

**AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL**

NUMBER 5159-CJP5LX  
Issue Date: November 4, 2022

Vertex Environmental Inc.  
40 Mcbrine Drive  
Kitchener, Ontario  
N2R 1E7

Site Location: Mobile

*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) ex-situ remediation process to treat soil/groundwater contaminated with organic and/or inorganic compounds by the application of Remedial Amendment(s) through groundwater recirculation;
- one (1) in-situ remediation process to treat soil/groundwater contaminated with organic and/or inorganic compounds by the application of Remedial Amendment(s) into contaminated soil and groundwater by one or a combination of the following methods:
  - injection/recovery wells or galleries;
  - temporary injection/recovery points;
  - in-situ mixing or direct placement within the subsurface (including excavation seeding);
  - augered hole back-fill method;
  - permeable reactive barrier; and/or
  - surface infiltration;
- one (1) in-situ electrokinetic remediation process to treat soil/groundwater contaminated with organic and/or inorganic compounds;

all in accordance with the following,

1. Environmental Compliance Approval Application submitted by Vertex Environmental Inc., dated November 8, 2021 and signed by Bruce Tunnicliffe; the supporting information, including a technical memorandum prepared by Vertex Environmental Inc., dated November 8, 2021 and a

technical memorandum prepared by Vertex Environmental Inc., dated January 20, 2022;

2. Environmental Compliance Approval Application submitted by Vertex Environmental Inc., dated July 12, 2016 and signed by Bruce Tunnicliffe; the supporting information, including the Project Report submitted by Vertex Environmental Inc., dated July 12, 2016; a technical memorandum submitted by Vertex Environmental Inc., dated February 5, 2018; and emails dated February 26, 2018, September 10, 2018, October 19, 2018 and October 24, 2018 from Bruce Tunnicliffe of Vertex Environmental Inc.

*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 Compound (s)" 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 oxidants, reductants, catalysts, biopolymer slurry, soil modifying compounds, chelating agents, caustics, metal immobilization compounds, sorption compounds, surfactants and tracers 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 Vertex Environmental 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. "Electrokinetic Process" means an in-situ remediation technology that requires the application of a low-intensity electric current between pairs of electrodes;
9. "Equipment" means the equipment associated with the Process as described in this Approval;
10. "Facility" means the entire operation located on the property where the Equipment is located;
11. "Monitoring Plan" means a written monitoring plan developed for the Site by a Qualified Person 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. "Mitigation Plan" means a written mitigation plan developed for the site by a Qualified Person that documents preventative and contingency measures that should be taken to mitigate any potential hazards resulting from the operation of the Electrokinetic Process at the site;
14. "O. Reg. 347" means Regulation 347, R.R.O. 1990, General - Waste Management, made under the EPA;
15. "Operations and Maintenance Manual" means the written operations and maintenance manual developed for the Company as described in Condition 3;
16. "Process" means the in-situ and ex-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;
17. "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;
18. "Qualified Person" means a person identified as a Professional Engineer or Professional Geoscientist who meets the qualifications set out in subsection 5 (2) of Ontario Regulation 153/04 (Records of Site Condition – Part XV.1 of the Act), as amended, made under the EPA;
19. "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;
20. "Remedial Work Plan" means a plan, developed for the Site, prepared as a single document by a Qualified Person, as described in Condition 2;
21. "Schedule" means the schedules attached to, and forming part of, this Approval, namely:
  - Schedule "A" - Form 1: Soil/Groundwater Remediation Process Notice of Intended Location;
  - Schedule "B" - Remedial Amendments;
22. "Site" means any property or properties described in a completed Schedule "A" at which the Process is operated;
23. "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;

24. "SPCP" means the written Spill Prevention and Contingency Plan developed for the Company by a Qualified Person as described in Condition 5;
25. "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;
26. "Target Compound(s)" means the petroleum hydrocarbons, chlorinated solvents, polycyclic aromatic hydrocarbons, metals, pesticides, 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; and
27. "Woodwaste" means wood waste as defined in O. Reg. 347 and is not contaminated with salt or leaded paints/coatings.

