



Water Resources Division  
Resource Management Directorate  
Nunavut Regional Office  
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Your file - Votre référence  
1BR-BAK--  
Our file - Notre référence  
GCDOCS# 146643908

May 20, 2026

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**Re: Crown-Indigenous Relations and Northern Affairs Canada's Response of Applicant Reply to comments on the Licence Application for the Baker Lake Landfarm Project, Type B Water Licence No. 1BR-BAK--**

Dear Richard,

Thank you for the April 30, 2026 invitation to review Response of Applicant Reply to comments of the referenced licence, submitted by Nunatta Environmental Services Inc. on behalf of the Petroleum Products Division of Transportation and Infrastructure Nunavut, for Type B Water Licence No. 1BR-BAK--.

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) examined the application pursuant to its mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Crown-Indigenous Relations and Northern Affairs Act*. CIRNAC provides the following Technical Review Memorandum for the Board's consideration.

If there are any questions or concerns, please contact me at (873) 800-5240 or [Pauline.Firmin@rcaanc-cirnac.gc.ca](mailto:Pauline.Firmin@rcaanc-cirnac.gc.ca) or Andrew Keim at (867) 975-4550 or [Andrew.Keim@rcaanc-cirnac.gc.ca](mailto:Andrew.Keim@rcaanc-cirnac.gc.ca).

Sincerely,

*Pauline Firmin*

Pauline Firmin, M. Sc,  
Regional Coordinator

Table 1: Summary of Recommendations

Recommendation Number	Subject	Status
R-01	Clarification On The Proposed Maximum Landfarm Capacity	Resolved
R-02	Proximity Of The Landfarm Site To Waterbodies	Resolved with Comments
R-03	Clarification Of The Impact Of Construction On Local Runoff Patterns	Resolved with Comments
R-04	Missing Site Characterization Information	Not Resolved
R-05	Clarification On The Landfarm Water Monitoring Plan	Not Resolved
R-06	Clarification On The Status Of The Access Road	Resolved
R-07	Determination Of Freeboard Height	Not Resolved
R-08	Location Of Spill Kit	Resolved
R-09	Clarification On Spill Response On Muskeg	Resolved
R-10	Clarification On Post-Restoration Monitoring	Not Resolved
R-11	Missing Consultation Records	Resolved
R-12	Adequacy Of Proposed Term Of Licence	Resolved
R-13	Missing Attachments	Resolved

**A. DOCUMENTS REVIEWED AND REFERENCED**

The following table (Table 2) provides a list of the documents reviewed under the submission and reference during the review.

**Table 2: Documents Reviewed and Referenced**

Document Title	Author, File No., Rev., Date
260423 1BR-BAK---- 14 Baker Lake Landfarm NWB Application - Response to CIRNAC Comments-IMLE	Nunatta Environmental Services Project, V1, No date.
Closure And Reclamation Plan PPD Baker Lake Landfarm	Nunatta Environmental Services Project, V2, April 23, 2026
Spill Contingency Plan PPD Baker Lake Landfarm	Nunatta Environmental Services, V2, April 23, 2026
Operation And Management Plan PPD Baker Lake Landfarm	Nunatta Environmental Services Project, V2, April 23, 2026
Baker Lake Hamlet Letter	Municipality of Baker Lake, April 15, 2026
Supplemental Information Guide (SIG)	Unknown, V1, Unknow date
Guide 4 : Completing and Submitting a Water Licence Application for a New Licence	Nunavut Water Board, July 2015

## **B. RESULTS OF REVIEW**

### **2. Proximity Of The Landfarm Site To Waterbodies**

#### **Comment:**

CIRNAC notes that the application does not clearly identify the proximity of the proposed landfarm to the high water mark of any adjacent waterbodies. Photographs from the site visit show surface water pooling and runoff adjacent to the site, and the proponent notes that water was observed running along the eastern property boundary during the June 7, 2025 site visit (Survey and Sampling, Section “Site Visit”, p. 4). It is unclear whether this observed flow represents a defined watercourse, or surface runoff, and whether the proposed landfarm location respects the minimum 31 m distance from the high water mark of waterbodies.

