Newfoundland Labrador

Department of Municipal Affairs and Environment
Government of Newfoundland and Labrador
Pollution Prevention Division (Environment)

CERTIFICATE OF APPROVAL

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

Issued:	April 30, 2020	Approval No.:	WMS-07-08-020
Expiration:	April 30, 2025	File No.:	832.102.8
Proponent:	Marine Contractor's Inc. P.O. Box 62 Pasadena, NL A0K 1K0		
Attention:	Glynn Pike- Director		

Re: **Treatment of Petroleum Contaminated Soil (Stephenville)**

Approval is hereby given for the operation of a permanent facility for the treatment of up to 15,000 m^3 petroleum contaminated soil, located at Carolina Avenue, Stephenville.

This approval does not release the holder 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 and those contained below. 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.

Per Hong

For **MINISTER**

General

1. This approval is hereby given to Marine Contractors Inc. (MCI) for the treatment of petroleum contaminated soil using ex-situ bioremediation at Carolina Avenue, Stephenville, NL

2. The proponent shall operate the soil 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.3***

Definitions

3. In this Certificate of Approval:

- **ARBCA** means Atlantic Risk Based Corrective Action (Provides for the guidelines for the analysis of Petroleum Hydrocarbons in water and soil as part of Atlantic RBCA site remediation methodology);
- **bioremediation (or biodegradation)** means the spontaneous or managed process in which microbes become catalysts in the complete degradation of petroleum hydrocarbon compounds to the basic mineral constituents, carbon dioxide and water;
- **biostimulation** means the modification or optimization of the microbial environment to entice or promote microbial activity resulting in mineralization of the petroleum hydrocarbon contaminants;
- **Department** means Department of Municipal Affairs and Environment;
- **BTEX** means benzene, toluene, ethylbenzene, and/or xylene;
- **CCME** means Canadian Council of Ministers of the Environment;
- **CEPA** means Canadian Environment Protection Act;
- **CEQG** means CCME Canadian Environmental Quality Guidelines;
- **field portable test method** means PetroFlag or an equivalent;
- **OHS** means occupational health and safety;
- **PAH** means polycyclic aromatic hydrocarbons;
- **PCB** means polychlorinated biphenyl;
- **PCS** means petroleum contaminated soils which:

(a) have absorbed or adsorbed gasoline, diesel/furnace oil, kerosene, transformer oil, hydraulic oil, aviation fuel and other petroleum hydrocarbon compounds, mixtures and blends (C2-C24). This does not include Bunker C, crude oil or drilling fluids unless otherwise approved by Service NL;

(b) contain equal to or greater than 1000 ppm total petroleum hydrocarbons **OR** exceed limits for BTEX as outlined in the latest edition of ARBCA (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 or metal concentrations at levels toxic to microbes.

Microbial toxicity shall be determined through biotreatability tests approved by the Department; 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.***

- **PID** mean photo ionization detector;
- **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;
- **QA/QC** means Quality Assurance/Quality Control;
- **regional Director** means the Director of the Service NL office in Gander;
- **MCI** means Marine Contractor's Inc.; **MCI** is the proponent;
- **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;
- **TCLP** means toxicity characteristics leaching protocol as per US EPA Method 1311;
- **third party site professional (engineer)** means a site professional engineer who is not an employee of the proponent;
- **TPH** means total petroleum hydrocarbon as measured by the Atlantic PIRI method; and
- **US EPA** means United States Environmental Protection Agency.

Application Submissions

4. Marine Contractor's Inc. submissions include:

   - Annual report for 2019 received by email on February 25, 2020.
   - Renewed and up to date surety bond.
   - MCI Stephenville Soil Treatment Facility Emergency Response Plan, 2020-03-03

Emergency & OHS Preparedness

5. The proponent shall update and maintain an environmental emergency and health and safety contingency plan and submit a copy for review and approval by the Department.

6. The proponent shall ensure that this approval, or a copy, 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.

7. All responsible personnel who are directly involved with operation and maintenance of the processing system shall be provided copies of this approval.

