

ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 5917-BUTV5Q
Issue Date: October 29, 2020

Clean Harbors Canada, Inc.
520 Southgate Drive
Guelph, Ontario
N1G 4P5

Site Location: Mobile Facility

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

- one (1) in-situ remediation process to treat contaminated soil/groundwater by the injection of non-hazardous Remedial Amendment(s) into the contaminated soil/groundwater;

all in accordance with the Environmental Compliance Approval Application submitted by Clean Harbors Canada, Inc., dated September 3, 2020 and signed by Roger Ries; the supporting information, including the process description; and an email dated October 15, 2020 from Dennis Owens of Sustainable Water Technology.

For the purpose of this environmental compliance approval, the following definitions apply:

1. "*Approval*" means this Environmental Compliance Approval, including the application and supporting documentation listed above;
2. "*Bioaugmentation Culture*" means any non-hazardous, non-pathogenic bacterial culture used in the *Process* as listed in *Schedule "B"* of this *Approval*, and as described in this *Approval* including the safety data sheets (SDS) submitted with the application, to the extent approved by this *Approval*;
3. "*Biostimulation Compound(s)*" means any chemical amendment, nutrient amendment or pH adjustment chemical used in the *Process* to enhance bioremediation, as listed in *Schedule "B"* of this *Approval*, and as described in this *Approval* including the safety data sheets (SDS) submitted with the application, to the extent approved by this *Approval*;

4. "*Chemical Reagent(s)*" means any oxidant or reductant used in the *Process* as listed in *Schedule "B"* of this *Approval*, and as described in this *Approval* including the safety data sheets (SDS) submitted with the application, to the extent approved by this *Approval*;
5. "*Company*" means Clean Harbors Canada, Inc., which is responsible for the operation of the *Process* and includes any successors and assigns;
6. "*District Manager*" means the District Manager of the appropriate local district office of the *Ministry*, where the *Facility* is geographically being operated;
7. "*EPA*" means the *Environmental Protection Act*, R.S.O. 1990, c. E.19;
8. "*Equipment*" means the equipment associated with the *Process* as described in this *Approval*;
9. "*Facility*" means the entire operation located on the property where the *Equipment* is located;
10. "*Manual*" means a document or a set of documents that provide written instructions to staff of the *Company*;
11. "*Monitoring Plan*" means a written monitoring plan developed for the *Site* as described in Condition 4;
12. "*Ministry*" means the Ministry of the Government of Ontario responsible for the *EPA* and includes all officials, employees or other persons acting on its behalf;
13. "*Process*" means the in-situ remediation processes as described in the *Company's* application, this *Approval*, and in the supporting documentation submitted with the application, to the extent approved by this *Approval*;
14. "*Publication NPC-300*" means the *Ministry* Publication NPC-300, "Environmental Noise Guideline, Stationary and Transportation Sources - Approval and Planning, Publication NPC-300", August 2013, as amended;
15. "*Remedial Amendment(s)*" means any *Bioaugmentation Culture*, *Biostimulation Compound*, or *Chemical Reagent* used in the *Process* with the intent to reduce the soil and/or groundwater concentrations of the *Target Compounds* at the *Site*;
16. "*Remedial Work Plan*" means a plan, developed for the *Site*, prepared as a single document as described in Condition 2;
17. "*Schedule*" means the schedules attached to, and forming part of, this *Approval*, namely:
 - i. Schedule "A" - Form 1: Soil/Groundwater Remediation Process Notice of Intended Location
 - ii. Schedule "B" - Remedial Amendments;

