



Sahtu Land and Water Board

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STAFF REPORT

Proponent:	KBL Environmental Ltd.		
File(s):	S18L1-002	Report No.:	1
Date Prepared:	November 9, 2018	Meeting Date:	November 19, 2018
Subject:	Type B Water Licence Application for the Norman Wells Soil Treatment Facility		

1. Purpose/Report Summary

The purpose of this Report is to present to the Sahtu Land and Water Board for consideration:

- a) the new Type B Water Licence (WL or Licence) Application S18L1-002 submitted by KBL Environmental Ltd. to construct and operate a Soil Treatment Facility (STF) in the Upper Industrial Lands in the Town of Norman Wells, NT;
- b) the Preliminary Screening Report;
- c) the exemption from conformity with the Sahtu Land Use Plan;
- d) the Engagement Plan and Record;
- e) the Spill Contingency Plan;
- f) the Waste Management Plan;
- g) the Operations and Maintenance Plan; and
- h) the terms and conditions for the new WL.

2. Background

August 8, 2018 – The Sahtu Land and Water Board (SLWB or Board) received a new application for a Type B Water Licence from KBL Environmental Ltd. (KBL) (Attachment 1).

August 10, 2018 – Application **deemed complete**;

August 13, 2018 - Review packages were sent out electronically to members of the Tulita District Distribution List using the Online Review System with a request for comments by September 6, 2018;

September 6, 2018 - Reviewer comments received;

September 14, 2018 - Applicant response comments received;

September 27, 2018 - Draft Water Licence conditions were added to the ORS review for this file with a request for comments by October 11, 2018;

October 11, 2018 – Reviewer comments received;

October 18, 2018 – Applicant response comments received;
November 19, 2018 - Presentation of Application to the Board for decision.

Project Overview

The proposed STF is designed to receive, store, and treat petroleum hydrocarbon contaminated soil and snow generated primarily from residential, commercial, and industrial properties where a hydrocarbon release has occurred. During the winter months, contaminated snow may also be received at the facility. The STF will include operation and maintenance of a biotreatment pad and a water retention pond which operates primarily during the summer months. Following bioremediation, treated soil meeting licence criteria will be transferred for use as daily cover at the Norman Wells landfill. Soil determined through laboratory analysis to be unsuitable for re-use will be transported off site to an appropriate facility approved to accept the material for treatment or disposal.

The proposed soil treatment facility (STF) will be located in the Norman Wells Upper Industrial Area. The Norman Wells STF is located approximately 1.61 km north of the Mackenzie River. The STF access will be gated and a fence will surround the biotreatment pad and the leachate retention pond. The fence will act as a secondary access restriction. Signage will be located at the Norman Wells STF that indicates the entrance for the facility. The facility is designed with a road which will direct traffic flow. A single entrance to the biotreatment pad and a single exit will be denoted with entrance/exit signs. The signage at the entrance of the pad will specify that the site is restricted to authorized vehicles due to operating equipment.

The design of the STF consists of a bermed cell that will be constructed above ground and graded to direct precipitation to a leachate retention pond. The treatment cell will be constructed with a berm which is approximately 1 – 1.5 m and surrounds the cell to divert surface water run-on from entering the cell and act to contain soil within the cell. A 60-mil High Density Polyethylene (HDPE) liner will be used in the cell. The liner will be covered with fill material to protect it from equipment and potential operational impacts.

Incoming soil will be segregated and tracked through a unique assigned number. Soil from each project will be managed and treated separately. There will be no co-mingling of soil from different projects, nor any dilution of contaminated soils with cleaner soils.

The proposed leachate retention pond is designed to collect precipitation runoff from the soil treatment pad. The pond is a square with the dimensions of approximately 30 m x 30 m with side slopes of 2.5 horizontal to 1 vertical. The overall pond capacity is estimated at 695 m³. A minimum of 0.5-meter freeboard will be maintained at all times in the pond. A 60-mil HDPE will line the pond.