*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, before commencement of operation of an Electrokinetic Process at the Site, prepare a Mitigation Plan.

5. 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.

## **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. land uses at the Site and in the immediate surrounding vicinity;
  - e. locations of on-Site and off-Site receptors and potential migration pathways;
  - f. a Site plan overview of the extent of contamination at the Site;
  - g. locations of the proposed Equipment and points of application of the Process;
  - 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. MITIGATION PLAN**

1. The Company shall prepare a Mitigation Plan that outlines preventative and contingency measures to mitigate any potential hazards resulting from the operation of the Electrokinetic Process at the site. The Mitigation Plan shall include, as a minimum:
  - a. health and safety criteria for conductive equipment;
  - b. 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;
  - c. contingency measures to address off-site migration of the Process, the Target Compounds or their decomposition compounds;
  - d. procedures to prevent and mitigate any subsurface hazards;
  - e. procedures to terminate the process in an emergency situation.

## **7. PILOT PROJECT**

1. The Company may submit to the District Manager a request to conduct a pilot project at a Site using Remedial Amendment(s) not previously approved and included in Schedule "B". Any such submission shall include, as a minimum:
  - a. a plan showing the area(s) within the Site where the Process will be operated;
  - b. a copy of the most recent safety data sheet (SDS) for each Remedial Amendment to be tested at the Site;
  - c. an overview of the Process to be carried out at the Site, including:
    - i. the duration of the pilot project;
    - ii. a description of the technology;
    - iii. delivery method(s);
    - iv. expected chemical reactions and decomposition compounds;
    - v. an assessment of potential adverse environmental effects including mitigation measures; and
    - vi. identification of potential migration pathways on-Site and off-Site;
  - d. steps to be carried out for the discontinuation of the Process.
2. The Company shall not commence operation of a pilot project at a Site without receiving written acknowledgement to do so by the District Manager or a person designated by the District Manager.

## **8. 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 (f) of Condition 8.



## 9. 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, the Operations and Maintenance Manual and Mitigation Plan 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, and on a pilot project basis, upon the approval of the District Manager as described in Condition 7.

Remedial Amendment	Manufacturer
3-D Microemulsion	REGENESIS®
3-D Microemulsion Factory Emulsified	REGENESIS®
ABC+ (Anaerobic BioChem+)	Carus Group Inc.
ABC-Olé	Carus Group Inc.
Accelerite®	JRW Bioremediation, L.L.C.
Acetic Acid	Various
Activated Alumina	Various
Advanced Oxygen Release Compound (ORC Advanced®)	REGENESIS®
Air mixture	Various
Ammonium Iron(II) Sulphate	Various
Ammonium Lactate	Various
Ammonium Nitrate	Various
Ammonium Persulphate	Various
Ammonium Phosphate	Various
Ammonium Sulphate	Various
AN-400A	Analytix Technologies, LLC
Apatite II	PIMS NW, Inc.
AquaBlok 2080FW	AquaBlok Ltd.
AquaBlok 2575FW	AquaBlok Ltd.
AquaBlok 3070FW	AquaBlok Ltd.
AquaGate+Clino	AquaBlok Ltd.
AquaGate+Organoclay	AquaBlok Ltd.
AquaGate+PAC	AquaBlok Ltd.
AquaGate+PAC 10%	AquaBlok Ltd.
AquaGate+PAC 5%	AquaBlok Ltd.
AquaGate+PAC Sand Sized Particles	AquaBlok Ltd.
AquaGate+Provect IRM	AquaBlok Ltd.
AquaGate+RemBind	AquaBlok Ltd.
AquaGate+Sorbster	AquaBlok Ltd.
AquaZVI™	REGENESIS®

