



## Winter Trail Plan

**DRAFT – For Review**

Submittal 004.01

# Pelly Lake Remediation Project

Contract No: CW2370974

PSPC Project No: R.120351.001

Salumaq Project No: SU250455

## Pelly Lake, Nunavut

**Submission date:** November 11,

*Prepared for:*

**Government of Canada**  
Public Works and Government  
Services Canada (PWGSC)

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**Project No.:** SU250455

## Document History:

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Changes to this document are summarized in the following table in reverse chronological order (latest version first).

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|          |              |              |                                                                                                           |
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|          |              |              |                                                                                                           |

## Signature Sheet

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(please print)****Date****Signature****All aspects of the work will be conducted in accordance with:**

- ✓ Local / Provincial / Federal Legislation, Permits and Regulations, as applicable
- ✓ Site Specific Health and Safety Plan (HASP)

NOTE: All site personnel must read and acknowledge review of the HASP, prior to start of any work. Refer to Sign-off Sheet – MEHS # 24 – 1.

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## 1 BACKGROUND INFORMATION

### 1.1 Customer

Public Works and Government Services Canada (PWGSC) on behalf of Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC).

### 1.2 Project Name

Pelly Lake Remediation Project

### 1.3 Project Numbers

Salumaq – SU250455  
PWGSC – R.120351.001

### 1.4 Project Location

Pelly Lake Site  
Pelly Lake, NU

The Pelly Lake Site, located approximately 250 kilometres northwest of Baker Lake, 350 kilometres southwest of Gjoa Haven, and 6 km northeast of Pelly Lake, is a site of significant historical, cultural, and environmental importance. Situated at Lat: 66.053538° and Long: -101.052295°, it lies within the Kivalliq Region of Nunavut, Canada.

### 1.5 Remediation Project Objectives

The objective of this project is to safely remediate, remove, and dispose of waste, including hazardous materials such as lead-impacted sediment, lead-painted metal objects (CAT bulldozer and metal cart), petroleum products, including lubricants, aviation fuel, oil, tar, soil impacted with tar, cans of aviation oil, and residues from drums and tanks, as well as car batteries. Additionally, non-hazardous debris, such as scattered barrels, fuel tanks, wooden debris, an overturned vehicle, scattered metal debris, dilapidated wood and metal structures (food cache), and miscellaneous household waste, pose significant environmental and safety risks that require remediation while maintaining the integrity of the surrounding environment.

The overall goal is to enhance the quality of habitats and wildlife and to remove human health and ecological health risks at the site to support traditional land uses by local Inuit communities. This will be achieved by clearing the site of hazardous waste and restoring the land from an ecological standpoint while following best practices for environmental safety and waste management.

#### 1.5.1 Summer 2025 – Waste processing and consolidation

During the summer of 2025 a work crew spent approximately 20 days processing, testing, cleaning, consolidating and packing the various wastes at the site.

The following hazardous wastes were collected:

- 1315 L of hazardous liquids
- 23 lead-acid batteries
- 8 m<sup>3</sup> of contaminated sediment

The hazardous liquids and batteries were removed from the site by aircraft in September 2025. These were loaded onto Sealift in October 2025 and have been disposed at licensed facilities outside of Nunavut. These are not part of the overland-haul work. The contaminated sediment was loaded into ridged-walled soil bags and strapped to pallets.

The following non-hazardous wastes were collected:

- 50 steel fuel tanks (1000 gal) were emptied, decommissioned, cleaned and cut open to use as storage of non-hazardous debris
- 781 empty drums, cleaned, crushed and consolidated into open tanks
- 1 bull dozer, fluids removed
- 1 airplane engine, fluids removed
- 2 wobble-wheel carts, emptied
- 1 old jeep wreck, fluids removed

### 1.5.2 Winter 2025 – Overland Winter Haul

The non-hazardous waste items, primarily steel are the subject of the winter overland haul. Waste will be temporarily staged in Baker Lake, until they can be transported by sealift for disposal or salvage outside of Nunavut, in summer 2026.

## 1.6 Existing Physical Environment

### 1.6.1 Climate data

The planned winter Trail alignment, as summarized from the closest ECCC weather station 125 km to the southwest at Robertson Lake, Nunavut, indicates daily average temperatures between -31.9°C in February 2021 and 9.2°C in August 2021 (data corresponding to the period from January to December 2021 (Government of Canada 2022)). The average yearly precipitation has not been recorded. The total amount of precipitation received in 2021 was 207.7 millimetres (mm). Daily average temperatures were above 0°C during four months of the year in 2021 (June - September). Precipitation in the form of snow can occur at any time throughout the year, although it is less likely in July and August.

### 1.6.2 Surficial Geology

In the area is characterized as glacial outwash plains (Canadian Geoscience Map 274, 2015), consisting mainly of sand with gravel, moderately to well sorted, 2 to 15 m thick. The area is typified by significant, often interconnected, water bodies of varying size within these glacial outwash plains. The plains contain a mix of raised plateau and rolling hills.