In addition, the application does not clearly describe how surface water that appears to be present on site will be diverted away from the landfarm to maintain the integrity of the infrastructure. This makes it difficult to determine if the chosen landfarm site is compliant with regulatory requirements.

#### **Recommendation:**

(R-02) CIRNAC recommends that the presence of nearby waterbodies or drainage features on or near the landfarm site be clearly identified, including indicating if the distance from the proposed landfarm to the high water mark of nearby waterbodies is at minimum 31 m. CIRNAC also recommends that additional information be provided on surface water management measures, including how runoff will be directed or diverted to prevent water from entering or pooling around the landfarm cell.

#### **Proponent Response:**

Because the site location was formerly used as an aggregate source for the Hamlet of Baker Lake, there is some surface water runoff towards Baker Lake.

The Atlas of Canada topographic map identifies two creeks between the site and the Hamlet of Baker Lake, and Baker Lake to the south. The closest creek is 1.8 km from the site, and Baker Lake is more than 1.5 km to the southeast.

This information will be added as background to the Monitoring Plan.

Water observed during the site visit was generally downgradient and primarily off-site. The area of the construction of the landfarm was dry and does not appear to be affected by surface water runoff to the east of the site. There is a substantial gradient to the east of the site, and Nunatta does not expect that water will pool or collect upgradient of the landfarm (see e.g. Photo Log pages 1 and 2 of the letter).

**Response to Reply:**

CIRNAC thanks the Applicant for the additional information provided regarding the distance to nearby mapped waterbodies and the general description of surface water runoff observed during the site visit.

CIRNAC reminds the Applicant that it is their responsibility to ensure that surface water runoff, pooling, or drainage does not compromise the landfarm during construction or operation, and that the facility remains compliant with applicable setback and water protection requirements.

CIRNAC recommends that the Nunavut Water Board consider including licence conditions related to surface water and drainage management to ensure runoff is effectively controlled and prevented from entering or accumulating within the landfarm area.

**3. Clarification On The Impact Of Construction On Local Runoff Patterns****Comment:**

CIRNAC notes that the application indicates “*Changes in the existing topography from construction are also expected to change local water runoff patterns.*” However, the basis used to determine those changes and the anticipated extent of such changes are not described (Application, Block 17). While the proponent indicates that impacts will be mitigated through “standard measures” and by designing the landfarm to limit changes to topography, the application does not provide details on the runoff assessment undertaken or on the specific design elements intended to address drainage. Observations from the June 7, 2025 site visit indicate surface water pooling and flowing throughout the site, suggesting that runoff management is a relevant consideration for the proposed works (Survey and Sampling, Site Visit, p. 4).

**Recommendation:**

(R-03) CIRNAC recommends that the proponent clarify on how changes to local runoff patterns were assessed and the anticipated extent of those changes. CIRNAC also recommends that additional information be provided on surface drainage and water management features (e.g., ditches, grading, or other controls), and on how the landfarm infrastructure is designed to limit topographic alteration and associated hydrological effects.

**Proponent Response:**

As noted above, runoff water observed during the site visit was to the east and downgradient of the site. Small amounts of ponded water from snow melt were observed at the site, but runoff water (see e.g., Page 5 of the Photo Log in the survey and sampling

site visit of June 7, 2025) was downgradient and to the east. During the site visit, the site was dry, even given runoff water present downgradient to the east of the site.

The construction of the landfarm will change the topography in the area by definition; however, the large gradient to the east is expected to direct any runoff water in the existing direction.

**Response to Reply:**

CIRNAC thanks the applicant for the additional information provided regarding the expected impact of the change in topography resulting from construction activities.

As noted in R-02, CIRNAC reminds the Applicant that it is their responsibility to ensure that surface water runoff, pooling, or drainage does not compromise the landfarm during construction or operation, including implementing all necessary measures in managing impacts from changes in topography as part of construction activities.

CIRNAC recommends that the Nunavut Water Board includes licence conditions related to surface water and drainage management as part of construction activities and in managing impact from changes in topography as part of construction activities.