Arrowroot Starch	Various
ATOMET Iron Powders	Rio Tinto Metal Powders
ATOMET Steel Powders	Rio Tinto Metal Powders
Atomisol	Ivey International Inc.
B12Yeast	Remediation and Natural Attenuation Services, Inc.
BAC-20 (TCA-20)	EOS Remediation
BAC-425	EOS Remediation
BAC-9	EOS Remediation
BAC-TPH	EOS Remediation
Beer (generic)	Various
Bentonite	Various
Bioaugmentation Culture TSI-DC®	Terra Systems Inc.
Bio-Dechlor INOCULUM® PLUS	REGENESIS®
Biologix Hydrocarbon Degradar	Delta Remediation
BioLogix Salt Binder	Delta Remediation
BioLogix Surfactant	Teamworks Manufacturing
BioSolve Activator	The BioSolve Company
BioSolve Clear	The BioSolve Company
BioSolve Pinkwater	The BioSolve Company
BioStryke BioNutrient 100	TerraStryke Products LLC
BioStryke BioNutrient 200	TerraStryke Products LLC
Blast Furnace Slag	Various
Bone Char	Various
BOOST	EOS Remediation
Bromocresol Green - Methyl Red	Various
Busan 1058	Buckman Laboratories
Busan 1059	Buckman Laboratories
Busan 1202	Buckman Laboratories
Busan 85	Buckman Laboratories
Calcium Chloride	Various
Calcium Hydroxide (slaked lime)	Various
Calcium Hydroxyapatite	Various
Calcium Nitrate	Various
Calcium Oxide (quicklime)	Various
Calcium Peroxide	Various
Calcium Phosphate	Various
Calcium Polysulfide	Various
Calcium Thiosulphate	Various
CALGRO™ (Calcium Peroxide)	Kinsfield Inc.
CAP 18 ME®	Carus Group Inc.
CAP 18®	Carus Group Inc.

Carbon dioxide	Various
CARUSOL	Carus Group Inc.
CARUSOL C	Carus Group Inc.
Cast Iron Powder	Various
CAT 100™ Microorganism Blend	Remediation Products, Inc.
Chelated Iron	Various
Chemsol DL3	Chemco Inc.
Chemsol DL4	Chemco Inc.
ChitoRem® chitin complex	JRW Bioremediation, L.L.C.
Citric Acid	Various
CleanER-10	Hoganas
CleanER-200	Hoganas
CleanER-25	Hoganas
CleanER-45	Hoganas
CleanER-5	Hoganas
CleanER-90	Hoganas
CleanER-iZVI	Hoganas
CleanER-PRB	Hoganas
Cleanit LC Plus	Hoganas
Cleanit SI.10	Hoganas
Cleanit SI.100	Hoganas
Cleanit SR.1	Hoganas
CoBupHMg	EOS Remediation
Conductive Heating	Various
Cool-Ox	DeepEarth Technologies, Inc.
Corn Fiber	Various
Corn Starch	Various
CRS® (Chemical Reducing Solution)	REGENESIS®
Crushed limestone	Various
Dairy Whey	Various
Daramend Metals Amendment	PeroxyChem
Daramend Plus Reagent	PeroxyChem
Daramend® Reagent	PeroxyChem
Dextrol OC-1025	Brenntag
Dextrol OC-15	Brenntag
Dextrol OC-180	Brenntag
Dextrol OC-180HS	Brenntag
Dextrose (D-Glucose)	Various
Dextrose anhydrous (glucose)	Various
D-fructose (High Fructose Corn Syrup)	Various
DGG-B	SiREM
Diammonium phosphate (DAP)	Various