### 1.6.3 Bedrock Geology

Bedrock in the area consist of archaean gneiss granite, as indicated on the map titled “Geology – Northeastern District of Mackenzie, NWT” (GSC, 1963). Additionally, the Geological Survey of Canada also confirmed the bedrock underlying the area consists of Archean gneiss rock, describing it as Archean undivided gneiss (de Kemp, et al. 2006).

The proposed trail is located within a zone of continuous permafrost (90% - 100% of this zone is underlain by permafrost) (Heginbottom, J.A., 1995).

## 1.7 Existing Biological Environments

The Pelly Lake Site and proposed trail alignment is within the Southern Arctic Ecozone and the Garry Lake Lowland Ecoregion, which can be characterized as a gently sloping plain with a low Arctic ecoclimate and shrub tundra **vegetation**. The Project Site and surrounding area are characterized as a mosaic of sand and gravel glacial deposits with thinly dispersed vegetation that is primarily composed of sedges, dwarf shrubs, herbaceous plant species, lichens, and mosses. There are multiple lakes and ponds present in the surrounding area that are bordered by sedges and dwarf shrubs but do not appear to support aquatic or emergent vegetation (inferred from field observation and from accounts by local elders knowledge about the area – John Avaala).

Many characteristic Arctic tundra **mammal** and bird species including barren-ground caribou (*Rangifer tarandus groenlandicus*), muskox (*Ovibos moschatus*), grizzly bear (*Ursus arctos horribilis*), Arctic fox (*Vulpes lagopus*), Arctic wolf (*Canis lupus arctos*), wolverine (*Gulo gulo*), ermine (*Mustela erminea*), Arctic hare (*Lepus arcticus*), Arctic ground squirrel (*Spermophilus parryii*), brown lemming (*Lemmus sibiricus*), gyrfalcon (*Falco rusticolus*), snow geese (*Chen caerulescens*), Canada goose (*Branta canadensis*), willow ptarmigan (*Lagopus lagopus*) and rock ptarmigan (*Lagopus mutus*), are likely to inhabit the Site and surrounding area. Wildlife species observed during the August-September 2025 Site visit included barren-ground caribou, Arctic hare, Arctic ground squirrel, brown lemming, Canada goose (*Branta canadensis*), wolf, and ptarmigan species.

The Project Site provides minimal habitat for soil **invertebrate** communities, due to the presence of permafrost that limits soil structure and depth. Soil invertebrates include organisms such as worms, springtails, spiders, and insects. As a result, soil invertebrates are uncommon in terrestrial Arctic ecosystems (Danks et al., 1997).

## 2 PERTINENT SCOPE OF WORK FOR THIS DOCUMENT

Throughout the project lifecycle, Salumaq will utilize different methods of mobilization and demobilization. Generally they consist of Local and Intra-Site Transportation, Sealift and Aircraft as well as an overland winter trail demobilization of wastes, which is the focus of this plan. All other modes of transport are discussed in detail within the Mobilization and Demobilization Plan (Submittal 004) submitted under a separate cover.

### 2.1 Demobilization – Winter Trail

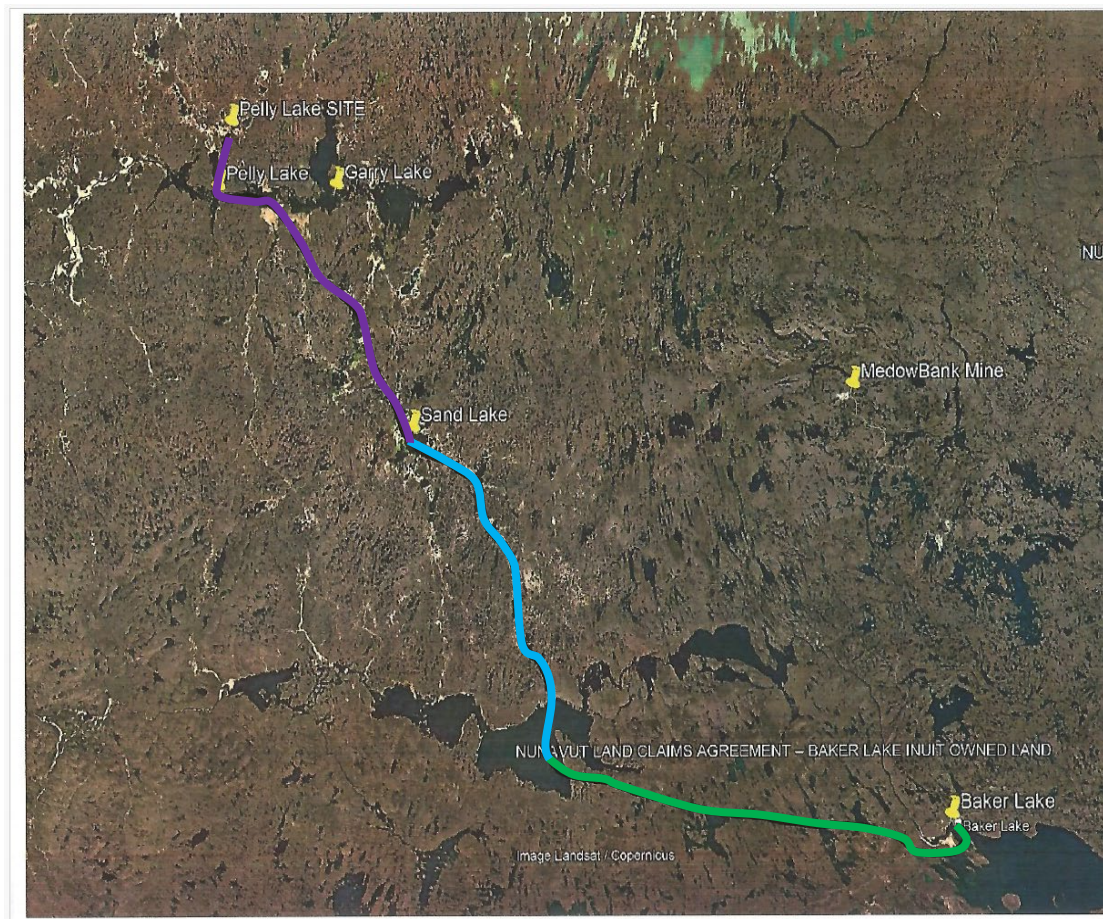
Salumaq believes that a winter trail overland haul would provide price and risk mitigation benefits to the Crown. As such, and after extensive discussions and planning steps with Peter's Expediting Limited (PEL) in Baker Lake, NU, the following Plan has been prepared in support of an overland backhaul of NON-HAZARDOUS wastes including our plan to assess, inspect, permit, develop and utilize a winter trail from Baker Lake to the Pelly Lake site.