18. "*Site*" means any property or properties described in a completed *Schedule "A"* at which the *Process* is operated;
19. "*Soil, Groundwater and Sediment Standards*" means the *Ministry* publication "Soil, Groundwater and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act" dated April 15, 2011, as may be amended;
20. "*SPCP*" means the written Spill Prevention and Contingency Plan developed for the *Company* as described in Condition 5;
21. "*Supporting Documents*" means the *Ministry* publications that accompany the *Soil, Groundwater and Sediment Standards* including "Guide for Completing Phase II Environmental Site Assessment under Ontario Regulation 153/04" dated June 2011, as amended; and
22. "*Target Compound(s)*" means the petroleum hydrocarbons, polycyclic aromatic hydrocarbons, chlorinated solvents, pesticides, and metals, or other compounds listed in the *Soil, Groundwater and Sediment Standards* that the *Process* is designed to treat as part of the *Remedial Work Plan*.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. Performance Requirements

1. The *Company* shall, at all times, design and operate the *Process* with the intent to reduce the soil/groundwater concentrations of the *Target Compounds* to comply with the appropriate criteria provided in the *Soil, Groundwater and Sediment Standards*, appropriate worker health and safety criteria, or *Site* specific criteria developed in accordance with the *Supporting Documents*.
2. The *Company* shall, ensure that the noise emissions from the *Process* at the *Site* comply with the limits set out in *Ministry Publication NPC-300*.
3. The *Company* shall, before commencement of operation of the *Process* at the *Site*, prepare the following:
 - a. a *Remedial Work Plan*;
 - b. a *Monitoring Plan*; and
 - c. an *Operations and Maintenance Manual*.

4. The *Company* shall, at all times, unless otherwise agreed in writing by the *District Manager*, design and operate the *Process* so that no *Remedial Amendments*, *Target Compounds*, or their decomposition compounds, are permitted to migrate off-*Site* in groundwater or soil vapour, as a result of the *Process*, at concentrations greater than the applicable criteria provided in the *Soil, Groundwater and Sediment Standards*, appropriate worker health and safety criteria or *Site* specific criteria.
5. The *Company* shall not undertake the hydraulic fracturing of the bedrock.

2. Remedial Work Plan

1. The *Company* shall, before commencement of operation of the *Process* at the *Site*, prepare a *Remedial Work Plan* designed with specific application for the *Site* that specifies, as a minimum:
 - a. the remedial objectives established for the *Site*;
 - b. an overview of the work to be undertaken by the *Company*;
 - c. a description of the *Site*;
 - d. locations of on-*Site* and off-*Site* receptors and potential migration pathways;
 - e. a *Site* plan overview of the extent of contamination at the *Site*;
 - f. locations of the proposed *Equipment* and points of application of the *Process*;
 - g. land uses at the *Site* and in the immediate surrounding vicinity;
 - h. overview of the *Site* geology and hydrogeology, and expected chemical reactions resulting from the operation of the *Process*; and
 - i. alternative remedial measures to be undertaken in the event that the *Process* is not successful to meet the *Remedial Work Plan* objectives.

3. Operations and Maintenance Manual

1. The *Company* shall, before commencement of operation of the *Process* at the *Site*, prepare and implement a *Site* specific *Operations and Maintenance Manual* for the *Equipment* and *Process* that specifies, as a minimum:
 - a. major components of the *Equipment* to be used in the *Process*;
 - b. frequency of inspections and scheduled maintenance for the *Equipment*;

- c. the *SPCP* procedures to prevent spills relating to the *Process*;
- d. procedures to prevent and/or minimize odourous and noise emissions;
- e. procedures to prevent and/or minimize the build-up of hazardous decomposition compounds with respect to appropriate worker health and safety criteria for the *Site*;
- f. procedures to prevent any upset conditions and contingency measures to address any off-*Site* migration;
- g. procedures to record the amount of *Remedial Amendments* each time these materials are utilized by the *Process*;
- h. procedures to record and respond to environmental complaints; and
- i. steps to be carried out for the discontinuation of the *Process*.

