



GOVERNMENT
OF
NEWFOUNDLAND AND LABRADOR
Department of Environment and Conservation
CERTIFICATE OF APPROVAL

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

Issued:	December 14, 2015	Approval No.:	WMS-15-12-014
Expiration:	December 31, 2020	File No.:	834.000.4
Proponent:	Universal Environmental Services Incorporated P.O. Box 51 Jerseyside, Placentia Bay, NL A0B 2G0		
Attention:	Mr. Terry Dollard – General Manager		
Re:	Treatment of Contaminated Soil		

Approval is hereby given for the continued operation of the permanent facility at Sunnyside, NL for the a) treatment of PCS via bioremediation b) treatment of Bunker C and PAHs contaminated soil using the soil washing unit coupled with surfactant technology and c) the chemical stabilization/ solidification of soil contaminated with lead and heavy metals.

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 Environment and Conservation (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 Appendices 'A, B, C, D' attached hereto, as may be revised from time to time by the Department. Appendices 'A, B, C, D' 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.


MINISTER

Definitions

- All definitions from the Act and the regulations apply except where expressly defined in this approval.
- In this certificate of approval:
 - a) **bioremediation (or biodegradation)** means any process (e.g. bioaugmentation and biostimulation etc.) that uses microorganisms or their enzymes to degrade the petroleum hydrocarbon compounds into the basic mineral constituents, carbon dioxide and water;
 - b) **bioaugmentation** means the introduction of group of natural microbial strains or a genetically engineered variant to treat petroleum hydrocarbon contaminated soil;
 - c) **biostimulation** means the modification or optimization of the microbial environment to entice or promote microbial activity resulting in mineralization of the petroleum hydrocarbon contaminants;
 - d) **BTEX** means benzene, toluene, ethylbenzene, and/or xylene;
 - e) **Bunker C** (#6 Fuel oil) is a petroleum distillate fraction with a boiling point at or higher than 205C. It contains about 15% paraffins, 45% naphthenes, 25% aromatics and 15% non-hydrocarbon compounds; the hydrocarbons contain 30 and greater carbon atoms. It contains appreciable concentrations of PAHs.
 - 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 Environment and Conservation;
 - k) **Director** means the Director of the Pollution Prevention Division of the Department;
 - l) **EPO** means Environmental Protection Officer of Service NL;
 - m) **FAL** means freshwater aquatic life;
 - n) **MSDS** means material safety data sheets;
 - o) **Minister** means Minister of the Department of Environment and Conservation

- p) OHS means occupational health and safety;
- q) PAHs means polycyclic aromatic hydrocarbons;
- r) 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 Bunker C, crude oil or drilling fluids unless otherwise approved by the Department; (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 PAHs 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*.
- s) **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;
- t) QA/QC means Quality Assurance/Quality Control;
- u) **regional Director** means the Director of the Service NL office in Clarenville;
- v) **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;
- w) **solidification** means a process by which sufficient quantities of solidifying material, including solids, are added to the material to result in a solidified mass. Solidifying the mass is accomplished through the addition of reagents that: i) increase strength; ii) decrease the compressibility; and iii) decrease the permeability of the waste;
- x) **SPLP** means synthetic precipitation leaching procedure (US EPA Method 1312);
- y) **stabilization** means the process of employing additives (reagents) to convert the waste and its constituents into a form : i) to minimize the rate of contaminant migration into the environment; or ii) reduce the level of toxicity;
- z) **TCLP** means toxicity characteristics leaching protocol as per US EPA Method 1311;

- aa) **third party site professional (engineer)** means a site professional engineer whom is not an employee of the proponent;
- bb) **TPH** means total petroleum hydrocarbons as measured by the Atlantic PIRI method;
- cc) **UESI** means Universal Environmental Services Incorporated;
- dd) **US EPA** means United States Environmental Protection Agency;
- ee) **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;