In January 2026 Salumaq will construct an estimated 300-km winter trail, relying on the traditional knowledge, vast experience and equipment of PEL. The following is a map of the route PEL recommends to be used from their staging area in Baker Lake to the Pelly Lake Site.

The first leg of the journey, approximately 120-km, from Baker Lake to Aberdeen Lake (**Green** line) will traverse an existing PEL winter trail route where they already have a regulatory approved Right of Way (Inuit Land Use License # KVRW98F146) to haul goods and equipment. The second leg from Aberdeen Lake to Sand Lake (**Blue** line) is estimated at 80-km and has not been traversed by PEL, but during their research and communications

with community elders, PEL has confirmed that several past expeditions have traversed the indicated route. The final leg of the winter trail (**Purple** line) is approximately 100-km in length and PEL believes has only been travelled in recent times by Inuit travelling to traditional lands by snowmobiles. Salumaq reached out to Baker Lake community member John Avaala who has strong family ties to the Pelly Lake and Gary Lake area. Mr. Avaala provided extensive details of the land, ecological receptors and ideal travel routing in this area. This information has been incorporated into this winter trail plan. It is our understanding that topography northwest of Sand Lake is conducive for winter trails.

PEL has been a trusted provider of overland hauling services for over 25 years, supporting remediation, cleanup, and resource sector projects throughout the Kivalliq Region. Salumaq will retain PEL to offer a modern solution to a traditional means of regional transportation – long haul overland travel.



**Figure 1. Route from staging area Baker Lake to Pelly Lake site**

### 2.1.1 Route Planning

In general, the winter trail alignment will preferentially be oriented over lake ice/snow to minimize potential disturbances to the environment, and it is more efficient to pull encumbered sleds along a flat, level surface. Any routing over land will maintain a MINIMUM snow pack thickness, and will avoid travel over exposed ground.

The Project Team has considered numerous elements in the winter trail demobilization including topography, environmental risks, wildlife, cultural artifacts and more. The following is an outline of the requirements and efforts carried-out in the preparation for and carrying out of the winter trail demobilization.

In summer 2025 PEL conducted extensive interviews with local residents of Baker Lake including John Avaala, who's family is from the Pelly Lake area and has considerable knowledge of the travel routes, land and wildlife in the region. Based on the PEL's existing winter trail permits, long history of winter haul work in the area and local traditional knowledge the trail alignment was proposed.

In the early winter, once snow pack is established and lakes are frozen, PEL will carry-out a ground reconnaissance traversing the planned route that was selected by air. This will provide additional information that will supplement the LUP, as necessary.

Salumaq anticipates numerous access points where the CAT train transitions from an overland snow trail to an ice trail. There are several key criteria in determining the best access points to large bodies of water or the crossing of streams. First and foremost, the team will follow the DFO code of practice for Ice Bridges and Snow Fills to ensure that the littoral zone, flora and fauna are protected during ingress/egress activities. PEL will look for shoreline access points that are generally stable from hydrological, geotechnical, and environmental perspectives. The vehicle speed becomes critical when vehicles are approaching the shoreline at an access point. The interaction of the waves created by the moving vehicle and their reflection from the shorelines are greatest when a vehicle approaches a shoreline at a right angle. If possible, access points should allow vehicles to meet the shoreline at a 45° angle or less.

