Appendix C-3:
Commissioning, Procedures, Training and QA/QC

Wastewater and Waste Oil Offloading Procedure

Project Location: 750 Pleasant Street, Dartmouth, Nova Scotia

Operator: Envirosoil Limited

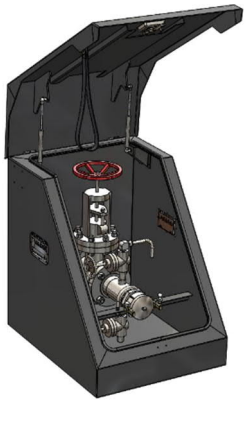
During routine offloading of liquid material (i.e. wastewater and waste oil), precautions will be taken to ensure both personnel safety and the prevention of spills or accidental releases. Envirosoil's offloading procedures will be designed to prevent accidental spills and releases during the bulk transfer of materials. Strict procedures to monitor for leaks before, during, and after material transfers will provide operating personnel with the opportunity to contain releases due to faulty equipment, and to implement proper repair measures.

In addition, all transport truck drivers must undergo a site orientation and fully understand the site layout, specific procedures regarding entering the facility, specific offloading procedures and the process to respond to an unexpected discharge or leak from the vehicle or transfer hose.

During the offloading process the following safety equipment will be utilized:

- Sufficient oil absorbent and containment materials will be available to prevent spills from leaving the offloading pad area. Spill cleanup kits will include absorbent material, booms, and other portable barriers in close proximity to the offloading area.
- All transfer hoses will be chemically compatible with the material to be offloaded.
- All transfer hoses will be hydrostatically pressure-tested at least once per year, to at least 1.5 times their maximum working pressure.
- All transfer hoses will be conductive type or anti-static and will be tested for electrical continuity at least once per year.
- A drip pan will be used below the connection point where the transfer hose attaches to the truck. Drip pans will have a minimum capacity of 250 litres.
- A permanent load line containment unit (i.e. Enviro-box or equivalent) will be utilized at all hose to building transfer points. These units are a specialty spill catch basin that safely captures fluid leaks, drips and spills at fluid transfer hose connections and suction lines. See Figure 2 for a general schematic and picture.
- A transfer pump will be setup and readily available to remove any spilled material from the offloading pad containment sump. Any soiled material will be transferred to the Dirty Water or Waste Oil storage tank.

Figure 2: Typical Load Line Containment Unit



Upon arrival at the facility the following pre-offloading procedure will be followed:

1. Before any unloading takes place, the driver will check in and obtain authorization from an Envirosoil operator.
2. Envirosoil staff will review the shipment document (i.e. Waste Profile Sheet (WPS)).
3. Envirosoil staff will sample and test the truck contents, if required. Authorization to begin unloading will be given to the driver upon acceptable test results and/or acceptability review of WPS by Envirosoil.
4. Once authorization has been given by Envirosoil the driver will unload the material as per Envirosoil personnel instructions and the facility's offloading procedures.

Offloading of the truck will be performed following the general procedure outlined below:

- Unloading of delivery trucks will only take place at the designated unloading area.
- Envirosoil's Facility Manager or designate must supervise the initial offloading activities for all new transporters and periodically observe deliveries for existing, approved transporters.
- Unloading is only performed under the supervision of Envirosoil personnel who will be responsible for ensuring that proper procedures are followed.
- Position the truck to unload on the same side as the facility's receiving valves.
- Do not position the truck so that hoses run beneath it.
- Turn off truck engine.
- Wheel chocks or a vehicle break interlock system will be employed to prevent vehicles from departing before complete disconnection of transfer hoses.
- Bonding and grounding devices will be connected to the truck and grounding points before any unloading activities can commence.
- Hose connectors will have their ears tied back or otherwise secured in position.
- Envirosoil's operator and the truck driver must check all connections for tightness and that all fittings and hoses are in a safe and operable condition before beginning any unloading activities.
- The truck driver and operator of the pump will not leave the pumping process unmanned for any reason during the entire process and will remain within close proximity (< 10 ft) of the shutoff valves and pump at all times.
- During pumping operations, hoses, valves and connections will be monitored for any signs of leaks.
- Monitor flow meter to determine rate of flow.
- Ensure constant communication with facility operator to monitor liquid level in the receiving tank. Note that the pumping process is controlled by high level alarms that will automatically shut down the process upon alarm activation.
- After pumping is complete, the pump operator must check that all shutoff valves are locked in the closed position and there is no leakage.
- Disconnect hoses carefully to avoid spillage. Drain any residual material into the drip pan if required and install hose caps.
- Ensure that the lowermost drain and all truck valves are tightly closed, inspected for discharges, and if necessary, ensure that they are tightened, adjusted, or replaced to prevent liquid discharge.
- Remove drip pans from beneath truck.
- Remove all bonding and grounding devices.
- Remove all barricades, wheel chocks or a vehicle break interlock systems.
- Complete vehicle walk around inspection.
- Vehicle is free to leave.