Two aboveground storage tanks (ASTs) with a capacity of 63,000 liters each will be located on-site within the containment of the soil treatment pad. The ASTs will be used to store excess water from the leachate retention pond in the event water levels increase above optimal freeboard. One storage tank will remain empty and dedicated for use as a holding tank if water removal from the pond is required. If it is anticipated that the ASTs are unable to accommodate estimated pond removal volumes, KBL will mobilize vacuum trucks and/or additional ASTs as required.

Retention pond water management may include pumping pond water into ASTs to maintain sufficient

freeboard in the pond. Raw water may be used as both soil enhancement and dust suppression within the soil treatment pad, as conditions dictate. The ASTs may also be used to hold pond water until water treatment events; the ASTs may also be used as temporary holding until analytical results determine water quality parameters meet on-site discharge criteria. Additionally, temporary storage of water in the ASTs may be necessary for pond maintenance or inspection.

KBL will provide a portable water treatment plant for treatment of retention pond water during the summer operating season. A final treatment event at the close of the summer season will be scheduled to provide maximum storage capacity in the retention pond through the winter and early spring. The portable water treatment plant consists of a series of inline bag filters designed to remove sediment and suspended solids. Following the filter bag train, effluent enters the bottom of treatment vessels which contain granular activated carbon and an organoclay. Treated water would be stored in one of the two storage tanks and sampled for comparison against the parameters specified in the STF's operating license. Sampling prior to, and after discharge will be mandatory to confirm treatment efficacy. ENR will be provided with analytical water quality results prior to discharge, disposal or re-use of water from the storage tanks or the retention pond.

Prior to construction, a baseline geotechnical drilling and soil sampling program will be completed within the footprint of the proposed facility to establish existing soil conditions and specific site geotechnical, groundwater and permafrost information as well as concentration ranges of potential contaminants of concern resulting from historical activities. This will enable the ability to differentiate between existing subsurface impacts and any potential cumulative impact caused by the operation of the soil treatment pad. At the time of the geotechnical drilling to confirm the depth to permafrost beneath the proposed site, the type and any active layer considerations will be confirmed. This will assist in completing a groundwater monitoring program.

The groundwater monitoring program (GMP) will be in place to detect any change in groundwater quality or quantity for potential contaminants of concern during the life of the STF. The GMP will include bi-annual monitoring of four groundwater monitoring wells to be installed at both up gradient and down gradient locations at the perimeter of the STF. Water quality in the biotreatment pad water retention pond will also be monitored at the same frequency as the groundwater.

Management Plans

The following Plans were submitted with the Application:

- Engagement Record and Plan;
- Waste Management Plan, version 1.0 (WMP);
- Spill Contingency Plan, version 1.0 (SCP); and
- Operations and Maintenance Plan, version 1.0 (O&MP).

The WMP, SCP and O&MP plans were developed from the plans that were submitted, revised and approved during the regulatory process for the Inuvik Soil Treatment Facility (G17L1-002). During this process there were many comments made on the submitted plans, which were subsequently revised and resubmitted for approval. These approved plans were used as the template for the plans submitted with this Application. Since these two facilities are very similar, the plans approved for the Inuvik facility would be directly applicable to the facility in Norman Wells.

Fees

The Application fee of \$30.00 was received with the Application.

Term

A term for the Licence was not specifically identified by KBL in its Application. The facility is intended to be a permanent structure. Similar Soil Treatment Facilities (STF) operating within municipal boundaries are in Hay River (10 year term – MV2016L8-0007) and Yellowknife (5 year term – MV2014L1-0005), NT. Another authorization for a STF was approved in Inuvik in 2017 (5 year term – G17L1-002). Based on the above, and further discussion with the Applicant, Board staff are recommending a term of 5 years for Water Licence S18L1-002.

2.1 Process Requirements

Application Received: August 8, 2018
Application Deemed Complete: August 10, 2018
Application Forwarded for Review: August 13, 2018
Number of Review Agencies: 29
Review Period End Date: September 6, 2018
Proponent Response: September 14, 2018
Draft Licence Forwarded for Review: September 27, 2018
Review Period End Date: October 11, 2018
Proponent Response: October 18, 2018
Board Meeting Date: November 19, 2018

The activities as described trigger a Type B Licence in accordance with Schedule D – Licencing Criteria for Industrial Undertakings, section 3(f) – Deposit of Waste in conjunction with other Industrial Undertakings.

