GWICH'IN
LAND AND WATER
BOARD

105 Veterans Way
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Water Licence G22L1-005

Pursuant to the *Waters Act* and the Waters Regulations,
the Gwich'in Land and Water Board grants this Water Licence to:

KBL Environmental Ltd.
(Licensee)

of 17 Cameron Road, P.O. Box 1895 Yellowknife, NT X1A 2P4
(Mailing Address)

hereinafter called the Licensee, to proceed with the following undertaking, subject to the annexed definitions and conditions contained therein:

Location:	Inuvik Soil Treatment Facility, Inuvik NT
Water Management Area:	Northwest Territories 03
Purpose:	Industrial – Deposit of Waste
Type:	B Renewal
Quantity of Water not to be exceeded:	Not Applicable
Effective Date:	November 18, 2022
Expiry Date:	November 17, 2027

Elizabeth Wright, Chair
Gwich'in Land and Water Board

Leonard Debastien, Witness

Type B Water Licence G22L1-005
KBL Environmental Ltd. – Inuvik Soil Treatment Facility

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	Part A: Scope and Defined Terms	
	Scope:	**Condition Title**
1.	This Licence entitles the Licensee to deposit Waste for industrial activities at the Inuvik Soil Treatment Facility. The scope of this Licence includes the following: a) Depositing of Waste; b) Construction, operation, and maintenance of the Inuvik Soil Treatment Facility; and c) Progressive Reclamation and associated Closure and Reclamation activities.	**SCOPE**
2.	This Licence is issued subject to the conditions contained herein with respect to the use of Water and the deposit of Waste in any Waters or in any place under any conditions where such Waste or any other Waste that results from the deposits of such Waste may enter any Waters. Any change made to the *Waters Act* and/or Waters Regulations that affects licence conditions and defined terms will be deemed to have amended this Licence.	**LEGISLATION SUBJECT TO CHANGE**
3.	Compliance with this Licence does not relieve the Licensee from responsibility for compliance with the requirements of any applicable federal, territorial, or municipal legislation.	**LEGISLATIVE COMPLIANCE**

Defined Terms [1]
Analyst – an Analyst designated by the Minister under subsection 65(1) of the *Waters Act*.
Board – the Gwich'in Land and Water Board established under Part 3 of the *Mackenzie Valley Resource Management Act.*
Biotreatment Pad – the engineered infrastructure designed to contain and treat hydrocarbon contaminated soil as described in *Operations and Maintenance Plan: Inuvik Soil and Treatment Facility.*
Closure Cost Estimate - an estimate of the cost to close and reclaim the Project.
Closure and Reclamation – the process and activities that facilitate the return of areas affected by the Project to viable and, wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment and human activities.
Closure and Reclamation Plan (CRP) – a document, developed in accordance with this Licence, that clearly describes the Closure and Reclamation for the Project.
Composite Soil Sample – three or more discrete soil samples which have been collected by a qualified person and combined into a single sample, representing the average conditions in the soil.
Construction – any activities undertaken during any phase of the Project to construct, build, upgrade, or replace any structures, facilities, or components of, or associated with, the Project.
Discharge – a direct or indirect deposit or release of any Water or Waste to the Receiving Environment.
Effluent – a Wastewater Discharge.
Effluent Quality Criteria (EQC) – numerical or narrative limits on the quality or quantity of the Waste deposited to the Receiving Environment.
Engagement Plan – a document, developed in accordance with the MVLWB *Engagement and Consultation Policy* and the *Engagement Guidelines for Applicants and Holders of Water Licences and Land Use Permits*, that clearly describes how, when, and which engagement activities will occur with an affected party during the life of the Project.

[1] Defined terms are capitalized throughout the License, including when used in other definitions.

Defined Terms [1]
Engineered Structure – any structure or facility related to Water Use or the deposit of Waste that is designed by a Professional Engineer.
Freeboard – the vertical distance between the Water or Wastewater line and the lowest elevation of the effective Water or Wastewater containment crest on the upstream slope of a containment structure.
Groundwater – as defined in section 1 of the Waters Regulations: all water in a zone of saturation below the land surface, regardless of its origin.
Inspector – an Inspector designated by the Minister under subsection 65(1) of the *Waters Act*.
The Inuvik Soil Treatment Facility (or Hydrocarbon-Contaminated Soil Treatment Facilities) – the area(s) and Engineered Structures designated to contain and treat hydrocarbon-contaminated sediments and soil.
Leachate – water that has percolated through the soil on the Biotreatment pad and may contain some of the constituents.
Licensee – the holder of this Licence.
Maximum Grab Concentration – the concentration of a parameter that cannot be exceeded in any one analytical result.
Minister – the Minister of the Government of the Northwest Territories (GNWT) – Environment and Natural Resources.
Ordinary High-Water Mark – the usual or average level to which a Watercourse rises at its highest point and remains for sufficient time so as to change the characteristics of the land. In flowing Watercourses (rivers, streams), this refers to an active channel/bank-full level, which is often the 1:2-year flood flow return level. In inland lakes, wetlands or marine environments, it refers to those parts of the Watercourse bed and banks that are frequently flooded by Water so as to leave a mark on the land and where the natural vegetation changes from predominantly aquatic vegetation to terrestrial vegetation (excepting Water tolerant species). For reservoirs, this refers to normal high operating levels (full supply level).
Professional Engineer – a person registered with the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists to practice as a Professional Engineer in the Northwest Territories as per the territorial *Engineering and Geoscience Professions Act* and whose professional field of specialization is appropriate to address the components of the Project at hand.
Progressive Reclamation – Closure and Reclamation activities conducted during the operating phase of the Project.