WASTE PROFILE SHEET

ENVIROSOIL USE ONLY
PROJECT #
_____

This form must be completed as accurately as possible. Material will not be accepted unless this Waste Profile Sheet has been submitted and approved by Envirosoil Limited.

1. WASTE TYPE

Type of Waste	☐ Waste Oil ☐ General Wastewater ☐ Marine Bilge Wastewater
Waste Dangerous Goods	Is the waste consider a Waste Dangerous Good Under TDG Regulations: ☐ Yes ☐ No If Yes Provide TDG Classification:

2. PREVIOUS WASTE DISPOSAL FACILITY

Previous Disposal Facility	Has this Waste stream previously been disposed of at another NS Wastewater Treatment Facility ☐ Yes ☐ No ☐ Unknown If Yes Provide Location:

3. WASTE GENERATOR INFORMATION

Part 3A: Contact Information

Generator Name		Contact Name	
Facility/Site Address		City	
Tel/Cell		Email	

Part 3B: Site Information

Site Status	☐ Active Site ☐ Non-Active Site ☐ Transient Marine Vessel
Site Classification	☐ Residential ☐ Commercial ☐ Industrial ☐ Municipal ☐ Marine Ship ☐ Agricultural ☐ Other (specify)
Current Site Activities	
Description of Activity Generating the Waste	

4. SHIPPING INFORMATION

Part 4A: Delivery Information

Delivery Vehicle	☐ Vacuum Truck ☐ Vacuum Tanker ☐ Standard Tanker Truck	
Shipment Size	Estimated Volume per Load: m^3	Total Project Estimated Quantity: m^3
Frequency	☐ Yearly ☐ Quarterly ☐ Monthly ☐ Weekly ☐ 1-Time ☐ Other (specify) Estimated Start Date:	

Part 4B: Transporter Contact (If unknown leave blank. Info MUST be provided prior to any delivery)

Company Name	Contact	Cell Phone	Number of Trucks Hauling

5. GENERAL WASTE PROFILE (CHECK ALL THAT APPLY)

Basis of Material Characterization:	☐ Laboratory Analysis ☐ Generator Knowledge ☐ Process Knowledge ☐ Safety Data Sheets ☐ Other (specify)

Are Laboratory Analytical Reports Available: ☐ Yes ☐ No If Available Please attach to this Form

Is the Material Characterization Representative of the Material to be Sent for Disposal ☐ Yes ☐ No ☐ Unknown

Part 5A: Physical Properties

Odor: ☐ None ☐ Slight ☐ Strong	Odor Type: ☐ Ammonia ☐ Mercaptans ☐ Sulphur ☐ Organic ☐ Hydrocarbons ☐ Other (Describe):
Color (describe):	Liquid Phases: ☐ Single Layer ☐ Double Layer ☐ Multi-Layer

Specific Gravity: ☐ <0.80 ☐ 0.80 – 0.99 ☐ 1.0 (Water) ☐ 1.0 -1 .3 ☐ >1.3 ☐ Unknown

Flash Point: Exact: ____ °C ☐ Does Not Flash ☐ <23°C ☐ 23-35°C ☐ 35-60°C ☐ 60-93°C ☐ >93°C ☐ Unknown

pH: ☐ <2 ☐ 2.1 – 6.9 ☐ 7 (Neutral) ☐ 7.1 - 12.4 ☐ >12.4 ☐ Unknown

WASTE PROFILE SHEET

Part 5B: Chemical Properties

Elemental Constituents (in mg/L or ppm): If the waste contains contaminants not listed below please attach a separate page with the appropriate details.

