Newfoundland Labrador

GOVERNMENT
OF
NEWFOUNDLAND AND LABRADOR
Department of Environment, Conservation and Climate Change

CERTIFICATE OF APPROVAL

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

Issued:	December 1, 2025	Approval No.:	WMS-15-12-014
Expiration:	November 30, 2030	File No.:	834.000.4

Proponent: **Universal Environmental Services Incorporated (UESI)**
P.O. Box 51
Jerseyside, Placentia Bay, NL
A0B 2G0

Attention: Mr. Francis Collins
Tel: 709-227-4252
Email: fcollinsam44@gmail.com

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 petroleum contaminated soil (PCS) by bioremediation b) treatment of non-hazardous drilling muds solids by bioremediation c) treatment of Bunker C and polyaromatic hydrocarbons (PAHs) contaminated soil using the soil washing unit coupled with surfactant technology and d) 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, Conservation and Climate Change (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 below and in Appendices 'A, B, C and D' attached hereto, as may be revised from time to time by the Department, and all form 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.

Pete Hanney

For MINISTER

General

1. This approval applies to UESI for:
    1) the continued operation of a permanent petroleum contaminated soil remediation facility located at Sunnyside, NL. Specific terms and conditions for these activities are contained in Appendix A.
    2) the continued operation of non-hazardous drilling muds solids remediation located at Sunnyside, NL. Specific terms and conditions for these activities are contained in Appendix B.
    3) 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.
    4) continued 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.

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.

3. Contaminated soil shall only be accepted during normal working hours with the exception of contaminated soil from an emergency oil spill response.

4. All contaminated soils received at the facility shall be placed on the approved receiving and/or treatment pads.

5. The facility shall be kept fenced and a lockable access gate shall be at the entrance to prevent unauthorized access.

6. 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.

7. The facility is not approved to accept waste petroleum liquids for storage, discharge, or treatment.

8. The maximum total approved capacity for this facility is **46,000** tonnes of PCS, drilling muds, Bunker C, PAHs or any combination thereof. The total quantity of drilling muds solids accepted and bio-remediated on an annual basis shall not exceed 10,000 tonnes. The Bunker C and PAH contaminated soil material shall each be stored separately from other contaminated material, clearly identified and marked.

9. 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) **CESQG** means CCME Canadian Environmental Soil Quality Guidelines
h) **contaminant** means, unless otherwise defined in the regulations, a substance that causes or may cause an adverse effect;
i) **Department** means Department of Environment, Conservation and Climate Change;
j) **Drilling muds** for the purpose of this approval refer to non-hazardous drilling muds solids that have been pre-treated and dewatered by Terrapure using their approved centrifuge system located at Incinerator Road, St. John's, NL.
k) **EPO** means Environmental Protection Officer of the Department of Government Services
l) **Minister** means Minister of the Department of Environment, Conservation and Climate Change;
m) **OHS** means occupational health and safety;
n) **PAHs** means polycyclic aromatic hydrocarbons;
o) **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.***
p) **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;
q) **QA/QC** means Quality Assurance/Quality Control;
r) **regional Director** means the Director of the Government Services office in

Clarenville;

s) **site professional** 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;
t) **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;
u) **SPLP** means synthetic precipitation leaching procedure (US EPA Method 1312);
v) **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;
w) **TCLP** means toxicity characteristics leaching protocol as per US EPA Method 1311;
x) **third party site professional** means a site professional engineer whom is not an employee of the proponent;
y) **TPH** means total petroleum hydrocarbons as measured by the Atlantic PIRI method;
z) **US EPA** means United States Environmental Protection Agency;

Application Submissions

10. Request for renewal of UESI soil treatment facility Certificates of Approval received via email.

11. UESI provided recent monitoring well results and updated site diagrams for all facilities.

Emergency & OHS Preparedness

12. 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.

13. UESI shall ensure that a copy of this approval, is always kept on site 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.

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

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

16. All appropriate health and safety procedures shall be constantly maintained at the site in accordance with applicable legislation.

Compliance inspections

17. Through a Memorandum-of-Understanding this Department has authorized

Government Services to act on its behalf in monitoring this operation for compliance under this approval and all applicable provincial Acts and Regulations.

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 and Used Glycol 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* (CEPA)
    - *Cross Border Movement 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.

Laboratory Analysis & QA/QC

25. 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)*** https://www.gov.nl.ca/ecc/files/publications-env-protection-policy-directive-pd-pp.pdf.

26. In-house laboratories have the option of either obtaining accreditation or submitting to an annual inspection by a representative of the Department, for which UESI shall be billed for each laboratory inspection in accordance with Schedule 1 of the ***Accredited Laboratory Policy (PD:PP2001-01.02)*** . Recommendations of the Department stemming from the annual inspections shall be addressed within 6 months; otherwise further analytical results shall not be accepted by the Department.

27. If UESI wishes to perform in-house laboratory testing and submit to an annual inspection by the Department, then a recognized form of proficiency testing recognition shall be obtained for compliance parameters for which this recognition exists. If using a commercial laboratory, UESI shall contact that commercial laboratory to determine and to implement the sampling and transportation QA/QC requirements for those activities.