Of the 29 organizations to which the application was distributed, fourteen (14) are represented within the Sahtu Settlement Area. Review comments were received from:

- Environment and Climate Change Canada (ECCC);
- GNWT – Department of Environment and Natural Resources (ENR); and
- GNWT – Department of Lands – Sahtu Region.

3. Comments

3.1 Permission of Land Owner, Community Consultations and Traditional Knowledge

Pre-submission engagement was undertaken by KBL to:

- 1) Identify parties potentially affected by development of a soil treatment facility in Norman Wells;
- 2) Inform the parties of the Project rationale, benefits, and proposed design, risks and mitigation strategies;

- 3) Seek to understand affected parties' interests and concerns, and to use that information to advance the project planning and inform the final engineering design of the facility.

The Notice of Project, which included a description of the project was circulated on May 17, 2018 to potentially affected parties identified in consultation with the SLWB. A community meeting was held in Norman Wells on June 19, 2018 and a meeting with the Norman Wells Land Corporation and Norman Wells Renewable Resource Council was held on June 20, 2018.

KBL will apply a life-of project engagement approach throughout the Project to continue to inform affected parties in advance of key milestones such as application for licence amendment, renewal, or project closure. Life-of-project engagement will typically occur via email and may include notification and/or inclusion of regulatory filings, depending upon the interest and preferences of the affected parties. The purpose of life-of-project engagement for the Project is to:

- 1) Re-engage parties potentially affected by changes to water licence terms and conditions associated with the Project;
- 2) Describe rationale and nature of the proposed changes; and
- 3) Seek to understand affected parties' interests and concerns.

Board staff have completed a conformity check of the Engagement Plan and Record against the Board's *Engagement and Consultation Policy* (the Policy). and the *Engagement Guidelines for Applicants and Holders of Water Licences and Land Use Permits* (the Guidelines). Based on this conformity check (Table 1), Board staff have recommended that the Plan meets the criteria of the policy.

Table 1: Conformity Table, Assessment of Engagement Plan (The Policy, Appendix B)

Engagement Criteria	Board Assessment
Who was engaged?	Appropriate affected Aboriginal organizations/governments and other affected parties have been contacted; There have been reasonable responses and engagement from the affected parties.
Timing of engagement	Applicant began engagement in the spring of 2018 prior to submission of the Application with a Notice of Project sent on May 17, 2018 and a community meeting held in Norman Wells on June 19, 2018 and a follow-up meeting with NWLC and NWRRRC on June 20, 2018.
Achieved results	All relevant documents have been shared with affected communities; The Engagement Plan includes a life-of-project engagement approach; Applicant has invested time in community meetings face-to-face; All responses from affected Aboriginal groups have been noted and included in the record; Applicant has responded to community concerns and noted actions taken to address concerns raised.

In addition to the Policy assessment tool, the Engagement Guidelines outlines six (6) components that an Engagement Plan must satisfy to be considered complete. Board staff has conducted a conformity check to ensure the Plan satisfies these requirements (Table 2).

Table 2: Conformity Table, Engagement Guidelines Requirements

Engagement Plan Must Have's:	How KBL Environmental's Engagement Plan satisfies these requirements:
1. Describe the goals and methods of engagement;	The purpose of pre-submission engagement and life-of-project engagement are described. Methods of engagement are described and include: <ul style="list-style-type: none"> • E-mail, telephone • Community meetings
2. Outline a frequency of engagement that allows for relevant and timely information sharing;	Triggers for engagement are described such as licence amendments or renewals, project closure, notifications of regulatory filings.
3. Establish a process that allows the affected party to raise concerns on issues;	Notifications of any changes will be made primarily by e-mail
4. Allow opportunities for, when appropriate, community meetings to take place to be inclusive of perspectives from all sectors of the community, including women, youth, and Elders;	All community meetings are open to all sectors of the community
5. Ensure the proponent has procedures in place to understand and respond to issues as they arise; and	KBL has a feedback and evaluation process to ensure all concerns are addressed. Stakeholder feedback is used to understand concerns, information sharing and inform decision making.
6. Provide the opportunity for relationships to be built proactively, not just when issues occur	KBL conducted early engagement with potentially affected parties to ensure any issues with the project would be identified prior to submission of the application.