General

1. This approval applies to UESI for the continued operation of permanent petroleum contaminated soil remediation facility located at Sunnyside, NL. Specific terms and conditions for these activities are contained in Appendix B.
2. This approval applies to the chemical stabilization and solidification of soil contaminated with lead and heavy metals at UESI's petroleum contaminated soil remediation facility at Sunnyside, NL. Specific terms and conditions for these activities are contained in Appendix C.
3. This approval applies to UESI's operation of the soil washing unit at Sunnyside remediation facility to treat the Bunker C and PAHs contaminated soil. Specific terms and conditions for these activities are contained in Appendix D.
4. 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.
5. 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 is of the opinion that this waste management system may have had, or has the potential to have, an adverse effect on the environment.
6. Through a Memorandum-of-Understanding (MOU) this Department has authorized Service NL to act on their behalf in monitoring this operation for compliance under this approval and all applicable provincial Acts and Regulations.
7. Contaminated soil shall only be accepted during normal working hours with the exception of contaminated soil from an emergency oil spill response.
8. All contaminated soils received at the facility shall be placed on the approved receiving and/or treatment pads.

9. The facility shall be kept fenced and a lockable access gate shall be at the entrance to prevent unauthorized access.
10. A sign shall be posted at the gate listing the company name, hours of operations, contact name and number in the event of an emergency situation.
11. The facility is not approved to accept waste petroleum liquids for storage, discharge, or treatment.
12. The maximum total approved capacity for this facility is **36,000** tonnes of PCS, Bunker C, PAHs or any combination thereof. The Bunker C and PAH contaminated soil material shall each be stored separately from other contaminated material, clearly identified and marked.

Emergency & OHS Preparedness

13. UESI shall maintain an environmental emergency and health and safety contingency plan and shall continue submitting the annual updates for review and approval by January 31 of the following year to the Department.
14. UESI shall ensure that a copy of this approval, is kept on site at all times and that personnel directly involved in the operation of the remediation facility are made fully aware of the terms and conditions which pertain to this approval.
15. All responsible personnel who are directly involved with operation and maintenance of the processing system shall be provided copies of this approval.
16. In case of emergency UESI shall call emergencies and spill report line: **1-800-563-9089 or (709) 772-2083.**
17. All appropriate health and safety procedures shall be constantly maintained at the site in accordance with applicable legislation.

Legislation and Guidelines

18. The activities associated with this operation may involve, but not be limited to, the following provincial Acts and Regulations:
 - *Dangerous Goods Transportation Act and Regulations*
 - *Newfoundland Fire Prevention Act and Regulations*
 - *Environmental Protection Act*
 - *Air Pollution Control Regulations*
 - *Storage and Handling of Gasoline and Associated Products Regulations*
 - *Used Oil Control Regulations*
 - *Water Resources Act*

- *Environmental Control Water and Sewage Regulations*
19. The activities associated with this operation may involve, but not be limited to, the following federal Acts and Regulations:
- *Canadian Environmental Protection Act and Regulations*
 - *Interprovincial Movement of Hazardous Waste and Hazardous Recyclable Material Regulations*
 - *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations*
 - *Transportation of Dangerous Goods Act and Regulations*
 - *Fisheries Act*
 - *National Fire Code*
20. UESI shall operate this permanent soil treatment facility according to the Guidelines for Construction and Operation of Facilities Using Ex-Situ Bioremediation for Treatment of Petroleum Contaminated Soil: GD-PPD-013 rev.4 or later revisions.

Financial Security/ Assurance

21. UESI shall maintain valid environmental liability impairment insurance in the amount of \$1,000,000 otherwise this approval is null and void.
22. UESI shall maintain a surety bond of \$20,000 with the Department, otherwise this approval is null and void.
23. UESI shall submit the annual updates of the financial assurance to the Department.
24. UESI shall provide the Department with three months advance notice if they intend to cancel and/or change the insurer or bonding agent.

Record Keeping

25. UESI shall record and retain all information in respect of any sampling conducted or analysis performed in accordance with this approval for a minimum of five years, unless otherwise authorized in writing by the Director.
26. UESI shall record and retain all of 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
 - b.) a detailed description of the remedial actions/measures taken in respect of the

contravention of the Act, the regulations or this approval.

