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**KBL Environmental Ltd.**

**Water Licence S23L1-001**

Pursuant to the *Waters Act* and the *Waters Regulations*,  
The Sahtu Land and Water Board grants this Water Licence to:

KBL Environmental Ltd  
(Licensee)

of P.O Box 1108  
Yellowknife NT, X1A 2N8  
(Mailing Address)

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

<b>Location:</b>	Town of Norman Wells
<b>Water Management Area:</b>	Mackenzie River
<b>Purpose:</b>	Waste disposal – to receive, store, and treat petroleum hydrocarbon contaminated soil and snow at a Soil Treatment Facility
<b>Type:</b>	Type B
<b>Quantity of Water not to be exceeded:</b>	Not applicable.
<b>Effective Date:</b>	December 15, 2023
<b>Expiry Date:</b>	December 14, 2028

Philippe Di Pizzo, Interim Chair  
Sahtu Land and Water Board

Bonnie Bergsma M.Sc., Witness

**Type B Water Licence S23L1-001**  
**KBL Environmental Ltd. –**  
**Norman Wells Soil Treatment Facility**

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## Part A: Scope and Defined Terms

Scope:	Condition Title
1. This Licence entitles the Licensee to use Water and deposit Waste for Industrial activities at the Norman Wells Soil Treatment Facility.	SCOPE
The scope of this Licence includes the following:	
<ul style="list-style-type: none"><li>a) construction, operation, and maintenance of a Soil Treatment Facility for hydrocarbon-contaminated soil and snow;</li><li>b) deposit of acceptable hydrocarbon-contaminated soil and snow to the Soil Treatment Facility for processing and treatment;</li><li>c) Water quality monitoring;</li><li>d) Progressive Reclamation and associated Closure and Reclamation activities.</li></ul>	
2. The scope of the Project is as described in the Preliminary Screening Determination for S18L1-002, dated October 24, 2018.	SCOPE – PRELIMINARY SCREENING
3. 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 Deposit of such Waste may enter any Waters. Any change made to the <i>Waters Act</i> and/or Waters Regulations that affects licence conditions and defined terms will be deemed to have amended this Licence.	LEGISLATION SUBJECT TO CHANGE
4. Compliance with this Licence does not relieve the Licensee from responsibility for compliance with the requirements of any applicable federal, territorial, Délnę or municipal legislation.	LEGISLATIVE COMPLIANCE

## Part B: General Conditions

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| 1. | The Licensee shall ensure a copy of this Licence is maintained on site at all times.   | <b>COPY OF LICENCE</b>  |
| 2. | The Licensee shall take every reasonable precaution to protect the environment.  | <b>PRECAUTION TO<br/>PROTECT<br/>ENVIRONMENT</b>                                    |
| 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.  | <b>INCORPORATE<br/>SCIENTIFIC<br/>INFORMATION AND<br/>TRADITIONAL<br/>KNOWLEDGE</b> |
| 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. | <b>IDENTIFY TRADITIONAL<br/>KNOWLEDGE</b>   |
| 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.   | <b>REFERENCES</b>   |
| 6. | The Licensee shall ensure all submissions to the Board:<br>a) Are in accordance with the LWB <i>Document Submission Standards</i> and, if applicable, <i>Geospatial Data Submissions Standards</i> ; and<br>b) Include any additional information requested by the Board.                                      | <b>SUBMISSION FORMAT</b>  |
| 7. | The Licensee shall ensure management plans are submitted to the Board in a format consistent with the LWB <i>Standard Outline for Management Plans</i> , unless otherwise specified.   | <b>MANAGEMENT PLAN<br/>FORMAT</b>   |
| 8. | The Licensee shall comply with all plans and programs including revisions, approved pursuant to the conditions of this Licence.  | <b>COMPLY WITH<br/>SUBMISSIONS AND<br/>REVISIONS</b>                                |