Constituent	Range				Constituent	Range			
Metal Constituents									
Arsenic	☐ <2	☐ 2-50	☐ >50	□ NA	Cadmium	☐ <0.1	☐ 0.1-5	☐ >5	□ NA
Chromium (hexavalent)	☐ <0.1	☐ 0.1-5	☐ >5	□ NA	Total Chromium	☐ <10	☐ 10-100	☐ >100	□ NA
Cobalt	☐ <0.1	☐ 0.1-10	☐ >10	□ NA	Copper	☐ <0.1	☐ 0.1-10	☐ >10	□ NA
Lead	☐ <0.1	☐ 0.1-10	☐ >10	□ NA	Mercury	☐ <0.1	☐ 0.1-10	☐ >10	□ NA
Nickel	☐ <0.1	☐ 0.1- 10	☐ >10	□ NA	Selenium	☐ <0.1	☐ 0.1-10	☐ >10	□ NA
Tin	☐ <0.1	☐ 0.1-10	☐ >10	□ NA	Vanadium	☐ <0.1	☐ 0.1-10	☐ >10	□ NA
Zinc	☐ <0.1	☐ 0.1-50	☐ >50	□ NA	Other	☐	☐	☐	□ NA
Hydrocarbons/PAHs/SVOC/VOC Constituents									
Benzene	☐ <10	☐ 10-100	☐ >100	□ NA	Naphthalene	☐ <1	☐ 1 - 50	☐ >50	□ NA
Toluene	☐ <10	☐ 10-100	☐ >100	□ NA	1 - Methylnaphthalene	☐ <0.5	☐ 0.5 - 50	☐ >50	□ NA
Ethyl Benzene	☐ <10	☐ 10-100	☐ >100	□ NA	2 - Methylnaphthalene	☐ <0.5	☐ 0.5 - 50	☐ >50	□ NA
Xylene	☐ <10	☐ 10-100	☐ >100	□ NA	Acenaphthene	☐ <10	☐ 10 - 100	☐ >100	□ NA
Modified TPH	☐ <100	☐ 100-5000	☐ >5000	□ NA	Acenaphthylene	☐ <0.01	☐ 0.01-5	☐ >5	□ NA
Tetrachloroethylene	☐ <5	☐ 5-50	☐ >50	□ NA	Anthracene	☐ <5	☐ 5-50	☐ >50	□ NA
1,1,1-Trichloroethane	☐ <0.01	☐ 0.01-5	☐ >5	□ NA	Fluoranthene	☐ <0.1	☐ 0.1-10	☐ >10	□ NA
1,1,2-Trichloroethane	☐ <0.01	☐ 0.01-5	☐ >5	□ NA	Fluorene	☐ <1	☐ 1 - 25	☐ >25	□ NA
Trichloroethylene	☐ <5	☐ 5-50	☐ >50	□ NA	Phenanthrene	☐ <0.2	☐ 0.2-10	☐ >10	□ NA
Vinyl Chloride	☐ <0.01	☐ 0.01-5	☐ >5	□ NA	Pyrene	☐ <0.1	☐ 0.1-10	☐ >10	□ NA
Ethylene Glycol	☐ <100	☐ 100-1000	☐ >1000		Benzo(a)anthracene	☐ <0.01	☐ 0.01-5	☐ >5	□ NA
Propylene Glycol	☐ <100	☐ 100-1000	☐ >1000		Benzo(a)pyrene	☐ <0.01	☐ 0.01-5	☐ >5	□ NA
Phenols	☐ <1	☐ 1-25	☐ >25		Benzo(b,j,k)fluoranthene	☐ <0.01	☐ 0.01-5	☐ >5	□ NA
Other	☐	☐	☐		Benzo(g,h,i,)perylene	☐ <0.01	☐ 0.01-5	☐ >5	□ NA
Other	☐	☐	☐		Chrysene	☐ <0.01	☐ 0.01-5	☐ >5	□ NA
Other	☐	☐	☐		Dibenz(a,h)anthracene	☐ <0.01	☐ 0.01-5	☐ >5	□ NA
Other	☐	☐	☐		Indeno(1,2,3-cd)pyrene	☐ <0.01	☐ 0.01-5	☐ >5	□ NA
Additional Constituents									
BOD	☐ <100	☐ 100-1,000	☐ >10,000	□ NA	Total Ammonia	☐ <5	☐ 5-50	☐ >50	□ NA
COD	☐ <100	☐ 100-1,000	☐ >10,000		Nitrate (as N)	☐ <10	☐ 100-500	☐ >500	□ NA
Total Phosphorus	☐ <25	☐ 25-50	☐ >50	□ NA	Nitrite (as N)	☐ <0.01	☐ 0.01-5	☐ >5	□ NA
Sulphates	☐ <100	☐ 100-500	☐ >500	□ NA	Other:	☐	☐	☐	
Total Suspended Solids	☐ <100	☐ 100-1,000	☐ >1,000	□ NA	Other:				