Laboratory Analysis & QA/QC

27. Unless otherwise stated herein, all liquid and solids analysis performed pursuant to this Approval shall be done by a contracted commercial or in-house laboratory as per the *Accredited and Certified Laboratory Policy (PD:PP2001-01.02)*.

Monitoring Alteration

28. The Director has the authority to alter monitoring programs or require additional testing at any time when:
- pollutants might be released to the surrounding environment without being detected;
 - an adverse environmental effect may occur; or
 - it is no longer necessary to maintain the current frequency of sampling and/or the monitoring of parameters.
29. UESI may, at any time, request that monitoring program or requirements of this Approval be altered by:
- requesting the change in writing to the Director; and
 - providing sufficient justification, as determined by the Director.
30. The requirements of this Approval shall remain in effect until altered, in writing, by the Director.

Reporting

31. Annual reports shall be submitted to the Department and Service NL by January 31 each year summarizing activities of the previous year. The report shall include:
- date and time of arrival of contaminated soil;
 - source name and address for contaminated soil;
 - quantity (i.e. tonnes or cubic metres) of contaminated soil;
 - client name;
 - trucking company;
 - name of project manager or on site supervisor authorizing the shipment;
 - personnel responsible for soil treatment and their qualifications;
 - the total amount of treated soil removed from the site;
 - the disposal location of treated soil;
 - copies of current letters from owner operator of disposal sites;

- batch number for each biopile;
- date of letter of request for removal of treated soil (to Service NL) and letter of consent for disposal from Service NL;
- post treatment laboratory results;
- current insurance and bonding;
- monitoring well results;
- settling pond maintenance and discharge volumes; and
- updates to the contingency plan.

Incident Reporting

32. All incidents of:

- contingency plan implementation;
- non-conformance of any condition within this approval;
- spillage or leakage of a regulated substance;
- whenever discharge criteria is, or is suspected to be, exceeded; or
- public complaints concerning possible non-compliance

shall be immediately reported, within one working day, to a person or message manager or facsimile machine at Service NL by phoning or faxing:

Service NL (Clareville)
P.O. Box 1148
A0E 1J0
Telephone (709) 466-4060
Facsimile (709) 466-4070

33. A written report including a detailed description of the incident, summary of contributing factors and an action plan to prevent future incidents of a similar nature, shall be submitted to the respective Regional Director. The action plan shall include a description of actions already taken and future actions to be implemented, and shall be submitted within thirty days of the date of the initial incident.

Decommissioning and Reclamation

34. The approval holder shall develop and submit a plan for the Decommissioning to the Director which shall include, at the minimum, all of the following:

- (a) a plan for dismantling the facility;
- (b) a comprehensive study to determine the nature, degree and extent of contamination at the facility and affected lands;
- (c) a plan to manage all wastes produced at the facility during operation and Decommissioning;

- (d) evaluation of remediation technologies proposed to be used at the plant and affected lands
35. The Approval holder shall implement the Decommissioning plan as authorized in writing by the Director.
36. 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;
 - (f) re-vegetation
37. The approval holder shall implement the Land Reclamation Plan as authorized in writing by the Director.
38. The Decommissioning and Land Reclamation Plan shall be submitted within three months of the facility ceasing operations, unless otherwise authorized in writing by the Director.

Expiration

39. This approval expires as indicated on the cover sheet of this document.
40. 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 **two (2) months prior to expiration.**

cc. Guy Perry
Regional Director, Service NL, Clarendville
gperry@gov.nl.ca

cc. Robert Locke
Manager of Operations and Environmental Protection
rlocke@gov.nl.ca

cc. Glenn Worthman
Manager, Compliance Promotion & Expert Support
glenn.worthman@ec.gc.ca

Appendix B - PCS Bioremediation

General

1. The approval holder shall maintain and operate the facility as described in the application submitted to the Department dated, July 2005, entitled: "Manual-Construction, Operation and Decommissioning of a Biopile Facility for Treatment of Petroleum Contaminated Soil, Sunnyside, Newfoundland", prepared by Fracflow Engineering Inc.
2. The approval holder shall have on site as described in the application, all of the following:
 - (a) Three (3) Concrete Treatment Pads.
 - (b) One Concrete Receiving Pad.
 - (c) Four lined leachate/wastewater holding ponds with discharge control.

