



መፋঁ একাদশ বিজ্ঞান পর্যবেক্ষণ কেন্দ্ৰ #125743

Application for the Water Licence Amendment of the Municipality of Kimmirut #3BM-KIM1929

New

Municipal and Industrial Development

11/29/2022 3:55:58 PM

Period of operation: from 0001-01-01 to 0001-01-01

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‘**બ્રહ્માદિગુરૂશાસ્ત્ર**’ અને ‘**બ્રહ્માદિગુરૂશાસ્ત્ર**’

The Government of Nunavut, Department of Community and Government Services, on behalf of the Municipality of Kimmirut, is applying for the construction of the new wastewater treatment facility (WWTF) and amendment of the discharge effluent limits in the existing water license 3BM-KIM1929 to effectively service the growing population in Kimmirut over a 20-year life span. The facility consists of a lagoon and wetland-treatment-area and will be designed to meet the long-term needs of Kimmirut and the regulatory requirements. The lagoon requires a working volume of 26,900 m³ based on projected annual wastewater generation until 2043. The treatment goals for the WWTF effluent criteria at the end of treatment are established as 100, 120 and 1.25 mg/L for carbonaceous biochemical oxygen demand (CBOD), total suspended solids (TSS) and un-ionized ammonia as nitrogen, based on a 6-year research project completed by Centre for Water Resources Studies at Dalhousie University. The licensee is requesting to remove the effluent quality limits from KIM-3 and to add limits to KIM-5 which does not currently have limits. Once the future lagoon is constructed KIM-3 will represent partially treated wastewater leaving the lagoon and KIM-5 will represent fully treated wastewater effluent at the outlet of the wetland-treatment-area. It is still recommended to sample KIM-3 for treatment monitoring purposes but no effluent parameter limits should be applied. The design consultant recommends that the effluent quality limits applied at KIM-5 be CBOD 100 mg/L, 120 TSS mg/L, and to remove faecal coliforms as a parameter since this is a public health parameter and not an environmental parameter. The receiving environment is zoned for waste disposal and not used by the public for fishing, harvesting, or recreation. Faecal coliforms are not included in the federal Wastewater Systems Effluent Regulations SOR/2012-139 Fisheries Act Registration 2012-06-29. Faecal coliforms are also no longer applied as an environmental parameter in the Northwest Territories where the Nunavut Water Board historically derives its effluent parameter decisions on.

►ΔÀΔÛC: Le ministère des Services communautaires et gouvernementaux (SCG) du gouvernement du Nunavut, au nom de la municipalité de Kimmirut, demande la construction d'une nouvelle installation de traitement des eaux usées et la modification des limites de l'effluent de rejet dans le permis d'utilisation des eaux 3BM-KIM1929 existant afin de desservir efficacement la population croissante de Kimmirut sur une période de 20 ans. La lagune sera conçue pour répondre aux besoins à long terme de Kimmirut, aux exigences réglementaires et aux mesures de protection nécessaires pour éviter d'avoir un impact sur l'écoulement des eaux souterraines vers le lac Fundo. CGS a retenu Dillon Consulting Limited (Dillon) pour fournir des services de conception et d'administration de la construction d'une nouvelle installation de traitement des eaux usées à Kimmirut. Les objectifs de traitement de l'effluent lagune-milieu humide ont été établis à 100, 120 et 1,25 mg/L pour la demande biochimique en oxygène des matières carbonées, le total des solides en suspension et l'ammoniac non ionisé sous forme d'azote, d'après un projet de recherche de six ans réalisé par le Centre for Water Resources Studies de l'Université Dalhousie. Le titulaire du permis demande de retirer les limites de qualité des effluents du point KIM-3 et d'ajouter des limites au point KIM-5 qui n'en a pas actuellement. Une fois que la future lagune sera construite, KIM-3 représentera les eaux usées partiellement traitées et KIM-5 représentera les effluents d'eaux usées entièrement traitées. Le consultant en conception recommande que les limites de qualité de l'effluent appliquées au KIM-5 soient de 100 mg/L pour la DBOC et de 120 mg/L pour les TSS, et de supprimer les coliformes fécaux comme paramètre, car il s'agit d'un paramètre de santé publique et non d'un paramètre environnemental. Le milieu récepteur est zoné pour l'élimination des déchets et n'est pas utilisé par le public pour la pêche, la récolte ou les loisirs. Les coliformes fécaux ne sont pas inclus dans le Règlement sur les effluents des systèmes d'assainissement des eaux usées fédéral DORS/2012-139 - Enregistrement de la

Loi sur les pêches 2012-06-29. Les coliformes fécaux ne sont plus utilisés comme paramètre environnemental dans les Territoires du Nord-Ouest, où l'Office des eaux du Nunavut s'est toujours inspiré pour prendre ses décisions concernant les paramètres des effluents. La production annuelle prévue d'eaux usées (débit) en 2043 serait de 19 200 m³, ce qui nécessiterait un volume de travail minimal de 26 900 m³ pour la lagune.