For the overland portions Salumaq will prioritize routes high, dry and on flat ground as these areas typically have less snow accumulation/drifts during winter, leading to frozen and stable ground. The tundra landscape that will be travelled has substantial ponding of water with minimal fish habitats. Accordingly, Salumaq will also focus on areas to avoid including: pingos, unstable slopes and slide areas; as well as valleys because they retain snow that inhibits ground freezing. The trail route may preferentially follow on or near eskers because they are well drained and stable; however, eskers also provide critical habitat for wildlife. Known denning areas will be avoided when planning development on or near an esker.

### 2.1.2 Trail Development – Overland (i.e. over snow)

Salumaq will rely heavily on PEL who is experienced in carrying out expediting projects overland in the Kivalliq region. Using up to four specialized low ground pressure Case IH tractors with tracks, the waste will be pulled from the site to Baker Lake on sleds.

Snowmobiles and a snowcat will precede the "CAT Train" to verify the exact route to be followed and to radio back any necessary adjustments. In front of each CASE tractor is a plough that will push aside the snow and provide a level surface to traverse. The specially designed sleds will follow along within the track path of the hauling equipment.



PEL anticipates that the first trip preparing the trail will take 7-10 days due to the confirmation of route and initial compaction of the trail. Commencement of winter trail construction depends on air temperatures and snow conditions. The opening date is usually designated in the land use permit, but can be changed at the discretion

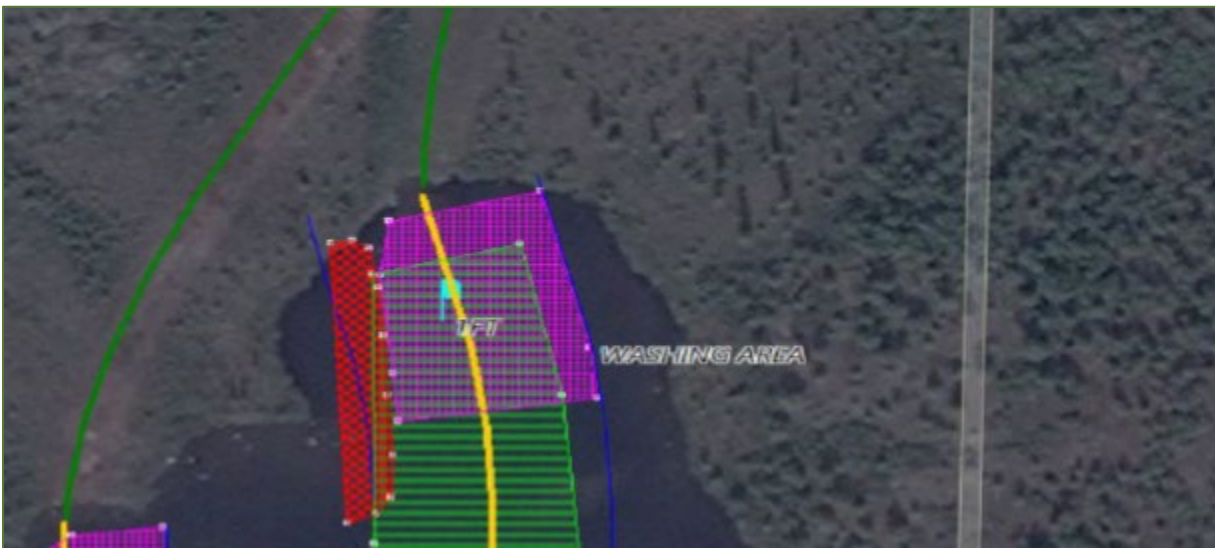
of the CIRNAC resource management officer depending on weather conditions. Initially, we expect the trail will be opened to lightweight tracked vehicles. PEL's initial trail development work will compact snow to enhance ground freezing and minimize disturbance to the ground surface associated with using drags or blades.

### 2.1.3 Trail Development – Over Ice

Ice trail construction on bodies of water can be more efficient and have less environmental impact than winter trail construction on land. As such, the proposed trail alignment will maximize the ice bearing sections of the winter trail. By delaying the start of the winter trail development into January 2026, it allows for greater ice accumulation in the lakes, and shallow ponds will freeze solid. PEL is trained and has experienced competent operators that will assess the ice conditions throughout the trip. Trail alignment between trips may shift based on actual ice conditions, as such Ice Profiling is an important part of the winter trail development.

Using an ultra-low ground pressure machine such as a snow mobile or snowcat, our crew will complete an initial ice profile using ground penetrating radar technology (GPR) to determine the depth of ice on the lakes. In conjunction with Gold's Formula, using P4 as the factor of safety value, the profile will assist in determining the equipment that would be available to complete the initial plowing of the lake.

The GPR transmits an electromagnetic (EM) pulse of extremely short duration, which is partially reflected from the interface between the bottom of the ice cover and the water below. The EM pulse can also be reflected from any discontinuities within and below the ice cover. PEL has trained operators that will identify spurious reflections and arrive at an accurate estimation of the ice thickness. Snow, snowdrifts, overflow, liquid water intrusions and air bubbles in the ice affect GPR estimates of ice thickness and should be reported. Manual ice thickness measurements will be collected daily to obtain calibration data. PEL will calibrate the GPR at the start of each day, after four hours of use, and whenever erratic or questionable readings are obtained.