No Traditional Knowledge information was submitted with the Application. The facility will be constructed in the Upper Industrial Area of Norman Wells where no traditional land uses are expected.

3.2 Management Plans

Board staff reviewed the **Spill Contingency Plan** (Version 1.0) with consideration of the basic requirements of Aboriginal Affairs and Northern Development Canada's *Guidelines for Spill Contingency Planning* (April 2007) and have the opinion the Plan conforms with the intent of the Guidelines. There were no reviewer comments submitted regarding the Spill Contingency Plan.

Board staff reviewed the **Waste Management Plan** (Version 1.0) with consideration of the basic requirements of MVLWB *Guidelines for Developing a Waste Management Plan* (2011) and have the opinion the Plan conforms with the intent of the Guidelines. The Plan includes an Introduction with all required elements detailed in the Guidelines (i.e. details about the Company including environmental policies and site location; purpose and scope of the Plan as well as environmental,

social and regulatory goals and objectives; project description and map; physical site description. The identification and management of all waste types is detailed in a table outlining waste stream; description including volume to be produced; handling method and disposal method. There were no reviewer comments submitted regarding the Waste Management Plan.

Board staff reviewed the **Soil Treatment Facility Operation and Maintenance Manual** (version 1.0) in relation to the requirements outlined in Part G, condition 5 of the draft WL, see below. These requirements are in accordance with the Federal Contaminated Sites Action Plan, Federal Guidelines for Landfarming Petroleum Hydrocarbon Contaminated Soils and include 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.

Board staff are of the opinion that the Plan conforms with these requirements. There were no reviewer comments submitted regarding the Operation and Maintenance Plan.

3.3 Potential for Environmental Impacts and Mitigation Measures

Heritage Resources

The potential for the location of heritage resources in the project area is considered low; no significant effects to heritage resources are anticipated during project construction, operation, or decommissioning. No concerns regarding potential heritage resources were received after the issue of the Notice of Project nor during the community information session held in Norman Wells, on June 19, 2018.

Terrestrial Environment

The potential for the facility to impact soil quality, permafrost, vegetation or terrestrial wildlife in or near the project area is considered low.

Soil Contamination – A baseline soil sampling program will be completed within the footprint of the proposed facility to characterize and delineate any pre-existing impacts. Prior to STF decommissioning, a soil quality assessment program will be undertaken for comparison against baseline soil conditions. Any requirements for additional monitoring post decommissioning, will be established in consultation with regulatory oversight bodies.

Permafrost Disturbance - Geotechnical drilling will be conducted prior to construction to confirm the depth to permafrost beneath the proposed site, its type and any active layer considerations. This will assist in determining if there is a need for a permafrost protection strategy and if required, the design and implementation of the strategy.

KBL's use of a padded road overtop of an impermeable synthetic liner will insulate existing permafrost in the already disturbed ground and reduce metabolic heat generation.

The exposed synthetic liner in the surface water retention pond could become a heat sink while full of water. The liner will be light in colour to maximize sunlight reflection and the pond will be regularly pumped out to reduce any heat sink effect.

When groundwater wells are installed, appropriate measures will be undertaken to protect permafrost, as necessary.

Vegetation Disturbance - The STF is situated within the Norman Wells Upper Industrial Area on a previous cleared parcel of industrial zoned land, therefore no clearing is required for project construction.

Wildlife Disturbance - Any domestic waste will be removed from site daily to minimize the potential to attract wildlife. The STF Waste Management Plan provides details on waste management practices for the facility.

Waterfowl could be attracted to the STF leachate retention pond. Monitoring will be undertaken and if confirmed to be attracting waterfowl, netting will be installed as a deterrent.

Physical Environment

The potential for the facility to impact groundwater or surface water quality or quantity near the project area is considered low.

Groundwater Impacts - Regional groundwater flow is inferred to be southwest towards the Mackenzie River. Regular groundwater monitoring will be completed during the life of the project.