Defined Terms [1]
Project – the undertaking described in Part A, Condition 1.
Receiving Environment – the natural environment that, directly or indirectly, receives any deposit of Waste from the Project.
RECLAIM – the Government of the Northwest Territories' model for estimating Closure and Reclamation costs.
Remediation – the removal, reduction, or neutralization of substances, Wastes, or hazardous materials from a site in order to prevent or minimize any adverse effects on the environment and public safety, now or in the future.
Runoff – the overland flow of Water or Wastewater that occurs when precipitation, meltwater, or other Water is not absorbed by the land.
Seepage – any Water or Waste that drains, passes through, or escapes from any structure designed to contain, withhold, divert, or retain Water or Waste.
Spill Contingency Plan (SCP) – a document developed for the Project in accordance with INAC's *Guidelines for Spill Contingency Planning.*
Surveillance Network Program (SNP) – a monitoring program required by this Licence and detailed in Annex A.
Unauthorized Discharge – a Discharge of any Water or Waste not authorized under this Licence.
Waste – as defined in section 1 of the *Waters Act:* a) a substance that, if added to water, would degrade or alter or form part of a process of degradation or alteration of the quality of the water to an extent that is detrimental to its use by people or by an animal, fish or plant, or b) water that contains a substance in such a quantity or concentration, or that has been so treated, processed or changed, by heat or other means, that it would, if added to other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water to the extent described in paragraph (a), and includes c) a substance or water that, for the purposes of the *Canada Water Act*, is deemed to be waste, d) a substance or class of substances prescribed by regulations made under subparagraph 63(1)(b)(i), e) water that contains a substance or class of substances in a quantity or concentration that is equal to or greater than a quantity or concentration prescribed in respect of that substance or class of substances by regulations made under subparagraph 63(1)(b)(ii), and

Defined Terms [1]
f) water that has been subjected to a treatment, process or change prescribed by regulations made under subparagraph 63(1)(b)(iii).
Waste Management Plan (WMP) – a document, developed in accordance with the MVLWB *Guidelines for Developing a Waste Management Plan,* that describes the methods of Waste management for the Project from Waste generation to final disposal.
Wastewater – any Water that is generated by Project activities or originates on-site, and which contains Waste, and may include, but is not limited to, Runoff, Seepage, Sewage, Minewater, and Effluent.
Water – as defined in section 1 of the *Waters Act*: water under the administration and control of the Commissioner, whether in a liquid or frozen state, on or below the surface of land.
Watercourse – as defined in section 1 of the Waters Regulations: a natural watercourse, body of Water or Water supply, whether usually containing Water or not, and includes Groundwater, springs, swamps, and gulches.
Water Management Area – a geographical area of the Northwest Territories established by section 2 and Schedule A of the Waters Regulations.
Waters Regulations – the regulations proclaimed pursuant to section 63 of the *Waters Act*.
Water Holding Tank – the above ground storage tanks designed to contain hydrocarbon contaminated water as described in *Operations and Maintenance Plan: Inuvik Soil Treatment Facility.*
Water Retention Pond – the engineered pond to contain hydrocarbon contaminated water, snow, and ice as described in *Operations and Maintenance Plan: Inuvik Soil Treatment Facility*.
Water Use – as defined in section 1 of the *Waters Act*: a direct or indirect use of any kind, including, but not limited to, a) a diversion or obstruction of waters, b) an alteration of the flow of waters, and c) an alteration of the bed or banks of a river, stream, lake or other body of water, whether or not the body of water is seasonal, but does not include a use connected with shipping activities that are governed by the *Canada Shipping Act*, 2001.

Defined Terms [1]
Water Use Fee – the fee for use of Water as per the Waters Regulations pursuant to section 63 of the *Waters Act* and the MVLWB *Water Use Fee Policy*.

	Part B: General Conditions	
	Condition	**Condition Title**
1.	The Licensee shall ensure a copy of this Licence is maintained on site at all times.	**COPY OF LICENCE**
2.	The Licensee shall take every reasonable precaution to protect the environment.	**PRECAUTION TO PROTECT ENVIRONMENT**
3.	In conducting its activities under this Licence, the Licensee shall make every reasonable effort to consider and incorporate any scientific information and Traditional Knowledge that is made available to the Licensee.	**INCORPORATE SCIENTIFIC INFORMATION AND TRADITIONAL KNOWLEDGE**
4.	In each submission required by this Licence or by any directive from the Board, the Licensee shall identify all recommendations based on Traditional Knowledge received, describe how the recommendations were incorporated into the submission, and provide justification for any recommendation not adopted.	**IDENTIFY TRADITIONAL KNOWLEDGE**
5.	All references to policies, guidelines, codes of practice, statutes, regulations, or other authorities shall be read as a reference to the most recent versions, unless otherwise noted.	**REFERENCES**
6.	The Licensee shall ensure all submissions to the Board: a) Are in accordance with the MVLWB *Document Submission Standards*; b) Include a conformity statement or table which identifies where the requirements of this Licence, or other directives from the Board, are addressed; and c) Include any additional information requested by the Board.	**SUBMISSION FORMAT AND CONFORMITY**
7.	The Licensee shall ensure management plans are submitted to the Board in a format consistent with the MVLWB *Standard Outline for Management Plans*, unless otherwise specified.	**MANAGEMENT PLAN FORMAT**
8.	The Licensee shall comply with all Management Plans approved pursuant to the conditions of this Licence.	**COMPLY WITH SUBMISSIONS AND REVISIONS**

9.	The Licensee shall conduct an annual review of all Management Plans and make any revisions necessary to reflect changes in operations, contact information, or other details. No later than March 31 each year, the Licensee shall send a notification letter to the Board, listing the documents that have been reviewed and do not require revisions.	**ANNUAL REVIEW**
10.	The Licensee may propose changes at any time by submitting revised Management Plans to the Board, for approval, a minimum of 90 days prior to the proposed implementation date for the changes. The Licensee shall not implement the changes until approved by the Board.	**REVISIONS**
11.	The Licensee shall revise any submission and submit it as per the Board's directive.	**REVISE AND SUBMIT**
12.	If any date for any submission falls on a weekend or holiday, the Licensee may submit the item on the following business day.	**SUBMISSION DATE**
13.	The Licensee shall comply with the **Schedules**, which are annexed to and form part of this Licence, and any updates to the Schedules as may be made by the Board.	**COMPLY WITH SCHEDULE(S)**
14.	The Licensee shall comply with the **Surveillance Network Program**, which is annexed to and forms part of this Licence, and any updates to the Surveillance Network Program as may be made by the Board.	**COMPLY WITH SURVEILLANCE NETWORK PROGRAM**
15.	The Schedules, the Surveillance Network Program, and any compliance dates specified in this Licence may be updated at the discretion of the Board.	**UPDATES TO COMPLIANCE DATE(S)**
16.	The Licensee shall comply with all directives issued by the Board in respect of the implementation of the conditions of this Licence.	**COMPLY WITH BOARD DIRECTIVES**
17.	The Licensee shall ensure signs are posted at, or in close proximity, to all active Surveillance Network Program stations. All sign(s) shall be located and maintained to the satisfaction of an Inspector.	**POST SURVEILLANCE NETWORK**