*Figure 2. GPR for Ice Thickness Measurement*

During construction and operation of ice roads, GPR will be used to produce continuous estimates of ice thickness along the length of the ice road. PEL's ice profiling GPR system includes transmitting and receiving antennae and a digital data logger, GPS, and battery. The GPR system is connected by cable to a portable control unit with a monitor or laptop computer to display radargrams in the field.

PEL will calculate the required ice thickness based on the actual ice profile results. To do so there are three ranges of loads to be considered: Lighter Loads, loads less than 11,000 lbs, in which a minimum effective ice thickness

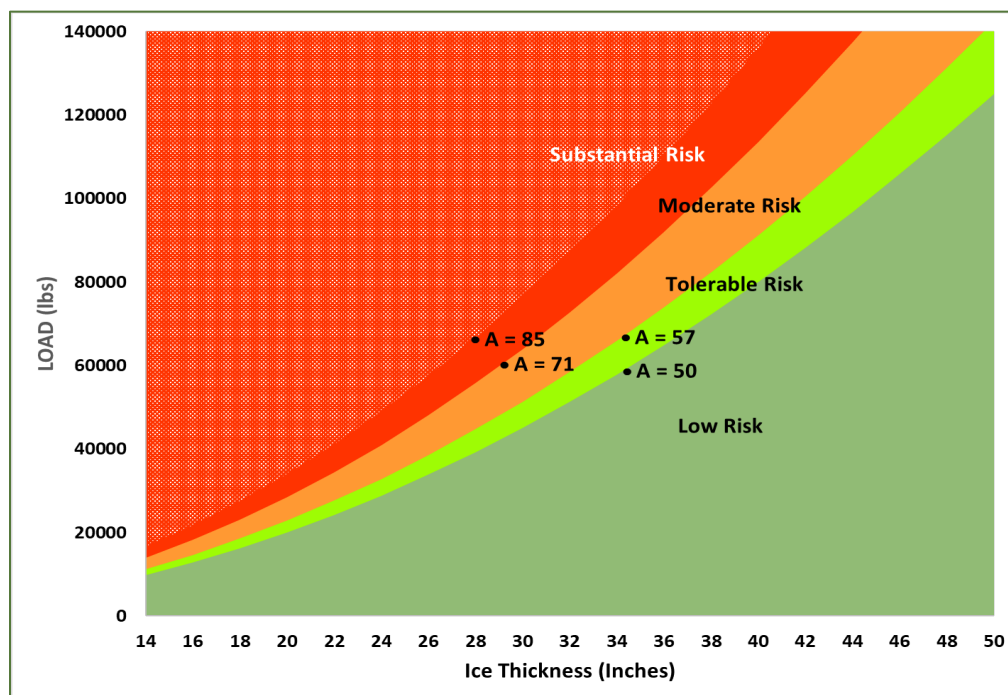
is required; Traffic Loads, greater than 11,000 lbs and less than 140,000 lbs, which cover most of the loads transported on the ice road; and Extreme Loads which are greater than 140,000 lbs and require special analysis by a Professional Engineer with expertise in ice bearing capacity. PEL will only be hauling Lighter or Traffic loads. The heaviest load is estimated at 40,000-lbs (CASE IH Tractor plus 29,000-lbs of waste loaded sleds).

Lighter loads are less than 11,000 lbs. In these cases, there is a minimum effective ice thickness required:

**Table 1. Effective ice thickness requirements for lighter loads**

| Load/Situation<br>(Slow-moving Loads) | Estimated Weight<br>(lbs) | Minimum Effective Ice Thickness<br>(Inches) |
|---------------------------------------|---------------------------|---------------------------------------------|
| Person walking                        | 260                       | 4                                           |
| Snowmobiles<br>(machine + rider)      | < 1100                    | 7                                           |
| 3/4-ton 4x4 vehicles                  | GVW* < 11,000             | 15                                          |

Traffic loads are moving loads on the ice, but the travel speed does not influence the bearing capacity (because it is below the critical speed). The Traffic Loads will apply to most of the loads that Salumaq's ice trail will facilitate and are designed to support. Traffic Loads range from 11,000 to 140,000 lbs. The allowable loads in pounds for a given effective ice thickness is shown on the below graph.



**Figure 3. Allowable Loads in Pounds for Effective Ice Thickness and A Values**

PEL will core the ice to ensure that the effective ice thickness is of acceptable quality, well-frozen, white, and blue ice in an ice cover. Poor quality or poorly frozen ice will not be included in the measurement of ice thickness. The following lists examples of ice that should be excluded from measurements:

- Ice layer with visible water lenses with a cumulative volume greater than 10% of the total volume.
- Ice layer with visible incompletely frozen frazil (slush) ice.

- Ice layer that is not completely frozen to the adjoining layer.
- Ice layer that has been found to have a strength less than 50% of decent quality blue ice (a number of specialized methods are available for determining ice strength).
- Ice that has wet cracks.

