



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

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

Issued: October 19, 2017
Expiration: October 31, 2022

Approval No.: WMS 15-07-007
File No.: 839.SXN.001

Proponent: Sanexen Environmental Services Inc.
9935, de Catania Ave., Entrance 1, Suite 200
Brossard, QC
J4Z 3V4

Attention: Mr. Karl Côté
Project Manager – Northern Projects

Re: Treatment of Petroleum Contaminated Soil – Happy Valley Goose Bay, NL

Approval is hereby given for the construction and operation of a permanent facility for the treatment of up to 75,000 m³ petroleum contaminated soil located at Happy Valley- Goose Bay, Labrador.

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 as contained in Appendix 'A' attached hereto, as may be revised from time to time by the Department. Appendix 'A' forms part and parcel of this certificate of approval. 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.


For MINISTER

Part 1: Definitions

Section 1.1: Definitions

1.1.1 All definitions from the Act and the regulations apply except where expressly defined in this approval.

1.1.2 In all PARTS of this approval:

- (a) **Act** means *Environmental Protection Act*, E-14.2, SNL2002, as amended;
- (b) **bioremediation (or biodegradation)** means any process (e.g. bioaugmentation and biostimulation etc) that uses microorganisms or their enzymes to attack petroleum hydrocarbon contaminants;
- (c) **bioaugmentation** means the introduction of group of natural microbial strains or a genetically engineered variant to treat petroleum hydrocarbon contaminated soil;
- (d) **biostimulation** means the modification or optimization of the microbial environment to entice or promote the existing microbial activity resulting in mineralization of the petroleum hydrocarbon contaminants;
- (e) **BTEX** means benzene, toluene, ethylbenzene, and xylene;
- (f) **CCME** means Canadian Council of Ministers of the Environment;
- (g) **CEPA** means Canadian Environmental Protection Act;
- (h) **CEQG** means CCME Canadian Environmental Quality Guidelines;
- (i) **contaminant** means, unless otherwise defined in the regulations, a substance that causes or may cause an adverse effect;
- (j) **Department** means Department of Municipal Affairs and Environment;
- (k) **Director** means the Director of the Pollution Prevention Division of the Department;
- (l) **EPO** means Environmental Protection Officer of the SNL;
- (m) **field portable test method** means PetroFlag or an equivalent;
- (n) **SNL** means Service Newfoundland and Labrador
- (o) **Industrial wastewater** means the composite of liquid wastes and water-carried waste, any portion of which results from any industrial process

carried on at the facility

- (p) **MSDS** means material safety data sheets;
- (q) **OHS** means occupational health and safety;
- (r) **PAH** means polycyclic aromatic hydrocarbons;
- (s) **PCS** means petroleum contaminated soils which: (a) have absorbed or adsorbed gasoline, diesel/furnace oil, mineral oil, kerosene, hydraulic oil, aviation fuel and other petroleum hydrocarbon compounds, mixtures and blends (C2-C32). This does not include crude oil or drilling fluids unless otherwise approved by the SNL; (b) contain equal to or greater than 1000 ppm total petroleum hydrocarbons **OR** exceed limits for BTEX as outlined in the latest edition of CEQG (industrial land use for soil); (c) do not contain PAH composed of more than four benzenoid rings in excess of concentrations normally found in the products noted in item (a) above (greases, and heavy lubricating oils are likely to contain compounds having more than four benzenoid rings); (d) do not contain petroleum and/or metal concentrations at levels toxic to microbes. Microbial toxicity testing maybe be required by the Department to demonstrate that it is possible to bioremediate the suspect soil; and (e) do not contain metal concentrations which are leachable as determined by the *Toxicity Characteristic Leaching Procedure* as defined in Schedule II of *The Interprovincial Movement of Hazardous Waste and Hazardous Recyclable Material Regulations under the CEPA, 2004*.
- (t) **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;
- (u) **QA/QC** means Quality Assurance/Quality Control;
- (v) **regional Director** means the Director of the nearest SNL;
- (w) **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;
- (x) **TCLP** means toxicity characteristics leaching protocol as per US EPA Method 1311;
- (y) **third party site professional (engineer)** means a site professional engineer whom is not an employee of the proponent;

- (z) **TPH** means total petroleum hydrocarbons as measured by the Atlantic PIRI method;
- (aa) **US EPA** means United States Environmental Protection Agency, and
- (bb) **USGPM** means US gallons per minute. It should be noted that 1 US gallon is approximately equal to 0.8326 imperial gallon or 3.785 litres.