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| 9.  | 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 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. | <b>ANNUAL REVIEW</b>                               |
| 10. | The Licensee may propose changes at any time by submitting revised plans and 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.   | <b>REVISIONS</b>                                   |
| 11. | The Licensee shall revise any submission and submit it as per the Board’s directive.  | <b>REVISE AND SUBMIT</b>                           |
| 12. | If any date for any submission falls on a weekend or holiday, the Licensee may submit the item on the following business day.   | <b>SUBMISSION DATE</b>                             |
| 13. | The Licensee shall comply with the <b>Schedules</b> , which form part of this Licence, and any updates to the Schedules as may be made by the Board.  | <b>COMPLY WITH SCHEDULE(S)</b>                     |
| 14. | The Licensee shall comply with the <b>Surveillance Network Program</b> set out in Schedule 1, and any updates to the Surveillance Network Program as may be made by the Board.  | <b>COMPLY WITH SURVEILLANCE NETWORK PROGRAM</b>    |
| 15. | The Schedules, the Surveillance Network Program, and any compliance dates specified in this Licence may be updated at the discretion of the Board.  | <b>UPDATES TO SCHEDULES AND COMPLIANCE DATE(S)</b> |
| 16. | The Licensee shall comply with all directives issued by the Board in respect of the implementation of the conditions of this Licence.   | <b>COMPLY WITH BOARD DIRECTIVES</b>                |
| 17. | 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.   | <b>POST SURVEILLANCE NETWORK PROGRAM SIGN(S)</b>   |
| 18. | The Licensee shall install, operate, and maintain meters, devices, or other such methods for measuring the volumes and rates of Waste disposed of to the satisfaction of an Inspector.  | <b>MEASURE WASTE DISCHARGED</b>                    |

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| 19. | Beginning March 31, 2025, and no later than every March 31 thereafter, the Licensee shall submit an <b>Annual Water Licence Report</b> to the Board and an Inspector. The Report shall be in accordance with the requirements of Schedule 2, Condition 1.  | <b>ANNUAL WATER<br/>LICENCE REPORT</b>                        |
| 20. | The Licensee shall comply with the <b>Engagement Plan</b> , once approved.   | <b>ENGAGEMENT PLAN</b>  |
| 21. | 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. | <b>NOTIFICATION –<br/>COMMENCEMENT</b>                        |
| 22. | The Licensee shall immediately provide written notification to the Board and an Inspector of any non-compliance with the conditions of this Licence.   | <b>NOTIFICATION – NON-<br/>COMPLIANCE WITH<br/>CONDITIONS</b> |
| 23. | 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.   | <b>NOTIFICATION – NON-<br/>COMPLIANCE WITH<br/>DIRECTIVES</b> |
| 24. | The Licensee shall ensure that a copy of any written authorization issued to the Licensee by an Inspector is provided to the Board.  | <b>COPY – WRITTEN<br/>AUTHORIZATION</b>                       |
| 25. | The Licensee shall submit a current Project schedule to the Board and an Inspector upon request.   | <b>SUBMIT CURRENT<br/>PROJECT SCHEDULE</b>                    |

## Part C: Security

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| 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.   | <b>POST SECURITY DEPOSIT</b>         |
| 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.  | <b>UPDATE CLOSURE COST ESTIMATE</b>  |
| 3. | The amount of the security deposit required by Part C, Condition 1 (POST SECURITY DEPOSIT) may be adjusted by the Board:<br>a) Based on an updated Closure Cost Estimate as per Part C, Condition 2 (UPDATE CLOSURE COST ESTIMATE); or<br>b) Based on such other information as may become available to the Board.   | <b>ADJUSTED SECURITY AMOUNT</b>      |
| 4. | If the amount of the security deposit is adjusted by the Board as per Part C, Condition 3 (ADJUSTED SECURITY AMOUNT), 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. | <b>POST ADJUSTED SECURITY AMOUNT</b> |

## Part D: Water Use

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## Part E: Construction

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| 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.   | <b>OBJECTIVE –<br/>CONSTRUCTION</b>   |
| 2. | 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 <i>Guideline for Design, Operation, Maintenance, and Closure of Petroleum Hydrocarbon-Contaminated Soil Treatment Facilities in the Northwest Territories</i> .   | <b>HYDROCARBON-<br/>CONTAMINATED SOIL<br/>TREATMENT FACILITIES<br/>– GENERAL</b>                  |
| 3. | The Licensee shall maintain records of Construction materials for all structures and make them available at the request of the Board or an Inspector.   | <b>CONSTRUCTION<br/>RECORDS</b>   |
| 4. | 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, for approval, a <b>Construction Plan and Design Drawings</b> , stamped and signed by a Professional Engineer.   | <b>CONSTRUCTION PLAN<br/>AND<br/>DESIGN DRAWINGS</b>  |
| 5. | A minimum of ten days prior to the commencement of Construction of the Biotreatment Pad and the Leachate Retention Pond, 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.  | <b>NOTIFICATION –<br/>CONSTRUCTION –<br/>BIOTREATMENT PAD<br/>AND LEACHATE<br/>RETENTION POND</b> |
| 6. | Within 90 days of the completion of the Construction of the Biotreatment Pad and the Leachate Retention Pond, the Licensee shall submit to the Board, an <b>As-Built Report</b> stamped and signed by a Professional Engineer, which shall include, but not be limited to, the following information:<br><br>a) final as-built drawings of the Structures, stamped and signed by a Professional Engineer;<br>b) documentation, with rationale, of field decisions that deviate from the <b>Construction Plans</b> and/or <b>Design Drawings</b> ; and<br>c) any data used to support these decisions. | <b>AS-BUILT REPORT –<br/>BIOTREATMENT PAD<br/>AND LEACHATE<br/>RETENTION POND</b>                 |