		PROGRAM SIGN(S)
18.	The Licensee shall install, operate, and maintain meters, devices, or other such methods for measuring the volumes of Water used and Waste discharged to the satisfaction of an Inspector.	**MEASURE WATER USE AND WASTE DISCHARGED**
19.	Beginning March 31, 2023 and no later than every March 31 thereafter, the Licensee shall submit an **Annual Water Licence Report** to the Board and an Inspector**.** The Report shall be in accordance with the requirements of Schedule 1, Condition 1.	**ANNUAL WATER LICENCE REPORT**
20.	The Licensee shall comply with the **Engagement Plan**, once approved.	**ENGAGEMENT PLAN**
21.	The Licensee shall immediately provide written notification to the Board and an Inspector of any non-compliance with the conditions of this Licence.	**NOTIFICATION – NON-COMPLIANCE WITH CONDITIONS**
22.	The Licensee shall immediately provide written notification to the Board of any non-compliance with a Board directive issued in respect of the implementation of the conditions of this Licence.	**NOTIFICATION – NON-COMPLIANCE WITH DIRECTIVES**
23.	The Licensee shall ensure that a copy of any written authorization issued to the Licensee by an Inspector is provided to the Board.	**COPY – WRITTEN AUTHORIZATION**
	Part C: Security	
1.	The Licensee shall post and maintain a security deposit with the Minister in accordance with Schedule 2. The Licensee shall not commence activities until the security deposit has been accepted by the Minister.	**POST SECURITY DEPOSIT**
2.	Upon request of the Board, the Licensee shall submit an updated Closure Cost Estimate using the current version of RECLAIM or another method acceptable to the Board.	**UPDATE CLOSURE COST ESTIMATE**

3.	The amount of the security deposit required by Part C, Condition 1 may be adjusted by the Board: a) Based on an updated Closure Cost Estimate as per Part C, Condition 2; or b) Based on such other information as may become available to the Board.	**ADJUSTED SECURITY AMOUNT**
4.	If the amount of the security deposit is adjusted by the Board as per Part C, Condition 3, the Licensee shall post the adjusted amount with the Minister within the timeframe set by the Board. The Licensee shall not commence any new activities associated with a security adjustment until the additional security deposit has been accepted by the Minister.	**POST ADJUSTED SECURITY AMOUNT**
5.	Unless otherwise approved by the Board, the Licensee may not submit security adjustment requests except with any of the following submissions: a) Closure and Reclamation Plans; b) Closure and Reclamation Completion Reports; or c) Performance Assessment Reports.	**SECURITY ADJUSTMENT REQUESTS**
	Part D: Water Use	
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	Part E: Construction	
1.	The Licensee shall ensure that all structures intended to contain, withhold, divert, or retain Water or Waste are designed, constructed, and maintained to minimize the escape of Waste to the Receiving Environment.	**OBJECTIVE – CONSTRUCTION**
2.	The Licensee shall ensure that all the Inuvik Soil Treatment Facility is designed, constructed, maintained, monitored, and closed to meet or exceed the MVLWB/IWB/GNWT *Guideline for Design, Operation, Maintenance, and Closure of Petroleum Hydrocarbon-Contaminated Soil Treatment Facilities in the Northwest Territories*.	**HYDROCARBON-CONTAMINATED SOIL TREATMENT FACILITIES – GENERAL**
3.	The Licensee shall ensure that all Engineered Structures are constructed and maintained in accordance with the recommendations of the Professional Engineer responsible for the design, including, but not limited to, recommendations regarding field supervision and inspection requirements.	**ENGINEERED STRUCTURES – GENERAL**

4.	A minimum of 90 days prior to the commencement of Construction of any Engineered Structures, the Licensee shall submit to the Board, for approval, a Design and Construction Plan. The Licensee shall not commence Construction of the Engineered Structure(s) prior to Board approval of the Plan.	**DESIGN AND CONSTRUCTION PLAN**
5.	A minimum of 90 days prior to the commencement of Construction of any Engineered Structures, the Licensee shall submit to the Board, Design Drawings stamped and signed by a Professional Engineer. A minimum of 90 days prior to implementing any proposed changes to the Design Drawings, the Licensee shall submit revised Design Drawings to the Board.	**CONSTRUCTION DESIGN DRAWINGS**
6.	A minimum of ten (10) days prior to the commencement of Construction of any Engineered Structure(s), the Licensee shall provide written notification to the Board and an Inspector. Notification shall include the Construction commencement date, and the name and contact information for the individual responsible for overseeing Construction. Written notification shall be provided to the Board and an Inspector if any changes occur.	**NOTIFICATION – CONSTRUCTION – ENGINEERED STRUCTURE(S)**
7.	Within ninety (90) days of the completion of the Construction of each Engineered Structure, the Licensee shall submit to the Board, an As-Built Report stamped and signed by a Professional Engineer, which shall include, but not be limited to, the following information: a) final as-built drawings of the Engineered Structure(s), stamped and signed by a Professional Engineer; b) documentation, with rationale, of field decisions that deviate from the Design and Construction Plans and/or Design Drawings c) any data used to support these decisions.	**AS-BUILT REPORT – ENGINEERED STRUCTURE(S)**
	Modifications	
8.	The Licensee may, without written approval from the Board, carry out Modifications to the Inuvik Soil Treatment Facility provided that such Modifications are consistent with the terms of this Licence and the following requirements are met: a) The Licensee has notified the Board and an Inspector in writing of such proposed Modifications at least sixty (60) days prior to beginning the Modifications; b) Such Modifications do not place the Licensee in contravention of either the Licence or the *Act*; c) The Board has not, during the sixty (60) days following notification of the proposed Modifications, informed the Licensee that review of the proposal will require more than sixty (60) days; d) An Inspector has authorized the proposed Modifications and provided a letter of notification to the Board; and e) The Board has not rejected the proposed Modifications.	**MODIFICATIONS NOT REQUIRING APPROVAL**