#### **4. Missing Site Characterization Information**

**Comment:**

CIRNAC notes that according to section 4.0 (Site Characterization) of the Landfarm Supplemental Information Guidelines (SIG), information related to groundwater flow and direction, groundwater regime, surface water quality, groundwater quality, and potential seepage is proposed to be described in the annual report following construction of the landfarm. Deferring this information until post-construction limits the ability to establish baseline site conditions against which potential construction and operational effects on water and groundwater can be assessed and limits CIRNAC's ability to properly review the application.

Section 4.0 of SIG also identifies permafrost regime characteristics (including active layer depth and frost-related hazards) and the likelihood of flood events as baseline information requirements; however, for this project the SIG indicates that "no further investigation is planned" for these components (SIG, s. 4.0, items 4 and 5). The application documentation does not describe permafrost conditions, flood risk, or how these factors were considered in site selection or design. In the absence of such information, it is unclear whether permafrost and potential flooding have been evaluated as part of understanding the suitability of the site and the design of the proposed infrastructure.

**Recommendation:**

(R-04) CIRNAC recommends that baseline groundwater and surface water conditions be characterized prior to construction, including groundwater flow and direction, surface water quality, groundwater quality and potential seepage pathways.

CIRNAC also recommends that the proponent indicate whether permafrost conditions and flood risk were assessed during site selection, and if so, where this information is documented. If permafrost condition and flood risks were not assessed as part of site selection, CIRNAC recommends that an assessment is made prior to construction. This information is needed to support the evaluation of potential impacts and mitigation measures associated with landfarm construction and operation.

**Proponent Response:**

Nunatta is not aware of the Draft Supplemental Information Guidelines previously being applied to landfarm construction and would welcome the opportunity to comment on the draft before it is officially implemented. For example, CIRNAC's submission for the construction of a landfarm in Coral Harbour (Water Licence 1BR-COR2325) in 2023 was apparently not required to complete the supplemental SIG. These requirements are substantially greater than efforts that have previously been required for landfarm construction in Nunavut.

The site is located in a former aggregate source for the Hamlet of Baker Lake. It is substantially above the area to the east, at above 60 metres above mean sea level. The surface elevation of Baker Lake itself is just above mean sea level. As noted above, nearby water bodies are at a substantial distance and are substantially downgradient from the site. As a result, flood risk is believed to be negligible.

See attached topographic map for further information.

The area was used as an aggregate source until it was exhausted. There is some overburden on top of bedrock in the area, but Nunatta does not believe that a detailed investigation of the permafrost regime is required.

**Response to Reply:**

CIRNAC thanks the Applicant for the additional information provided regarding flooding risk and the condition of the site as a former quarry, which, from CIRNAC's perspective, reduces the need for further permafrost regime investigations.

CIRNAC wishes to note that requirements for supplemental information as part of a Water Licence Application are outlined in section 6 of *Guide 4: Completing and Submitting a Water Licence Application for a New Licence, Nunavut Water Board, July 2015*. Section 6 explains that:

*“Supplemental information is required as part of the water licence application in accordance with section 48(2) of the Act which states:*

*“An application, except in relation to a cancellation, shall be accompanied by the information and studies concerning the use of waters or the deposit of waste that are required for the Board to evaluate the qualitative and quantitative effects of the use or the deposit on waters.”*

CIRNAC recognizes that not all information requested in the SIG may be applicable to every project. However, section 6 of *Guide 4: Completing and Submitting a Water Licence Application for a New Licence, Nunavut Water Board, July 2015* also states that:

*“Applicants must decide what level of detail is required in responding to the SIG, while realizing that if the NWB determines that information is lacking, the NWB may request additional information. Furthermore, depending upon the specific circumstances of a particular application, the NWB may request additional information that goes beyond the scope of the SIG.”*

In addition, Sheet 2.0 Minimum Requirements, Section 2, of *SIG 13-Landfarm & On-Site Storage of Hydrocarbon Contaminated Soil* identifies as an information requirement:

*“Information required to satisfy the requirements of the SIG including plans, reports and designs.”*

Sheet 2.0 also indicates that:

*“Applications that do not include all of the items listed above [including Section 2] will be returned to the applicant as incomplete with a request for the deficient information.”*

CIRNAC restate its recommendation that baseline groundwater and surface water conditions be characterized prior to construction, including groundwater flow and direction, surface water quality, groundwater quality and potential seepage pathways. In the absence of baseline groundwater and surface water quality data, assessing and monitoring potential effects of the landfarm on surrounding waters would be challenging, as pre-development conditions would not be established.

