

Type B Water Licence S18L1-002
KBL Environmental Ltd. – Norman Wells Soil Treatment Facility

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Part A: Scope and Definitions

Scope:

1. This Licence entitles the Licensee to use Water and deposit Waste for Industrial undertakings related to miscellaneous activities at the Norman Wells Soil Treatment Facility located in the Upper Industrial Area of the Town of Norman Wells, NT.

The scope of this licence includes;

- a) construction, operation, and maintenance of a Soil Treatment Facility (Landfarm);
- b) Deposit of hydrocarbon contaminated soil and snow (Waste) to the Soil Treatment Facility for processing and treatment;
- c) Monitoring;
- d) Deposit of treated Waste from the Soil Treatment Facility to use as cover material.

2. The scope of this Project is described in the Preliminary Screening Determination for S18L1-002, dated October 24, 2018.

This Licence is issued subject to the conditions contained herein with respect to the taking 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 Deposit 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.

3. Compliance with this Licence does not relieve the Licensee from responsibility for compliance with the requirements of any applicable federal, territorial, Déjine, or municipal legislation.

Defined Terms:

Act - the Waters Act.

Action Level – a predetermined qualitative or quantitative trigger which, if exceeded, requires the Licensee to take appropriate actions.

Analyst - an Analyst designated by the Minister under subsection 65(1) of the Act.

Board - the Sahtu 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.

Closure – the permanent dismantlement of one or more components of the Project with the intent of making the components incapable of its intended use. This includes the removal of associated equipment and structures used in the construction or maintenance of the Project.

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.

S23L1-001 – KBL Environmental Ltd.

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Deposit of Waste – a deposit of Waste in any Water or in any other place under conditions in which the Waste, or any other Waste that results from the deposit of that Waste, may enter any Waters.

Discharge – a direct or indirect deposit or release of any Water, or Wastewater to the Receiving Environment.

Effluent – a Wastewater Discharge.

Effluent Quality Criteria (EQC) – numerical or narrative limits on the quality or quantity of the Effluent authorized for deposit to Receiving Water. **Engagement Plan** - a document, developed in accordance with the MVLWB's *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.

Engineered Structure – any structure or facility related to Water Use or the disposal or Deposit of Waste that is designed by a Professional Engineer, including but not limited to the Biotreatment Pad, the Leachate Retention Pond, the Water Storage Tank, and the Water Treatment Plant.

Freeboard - the vertical distance between the still 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.

Hydrocarbon-Contaminated Soil Treatment Facility – the area(s) and Engineered Structures designated to contain and treat hydrocarbon-contaminated snow and soil. **Inspector** - an Inspector designated by the Minister under subsection 65(1) of the Waters Act.

Leachate Retention Pond- the excavation within the Land Treatment Facility constructed for the purpose of storing contaminated snow and to collect runoff from precipitation and from the soil treatment pad.

Licensee - the holder of this Licence.

Maximum Grab Concentration – the concentration of a parameter listed in the Licence that cannot be exceeded in any one analytical result.

Minister - the Minister of the Government of the Northwest Territories (GNWT) – Environment and Climate Change.

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 those whose professional field of specialization is appropriate to address the components of the Project at hand.

Project - the undertaking described in Part A, Conditions 1 and 2.

Receiving Environment - the natural environment that, directly or indirectly, receives any Waste from the Project.

Receiving Water – the Water in the Receiving Environment that receives any direct or indirect Deposit of Waste from the Project.

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RECLAIM – the Government of the Northwest Territories’ model for estimating Closure and Reclamation costs.

Reclamation – the activities which facilitate the return of areas affected by the Project to viable and, wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment, human activities, and the surrounding environment.

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.

Secondary Containment – a containment system that prevents the spread of hazardous liquids to the surrounding environment in the event of a leak, or failure, of a primary storage tank.

Soil Treatment Facility (STF) - means the Engineered Structure designed to contain and treat hydrocarbon contaminated soils and snow.

Spill Contingency Plan - 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 Schedule 1.

Traditional Knowledge – the cumulative, collective body of knowledge, experience, and values built up by a group of people through generations of living in close contact with nature. It builds upon the historic experiences of a people and adapts to social, economic, environmental, spiritual, and political change.

Unauthorized Release – a release to the Receiving Environment of any Water or Waste not authorized under this Licence.

Waste(s) – 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

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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 - 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, but is not limited to, 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 Storage Tank - a skid-mounted, above ground container for the storage of snow, Water or hydrocarbon contaminated Water with a capacity of less than 65,000 litres.