## Part F: Waste and Water Management

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| 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 using appropriate mitigation measures, monitoring, and follow-up actions. | <b>OBJECTIVE – WASTE<br/>AND WATER<br/>MANAGEMENT</b> |
| 2. | The Licensee shall minimize erosion by implementing suitable erosion control measures that shall be located and maintained to the satisfaction of an Inspector.   | <b>EROSION CONTROL</b>                                |

### Management and Monitoring Plans

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| 3. | The Licensee shall comply with the <b>Waste Management Plan</b> , once approved.  | <b>WASTE MANAGEMENT<br/>PLAN</b>                    |
| 4. | A minimum of 90 days prior to commencement of activities, the Licensee shall submit to the Board, for approval, an <b>Environmental Monitoring Plan</b> . The Plan shall be in accordance with the requirements of Schedule 4, Condition 1. The Licensee shall not commence Project activities prior to Board approval of the Plan. | <b>SUBMIT<br/>ENVIRONMENTAL<br/>MONITORING PLAN</b> |
| 5. | The Licensee shall adhere to the <b>Environmental Monitoring Plan</b> , once approved.  | <b>ENVIRONMENTAL<br/>MONITORING PLAN</b>            |

### Operation of Structures and Facilities

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| 6. | The Licensee shall construct, operate, and maintain the Norman Wells Soil Treatment Facility to the design specifications and engineering standards, such that:<br><br>a) Any constructed structures/facilities are maintained and operated so as to prevent structural failure;<br>b) Any Seepage from the facility that does not meet Effluent Quality Criteria, as specified in Part F, Condition 20 (EFFLUENT QUALITY CRITERIA) shall be collected and stored in the Water Storage Tanks; | <b>NORMAN WELLS SOIL<br/>TREATMENT FACILITY</b> |
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- 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 7 are being met; and
  - ii. Necessary changes in operation of the facility, including any additional mitigations, are identified.

7. 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.

**OPERATIONS AND  
MAINTENANCE PLAN**

**Inspection of Structures and Facilities**

8. 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.
9. 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.

**MONTHLY INSPECTION  
OF SOIL TREATMENT  
FACILITY**

**DAILY INSPECTIONS OF  
DISCHARGE LOCATIONS**

### Discharge and Disposal Locations and Rates

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| 10. | The Licensee shall dispose of all Waste as described in the approved <b>Operations and Maintenance Plan</b> .  | <b>TREATED SOIL -<br/>SOIL TREATMENT PAD</b>                 |
| 11. | The Licensee shall discharge all Effluent from the <b>Leachate Retention Pond</b> to the drainage ditch as described in the approved <b>Operations and Maintenance Plan</b> . The Effluent shall meet the Effluent Quality Criteria (EQC) as specified in Part F, Condition 20 prior to discharge. | <b>EFFLUENT DISCHARGE –<br/>LEACHATE RETENTION<br/>POND</b>  |
| 12. | 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.  | <b>DISPOSAL LOCATION –<br/>ORDINARY HIGH-<br/>WATER MARK</b> |

### Treated Soil and Snow Acceptance Criteria

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| 13. | Only soils and snow meeting the acceptance criteria outlined in Schedule 4, Condition 2 shall enter the facility, unless otherwise authorized by the Inspector.                  | <b>SOIL AND SNOW<br/>ACCEPTANCE CRITERIA</b> |
| 14. | Prior to accepting soil or snow to the Soil Treatment Facility, the Licensee shall submit soil analyses results to the Inspector, unless otherwise authorized by the Inspector.  | <b>SOIL AND SNOW<br/>SAMPLE ANALYSES</b>     |
| 15. | 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: | <b>TREATED SOIL CRITERIA</b>                 |

Parameter	Soil Maximum Concentration (mg/kg)
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.