9.	Modifications for which all of the conditions referred to in Part E, Condition 8 have not been met may be carried out only with written approval from the Board.	**MODIFICATIONS REQUIRING APPROVAL**
10.	A minimum of ten (10) days prior to the commencement of modifications referred to in Part E, Condition 8, the Licensee shall provide written notification to the Board and an Inspector.	**NOTIFICATION - MODIFICATIONS**
11.	Within ninety (90) days of the completion of the Modifications referred to in Part E, Condition 8, the Licensee shall submit to the Board final as-built drawings stamped and signed by a Professional Engineer.	**AS BUILT DRAWINGS - MODIFICATIONS**
	Part F: Waste and Water Management	
1.	The Licensee shall manage Waste and Water with the objective of minimizing the impacts of the Project on the quantity and quality of Water in the Receiving Environment through the use of appropriate mitigation measures, monitoring, and follow-up actions.	**OBJECTIVE – WASTE AND WATER MANAGEMENT**
2.	The Licensee shall minimize erosion by implementing suitable erosion control measures that shall be located and maintained to the satisfaction of an Inspector.	**EROSION CONTROL**
	Management and Monitoring Plans	
3.	The Licensee shall comply with the **Operation and Maintenance Plan** once approved.	**OPERATIONS AND MAINTENANCE PLAN**
4.	The Licensee shall comply with **Environmental Monitoring Plan** once approved. The plan, and any future revisions, shall be in accordance with Schedule 4.	**ENVIRONMENTAL MONITORING PLAN**
	Operation of Structures and Facilities	
5.	The Licensee shall construct, operate, and maintain the **Inuvik Soil Treatment Facility** to the design specifications and engineering standards, such that: a) Any constructed structures/facilities are maintained and operated so as to prevent structural failure;	**HYDROCARBON-CONTAMINATED SOIL TREATMENT**

	b) Seepage from the facility to the Receiving Environment is minimized, collected, and returned to the Facility; c) Any deterioration or erosion of constructed structures/facilities shall be reported immediately to an Inspector; d) Any deterioration or erosion of constructed structures/facilities that requires repair shall be reported to an Inspector and the Board, and repaired immediately; and e) Monitoring of the facility is sufficient to ensure that: i. Necessary changes in operation of the facility, including any additional mitigations, are identified.	**FACILITIES - OPERATION**
6.	The Licensee shall maintain a Freeboard limit of 0.9 metres at the Water Retention Pond or as recommended by a Professional Engineer and approved by the Board.	**RETENTION POND FREEBOARD**
	Inspection of Structures and Facilities	
7.	The Licensee shall conduct weekly inspections of the **Inuvik Soil Treatment Facility,** or as otherwise directed by an Inspector or the Board. These shall include, but not be limited to, the following: a) Inspections of drainage systems, to detect evidence of deterioration, malfunction leaks or improper operation; and b) Inspections of leachate collection systems to ensure proper functioning, and to determine if leachate is being generated or accumulating. Records of these inspections shall be included in the Annual Report and made available to the Board or an Inspector upon request.	**WEEKY INSPECTIONS**
	Discharge and Disposal Locations and Rates	
8.	The Licensee shall deposit all Waste as described **Waste Management Plan,** once approved.	**WASTE MANAGEMT PLAN**
9.	Within 30 days following the effective date of this Licence, the Licensee shall submit to the Board, for approval, a revised Waste Management Plan.	**REVISE WASTE MANAGEMT PLAN**
10.	The Licensee shall not discharge Waste, including Wastewater, to any Watercourse, or to the ground surface within 100 metres of the Ordinary High-Water Mark of any Watercourse.	**DISCHARGE LOCATION –**

		ORDINARY HIGH-WATER MARK
	Acceptance Criteria	
11.	Only soils meeting the acceptance criteria outlined in Schedule 3, Condition 1 shall enter the facility.	**SOIL ACCEPTANCE CRITERIA**
12.	Prior to accepting soil to the Soil Treatment Facility, the Licensee shall submit soil analyses results to an Inspector.	**SOIL ANALYSES - ACCEPTANCE**
13.	Only snow and/or Water meeting the acceptance criteria outlined in Schedule 3, Condition 2 shall enter the facility.	**SNOW/WATER ACCEPTANCE CRITERIA**
14.	Prior to accepting snow and/or Water to the Soil Treatment Facility, the Licensee shall submit snow/Water analyses results to an Inspector.	**SNOW/WATER ANALYSES - ACCEPTANCE**
15.	The Licensee shall obtain representative samples of soil snow, and Water entering the facility as per Schedule 3, Condition 3, or as authorized in writing by an Inspector.	**REPRESENTATIVE SAMPLES - SNOW**
	Treated Soil Criteria	
16.	The Licensee shall ensure all treated soil from the Biotreatment Pad meets the following criteria for Industrial Use, unless otherwise authorized by the Board.	**TREATED SOIL CRITERIA**

Parameter	**Maximum Composite Sample**
pH	6–8
Antimony	40 mg/kg
Arsenic (inorganic)	120 mg/kg
Barium	2000 mg/kg
Beryllium	8 mg/kg
Cadmium	22 mg/kg
Total chromium	87 mg/kg
Cobalt	300 mg/kg

Copper	91 mg/kg
Lead	600 mg/kg
Mercury	50 mg/kg
Molybdenum	40 mg/kg
Nickel	89 mg/kg
Selenium	2.9 mg/kg
Silver	40 mg/kg
Thallium	1 mg/kg
Tin	300 mg/kg
Uranium	300 mg/kg
Vanadium	130 mg/kg
Zinc	360 mg/kg

Petroleum Hydrocarbons	**Soil Maximum Concentration (Fine-grained Soil)**	**Soil Maximum Concentration (Coarse Grained Soil)**
Fraction 1 (C6 - C10)	660 mg/kg	310 mg/kg
Fraction 2 (>C10 - C16)	1500 mg/kg	760 mg/kg
Fraction 3 (>C16 - C34)	2500 mg/kg	1700 mg/kg
Fraction 4 (>C34)	6600 mg/kg	3300 mg/kg
Benzene	5.0 mg/kg	5.0 mg/kg
Toluene	0.8 mg/kg	0.8 mg/kg
Ethylbenzene	20 mg/kg	20 mg/kg

