



# Newfoundland Labrador

GOVERNMENT  
OF  
NEWFOUNDLAND AND LABRADOR  
Department of Municipal Affairs and Environment  
**CERTIFICATE OF APPROVAL**

Pursuant to the *Environmental Protection Act, SNL 2002, Sections 16, 78 and 83.*

Issued: April 30, 2018  
Expiration: March 31, 2023

Approval No.: WMS 10-07-017  
File No.: 839.MST.001

**Proponent:** Modern Soil Treatment Limited  
P.O. Box 401,  
Mount Pearl, NL  
A1N 2C4

Attention: Mr. Perry Barrett, P. Eng.

**Re:** Treatment of Petroleum Contaminated Soil (St. John's)

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Approval is hereby given for the continued operation of the permanent facility for the treatment of Petroleum Contaminated Soil located at southwest of the intersection of the Manuals' Bypass Highway and the TCH as outlined in the August, 2005 Application.

This approval does not release the proponent from the obligation to obtain appropriate approvals from other concerned provincial, federal and municipal agencies. Approval from the Department of Municipal Affairs and Environment (the Department) shall be obtained prior to any significant change in the design, construction, installation, or operation of the facility, including any future expansion of the works. This certificate shall not be sold, assigned, transferred, leased, mortgaged, sublet or otherwise alienated by the holder without obtaining written prior approval from the Minister.

This approval is subject to the terms and conditions attached hereto, as may be revised from time to time by the Department. Failure to comply with any of the terms and conditions may render this certificate of approval null and void, may require the proponent to cease all activities associated with this certificate of approval, may place the proponent and its agent(s) in violation of the *Environmental Protection Act, SNL., 2002, c. E-14-2*, and will make the proponent responsible for taking such remedial measures as may be prescribed by the Department. The Department reserves the right to add, delete, modify or revoke this approval at any time.



MINISTER

## **Part 1: Definitions**

### **Section 1.1: Definitions**

- 1.1.1 All definitions from the Act and the regulations apply except where expressly defined in this approval.
- 1.1.2 In this approval:
- (a) **bioremediation (or biodegradation)** means any process (e.g. bioaugmentation and biostimulation etc) that uses microorganisms or their enzymes to attack specific soil contaminants;
  - (b) **bioaugmentation** means the introduction of group of natural microbial stains or a genetically engineered variant to treat contaminated soil or water;
  - (c) **biostimulation** means the modification or optimization of the microbial environment to entice or promote the existing microbial activity resulting in mineralization of the petroleum hydrocarbon contaminants;
  - (b) **BTEX** means benzene, toluene, ethylbenzene, and xylene;
  - (c) **CCME** means Canadian Council of Ministers of the Environment;
  - (d) **CEPA** means the Canadian Environment Protection Act;
  - (e) **CEQG** means CCME Canadian Environmental Quality Guidelines;
  - (f) **contaminant** means, unless otherwise defined in the regulations, a substance that causes or may cause an adverse effect;
  - (g) **Department** means Department of Municipal Affairs and Environment;
  - (h) **Director** means the Director of the Pollution Prevention Division of the Department;
  - (i) **industrial wastewater** means the composite of liquid wastes and water-carried wastes, any portion of which results from any industrial process carried on at the facility;
  - (j) **MSTL** means Modern Soil Treatment Limited;
  - (k) **Minister** means the Minister of the Department of Municipal Affairs and Environment;

- (l) **PAH** means polycyclic aromatic hydrocarbons;
- (m) **PCS** means petroleum contaminated soils which: (a) have absorbed or adsorbed gasoline, diesel/furnace oil, mineral oil, kerosene, hydraulic oil, aviation fuel and other petroleum hydrocarbon compounds, mixtures and blends (C2-C32). This does not include Bunker C, crude oil or drilling fluids unless otherwise approved by the GSC; (b) contain equal to or greater than 1000 ppm total petroleum hydrocarbons **OR** exceed limits for BTEX as outlined in the latest edition of CEQG (industrial land use for soil); (c) do not contain PAH composed of more than four benzenoid rings in excess of concentrations normally found in the products noted in item (a) above (greases, and heavy lubricating oils are likely to contain compounds having more than four benzenoid rings); (d) do not contain petroleum and/or metal concentrations at levels toxic to microbes. Microbial toxicity testing maybe be required by the Department to demonstrate that it is possible to bioremediate the suspect soil; and (e) do not contain metal concentrations which are leachable as determined by the *Toxicity Characteristic Leaching Procedure* as defined in Schedule II of *The Interprovincial Movement of Hazardous Waste and Hazardous Recyclable Material Regulations under the CEPA, 2004*.
- (n) **professional engineer** means an individual or company that is a member in good standing with the Professional Engineers and Geoscientists of Newfoundland and Labrador (PEGNL) licensed to practice engineering in a field related to the task performed;
- (o) **site professional (engineer)** means a professional engineer with professional errors and omissions liability insurance coverage for environmental work of at least \$1,000,000 individually or through a registered company;
- (p) **third party site professional (engineer)** means a site professional engineer whom is not an employee of the proponent; and
- (q) **TPH** means total petroleum hydrocarbons

