on both federal and crown land. Our inventory provides information on the reserve name, location, facility type, site/facility name, tank type, material & ID number, tank contents & capacity, and date of tank installation.

Government Publication Date: 1950-Aug 2003*

Canadian Mine Locations: Private MINE

This information is collected from the Canadian & American Mines Handbook. The Mines database is a national database that provides over 290 listings on mines (listed as public companies) dealing primarily with precious metals and hard rocks. Listed are mines that are currently in operation, closed, suspended, or are still being developed (advanced projects). Their locations are provided as geographic coordinates (x, y and/or longitude, latitude). As of 2002, data pertaining to Canadian smelters and refineries has been appended to this database.

Government Publication Date: 1998-2009*

Mineral Occurrences: Territorial MNR

The C.S. Lord Northern Geoscience Centre maintains a database of mineral showings (commodity occurrences) for both the Northwest Territories and Nunavut. The database provides Showing ID, latitude, longitude, Showing Name, commodity type, current development stage, and general comments on lithology, mineralization and geological settings.

Government Publication Date: 1900-Sep 2018

National Analysis of Trends in Emergencies System (NATES): Federal NATE

In 1974 Environment Canada established the National Analysis of Trends in Emergencies System (NATES) database, for the voluntary reporting of significant spill incidents. The data was to be used to assist in directing the work of the emergencies program. NATES ran from 1974 to 1994. Extensive information is available within this database including company names, place where the spill occurred, date of spill, cause, reason and source of spill, damage incurred, and amount, concentration, and volume of materials released.

Government Publication Date: 1974-1994*

National Defense & Canadian Forces Spills: Federal NDSP

The Department of National Defense and the Canadian Forces maintains an inventory of spills to land and water. All spill sites have been classified under the "Transportation of Dangerous Goods Act - 1992". Our inventory provides information on the facility name, location, spill ID #, spill date, type of spill, as well as the quantity of substance spilled & recovered.

Government Publication Date: Mar 1999-Apr 2018

National Defence & Canadian Forces Waste Disposal Sites: Federal NDWD

The Department of National Defence and the Canadian Forces maintains an inventory of waste disposal sites located on DND lands. Where available, our inventory provides information on the base name, location, type of waste received, area of site, depth of site, year site opened/closed and status.

Government Publication Date: 2001-Apr 2007*

National Energy Board Pipeline Incidents: Federal NEBI

Locations of pipeline incidents from 2008 to present, made available by the Canada Energy Regulator (CER) - previously the National Energy Board (NEB). Includes incidents reported under the Onshore Pipeline Regulations and the Processing Plant Regulations related to pipelines under federal jurisdiction, does not include incident data related to pipelines under provincial or territorial jurisdiction.

Government Publication Date: 2008-Jun 30, 2019

National Energy Board Wells: Federal NEBT

The NEBW database contains information on onshore & offshore oil and gas wells that are outside provincial jurisdiction(s) and are thereby regulated by the National Energy Board. Data is provided regarding the operator, well name, well ID No./UWI, status, classification, well depth, spud and release date.

Government Publication Date: 1920-Feb 2003*

National Environmental Emergencies System (NEES): Federal NEES

In 2000, the Emergencies program implemented NEES, a reporting system for spills of hazardous substances. For the most part, this system only captured data from the Atlantic Provinces, some from Quebec and Ontario and a portion from British Columbia. Data for Alberta, Saskatchewan, Manitoba and the Territories was not captured. However, NEES is also a repository for previous Environment Canada spill datasets. NEES is composed of the historic datasets ' or Trends ' which dates from approximately 1974 to present. NEES Trends is a compilation of historic databases, which were merged and includes data from NATES (National Analysis of Trends in Emergencies System), ARTS (Atlantic Regional Trends System), and NEES. In 2001, the Emergencies Program determined that variations in reporting regimes and requirements between federal and provincial agencies made national spill reporting and trend analysis difficult to achieve. As a consequence, the department has focused efforts on capturing data on spills of substances which fall under its legislative authority only (CEPA and FA). As such, the NEES database will be decommissioned in December 2004.

Government Publication Date: 1974-2003*

National PCB Inventory: Federal NPCB

Environment Canada's National PCB inventory includes information on in-use PCB containing equipment in Canada including federal, provincial and private facilities. Federal out-of-service PCB containing equipment and PCB waste owned by the federal government or by federally regulated industries such as airlines, railway companies, broadcasting companies, telephone and telecommunications companies, pipeline companies, etc. are also listed. Although it is not Environment Canada's mandate to collect data on non-federal PCB waste, the National PCB inventory includes some information on provincial and private PCB waste and storage sites. Some addresses provided may be Head Office addresses and are not necessarily the location of where the waste is being used or stored.