Dipotassium Phosphate	Various
Dissolvine D-40	Nouryon
Dissolvine D-Fe-11	Nouryon
Dissolvine E-FE-13	PeroxyChem
DNA tagged magnetic silica particles	Various
EAS (Dry Powder)	EOS Remediation
EAS®	EOS Remediation
EATOILS™ Bacterial Blend	Worldware Enterprises
EATOILS™ BT200™	Worldware Enterprises
EATOILS™ Nutrient Blend	Worldware Enterprises
EDS-Activator	Tersus Environmental
EDS-ER™	Tersus Environmental
EDS-QR™	Tersus Environmental
EHC® ISCR Reagent	PeroxyChem
EHC® Liquid Reagent	PeroxyChem
EHC® Liquid Reagent Iron Mix	PeroxyChem
EHC® M	PeroxyChem
EHC® O	PeroxyChem
EHC® Plus	PeroxyChem
Electrical Resistance Heating	Various
Electrokinetics	Various
Elemental Sulfur	Various
ELS Dry Concentrate	PeroxyChem
ELS® Concentrate	PeroxyChem
ELS® Microemulsion	PeroxyChem
ELS® Microemulsion Concentrate	PeroxyChem
Emulsified Zero-Valent Iron (EZVI)	Tersus Environmental
EnviroBlend	Premier Magnesia
EOS 100	EOS Remediation
EOS 450	EOS Remediation
EOS BOOST™	EOS Remediation
EOS PRO	EOS Remediation
EOS QR	EOS Remediation
EOS ZVI	EOS Remediation
EOS ZVIXL	EOS Remediation
EOx	EOS Remediation
ERD-CH4	Provectus Environmental Products
ERDenhanced	TerraStryke Products LLC
ERDenhanced-mod1	TerraStryke Products LLC
Ethane	Various
Ethene	Various
Ethyl Alcohol (Ethanol)	Various

Ethyl L-Lactate	Various
Ethyl S-Lactate	Various
Ethylene Diamine Tetraacetic Acid (EDTA)	Various
Ethylene Glycol	Various, e.g. Science Lab
eZVI	Tersus Environmental
EZVI	Provectus Environmental Products
EZVI-CH4	Provectus Environmental Products
Ferox Flow	Hepure
Ferox Plus eZVI	Hepure
Ferox PRB	Hepure
Ferox Target	Hepure
Ferric Phosphate	Various
Ferric sodium EDTA	Various
Ferric sulphate	Various
FerroBlack®-Fe+	Redox Technology Group, LLC
FerroBlack®-H	Redox Technology Group, LLC
FerroBlack®-Hg	Redox Technology Group, LLC
Ferrous Carbonate	Various
Ferrous Gluconate	Various
Ferrous Lactate	Various
Ferrous Nitrate	Various
Ferrous Phosphate	Various
Ferrous Sulphate	Various
FFT-Solution®	FFT Technologies
Fluorecein	Various
Fluoro-Sorb P	CETCO
Fluoro-Sorb 100	CETCO
Fluoro-Sorb 200	CETCO
Fluoro-Sorb 300	CETCO
Fluoro-Sorb 400	CETCO
FluxSorb IS	ADA
G15O (Guar Gum)	Rantec Corporation
Geoform Extended Release	PeroxyChem
Geoform Soluble	PeroxyChem
Glycerin (Glycerol)	Various
Granular Activated Carbon	Various
Graphene	Various
Graphene Oxide	Various
Graphite	Various
Guar Gum	Various
Gypsum (Calcium Sulphate Dihydrate)	Various
H2Omet Iron Powders	Rio Tinto Metal Powders

H3200 (Cellulose-Based Natural Polymer)	Rantec Corporation
Hydrochloric Acid	Various
Hydrogen	Various
Hydrogen peroxide	Various
Hydrogen Release Compound (HRC®)	REGENESIS®
Hydrogen Release Compound [eXtended] (HRC-X®)	REGENESIS®
Hydrogen Release Compound PRIMER (HRC PRIMER®)	REGENESIS®

Hydroxyapatite	Various
Invert Sugar	Various
I-ORS	Provectus Environmental Products
Iron (Ferric) Nitrate	Various
Iron Perchlorate	Various
ISGS Technology	PeroxyChem
Isopropyl Alcohol	Tersus Environmental
ISR-CL	Tersus Environmental
ISR-M	Tersus Environmental
Ivey-sol® 103	Ivey International Inc.
Ivey-sol® 106	Ivey International Inc.
Ivey-sol® 108	Ivey International Inc.
Ivey-sol® CL	Ivey International Inc.
IXPER® 70C Calcium Peroxide Granules	Solvay Chemicals
IXPER® 75C Calcium Peroxide	Solvay Chemicals
KB-1 Plus	SiREM
KB-1®	SiREM
KB-1® Primer	SiREM
Klozur® CR	PeroxyChem
Klozur® KP	PeroxyChem
Klozur® One	PeroxyChem
Klozur® SP	PeroxyChem
Lactic acid	Various
LactOil® Soy Microemulsion	JRW Bioremediation, L.L.C.
Lactose	Various
L-Cysteine Base	Tersus Environmental
Leaf and other composts	Various
LEB-4™	Rantec Corporation
LEB-CD	Rantec Corporation
LEB-H™	Rantec Corporation
LIQUOX	Carus Group Inc.
Lithium Bromide	Various