Although not expected to be required for January-March hauling in the region PEL may have to thicken the ice. Generally, the route would be adjusted to avoid bad ice and unsafe conditions, but in some cases PEL may have to increase the bearing capacity. To increase the effective ice cover thickness, clearing the snow cover off the ice road followed by flooding the ice cover could be completed. To improve the effective ice thickness PEL will auger holes into the ice surface and pump water onto the surface that will not only increase ice thickness but also improve overall ice quality.



Through the construction phase, our approach will include continuous profiling of the lake to verify ice thickness. Using Golds formula, a P4 safety factor and relying on PEL's experience in arctic CAT trains, Salumaq is excited to implement this winter trail approach.

## 2.2 Winter Trail Utilization

Once constructed Salumaq anticipates 3 trips consisting of 4 CAT trains pulling 3 to 5 sleds each. As noted, the initial preparatory trip (i.e. Baker Lake to Site) will take 7-10 days with subsequent trips taking 3-4 days (each way). The first set of loads will consist of bulkier wastes that Salumaq plans to further process in Baker Lake before shipping south. This will allow for further compaction of the winter trail before moving heavier loads. One of the machines will also be hauling a sleeper so that the hauling crew has a warm dry place to sleep at night. The hauling crew will work 12-hr shifts.

The actual loading efforts are further discussed in subsequent sections. Once the 4 CAT Trains, consisting of 12-16 sleds are appropriately loaded and secured the CAT train will return to Baker Lake along the now establish winter trail. It is expected to take 3-4 days to return to Baker Lake. In total, we expect that the overall mass of the waste will dictate the number of trips. Initial estimates expect that 3 CAT train trips will be required to haul out the wastes. Crew changes between haul trips will allow PEL to quickly be prepared to carry-out the subsequent trip, but Salumaq has allowed 3-days between each trip for rest and regular maintenance on the equipment. The entire overland haul is estimated to take 31-days.

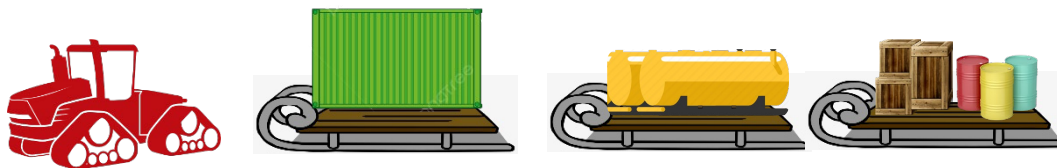
*Table 2. Conceptual CAT Train Trips and Loads.*

| Winter Trail Demobilization CAT Train List |                                                 |                                |                               |                           |
|--------------------------------------------|-------------------------------------------------|--------------------------------|-------------------------------|---------------------------|
| Trips and Trains                           | CAT Train 1                                     | CAT Train 2                    | CAT Train 3                   | CAT Train 4               |
| Trip #1                                    | Sleeper                                         | Hazmat (if needed)             | 4x TC Tank pieces (4,000-lbs) | 2x TC Drums (6,290-lbs)   |
|                                            | Jeep & Cart<br>2x TC Vehicle Parts (23,000-lbs) | 10x Sediment Bags (22,000-lbs) | 3x TC Non-Haz (8,375-lbs)     | 3x TC Non-Haz (8,375-lbs) |

|         |                            |                                    |                                    |                               |
|---------|----------------------------|------------------------------------|------------------------------------|-------------------------------|
| Trip #2 | Sleeper                    | 3x TC Metal Debris<br>(12,300-Lbs) | 3x TC Metal Debris<br>(12,300-Lbs) | 4x TC Non-Haz<br>(10,700-lbs) |
|         | 3x TC Drums<br>(9,435-lbs) | 3x TC Drums<br>(9,435-lbs)         | 3x TC Drums<br>(9,435-lbs)         | 3x TC Drums<br>(9,435-lbs)    |
| Trip #3 | Sleeper                    | 3x TC Drums<br>(9,435-lbs)         | 3x TC Drums<br>(9,435-lbs)         | Loader (if needed)            |
|         | Skid-Steer & Equip         | Sleeper                            | Sleeper                            | Sleeper                       |

The following illustrations depicts what one CAT Train could haul during one trip

*Figure 4. CAT Train set-up (3-Loads)*



Once in PEL's Baker Lake storage facility, PEL will winterize the wastes making sure that they are stable and protected from the elements.

Any additional waste processing will be conducted in Baker Lake in June 2026 in preparation for the first Sealift barge that arrives and has room for retrograde marine backhauls.

### 3 RISKS AND MITIGATION MEASURES

#### 3.1 Fuel and Hazardous Good Handling

Each CAT train will haul its own fuel in a double-walled tank sufficient for a round trip. Expected quantity of fuel sufficient to run the tractors, generators, snowmobiles and tools is 6,000 L per trip. Fuel will be dispensed by trained personnel wearing PPE including protective gloves, face shields and drip trays will be installed under each machine while refueling. 12v diesel pumps that are grounded will be used to transfer fuel. Each tractor, the sleeper caboose and the fuel cube will have spill kits onboard. Each kit will have an assortment of absorbent pads, mats and booms. Any drips will be wiped up immediately and spend absorbent will be containerized for proper disposal at the community waste facility in Baker Lake.

