

ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 2732-BGKRGB

Issue Date: February 6, 2020

Geosyntec Consultants International, Inc.
130 Stone Road West
Guelph, Ontario
N1G 3Z2

Site Location: 51, 63 Commissioners Street & 185 Cherry Street
City of Toronto

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:

- two (2) smouldering combustion in-situ remediation systems to treat contaminated soil, each equipped with two (2) diesel generators and one (1) diesel compressor, and each discharging to the air at a maximum volumetric flow rate of 1.42 cubic metres per second through a stack equipped with one (1) granular activated carbon (GAC) system, having an exit diameter of 0.41 metre and extending 6.1 metres above grade; and
- four (4) smouldering combustion ex-situ remediation systems to treat contaminated soil, each discharging to the air at a maximum volumetric flow rate of 23.52 cubic metres per second through a stack equipped with one (1) granular activated carbon (GAC) system, having an exit diameter of 0.60 metre and extending 10 metres above grade;

all in accordance with the Environmental Compliance Approval Application submitted by Geosyntec Consultants International, Inc., dated October 5, 2018 and signed by David Major, Director; the supporting information including the Emission Summary and Dispersion Modelling reports prepared by Hurlburt Environmental Engineering, dated November 2019 and signed by Antje Hurlburt; and emails dated September 16, 2019, October 3, 2019 and November 19, 2019 from Antje Hurlburt of Hurlburt Environmental Engineering.

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. "*Best Management Practices Plan*" means a document or a set of documents which describe measures to minimize dust emissions from the *Facility* and/or *Equipment*;
3. "*Company*" means Geosyntec Consultants International, Inc., which is responsible for the operation of the *Process* and includes any successors and assigns;
4. "*Director*" means a person appointed for the purpose of section 20.3 of the *EPA* by the *Minister* pursuant to section 5 of the *EPA*;
5. "*District Manager*" means the District Manager of the appropriate local district office of the *Ministry*, where the *Facility* is geographically being operated;
6. "*Emission Summary Table*" means a table described in paragraph 14 of subsection 26 (1) of *O. Reg. 419/05*;
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. "*ESDM Report*" means the Emission Summary and Dispersion Modelling Report prepared in accordance with section 26 of *O. Reg. 419/05* and the *Procedure Document* by Hurlburt Environmental Engineering, dated November 2019 and signed by Antje Hurlburt, submitted in support of the application including any addendum submissions made during the *Ministry's* review of the *Company's* application;
10. "*Exhausted*" means the capacity of the *GAC* to adsorb contaminant emissions is reached, and the granular activated carbon system is no longer able to effectively reduce emissions;
11. "*Facility*" means the entire operation located on the property where the *Equipment* and *Process* is located;
12. "*GAC*" means granular activated carbon;
13. "*Manager*" means the Manager, Technology Standards Section, Technical Assessment and Standards Development Branch, or any other person who represents and carries out the duties of the *Manager*, as those duties relate to the conditions of this *Approval*;
14. "*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 *Equipment* and *Process* at the site;
15. "*Monitoring Plan*" means a written monitoring plan developed for the site by a

Qualified Personas described in Condition 4;

16. "*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;
17. "*O. Reg. 419/05*" means Ontario Regulation 419/05, Air Pollution – Local Air Quality, as amended;
18. "*Operations and Maintenance Manual*" means the written operations and maintenance manual developed for the *Equipment* and *Process* as described in Condition 3;
19. "*Point of Impingement*" has the same meaning as in section 2 of *O. Reg. 419/05*;
20. "*Pre-Test Plan*" means a plan for the *Source Testing* including the information required in Section 5 of the *Source Testing Code*;
21. "*Procedure Document*" means *Ministry* guidance document titled "Procedure for Preparing an Emission Summary and Dispersion Modelling Report" dated March 2018, as amended;
22. "*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*;
23. "*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;
24. "*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*;
25. "*Remedial Work Plan*" means a plan, developed for the *Process* at the site by a *Qualified Person* and prepared as a single document as described in Condition 2;
26. "*Schedule*" means the schedules attached to, and forming part of, this *Approval*, namely:
 - Schedule "A" - Emission Limits;
27. "*Source Testing*" means sampling and testing to measure emissions resulting from operating the *Targeted Sources* under conditions which yield the worst case emissions within the approved operating range of the *Targeted Sources* which satisfies paragraph 1 of subsection 11(1) of *O. Reg. 419/05*;
28. "*Source Testing Code*" means the Ontario Source Testing Code, dated June 2010, prepared by the *Ministry*, as amended;
29. "*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;

30. "*SPCP*" means the written Spill Prevention and Contingency Plan developed for the *Company* as described in Condition 5;
31. "*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;
32. "*Target Compound(s)*" means the soil contaminants 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*, that the *Process* is designed to treat as part of the *Remedial Work Plan*;
33. "*Targeted Source*" means the four (4) diesel-fired generator sets each having a rating of 182 kilowatts, that generates electricity under non-emergency situations for use at the *Facility*, described in the *Company's* application, this *Approval* and in the supporting documentation submitted with the application, to the extent approved by this *Approval*;
34. "*Technical Bulletin: Management Approaches for Industrial Fugitive Dust Sources*" means the *Ministry* publication "Technical Bulletin: management approaches for industrial fugitive dust sources", March 8, 2017, as amended; and
35. "*Test Contaminant*" means the following contaminants: Nitrogen Oxides (expressed as nitrogen dioxide equivalent), Suspended Particulate Matter, Non-Methane Hydrocarbons (total hydrocarbons excluding methane), and Carbon Monoxide.