Xylene	20 mg/kg	20 mg/kg	

* If testing for particle size is not completed by the Licensee to determine if soil is Coarse or Fine-grained, soil must be treated to achieve the Coarse-grained soil criteria

17.	Treated soil meeting the re-use criteria outlined in Part F, Condition 16 shall only be used for the purpose of cover material at the Town of Inuvik Solid Waste Disposal Facility, unless otherwise approved by the Board and Inspector.	**TREATED SOIL - REUSE**
18.	Treated soil not meeting the re-use criteria outlined in Part F, Condition 16 shall be disposed of at a registered hazardous waste receiving facility.	**TREATED SOIL EXCEEDING CRITERIA**
19.	Prior to removing soil from the Soil Treatment Facility, the Licensee shall submit soil analyses results to an Inspector.	**SOIL ANALYSES - REMOVAL**
20.	The Licensee shall obtain representative samples in accordance with the requirements of Schedule 3, Condition 3, or as authorized in writing by an Inspector.	**REPRESENTATIVE SAMPLES - SOIL**
	Effluent Quality Criteria	
21.	The Licensee shall ensure that all effluent discharged from the Inuvik Soil Treatment Facility at Surveillance Network Program stations 0037-1 and 0037-2 has a pH between 6.5 and 8.5 and meets the following Effluent Quality Criteria (EQC):	**EFFLUENT QUALITY CRITERIA**

Parameter	Maximum Grab Concentration
pH	6.5-8.5
Antimony	0.006 mg/L
Arsenic	0.005 mg/L
Barium	1 mg/L
Beryllium	100 mg/L
Boron	1.5 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L
Selenium	0.001 mg/L
Uranium	0.02 mg/L
Zinc	0.03 mg/L
Benzene	0.005 mg/L

		Toluene: 0.024 mg/L Ethylbenzene: 0.0024 mg/L Xylenes: 0.3 mg/L Styrene: 0.072 mg/L F1: 2.2 mg/L F2: 1.1 mg/L Acenapthene: 0.0058 mg/L Acenaphthylene: 0.046 mg/L Anthracene: 0.000012 mg/L Fluoranthene: 0.00004 mg/L Fluorene: 0.003 mg/L Naphthalene: 0.0011 mg/L Phenanthrene: 0.0004 mg/L Pyrene: 0.000025 mg/L Carcinogenic PAHs (as B(a)P TPE): 0.00001 mg/L Benz[a]anthracene: 0.000018 mg/L Benzo[b+j]fluoranthene: 0.00048 mg/L Benzo[k]fluoranthene: 0.00048 mg/L Benzo[a]pyrene: 0.000017 mg/L Chrysene: 0.0014 mg/L Dibenz[a,h]anthracene: 0.00028 mg/L Indeno[1,2,3-c,d]pyrene: 0.00023 mg/L Phenol: 0.004 mg/L Polychlorinated biphenyls: 0.0094 mg/L	
22.	Effluent meeting the Effluent Quality Criteria referred to in Part F, Condition 20 may be: a) Reapplied to the Biotreatment Pad; b) Used as a dust suppressant within the boundaries of the Inuvik Solid Waste Disposal Facility; and/or c) Discharged to the receiving environment at SNP 0037-1 or SNP 0037-2.		**EFFLUENT MEETING CRITERIA**
23.	Effluent exceeding the Effluent Quality Criteria referred to in Part F, Condition 20, and which exceeds the capacities of the Water Retention Pond and Water Holding Tanks may be: a) Reapplied to the Biotreatment Pad; b) Retreated to ensure it meets Effluent Quality Criteria; and/or		**EFFLUENT EXCEEDING CRITERIA**

	c) Transported to a registered hazardous waste receiving facility for disposal.	
24.	The volume of Effluent discharged from SNP 0037-1 and SNP 0037-2 must not exceed 50m^3 per discharge event at SNP 0037-3, or as authorized in writing by an Inspector.	**MAXIMUM DISCHARGE VOLUME**
25.	The rate of flow of Water discharged from SNP 0037-1 and SNP0037-2 must not exceed 300 L per minute at SNP 0037-3, or as authorized in writing by an Inspector.	**MAXIMUM DISCHARGE RATE**
26.	A minimum of five days prior to commencing or resuming Discharge of Effluent, the Licensee shall submit Water quality data for samples collected from Surveillance Network Program stations SNP 0037-1 and SNP 0037-2 to the Board and an Inspector. The Licensee shall not commence or resume the Discharge until the EQC are met and an Inspector has provided written authorization.	**TESTING BEFORE DISCHARGE –**
	Part G: Aquatic Effects Monitoring	
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	Part H: Spill Contingency Planning	
1.	The Licensee shall ensure that Unauthorized Discharges associated with the Project do not enter any Water.	**OBJECTIVE – PREVENT WASTE INTO WATER**
2.	The Licensee shall comply with the **Spill Contingency Plan**, once approved.	**SPILL CONTINGENCY PLAN**
3.	If a spill or an Unauthorized Discharge occurs or is foreseeable, the Licensee shall: a) Implement the approved Spill Contingency Plan referred to in Part H, Condition x; b) Report it immediately using the NU-NT Spill Report Form by one of the following methods: • Telephone: (867) 920-8130 • Fax: (867) 873-6924 • E-mail: spills@gov.nt.ca • Online: Spill Reporting and Tracking Database c) Notify the Board and an Inspector immediately; and	**REPORT SPILLS**

	d) Within 30 days of initially reporting the incident, or within a timeframe authorized by an Inspector, submit a detailed report to the Board and an Inspector, including descriptions of causes, response actions, and any changes to procedures to prevent similar occurrences in the future. Written notification shall be provided to the Board and an Inspector if any changes occur.	
4.	The Licensee shall ensure that spill prevention infrastructure and spill response equipment is in place prior to commencement of the Project.	**SPILL PREVENTION AND RESPONSE EQUIPMENT**
5.	The Licensee shall restore all areas affected by spills and Unauthorized Discharges to the satisfaction of an Inspector.	**CLEAN UP SPILLS**
6.	The Licensee shall not establish any fuel storage facilities or refueling stations, or store chemicals or Wastes within 100 metres of the Ordinary High-Water Mark of any Watercourse.	**MATERIAL STORAGE – ORDINARY HIGH-WATER MARK**
	Part I: Closure and Reclamation	
1.	The Licensee shall comply with the **Closure and Reclamation Plan**, once approved.	**CLOSURE AND RECLAMATION PLAN**
2.	A minimum of two years prior to the end of Project operations, the Licensee shall submit to the Board, for approval, a final **Closure and Reclamation Plan**. The Final Closure and Reclamation Plan shall be in accordance with Schedule 5.	**CLOSURE AND RECLAMATION PLAN – FINAL**