8. After hours emergencies and spills shall be reported by calling: **1-800-563-9089 or (709) 772-2083**.

9. All appropriate health and safety procedures shall be constantly maintained at the site in accordance with applicable legislation.

Further Assessment

10. The Minister may at any time, with reasonable notice, require the proponent to conduct or have conducted environmental studies, site assessments, sampling, testing, or investigations where, based upon reasonable and probable grounds, the Minister is of the opinion that the operation of this facility may have had, or has the potential to have, an adverse effect on the environment.

Service NL

11. Through a Memorandum-of-Understanding this Department has authorized Service NL to act on its behalf in monitoring this operation for compliance under this approval and all applicable provincial Acts and Regulations.

Legislation

12. 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*

13. 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*

Financial Assurance

14. Valid environmental impairment liability insurance in the amount of $1,000,000 shall be maintained otherwise this approval is null and void.

15. A current surety bond of $10,000 shall be on file with the Department, otherwise this approval is null and void.
16. Annual updates of the financial assurance documents shall be filed with the Department.
17. The proponent shall provide the Department with three months advance notice if they intend to cancel and/or change the insurer or bonding agent.

Operations

18. This facility is restricted to bioremediate petroleum contaminated soils.
19. All soils received at the facility shall be accompanied with a laboratory analysis confirming BTEX and TPH concentrations. Analysis for metals, PAH and other contaminants of concern will be required on a site specific basis and will be based on knowledge of the source of the soil.
20. To discourage the non-approved disposal of contaminated soils, the facility may accept small quantities of PCS (less than 5 tonnes in total) without laboratory analysis.
21. The facility may accept up to 500 cubic metres of hydrocarbon contaminated soil from an emergency response incident without the need for prior sampling or testing. These materials shall be stored separately on the receiving and/or treatment pad until all prescribed tests are performed.
22. All soils delivered to the site shall be placed on the approved receiving pad.
23. Other than during an emergency oil spill response, soil shall only be accepted at the bioremediation facility during normal working hours.

Site Maintenance

24. The curb/berm surrounding and dividing the pads shall be inspected monthly. All damage, tears, cracks or other deterioration shall be repaired immediately.
25. The pads shall be cleaned thoroughly and visually inspected at least annually. All damage, tears, cracks, and other deterioration shall be repaired immediately.
26. The top of the curb/berm surrounding and dividing the receiving/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.
27. All on site personnel shall be instructed to ensure the minimum 200 mm curb height is maintained 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 catch basin(s) leading to the leachate holding pond.

28. The curb/berm surrounding the treatment and receiving pads shall at all times be clearly visible and shall not be covered with soil.

29. 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 and is likely to cause pollution.

Security

30. The facility shall be fenced at the entrance and a lockable access gate shall be installed to prevent unauthorized access.

31. A sign shall be posted at the gate listing the company name, hours of operation and a contact name and number to be called in the event of an emergency situation. Other signage relating to access restrictions and fire/health/safety restrictions shall be prominently displayed.

Hazardous Waste

32. If the source of the soil suggests that additional contaminants of a dangerous or hazardous nature may be present, additional laboratory analysis shall be carried out as recommended by a third party site professional (engineer) or as required by Service NL prior to such soil being accepted at the treatment facility.

33. 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. Soil with a potential to be impacted by PCBs (e.g. oil transformer contaminated soil) shall not be accepted at this facility unless confirmatory lab analyses or written confirmation from the original owner confirms that levels of PCBs are at or below the limit values as per the CEQG (33ppm). This confirmation shall be submitted to the Department as part of the yearly reporting requirement.

34. Hazardous wastes shall not be accepted at this facility for treatment 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.

Bioremediation

35. Biotransformation of hydrocarbons to intermediate daughter compounds is not considered

as bioremediation. Intermediate compounds can have greater solubility and can be more toxic than the parent petroleum compound.

36. 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**.