Water Treatment Plant - the area and associated structures designated for the treatment of hydrocarbon-contaminated Water.

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.

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Part B: General Conditions

1. The Licensee shall ensure a copy of this Licence is maintained on site at all times.
2. The Licensee shall take every reasonable precaution to protect the 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.
4. 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 denoted.
5. The Licensee shall ensure all submissions, to the Board:
 - a) Are, in accordance with the LWB Document Submission Standards and, if applicable, Geospatial Data Submissions Standards; and
6. Include any additional information requested by the Board. The Licensee shall ensure management plans are submitted to the Board in a format consistent with the LWB Standard Outline for Management Plans, unless otherwise specified.
7. The Licensee shall comply with all plans and programs, including revisions, approved pursuant to, the conditions of this Licence, and as approved by the Board.
8. The Licensee shall conduct an annual review of all plans and programs and make any revisions necessary to reflect changes in operations, contact information, or other details. No later than [REDACTED] each year, the Licensee shall send a notification letter to the Board, listing the documents that have been reviewed and do not require revisions.
9. The Licensee may propose changes at any time by submitting revised plans or programs 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.
10. The Licensee shall revise any submission and submit it as per the Board's directive.
11. If any date for any submission falls on a weekend or holiday, the Licensee may submit the item on the following business day.
12. The Licensee shall comply with all directives issued by the Board in respect of the implementation of the conditions of this Licence.
13. The Licensee shall comply with the Schedules which form part of this Licence, and any updates to the Schedules as may be made by the Board.
14. The Licensee shall comply with the Surveillance Network Program, set out in Schedule 1, and any updates to the Surveillance Network Program as may be made by the Board.
15. The Schedules, the Surveillance Network Program, and any compliance dates specified in this Licence may be

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16. The Licensee shall ensure signs are posted for all active Surveillance Network Program stations. All sign(s) shall be located and maintained to the satisfaction of an Inspector.

17. The Licensee shall install, operate, and maintain meters, devices, or other such methods used for measuring the volumes of Water used and Waste disposed of to the satisfaction of an Inspector.

18. Beginning March 31, 2025 and no later than every March 31 thereafter, the Licensee shall submit an **Annual Water Licence Report** to the Board. The Report shall be in accordance with the requirements of Schedule 2, Condition 1.

19. The Licensee shall comply with the **Engagement Plan**, once approved.

20. A minimum of ten days prior to the initial commencement of Project activities, the Licensee shall provide written notification to the Board and an Inspector. Notification shall include the commencement date, and the name and contact information for the individual responsible for overseeing the Project. Written notification shall be provided to the board and an Inspector if any changes occur.

21. The Licensee shall ensure that a copy of any written authorization issued to the Licensee by an Inspector is provided to the Board.

22. The Licensee shall submit a current Project schedule to the Board and an Inspector upon request.

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Part C: Security

1. The Licensee shall post and maintain a security deposit with the Minister, in accordance with Schedule 3, condition 1. The Licensee shall not commence activities until the security deposit has been accepted by the Minister.
2. Upon request of the Board, the Licensee shall submit an updated Closure Cost Estimate utilizing the current version of RECLAIM or another method acceptable to the Board.
3. The amount of the security deposit required by Part C, condition 1 may be revised 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.
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 of 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.

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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.
2. A minimum of 45 days prior to the commencement of Construction of the Biotreatment Pad and the Leachate Retention Pond, the Licensee shall submit to the Board, a construction plan and design drawings stamped and signed by a Professional Engineer, which notes "issued for construction" or similar phrase.
3. The Licensee shall ensure that all Hydrocarbon-Contaminated Soil Treatment Facilities are designed, constructed, maintained, monitored, and closed to meet or exceed the LWB/IWB/GNWT, Guideline for Design, Operation, Maintenance, and Closure of Petroleum Hydrocarbon-Contaminated Soil Treatment Facilities in the Northwest Territories.
4. The Licensee shall maintain records of Construction materials for all structures and make them available at the request of the Board or an Inspector.
5. A minimum of ten 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 name and contact information for the Construction superintendent. Updates shall be provided to the Board and an Inspector in writing as changes occur.
6. Within 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 of field decisions that deviate from the Design and Construction Plan; and
 - c) any data used to support these decisions.

