



APPROVAL TO OPERATE

I-10137

Pursuant to paragraph 8(1) of the *Water Quality Regulation - Clean Environment Act*, this Approval to Operate is hereby issued to:

McLaughlin Soil Management Facility Ltd.
for the operation of the
Grand Falls Bioremediation Facility

Description of Source: **Petroleum Contaminated Soil Treatment Facility**

Source Classification: **Fees for Industrial Approvals Regulation - Clean Water Act** **Class 2**

Parcel Identifier: **65214801**

Mailing Address: **304 Kelly Road
Grand Falls, NB E3Z 1K3**

Conditions of Approval: **See attached Schedules "A, B, C and D" of this Approval**

Supersedes Approval: **I-9821**

Valid From: **May 31, 2018**

Valid To: **May 30, 2023**

Recommended by: 

Issued by: 
for the Minister of Environment and Local Government

May 7, 2018
Date

SCHEDULE A

APPLICABILITY:

This Schedule applies to all Bioremediation Facilities operating in New Brunswick. It does not apply to Enhanced Bioremediation facilities.

DEFINITIONS

"Approval Holder" means the person to whom this Approval is issued, as named on the first page (certificate) of the Approval.

"Department" means the New Brunswick Department of Environment and Local Government.

"Minister" means the Minister of Environment and Local Government and includes any person designated to act on the Minister's behalf.

"Inspector" means an Inspector designated under the *Clean Air Act*, the *Clean Environment Act*, or the *Clean Water Act*.

"Petroleum Product" means a mixture of hydrocarbons, or their by-products, of any kind and in any form, including airplane fuel, asphalt, bunker C oil, crude oil, diesel fuel, engine oil, fuel oil, gasoline, kerosene, lubricants, mineral spirits, naphtha, petroleum based solvents regardless of specific gravity, transformer oil and waste petroleum products and excluding propane and paint.

"Petroleum Contaminated Soil" (PCS) for the purpose of this Approval means soil that has come in contact with any petroleum product(s) **except bunker C free product, asphalt and crude oil**, because of spillage, leakage or other means, and has a Total Petroleum Hydrocarbon concentration greater than 20 mg/kg, or has a concentration of Benzene greater than 0.5 mg/kg. PCS does not include sludges, tank bottoms, oily water and/or synthetic petroleum absorbent materials.

"Modified Total Petroleum Hydrocarbons" (Modified TPH) means Total Petroleum Hydrocarbons without BTEX.

"Site Professional" means a member of the Association of Professional Engineers and Geoscientists of New Brunswick.

"Site Capacity" includes all contaminated soil on site. This includes, but is not limited to, all soil located on the concrete receiving pad and that being treated in the bioremediation piles.

"Facility" means the property, buildings, and equipment located on the property identified by the Parcel Identifier(s) on the first page (certificate) of this Approval, and all contiguous property in the title and/or in the control of the Approval Holder at that location.

"environmental emergency" means a situation where there has been or will be a release, discharge, or deposit of a contaminant or contaminants to the atmosphere, soil, surface water, and/or groundwater environments of such a magnitude or duration that it could cause significant harm to the environment or put the health of the public at risk.

"after hours" means the hours when the Department's offices are closed. These include statutory holidays, weekends, and the hours before 8:15 a.m. and after 4:30 p.m. from Monday to Friday.

"normal business hours" means the hours when the Department's offices are open. These include the period between 8:15 a.m. and 4:30 p.m. from Monday to Friday excluding statutory holidays.

"statutory holiday" means New Years Day, Family Day, Good Friday, Easter Monday, the day fixed by proclamation of the Governor-in-council for the celebration of the birthday of the Sovereign (Victoria Day), Canada Day, New Brunswick Day, Labour Day, the day fixed by proclamation of the Governor-in-council as a general day of Thanksgiving, Remembrance Day and Christmas Day and Boxing Day. If the Statutory Holiday falls on a Sunday, the following day shall be considered as the Holiday.

A. TERMS AND CONDITIONS

EMERGENCY REPORTING

1. Immediately following the discovery of an environmental emergency, a designate representing the Approval Holder shall notify the Department in the following manner.

During normal business hours, telephone the Department's applicable Regional Office **until personal contact is made** (i.e. no voice mail messages will be accepted) and provide as much information that is known about the environmental emergency. The telephone numbers for the six Regional Offices within the Department are provided in the table below.