Government Publication Date: 1988-2008*

National Pollutant Release Inventory: Federal NPRI

Environment Canada has defined the National Pollutant Release Inventory ("NPRI") as a federal government initiative designed to collect comprehensive national data regarding releases to air, water, or land, and waste transfers for recycling for more than 300 listed substances.

Government Publication Date: 1993-May 2017

Oil and Gas Wells: Private OGWE

The Nickle's Energy Group (publisher of the Daily Oil Bulletin) collects information on drilling activity including operator and well statistics. The well information database includes name, location, class, status and depth. The main Nickle's database is updated on a daily basis, however, this database is updated on a monthly basis. More information is available at www.nickles.com.

Government Publication Date: 1988-Aug 31, 2019

Retail Fuel Storage Tanks: Private RST

This database includes an inventory of retail fuel outlet locations (including marinas) that have on their property gasoline, oil, waste oil, natural gas and / or propane storage tanks.

Government Publication Date: 1999-Jul 31, 2019

Scott's Manufacturing Directory: Private SCT

Scott's Directories is a data bank containing information on over 200,000 manufacturers across Canada. Even though Scott's listings are voluntary, it is the most comprehensive database of Canadian manufacturers available. Information concerning a company's address, plant size, and main products are included in this database.

Government Publication Date: 1992-Mar 2011*

Spills: Territorial SPL

The Department of Resources, Wildlife & Economic Development (RWED), in Yellowknife, maintains an inventory of spill locations through the "Hazardous Materials Spills Database". Information is provided on the spill number, date, location, spill description, quantity & commodity spilled and all applicable parties involved.

Government Publication Date: Jul 31, 2019

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.