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The Licensee may carry out a Modification to an existing or planned structure, without written approval from the Board, provided the proposed Modification is not an expansion, does not alter the purpose or function of the structure, and the following are consistent with the terms of this Licence and the following requirements are met prior to beginning the Modification:

The Licensee shall provide written notification to the Board and an Inspector a minimum of 45 days prior to beginning the Modification;

An Inspector has provided written notification to the Board authorizing the proposed Modification;

The Board has not informed the Licensee that additional information is required; and

The Board has not informed the Licensee that additional time is required to conduct a public review.

The Licensee may only carry out a Modification that does not meet Part F, condition 1 with written approval from the Board.

Within 90 days of the completion of the Modification referred to in Part E, condition 1, the Licensee shall submit to the Board an **As-Built Report**, stamped and signed by a Professional Engineer, which shall include final as-built drawings and specifications of the modified structure.

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Part F: Waste and Water Management

1. The Licensee shall manage Waste and Water with the objectives 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 action.

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Management Plans and Monitoring Plans

- 2. The Licensee shall comply with the **Waste Management Plan**, once approved.
- 3. A minimum of 90 days prior to commencement of activities, the Licensee shall submit to the Board, for approval, an **Environmental Monitoring Program**. The Plan shall be developed in accordance with Schedule 4, Condition 1.
- 4. The Licensee shall adhere to the **Environmental Monitoring Program**, once approved.

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Operation of Structures and Facilities

5. The Licensee shall construct, operate and maintain the Soil Treatment Facility (STF) to the design specifications and engineering standards, such that:

- a) Any constructed structures/facilities are maintained and operated so as to prevent structural failure;
- b) Any Seepage from the facility that does not meet Effluent Quality Criteria, as specified in Part F, Condition 23 shall be collected and returned to the Soil Treatment 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;
- e) Monitoring of the facility is sufficient to ensure that:
 - i. Performance design criteria, as described in the Operation and Maintenance Plan, referred to in Part F, Condition 6 are being met; and
 - ii. Necessary changes in operation of the facility, including any additional mitigations, are identified.

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6. The Licensee shall adhere to the **Operations and Maintenance Plan**, once approved. The Operations and Maintenance Plan should include, but not be limited to the following:

- a) Project description;
- b) Facility design;
- c) Facility personnel and training;
- d) Acceptable soil types that can be treated in the Soil Treatment Facility;
- e) Details of on-site processing/treatment of soil, including the dimensions of soil piles that will be managed;
- f) Water management and treatment systems operations and maintenance;
- g) Remediation standards, methods, and frequency of any soil manipulation to promote remediation;
- h) An identification and tracking system for soil stockpiles and holding tanks;
- i) Monitoring of annual volume/mass of soil and snow entering and leaving the facility;
- j) Leachate management and monitoring strategy; and
- k) Effluent discharge procedures; and
- l) Routine facility inspection and maintenance schedule including response to major storm or catastrophic events.

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7. The Licensee shall maintain a Freeboard limit of **0.5 metre** at the Leachate Retention Pond, or as recommended by a Professional Engineer and as approved by the Board.

- 8. The Licensee shall operate and maintain the Soil Treatment Facilities to prevent structural failure and to the satisfaction of an Inspector.

Inspection of Structures and Facilities

- 9. The Licensee shall conduct monthly inspections of the Soil Treatment Facility during summer operations, or more frequently as directed by an Inspector ~~or the Board.~~ Records of these inspections shall be made available to the Board or an Inspector upon request.
- 10. The Licensee shall conduct daily erosion inspections of Discharge locations during periods of Discharge, or more frequently as directed by an Inspector. Records of these inspections shall be made available to the Board or an Inspector upon request.

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Discharge and Disposal Locations and Rates

- 11. The Licensee shall dispose of all Waste as described in the approved **Waste Management Plan**.
- 12. The Licensee shall ~~discharge~~ all effluent from the **Leachate Retention Pond** to the drainage ditch as described in the approved **Operation and Maintenance Plan**. The effluent shall meet the effluent quality criteria (EQC) as specified in Part ~~F~~, **Condition 23** prior to discharge.
- 13. ~~The Licensee shall not dispose of Waste, including Wastewater, to any Watercourse, or to the ground surface within 100 metres of the Ordinary High-Water Mark of any Watercourse.~~

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Soil and Snow Acceptance Criteria

- 14. Only soils meeting the acceptance criteria outlined in Schedule ~~4~~, **Condition 2** shall enter the facility, unless otherwise authorized by the Inspector.
- 15. Prior to accepting soil to the Soil Treatment Facility, the Licensee shall submit soil analyses results to the Inspector, unless otherwise authorized by the Inspector.
- 16. Only snow meeting the acceptance criteria outlined in Schedule 4, ~~Condition 2~~ shall enter the facility, unless otherwise authorized by the Inspector.
- 17. Prior to accepting snow to the Soil Treatment Facility, the Licensee shall submit Water analyses results to the Inspector, unless otherwise authorized by the Inspector.