Surface Water Impacts - Water generated at the STF through surface run-off, leachate or snow melt will be captured in an engineered, HDPE lined, leachate retention pond. The pond volume will be monitored regularly during the summer season. Additionally, more frequent inspections will be completed during significant rainfall events to ensure the retention pond levels maintain within operating requirements. Where pond levels are determined to be approaching operating capacity, pond water will be pumped to above ground storage tank located onsite.

No water from the retention pond or the above ground storage tanks will be discharged without undergoing laboratory analysis to confirm effluent quality criteria specified in the Operation and Maintenance Plan and the Licence. Should the analytical results fail water discharge criteria, the water will not be discharged until it has undergone treatment in the STF portable water treatment plant (WTP) and confirmatory laboratory analysis. Following exhaustion of effluent re-use opportunities (bioremediation enhancement or dust suppression), effluent will be batch discharged to the ground surface through a dedicated hose to a constructed discharge channel.

Drainage patterns alteration – Drainage patterns from the soil treatment pad will be assessed as part of the regular facility inspections to ensure that the run-off water is diverted to the retention pond as per the design.

Air and Noise

Dust - Maintaining optimal moisture content in the soil during operations serves to suppress dust and minimize fugitive dust emissions off-site. If wind conditions are such that substantial dust is created during soil handling and treatment, activities will be shut down until conditions stabilize. Accordingly, impacts to terrestrial vegetation adjacent to the site resulting from dust deposition are considered negligible.

Noise - The STF is proposed for construction and operation in an existing industrial area. The main activities occurring at the site, bioremediation, are largely passive. Any activities that may generate noise such as tilling soil and managing effluent will be periodic during summer months, of short duration, will occur during daytime hours, and will be lower in volume and frequency than other activities that concurrently occur in the industrial area. The STF is expected to have negligible impacts on ambient noise levels in the project area.

Social and Economic

There are currently no local operational contaminated soil and snow handling and treatment facilities in the Norman Wells area. By constructing and operating the STF in Norman Wells there will be improved accessibility to local petroleum hydrocarbon contaminated soil and snow waste management services. The reduction in transport distances results in: less congestion of primary highways; and, reduced opportunity for safety or environmental incidents.

There will be short term and long-term economic inputs for the Town of Norman Wells, including the hiring of qualified local contractors for facility construction and during the life of the facility. There will be an economic benefit for the Town with respect to operating costs at the landfill. The soil treated at the STF will be transferred to the landfill for use as daily cover material reducing costs associated with acquiring daily cover material.

3.4 Preliminary Environmental Screening

Section 124(1) of the *Mackenzie Valley Resource Management Act* requires the Board to undertake a Preliminary Screening of any proposed development prior to the issuance of a Licence, Permit or Authorization.

Based on information provided in the application and by referral agencies (see below) a Preliminary Environmental Screening (PES) was performed. The draft PES is attached (Attachment 2). The report concludes that the environmental impact of the proposed project can be mitigated with known technologies and that no significant public concerns have been raised. The draft Preliminary Environmental Screening was forwarded to MVEIRB on November 13, 2018 and the final version will be forwarded to the MVEIRB once it has received approval from the Board.

3.5 Conformity with Land Use Plan

Pursuant to subsection 61(2) of the MVRMA, the Board may not issue a licence or permit except in accordance with any applicable land use plan. The Sahtu Land Use Plan (SLUP or Plan) received approval and came into effect on August 8, 2013. The Plan applies throughout the Sahtu Settlement Area except for “lands in a settlement area that comprise a park to which the *Canada National Park Act* applies, that have been acquired pursuant to the *Historical Sites and Monuments Act* or that are situated within the boundaries of a local government.”

Staff have confirmed that the undertaking is exempt from conformity to the Sahtu Land Use Plan as all activities occur within the municipal boundaries of the Town of Norman Wells on Airport property.

The SLWB has met the referral obligations set out in section 47 of the *Mackenzie Valley Resource Management Act* (MVRMA).

3.6 Security Deposit

In accordance with subsection 35 (1) of the *Waters Act*, the Board may require an applicant for a Licence to furnish and maintain security with the Minister, in an amount specified in, or determined in accordance with, the regulations made under paragraph 63(1)(g) and in a form prescribed by those regulations or a form satisfactory to the Minister.