## **Part 2: General**

### **Section 2.1: General**

- 2.1.1 This approval applies to MSTL for the continued operation of the permanent facility to bioremediate petroleum contaminated soil located at the southwest of the intersection of the Manuals Bypass Highway and the TCH.
- 2.1.2 Prior to any expansion or modification of the facility, a letter of application shall be forwarded to the Department requesting an amendment to this approval.

- 2.1.3 The Minister may at any time, with reasonable notice, require MSTL to conduct or have conducted environmental studies, site assessments, sampling, testing, or investigations where, based upon reasonable and probable grounds, that this waste management system may have had, or has the potential to have, an adverse effect on the environment.
- 2.1.4 This facility is approved to treat PCS using bioremediation technology/process, unless otherwise approved in writing by the Department.
- 2.1.5 Through a Memorandum-of-Understanding (MOU) this Department has authorized Service NL to act on their behalf in monitoring this operation for compliance under this approval and all applicable provincial Acts and Regulations.
- 2.1.6 Contaminated soil shall only be accepted during normal working hours with the exception of contaminated soil from an emergency oil spill response.
- 2.1.7 All contaminated soils received at the facility shall be placed on the approved receiving and/or treatment pads.
- 2.1.8 The facility shall be fenced and a lockable access gate shall be installed at the entrance to prevent unauthorized access.
- 2.1.9 A sign shall be posted at the gate listing the company name, hours of operation and contact name and number in an event of an emergency situation. Other signage relating to access restrictions and fire/health/safety restriction shall be prominently displayed.
- 2.1.10 The facility is not approved to accept waste petroleum liquids for storage, discharge, or treatment.
- 2.1.11 The maximum approved capacity for this facility is **36,750 tonnes** of PCS.

### **Section 2.2: Contingency Plan**

- 2.2.1 MSTL shall maintain the environmental emergency health & safety contingency plan and shall continue submitting the annual updates for review and approval by **January 31** of following year to the Department.
- 2.2.2 MSTL shall ensure that a copy of this approval is kept on site at all times and that personnel directly involved in the operation of the remediation facility are made fully aware of the terms and conditions which pertain to this approval.
- 2.2.3 All personnel who are directly involved with operation and maintenance of the processing system shall be provided with a copy of this approval.

- 2.2.4 For after-hours emergencies and spill report call: **1-800-563-9089** or **(709) 772-2083**.
- 2.2.5 The operator(s) shall have formal environmental training from a recognized institution or equivalent experience. Proof of training and/or resume(s) shall be included in the annual report(s).

### **Section 2.3: Legislation & Guidelines**

- 2.3.1 The activities associated with this operation may involve, but not be limited to the following provincial Acts and Regulations:
- *Dangerous Goods Transportation Act and Regulations*
  - *Newfoundland Fire Prevention Act and Regulations*
  - *Environmental Protection Act*
  - *Air Pollution Control Regulations*
  - *Storage and Handling of Gasoline and Associated Products Regulations*
  - *Used Oil Control Regulations*
  - *Water Resources Act*
  - *Environmental Control Water and Sewage Regulations*
- 2.3.2 The activities associated with this operation may involve, but not be limited to the following federal Acts and Regulations:
- *Canadian Environmental Protection Act and Regulations*
  - *Interprovincial Movement of Hazardous Waste and Hazardous Recyclable Material Regulations*
  - *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations*
  - *Transportation of Dangerous Goods Act and Regulations*
  - *Fisheries Act*
  - *National Fire Code*
- 2.3.3 MSTL shall operate this permanent PCS treatment facility according to the ***Guidelines for Construction and Operation of Facilities Using Ex-Situ Bioremediation for the Treatment of Petroleum Contaminated Soil: GD-PPD-013 rev.4.***

### **Section 2.4: Financial Security/Assurance**

- 2.4.1 MSTL shall maintain valid environmental liability impairment insurance in the amount of \$1,000,000 otherwise this approval is considered null and void.
- 2.4.2 MSTL shall maintain and file a surety bond of \$20,000 with the Department, otherwise this approval is considered null and void.