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Treated Soil Criteria

- 18. The Licensee shall ensure all treated soil from the Biotreatment Pad meets the following criteria for Industrial Use, unless otherwise authorized by the Board and an Inspector:

Parameter	Soil Maximum Concentration (mg/kg)
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pH	6 – 8 pH units	
Antimony	40	
Arsenic (inorganic)	120	
Barium	2000	
Beryllium	8	
Cadmium	22	
Chromium (total)	87	
Cobalt	300	
Copper	91	
Lead	600	
Mercury	50	
Molybdenum	40	
Nickel	89	
Selenium	2.9	
Silver	40	
Thallium	1	
Tin	300	
Uranium	300	
Vanadium	130	
Zinc	360	
Petroleum Hydrocarbon Re-use Criteria	ADC Fine-grained Soil (mg/kg)	ADC Coarse-grained Soil (mg/kg)
F1 (C6 - C10)	660	310
F2 (> C10 – C16)	1500	760
F3 (> C16 – C34)	2500	1700
F4 (> C34)	6600	3300
Benzene	5.0	5.0
Toluene	0.8	0.8
Ethylbenzene	20	20
Xylenes	20	20

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

19. Treated soil meeting the re-use criteria outlined in Part F, condition 18 shall only be used for the purpose of cover material at the Town of Norman Wells Solid Waste Disposal Facility, unless otherwise approved by the Board and an Inspector.
20. Treated soil not meeting the re-use criteria outlined in Part F, condition 18 shall be disposed of at an approved facility.
21. Prior to removing soil from the Soil Treatment Facility, the Licensee shall submit soil analyses results to an Inspector.
22. The Licensee shall obtain representative samples as per the following, or as authorized by an Inspector:

Volume of Soil (m ³)	Number of Composite Samples Required
1 - 50	1

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51 - 500	2
501 - 1000	3
1001 - 2000	4
2001 - 4000	5
Volume of Snow (m³)	Number of Composite Samples Required
1-50	1
51-275	2

Effluent Quality Criteria

23. The Licensee shall ensure that Waste discharged from the Leachate Pond (SNP 18-002-01a and b) or the Water Holding Tanks (SNP 18-002-03a and b) meets the following effluent quality criteria (EQC):

Parameter	Maximum Concentration (mg/L)
pH	6.5 - 9.0
Antimony	0.006
Arsenic (inorganic)	0.005
Barium	1
Beryllium	100
Boron	1.5
Iron	0.3
Manganese	0.05
Selenium	0.001
Uranium	0.02
Zinc	0.03
Benzene	0.005
Toluene	0.024
Ethylbenzene	0.0024
Xylenes	0.3
Styrene	0.072
F1	2.2
F2	1.1
Acenaphthene	0.0058
Acenaphthylene	0.046
Anthracene	0.000012
Fluoranthene	0.00004
Fluorene	0.003
Naphthalene	0.0011
Phenanthrene	0.0004
Pyrene	0.000025
Carcinogenic PAHs (as B(a)P TPE)	0.00001
Benz[a]anthracene	0.000018
Benzo[b+j]fluoranthene	0.00048
Benzo[k]fluoranthene	0.00048
Benzo[a]pyrene	0.000017
Chrysene	0.0014

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Parameter	Maximum Concentration (mg/L)
Dibenz[a,h]anthracene	0.00028
Indeno[1,2,3-c,d]pyrene	0.00023
Phenol	0.004
Polychlorinated biphenyls (PCBs)	0.0094