A Fuel cache will be setup at Aberdeen Lake. The cache will be a seacan tank with secondary containment and spill kit.

Other hazardous goods will include small quantities of lubricants, hydraulic oil, antifreeze and hand cleaning solvents. These will be stored consistent with MSDS and transportation of dangerous good packing and movement regulations and will be in secondary containment.

## 3.2 Emergency Spill Response

As the Prime Contractor for the Pelly Lake Remediation Project, Salumaq's health and safety plan and emergency response protocols will be followed in addition to PEL's task-specific policies and procedures. The immediate priority in the event of a spill is to ensure the safety of any personnel in the immediate vicinity followed by minimizing the potential impact to the environment. The implementation of spill containment measures, cleanup and remediation will only be undertaken if safe to do so.

SALUMAQ personnel are trained in spill prevention and response. In the event of a hydraulic fluid or fuel release while operating equipment or transferring liquids the equipment operation must immediately stop. If safe to do so, efforts to stop/contain the spill using secondary containment, pads, pillows, socks or other absorbent material will be deployed as quickly and safely as possible. Impacted materials including snow, ice, spent absorbents, and soil will be removed and disposed off site at a licensed facility. The equipment operation will only resume following repairs and integrity testing.

During the kick-off/orientation prior to start of winter trail work, Spill Prevention and Response Programs shall be reviewed. (The Program can be found in Part 2 of the Salumaq HASP binder) A mock spill should be completed and evaluated on site to ensure all workers are prepared and ready to respond to a spill safely and effectively. Any gaps discovered in the mock spill drill will be discussed immediately after the drill and/or during the next weekly safety meeting.

### General steps

Steps for a spill response procedure are detailed in the MEHS#253 Spill Prevention and Response Program. The priority sequence for spill response is as follows:

1. Stand back
2. Assess the hazards
3. Stop spill if safe to do so
4. Get help
5. Prepare action steps
6. Get appropriate equipment
7. Contain the spill
8. Clean up the spill
9. Post-spill action

## 3.3 Spill Reporting

### Internal

- The person responsible for the release or who first discovers the release shall contact the supervisor or Incident Commander and provide as much information regarding the nature of the spill as possible. Such as location, source, type, amount, and description of adverse effects that occurred or may occur.
- The Supervisor or Incident Commander will contact the superintendent and Regional Manager who will collaborate to determine if external reporting is required. (based on Appendix 5 depending on the provincial requirements)
- The Supervisor or Project Manager will ensure that PSPC/CIRNAC have been notified.
- The person reporting the incident, with assistance from their supervisor will complete an incident report in Salus.
- The EHS Department will perform an investigation and determine corrective and preventative actions.

- The final Incident Investigation Report will be disseminated to all by the EHS department and to the client, PSPC/CIRNAC.

## External

**When a release of substance into the natural environment (land, air, water) may cause, is causing or has caused an adverse effect and/or that is more than an amount, concentration, level or rate of release expressly authorized by an approval or the regulations or be a danger to public safety, the Government of Nunavut - Department of Environment and the Environmental Protection Division's 24 hour spill report line (867-920-8131) must be called as soon as possible.**

Reporting sequence below will be followed to allow for an efficient and effective response, completion of an accurate spill report, and timely notification of management, and government agencies.

- The person responsible for or who discovers the release shall immediately contact the supervisor or Incident Commander.
- The supervisor will gather as much spill information as possible and provide the information to the superintendent, EHS and Regional Manager.
- The Regional Manager or his/her designate will review the circumstances surrounding the incident, and, using specific Nunavut requirements found in the Spill Prevention and Response Program, Appendix 5 as a guide, determine if external reporting is required.
- If external reporting is required, the Regional Manager or designate will contact the supervisor to complete the Initial/Verbal Ministry Notification of a Spill Required Information Form (MEHS # 253 – 1) and also found in Appendix 1 of the Spill Prevention and Response Program.
- The supervisor will then provide the information on the form to the superintendent and Regional Manager. This can be provided verbally, scanned, and emailed or photo and text.
- Once as much information as possible is obtained, the Regional Manager or delegate will make an initial verbal report to the appropriate provincial authority responsible for environmental emergency notifications. This initial contact/report shall be done forthwith meaning as quickly as possible under the circumstances but not more than 1 hour of occurrence.
- The initial report can be followed up with subsequent reports once previously unknown information becomes available.

Spill reporting requirements are also provided in **Part 2** of the HASP binder. Specifically, Appendix 5 of the Spill Prevention and Response Program. Appendix 5 contains the NWT and Nunavut Spill Reporting Requirements and shall be posted at the worksite in a conspicuous place.

## 3.4 Environmental Impacts and Proposed Mitigation Measures

Through its 27-year operating history, PEL has developed a winter hauling operating standard that puts the environment and ecological receptors first. Each season prior to the first winter trail construction run, scouting parties are deployed by snowmobile along the proposed alignment to assess snow pack thickness, bear ground exposure, lake ice thickness, wildlife presence including evidence of den sites, herd migration and active foraging areas. The final trail alignment will be modified to mitigate adverse exposures to these receptors. Once established the equipment travel will be limited to the set trail to minimize the footprint.