After hours, telephone the Canadian Coast Guard **until personal contact is made** and provide all information known about the environmental emergency. The telephone number for the **Canadian Coast Guard is 1-800-565-1633**.

2. Within 24 hours of the time of initial notification, a **Preliminary Emergency Report** shall be filed by the Approval Holder to the applicable Regional Office within the Department and the Department's Central Office using the fax numbers provided below. The Preliminary Emergency Report shall clearly communicate as much information that is available at the time about the environmental emergency.

Within five (5) days of the time of initial notification, a **Detailed Emergency Report** shall be filed, by the Approval Holder to the applicable Regional Office within the Department and the Department's Central Office using the fax numbers provided below. The Detailed Emergency Report shall include, as a minimum, the following: i) a description of the problem that occurred; ii) a description of the impact that occurred; iii) a description of what was done to minimize the impact; and iv) a description of what was done to prevent recurrence of the problem.

Office Location	Phone	Fax
Bathurst Regional Office	(506) 547-2092	(506) 547-7655
Miramichi Regional Office	(506) 778-6032	(506) 778-6796
Moncton Regional Office	(506) 856-2374	(506) 856-2370
Saint John Regional Office	(506) 658-2558	(506) 658-3046
Fredericton Regional Office	(506) 444-5149	(506) 453-2893
Grand Falls Regional Office	(506) 473-7744	(506) 475-2510
Central Office	---	(506) 457-7333

LIMITS

3. The Approval Holder shall ensure that any discharge of water from the Facility does not exceed the following limits. Where the constituents are limited to BTEX compounds, the BTEX limits will be applied instead of the Modified TPH limits.

Parameter ($\mu\text{g/L}$)	Maximum
Benzene	5
Toluene	24
Ethylbenze	2.4
Total Xylenes	300
Modified Total Petroleum Hydrocarbons Tier 1	1100

4. The Approval Holder shall ensure that all soil received at the site intended for re-use under **residential remediation criteria** is treated to achieve at least the following concentrations:

Parameter (mg/kg)	Limit ¹
Benzene	0.099
Toluene	77
Ethylbenze	30
Total Xylenes	8.8
Modified Total Petroleum Hydrocarbons Tier 1 - Gas	74
Modified Total Petroleum Hydrocarbons Tier 1 – Diesel (#2)	270
Modified Total Petroleum Hydrocarbons Tier 1 – Lube Oil (#6)	1,100

¹ Table 4a - Tier I RBCA Levels for soil - Residential, non-potable, coarse grained

5. The Approval Holder shall ensure that odour, dust, noise, and/or site run-off being released or discharged from the Facility does not cause adverse impacts to any off-site receptor. In the event impacts are suspected by the Department to be adversely impacting any off-site receptor, the Approval Holder may be required to investigate the degree of impact and/or develop, submit, and implement a Prevention and Control Plan in accordance with a timetable established by the Department. The plan shall be submitted in writing to the Department for review and approval prior to implementation.

FACILITY MANAGEMENT

6. The Approval Holder shall hire a Site Professional to compile and submit the required reports to the Department.
7. The Approval Holder shall ensure that the Facility is used exclusively for the treatment of petroleum contaminated soil.
8. The Approval Holder shall decommission bioremediation treatment cells according to the procedure outlined in Schedule B of this Approval.
9. The Approval Holder shall maintain the petroleum contaminated soil at the Facility in a condition that is satisfactory to an Inspector. As a minimum, run-off must be controlled to prevent the release of hydrocarbons to the surrounding environment.
10. The Approval Holder shall ensure that material intended for re-use under residential remediation criteria segregated from the PCS is treated to a point where the concentrations of BTEX and Modified TPH are less than the concentrations specified in condition 4.
11. The Approval Holder shall ensure that all PCS is located on the receiving pad or in bioremediation treatment piles. PCS is not to be located in any other area.
12. The Approval Holder shall maintain the receiving pad in a condition that is satisfactory to the Department. As a minimum, the pad must be cleared at least once per calendar year and examined by an independent consulting firm for cracks and other deterioration and repaired, as necessary, to the satisfaction of the Department.
13. The Approval Holder shall ensure that impacted soil used for the manufacturing of top soil satisfies the appropriate residential remediation criteria for contaminated sites as per the most current version of the Canadian Council of Ministers of the Environment (CCME) Recommended Canadian Soil Quality Guidelines prior to being mixed with approved compost or soil additives.
14. The Approval Holder shall ensure that:
 - a) snow contaminated with petroleum hydrocarbons is accepted in emergency situations only and with authorization from the Department.