Part 2: General

Section 2.1: General

2.1.1 This approval applies to Sanexen Environmental Services Incorporated for the construction and operation of a permanent facility for the treatment of petroleum contaminated soils (PCS) and leachable metals contaminated soils located at Happy Valley Goose Bay, NL. Application submissions include:

- Baseline Study for Construction and Operation of a Soil Biotreatment Facility, Goose Bay, Newfoundland and Labrador, AMEC Foster Wheeler, June 2015
- Application for a Certificate of Approval for a Soil Bioremediation Facility at Goose Bay, Labrador O/Ref.: RA12-302-1.
- Sanexen Emergency Response Plan and appendices (O/Ref.: PI13-100-1), July 20, 2017.
- Sanexen Operation Manual for a Biopile Soil Treatment Centre and appendices (O/Ref.: RA07-214), September 2007.
- Irrevocable letter of credit No. BMT0537234OS issued July 17, 2017 from the Bank of Montreal; and
- Insurance Certificate SANESER 2017-18 from BFL Canada (*Policy Nos. 8703102, 8703103, 8430748, and AF9998301 issued May 30, 2017, expiring June 1, 2018*).
- C of A fee for renewal of \$2875 cdn received September 25, 2017.

2.1.2 Prior to any expansion or modification of the facility, a letter of application shall be forwarded to the Department requesting an amendment to this approval.

2.1.3 The Minister may at any time, with reasonable notice, require the approval holder to conduct or have conducted environmental studies, site assessments, sampling, testing, or investigations where, based upon reasonable and probable grounds the Minister believes that this waste management system may have had, or has the potential to have, an adverse effect on the environment.

2.1.4 This facility is only approved to treat PCS using a bioremediation process.

2.1.5 Through a Memorandum-of-Understanding (MOU) this Department has authorized SNL to act on its behalf in monitoring this operation for compliance

under this approval and all applicable provincial Acts and Regulations.

- 2.1.6 Contaminated soil shall only be accepted during normal working hours with the exemption of contaminated soil from an emergency oil spill response.
- 2.1.7 All contaminated soils delivered to the facilities shall be placed on approved receiving and/or treatment pad(s).
- 2.1.8 The facility shall be kept fenced and a lockable access gate shall be maintained to prevent unauthorized access.
- 2.1.9 A sign shall be posted at the gate listing the company name, hours of operation and a contact name and number in the event of an emergency situation. Other signage relating to access restrictions and fire/health/safety restrictions shall be prominently displayed.
- 2.1.10 This facility is not approved to accept waste petroleum liquids for storage, discharge, or treatment.
- 2.1.11 An Annual Report shall be submitted to the Department and SNL by *January 31* of each year summarizing activities of the previous year. The report shall include at a minimum:
 - (a) date and time of arrival of contaminated soil;
 - (b) source name and address for contaminated soil;
 - (c) quantity (i.e. tonnes or cubic metres) of contaminated soil;
 - (d) client name and trucking company;
 - (e) name of project manager or onsite supervisor authorizing the shipment;
 - (f) total amount of treated soil removed from the site;
 - (g) the disposal location of the treated soil;
 - (h) copies of current letters from the owner operator of disposal sites;
 - (i) post treatment laboratory results;
 - (j) current insurance and bonding;
 - (k) groundwater monitoring wells sampling result, and
 - (l) leachate collection system/holding pond(s)/holding tank(s) maintenance,

sampling and discharge volumes.

2.1.13 All incidents of:

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

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

2.1.14 The maximum approved soil capacity for this facility is **32,000 tonnes**.

Section 2.2: Contingency Plan

2.2.1 The approval holder shall maintain the Emergency Response Plan and shall continue submitting the annual updates for review and approval by **January 31** of the following year to the Department.

2.2.2 The approval holder shall ensure that this approval or a copy of this approval is kept on site at all times, and that personnel directly involved in the operation of the treatment facility are made fully aware of the terms and conditions which pertain to this approval.

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

2.2.4 In case of emergency Sanexen shall call emergencies and spill report line: **1-800-563-9089 or (709) 772-2083**.

2.2.5 The operator(s) shall have formal environmental training from a recognized institution or equivalent experience. Proof of training and/or resume(s) shall be included in the annual report(s).