4. Monitoring Plan

1. The *Company* shall, before commencement of operation of the *Process* at the *Site*, design and implement a *Monitoring Plan*, in accordance with the *Supporting Documents*, for the soil/groundwater at the *Site* to document that the Performance Requirements outlined in Condition 1 are not exceeded and that the *Remedial Work Plan* objectives are achieved. The *Monitoring Plan* shall specify, as a minimum:
 - a. the *Monitoring Plan* objectives;
 - b. a list of analytical and/or indicator parameters;
 - c. a *Site* specific evaluation of the potential impact of the *Process* to assess whether groundwater, and/or surface water monitoring is required;
 - d. a soil vapour monitoring program, when applicable, to assess the levels of hazardous decomposition compounds at the *Site* with respect to appropriate worker health and safety criteria for the *Site*;
 - e. identification of potential migration pathways on-*Site* and off-*Site*;
 - f. procedures for monitoring any potential off-*Site* migration;
 - g. approximate monitoring locations and frequency of the monitoring, prior to, during and after the *Process*; and
 - h. sampling methodology and QA/QC procedures, when applicable.

5. Spill Prevention and Contingency Plan

1. The *Company* shall prepare, and implement a written spill prevention and contingency plan that is applicable to the *Process* at the *Site*. The *SPCP* shall include appropriate measures to mitigate spills that may result from the *Process*, including different spill sizes, types of contaminants, and receiving environments (including land, natural waterways, and municipal sewers). The *SPCP* shall include as a minimum the following information commensurate with the risk of spills at the *Site*:
 - a. containment procedures;
 - b. treatment, neutralization and/or clean up procedures;
 - c. disposal procedures that are in accordance with the *EPA*, and/or municipal by-laws and other legislation as applicable;
 - d. securement of necessary equipment;
 - e. notification procedures; and
 - f. details of the training procedures.
2. The *Company* shall ensure that employees and agents of the *Company* have been trained on the *SPCP* prior to commencement of the *Process* at the *Site*.
3. The *Company* shall review and update the *SPCP* from time to time as needed.

6. Notification Requirements

1. The *Company* shall notify the *District Manager* at least ten (10) calendar days, or at such other time as may be agreed to in writing by the *District Manager*, before commencement of operation of the *Process* at any *Site* by submitting a completed Form 1, set out in *Schedule "A"* of this *Approval*, with attachments, to the *District Manager*.
2. The *Company* shall notify the *District Manager*, in writing, forthwith if the *Process* is not carried out in accordance with the Performance Requirements outlined in Condition 1.
3. The *Company* shall notify the *District Manager*, in writing, forthwith within two (2) business days of each complaint that the *Company* receives resulting from the operation of the *Process* at the *Site*. The notification shall include the information described in paragraph 1(f) of Condition 7.

7. Record Keeping Requirements

1. The *Company* shall, for each *Site*, retain for a minimum of five (5) years from the date of their creation, all reports, records, and information as described in this *Approval*, related to or resulting from the operation of the *Process* at the *Site* including:
 - a. the *Remedial Work Plan*;
 - b. the *Monitoring Plan*;
 - c. records about the type and quantity of *Remedial Amendments* used in the *Process*;
 - d. records about the inspection, maintenance, and repair of the major components of the *Equipment* related to the *Process*;
 - e. all monitoring results including any verification sampling; and
 - f. records about complaints, including:
 - i. a description of the time and date of the complaint and of the incident to which the complaint relates;
 - ii. the nature of the complaint and the address of the complainant, if known;
 - iii. weather conditions at the time of the incident to which the complaint relates;
 - iv. a description of the measures taken to determine the possible causes of the complaint and the steps taken to investigate and deal with the cause of the incident to which the complaint relates and the steps taken and/or to be taken to prevent a similar occurrence in the future; and
 - v. a written response to the complainant, if known

SCHEDULE "A"