Facility Inspection & Maintenance

3. The curb/berm surrounding and dividing the pads shall be inspected monthly. All damage, tears, cracks or other deterioration shall be repaired immediately.
4. The pads shall be cleaned thoroughly and visually inspected at least annually. All damage, tears, cracks, and other deterioration shall be repaired immediately.
5. The top of the curb/berm surrounding and dividing the receiving/treatment pads shall at all times be a minimum of 200 mm above the pads permanent working surface located immediately adjacent to and within 600 mm of the exposed base of the curb. The working surface is defined as the permanent surface on which the contaminated soil is placed and may consist of a fixed layer of granular material or the original material of construction.
6. A minimum of 200 mm curb height shall be maintained at all times. Soil shall be placed on the treatment and receiving pads in a manner which provides for the continuous flow of accumulated rainfall and/or leachate along the curb toward the catch basin(s) leading to the leachate holding pond and/or storage tank(s).
7. The curb/berm surrounding the treatment and receiving pads shall at all times be clearly visible and shall not be covered with soil.
8. All overflows of accumulated waste water over the pads shall be collected and treated. These shall be considered a spill as defined in the *Storage and Handling of Gasoline and Associated Products Regulations*. This includes standard reporting and response actions. Response and cleanup activity may cease once laboratory results of the waste water and impacted soils reveal levels are within

allowable levels for parameters of concern. Until this has been confirmed, response and cleanup shall proceed under the assumption that the waste water exceeds allowable limits as per regulations and guidelines and is likely to cause pollution.

Pre-Delivery Soil Sampling

9. All PCS received at this facility shall be accompanied with a laboratory analysis confirming BTEX and TPH concentrations. Analysis for metals, PAH and other contaminants of concern will be required on a site specific basis.
10. If pre-delivery soil samples for the contaminated soil have not been provided by the client, then UESI must provide one sample for every **1500 tonnes** or less unless otherwise authorized in writing by the Director. The soil shall be well mixed to ensure the sample is representative. More intensive sampling will be required if the source of the soil suggests other contaminants may be present. Soil characterization determined through an environmental site assessment conducted by an independent, qualified and experienced company is deemed sufficient.
11. To reduce illegal dumping, this facility may accept loads of less than 15 tonnes without laboratory analysis.
12. This facility may accept up to 1500 tonnes of PCS from an emergency response incident without prior sampling or testing. The untested material shall be stored separately on the receiving and/or treatment pad until baseline testing is conducted.
13. All soils with analysis indicating contaminants in excess of limits prescribed in the latest edition of the CEQG shall be considered contaminated. For parameters not listed in the CEQG consultation with Service NL is required.
14. If the source of the soil suggests that additional contaminants of a dangerous or hazardous nature may be present, additional laboratory analysis shall be carried out as recommended by an independent consultant or as required by Service NL.
15. Soils containing contaminants which would cause them to be classified as waste dangerous goods, as defined in the *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations* under the *CEPA* and in provisions under the Newfoundland and Labrador *Environmental Protection Act (SNL 2002)*, shall not be accepted for treatment and/or storage at this facility.
16. Other than PCS, hazardous wastes shall not be accepted at this facility for bioremediation treatment and/or storage (with an exception of PAHs and Bunker C contaminated soil for surfactant washing treatment process as described in Appendix D). Hazardous wastes are those which are corrosive, reactive,

flammable, ignitable, carcinogenic, teratogenic, mutagenic, infectious, oxidizing, radioactive, explosive, poisonous/toxic (i.e. acute and chronic), bioaccumulative, persistent, TCLP defined leachable or any waste which does not meet any of the above criteria but has other properties of concern which are significant enough to consider the material to be hazardous. Where there exists any doubt regarding the properties of a given waste, consultation with the Department is required.