Section 2.3: Legislation & Guidelines

2.3.1 The activities associated with this operation may involve, but not 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, and*
- *Environmental Control Water and Sewage Regulations*

2.3.2 The activities associated with this operation may involve, but not 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, and*
- *National Fire Code*

2.3.3 Sanexen shall operate this permanent PCS treatment facility according to the ***Guidelines for Construction and Operation of Facilities Using Ex-Situ Bioremediation for the Treatment of Petroleum Contaminated Soil: GD-PPD-013 rev.4 or additional revisions.***

Section 2.4: Financial Security/Assurance

- 2.4.1 Sanexen shall maintain valid environmental liability impairment insurance in the amount of at least \$1,000,000 otherwise this approval is considered null and void.
- 2.4.2 Sanexen shall maintain and file a surety bond of \$20,000 with the Department, otherwise this approval is considered null and void.
- 2.4.3 Sanexen shall submit the annual updates of the financial assurance to the Department.
- 2.4.4 Sanexen shall submit three months advance notice to the Department if they intend to cancel and/or change the insurer or bonding agent.

Section 2.5: Record Keeping

- 2.5.1 Sanexen shall record and retain all information with respect to any sampling conducted or analyses performed in accordance with this approval for a minimum of five years, unless otherwise authorized in writing by the Director.
- 2.5.2 Sanexen shall record and retain all the following information for a minimum of five years:

- (a) the name and address of the person(s) who make/discover any contravention of the Act, the regulations or this approval; and
- (b) a detail description of the remedial actions/measures taken in respect of the contravention of the Act, the regulations or this approval.

PART 3: Construction

- 3.1 Sanexen shall construct the facility as described in the Application for a WMS Certificate of Approval submitted to the Department November, 2012 entitled "Construction and Operation of A Soil Treatment Facility, Goose Bay, NL o/Ref.: RA12-302-1.
- 3.2 As built drawings signed by a professional engineer shall be submitted to the Department upon completion and before commissioning of the facility.

PART 4: Operations, Limits, Monitoring and Reporting

Section 4.1: General

- 4.1.1 Sanexen shall operate the facility as described in the application submitted to the Department July 20, 2017 entitled "Construction and Operation of a Soil Treatment Facility, Goose Bay, Newfoundland and Labrador- - Appendix B Operation Manual Biopile Soil Treatment Facility.
- 4.1.2 Treatment system components will include:
 - Air blowers inside marine containers;
 - Air/water separator and leachate collection system;
 - Air treatment system (biofilters including granular activated carbon)
 - Leachate holding tank;
 - Secondary air circulation conduits;
 - Soil treatment pads;
 - Soil storage pad and screening area;
 - Biopile covering tarps;
 - Truck washing station; and
 - Storage containers.
- 4.1.3 The curbs/berms surrounding and dividing the pads shall be inspected monthly. All damage, tears, cracks or other deterioration shall be repaired immediately.
- 4.1.4 The pads shall be cleaned thoroughly and visually inspected at least annually. All damage, tears, cracks, and other deterioration shall be repaired immediately.
- 4.1.5 The top of the curb/berm surrounding and dividing the receiving and treatment pads shall at all times be a minimum of 200 mm above the pads permanent

working surface located immediately adjacent to and within 600 mm of the exposed base of the curb. The working surface is defined as the permanent surface on which the contaminated soil is placed and may consist of a fixed layer of granular material or the original material of construction.

- 4.1.6 A minimum of 200 mm of curb height shall be maintained above the pads at all times. Soil shall be placed on the treatment and receiving pads in a manner which provides for the continuous flow of accumulated rainfall and/or leachate along the curb towards the centralized locations/catch basin(s) leading to the leachate holding tanks.
- 4.1.7 The curb/berm surrounding the treatment and receiving pads shall at all times be clearly visible and shall not be covered with soil.
- 4.1.8 All overflows of accumulated wastewater 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 wastewater and impacted soils reveal levels are within allowable limits for parameters of concern. Until this has been confirmed, response and cleanup shall proceed under the assumption that the wastewater exceeds allowable limits as per regulations and guidelines and is likely to cause pollution.

Section 4.2: Bioremediation of PCS

Operations

- 4.2.1 The use of cultured microbes may be regulated under the Federal *New Substances Notification Regulations*, and under the Canadian *Environmental Protection Act*. For additional information on these regulations contact Environment Canada at (902) 426-9674.
- 4.2.2 Covering of soils is permitted to control soil moisture content and temperature.
- 4.2.3 When required, moisture addition to the biopiles shall be accomplished by utilizing the collected wastewater. Any additional water may be taken from an on-site water supply.
- 4.2.4 If constructed, all ductworks shall be mapped and marked to avoid any destruction during sample excavation.
- 4.2.5 Mixing of clean soil with contaminated soil is prohibited. However, soils delivered to the site having a high percentage of clay and silt particles may be amended and/or internal ductwork installed to increase permeability. Acceptable material for soil amendments include: sand, straw, sawdust, woodchips and coarse grained petroleum contaminated soil.