Lithium Chloride	Various
LRMUD-7™ (Liquid Polyacrylamide)	Rantec Corporation
MacroEVO™	Tersus Environmental
Magnesium Lactate	Various
Magnesium Nitrate	Various
Magnesium Peroxide	Various
Magnesium Phosphate	Various
Magnesium Sulphate	Various
MAGRO™ (Magnesium Peroxide)	Kinsfield Inc.
Maltose	Various
Matsphere 200 Series	Materium Innovations
Matsphere 540 Series	Materium Innovations
Mesoporous Hollow Silica Microspheres	Materium Innovations
MetaFix® Reagent	PeroxyChem
Metals Remediation Compound (MRC®)	REGENESIS®
Metals Treatment Solutions (MTS)	CERES Corporation
Methyl Alcohol (Methanol)	Various
Microbate All-Purpose 10-10-10 Activator	BioNorth Solutions
Microbate Oil Cleaner for Soil and Gravel	BioNorth Solutions
Microbate SG Specialty Activator	BioNorth Solutions
Microbate SG, Water Soluble	BioNorth Solutions
Micro-Blaze Out®	Verde Environmental
Micro-Blaze® Emergency Liquid Spill Control	Verde Environmental
Micro-Blaze® F.O.G.	Verde Environmental
MicroBlend™	RNAS Remediation Products
MicroEVO™ ISCR	Tersus Environmental
MicroZVI™	REGENESIS®
Molasses	Various
Monoammonium Phosphate (MAP)	Various
Monopotassium phosphate	Various
Monosodium Phosphate	Various
mZVI Suspension	Tersus Environmental
Na3T™	Kinsfield Inc.
NanoEVO™	Tersus Environmental
Neutral Zone®	RNAS Remediation Products
Newman Zone HRO™	RNAS Remediation Products
Newman Zone OST™	RNAS Remediation Products
Newman Zone QR™	RNAS Remediation Products
Newman Zone® EVO	RNAS Remediation Products
Newman Zone®-Standard Formulation	RNAS Remediation Products
Nitrilotriacetic Acid	Various
Nitro-Clear 750	Bioremediate.com

NutriBind Immobilization Reagent	Tersus Environmental
NutriBind Immobilization Reagent	Tersus Environmental
NutriBind®	Tersus Environmental
Nutribind-LT Slurry	Tersus Environmental
Nutrimens Granular	Tersus Environmental
Nutrimens Liquid	Tersus Environmental
Nutrimens®	Tersus Environmental
NutriPlus	Terra Systems Inc.
Nutrisulfate®	Tersus Environmental
Nutrisulfate®-LT Granular	Tersus Environmental
Nutrite 20-20-20	Nutrite Canada
OBC™ Oxygen BioChem	Carus Group Inc.
Oil Contaminated Soil Recovery - SOREM	Kingsfield Inc.
Oil Spill Eater II (OSE II)	Oil Spill Eater International
ORC Advanced Pellets	REGENESIS
Organoclay	Various
Organophilic clay	Various
Oxy-Clean Advanced 18SR	ERE
Oxygen	Various
Oxygen BioChem (OBC)	Carus Group Inc.
Oxygen Release Compound (ORC®)	REGENESIS®
Oxygen Release Compound Advanced (ORC Advanced)	REGENESIS
Oxygen Release Compound PRIMER (ORC PRIMER)	REGENESIS®
Pea Fiber	Various
Peracetic acid	Various
PerfluorAd	Cornelsen
Permafloc	Chemco Inc.
PermeOx® Plus	PeroxyChem
PermeOx® Ultra	PeroxyChem
PermeOx® Ultra Granular	PeroxyChem
Persulfate SR	Carus Group Inc.
PersulfOx®	REGENESIS®
PersulfOx® SP	REGENESIS®
Petro Clear 5B	Proventus Biocience
PetroCleanze™	REGENESIS®
Petro-Clear HCT	Proventus Biocience
Petro-Clear HCT Pro 5B	Proventus Biocience
Petro-Clear HCT Pro-4011	Proventus Biocience
Petro-Clear Pro-4011	Proventus Biocience
PetroFix	REGENESIS