- 2.4.3 MSTL shall submit annual updates of the financial assurance to the Department.
- 2.4.4 MSTL shall provide three months advance notice to the Department if they intend to cancel and/or change the insurer or bonding agent.

### **Section 2.5: Record Keeping**

- 2.5.1 MSTL shall record and retain all information in respect of any sampling conducted or analyses performed in accordance with this approval for a minimum of five years, unless otherwise authorized in writing by the Director.
- 2.5.2 MSTL shall record and retain all the following information for a minimum of five years:
- (a) the name and address of the person(s) who make/discover any contravention of the Act, the regulations or this approval; and
  - (b) a detailed description of the remedial actions/measures taken in respect of the contravention of the Act, the regulations or this approval.

### **PART 3: Construction**

*Not applicable to this approval.*

### **PART 4: Operations, Limits, Monitoring and Reporting**

#### **Section 4.1: General**

- 4.1.1 MSTL shall maintain and operate the facility as described in the application submitted to the Department dated August 18, 2005, entitled "*Proposed Contaminated Soil Management Facility, Modern Soiltech Limited, St. John's, Newfoundland*", prepared by Jacques Whitford, Project # NFS11074.
- 4.1.2 MSTL shall have on site, all of the following:
- (a) Two (2) Treatment Pads
  - (b) One (1) Receiving Pad, and
  - (c) Holding Pond.

## **Section 4.2: Bioremediation of PCS**

### **Operations**

- 4.2.1 The use of cultured microbes may be regulated under the federal *New Substances Notification Regulations* under the *Canadian Environmental Protection Act*. For additional information on these regulations contact Environment Canada at (902) 426-9674. A copy of the notification shall be provided to the Department.
- 4.2.2 Covering of soils is permitted to control soil moisture content and temperature.
- 4.2.3 When required, moisture addition to the biopiles shall be accomplished utilizing collected wastewater. Any additional water may be taken from an approved on-site water supply.
- 4.2.4 If constructed, all ductworks shall be mapped and marked to avoid any destruction during sample excavation.
- 4.2.5 Mixing of clean soil with contaminated soil is prohibited. However, soils delivered to the site having a high percentage of clay and silt particles may be amended and/or internal ductwork installed to increase permeability. Acceptable material for soil amendments include: sand, straw, sawdust, woodchips and coarse grained petroleum contaminated soil.
- 4.2.6 The curbs/berms surrounding and dividing the pads shall be inspected monthly. All damage, tears, cracks or other deterioration shall be repaired immediately.
- 4.2.7 The pads shall be cleaned thoroughly and visually inspected at least annually. All damage, tears, cracks, and other deterioration shall be repaired immediately.
- 4.2.8 The top of the curb/berm surrounding and dividing the receiving and treatment pads shall at all times be a minimum of 200 mm above the pads' permanent working surface located immediately adjacent to and within 600 mm of the exposed base of the curb. The working surface is defined as the permanent surface on which the contaminated soil is placed and may consist of a fixed layer of granular material or the original material of construction.
- 4.2.9 A minimum of 200 mm curb height shall be maintained above the pads at all times. Soil shall be placed on the treatment and receiving pads in a manner which provides for the continuous flow of accumulated rainfall and/or leachate along the curb toward the centralized locations/catch basin(s) leading to the leachate holding tanks.
- 4.2.10 The curb/berm surrounding the treatment and receiving pads shall at all times be clearly visible and shall not be covered with soil.