### 3.4.1 Potential Impacts to permafrost and soil stability

To protect against permafrost degradation and ground erosion PEL's equipment and sleighs require a minimum of 48 inches of snow thickness, and 18 inches of ice to begin operations. Bear ground is avoided at all cost to minimize erosion as well as damage to equipment.

Transitions between land and lake surfaces are selected at minimal slope and steeper ridge transitions are not chosen.

Ahead of each run conditions are monitored. Should levels drop below these thresholds, operations will pause until either conditions approve, or a modification to the route can be found, or travel is postpone to next cold season. PEL's overland haul staff have gained experience each year, and are also experienced hunters who are knowledgeable of the terrain. In following Inuit Qaujimajatuqangit Principles, they rely on their traditional expertise to determine halt thresholds. PEL also utilizes an Ice Profiler, that determines ice thickness. (Profiler details listed on NIRB application equipment list).

### 3.4.2 Potential impacts to Terrain and Vegetation Disturbance

PEL is highly experienced in the development of winter trails and aware of this concern. The chosen Trail Routing was established based on traditional Inuit knowledge after consultations with local elder John Avaala. PEL is aware of the impacts of overland transport on habitat and will as much as possible confine its trails to frozen waterways. Prior to official overland haul season commencement, trail conditions are inspected during the pre-season trail scouting trip by snowmobile. This trip determines thickness and stability of snow and ice to avoid damage caused by equipment to flora/fauna. Areas of thick vegetation will be avoided in final trail alignment selection. If the ground conditions are not acceptable, the trip may be postponed.

Our equipment will not operate on thawed and exposed terrain or vegetation. All necessary measures will be taken to avoid disruption to vegetation. Historically, operations have halted due to insufficient snow cover.

### 3.4.3 Potential impacts from Waste Generation, Storage and Wildlife Attractions

All food is stored inside the Caboose (living quarters), all food waste is stored in an open-top drum with a lid, which is sealed at all times, and returned to community for disposal at the waste facility. All human waste/greywater is stored in Double Doodie bags, stored in an open-top drum with a lid, and returned to community waste facility. There will be no littering or dispersal of wastes along the route.

Pelly Lake Site Wastes have been and stored in tank-container halves. The tank container halves and megabags will be covered with heavy duty tarps, secured on PEL sleighs using chains, Herc-straps and load binders. Once these waste loads arrive at Baker Lake, they will be stored at Peter's Expediting Ltd. industrial lot and blocked off from the public with barriers. We will perform weekly inspections until wastes are loaded onto sealift. *Please see attached Contaminated Goods Storage Inspection Form.*

### 3.4.4 Potential impacts to Wildlife

Pre-season scouting trips along the proposed trail alignment will assess potential wildlife encounter points such as den sits, foraging areas and herd migration activities. Fixed encounter points, such as dens, will be avoided.

From extensive experience in winter trail travel PEL knows that CAT train movement in the vicinity of migrating herds of caribou or musk-ox are minimally disruptive. This is corroborated through recent interviews with Baker Lake Elder John Avaala, who's family spent considerable time the Pelly Lake area. Migrating groups of animals will temporarily disperse and rejoin once the CAT train has travelled through. That said, if groups of animals are sighted, the CAT trains will

- reduce speed to approx 10km/h
- avoid unnecessary noise.
- yield right of way to animals that happen to be crossing the trail
- pause travel in low visibility

Further winter trail operation is planned for February – April time frame which is during a time of lower caribou movement and outside of the expected caribou calving windows (May- June).

Mr. Avaala will also accompany the pre-season scouting assessment and be consulted on known and important wildlife water crossings, which are typically sensitive areas for disturbance. These areas will be avoided for the trail alignment.

***Please refer to PEL's Wildlife/Land Management Policy***

### **3.5 Cumulative Effects**

Considering the duration (1 season), extent (3-4 round trip), magnitude, frequency, and reversibility of each potential effect that may occur as a result of temporary winter trail activities for the Pelly Lake Remediation Project, and the mitigation measures available, there are no significant negative impacts for vegetation and wildlife interactions, and aquatic ecosystems anticipated and there are no residual negative effects anticipated. The Project's temporary winter access trail is not expected to have significant negative effects on vegetation and aquatic habitats because it is scheduled for construction and usage during frozen conditions where snow and ice will protect vegetation and water bodies from heavy equipment contact and potential spills. Planning, supplies and training in emergency spill response will further mitigate any incidents that occur. The extent of anticipated vegetation biomass and soil loss or alteration along the trail as a result of Project remediation activities is expected to be extremely small in relation to the habitat available in the surrounding area.

The Pelly Lake Remediation project involves the removal of all impacted sediment and debris on Site. The overall goal is to enhance the quality of habitats and wildlife and to remove human health and ecological health risks at the Site. Due to the distance of this site from the nearest community of Baker Lake (350 km) using a winter trailer to haul all the waste and debris out was deemed the most effective and low impact options to overall clean-up of the site.