24. The Licensee shall immediately notify an Inspector of the exceedance of any effluent quality criterion.
25. Water meeting the Effluent Quality Criteria referred to in Part G, condition 23 may be:
- Reapplied to the Biotreatment Pad;
 - Used as a dust suppressant within the boundaries of the Soil Treatment Facility or the Norman Wells Solid waste Disposal Facility; and/or
 - Discharged to the Receiving Environment at SNP (Drainage ditch).
26. The volume of Waste discharged from SNP 18-002-01b or 18-002-03b to SNP 18-002-02 must not exceed 50 m³/day, or as authorized by an Inspector.
27. The rate of flow of Water discharged from SNP 18-002-01b or 18-002-03b to SNP 18-002-02 must not exceed 300 L per minute or as authorized by an Inspector.
28. Treated water not meeting the **Effluent Quality Criteria** referred to in Part F, condition 23, and which exceeds the capacities of the **Leachate Retention Pond** and **Water Holding Tanks** may be:
- Reapplied to the **Biotreatment Pad**;
 - Treated in the **Portable Water Treatment Plant** to ensure it meets Effluent Quality Criteria; and/or
 - Transported to an approved facility for disposal.
29. The Licensee shall submit Water quality data for samples collected from **Surveillance Network Program** stations 18-002-01 a and b and/or 18-002-03 a and b to the Board and an Inspector as follows, unless otherwise authorized by the Inspector:
- No later than five days prior to commencing or resuming Discharge of effluent to the drainage ditch; and
 - No later than five days prior to commencing or resuming Discharge of effluent to the drainage ditch following an exceedance of the effluent quality criteria specified in Part F, **Condition 23**.

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Part G: Aquatic Effects Monitoring

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Part H: Spill Contingency Planning

1. The Licensee shall ensure that Unauthorized Releases associated with the Project do not enter any Water.
2. The Licensee shall comply with the Spill Contingency Plan, once approved.
3. If a spill or Unauthorized Release occurs or is foreseeable, the Licensee shall:
 - a) Implement the approved Spill Contingency Plan referred to in Part H, Condition 2;
 - 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
 - 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.
5. The Licensee shall restore all areas affected by spills and Unauthorized Releases to the satisfaction of an Inspector.

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Part I: Closure and Reclamation

1. Within one year following the commencement of activities, the Licensee shall submit to the Board, for approval, a **Closure and Reclamation Plan**. The Plan shall be in accordance with Schedule 6, Condition 1.
2. Every three years following the previous approval, or as directed by the Board, the Licensee shall submit to the Board for approval, a revised **Closure and Reclamation Plan**.
3. Upon implementation of the Closure and Reclamation Plan, the Licensee shall provide to the Board and Inspector updates of all Closure and Reclamation activities within the Annual Report as described in Part B, Condition 18.
4. The Licensee shall complete the reclamation and restoration work within the time schedule specified in the approved **Closure and Reclamation Plan** or as subsequently revised and approved by the Board.

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Signed on behalf of the Sahtu Land and Water Board

Philippe di Pizzo, Interim Chair

Bonnie Bergsma, Witness

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Schedule 1: Surveillance Network Program (SNP)

Reporting Requirements

1. Beginning March 31, 2025, and for every year thereafter, the Licensee shall submit to the Board and an Inspector, a Surveillance Network Program Report, which shall include, but not be limited to the following:
 - a) Electronic and tabular summaries of all data and information generated for the month being reported, including rationale for SNP stations where samples were not collected and results and interpretation of quality assurance/quality control procedures;
 - b) Graphical summaries and interpretation of the analytical results from the SNP samples collected at the points of compliance compared to the Effluent Quality Criteria under Part F of this Licence, for the previous two (2) consecutive years;
 - c) An explanation of any actions taken in response to any exceedances of the Effluent Quality Criteria;
 - d) Information regarding the calibration and status of the meters and devices referred to in Part B, Condition 17 of this Licence;
 - e) The exact coordinates of all SNP stations which were established within the year being reported, including an updated map identifying the locations of all the SNP stations; and
 - f) A tabular summary of cumulative water use.
3. More frequent sample collection may be required at the request of an Inspector.
4. 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.
5. 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.

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Surveillance Network Station Descriptions and Sampling Requirements

1. SNP Station information is set out below. The location of each Station is approximate and subject to approval from an Inspector.
2. Coordinates of the SNP stations shall be submitted to the Board within 60 days of establishment of the SNP stations.

SNP station Quick Reference Table

SNP Station #	Description	Status
<u>18-002-01a</u>	<u>Monitors retention waters in the Leachate Pond prior to discharge.</u>	<u>Active prior to proposed retention water discharge</u>
<u>18-002-01b</u>	<u>Monitors retention waters from the Leachate Pond at the point of discharge.</u>	<u>Active upon discharge and weekly during discharge</u>
<u>18-002-02</u>	<u>Monitors volume of water discharged from the Leachate Pond or Water Holding Tanks to the drainage ditch and rate of flow</u>	<u>During discharge from the Leachate Pond or Water Holding Tanks</u>
<u>18-002-03a</u>	<u>Monitors retention waters in the Water Holding Tank prior to discharge</u>	<u>Active prior to proposed water holding tank discharge</u>
<u>18-002-03b</u>	<u>Monitors retention waters in the Water Holding Tank at the point of discharge</u>	<u>Active upon discharge and weekly during discharge</u>
<u>18-002-04a, b, and c</u>	<u>Monitors groundwater downgradient of the Land Treatment Facility.</u>	<u>Active following spring freshet and before freeze-up</u>
<u>18-002-05</u>	<u>Monitors groundwater upstream of the site (reference).</u>	<u>Active following spring freshet and before freeze-up</u>