CIRNAC also recommends that the Nunavut Water Board consider applying consistent standards across licensed projects and not rely solely on regulators to verify proponent compliance. In this context, CIRNAC seeks clarification as to whether the Nunavut Water Board intends to review the information requested in the SIG for completeness prior to proceeding further in the licensing process.

## 5. Clarification On The Landfarm Water Monitoring Plan

### **Comment:**

CIRNAC notes that the Monitoring Plan provides general descriptions of landfarm water sampling methods and that samples will be collected either “directly from the landfarm” or from temporary storage containers (e.g., totes or tanks) prior to disposal, however it does not specify the sampling frequency, number of samples, or fixed sampling locations for landfarm water (Monitoring Plan, section 5.2; and section 6.2). In the absence of defined locations, timing, and sampling frequency, it is unclear how landfarm water quality will be consistently characterized over time or compared to applicable criteria.

### **Recommendation:**

(R-05) CIRNAC recommends that the proponent clarify the proposed landfarm water sampling program, including where samples will be collected (e.g., sump, storage containers), how often sampling will occur, the number of samples per event, and the parameters to be analyzed. This information would allow CIRNAC to determine whether the proposed monitoring framework is adequate to characterize landfarm water prior to treatment or disposal.

### **Proponent Response:**

Landfarm water is planned to be sampled with a view to disposing of the water. As a result, it will be sampled as necessary when pumping is planned.

The goal of the sampling is to characterize the water for disposal. Given that the details of the placement of soil in the landfarm will be determined in the field, defined locations are premature. Nunatta expects that water pumped from the landfarm to temporary storage will also represent disposal conditions, so this location will also be appropriate.

Nunatta will add one regular annual landfarm water sample, even when discharge is not planned, to the monitoring plan. See attached update to the Monitoring Plan for details. As with soil treatment, the concentrations of contaminants in landfarm water will only be relevant for disposal. As noted above, Nunatta does not believe that specifying a location is appropriate.

Nunatta has also revised the soil sampling to a single annual round to match the surface and groundwater sampling programs.

### **Response to Reply:**

CIRNAC acknowledges the Applicant’s explanation that water associated with the landfarm is planned to be sampled at the time of disposal and once a year and that surface water runoff from the landfarm is not anticipated. CIRNAC notes, however, that several potential reasons for runoff or seepage are present, including some identified in the project documentation, such as snowmelt, rainfall events, spills during soil transfer, equipment failure, seepage from fittings or valves, and damage to the liner (see “*Spill Contingency Plan*”, Sections 5; “*Operations and Management Plan*”, Sections 6.2).

CIRNAC further notes that the applicant has identified surface water runoff in proximity to the property boundary, indicating that surrounding site conditions are not uniformly dry. Given these conditions, CIRNAC considers that the risk of runoff or seepage of landfarm water in off-site surface water cannot be fully eliminated.

In this context, CIRNAC recommends that the Nunavut Water Board ensure licence conditions require surface water quality monitoring beyond the landfarm cell—including at designated locations surrounding and downgradient from the landfarm—to support monitoring and mitigation of potential effects and oversight of environmental performance over the life of the project.

## **7. Determination Of Freeboard Height**

### **Comment:**

CIRNAC notes that the Monitoring Plan states that a minimum of 0.5 m of freeboard will be maintained at the downgradient end of the landfarm to prevent overtopping of berms (Monitoring Plan, section. 5.2). The application does not describe the basis for this freeboard height, including whether it accounts for extreme precipitation events or snowmelt. In addition, the documentation does not identify the modelling, assumptions, or design criteria used to determine berm height and freeboard requirements.