PetroFix Electron Acceptor Blend	REGENESIS
PetroFix Electron Acceptor Blend NF	REGENESIS
Phosphoric Acid	Various
PlumeStop® Liquid Activated Carbon	REGENESIS®
Portland Cement	Various
Potash	Various
Potassium Bromide	Various
Potassium Chloride (Sylvite)	Various
Potassium Citrate	Various
Potassium Hydroxide	Various
Potassium Lactate	Various
Potassium Monopersulfate compound	Kingsfield Inc.
Potassium Nitrate	Various
Potassium Permanganate	Various
Potassium Persulphate	Various
Potassium Phosphate	Various
Potassium Sulphate	Various
Potato Starch	Various
Powdered Activated Carbon	Various
Pozzolan	Various
Propylene Glycol	Various, e.g. Medisca
Provect-ABR	Provectus Environmental Products
Provect-CH4	Provectus Environmental Products
Provect-IR ISCR Reagent	Provectus Environmental Products
Provect-IRM	Provectus Environmental Products
Provect-ORS	Provectus Environmental Products
Provect-OX	Provectus Environmental Products
Provect-OX2	Provectus Environmental Products
QRS-PL	Terra Systems Inc.
QRS-PL-Plus	Terra Systems Inc.
QRS-SL	Terra Systems Inc.
QRS-SL-Plus	Terra Systems Inc.
Rantech G150™ Guar Gum	Rantec Corporation
Redox-5545	Redox Technology Group, LLC
RegenOx® (Part A)	REGENESIS®
RegenOx® (Part B)	REGENESIS®
RemActiv™	Ziltek Pty, Ltd.
RemBind	Ziltek Pty, Ltd.
RemBind® PLUS	Ziltek Pty, Ltd.
RemBind™ F	Ziltek Pty, Ltd.
Remotox® (Calcium Polysulfide)	Granus Chemicals
RemOx S-D	Carus Group Inc.

RemOx® L	Carus Group Inc.
RemOx® L-D	Carus Group Inc.
RemOx® S	Carus Group Inc.
RemOx® S-B	Carus Group Inc.
RemOx® SR+	Carus Group Inc.
Renewal-SD	Hepure
RMUD-7™ (Dry Polyacrylamide)	Rantec Corporation
SDC-9	RNAS Remediation Products
S-MicroZVI (or S-MZVI)	REGENESIS®
Soda Ash	Various
Sodium Bicarbonate	Various
Sodium Bisulfite	Various
Sodium Bromide	Various
Sodium Chloride	Various
Sodium Citrate	Various
Sodium EDTA	Various
Sodium Hydroxide	Various
Sodium lactate	Various
Sodium Metabisulfite	Various
Sodium Nitrate	Various
Sodium percarbonate	Various
Sodium Permanganate	Various
Sodium Peroxide	Various
Sodium Persulphate	Various
Sodium Phosphate	Various
Sodium Silicate	Various
Sodium Sulphate	Various
Sodium Thiosulphate	Various
SoluLac™ Ethyl Lactate	JRW Bioremediation, L.L.C.
SourceKill	RemQuest
Soy Fiber	Various
SRS®-SD	Terra Systems Inc.
SRS-B	Terra Systems Inc.
SRS-C	Terra Systems Inc.
SRS-EZVI	Terra Systems Inc.
SRS-FRL	Terra Systems Inc.
SRS-FRL (aka Renewal-FRL)	Hepure
SRS-M	Terra Systems Inc.
SRS-Z	Terra Systems Inc.
Steam Injection and Extraction	Various
Steel and Iron Aggregate	Peerless Metal Powders
Strodex NB-20	Brenntag