- b) waste oil and used synthetic petroleum absorbent materials from other sources are not accepted at the Facility. Any waste oil and synthetic petroleum absorbent material generated at the Facility shall be disposed of in a manner acceptable to the Department.
 - c) decommissioned tanks are not cleaned at this Facility. All tank decommissioning activities shall be performed at an approved tank decommissioning site.
15. It is the responsibility of the Approval Holder to ensure that the site capacity is not exceeded.

TESTING AND MONITORING

16. The Approval Holder shall ensure that, on a monthly basis, monitoring for Benzene, Toluene, Ethylbenzene, Xylene (BTEX), and Modified Total Petroleum Hydrocarbons (Modified TPH) is carried out as follows:
- i) sampling of groundwater monitoring wells to detect potential petroleum contamination; and
 - ii) sampling of the water discharge points to ensure successful attenuation of the petroleum contaminants.
17. The Approval Holder shall ensure that soils or soils imported from out-of-province that are **of questionable origin** or contamination, are subjected to testing of all parameters as described in Schedule C of this Approval. The testing shall be performed by an independent analytical laboratory which is acceptable to the Department, and the results of such testing shall be submitted to the Department for approval at least **thirty (30) days** prior to the anticipated receiving date.
18. The Approval Holder shall ensure that for petroleum impacted soil from outside the province of New Brunswick that is **not of questionable origin**, a letter approved by the Site Professional is submitted to the Department, at least **thirty (30) days** prior to the anticipated receiving date. The letter shall state: the client's name, site location, PID #, approximate tonnage, TPH/BTEX concentration ranges, the current and previous site use, and that the site was not impacted by any contaminants other than hydrocarbons.

REPORTING

19. **By February 15 of each year**, the Approval Holder shall submit a report to the Director for review. The report shall, as a minimum, include the following information for the previous calendar year:
- a. The results from the monitoring program outlined in Condition 16 are reported to the Department. The reports shall include copies of the original analytical results from the laboratory performing the analysis. If samples could not be collected due to freezing conditions at monitoring wells, a report shall be submitted detailing this.

- b. A copy of the receiving pad inspection report. A report is also required for repairs to the receiving pad.
 - c. A contaminated soil inventory to the Director. This inventory will include the summary of warrants of each load of soil received at the Facility that indicates clearly the type of contamination, the date received, the origin, the total tonnage, the method of treatment, the location of treatment, the date treatment was completed, and the intended end-use.
20. **By January 01 of each year**, the Approval Holder must submit proof of third party Environmental Liability Insurance, or a suitable alternative which is acceptable to the Minister, for an amount not less than one million dollars to cover cleanup costs in the event of contamination caused by accidental spillage or leakage.

SCHEDULE B

APPLICABILITY

This Schedule contains conditions for the decommissioning of petroleum contaminated soil and applies to all Bioremediation Facilities operating in New Brunswick.

TERMS AND CONDITIONS

1. The Approval Holder shall conduct testing to determine when the soil has achieved the Certificate of Approval criteria required for the intended disposal.
2. The Approval Holder shall remove soil that they consider has achieved treatment criteria from the bioremediation cells and place in a temporary treated soil pile of 500 tonnes maximum. The designated area for temporary treated soil piles shall be contoured to ensure surface water is directed away from the piles.
3. Each 500 tonne temporary treated soil pile (maximum 8 metres wide x 3 metres high) shall be assigned a unique identifier number and composite sampled. The composite sample submitted must represent three vertical locations along the length of the 500 tonne pile. (i.e. .25 X, .50 X, and .75 X).
4. The Approval Holder shall analyze one composite sample per 500 tonne pile for BTEX and TPH by a method acceptable to the Analytical Services section of the Department.
5. Upon receipt of laboratory results, the Approval Holder shall provide to the Department, in writing, the test results for each treated soil pile, its intended end-use and its intended disposal location, including proximity to watercourses and other ecological and human receptors, and request written approval for final disposal from the Department. This report shall be provided a minimum of **four weeks** prior to the intended disposal date.
6. The Approval Holder shall obtain written authorization from the Department prior to movement of soil out of the treatment area, other than the samples for independent audits.
7. The Approval Holder shall maintain records of soil disposal for a minimum of three years to demonstrate compliance with the above requirements.