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*;
 - c. an *Operations and Maintenance Manual*; and
 - d. a *Mitigation Plan*;
4. The *Company* shall, at all times, unless otherwise agreed in writing by the *District Manager*, design and operate the *Process* so that no *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 operate the in-situ remediation system and ex-situ remediation system simultaneously at the site.
6. The *Company* shall, at all times, ensure that each *Targeted Source* operated at the *Facility* to generate electricity under non-emergency situations will not exceed the emission limits specified in *Schedule "A"*.
7. The *Company* shall terminate the smouldering combustion in-situ remediation system if subsurface conditions are not consistent with the *Remedial Work Plan*, and continued operation may pose a risk to human health and the environment.
8. The *Company* shall ensure that the *GAC* is replaced before it is *Exhausted*.
9. The *Company* shall ensure that the *GAC* maintains a minimum removal efficiency to ensure contaminant emissions comply with *O. Reg. 419/05*.

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 *Process* at 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*;
 - i. a risk assessment of any potential subsurface hazards; and
 - j. alternative remedial measures to be undertaken in the event that the *Process* is not successful to meet the *Remedial Work Plan* objectives.

3. OPERATION AND MAINTENANCE

1. The *Company* shall, before commencement of operation of the *Equipment* and *Process* at the site, prepare and implement an *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 odorous and noise emissions;
 - e. procedures to inspect, test and replace the *GAC* before it is *Exhausted*;
 - f. training procedures for person(s) operating the *Equipment* and *Process*;
 - g. on-site Health and Safety plans;
 - h. procedures to record and respond to environmental complaints; and
 - i. steps to be carried out for the discontinuation of the *Process*.

4. MONITORING

1. The *Company* shall install vapour probes at locations recommended by a *Qualified Person* inside and outside of the heated zone, and between the heated zone and nearby structures to measure the vapour emissions resulting from the operation of the in-situ remediation process.
2. 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. locations of vapour probes;
- d. frequency for sampling and analyzing vapour concentrations at the vapour probes;
- e. an emission threshold for the vapour probes that will trigger the termination of the in-situ remediation process;
- f. an evaluation of the potential impact of the *Process* to assess whether groundwater, and/or surface water monitoring is required;
- g. procedures for identifying and monitoring any potential off-site migration of the *Process*, the *Target Compounds* or decomposition compounds; and
- h. sampling methodology and QA/QC procedures, when applicable.

5. 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 *Equipment* and *Process* at the site. The *Mitigation Plan* shall include, as a minimum:
 - a. procedures to prevent and mitigate any upset conditions;
 - 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. measures to mitigate continued subsurface smouldering after the cessation of the *Process*; and
 - f. procedures to terminate the process in an emergency situation.

6. 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.

7. NOTIFICATION OF COMPLAINTS

1. 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:
 - a. a description of the time and date of the complaint and of the incident to which the complaint relates;
 - b. the nature of the complaint and the address of the complainant, if known;
 - c. weather conditions at the time of the incident to which the complaint relates;
 - d. 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
 - e. a written response to the complainant, if known.

8. RECORD KEEPING REQUIREMENTS

1. The *Company* shall, 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. records about the inspection, maintenance, and repair of the major

- components of the *Equipment* related to the *Process*;
- c. all soil testing and sampling results; and
 - d. 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.

9. FUGITIVE DUST CONTROL

1. The *Company* shall develop in consultation with the *District Manager*, a *Best Management Practices Plan* for the control of fugitive dust emissions. This *Best Management Practices Plan* shall:
 - a. at minimum, be prepared in accordance with *Ministry Technical Bulletin: Management Approaches for Industrial Fugitive Dust Sources*; and
 - b. include a list of all *Ministry* comments received, if any, on the development of the *Best Management Practices Plan*, and a description of how each *Ministry* comment was addressed in the *Best Management Practices Plan*.
2. The *Company* shall submit the *Best Management Practices Plan* to the *District Manager* three (3) months before the commencement of operation of the *Process* at the site or as otherwise indicated by the *District Manager*.
3. Upon acceptance of the *Best Management Practices Plan* by the *District Manager*, the *Company* shall immediately implement the *Best Management Practices Plan* for the control of fugitive dust emissions to provide effective dust suppression measures to any potential sources of fugitive dust emissions resulting from the operation of the *Facility*.
4. The *Company* shall update the *Best Management Practices Plan* as necessary or at the direction of the *District Manager*.