37. Mixing of clean soil with contaminated soil is prohibited.

38. Covering of soils is permitted to control soil moisture content and temperature.

39. Leachate runoff may be managed with covering and/or leachate collection and storage systems.

40. When required, moisture addition to the bio-piles shall be accomplished utilizing collected waste water. Any additional water shall be taken from an on-site water supply.

41. Soils delivered to the site having a high percentage of clay and silt particles should be amended to increase permeability. Acceptable material for soil amendments include: sand, straw, sawdust, woodchips, and coarse grained petroleum contaminated soil. Amending with clean coarse grained soils is not permitted.

42. The proponent must demonstrate that all soils on site are being actively remediated, otherwise the Department will require the removal of any remaining untreated soil to another approved soil treatment facility.

Pre-Delivery Soil Sampling

43. If pre-delivery soil samples for the contaminated soil have not been provided by the client, then MCI must provide one sample for every **1,500** cubic meters or less. 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 other contaminants may be present as described in the ***Operation*** section. Soil characterization determined through an environmental site assessment conducted by a third party site professional (engineer) is deemed sufficient.

44. Soils containing contaminants in excess of limits prescribed in the latest edition of the ARBCA/CEQG shall be considered contaminated. For parameters not included in the ARBCA/CEQG consultation with Service NL is required.

45. This facility is not approved to accept waste petroleum liquids for storage, discharge, or treatment. All waste petroleum products delivered to the site shall be sorbed onto soil particles.

Post-Treatment Compliance Sampling

46. Prior to removal of soil from the site, post-treatment compliance sampling shall be conducted followed by laboratory analysis to confirm the following:

- BTEX concentrations are below the industrial limits for soil in the latest edition of the ARBCA and
- TPH concentration is equal to or less than 1000 mg/kg (ppm).

Where laboratory results indicate that some samples do not meet these criteria, additional sampling may be conducted to delineate the area in question thereby providing for partial dismantling of a biopile.

47. Post-treatment compliance (composite) sampling shall be done along the internal longitudinal axis from the top to the bottom of the biopile. Sampling shall be conducted at 12m intervals and at each end of a biopile at a location approximately 2 meters within the biopile. Any portion of the biopile which is not adequately characterized by representative sampling shall be considered as contaminated above the ARBCA limit values.

48. Soil samples shall be field screened using a PID and/or field portable test method and those suspected to have the highest levels of contamination shall be used as a composite sub-sample. These shall form a composite sample for laboratory analysis.

49. A trouble shooting procedure shall be prepared to detail action steps to address soils which exceed maximum allowable concentrations in post-treatment compliance tests.

50. At least five working days advance notice of intent to conduct sampling for the purposes of biopile(s) dismantling is required. Contact shall be made with Service NL in this regard.

51. Post-treatment soil sampling shall be taken or witnessed by a third party site professional (engineer).

Disposal & Storage of Treated Soils

52. Disposal or storage of treated soils on site is not permitted. Treated soils shall be disposed of at an approved waste disposal site with the permission of the owner/operator. **Reuse of treated soil at any other location is not permitted unless otherwise approved by the Department.**

Air Emissions

53. Service NL reserves the right to require all contaminated air generated by any vacuum induced oxygen delivery system to be returned to the biopile immediately under the waterproof liner or sheeting or undergo treatment prior to discharge.

54. Service NL reserves the right to require treatment and/or recovery of air stripper air emissions prior to discharge.

Leachate & Site Runoff

55. All runoff from the storage and treatment pad shall be collected in the Collection Pond and a laboratory analysis undertaken to ensure contaminant concentrations do not exceed the limits outlined as per the **Effluent Monitoring Program** section. Once results are received

and acknowledged by Service NL, the water may be discharged to the environment.

56. Lined holding/settling ponds shall be cleaned of sediment as required.

57. Oil-water separation units shall be approved by the Department.

Groundwater Monitoring

58. Four times per calendar year, and not less than 30 days apart, MCI shall perform a groundwater monitoring chemical analysis program as per Table 1. Below. Analytical results shall be submitted as per the Reporting section.