Bioremediation of PCS

17. The use of cultured microbes may be regulated under the federal *New Substances Notification Regulations* under the Canadian *Environmental Protection Act*. For additional information on these regulations contact Environment Canada at (902) 426-9674. A copy of the notification shall be provided to the Department.
18. Covering of soils is permitted to control soil moisture content and temperature.
19. Leachate runoff may be managed with covering and/or leachate collection and storage systems.
20. When required, moisture addition to the biopiles shall be accomplished utilizing collected waste water. Any additional water may be taken from an approved on-site water supply.
21. If constructed, all ductworks shall be mapped and marked to avoid any destruction during sample excavation/collection.
22. 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.

Post-Treatment Compliance Sampling & Third Party Validation

23. At least five working days advance notice to Department and Service NL of the intent to conduct post treatment sampling is required.
24. Post-treatment soil sampling shall be conducted or witnessed by a third party site professional (engineer). The sampling results shall be stamped, signed (by a third party site professional) and submitted to the Director.
25. Prior to removal of the treated soil from the site, compliance sampling shall be conducted to achieve the following:

- **BTEX concentrations are below the industrial limits for soil in the latest**

edition of the CEQG; and

- **TPH concentration shall be equal or less than 1000mg/kg (ppm)**
26. Soils meeting the TPH and BTEX criteria may be removed from treatment pad to facilitate further treatment of the remaining soil in the biopile.
 27. 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 12m intervals. These samples may be taken on different days.
 28. Where laboratory results indicate that some samples do not meet these criteria, additional sampling may be conducted to delineate the volume in question.

Disposal & Storage of Treated Soils

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

Wastewater & Site Runoff

30. The approval holder shall not release any substances from the facility to the surrounding watershed/environment except as authorized by this approval.
31. All site runoff from the storage and treatment pads shall be directed to the leachate/industrial wastewater holding tanks or ponds and treated if necessary to meet the required standards. The generated wastewater may be applied back to the biopile.
32. Used oil removed from oily water separators or oily water removed from site shall be done using a license hazardous waste transporter.
33. The leachate holding tanks or ponds shall be cleaned of sediment as preventive maintenance.
34. Releases from the holding tank or pond shall not exceed the limits for parameters listed in the table below that are regulated in the **Schedule A of the Environmental Control Water and Sewage Regulations, 2003** and limits prescribed in the latest edition of the CEQG for FAL (BTEX).

Table 1. Wastewater/Leachate Limits

PARAMETERS	SAMPLE TYPE	LIMITS
pH	Grab	5.5 to 9.0 pH units
Oil and Grease	Visual	No visible sheen
TPH	Grab	15mg/L
Total Suspended Solids	Grab	30mg/L
Ammonia Nitrogen	Grab	2.0mg/L
Cadmium	Grab	0.05mg/L
Copper	Grab	0.3mg/L
Zinc	Grab	0.5mg/L
Nickel	Grab	0.5mg/L
Mercury	Grab	0.005mg/L
Lead	Grab	0.2mg/L
Benzene	Grab	0.37mg/L
Toluene	Grab	0.002mg/L
Ethylbenzene	Grab	0.09mg/L
Xylenes	Grab	0.18mg/L

Groundwater Monitoring

35. The approval holder shall conduct groundwater sampling and analysis as authorized by the Director. The six(6) groundwater monitoring wells shall be sampled annually during May or June and analyzed for TPH, BTEX and PAHs.
36. Groundwater shall be deemed contaminated when any of the analyzed parameters exceed limits prescribed in the latest edition of the CEQG FAL.
37. Monitoring wells shall be installed and maintained as per the *CCME Subsurface Assessment Handbook for Contaminated Sites EPC-NCSRP-48E March 1994*.
38. If a representative groundwater sample cannot be collected because the groundwater monitoring well is damaged or is no longer capable of producing a representative groundwater sample:
 - (a) the groundwater monitoring well shall be cleaned, repaired or replaced, and
 - (b) a representative groundwater sample shall be collected and analyzed as soon as possible, unless otherwise authorized in writing by the Director.