SNP Station 18-002-02

<u>Description</u>	<u>Monitors the rate of flow and volume of Water that is discharged from the Land Treatment Facility.</u>
<u>Location</u>	<u>Drainage ditch as described in the Operations and Maintenance Plan. Exact location to be determined.</u>
<u>Sampling Frequency</u>	<u>During discharge of Water from the Leachate Pond or Water Holding Tanks.</u>
<u>Sampling Parameters</u>	<u>Total volume of Water discharged; flow rate of water discharged.</u>
<u>Rationale</u>	<u>To monitor the flow rate and total volume of Water that is discharged from the Leachate Pond</u>
<u>Status</u>	<u>Active prior to proposed retention water discharge.</u>

SNP Station 18-002-02a

<u>Description</u>	<u>Monitors water in the Water Storage Tank prior to a proposed discharge.</u>
<u>Location</u>	<u>Within the Water Storage Tank</u>

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Sampling Frequency	<u>As required prior to discharge</u>
Sampling Parameters	<u>As identified in Part G, item 21, pH, electrical conductivity, and temperature at the time of sampling.</u>
Rationale	<u>To ensure discharge Water meets Part G, item 21.</u>
Status	<u>Active prior to proposed retention Water discharge.</u>

SNP Station 18-002-02b

Description	<u>Monitors water from the Water Storage Tank during discharge.</u>
Location	<u>Outflow of Water Storage Tank</u>
Sampling Frequency	<u>Upon discharge and weekly following discharge events</u>
Sampling Parameters	<u>As identified in Part G, item 21, pH, electrical conductivity, and temperature at the time of sampling.</u>
Rationale	<u>To ensure discharge Water meets Part G, item 21.</u>

SNP Station 18-002-04 a, b and c

Description	<u>Monitors groundwater downgradient of the Land Treatment Facility.</u>
Location	<u>Exact location to be determined</u>
Sampling Frequency	<u>Following spring freshet and prior to freeze-up</u>
Sampling Parameters	<u>ICP-MS Metal Scan (Total)</u> <u>Field parameters</u> <u>Total Petroleum Hydrocarbons (F1, F2, F3, F4 CCME Fractions)</u> <u>Benzene, Toluene, Ethylbenzene, and Xylene</u> <u>Chemical Oxygen Demand (COD)</u> <u>Extractable Petroleum Hydrocarbons (EPH)</u> <u>Total Suspended Solids (TSS)</u> <u>Oil and Grease</u> <u>pH</u>
Rationale	<u>To ensure leachate waters are not impacting surrounding environment.</u>
Status	<u>Active following spring freshet and before freeze-up</u>

SNP Station 18-002-05

Description	<u>Monitors groundwater upstream of the Land Treatment Facility (reference).</u>
Location	<u>Exact location to be determined</u>
Sampling Frequency	<u>Following spring freshet and prior to freeze-up</u>
Sampling Parameters	<u>ICP-MS Metal Scan (Total)</u> <u>Field parameters</u> <u>Total Petroleum Hydrocarbons (F1, F2, F3, F4 CCME Fractions)</u> <u>Benzene, Toluene, Ethylbenzene, and Xylene</u> <u>Chemical Oxygen Demand (COD)</u> <u>Extractable Petroleum Hydrocarbons (EPH)</u> <u>Total Suspended Solids (TSS)</u> <u>Oil and Grease</u> <u>pH</u>
Rationale	<u>To ensure leachate waters are not impacting surrounding environment.</u>
Status	<u>Active following spring freshet and before freeze-up</u>

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Schedule 2

Part B: General Conditions – Annual Water Licence Report

1. The Annual Water Licence Report referred to in Part B, condition 18, of this Licence shall include, but not be limited to, the following information about activities conducted during the previous calendar year:

- a) A summary of engagement activities conducted in accordance with the approved Engagement Plan, referred to in Part B, Condition 19 of this Licence;
- b) A summary of Construction, and/or maintenance Project activities;
- c) An updated Project schedule;
- d) A summary of activities conducted in accordance with the approved Hydrocarbon-Contaminated Soil Treatment Facility Operations and Maintenance Plan, referred to in Part F, Condition 6 of this Licence, including:
 - i. A summary of approved updates or changes to the process or facilities required for the management of hydrocarbon-contaminated soil;
 - ii. Monthly and annual quantities, in cubic metres, of all Effluent discharged from the Facility;
 - iii. A summary of contaminated materials accepted into the Facility, including:
 - a. soil, rock, snow, ice, and water;
 - b. Sources of materials;
 - c. Volume and type of material accepted from each source;
 - d. Analytical results for each type of material from each source;
 - iv. A summary of treated soil removed from the Facility, including:
 - a. Volume of soil;
 - b. Analytical results, including soil chemistry and soil particle size;
 - c. The locations and land use activity of the receiving sites;
 - v. A summary of how the contaminated soil was managed during the previous calendar year, including relevant operational details and methods and dates of soil tilling; and
 - vi. Record of inspections of the Hydrocarbon-Contaminated Soil Treatment Facility.
- e) Details and results of the Environmental Monitoring Program, referred to in Part F, Condition 3, including, but not limited to: monitoring location (GPS coordinates); inspection results, depths, frequency of monitoring events, flow direction, chemical parameters tested, and data analysis;
- f) ;

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- g) Tabular summaries of all data generated under the Surveillance Network Program, including a comparison with the Effluent Quality Criteria specified in the Licence;
- h) A sampling and analysis plan for the following year;
- i) Record of inspections of the Soil Treatment Facility;
- j) A list of spills or Unauthorized Discharges;
- k) and
- l) Any other details on Waste disposal requested by the as Board by November 1 of the year being reported.

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 Volume and analytical results of snow accepted in the Soil Treatment Facility; ¶
 Volume and analytical results of soils accepted into the Soil Treatment Facility; ¶
 Volume of soil removed from the facility, the locations of the receiving sites and the land use activity occurring at each receiving site location. Analytical results must include soil chemistry and soil particle size; ¶
 A description of the facility layout and location of contaminated soils including operational details (how the contaminated soil was tilled and dates of tilling); ¶
 Contravention reports, if applicable; ¶

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Deleted: Updates or revisions to the Closure and Reclamation Plan referred to in Part I;

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Schedule 3

Part C: **Conditions Applying to Security**

1. The amount of security referred to in Part C, condition 1, shall total \$452,302.00.

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KBL Environmental Limited – Soil and Water Treatment Facility

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Schedule 4

Part F: Conditions Applying to Waste and Water Management

1. The Environmental Monitoring Program, referred to in Part F, Condition 3, 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;

This information 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 groundwater leachate related to the Soil Treatment Facility will be monitored, with appropriate maps or diagrams;
- iii. The location of all existing and proposed groundwater monitoring stations, with rationale, as provided by a Professional Engineer, Hydrologist; Hydrogeologist or equivalent professional;
- iv. A map and attached table or detailed legend illustrating monitoring and sampling locations;
- v. The purpose of each monitoring station;
- vi. The timing and frequency of groundwater monitoring events, including at least two monitoring events per year;
- vii. A description and rationale for the parameters to be tested and measured;
- viii. A description of monitoring protocols, methodologies, parameters, and frequency specific to each type of monitoring;
- ix. Definitions, with rationale, for Action Levels for parameters of concern that will be monitored under the Environmental Monitoring Program;
- x. For each Action Level, a description of actions taken in response to any Action Level exceedances under the Environmental Monitoring Program;
- xi. Reporting of Action Level exceedances and actions taken during the year in the Annual Water Licence Report as per Schedule 1, condition 1(f) of this Licence;
- xii. The Quality Assurance/Quality Control Plan for sample management; and
- xiii. An explanation of any actions to be taken in response to any exceedances of the Effluent Quality Criteria.

2. As per Part F Conditions 13 and 15, all soil and snow entering the facility shall meet the following Acceptance Criteria;

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KBL Environmental Limited – Soil and Water Treatment Facility

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Conditions Applying to

Parameter	Soil Maximum Concentration (mg/kg)
Soil Acceptance Criteria	
pH	6 – 9 pH units
Antimony	40
Arsenic (inorganic)	120
Barium	2,000
Beryllium	8
Cadmium	22
Chromium (total)	87
Cobalt	300
Copper	91
Lead	600
Mercury	50
Molybdenum	40
Nickel	89
Selenium	2.9
Silver	40
Thallium	1
Tin	300
Uranium	300
Vanadium	130
Zinc	360
F1-F4	< 3% dw
Snow Acceptance Criteria	
F1 – F4	No free phase hydrocarbon product
pH	6-8 pH units