This information would support the CIRNAC's assessment of the landfarm's capacity to manage water under anticipated and extreme conditions.

### **Recommendation:**

(R-07) CIRNAC recommends that the proponent clarify how the proposed freeboard height was determined and that the height of the freeboard be adjusted to a minimum of 1 m and have the ability to contain a 1 in 100 year rain event, to ensure proper preventative measures to manage water in case of extreme conditions.

### **Proponent Response:**

It has been Nunatta's experience that the climate in Nunavut and the soil conditions mean that all or nearly all water collected in the landfarm is required to maintain the soil at optimal conditions for bioremediation.

There are 75 years of weather data available for Baker Lake, and the total precipitation has never exceeded 370 mm, substantially less than the minimum freeboard required.

Empirical models of wave formation (see e.g., the US Army Corps of Engineers Shore Protection Manual Fig 3-27) suggest that even at high winds, waves on the landfarm will be of negligible size.

We note that the value for freeboard is a minimum, and will likely be much larger during operations.

**Response to Reply:**

CIRNAC thanks the applicant for the information provided and restate their recommendation that the height of the freeboard be adjusted to a minimum of 1 m and have the ability to contain a 1 in 100 year rain event, to ensure proper preventative measures to manage water in case of extreme conditions.

**10. Clarification On Post-Restoration Monitoring****Comment:**

CIRNAC notes that the Closure and Reclamation Plan indicates that following a post-restoration period, no additional active measures are anticipated, and that the site is expected to be physically and chemically stable and ready for future use after one year (Section 2.1). The documentation does not describe how this one-year timeframe was determined for the landfarm site, or how longer-term effect of the landfarm closure and potential off-site migration of contaminants would be properly assessed in a single monitoring visit the summer following restoration (Closure and Reclamation Plan, section 4). There is also no groundwater or surface water sampling plan included in the post-restoration monitoring section of the Closure and reclamation Plan, making it unclear how water quality would be assessed post-closure.

Given the nature of landfarm operations, it is unclear how long-term restoration and stability are expected to be demonstrated within the proposed timeframe.

**Recommendation:**

(R-10) CIRNAC recommends that the proponent clarify the technical justification for the proposed one-year post-restoration period, including how this timeframe is considered sufficient to demonstrate long-term stability of the site and that no off site migration of contaminants as occurred. CIRNAC also requests additional information on how monitoring results would inform decisions to continue, extend, or conclude post-closure monitoring and on how monitoring would be conducted to assess surface and groundwater quality, including sampling frequency, location and the number of samples collected .

**Proponent Response:**

Nunatta will add a description of the collection of groundwater samples from the monitoring wells and make an explicit indication that monitoring wells will be abandoned in Section 4 in the year post monitoring.

See attached updates to the Closure and Reclamation Plan for proposed language.

In the absence of observed impacts in soil or groundwater, it is unclear what long-term effects are anticipated by CIRNAC. Multi-year monitoring of sites to ensure the absence of off-site migration is typically reserved for locations where remediation has been

conducted or where contamination in soil or groundwater has been observed, which is not anticipated here. In the absence of impacts observed after removal of the landfarm,

**Response to Reply:**

CIRNAC thanks the Applicant for its response and wishes to clarify that, as indicated in R-05, potential risks of runoff or seepage from the landfarm to surrounding waters remain present due to several factors, including snowmelt, rainfall events, spills during soil transfer, equipment failure, seepage from fittings or valves, and damage to the liner (see “*Spill Contingency Plan*”, Section 5; “*Operations and Management Plan*”, Section 6.2). CIRNAC further notes that similar risks of off-site contaminant migration may occur during the closure phase of the project.

CIRNAC recommends that the Nunavut Water Board includes licence conditions requiring annual surface water and groundwater monitoring during the post-closure phase for a sufficient duration to confirm that no contaminant migration has occurred in or in the area surrounding the landfarm site following cessation of landfarm operations.

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