The Board and KBL requested input on conditions applying to Security Requirements for the Water Licence. ENR has prepared a RECLAIM estimate for the project as proposed in the Water Licence application documents and based on similarly licensed projects, namely KBL's soil treatment facility in Inuvik (Water Licence G17L1-002) using the most recent Oil and Gas RECLAIM Model (v.7.0). In this estimate ENR has assumed that the maximum capacity of the STF is 6,000 m³ of contaminated soil at the point of abandonment of the structure due to insolvency. ENR recommends that the amount of \$452,302.00 be held as a security requirement. The RECLAIM estimate, including a description of assumptions is attached (Attachment 3).

3.7 Draft Water Licence

A draft Licence (Attachment 4) had been prepared by Board staff to ensure consistency with recent Board issuances and other recent WLs issued for Soil Treatment Facility undertakings by Land and Water Boards of the Mackenzie Valley e.g. [G17L1-002](#) – KBL Environmental Ltd. – Inuvik Soil Treatment Facility, [MV2016L8-0007](#) – Carter Industries Ltd – Town of Hay River Soil and Water Treatment Facility and [MV2014L1-0005](#) – KBL Environmental Ltd. - City of Yellowknife Soil and Water Treatment Facility and was distributed for review on September 27, 2018.

Comments were received on the draft WL from one reviewer (ECCC) as well as from the proponent. Changes were made to the conditions based on comments and recommendations received from reviewers during the review process and based on the proponent's response to the reviewer comments.

Scope and Definitions

The scope of the Licence ensures the Licensee is entitled to conduct activities which have been applied for. In setting out the scope of the Licence, the Board endeavoured to provide enough detail to

describe the authorized activities, but not so much detail that KBL's activities would be unduly restricted. The Board included a list of defined terms used in the Licence to ensure a common understanding of conditions and to avoid future differences in interpretation. Where appropriate, the definitions use wording like that found in Licences recently issued by the Board.

Part B – General Conditions

Part B of the Licence applies to matters regarding compliance and conformity with the MVRMA and *Waters Act* and is consistent with standard conditions found in previous Licences issued by the Board. This section addresses conformity and compliance with plans, submission timelines, revisions, and format of the SNP and the Schedules which are annexed to and form part of the Licence. This section also addresses signage, measuring devices, public engagement requirements, and annual water licence reporting. All conditions in Part B are standard conditions, consistent with recently issued Licences.

Part B, condition 4, clarifies that 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. This standard practice allows for flexibility in Licence conditions when documents are updated during the life of the Licence.

Part B, condition 16, outlines the requirements for the Annual Report. The Annual Report has been designed so that the Board and all reviewers can be updated on all project components and activities on an annual basis and provide comments, questions or feedback as necessary. The purpose of the Annual Report is to provide a summary of activities that have occurred onsite during the previous year. These summaries include volumes of soil and water (moved, treated and deposited), engagement activities, summary of works/maintenance completed onsite, summaries of all monitoring data, and anticipated activities for the following year. Annual Report requirements are intended to provide clarity for the submission of information summaries already being captured through existing plans and programs and are not meant to be onerous.

Part C – Reclamation Security Requirements

Part C of the Licence applies to reclamation security. The GNWT-ENR recommended a reclamation security of \$452,302.00 in their response to the Application submitted by KBL for review. They provided rationale and assumptions for how that amount was calculated using the RECLAIM model. KBL accepted the estimate provided by the GNWT.

Part D – Water Use

Part D of the Licence applies to water use. The Licensee indicated in their application that they would not require any water for the project activities.

Part E – Construction

Part E of the Licence contains conditions related to construction activities at the site. These conditions ensure that engineered structures are built to appropriate standards and require the submission of final design and engineering reports.

Part F – Modifications

Part F of the Licence contains conditions applying to modification of structures and facilities associated with the Project. All conditions in Part F are standard conditions consistent with recently issued Licences. These conditions are in place to ensure changes to the project are within the scope

of the applications and with the notification and approval, as appropriate, of the Inspector and/or the Board.