28. UESI shall bear all expenses incurred in carrying out the environmental monitoring and analysis required under conditions of this Approval.

Further Assessment

29. The Minister may at any time, with reasonable notice, require the proponent 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 the operation of this facility may have had, or has the potential to have, an adverse effect on the environment.

Monitoring Alteration

30. The Department 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.

31. UESI may, at any time, request that monitoring program or requirements of this Approval be altered by:

    - requesting the change in writing to the Department; and

- providing sufficient justification, as determined by the Department.

32. The requirements of this Approval shall remain in effect until altered, in writing, by the Department.

Monthly Reporting

33. Monthly reports containing the environmental compliance monitoring and sampling information required in this Approval shall be received by the Department in digital format within 30 calendar days of the reporting month. All related laboratory reports shall be submitted with the monthly report 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.

34. Each monthly report shall include a summary of all environmental monitoring components and shall include an explanation for the omission of any requisite data. The monthly summary reports shall be in Microsoft Word or Adobe PDF and shall be uploaded through the EDMS web portal with the data submissions. If there is no groundwater monitoring activity performed in the month, UESI shall indicate that there was no activity and provide this information to the Department.

Annual Reporting

35. Annual reports shall be submitted to the Government Services 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 Government Services) and letter of consent for disposal from Government Services;
- 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

36. 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 Government Services by phoning or faxing:

Government Services (Clarenville)
P.O. Box 1148
A0E 1J0
Telephone (709) 466-4060
Facsimile (709) 466-4070

37. 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 Department. 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.

Records

38. 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 Department.

39. 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.

Decommissioning and Reclamation

40. A professional engineer on behalf of the approval holder shall develop and submit a plan for decommissioning to the Department 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

41. Once approved, the Approval holder shall implement the decommissioning plan as authorized in writing by the Department.

42. A professional engineer on behalf of the approval holder shall develop and submit a plan for the land reclamation to the Department 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

43. Once approved, the approval holder shall implement the Land Reclamation Plan as authorized in writing by the Department.

44. The Final Decommissioning and Land Reclamation Plans shall be submitted within three months of the facility ceasing operations, unless otherwise authorized in writing by the Department.

45. Written notification shall be provided in advance to Government Services of decommissioning of this waste management system.

46. Decommissioning of this waste management system shall comply with the nine minimum acceptable decommissioning requirements for an industrial site in accordance with Section 3.2 of the *CCME National Guidelines for Decommissioning Industrial Sites*.

Expiration

47. This approval expires on November 30, 2030.

48. Should the approval holder wish to continue to operate beyond this expiry date, a written request shall be submitted to Department for the renewal of this approval **two (2) months prior to expiration**.

cc.

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Appendix A - 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 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 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 levels for parameters of concern. Until this has been confirmed, response and cleanup shall proceed assuming that the wastewater 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 Department. 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 CESQG shall be considered contaminated. For parameters not listed in the CESQG consultation with Government Services 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 Government Services.

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 Government Services 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 Department.

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 CESQG; 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**.

Industrial 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 collection 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.

35. The Department must be notified prior to discharge of effluent from any collection infrastructure at the Sunnyside location. Monitoring results must be provided to ensure compliance with the *Environmental Control Water and Sewage Regulations* prior to any effluent release.

Groundwater Monitoring

36. Four times per calendar year, and not less than 30 days apart, UESI shall perform a groundwater monitoring chemical analysis program as per Table 1. Analytical results shall be submitted as per the Reporting section.

Table 1 - Water Chemistry Analysis Program		
Location	**EDMS Code**	**Parameters**
SSMW1	00785	**General Parameters:** nitrate + nitrite, nitrate, nitrite, pH, colour, sodium, potassium, calcium, sulphide, magnesium, ammonia, alkalinity, sulphate, chloride, fluoride, turbidity, reactive silica, orthophosphate, phosphorous, DOC, conductance, TDS (calculated), phenol, carbonate ($CaCO_3$), hardness ($CaCO_3$), bicarbonate ($CaCO_3$), cyanide, TPH **Metals Scan:** aluminium, antimony, arsenic, barium, beryllium, bismuth, boron, cadmium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, mercury, nickel, selenium, silver, strontium, thallium, tin, titanium, uranium, vanadium, zinc
SSMW2	00786	
SSMW3	00787	
SSMW4	00788	
SSMW5	00789	
SSMW6	00790	

37. All groundwater monitoring wells shall be:
    - labelled;
    - protected from damage, and
    - locked, except when being samples.

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:
    - the groundwater monitoring well shall be cleaned, repaired or replaced,
    - a representative groundwater sample shall be collected and analyzed as soon as possible, and
    - the Department shall be notified in writing of the delay in monitoring

39. Sampling and analysis of groundwater shall be completed in accordance with guidance document GD-PPD-066 *Sampling of Water and Wastewater- Industrial Effluent Applications,* https://www.gov.nl.ca/ecc/files/publications-env-protection-gd-ppd-066-waste-water.pdf

40. The exact location of each sampling point shall remain consistent over the life of the monitoring programs, unless otherwise approved by the Department. Using a GPS or similar device, the northing and easting of each sampling location shall be recorded and submitted to the Department.