Table 1 - Water Chemistry Analysis Program

Location	EDMS Code	Parameters
MC MW1	00732	**General Parameters:** temperature, dissolved oxygen (DO), nitrate + nitrite, nitrate, nitrite, pH, TSS, colour, sodium, potassium, calcium, sulphide, magnesium, ammonia, alkalinity, sulphate, chloride, fluoride, turbidity, reactive silica, orthophosphate, phosphorous, DOC, conductance, TDS (calculated), phenol, carbonate ($CaCO_3$), hardness ($CaCO_3$), bicarbonate ($CaCO_3$), cyanide, TPH, BTEX, TKN, BOD, COD, 1,4-dichlorobenzene, dichloromethane, vinyl chloride **Metals Scan:** aluminium, antimony, arsenic, barium, beryllium, bismuth, boron, cadmium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, mercury, nickel, selenium, silver, strontium, thallium, tin, titanium, uranium, vanadium, zinc
MC MW2	00733	
MC MW3	00734	
MC MW4	00735	

59. All groundwater monitoring wells shall be:
    - Labelled
    - Protected from damage, and
    - Locked, except when being samples

60. If a representative groundwater sample cannot be collected because the groundwater monitoring well is damaged or is no longer capable of producing a representative groundwater sample:
    - the groundwater monitoring well shall be cleaned, repaired or replaced,
    - a representative groundwater sample shall be collected and analyzed as soon as possible, and
    - the Department shall be notified in writing of the delay in monitoring.

Sampling and analysis of groundwater shall be completed in accordance with guidance document GD-PPD-066 *Sampling of Water and Wastewater- Industrial Effluent Applications, https://www.mae.gov.nl.ca/publications/env_protection/gd_ppd_066_waste_water.pdf*

Effluent Monitoring Program

61. Effluent discharged to the environment from the Collection Pond is subject to Schedule A of the ***Environmental Control Water and Sewage Regulations***.

62. Monitoring requirements and discharge criteria for leachate discharge are shown in **Table 2.**

63. Prior to leachate discharge from the Collection Pond, confirmatory compliance sampling shall be conducted. The Collection Pond must be isolated from the time of the sample collection until final discharge. Analytical results shall be submitted as per the Reporting section.

Table 2: Leachate Discharge Monitoring Requirements and Discharge Criteria

Location	EDMS Code	Frequency	Parameters	Criteria[1]
Collection Pond	00731	Prior to discharge	pH	5.5-9 pH units
			BOD	20
			TSS	30
			TDS	1000
			TPH	15
			Arsenic	0.5
			Barium	5.0
			Boron	5.0
			Cadmium	0.05
			Chromium	1.0
			Copper	0.3
			Cyanide	0.025
			Iron	10
			Lead	0.2
			Mercury	0.005
			Nickel	0.5
			Nitrates	10
			Nitrogen (Ammoniacal)	2.0
			Phenol	0.1
			Phosphates (total as P_2O_5)	1.0
			Selenium	0.01
			Sulfides	0.5
			Silver	0.05
			Zinc	0.5

1. Criteria is measured in mg/L unless noted directly in the Table.

Laboratory Analysis & QA/QC

64. Unless otherwise stated herein, all liquid and solids analysis performed pursuant to this Approval shall be done by a contracted commercial or in-house laboratory as per the ***Accredited Laboratory Policy PD:PP2001-01.2*** (available at http://www.env.gov.nl.ca/env/env_protection/index.html)

65. In-house laboratories have the option of either obtaining accreditation or submitting to an annual inspection by a representative of the Department, for which MCI shall be billed for

each laboratory inspection in accordance with Schedule 1 of the ***Accredited Laboratory Policy (PD:PP2001-01.02)***. Recommendations of the Director stemming from the annual inspections shall be addressed within 6 months; otherwise further analytical results shall not be accepted by the Director.

66. If MCI wishes to perform in-house laboratory testing and submit to an annual inspection by the Department, then a recognized form of proficiency testing recognition shall be obtained for compliance parameters for which this recognition exists. If using a commercial laboratory, MCI shall contact that commercial laboratory to determine and to implement the sampling and transportation QA/QC requirements for those activities.