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KBL Environmental Limited – Soil and Water Treatment Facility

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 As per Part G, conditions 13 and 15, all soil and snow entering the facility shall meet the following criteria:

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Schedule 5

Part I: Conditions Applying to Closure and Reclamation

1. With regard to the facility being closed, the **Closure and Reclamation Plan** referred to in Part I, Condition 1 shall include, but not be limited to the following information:

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KBL Environmental Limited – Soil and Water Treatment Facility

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a) Closure and reclamation of the following facilities:

i. The Soil Treatment Facility;

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- Final removal and disposal of treated and untreated soil;
- Removal of synthetic liner system, Leachate Retention Pond/structures and berms, and Water Holding Tanks;
- A schedule for the periodic monitoring of contaminants of concern (including benzene, toluene, ethylbenzene, and xylenes (BTEX); volatile organic compounds (VOCs); F1 to F4 hydrocarbon fractions; polycyclic aromatic hydrocarbons (PAHs); and total metals

ii. Any excavated areas;

- Groundwater wells;

iii. The petroleum and contaminated Water storage areas;

iv. Any site affected by Waste spills;

b) Target PHC concentrations;

c) The management of natural runoff Waters from the development site;

d) The restoration of natural drainage and the restoration of stream banks at the operation site(s);

e) The potential for groundwater contamination;

f) Any facilities or areas which may have been affected by development such that potential pollution problems exist;

g) A phased approach and implementation schedule;

h) Maps delineating all disturbed areas and site facilities including hydrological features and elevation contours;

i) Future land use of the site; and

j) A proposal identifying measures by which restoration costs will be financed by the Licensee upon closure.

Signed on behalf of the Sahtu Land and Water Board

Philippe di Pizzo, Interim Chair

Bonnie Bergsma, Witness

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ATTACHMENTS

Attachment A: Concordance Table of Items Requiring Submission

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The table below summarizes the items the Licensee is required to submit as per the Licence conditions. In the event of a discrepancy between this table and the Licence conditions, the Licence conditions shall prevail.

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<u>Condition Location</u>	<u>Item</u>	<u>Date Due</u>
<u>Part B, Condition</u>	Revisions to approved Plans or Programs	Within 90 days prior to implementing any proposed updates or changes
B	Post signs	Prior to establishing, activating, or relocating any SNP station
B	Submit Annual Water Licence Report	By March 31 of each year
B	Submit revised Engagement Plan	Upon any revisions
B	Notify Board and Inspector of Project commencement	10 days prior to Project commencement
C	Provide Reclamation Security Deposit to Minister	Prior to the commencement of activities
C	Notify Board of Reclamation Security Deposit	10 days prior to Project commencement
D	Submit updated Waste Management Plan	Upon any revisions
G	Notify Board and Inspector	Immediately upon the exceedance of any EQC
E	Submit Design and Construction Plan	45 days prior to construction
E	Submit Design Drawings	45 days prior to construction
E	Notify Board and Inspector of Construction	10 days prior to commencement of Construction
E	Submit As-built Report	90 days after completion of Construction
F	Notify Board and Inspector of proposed Modification	45 days prior to Modification
F	Submit As-built drawings for Modification	90 days after completion of Modification
G	Submit revised Waste Management Plan	Upon any revisions
	Submit Groundwater Monitoring Program I for Board approval	Within 90 days after commencement of construction
G	Submit revised Operation and Maintenance Plan	Upon any revisions
G	Submit soil analyses to Inspector and Board	Prior to accepting soil at the STF
G	Submit snow analyses to Inspector and Board	Prior to accepting snow at the STF
G	Submit soil analyses to Inspector and Board	Prior to removing treated soil from the STF
G	Notify Board and Inspector of any exceedance of EQC	Immediately
G	Submit water quality sample results from SNP stations to Board and Inspector	5 days prior to discharge of effluent
H	Submit revised Spill Contingency Plan	Upon any revision

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I	Submit Closure and Reclamation Plan	Within one year of Licence Issuance
I	Submit Final Remediation Report	Prior to Licence expiry

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 Conditions. In the event of a discrepancy between this table and the body of the Water Licence, the Water Licence condition will prevail. ¶

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Attachment B: Revision History Table

The table below summarizes revisions made to the Licence since its effective date (as set out on the Cover Page).

Date	Location of Change	Description of Change

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- Deleted: Table 1: Updates and changes that have been made to the Water Licence since issuance

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