16. Treated soil meeting the re-use criteria outlined in Part F, condition 15 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.
17. Treated soil not meeting the re-use criteria outlined in Part F, condition 15 shall be disposed of at an approved facility.
18. Prior to removing soil from the Soil Treatment Facility, the Licensee shall submit soil analyses results to an Inspector.

**TREATED SOIL –  
REUSE CRITERIA MET**

**TREATED SOIL –  
REUSE CRITERIA  
NOT MET  
SUBMIT SOIL TESTS**

19. The Licensee shall obtain representative samples as per the following, or as authorized by an Inspector:

**OBTAIN  
REPRESENTATIVE  
SAMPLES**

<b>Volume of Soil (m<sup>3</sup>)</b>	<b>Number of Composite Samples Required</b>
1 - 50	1
51 - 500	2
501 - 1000	3
1001 - 2000	4
2001 - 4000	5
<b>Volume of Snow (m<sup>3</sup>)</b>	<b>Number of Composite Samples Required</b>
1-50	1
51-275	2

**Effluent Quality Criteria**

20. The Licensee shall ensure that Waste from the Leachate Retention Pond at Surveillance Network Program station (SNP 18-002-01a and 18-002-01b), or the Water Storage Tanks (SNP 18-002-03a and 18-002-03b) meets the following Effluent Quality Criteria (EQC):

**EFFLUENT QUALITY  
CRITERIA**

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

21. The Licensee shall immediately notify an Inspector of the exceedance of any effluent quality criterion.
22. Water meeting the Effluent Quality Criteria referred to in Part F, Condition 20 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).
23. The volume of Waste discharged from **SNP 18-002-01b** or **18-002-03b** to **SNP 18-002-02** must not exceed 50 m<sup>3</sup>/day, or as authorized by an Inspector.

**NOTIFICATION -  
EFFLUENT QUALITY  
CRITERIA – EXCEEDANCE**

**EFFLUENT QUALITY  
CRITERIA – MET**

**MAXIMUM DAILY  
DISCHARGE VOLUME**

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| 24. | The rate of flow of Water discharged from <b>SNP 18-002-01b</b> or <b>18-002-03b</b> to <b>SNP 18-002-02</b> must not exceed 300 L per minute or as authorized by an Inspector.   | <b>MAXIMUM DAILY<br/>DISCHARGE RATE</b>   |
| 25. | Treated water not meeting the <b>Effluent Quality Criteria</b> referred to in Part F, Condition 20, and which exceeds the capacities of the Leachate Retention Pond and Water Holding Tanks may be: <ul style="list-style-type: none"> <li>a) Reapplied to the Biotreatment Pad;</li> <li>b) Treated in the Portable Water Treatment Plant to ensure it meets Effluent Quality Criteria; and/or</li> <li>c) Transported to an approved facility for disposal.</li> </ul>  | <b>EFFLUENT QUALITY<br/>CRITERIA – EXCEEDANCE<br/>– LEACHATE POND<br/>WATER</b> |
| 26. | The Licensee shall submit Water quality data for samples collected from <b>Surveillance Network Program</b> 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: <ul style="list-style-type: none"> <li>a) No later than five days prior to commencing or resuming Discharge of effluent to the drainage ditch; and</li> <li>b) 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.</li> </ul> | <b>TESTING BEFORE<br/>DISCHARGE –</b>   |

## Part G: Aquatic Effects Monitoring

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## Part H: Spill Contingency Planning

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| 1. | The Licensee shall ensure that Unauthorized Releases associated with the Project do not enter any Water.  | <b>OBJECTIVE – PREVENT<br/>WASTE INTO WATER</b>    |
| 2. | The Licensee shall comply with the <b>Spill Contingency Plan</b> , once approved.   | <b>SPILL CONTINGENCY<br/>PLAN</b>                  |
| 3. | If a spill or an Unauthorized Release occurs or is foreseeable, the Licensee shall:<br><br>a) Implement the approved Spill Contingency Plan referred to in Part H, Condition x;<br>b) Report it immediately using the NU-NT Spill Report Form by one of the following methods: <ul style="list-style-type: none"><li>• Telephone: (867) 920-8130</li><li>• Fax: (867) 873-6924</li><li>• E-mail: spills@gov.nt.ca</li><li>• Online: Spill Reporting and Tracking Database</li></ul><br>c) Notify the Board and an Inspector immediately; and<br>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. | <b>REPORT SPILLS</b>                               |
| 4. | The Licensee shall ensure that spill prevention infrastructure and spill response equipment is in place prior to commencement of the Project.   | <b>SPILL PREVENTION AND<br/>RESPONSE EQUIPMENT</b> |
| 5. | The Licensee shall restore all areas affected by spills and Unauthorized Releases to the satisfaction of an Inspector.  | <b>CLEAN UP SPILLS</b>                             |