Form 1

SOIL/GROUNDWATER REMEDIATION PROCESS NOTICE OF INTENDED LOCATION

1. Owner and/or Operator
 - a. *Company* name:
 - b. Environmental Compliance Approval (Air) number:
 - c. Contact person:
 - d. Telephone number:
2. Proposed Location
 - a. Municipality:
 - b. Street address or Lot and Concession number:
3. Land use in the immediate vicinity:
4. Operating schedule:
 - a. Date of commencement:
 - b. Estimated duration:
 - c. Hours of operation:

Please attach the following:

- a. A plan showing the area(s) within the *Site* where the *Process* is going to be operated;
- b. A copy of the most recent safety data sheet (SDS) for each *Remedial Amendment* to be used at the *Site*;
- c. An overview of the *Process* to be used at the *Site*, including a description of the technology (or technologies) and delivery method(s) to be used; and
- d. An overview of the *Site* specific *Remedial Work Plan*, the *Monitoring Plan* and the *Operations and Maintenance Manual* that have been drafted and will be finalized before commencement of operation of the *Process* at the *Site* and will be implemented at the *Site* as required by this *Approval*.

SCHEDULE "B"

REMEDIAL AMENDMENTS

The following sets out the *Remedial Amendments* that have been submitted and approved at the time of the issuance of this *Approval*. Additional *Remedial Amendments* may be added, on a permanent basis, upon an amendment to this *Approval*.

Remedial Amendment	Manufacturer
RemOx L ISCO Reagent	Carus Corporation
RemOx S ISCO Reagent	Carus Corporation
RemOx S-F ISCO Reagent	Carus Corporation
RemOx L-D ISCO Reagent	Carus Corporation
CH-L – Stabilized Hydrogen Peroxide	Clean Harbors Canada Inc.
CH-PS	Clean Harbors Canada Inc.
CH-S	Clean Harbors Canada Inc.
CH-CP	Clean Harbors Canada Inc.
CH-AC-NPKO	Carbon Activated Corp.
CH-AC-7	Carbon Activated Corp.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition No. 1 is included to outline the minimum performance requirements considered necessary to prevent an adverse effect resulting from the operation of the *Process*.
2. Condition No. 2 is included to require the *Company* to gather accurate information and prepare a work plan prior to carrying out the *Process* at the *Site* and so that compliance with the *EPA* and this *Approval* can be verified.
3. Condition No. 3 is included to emphasize that the *Equipment* and *Process* must be operated according to a procedure that will result in compliance with the *EPA*, the regulations, and this *Approval*.
4. Condition No. 4 is included to require the *Company* to gather accurate information so that the environmental impact and subsequent compliance with the *EPA*, the regulations, and this *Approval* can be verified.
5. Condition No. 5 is included to require the *Company* to prevent and mitigate spills thereby minimizing adverse environmental impacts.
6. Condition No. 6 is included to require the *Company* to notify the *Ministry* so that the environmental impact and subsequent compliance with the *EPA*, the regulations, and this *Approval* can be verified.

7. Condition No. 7 is included to require the *Company* to retain records and provide information to the *Ministry* so that the environmental impact and subsequent compliance with the *EPA*, the regulations, and this *Approval* can be verified.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me, the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, 1993, the Minister of the Environment, Conservation and Parks, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Minister of the Environment, Conservation and Parks will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

- a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
- b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Minister of the Environment,
Conservation and Parks
777 Bay Street, 5th Floor
Toronto, Ontario
M7A 2J3

AND

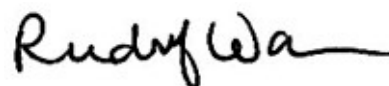
The Director appointed for the purposes of
Part II.1 of the Environmental Protection Act
Ministry of the Environment,
Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

This instrument is subject to Section 38 of the Environmental Bill of Rights, 1993, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at <https://ero.ontario.ca/>, you can determine when the leave to appeal period ends.

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 29th day of October, 2020



Rudolf Wan, P.Eng.
Director

appointed for the purposes of Part II.1 of the
Environmental Protection Act

BR/

c: District Manager, MECP Halton-Peel
Dennis Owens, SWT Consulting