Personnel

Personnel on site: 2

Days on site: 260

Total Person days: 520

Operations Phase: from 2023-09-30 to 2043-09-30

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| sewage lagoon | Municipal and Industrial Development | Municipal | shallow fresh water lake | site has no archeological or paleontological value | proximity to the town 1.3 km |

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| Information is not available | | | |

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Project transportation types

| Transportation Type | የኢትዮ-ፋይኬርንድ | Length of Use |
|---------------------|---------------|---------------|
| Land | SEWAGE TRUCKS | |

Project accommodation types

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| D<small>o</small> C<small>o</small> L<small>o</small> A<small>o</small> C<small>o</small> S<small>o</small> A<small>o</small> C<small>o</small> | ‘b<small>o</small> ΔΓ<small>o</small> C<small>o</small> b<small>c</small> C<small>o</small> σ<small>o</small> A<small>o</small> C<small>o</small> | ωP<small>c</small> ΔΓ<small>o</small> C<small>o</small> b<small>c</small> C<small>o</small> σ<small>o</small> A<small>o</small> C<small>o</small> |
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$\triangleleft^b C \dot{\triangleleft} \subset \cap \sigma \triangleleft^c \sigma^{cb}$

Information is not available

presently community sewage disposal practice is direct discharge into marine environment. this project will improve environmental impacts by providing proper sewage containment and treatment.

Additional Information

SECTION A1: Project Info

SECTION A2: Allweather Road

SECTION A3: Winter Road

SECTION B1: Project Info

SECTION B2: Exploration Activity

SECTION B3: Geosciences

SECTION B4: Drilling

SECTION B5: Stripping

SECTION B6: Underground Activity

SECTION B7: Waste Rock

SECTION B8: Stockpiles

SECTION B9: Mine Development

SECTION B10: Geology

SECTION B11: Mine

SECTION B12: Mill

SECTION C1: Pits

SECTION D1: Facility

SECTION D2: Facility Construction

SECTION D3: Facility Operation

SECTION D4: Vessel Use

SECTION E1: Offshore Survey

SECTION E2: Nearshore Survey

SECTION E3: Vessel Use

SECTION F1: Site Cleanup

SECTION G1: Well Authorization

SECTION G2: Onland Exploration

SECTION G3: Offshore Exploration

SECTION G4: Rig

SECTION H1: Vessel Use

SECTION H2: Disposal At Sea

SECTION 11: Municipal Development

1. Municipality sewage disposal facility is identified as Municipal Capital Facility. Project consists of Sewage Lagoon and wetland construction. Daily service provision service consists of Collecting raw sewage from businesses and private housing, trucking and disposing the raw sewage into sewage lagoon. Once a year sewage will be decanted into wetland area. To construct new sewage lagoon, local quarry material will be used. Produced quarry aggregate will be trucked to the construction site. Recommended but not limited to, PPE in sewage disposal consists of gloves, eye protection, hard hat, steel toe boots, tyvek coverall and face respirator. There is no safety requirement to have fire fighting equipment installed at the sewage lagoon facility. Fire extinguishers are located within sewage trucks. Sewage truck engine and sewage pump are the Noise sources during sewage disposal process. Ear plugs are recommended.

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Presently Kimmirut sewage disposal is uncontrolled direct sewage discharge into the wetland area, directly connected with marine environment. Access road to existing sewage discharge area will be upgraded. There are no designated recreational, harvesting or park areas in vicinity.

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Existing shallow fresh water lake to be converted into sewage lagoon does not house any aquatic species. It is not recognized spot as a critical habitat or residence of any species. Locals have not noticed any migration or spawning patterns of any species.

Existing area has been used as an unregulated sewage disposal for decades. There are no land or marine harvesting activities in sewage disposal area.

Miscellaneous Project Information

¶-¶A⁹⁶C¶σ⁹⁷c ¶⁹⁶C¶r⁹⁷L⁹⁷c ⁹⁶-⁹A⁹⁷C⁹⁷σ⁹⁷c <⁹⁷Γ⁹⁷L⁹⁷C¶σ⁹⁷σ⁹⁷c

Constructing the new waste water treatment disposal facility (sewage lagoon) will significantly improve land and aquatic environment

Cumulative Effects

Monitored and regulated new sewage disposal facility will have significant positive impact on environment

Impacts

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| PHYSICAL | |
|---|--|
| Designated environmental areas | |
| Ground stability | |
| Permafrost | |
| Hydrology / Limnology | |
| Water quality | |
| Climate conditions | |
| Eskers and other unique or fragile landscapes | |
| Surface and bedrock geology | |
| Sediment and soil quality | |
| Tidal processes and bathymetry | |
| Air quality | |
| Noise levels | |
| BIOLOGICAL | |
| Vegetation | |
| Wildlife, including habitat and migration patterns | |
| Birds, including habitat and migration patterns | |
| Aquatic species, incl. habitat and migration/spawning | |
| Wildlife protected areas | |
| SOCIO-ECONOMIC | |
| Archaeological and cultural/historic sites | |
| Employment | |
| Community wellness | |
| Community infrastructure | |
| Human health | |