Part G – Waste and Water Management

Part G, condition 1, describes the overall objectives of this portion of the Licence applying to the management of waste and water for the Project. Part G, conditions 2, 3 and 4, outline the requirements for complying with the Waste Management Plan and for submission of an Environmental Monitoring Plan. Part G, conditions 5, 6, and 7 outline the requirements for Operations and Maintenance of the facility. Plan requirements are based on applicable guidelines, where available, requirements from similar operations, and have been developed in response to reviewer comments and recommendations. Part G, conditions 8 and 9 outline inspection requirements. Part G, conditions 10 and 11 outline the requirements for discharge and disposal of waste.

Part G, conditions 12 -15 outline the conditions and criteria for soil and snow acceptance to the Soil and Water Treatment Facility. The acceptance criteria were proposed by the Licensee in the Water Licence Application and reviewed during the water licence application review process. Part G, conditions 16 -20 outline the treated soil criteria and conditions under which it may be re-used. The criteria provided in the Licence are derived from the *Environmental Guidelines for Contaminated Site Remediation, Government of the Northwest Territories (November 2003)*.

Part G, condition 21 outlines the effluent quality criteria (EQC) that must be met prior to discharging any Water from the Soil Treatment Facility. EQC for the discharge of Water were proposed in the Licence Application and were derived from the *CCME Water Quality Guidelines for Protection of Aquatic Life*. EQC for some metals and hydrocarbons were derived from the *Guidance Document of Federal Interim Groundwater Quality Guidelines for Federal Contaminated Sites (November 2012)*. These discharge criteria are similar to other authorizations by the Board for other soil treatment operations.

Part G, condition 22 is a standard condition that requires notification of the Inspector upon exceedance of any EQC. Part G, conditions 24 and 25 stipulate the volume of Waste and the rate of flow that may be discharged from the Soil Treatment Facility. Part G, conditions 23 and 26 describe how water may be used if it does or does not meet the EQC specified in the Licence. Part G, condition 27 outlines requirements for submission of water quality data to the Board and an Inspector prior to discharge.

Part H – Spill Contingency

Part H of the Licence contains conditions applying to spills, unauthorized discharges, and emergency response for the Project. The purpose of this part is to ensure that the Licensee is fully prepared to respond to spills and unauthorized discharges. This will ensure that any spills or unauthorized discharges are effectively controlled and cleaned up, with the goal of preventing or limiting damage to the receiving environment. All conditions in Part H are standard conditions consistent with recently issued Licences.

Part I – Closure and Reclamation

Part I of the Licence requires the submission of a Closure and Reclamation Plan to address the aspects of site reclamation.

Annex A – Surveillance Network Program

Annex A of the Licence contains conditions applying to the Surveillance Network Program (SNP). At the time of issuance, the Board has established general SNP locations that require monitoring but does not specify all the exact locations that will be included. It is expected that the SNP will be updated by the Board following approval of the Environmental (Groundwater) Monitoring Plan. SNP locations include:

18-002-01a	Monitors retention waters in the Leachate Pond prior to discharge in accordance with the EQC established in Part G, condition 21.
18-002-01b	Monitors retention waters from the Leachate Pond at the point of discharge in accordance with the EQC established in Part G, condition 21.
18-002-02	Monitors volume of water discharged from the Leachate Pond or Water Holding Tanks to the drainage ditch and rate of flow
18-002-03a	Monitors retention waters in the Water Holding Tank prior to discharge in accordance with the EQC established in Part G, condition 21.
18-002-03b	Monitors retention waters in the Water Holding Tank at the point of discharge in accordance with the EQC established in Part G, condition 21.
18-002-04a, b, and c	Monitors groundwater downgradient of the Land Treatment Facility to ensure leachate waters are not impacting surrounding environment.
18-002-05	Monitors groundwater upstream of the site (reference) to ensure leachate waters are not impacting surrounding environment.

The Board is satisfied that compliance with the Licence conditions will ensure that waste produced by KBL Environmental Ltd. will be collected and disposed of in a manner which will maintain water quality consistent with applicable standards and the Board's Water and Effluent Quality Management Policy. Effluent quality criteria set out in the Licence are consistent with the Board's Water and Effluent Quality Management Policy and will protect the receiving waters and environment.