## Part I: Closure and Reclamation

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| 1. | Within one year following the commencement of activities, the Licensee shall submit to the Board, for approval, a <b>Closure and Reclamation Plan</b> . The Plan shall be in accordance with Schedule 5, Condition 1.                   | <b>CLOSURE AND RECLAMATION PLAN</b>                  |
| 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 <b>Closure and Reclamation Plan</b> .   | <b>CLOSURE AND RECLAMATION PLAN – REVISED</b>        |
| 3. | Upon implementation of the <b>Closure and Reclamation Plan</b> , 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 19. | <b>CLOSURE AND RECLAMATION PLAN – ANNUAL UPDATES</b> |
| 4. | The Licensee shall complete the reclamation and restoration work within the time schedule specified in the approved <b>Closure and Reclamation Plan</b> , or as subsequently revised and approved by the Board.                         | <b>COMPLETE RECLAMATION</b>                          |
| 5. | The Licensee shall endeavor to carry out approved Progressive Reclamation as soon as is reasonably practicable.   | <b>PROGRESSIVE RECLAMATION</b>                       |

Signed on behalf of the Sahtu Land and Water Board



Philippe di Pizzo, Interim Chair



Bonnie Bergsma, Witness

## 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 18 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.

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

**SNP Station 18-002-02**

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

**SNP Station 18-002-02a**

<b>Description</b>	Monitors water in the Water Storage Tank prior to a proposed discharge.
<b>Location</b>	Within the Water Storage Tank
<b>Sampling Frequency</b>	As required prior to discharge
<b>Sampling Parameters</b>	As identified in Part G, item 21, pH, electrical conductivity, and temperature at the time of sampling.
<b>Rationale</b>	To ensure discharge Water meets Part G, item 21.
<b>Status</b>	Active prior to proposed retention Water discharge.

**SNP Station 18-002-02b**

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

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

<b>Description</b>	Monitors groundwater downgradient of the Land Treatment Facility.
<b>Location</b>	Exact location to be determined
<b>Sampling Frequency</b>	Following spring freshet and prior to freeze-up
<b>Sampling Parameters</b>	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
<b>Rationale</b>	To ensure leachate waters are not impacting surrounding environment.
<b>Status</b>	Active following spring freshet and before freeze-up

**SNP Station 18-002-05**

<b>Description</b>	Monitors groundwater upstream of the Land Treatment Facility (reference).
<b>Location</b>	Exact location to be determined
<b>Sampling Frequency</b>	Following spring freshet and prior to freeze-up
<b>Sampling Parameters</b>	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
<b>Rationale</b>	To ensure leachate waters are not impacting surrounding environment.
<b>Status</b>	Active following spring freshet and before freeze-up

## **Schedule 2: Annual Water Licence Report**

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) A brief summary of Project activities;
  - b) An updated Project schedule;
  - c) A summary of the calibration and status of the meters and devices referred to in Part B, Condition 18 (MEASURE WASTE DISCHARGED) of this Licence;
  - d) A summary of engagement activities conducted in accordance with the approved **Engagement Plan**, referred to in Part B, Condition 20 of this Licence;
  - e) A summary of how Traditional Knowledge was incorporated into decision making;
  - f) A summary of Construction and/or maintenance Project activities conducted in accordance with Part E of this Licence;