10. SOURCE TESTING

1. The *Company* shall ensure that the emissions of the *Test Contaminant* in the gases emitted from the stack of the *Targeted Source* shall not be greater than the emission limits specified in *Schedule "A"*.
2. The *Company* shall perform *Source Testing* once every two (2) years to determine the rate of emission of the *Test Contaminant* from the *Targeted Source*.
3. The *Company* shall submit, not later than three (3) months prior to the operation of the *Targeted Source*, to the *Manager* a *Pre-Test Plan* for the *Source Testing* of the *Targeted Source*. The *Company* shall finalize the *Pre-Test Plan* in consultation with the *Manager*.
4. The *Company* shall not commence the *Source Testing* required under this *Approval* until the *Manager* has approved the *Pre-Test Plan*.
5. The *Company* shall complete the *Source Testing* not later than three (3) months after the *Manager* has approved the *Pre-Test Plan*.
6. The *Company* shall notify the *Manager*, the *District Manager* and the *Director* in writing of the location, date and time of any impending *Source Testing* required by this *Approval*, at least fifteen (15) days prior to the *Source Testing*.
7. The *Company* shall submit a report (hardcopy and electronic format) on the *Source Testing* to the *Manager*, the *District Manager* and the *Director* not later than three (3) months after completing the *Source Testing*. The report shall be in the format described in the *Source Testing Code*, and shall also include, but not be limited to:
 - a. an executive summary;
 - b. an identification of the applicable North American Industry Classification System code (NAICS) for the *Facility*;
 - c. records of operating conditions at the time of *Source Testing*, including but not limited to the following:
 - i. production data;
 - ii. *Facility*/process information related to the operation of the *Targeted Source*;
 - iii. description of the emission sources controlled by the *Targeted Source* at the time of testing; and
 - iv. operational description of the general building ventilation at the time of testing;
 - d. results of *Source Testing*, including the emission rate, emission

- concentration, and relevant emission factor of the *Test Contaminant* from the *Targeted Source*; and
- e. a tabular comparison of *Source Testing* results for the *Targeted Source* and *Test Contaminant* to original emission estimates described in the *Company's* application and the *ESDM Report*.
8. The *Director* may not accept the results of the *Source Testing* if:
 - a. the *Source Testing Code* or the requirements of the *Manager* were not followed;
 - b. the *Company* did not notify the *Manager*, the *District Manager* and *Director* of the *Source Testing*; or
 - c. the *Company* failed to provide a complete report on the *Source Testing*.
 9. If the *Director* does not accept the results of the *Source Testing*, the *Director* may require re-testing. If re-testing is required, the *Pre-Test Plan* strategies need to be revised and submitted to the *Manager* for approval. The actions taken to minimize the possibility of the *Source Testing* results not being accepted by the *Director* must be noted in the revised *Pre-Test Plan* submission to the *Manager*.
 10. If the *Source Testing* results indicate the emission estimates are higher than the original emission estimates described in the *Company's* application and the *ESDM Report*, the *Company* shall update their *ESDM Report* in accordance with Section 26 of *O. Reg. 419/05* with the emission estimates from the *Source Testing* report and make these records available for review by staff of the *Ministry* upon request. The updated *Emission Summary Table* from the updated *ESDM Report* shall be submitted with the report on the *Source Testing*.
 11. The *District Manager* may not require subsequent *Source Testing* or relax the frequency of subsequent *Source Testing* if the results of the *Source Testing* indicate that the environmental impact from the *Test Contaminant* are insignificant.

SCHEDULE "A"

Emission Limits

Contaminant	Maximum Limit
Nitrogen Oxides	0.4 kg/MWh
Suspended Particulate Matter	0.02 kg/MWh
Non-Methane hydrocarbons	0.19 kg/MWh
Carbon Monoxide	3.5 kg/MWh

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 *Facility*.
- 2.
3. 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 so that compliance with the *EPA* and this *Approval* can be verified.
- 4.
5. 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*.
- 6.
7. 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.
- 8.
9. Condition No. 5 is included to require the *Company* to take all required measures to safely manage any potential hazards related to the operation of the *Equipment* and *Process*.
- 10.
11. Condition No. 6 is included to require the *Company* to prevent and mitigate spills thereby minimizing adverse environmental impacts.
- 12.
13. Condition No. 7 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.
- 14.
15. Condition 8 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.
- 16.
17. Condition No. 9 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*.
- 18.
19. Condition No. 10 is included to require the *Company* to gather and retain accurate

information so that 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 6th day of February,
2020

Jeffrey McKerrall, P.Eng.
Director
appointed for the purposes of Part
II.1 of the *Environmental Protection
Act*

BR/
c: District Manager, MECP Toronto - District
Antje Hurlburt, Hurlburt Environmental Engineering