Appendix C – Soil Stabilization and Solidification

1. Approval is hereby given for the chemical stabilization and solidification of soil contaminated with lead and heavy metals at UESI's petroleum contaminated soil remediation facility at Sunnyside, NL.
2. The general administration terms and conditions are found in Appendix A while the specific terms and conditions for the collection of waste water are found in this Appendix.

Soil Receiving

3. The soil received at the facility shall be accompanied with a certified laboratory analysis report for lead and other heavy metals.
4. If the source of the soil suggests that additional contaminants of concern may be present, additional laboratory analysis shall be carried out as recommended by an independent consultant or as required by Service NL.
5. All soils contaminated with heavy metals shall be segregated from petroleum contaminated soils and soil contaminated with PAHs and/or Bunker C and stored on approved receiving/treatment pads, clearly identified and marked.
6. Other hazardous wastes which are corrosive, reactive, flammable, ignitable, carcinogenic, teratogenic, mutagenic, infectious, oxidizing, radioactive, explosive, or any waste which does not meet any of the above criteria, but has other properties of concern which are not being treated and are significant enough to consider the material to be hazardous shall not be accepted at this facility for treatment and/or storage. Where there exists any doubt regarding the properties of a given waste, consultation with Service NL is required.
7. One composite sample per 100 m³ of pre-delivery soil is required. The soil shall be well mixed to ensure these samples are representative.

Soil Treatment

8. This facility is approved to treat soils contaminated with lead and heavy metals exceeding CEQG (industrial land use for soil), using chemical stabilization/solidification technology to achieve acceptable limits using SPLP as defined in Schedule II of *The Interprovincial Movement of Hazardous Waste and Hazardous Recyclable Material Regulations under the CEPA, 2004*.
9. While on the receiving/treatment pads the soil shall be covered completely during rainfall events and the cold seasons, with a waterproof liner or sheeting to

minimize the infiltration of precipitation and the generation of waste water/leachate. The leachate collection system has been designed and approved on this basis.

10. Leachate from stockpiles of soil contaminated with lead or other heavy metals shall be collected and directed back to the soil for stabilization/solidification.
11. Mixing of clean soil with contaminated soil is prohibited.

Post-Treatment Compliance Sampling

12. Prior to removal of soil from the site, post-treatment compliance sampling shall be conducted followed by SPLP laboratory analysis for lead, mercury and other heavy metals. There shall be a SPLP per each 100 m³ of stabilized/solidified soil.
13. A trouble-shooting procedure shall be prepared to detail action steps to address soils which exceed maximum allowable concentrations in post-treatment compliance tests.

Final Disposal

14. Landfilling of stabilized soil is subject to the written approval of the Town of Sunnyside. The Department shall be provided with current copies of the Town's written approval. This should be part of the annual report.
15. Service NL shall receive at least two working days advance notice of final disposal to landfill. The proposed location within the landfill shall be approved by an EPO.
16. Stabilized soils containing lead and heavy metals shall not be landfilled until SPLP leachate levels are within acceptable limits as defined in Schedule II of *The Interprovincial Movement of Hazardous Waste and Hazardous Recyclable Material Regulations under the CEPA, 2004*.
17. Stabilized soil shall be landfilled in the area reserved for construction/demolition type debris.
18. The landfilled stabilized soil shall be contained with a 30 ml Enviro Liner. The liner shall be bedded with at least 150 mm of sand to protect the liner from damage during placement and backfilling. Immediately after the backfilling the contained stabilized soil shall be covered with 1 m of clean cover material.
19. The disposal location within the landfill shall be permanently marked to prevent accidental excavation, and a map of the landfill site showing the exact location shall be filed with the Department.