Water Licence S18L1-002 contains provisions that the Board feels necessary to ensure and monitor compliance with the MVRMA and the *Waters Act* and the Regulations made thereunder and to provide appropriate safeguards in respect of the Applicant's use of the waters and/or deposit of waste affected by the Licence. The Board will provide additional referenced material or documents if requested in writing to do so.

4. Other Agency Comments

The application was circulated to 29 organizations of the Tulita Region Distribution List requesting a reply by September 6, 2018. Three written responses were received. The draft licence was added to the review on September 27, 2018 requesting a reply by October 11, 2018. The following organizations offered comments on the application and/or draft licence (see Review Comment Summary Table and attached letters - Attachment 5):

- Environment and Climate Change Canada (ECCC)- commented on the application and draft licence conditions;
- GNWT-Environment and Natural Resources (ENR) – commented on the application and provided a security estimate;
- Sahtu Renewable Resources Board (SRRB) – commented that the facility will help clean up hydrocarbon contaminated soils in the Norman Wells area.

Groundwater Monitoring Program - The Application submitted by KBL discussed the process for developing a groundwater monitoring program that would follow from results of a geotechnical investigation and soil sampling program to be conducted prior to construction. ECCC recommended that KBL clarify whether there will be a soil, surface water and groundwater sampling program at the soil treatment facility to monitor for potential contamination. They recommended that the Proponent consider a monitoring program that would identify leachate quality and quantity. KBL responded that they are committed to having a monitoring program for the facility and that they will install a network of groundwater monitoring wells prior to construction that meets the requirements of the Surveillance Network Plan in the water licence. The Licence conditions include those for preparing and submitting a groundwater monitoring program for Board approval.

ENR requested that KBL provide more detail on the proposed groundwater monitoring locations and monitoring details expected for the monitoring program, such as frequency and groundwater criteria. ENR also recommended that at least four (4) ground waters wells are established on the perimeter of the site, including at least one up-gradient background well. KBL responded that they will be providing an environmental monitoring plan which will outline the full groundwater monitoring program including well locations, frequency (twice annually, once in the spring and once before freeze up). Baseline groundwater results will be used to develop the groundwater criteria and action levels. This will be done in conjunction with the Surveillance Network Program in the water licence.

Surveillance Network Program Monitoring Parameters - ECCC recommended that dissolved metals be included as parameters to be sampled in the SNP stations to indicate bioavailability. In response, KBL reviewed other soil treatment facility licences with regards to groundwater sampling requirements and noted that dissolved metals are not required. As total metals sampling is a required sampling parameter with established CCME criteria to provide a comparison of results and would capture an increase in dissolved metals, KBL requests that Total Metals remain the sampling parameter. Board staff agree with the Applicant.

5. Conclusion

A draft Licence has been prepared for the Board’s consideration. It reflects the evidence submitted throughout the regulatory process; reviewer comments and recommendations, KBL Environmental responses, Board staff recommendations, and standard conditions for the draft Licence for similar undertakings. The conditions contained within this draft Licence should mitigate any potential environmental impacts this development may have on the land and water. A draft Reasons for Decision and a draft Issuance Letter are attached (Attachments 6 and 7).

6. Recommendation

Board staff recommend that the Board proceed with the regulatory process for this Water Licence including:

- a) Approve the Preliminary Screening;
- b) Approve the exemption from conformity with the Sahtu Land Use Plan;
- c) Approve the Engagement Plan;
- d) Approve the Waste Management Plan, the Spill Contingency Plan and the Operations and Maintenance Plans;
- e) Approve the Water Licence for a term of five years;

7. Reference Material Attached

- 7.1. KBL Environmental Ltd. Water Licence Application ([hyperlink only](#))
- 7.2 Draft Preliminary Screening
- 7.3 GNWT-ENR RECLAIM Security Estimate and Assumptions
- 7.4 Draft Water Licence Cover Page and Conditions
- 7.5 Review Comment Summary Table
- 7.6 Draft Reasons for Decision
- 7.7 Draft Issuance Letter

Respectfully submitted,



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