Appendix 4 –
Aerial Photos

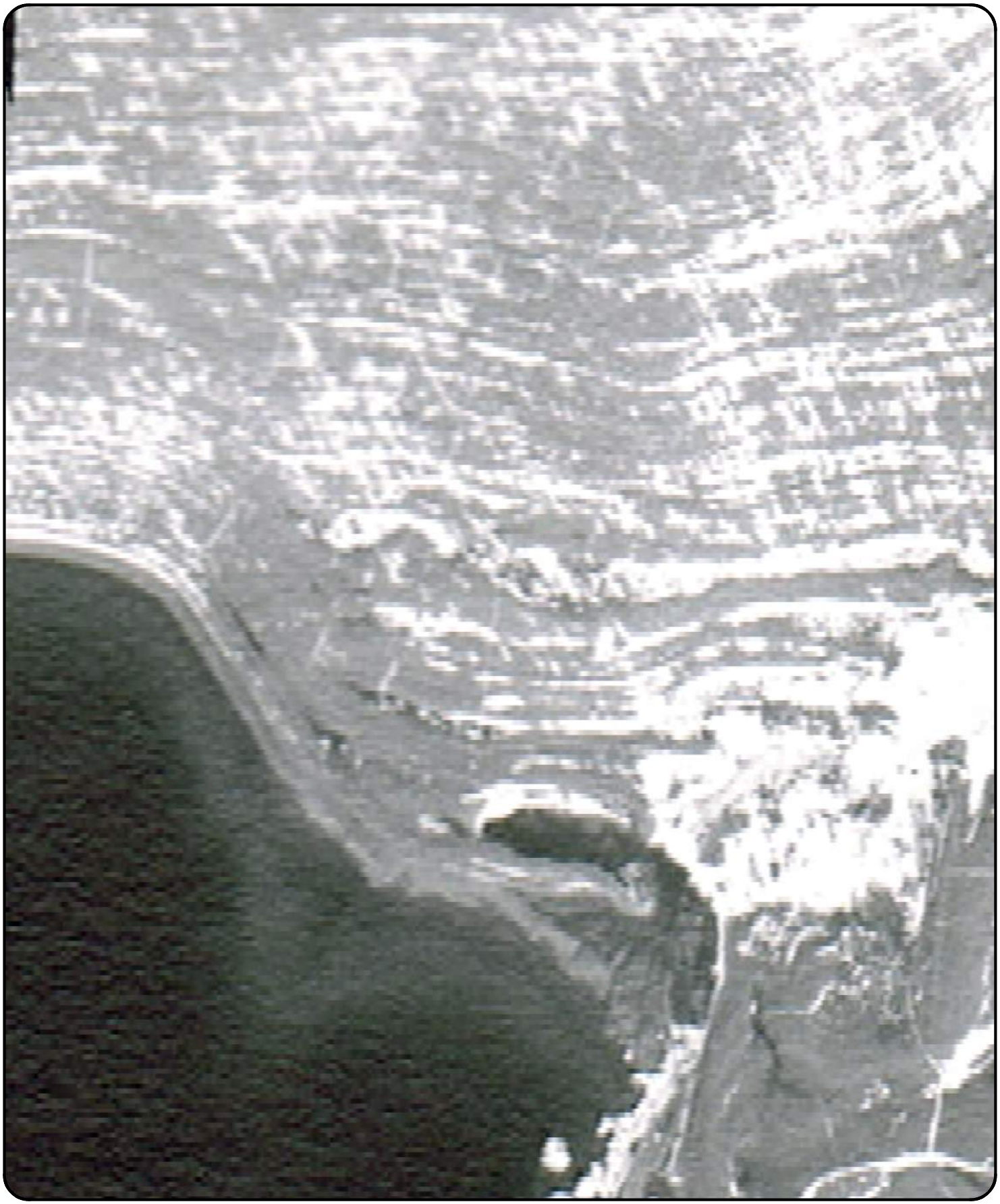
ENVIRONMENTAL RISK INFORMATION SERVICES

HISTORICAL AERIALS

Project Property:	Resolute, NU Resolute, NU Resolute NU
Project No:	FRE-00255934-A0
Requested By:	exp Services Inc.
Order No:	20191206132
Date Completed:	December 13, 2019

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

Decade	Year	Image Scale	Source
1920	Not Available		
1930	Not Available		
1940	1949	15000	NAPL
1950	Not Available		
1960	1969	12000	NAPL
1970	1974	10000	NAPL
1980	1987	15000	NAPL
1990	1995	12000	NAPL
2000	Not Available		
2010	Not Available		



0 0.125 0.25 0.5
Kilometers

Order Number: 20191206132

Year: 1949
Source: NAPL
Map Scale: 1: 10000
Comments: Best Copy Available

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

0 0.125 0.25 0.5
Kilometers

Order Number: 20191206132

Year: 1969
Source: NAPL
Map Scale: 1: 10000
Comments:

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

0 0.125 0.25 0.5
Kilometers

Order Number: 20191206132

Year: 1974
Source: NAPL
Map Scale: 1: 10000
Comments:

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

0 0.125 0.25 0.5
Kilometers

Order Number: 20191206132

Year: 1987
Source: NAPL
Map Scale: 1: 10000
Comments: Best Copy Available

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

0 0.125 0.25 0.5
Kilometers

Order Number: 20191206132

Year: 1995
Source: NAPL
Map Scale: 1: 10000
Comments:

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Appendix 5 – Photographs

Photograph No. 1

A view of site looking north across bay – note in foreground non-operational former gasoline storage tank to west of subject site and abandoned former WWTP building to east (blue building), and community in background. (Source: By Ansgar Walk - photo taken by Ansgar Walk, CC BY-SA 2.5, https://commons.wikimedia.org/w/index.php?curid=606214).

Photograph No. 2

Macerator Building located immediately east of subject site (Dec 3, 2019, EXP).

Photograph No. 3

View from subject site looking north toward the community (Dec 3, 2019, EXP).

Photograph No. 4

Existing WWTP outfall to the left (Dec 3, 2019, EXP).