- 4.2.11 All overflows of accumulated waste water over the pads shall be collected and treated. These shall be considered a spill as defined in the *Storage and Handling of Gasoline and Associated Products Regulations*. This includes standard reporting and response actions. Response and cleanup activity may cease once laboratory results of the waste water and impacted soils reveal levels are within allowable levels for parameters of concern. Until this has been confirmed, response and cleanup shall proceed under the assumption that the waste water exceeds allowable limits as per regulations and guidelines and is likely to cause pollution.
- 4.2.12 Soils containing contaminants which would cause them to be classified as waste dangerous goods, as defined in the *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations* under the *CEPA* and in provisions under the Newfoundland and Labrador *Environmental Protection Act (SNL 2002)*, shall not be accepted for treatment and/or storage.
- 4.2.13 Hazardous wastes shall not be accepted at these facilities for treatment and/or storage. Hazardous wastes are those which are corrosive, reactive, flammable, ignitable, carcinogenic, teratogenic, mutagenic, infectious, oxidizing, radioactive, explosive, poisonous/toxic (i.e. acute and chronic), bioaccumulative, persistent, TCLP defined leachable or any waste which does not meet any of the above criteria but has other properties of concern which are significant enough to consider the material to be hazardous. Where there exists any doubt regarding the properties of a given waste, consultation with Service NL is required.
- 4.2.14 Disposal or storage of treated soils on site is not permitted. Treated soils shall be disposed of at approved waste disposal sites with the permission of the owner/operator. *Reuse of treated soil at any other location is not permitted*, unless otherwise approved by the Department.

### Limits

- 4.2.15 Prior to removal of the treated soil from the site, compliance sampling shall be conducted to achieve the following:
- BTEX concentrations shall be below the industrial limits for soil in the latest edition of the CEQG; and
  - TPH concentration shall be equal or less than 1000 mg/kg (ppm)
- 4.2.16 Soils with TPH less than 1000 ppm may be removed from treatment pad to facilitate further treatment of underlying soils.

### Monitoring and Reporting

- 4.2.17 All soils received at the facility shall have a **complete chemical analysis** of the petroleum contaminated soil. The complete chemical analysis of the typical PCS

must include TPH, BTEX and soil pH. Analysis for metals, PAH and other contaminants of concern will be required on a site specific basis.

- 4.2.18 If pre-delivery soil analysis for the contaminated soil has not been provided by the client, then MSTL must provide one sample for every **1500 tonnes** or less unless otherwise authorized in writing by the Director. The soil shall be well mixed to ensure the sample is representative. More intensive sampling will be required if the source of the soil suggests that other contaminants may be present. Soil characterization determined through an environmental site assessment conducted by an independent, qualified and experienced company is deemed sufficient.
- 4.2.19 This facility may accept up to 1500 tonnes of PCS from an emergency response incident without prior sampling or testing. The untested material shall be stored separately on the receiving and/or treatment pad until baseline testing is conducted.
- 4.2.20 All soils with analysis showing contaminants in excess of limits as prescribed in the latest edition of the CEQG shall be considered contaminated. For parameters not listed in the CEQG consultation with SNL is required.
- 4.2.21 If the source/historical information of the contaminated soil suggest that soil may be of hazardous nature, additional laboratory analysis shall be carried out as recommended by an independent consultant or as required by the SNL.
- 4.2.22 At least five working days advance notice to the Department and Service NL of the intent to conduct **post treatment sampling** is required.
- 4.2.23 **Post-treatment soil sampling** shall be conducted or witnessed by a third party site professional (engineer). The sampling results shall be stamped, signed (by a third party site professional) and submitted to the Director.
- 4.2.24 Where laboratory results indicate that some samples do not meet these criteria, additional sampling may be conducted to delineate the volume in question.
- 4.2.25 At a minimum, post-treatment compliance (composite) sampling shall be done along the longitudinal axis of the biopile. Sampling location shall be conducted at 2 metre within the biopile on either end of the biopile and then at 12m intervals. These samples may be taken on different days.
- 4.2.26 An Annual Report shall be submitted to the Department and Service NL by **January 31** of following year summarizing activities of the previous year. The report shall include at minimum:
- (a) date and time of arrival of contaminated soil;
  - (b) source name and address for contaminated soil;

- (c) quantity (i.e. tonnes or cubic meters) of contaminated soil;
- (d) client name and trucking company;
- (e) name of project manager or onsite supervisor authorizing the shipment;
- (f) total amount of treated soil removed from the site;
- (g) the disposal location of the treated soil;
- (h) copies of current letters from the owner operator of disposal sites;
- (i) post treatment laboratory results;
- (j) current insurance and bonding information;
- (k) monitoring well sampling results, and
- (l) leachate holding tanks maintenance, sampling and discharge volumes.