Monitoring and Reporting

- 4.2.6 All soils received at the facility shall be accompanied with a **complete chemical analysis** of the contaminated soil. The complete chemical analysis of the typical PCS must include BTEX, pH of soil and TPH concentrations, unless otherwise authorized in this approval. Analysis for metals, PAH and other contaminants of concern will be required on a site specific basis.
- 4.2.7 If **pre-delivery** lab analyses for contaminated soil have not been provided by the client, then the approval holder shall provide one sample for every **1500 tonnes** or less, unless otherwise authorised in writing by the Department.
- 4.2.8 The approval holder may accept up to **1500 tonnes** of PCS from an emergency response incident without prior sampling or testing. The contaminated soil shall be kept separately on the receiving and/or treatment pad until baseline testing is conducted.
- 4.2.9 If the source/historical information of the contaminated soil suggest that soil may be of hazardous nature, additional laboratory analysis shall be carried out as recommended by an independent consultant or as required by the SNL.
- 4.2.10 Soils containing contaminants after lab analysis, which would cause them to be classified as waste dangerous goods, as defined in the *Export and Import of Hazardous Recyclable Material Regulations* under the *CEPA* and in provisions under the Newfoundland and Labrador *Environmental Protection Act (SNL 2002)*, shall not be accepted at this facility for treatment.
- 4.2.11 At least five (5) working days advance notice to Department and SNL of the intent to conduct **post treatment sampling** is required.
- 4.2.12 **Post-treatment** soil sampling shall be conducted or witnessed by a third party site professional engineer. The sampling results shall be stamped, signed (by third party professional) and submitted to the Director.
- 4.2.13 At a minimum, **post-treatment compliance** (composite) sampling shall be done along the longitudinal axis of the biopile. Sampling location shall be conducted at 2 metre within the biopile on either end of the biopile and then at 12 metre intervals.
- 4.2.14 Disposal or storage of treated soils on site is not permitted. Treated soils shall be disposed of at an approved waste disposal sites with the permission of the owner/operator. *Re-use of treated soil at any other location is not permitted*, unless otherwise approved by the Department.

Limits

- 4.2.15 Prior to removal of the treated soil from the site, compliance sampling shall be

conducted to achieve the following:

- BTEX concentrations shall be below the industrial limits for soil in the latest edition of the CEQG; and
- TPH concentration shall be equal or less than 1000 mg/kg (ppm)

4.2.16 Soils with TPH less than 1000 ppm may be removed from treatment pad to facilitate further treatment of under lying soils.

PART 5: Industrial Wastewater

Operation

5.0 Any industrial wastewater/leachate from the pads and from treatment process shall be managed as described in the application i.e. collected, stored and reused as part of the treatment process, unless otherwise authorized in writing by the Department.

Section 5.1: Groundwater Monitoring Wells

5.1.1 The approval holder shall conduct groundwater sampling and analyses as authorized by the Director. The six (6) groundwater monitoring wells shall be sampled annually during **May** or **June** and shall be analyzed for general water chemistry (Metals Scan, TPH and BTEX).

5.1.2 Annual reports containing the groundwater sampling and monitoring information required in this Approval shall be received by the Director in digital format within 30 calendar days of the reporting month.

All monitoring well data shall be included in the Annual Report containing the required sampling parameters. All related laboratory reports shall be submitted 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.

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

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

- (a) the groundwater monitor well shall be cleaned, repaired or replaced, and

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

Part 6: Decommissioning and Reclamation

- 6.1.1 The approval holder shall develop and submit a plan for the Decommissioning to the Director which shall include, at a minimum, all of the following:
 - (a) a plan for dismantling the operations;
 - (b) a comprehensive study to determine the nature, degree and extent of contamination at affected lands;
 - (c) a plan to manage all wastes produced
 - (d) evaluation of remediation technologies proposed to be used.
- 6.1.2 The approval holder shall implement the Decommissioning plan as authorized in writing by the Director.
- 6.1.3 The approval holder shall develop and submit a plan for the Land Reclamation to the Director which shall include, at a minimum, all of the following:
 - (a) the final use of the reclaimed area and how equivalent land capability will be achieved;
 - (b) removal of infrastructure;
 - (c) restoration of drainage;
 - (d) soil replacement;
 - (e) erosion control, and
 - (f) re-vegetation.
- 6.1.4 The approval holder shall implement the Land Reclamation plan as authorized in writing by the Director.
- 6.1.5 The Decommissioning and Land Reclamation Plan in Section 6.1.1 and 6.1.3 shall be submitted within three (3) months of the facility ceasing operation, unless otherwise authorized in writing by the Director.

Part 7: Expiration

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

Cc. SNL, Happy Valley-Goose Bay
2 Tenth Street
PO Box 3014, Station B
A0P 1E0