20. If the contaminated soil in question cannot be chemically stabilized and/or solidified the soil shall be transported to an alternate hazardous waste landfill or disposal facility for final disposal. In these cases a manifest shall be completed as required by Federal legislation and the Department advised.
21. If the landfill leachate exhibits unacceptable levels of lead or other heavy metals that is attributable to the contaminated soil mixture, the soil shall be removed to an alternate disposal facility for final disposal.

Discharge Water Quality

22. Prior to any discharge from the site to the environment, all contaminated wastewater shall be within acceptable limits as per the latest edition of the *CEQG FAL*.
23. For those parameters regulated in a **Schedule A** of the *Environmental Control Water and Sewage Regulations, 2003* the limits established in these regulations shall apply. A maximum allowable limit for lead is 0.2 mg/l prior to discharge.

Groundwater Monitoring

24. UESI shall maintain the down gradient monitoring system comprised of monitoring wells within 10m of the landfilled stabilized soil to monitor potential groundwater impacts.
25. The monitoring wells shall be sampled during May/June of each year or when the site is first accessible. Laboratory analysis shall include complete metal scan including mercury. Laboratory reports shall be forwarded to Service NL once they become available.
26. Groundwater shall be deemed contaminated when any of the analyzed parameters exceed limits prescribed in the latest edition of the CEQG FAL, with an exception of parameters with naturally elevated concentration as confirmed through background groundwater analysis.
27. Monitoring well installation, development and sampling shall be conducted in accordance with procedures and principles outlined in the latest edition of the *CCME Subsurface Assessment Handbook for Contaminated Sites EPC-NCSRP-48E March 1994*.

Appendix D – Treatment of PAHs and Bunker C contaminated soil

28. Approval is hereby given to UESI for operation of the Soil Washing Unit coupled with the surfactant technology to treat PAHs and Bunker C contaminated soil.
29. The general administration terms and conditions are found in Appendix A while the specific terms and conditions are found in this Appendix.

Facility Maintenance/ Contaminated Material Storage

30. The Bunker C and/or PAHs contaminated soil material shall be stored separately from other contaminated material (e.g. PCS or metals contaminated soil) on a designated pad(s), clearly identified and marked.
31. The curb/berm surrounding and dividing the pads shall be inspected monthly. All damage, tears, cracks or other deterioration shall be repaired immediately.
32. The pads shall be cleaned thoroughly and visually inspected at least annually. All damage, tears, cracks, and other deterioration shall be repaired immediately.
33. The top of the curb/berm surrounding and dividing the receiving/treatment pads shall at all times be a minimum of 200 mm above the pads permanent working surface located immediately adjacent to and within 600 mm of the exposed base of the curb. The working surface is defined as the permanent surface on which the contaminated soil is placed and may consist of a fixed layer of granular material or the original material of construction.
34. A minimum of 200 mm curb height shall be maintained at all times. Soil shall be placed on the treatment and receiving pads in a manner which provides for the continuous flow of accumulated rainfall and/or leachate along the curb toward the catch basin(s) leading to the leachate holding pond and/or storage tank(s).
35. The curb/berm surrounding the treatment and receiving pads shall at all times be clearly visible and shall not be covered with soil.
36. All overflows of accumulated leachate over the pads shall be collected and treated. These shall be considered a spill as defined in the *Storage and Handling of Gasoline and Associated Products Regulations*. This includes standard reporting and response actions. Response and cleanup activity may cease once laboratory results of the waste water and impacted soils reveal levels are within allowable levels for parameters of concern. Until this has been confirmed, response and cleanup shall proceed under the assumption that the waste water exceeds allowable limits as per regulations and guidelines and is likely to cause pollution.