Strodex P-100	Brenntag
Strodex PK80-N	Brenntag
Strodex PK-90	Brenntag
Strodex PK-95-G	Brenntag
Strodex PK-OVOC	Brenntag
Strodex PSK-28	Brenntag
Strodex TH-4427	Brenntag
Sucrose	Various
Sulfate BioChem (SBC)	Carus Group Inc.
Sulfuric Acid	Various
Sulforhodamine B	Various
Sulphur Hexafluoride	Various
TASK Anionic Surfactant Blend	Tersus Environmental
TASK Anionic Surfactant Diluted	Tersus Environmental
TASK Defoamer	Tersus Environmental
TASK MicroEVO Self-Emulsifier	Tersus Environmental
TASK Sweep Efficiency Agent	Tersus Environmental
TASK™ (Tersus Advanced Surface Kinetics)	Tersus Environmental
TerraBond	Terra Materials
Terramend®	Adventus
Terramend® Carbon	PeroxyChem
Terramend® Inorganic	PeroxyChem
TersOx Buffer	Tersus Environmental
TersOx Buffer Sodium Bicarbonate	Tersus Environmental
TersOx Granular	Tersus Environmental
TersOx Liquid	Tersus Environmental
TersOx Microbe	Tersus Environmental
TersOx Modulator	Tersus Environmental
TersOx Nutrients - DAP	Tersus Environmental
TersOx Nutrients - QR	Tersus Environmental
TersOx Powder	Tersus Environmental
TersOx™	Tersus Environmental
TOMADOL® 900 Surfactant	Evonik Industries
TPEnhanced	TerraStryke Products LLC
Trap & Treat® BOS 100®	Remediation Products, Inc.
Trap & Treat® BOS 200®	Remediation Products, Inc.
Trap & Treat® CAT 100™	Remediation Products, Inc.
Trap and Treat Bacteria Concentrate	Remediation Products, Inc.
TRAPPS™	Slater (UK) Limited
Tree Mulch	Various
Triton X-100	Sigma-Aldrich, Inc.

TSI-DC	Terra Systems Inc.
TSI-DC-TCA	Terra Systems Inc.
Ultra-Microbes	Delta Remediation
Uranine	Various
Urea	Various
Urea Ammonium Nitrate (UAN)	Various
Vegetable Oil	Various
Venom Dye (Proprietary)	Chemical Manufacturing Corp.
Vitamin B12	Various
Vitamin B-12 Supplement for Dhc	Tersus Environmental
VTH® Catalyst	Various
VTX® Catalyst	Advanced Oxidation Technology
WILCLEAR Plus®	JRW Bioremediation, L.L.C.
WILCLEAR®	JRW Bioremediation, L.L.C.
Woodchips and Woodwaste	Various
Xanthan Gum	Various
Yeast Extract	Various
Zeolites	Various
Zero Valent Iron Powder	Various
ZVI Suspension	Tersus Environmental

*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 take all required measures to safely manage any potential hazards related to the operation of the Electrokinetic Process.

7. Condition No. 7 is included to require the Company to assess all potential environmental impacts that may arise from the operation of a pilot project so as to minimize adverse environmental effects.
8. Condition No. 8 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.
9. Condition No. 9 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.

**Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s) 3424-B3GQGK issued on December 14, 2018**

In accordance with Section 139 of the *Environmental Protection Act*, you may by written notice served upon me, the Ontario Land 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 ("the Notice") 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.

Pursuant to subsection 139(3) of the *Environmental Protection Act*, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

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:

Registrar\*  
Ontario Land Tribunal  
655 Bay Street, Suite 1500  
Toronto, Ontario  
M5G 1E5  
OLT.Registrar@ontario.ca

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 Ontario Land Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349 or 1 (866) 448-2248, or [www.olt.gov.on.ca](http://www.olt.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 4th day of November, 2022



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Nancy E Orpana, P.Eng.

Director

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

BR/

c: District Manager, MECP Guelph  
Kevin French, Vertex Environmental Inc.