Appendix B - Bioremediation of Drilling Muds

1. An initial pre-treatment characterization of the waste drilling mud solids shall be completed, including BTEX/TPH and general chemistry with metals, with subsequent pre-treatment sampling being completed on a quarterly basis.

2. An initial pre-treatment radiochemical characterization of the waste drilling mud solids shall be completed, with subsequent pre-treatment sampling being completed on a quarterly basis.

3. Confirmatory compliance sampling shall be conducted on the treated solids, including BTEX/TPH/general chemistry/ leachable metals. The sampling schedule shall be as follows:
    - First 3 month period
        i. sample and analyze each "batch" (see below) of treated solids;
        ii. treated solids to be sent for final disposal if analytical data confirms compliance with disposal criteria
    - Second 3 month period
        i. sample and analyze each "batch" (see below) of treated solids;
        ii. treated solids to be sent for final disposal if analytical data confirms compliance with disposal criteria
    - Subsequent sampling
        i. treated solids to be sent for final disposal when analytical data (for each "batch") confirms compliance with disposal criteria
    - For the purposes of this approval, a "batch" shall be 400 tonnes i.e. equal amounts of waste drilling muds solids and PCS.

4. Any changes in the compliance sampling and monitoring program must be requested in writing from the Department, and must include sufficient justification as determined by the Department.

5. The Department reserves the right to require compliance sampling for additional parameters, as considered necessary to meet their requirements.

6. In the event that any odour or air contaminant problems are not addressed to the satisfaction of the Department, the Department reserves the right to require the installation of additional emission control equipment, as it deems necessary to remedy the problem(s).

7. The Department reserves the right to require ambient air monitoring and/or dispersion modeling to demonstrate compliance with the *Air Pollution Control Regulations*, 2004.

8. The Department reserves the right to place additional administrative and/or operational restrictions on the treatment activities, as it deems necessary to address concerns.

9. Bioremediation of drilling muds is also subject to all the applicable terms and conditions respecting the bioremediation of PCS listed in Appendix A.

Appendix C – Soil Stabilization and Solidification

Soil Reception

1. The soil received at the facility shall be accompanied with a certified laboratory analysis report for lead and other heavy metals.

2. 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 Government Services.

3. 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.

4. 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 is required Government Services.

5. One composite sample per 100 m^3 of pre-delivery soil is required. The soil shall be well mixed to ensure these samples are representative.

Soil Treatment

6. This facility is approved to treat soils contaminated with lead and heavy metals exceeding CESQG (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.***

7. 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.

8. Leachate from stockpiles of soil contaminated with lead or other heavy metals shall be collected and directed back to the soil for stabilization/solidification.

9. Mixing of clean soil with contaminated soil is prohibited.

Post-Treatment Compliance Sampling

10. 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 m^3 of stabilized/solidified soil.

11. 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

12. 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.

13. Government Services 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.

14. 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 Cross Border Movement of Hazardous Waste and Hazardous Recyclable Material Regulations under the CEPA.***

15. Stabilized soil shall be landfilled in the area reserved for construction/demolition type debris.

16. 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.

17. 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.

18. 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.

19. 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.

Appendix D – Treatment of PAHs and Bunker C contaminated soil

Facility Maintenance/ Contaminated Material Storage

1. 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.

2. The curb/berm surrounding and dividing the pads shall be inspected monthly. All damage, tears, cracks or other deterioration shall be repaired immediately.

3. The pads shall be cleaned thoroughly and visually inspected at least annually. All damage, tears, cracks, and other deterioration shall be repaired immediately.

4. 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.

5. 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).

6. The curb/berm surrounding the treatment and receiving pads shall at all times be clearly visible and shall not be covered with soil.

7. 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

8. 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.

9. 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 Department. 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.

10. All soils with analysis indicating contaminants in excess of limits prescribed in the latest edition of the CESQG shall be considered contaminated. For parameters not listed in the CESQG consultation with Government Services is required.

11. 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

12. 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.

13. 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 and used Glycol Control Regulations, 2002.*

14. The approval holder shall not release any substances from the facility to the surrounding watershed/environment except as authorized by this approval.

Post-Treatment Compliance Sampling & Third Party Validation

15. At least five working days advance notice shall be provided to Department and Government Services, of the intent to conduct post treatment sampling is required.

16. 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 Department.

17. 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 CESQG; and

(b) TPH concentration shall be equal or less than 1000 mg/kg (ppm)

18. Representative composite samples must be taken from each stockpile of the treated soil washed material. These samples may be taken on different days.

19. In the event the contaminated soil material cannot be treated to below 1000ppm TPH and applicable CESQG 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.

20. 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 CESQG 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

21. 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

22. Refer to the Appendix A Groundwater monitoring as the same requirements and conditions apply.