SCHEDULE C**APPLICABILITY**

This Schedule contains the acceptance parameters for petroleum contaminated soil and applies to all Bioremediation Facilities operating in New Brunswick.

TERMS AND CONDITIONS

1. Petroleum contaminated soil (PCS) can often contain contaminants which may be considered incompatible with the bioremediation operations. Prior to acceptance, adequate analysis shall be performed by a qualified laboratory to verify the soil parameters and the results shall be submitted to the Department for comparison with the following limits for approval:

Constituent	Limit	Description
Flash Point	61 °C	minimum temperature
pH (corrosivity)	6.0 - 8.0	acceptable values
Sulfide (reactivity) ²	500 ppm ¹	maximum concentration
Cyanide (reactivity) ²	8 ppm ¹	maximum concentration
Polychlorinated Biphenyls (PCBs) ²	33 ppm ¹	maximum concentration
Chlorophenols ²	5 ppm ¹	maximum concentration
Benzo(a)pyrene ²	0.7 ppm ¹	maximum concentration
Arsenic (As) ²	12 ppm ¹	maximum concentration
Barium (Ba) ²	2000 ppm ¹	maximum concentration
Cadmium (Cd) ²	22 ppm ¹	maximum concentration
Chromium (Cr)(total) ²	87 ppm ¹	maximum concentration
Lead (Pb) ²	260 ppm ¹	maximum concentration
Mercury (Hg) ²	24 ppm ¹	maximum concentration
Selenium (Se) ²	3.9 ppm ¹	maximum concentration
Silver (Ag) ²	40 ppm ¹	maximum concentration
Nickel (Ni) ²	50 ppm ¹	maximum concentration

In addition, testing must be performed to determine the extent of petroleum contamination in the soil; these tests should include Benzene, Toluene, Ethylbenzene, Xylene (BTEX) and Total Petroleum Hydrocarbons (TPH).

Notes:

- 1) ppm = parts per million, equivalent to mg/kg;
- 2) Limits adopted from Commercial remediation criteria for contaminated sites as stated in the Canadian Council of Ministers of the Environment (CCME) Recommended Canadian Soil Quality Guidelines, 2004. For metals, the above values are totals not leachables;
- 3) For transportation purposes, all metals must be analysed according to the leachate extraction procedures as determined in accordance with EPA Method 1311 and verified to be below the limits established under the Transport of Dangerous Goods Regulation (TDGR).

SCHEDULE D

APPLICABILITY

This schedule applies to the Bioremediation of petroleum contaminated soil to **commercial remediation criteria** for Bioremediation Facilities operating in New Brunswick. This schedule is in addition to Schedule A.

TERMS AND CONDITIONS


1. The Approval Holder shall ensure that all soil received at the site intended for re-use under **commercial remediation criteria** is treated to achieve at least the following concentrations:

Parameter (mg/kg)	Limit
Benzene	0.099 ¹
Toluene	77 ¹
Ethylbenze	30 ¹
Total Xylenes	8.8 ¹
Modified Total Petroleum Hydrocarbons Tier 1 - Gas	1,900 ²
Modified Total Petroleum Hydrocarbons Tier 1 – Diesel (#2)	4,700 ²
Modified Total Petroleum Hydrocarbons Tier 1 – Fuel Oil (#6)	10,000 ²

¹ Table 4a - Tier I RBCA Levels for soil - Residential, non-potable, coarse grained

² Table 4a - Tier I RBCA Levels for soil - Commercial, potable, fine-grained

2. The Approval Holder shall ensure that material intended for re-use under commercial remediation criteria segregated from the PCS is treated to a point where the concentrations of BTEX and Modified TPH are less than the concentrations specified in Condition 1.
3. The Approval Holder shall ensure that soils intended for re-use under commercial remediation criteria with concentrations greater than those specified in Condition 1 remain at the Facility for further treatment.
4. The Approval Holder shall ensure that impacted soil used for the manufacturing of top soil satisfies the appropriate commercial remediation criteria for contaminated sites as per the most current version of the Canadian Council of Ministers of the Environment (CCME) Recommended Canadian Soil Quality Guidelines prior to being mixed with approved compost or soil additives.
5. The Approval Holder shall notify the Department, in writing, prior to moving commercial stockpiles into the residential area for treatment under the residential remediation criteria.

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