Signed on behalf of Gwich'in Land and Water Board

Elizabeth Wright, GLWB Chair

Leonard DeBastien Witness

Schedule 1: Annual Water Licence Report

	Condition
1.	The **Annual Water Licence Report** referred to in Part B, Condition 19 of this Licence shall include, but not be limited to, the following information about activities conducted during the previous calendar year: a) The generator, carrier, volume and analytical results of soil and snow/water accepted at the Inuvik Soil Treatment Facility ; b) The generator, carrier, volume, analytical results, of soil and snow/water refused from the Inuvik Soil Treatment Facility; c) The volume, analytical results, carrier, and destination of treated soil removed from the Inuvik Soil Treatment Facility; d) The monthly and annual quantities in cubic meters of all effluent discharged from the Water Retention Pond and Water Holding Tanks; e) The water level and remaining capacity of each of the Water Holding Tanks and Water Retention Pond; f) A description and volume or quantity of process additives used, with MSDS provided; g) Discharge location(s) and effluent quality test results (raw and summarized data) for each discharge event from the Water Retention Pond and Treated Water Tanks; h) Tabular summaries of all data generated under the Surveillance Network Program (SNP) in accordance with Part B, Condition 14, and Annex A of this Licence; i) Details and results of the Environmental Monitoring Program, in accordance with Part F, Condition 4 of this Licence; j) Laboratory reports for all samples collected for the Surveillance Network Program, attached as an appendix; k) For parameters that exhibit on-going or recurring exceedances of compliance criteria, provide: i. additional data analysis; ii. a comparison to monitoring data from previous years to detect trends or patterns; and iii. a review of field conditions in order to explain results l) A summary of Construction activities conducted in accordance with Part E of this Licence; m) A summary of major maintenance activities carried out during the previous calendar year; n) A copy of facility inspection reports referred to in Part F, Condition 7;

	Condition
	o) A list and description of all Unauthorized Discharges that occurred during the previous calendar year, including the date, NWT spill number, volume, location, and summary of the circumstances and follow-up actions taken, and the status (i.e. open or closed), in accordance with the reporting requirements referred to in Part H of this Licence; p) An outline of any spill training and communications exercises carried out during the previous calendar year; q) A summary of any closure and reclamation work completed during the year and an outline of any work anticipated for the next year; r) A summary of any studies requested by the Board that relate to Waste disposal or Reclamation, and a brief description of any future studies planned; s) A summary of actions taken to address concerns, non-conformances, or deficiencies in any reports filed by an Inspector; t) A summary of any updates or revisions to the Spill Contingency Plan, Waste Management Plan, Operation & Maintenance Plan, Environmental Monitoring Program, and Closure and Reclamation Plan; u) A summary of any updates or revisions to the Engagement Plan, including records of any engagement carried out during the previous year; and v) Any other details on Waste disposal, operating procedures, Construction, maintenance work, or other topics, requested by the Board on or before November 1 of the year being reported.

Schedule 2: Conditions Applying to Security

	Condition
1.	The amount of security referred to in Part C, Condition 1, shall total $503,632.00.

Schedule 3: Soil and Snow/Water Acceptance Criteria

<table>
<tr><th></th><th>Condition</th></tr>
<tr><td>1.</td><td>As per Part F Condition 11 all soil entering the Inuvik Soil Treatment Facility shall meet the following criteria:
<table>
<tr><th>Parameter</th><th>Soil Composite Sample
Maximum Concentration</th></tr>
<tr><td>pH</td><td>6–8</td></tr>
<tr><td>Antimony</td><td>40 mg/kg</td></tr>
<tr><td>Arsenic (inorganic)</td><td>120 mg/kg</td></tr>
<tr><td>Barium</td><td>2000 mg/kg</td></tr>
<tr><td>Beryllium</td><td>8 mg/kg</td></tr>
<tr><td>Cadmium</td><td>22 mg/kg</td></tr>
<tr><td>Total chromium</td><td>87 mg/kg</td></tr>
<tr><td>Cobalt</td><td>300 mg/kg</td></tr>
<tr><td>Copper</td><td>91 mg/kg</td></tr>
<tr><td>Lead</td><td>600 mg/kg</td></tr>
<tr><td>Mercury</td><td>50 mg/kg</td></tr>
<tr><td>Molybdenum</td><td>40 mg/kg</td></tr>
<tr><td>Nickel</td><td>89 mg/kg</td></tr>
<tr><td>Selenium</td><td>2.9 mg/kg</td></tr>
<tr><td>Silver</td><td>40 mg/kg</td></tr>
<tr><td>Thallium</td><td>1 mg/kg</td></tr>
<tr><td>Tin</td><td>300 mg/kg</td></tr>
<tr><td>Uranium</td><td>300 mg/kg</td></tr>
<tr><td>Vanadium</td><td>130 mg/kg</td></tr>
</table>
</td></tr>
</table>

	Condition

Zinc	360 mg/kg
Fraction 1 (C6 - C10)	< 3% dry weight
Fraction 2 (>C10 - C16)	< 3% dry weight
Fraction 3 (>C16 - C34)	< 3% dry weight
Fraction 4 (>C34)	< 3% dry weight

2. As per Part F, Condition 13, all snow/water entering the Inuvik Soil Treatment Facility shall meet the following criteria:

Parameter	**Maximum Grab Concentration**
pH	6-8
F1 (C6 – C10)	No free-phase hydrocarbon product
F2 (>C10 – C16)	
F3 (>C16 – C34)	
F4 (>C34)	

3. As per Part F, Condition 19, representative samples of soil and snow/water shall be collected according to the following criteria:

	Condition

Volume of Soil (m^3)	Number of Composite Samples Required
1 - 50	1
51 - 500	2
501 - 1000	3
1001 - 2000	4
2001 - 4000	5
Volume snow/water (m^3)	**Number of Composite Samples Required**
1 - 50	1
51 - 200	2

Schedule 4: Conditions Applying to Environmental Monitoring Plan

1.	1. The **Environmental Monitoring Program** referred to in Part E, Condition 6 of this Licence shall include, but not be limited to, the following information: a) Results of the geotechnical investigation; b) Proposed surface water monitoring program; c) Proposed groundwater monitoring program; d) Proposed soil monitoring program; e) Proposed permafrost monitoring program; and f) Proposed permafrost protection plan;
2.	This information referred to in Schedule 4, Condition 1 shall include, but not be limited to: i. A description of the underlying and surrounding hydrogeology, as assessed by a Professional Engineer, Hydrologist; Hydrogeologist or equivalent professional; ii. A description of how leachate related to the Biotreatment Pad and Water Retention Pond will be monitored, with appropriate maps or diagrams; iii. Baseline data that establishes existing concentration ranges of potential contaminants of concern(including but not limited to: benzene, toluene, ethylbenzene, and xylenes (BTEX); volatile organic compounds (VOCs); F1 to F4 hydrocarbon fractions; polycyclic aromatic hydrocarbons (PAHs); and total metals); iv. A schedule for the periodic monitoring of contaminants of concern (including but not limited to: benzene, toluene, ethylbenzene, and xylenes (BTEX); volatile organic compounds (VOCs); F1 to F4 hydrocarbon fractions; polycyclic aromatic hydrocarbons (PAHs); and total metals); v. Details of monitoring, including a rationale for each component of the Water management system; vi. A map and attached table or detailed legend illustrating monitoring and sampling locations; vii. A description, including detailed rationale, of the site-specific monitoring activities required to identify impacts from Project-related activities; viii. A description of monitoring protocols, methodologies, parameters, and frequency specific to each type of monitoring identified in Condition (iv) above; ix. A description of the quality assurance and quality control measures followed for each monitoring type; x. A description of responses to monitoring results and an explanation of how the Licensee will link the results of monitoring to those corrective actions necessary to ensure that the conditions listed in Part E, Condition 19 and 24 are met. This description shall include: a. definitions, with rationale, for Action Levels for parameters of concern that will be monitored under the

	Environmental Monitoring Program; and b. for each Action Level, a description of actions taken in response to any Action Level exceedances under the Monitoring Program. xi. Reporting methods for Action Levels exceedances and actions taken during the year, as per the Annual Water Licence Report requirements outlined in Schedule 1 of this Licence.

Schedule 5: Closure and Reclamation

	Condition
1.	The Final **Closure and Reclamation Plan** referred to in Part I, Condition 2 of this Licence shall include, but not be limited to the following information:
	a) A description of the overall goals for Closure and Reclamation of the Project, including expected future land use;
	b) A description of engagement related to Closure and Reclamation planning, including a summary of completed and planned engagement, and links to the **Engagement Plan** referred to in Part B, Condition 20 for the Project;
	c) A list of any other regulatory authorizations required for Closure and Reclamation of the Project;
	d) A description of the pre-existing and current Project environment, including, but not limited to: i. climatic conditions; ii. physical conditions; iii. chemical conditions; iv. biological conditions; v. any physical or chemical assessments of soil, water, and permafrost; and vi. traditional uses.
	e) A description of the Project, including, but not limited to: i. site history; ii. Project development; iii. current status of the Project; iv. maps delineating all disturbed areas, borrow material locations, site facilities, hydrological features, and elevation contours; and v. photographs.
	f) For the Project site, a description of Closure and Reclamation plans, including, but not limited to: i. Closure Objectives and Criteria; ii. preferred Closure and Reclamation option and method for each Project component identified in Condition (h) above; iii. design drawings, signed and stamped by a Professional Engineer, for any Engineered structures; iv. Water management and restoration of natural drainage; v. predicted environmental effects during and after Closure and Reclamation activities; vi. post-closure monitoring, maintenance, and reporting; vii. uncertainties and contingencies; viii. climate change considerations; and

	Condition
	ix. Closure and Reclamation Research plans.
	g) A description of any planned Progressive Reclamation;
	h) A plan for Temporary Closure, including, but not limited to the following information: i. Temporary Closure goals and objectives; ii. a description of activities and methods; iii. a description of monitoring, maintenance, and reporting; iv. contingencies; and v. an implementation schedule.
	i) An implementation schedule that includes Progressive Reclamation and final Closure and Reclamation activities; and
	j) A Closure Cost Estimate.

Annex A:

Surveillance Network Program (SNP) Annexed to Water Licence G22L1-005

Table of Contents:

Part A: Reporting Requirements

1. The effective date of this Surveillance Network Program (SNP) is November 18, 2022
2. The Licensee shall include all of the data and information required in Part C of this Annex in the Annual Water Licence Report, as specified in Part B, Condition 10 of this Licence.
3. The Licensee shall also provide SNP data at other times, if requested by an Inspector or the Board.

Part B: Sampling and Analysis Requirements

1. More frequent sample collection or provision of data may be required at the request of an Inspector.
2. The location of sampling sites is subject to the approval of an Inspector. The Licensee shall work with an Inspector to confirm suitability of sampling sites. Signs shall be posted as per Part B, Condition 17 of this Licence.
3. All sampling, sample preservation, and analyses shall be conducted in accordance with methods prescribed in the current edition of American Public Health Association's (APHA) *Standard Methods for the Examination of Water and Wastewater* at the time of analysis, or by other such methods approved by an Analyst.
4. All analyses shall be performed in a laboratory accredited by the Canadian Association for Laboratory Accreditation (CALA) for the specific analyses to be performed or as approved by an Analyst.