- g) 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 7 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 and snow;
  - ii. Monthly and annual quantities, in cubic metres, of all Effluent discharged from the Leachate Treatment Pond;
  - iii. A summary of contaminated materials accepted into the Soil Treatment 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.
- h) Details and results of the **Environmental Monitoring Program**, referred to in Part F, Condition 4, including, but not limited to: monitoring location (GPS coordinates); inspection results, depths, frequency of monitoring events, flow direction, chemical parameters tested, and data analysis;
- i) Tabular summaries of all data generated under the Surveillance Network Program in Schedule 1, Condition 1 of this Licence, in EXCEL format, and graphical summaries of parameters with EQC referred to in Part F, Condition 20 (EFFLUENT QUALITY CRITERIA) , including a comparison with the Effluent Quality Criteria specified in the Licence;
- j) Record of inspections of the Soil Treatment Facility;
- k) A summary of activities conducted in accordance with the approved **Spill Contingency Plan**, referred to in Part H, Condition 2 of this Licence, including:

- i. A list and description for all Spills and Unauthorized Releases, including the date, NWT spill number, volume, location, summary of the circumstances and follow-up actions taken, and status (i.e., open or closed), in accordance with the reporting requirements in Part H, Condition 3 of this Licence; and
  - ii. An outline of any spill training carried out.
- l) A summary of any Progressive Reclamation or Closure and Reclamation work completed;
- m) A list of any non-compliance(s) with the conditions of this Licence or any directive from the Board pursuant to the conditions of this Licence;
- n) A summary of actions taken to address concerns, non-conformances, or deficiencies in any reports filed by an Inspector;
- o) Any other details requested by the Board by November 1 of the year being reported.



### **Schedule 3: Conditions Applying to Security**

1. The amount of security referred to in Part C, Condition 1 (POST SECURITY DEPOSIT), shall total \$452,302.00.

## Schedule 4: Conditions Applying to Waste and Water Management

1. The **Environmental Management Plan**, referred to in Part F, Condition 5 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 soil monitoring program
  - f) Proposed permafrost monitoring program; and
  - g) Proposed permafrost protection plan
  - h) The 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:

<b>Parameter</b>	<b>Soil Maximum Concentration (mg/kg)</b>
<b>Soil Acceptance Criteria</b>	
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
<b>Snow Acceptance Criteria</b>	
F1 – F4	No free phase hydrocarbon product
pH	6-8 pH units

## Schedule 5: Conditions Applying to Closure and Reclamation

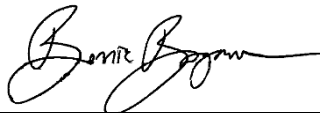
1.	The <b>Closure and Reclamation Plan</b> referred to in Part I, Condition 1 of this Licence shall include, but not be limited to the following information:
	a) A plain language summary of the Plan;
	b) Closure and reclamation of the following facilities: <ul style="list-style-type: none"> <li>i. The Soil Treatment Facility;               <ul style="list-style-type: none"> <li>1. Final removal and disposal of treated and untreated soil;</li> <li>2. Removal of synthetic liner system, Leachate Retention Pond/structures and berms, and Water Holding Tanks;</li> <li>3. 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</li> </ul> </li> <li>ii. Any excavated areas;               <ul style="list-style-type: none"> <li>1. Groundwater wells;</li> </ul> </li> <li>iii. The petroleum and contaminated Water storage areas;</li> <li>iv. Any site affected by Waste spills;</li> </ul>
	c) Target PHC concentrations;
	d) The management of natural runoff Waters from the development site;
	e) The restoration of natural drainage and the restoration of stream banks at the operation site(s);
	f) The potential for groundwater contamination;
	g) Any facilities or areas which may have been affected by development such that potential pollution problems exist;
	h) A phased approach and implementation schedule;
	i) Maps delineating all disturbed areas and site facilities including hydrological features and elevation contours;

	j) Future land use of the site; and
	k) 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**



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**Philippe Di Pizzo, Interim, Chair**



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**Bonnie Bergsma, Witness**

## Attachments

### Attachment A – Concordance Table of Items Requiring Submission

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.