Pre-Delivery Soil Sampling

37. All PAHs and/or Bunker C contaminated soil received at this facility shall be accompanied with a laboratory analysis confirming BTEX, PAHs, and TPH concentrations. Analysis for metals, and other contaminants of concern will be required on a site specific basis.
38. If pre-delivery soil samples for the contaminated soil have not been provided by the client, then UESI must provide one sample for every **1500 tonnes** or less unless otherwise authorized in writing by the Director. The soil shall be well mixed to ensure the sample is representative. More intensive sampling will be required if the source of the soil suggests other contaminants may be present. Soil characterization determined through an environmental site assessment conducted by an independent, qualified and experienced company is deemed sufficient.
39. All soils with analysis indicating contaminants in excess of limits prescribed in the latest edition of the CEQG shall be considered contaminated. For parameters not listed in the CEQG consultation with Service NL is required.
40. Soils containing contaminants which would cause them to be classified as waste dangerous goods, as defined in the *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations* under the *CEPA* and in provisions under the Newfoundland and Labrador *Environmental Protection Act (SNL 2002)*, shall not be accepted for treatment and/or storage at this facility.

Wastewater & Leachate Management

41. All wastewater generated during the treatment process (soil washing) and any leachate generated from the storage pad(s) shall be collected into the holding pond specifically designated only for Bunker C and/or PAHs contaminated wastewater. The holding pond(s) for these purpose(s) shall be clearly identified and marked.
42. In case of free phase formation (Bunker C), it shall be collected into the designated container(s). The collected Bunker C, if deemed suitable shall be reused for its intended purpose at the refinery or other facility. If deemed not suitable for its intended purpose it shall be stored and disposed of as per the *Used Oil Control Regulations, 2002*.
43. The approval holder shall not release any substances from the facility to the surrounding watershed/environment except as authorized by this approval.
44. All wastewater/leachate discharged from the site will be subject to compliance monitoring in accordance with the Accredited and Certified Laboratory Policy, PD:PP2001-01.02. Wastewater/leachate samples shall be collected by a third party professional.

45. As a minimum the wastewater/leachate samples shall be analyzed at least once prior to the discharge event for the following parameters: **pH, Chlorine, Total/Fecal coliform, Cyanide, BOD, TSS, TDS, BTEX, TPH, Ammonia, Phenol, Phosphates, Nitrates/nitrites, Sulfides, Metal scan, Mercury and PAHs.** All wastewater/leachate discharged from the site will be subject to compliance with the **Environmental Control Water and Sewage Regulations, 2003 (Schedule A)** or **CEQG FAL** where applicable.
46. In the event the wastewater/leachate originating from the treatment process or storage pad(s) held in the pond(s) cannot meet the criteria as per the **Environmental Control Water and Sewage Regulations, 2003 (Schedule A)**, or **CEQG FAL** where applicable, it shall be treated accordingly to meet the compliance criteria or it shall be shipped to another facility licensed to treat this material.

Post-Treatment Compliance Sampling & Third Party Validation

47. At least five working days advance notice shall be provided to Department and Service NL, of the intent to conduct post treatment sampling is required.
48. Post-treatment soil sampling shall be conducted or witnessed by a third party site professional (engineer). The sampling results shall be stamped, signed by a third party site professional (engineer) and submitted to the Director.
49. Prior to removal of the treated soil from the site, compliance sampling shall be conducted to achieve the following:
- (a) BTEX and PAHs concentrations are below the industrial limits for soil in the latest edition of the CEQG; and**
 - (b) TPH concentration shall be equal or less than 1000 mg/kg (ppm)**
50. Representative composite samples must be taken from each stockpile of the treated soil washed material. These samples may be taken on different days.
51. In the event the contaminated soil material cannot be treated to below 1000ppm TPH and applicable CEQG criteria for BTEX and PAHs, the soil shall be re-treated or shipped by a licensed hazardous waste transporter to another facility licensed to treat this type of material.
52. The sediment/slurry deposited in the holding pond(s) shall be considered and managed the same way as PCS, and prior to its disposal it shall be sampled and confirmed to be below 1000ppm TPH and applicable CEQG BTEX and PAH criteria. In case this material does not meet the required criteria, it shall be treated or removed by a licensed hazardous waste transporter and shipped to an approved facility.

Disposal & Storage of Treated Soils

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

Groundwater Monitoring

54. Refer to the Appendix B/Groundwater monitoring as the same requirements and conditions apply.