Part C: SNP Station Descriptions and Monitoring Requirements

SNP #	Location	Sampling Frequency	Sampling Parameters	Rationale
0037-1	Water Retention Pond	a) Prior to proposed discharge b) daily, during discharge	- ICP-MS Metal Scan (Total) - Field parameters - Total Petroleum Hydrocarbons (F1, F2, F3, F4 CCME Fractions) - Benzene, Toluene, Ethylbenzene, and Xylene - Chemical Oxygen Demand (COD) - Extractable Petroleum Hydrocarbons (EPH) - Total Suspended Solids (TSS) - Oil and Grease - pH	Point of compliance, prior to and during discharge
0037-2	Water Holding Tank	a) Prior to proposed discharge b) daily, during discharge	- ICP-MS Metal Scan (Total) - Field parameters - Total Petroleum Hydrocarbons (F1 F2, F3, F4 CCME Fractions) - Benzene, Toluene, Ethylbenzene, and Xylene - Chemical Oxygen Demand (COD) - Extractable Petroleum Hydrocarbons (EPH) - Total Suspended Solids (TSS) - Oil and Grease - pH	Point of compliance, prior to discharge,
0037-3	Drainage Ditch	Daily, during discharge of water from Retention Pond or Water Holding Tanks	- total volume of water discharged - rate of flow	Flow rate monitoring
0037-4	Groundwater Well (North-East)	Twice annually (Spring and Fall)	- ICP-MS Metal Scan (Total) - Field parameters - Total Petroleum Hydrocarbons (F1 F2, F3, F4 CCME Fractions) - Benzene, Toluene, Ethylbenzene, and Xylene - Chemical Oxygen Demand (COD) - Extractable Petroleum Hydrocarbons (EPH) - Total Suspended Solids (TSS) - Oil and Grease - pH	Upgradient Monitoring Well

0037-5	Groundwater Well (South-East)	Twice annually (Spring and Fall)	- ICP-MS Metal Scan (Total) - Field parameters - Total Petroleum Hydrocarbons (F1 F2, F3, F4 CCME Fractions) - Benzene, Toluene, Ethylbenzene, and Xylene - Chemical Oxygen Demand (COD) - Extractable Petroleum Hydrocarbons (EPH) - Total Suspended Solids (TSS) - Oil and Grease - pH	Downgradient Monitoring Well
0037-6	Groundwater Well (South)	Twice annually (Spring and Fall)	- ICP-MS Metal Scan (Total) - Field parameters - Total Petroleum Hydrocarbons (F1 F2, F3, F4 CCME Fractions) - Benzene, Toluene, Ethylbenzene, and Xylene - Chemical Oxygen Demand (COD) - Extractable Petroleum Hydrocarbons (EPH) - Total Suspended Solids (TSS) - Oil and Grease - pH	Downgradient Monitoring Well
0037-7	Groundwater Well (South-West)	Twice annually (Spring and Fall)	- ICP-MS Metal Scan (Total) - Field parameters - Total Petroleum Hydrocarbons (F1 F2, F3, F4 CCME Fractions) - Benzene, Toluene, Ethylbenzene, and Xylene - Chemical Oxygen Demand (COD) - Extractable Petroleum Hydrocarbons (EPH) - Total Suspended Solids (TSS) - Oil and Grease - pH	Downgradient Monitoring Well
0037-8	Surface Water Monitoring	Twice annually (Spring and Fall)	- ICP-MS Metal Scan (Total) - Field parameters - Total Petroleum Hydrocarbons (F1 F2, F3, F4 CCME Fractions) - Benzene, Toluene, Ethylbenzene, and Xylene - Chemical Oxygen Demand (COD) - Extractable Petroleum Hydrocarbons (EPH) - Total Suspended Solids (TSS) - Oil and Grease - pH	Downgradient of Water Retention Pond

Annex B:
Concordance Table of Items Requiring Submission (Water Licence G221-005)

Licence Part	Item	Timeline for Submission
B	Submit Annual Review Notification Letter to Board	By March 31 of each year
B	Submit Annual Water Licence Report to Board	By March 31 of each year
B	Submit updated Engagement Plan to Board for Approval	Upon any revisions
B	Notify Board and Inspector of any non-compliance with Licence Conditions	Immediately
B	Notify Board and Inspector of any non-compliance Board Directives	Immediately
C	Post Security Deposit with Minister	Prior to the commencement of activities
C	Submit Updated Closure Cost Estimate to Board	Within sixty (60) days of Licence Issuance; and Upon Request by the Board
E	Submit Design and Construction Plan to Board for Approval	At least sixty (60) days prior to commencement of Construction
E	Notify Board and Inspector	At least ten (10) days prior to commencement of Construction
E	Submit As-Builts to Board	Within ninety (90) days of the completion of Construction
E	Notify Board and Inspector	At least sixty (60) days prior to commencement of Modifications
E	Submit As-Builts to Board	Within ninety (90) days of the completion of Modifications
F	Submit updated Operations and Maintenance Plan to Board for Approval	Upon any revisions

F	Submit updated Environmental Monitoring Plan to Board for Approval	Upon any revisions
F	Submit updated Waste Management Plan to Board for Approval	Within thirty (30) days of Licence Issuance; and Upon any revisions
F	Submit Soil Analyses to Inspector	Prior to acceptance of soil
F	Submit Snow/Water Analyses to Inspector	Prior to acceptance of snow/water
F	Submit Soil Analyses to Inspector	Prior to removal of soil
H	Submit updated Spill Contingency Plan to Board for Approval	Upon any revisions
H	Notify Board and Inspector in the event of a spill.	Immediately
H	Submit detailed Spill Report to Board and Inspector	Within (30) days of initial spill notification
I	Submit updated Closure and Reclamation Plan to Board for Approval	Upon any revisions
I	Submit Final Closure and Reclamation Plan to Board for Approval	A minimum two years prior to the completion of Project Activities

*Note: This table summarizes the information the Licensee is required to submit as per the Water Licence Conditions.
In the event of a discrepancy between this table and the body of the Water Licence, the Water Licence condition will prevail.

Annex C:
Revisions Water Licence G221-005

Date	Location of Change	What has changed
March 28, 2023	Schedule 2	Security deposit requirements revised from $450,116.00 to $503,632.00