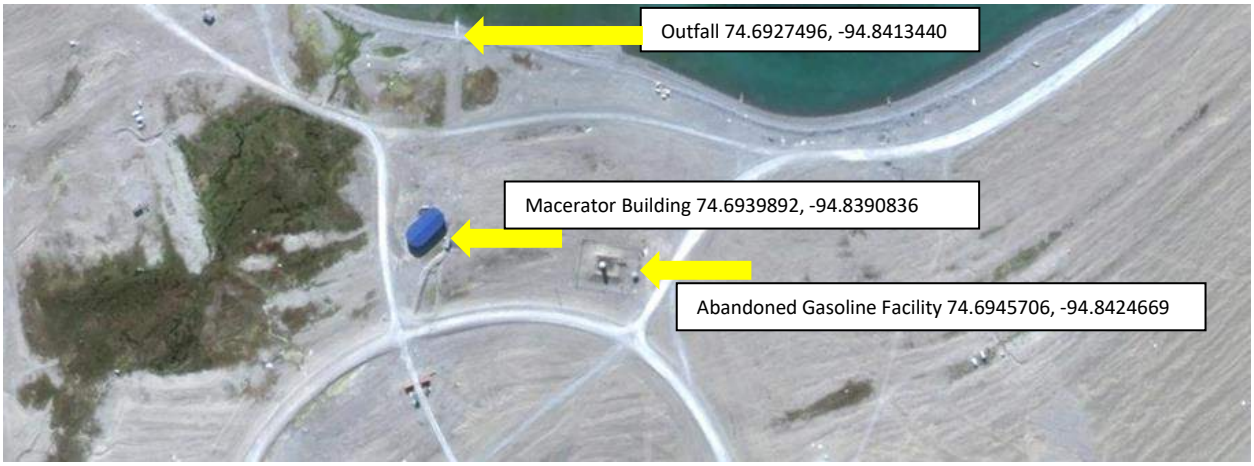
Photograph No. 5

Existing WWTP (abandoned – blue building) and small Macerator Building located east of subject site (Google Image).

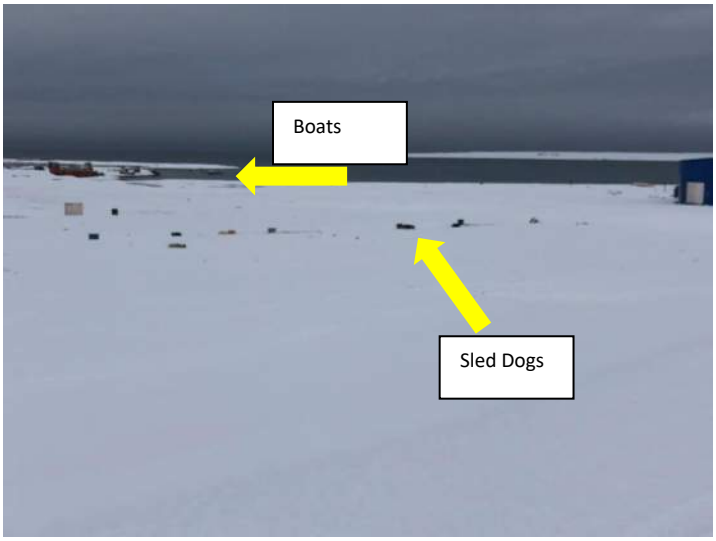
Appendix 6 –
EXP September 28, 2019 Site Visit Report

Resolute Bay Wastewater Treatment Plant Siting Study
Preliminary Site Work – September 28, 2019

I walked to the outfall site and obtained coordinates for the outfall (elevation ~ 1m), the macerator building, and abandoned gasoline facility as indicated in the map below.



The area to the left of the blue building is less suitable because of a lower elevation susceptible to flooding plus significant activity in the area (lots of small boats and sled dogs). See photos below.



The area to the right of the blue building would be better because of a slightly higher elevation and less observed activity as seen in the photo below.

I have arbitrarily selected 3 potential locations, all to the right of the blue building as indicated in the attached map below. Each green square is approximately 20m x 30m which is roughly the size of the building required to house the wastewater treatment facility based on the 2012 design brief.

A summary of attributes for each location is included below.

Site #1

- Approximately 170m from the last manhole (AV-35).
- Approximately 200m from the existing outfall.
- Approximately 1.63Km from the drinking water supply (Char Lake).
- Lowest elevation of the 3 sites (approximately 3m above sea level).
- Excellent access for trucks for offloading.
- Was previously a gasoline facility which was shut down in 2010. Some infrastructure still there including a tank, fencing, etc. which could be demolished.
- Owned by the GN.

Site #2

- Approximately 620m from the last manhole (AV-35).
- Approximately 570m from the existing outfall.
- Approximately 1.2Km from the drinking water supply (Char Lake).
- Middle elevation of the 3 sites (approximately 12m above sea level).
- Excellent access for trucks for offloading.
- Not sure about historical/cultural uses for the property. Doesn't appear to be any activity on the site at present.
- Owned by the GN.

Site #3

- Approximately 800m from the last manhole (AV-35).
- Approximately 800m from the existing outfall.
- Approximately 920m from the drinking water supply (Char Lake).
- Highest elevation of the 3 sites (approximately 35m above sea level).
- Excellent access for trucks for offloading.
- Not sure about historical/cultural uses for the property. Doesn't appear to be any activity on the site at present.
- Owned by the GN.