67. MCI shall bear all expenses incurred in carrying out the environmental monitoring and analysis required under conditions of this Approval.

Monitoring Alteration

68. The Director has the authority to alter monitoring programs or require additional testing at any time when:

- pollutants might be released to the surrounding environment without being detected;
- an adverse environmental effect may occur; or
- it is no longer necessary to maintain the current frequency of sampling and/or the monitoring of parameters.

69. The proponent may, at any time, request that monitoring program or requirements of this Approval be altered by:

- requesting the change in writing to the Director; and
- providing sufficient justification, as determined by the Director.

70. The requirements of this Approval shall remain in effect until altered, in writing, by the Director.

Third Party Validation

71. Prior to disposal of treated soil, sampling shall be conducted as per this approval and the results sent to the Director by a third party site professional (engineer). These results shall be stamped and signed by a third party site professional (engineer).

Reporting

72. Monthly reports containing the environmental compliance monitoring and sampling information required in this Approval shall be received by the Director in digital format within 30 calendar days of the reporting month. All related laboratory reports shall be submitted with the monthly report in XML format and Adobe Portable Document Format (PDF). Digital report submissions shall be uploaded through the EDMS web portal. The Pollution Prevention Division shall provide details of the portal web address and submission requirements.

73. Each monthly report shall include a summary of all environmental monitoring components and shall include an explanation for the omission of any requisite data. The monthly summary reports shall be in Microsoft Word or Adobe PDF and shall be uploaded through the EDMS web portal with the data submissions. If there is no leachate or groundwater monitoring activities performed in the month, MCI shall indicate that there were no activities and provide this information to the Department.

74. Annual reports shall be submitted to the Department and Service NL by January 31 each year summarizing activities of the previous year. The report shall include:

- date and time of arrival of contaminated soil;
- source name and address for contaminated soil;
- quantity (i.e. tonnes or cubic metres) of contaminated soil;
- client name;
- pre-treatment laboratory analysis;
- trucking company;
- name of project manager or on site supervisor authorizing the shipment;
- list of personnel responsible for soil treatment and their qualifications;
- the total amount of treated soil removed from the site;
- the disposal location of treated;
- batch number for each biopile;
- date of letter of request for removal of treated soil (proponent to Service NL) and letter of consent for disposal from Service NL;
- laboratory analysis results; if the source of the soils suggests a presence of dangerous or hazardous waste (e.g. transformer oil contaminated soil) then a confirmatory lab analysis or written confirmation from the original owner that no such waste was present in soil is required to be included in the annual report
- current insurance and bonding;
- monitoring well results;
- settling pond maintenance and discharge volumes; and
- updates to the contingency plan.

75. All incidents of:

- contingency plan implementation;
- non-conformance of any condition within this approval;
- spillage or leakage of a regulated substance;
- whenever discharge criteria is, or is suspected to be, exceeded; or
- verbal/written complaints of an environmental nature from the public received by proponent related to the site

shall be immediately reported, within one working day, to a person or message manager or facsimile machine to the SNL by phoning or faxing.

Regional Director
Service NL Corner Brook
Mt. Bernard Ave. Sir Richard Squires Bldg
Corner Brook, NL
A2H 6J89
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76. A written report including a detailed description of the incident, summary of contributing factors and an action plan to prevent future incidents of a similar nature, shall be submitted to the respective Regional Director. The action plan shall include a description of actions already taken and future actions to be implemented, and shall be submitted within thirty days of the date of the initial incident.

Decommissioning

77. Written notification shall be provided in advance to Service NL of decommissioning of this waste management system.

78. Decommissioning of this waste management system shall comply with the nine minimum acceptable decommissioning requirements for an industrial site in accordance with the *CCME National Guidelines for Decommissioning Industrial Sites*.

Expiration

79. This approval expires on April 30, 2025.

80. Should the proponent wish to continue to operate beyond this expiry date, a written request shall be submitted to Department for the renewal of this approval. Such request shall be made ***2 months prior to expiration.***

c.c. Susan Hoddinott, Regional Director
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