4.2.27 All incidents of:

- (a) contingency plan implementation;
- (b) spillage or leakage of a regulated substance;
- (c) whenever discharge criteria is or is suspected to be exceeded, or
- (d) public complaints concerning possible non-compliance,

shall be immediately reported, within one working day, to a person or message manager or facsimile machine at Service NL by phoning (709) 729-3699 or by fax (709) 729-2071.

### **Section 4.3: Industrial Wastewater**

#### **Operations**

- 4.3.1 The approval holder shall not release any substances from the facility to the surrounding watershed except as authorized by this approval.
- 4.3.2 The industrial wastewater/leachate shall be managed as described in the application (*JW Project No. NFS11074, dated August 2005*), unless otherwise authorized in writing by the Director.

4.3.3 All industrial wastewater/leachate shall be directed to the Holding Pond/Drainage System.

4.3.4 The Holding Pond/Drainage System shall be cleaned of sediments on a regular basis as preventive maintenance.

### **Limits**

4.3.5 Releases from the Holding Ponds/Drainage System shall not exceed the limits at a minimum for the parameters specified in TABLE 1.

**TABLE 1: Wastewater/Leachate Limits**

<b>Parameters</b>	<b>Sample Type</b>	<b>Limits</b>
pH	Grab	5.5 to 9.0 pH units
Oil and Grease	Visual	No visible sheen
TPH	Grab	15 mg/L
Total Suspended Solids	Grab	30 mg/L
Ammonia Nitrogen	Grab	2.0 mg/L
Benzene	Grab	370 µg/L
Toluene	Grab	2.0 µg/L
Ethylbenzene	Grab	90 µg/L
Xylene	Grab	180 µg/L

### **Section 4.4 Groundwater Monitoring Wells**

4.4.1 The approval holder shall conduct groundwater sampling and analyses as authorized by the Director. The six (6) groundwater monitoring wells shall be sampled annually during **May or June** and shall be analyzed for TPH including BTEX.

4.4.2 All monitoring wells for installation and maintenance shall follow the *CCME Subsurface Assessment Handbook for Contaminated Sites EPC-NCSRP-48E March 1994*.

4.4.3 If a representative groundwater sample cannot be collected because the groundwater monitor well is damaged or is no longer capable of producing a representative groundwater sample:

- (a) the groundwater monitor well shall be cleaned, repaired or replaced, and
- (b) a representative groundwater sample shall be collected and analyzed prior to the next scheduled sampling event, unless otherwise authorized in writing by the Director.

### **Part 5: Decommissioning and Reclamation**

- 5.1.1 The approval holder shall develop and submit a plan for the Decommissioning to the Director which shall include, at a minimum, all of the following:
- (a) a plan for dismantling the facility;
  - (b) a comprehensive study to determine the nature, degree and extent of contamination at the facility and affected lands;
  - (c) a plan to manage all wastes produced at the facility during operation and Decommissioning, and
  - (d) evaluation of remediation technologies proposed to be used at the facility and affected lands.
- 5.1.2 The approval holder shall implement the Decommissioning plan as authorized in writing by the Director.
- 5.1.3 The approval holder shall develop and submit a plan for the Land Reclamation to the Director which shall include, at minimum, all of the following:
- (a) the final use of the reclaimed area and how equivalent land capability will be achieved;
  - (b) removal of infrastructure;
  - (c) restoration of drainage;
  - (d) soil replacement;
  - (e) erosion control, and
  - (f) re-vegetation.
- 5.1.4 The approval holder shall implement the Land Reclamation plan as authorized in writing by the Director.
- 5.1.5 The Decommissioning and Land Reclamation Plan in Section 5.1.1 and 5.1.3 shall be submitted within three (3) months of the facility ceasing operation, unless otherwise authorized in writing by the Director.

### **Part 6: Expiration**

- 6.1.1 This approval expires as indicated on March 31, 2023.
- 6.1.2 Should the approval holder wish to continue to operate beyond this expiry date, a written request shall be submitted to Director for the renewal of this approval, *six (6) weeks prior to expiration.*

cc. Robert Locke  
Manager of Operations and Environmental Protection  
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cc. Heather Jesso  
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