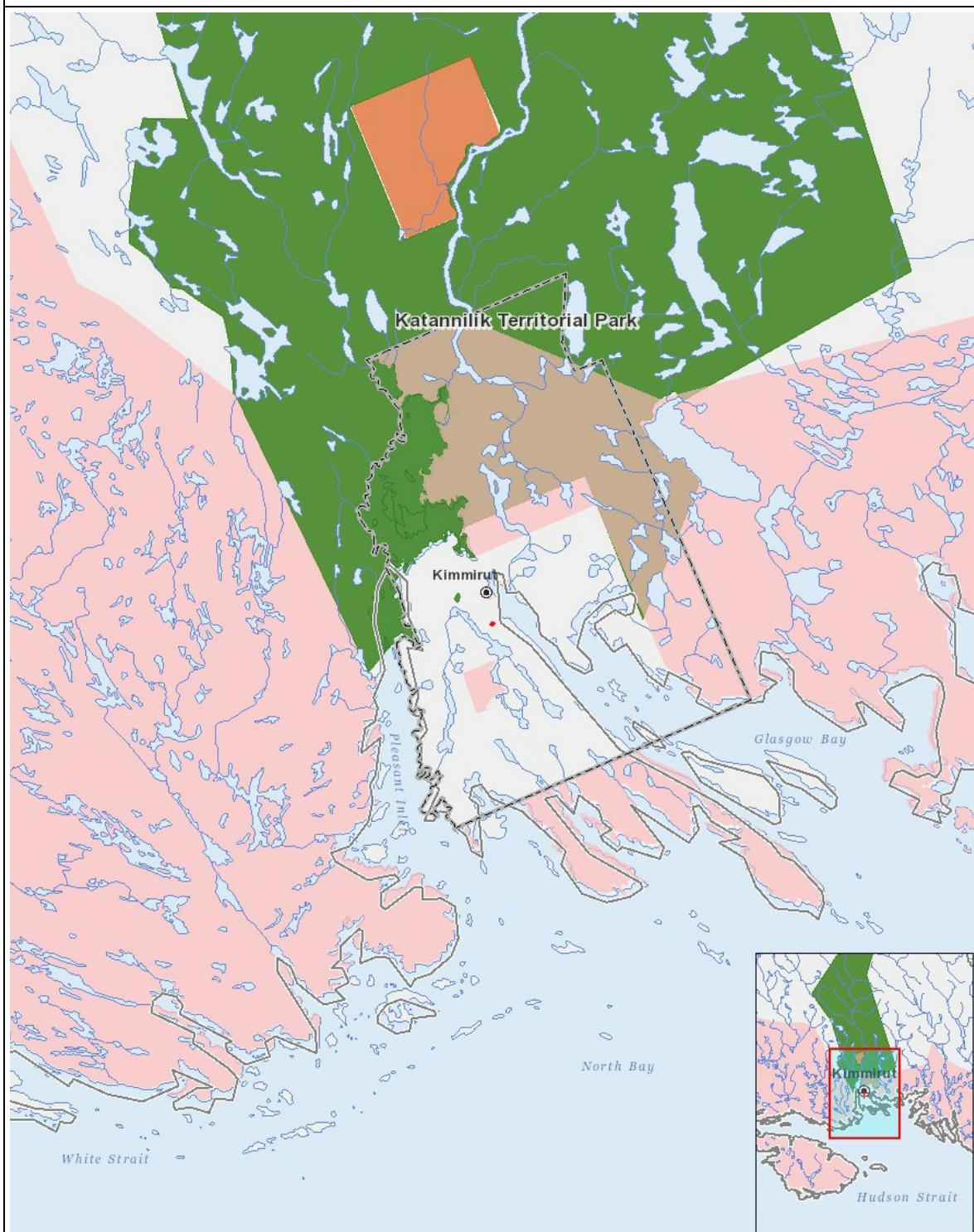
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| Municipal and Industrial Development | - | - | - | - | P | - | - | - | - | - | - | - | - | - | U | M | P | - | - | - | P | P | P | P |
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ΔΣC ΟΛΩΣ

($P = \{P_1, P_2, \dots, P_n\}$, $N = \{N_1, N_2, \dots, N_m\}$, $C = \{C_1, C_2, \dots, C_k\}$, $M = \{M_1, M_2, \dots, M_l\}$, $U = \{U_1, U_2, \dots, U_r\}$)

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List of Project Geometries

| | | |
|---|---------|---------------|
| 1 | polygon | sewage lagoon |
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