Condition Location	Item	Date
Part B, Condition 4	Identify Traditional Knowledge	Any submission
Part B, Condition 9	Review approved Plans or Programs (Annual Review)	Annually
Part B, Condition 18	Measure Waste discharged	
Part B, Condition 17	Post Surveillance Network Program Signs	Prior to establishing, activating, or relocating any SNP station
Part B, Condition 19	Submit <b>Annual Water Licence Report</b>	March 31, 2025 and every March 31 following
Part B, Condition 21	Notify Board and Inspector of Project commencement (Notification – Commencement)	10 days prior to Project commencement
Part B, Condition 22	Notify Board and Inspector of any non-compliance with Conditions	Immediately
Part B, Condition 23	Notify Board and Inspector of any non-compliance with Directives	Immediately
Part B, Condition 25	Submit current Project schedule to Board and Inspector	Upon request
Part C, Condition 1	Post Security Deposit with Minister	Prior to the commencement of activities
Part E, Condition 3	Submit Construction Records	Upon request
Part E, Condition 4	Submit Construction Plan and Design Drawings	45 days prior to construction
Part E, Condition 5	Notify Board and Inspector	10 days prior to commencement of Construction
Part E, Condition 6	Submit As-built Report	90 days after completion of Construction
Part F, Condition 4	Submit Environmental Monitoring Program for Board approval	90 days prior to commencement of treatment activities
Part F, Condition 8	Submit Monthly inspections report of the STF	Upon request
Part F, Condition 9	Submit inspections of discharge locations	Upon request
Part F, Condition 21	Notify Board and Inspector of any exceedance of EQC	Immediately
Part F, Condition 14	Submit snow and/or soil analysis results to Inspector and Board	Prior to accepting snow or soil at the STF
Part F, Condition 18	Submit soil analyses to Inspector and Board	Prior to removing treated soil from the STF
Part F, Condition 26	Submit water quality sample results from SNP stations to Board and Inspector	5 days prior to discharge of effluent
Part H, Condition 3	Report Spills	Immediately and as per instructions
Part I, Condition 2	Submit revised Closure and Reclamation Plan	December 15, 2026
Schedule 1, Condition 1	Submit Surveillance Network Monitoring Program results	March 31, 2025 and annually thereafter

## 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
December 13, 2023	Licence Conditions for Renewal of S18L1-002	Updated Conditions of S18L1-002 to the New Standard Water Licence Conditions Template, retaining all non-standard conditions



## Sahtu Land and Water Board

### Table of Revisions

Condition Number and Title	Title of Plan (Version)	Title of Revised Plan	Due Date
Part F, 2, WASTE MANAGEMENT PLAN	Waste Management Plan (V1.0) <sup>1</sup>	WMP V 1.1	February 15, 2024
Part H, 2, SPILL CONTINGENCY PLAN	Spill Contingency Plan (V2.0) <sup>2</sup>	SCP V2.1	
Part B, 19, ENGAGEMENT PLAN	Engagement Plan (V1.0) <sup>3</sup>		
Part F, 6, OPERATIONS AND MAINTENANCE PLAN	Operations and Maintenance Plan (V2.0) <sup>4</sup>	O&M Plan V. 2.1	

Party	Topic ID	Requested Revision	Completed Y/N
GNWT-ECC	1	N/A	N/A
GNWT-ECC	2	N/A	N/A
GNWT-ECC	3	Update references to the 1998 Guideline for the General Management of Hazardous Waste by replacing it with the 2017 Guideline for Hazardous Waste Management across all plans.	
GNWT-ECC	4	Update the text of the Spill Contingency Plan Section 2.4 of the Environmental Policy portion to clarify what KBL intends to comply with.	
GNWT-ECC	5	Update wording of section 2.7 of the Spill Contingency	

<sup>1</sup> See SLWB Online Registry for [S23L1-001 – NWSTF – Waste Management Plan – Sep11 23](#)

<sup>2</sup> See SLWB Online Registry for [S23L1-001 – NWSTF - Spill Contingency Plan Version 2 – Sep11 23](#)

<sup>3</sup> See SLWB Online Registry for [S23L1-001 – NWSTF – Engagement Plan – Sept11 23](#)

<sup>4</sup> See SLWB Online Registry for [S23L1-001 – NWSTF – Operations and Maintenance Plan – Version 2 – Sept11 23](#)



		Plan to show that KBL is ultimately responsible for ensuring contractors maintain appropriate spill response equipment and maintain compliance with the Licence and associated plans when operating on KBL's site.	
GNWT-ECC	6	Update the flowchart and/or Section 2.5.2 to clarify who the responsible KBL employees are for activating the Spill Contingency Plan and ensuring regulatory reporting and compliance.	
GNWT-ECC	7	update the wording in Section 2.8 of the Spill Contingency Plan to clarify that all spills are reportable and spills above the thresholds listed in the Immediately Reportable Quantities table (Appendix B) should be reported immediately.	
GNWT-ECC	8	Review and update Table 1.1 in the Waste Management Plan to ensure the correct guidelines, regulations, and acts are listed.	
GNWT-ECC	9	N/A	N/A
GNWT-ECC	10	N/A	N/A