Part 5C: Prohibited Items

Does the material contain any of the following contaminates that would require it to be classified as a Waste Dangerous Good under the Transportation of Dangerous Good Regulations?

Dioxins/Furans ☐ Yes ☐ No	NORMs ☐ Yes ☐ No	PCBs ☐ Yes ☐ No	Pesticides ☐ Yes ☐ No
PFOA/PFAS/PFOS ☐ Yes ☐ No	Explosives ☐ Yes ☐ No	Pharmaceuticals ☐ Yes ☐ No	

Part 5D: Additional Properties & General questions

Is there the potential for the waste to contain any of the following items?

Sewerage/Black Water ☐ Yes ☐ No	Medical/Infectious/Biohazard Waste ☐ Yes ☐ No	
Strong Oxidizers ☐ Yes ☐ No	Reactive Compounds ☐ Yes ☐ No	Fuming Acids ☐ Yes ☐ No

WASTE PROFILE SHEET

Has the material ever been rejected from acceptance at another NS Wastewater Treatment Facility: ☐ Yes ☐ No
If Yes Provide details for rejection:

ACKNOWLEDGEMENTS – PLEASE INITIAL ALL LINES

The Generator and/or its Brokers/Contractors MUST acknowledge that they accept the following conditions:

_____I certify that I am an authorized agent signing on behalf of the Generator/Owner and have been delegated this authority by the Generator/Owner of the waste.

_____I certify that I am familiar with the waste/material described herein through analysis, and/or process knowledge, and that all information is true, factual, accurate, representative and complete.

_____I authorize Envirosoil personnel to obtain a sample from any material shipment for purposes of verification and confirmation and understand that any material that does not conform to the specifications described in this Waste Profile Sheet may be rejected by Envirosoil

_____Any changes that occur in the character of the waste (i.e. changes in the process or new data) will be immediately identified by myself or the Generator/Owner and disclosed to Envirosoil prior to shipment of the waste.

_____I understand that any changes in the character of the waste that are not reported to Envirosoil in writing prior to shipment of the waste will invalidate this approval and the waste may be refused for acceptance.

_____ Materials cannot be accepted outside normal working hours.

_____ All deliveries must be prearranged and approved in advance. Failure to make prior arranges may result in significant wait times at Envirosoil Limited and/or in the loads being rejected.

_____ Additional data, including laboratory analysis, may be required by Envirosoil at any time.

_____ Every shipment of material must be accompanied by an Envirosoil Manifest. Third party manifests, Bill of Ladings, etc. are not acceptable. Shipments without an Envirosoil Manifest are subject to rejection or delays.

DISCLAIMER

The Generator and/or its Brokers/Contractors acknowledge that the information provided in this profile as well as all other supporting analytical results are a true and accurate representation of the material to be shipped to Envirosoil Limited. The Generator understands and acknowledges that the failure to properly describe the material could result in the need for Envirosoil Limited to reject the material and/or to incur expenses (administrative, professional, legal, regulatory, penalties, fines, etc.) in order to properly dispose of the material and to comply with applicable legislation. The Generator agrees to indemnify Envirosoil Limited for all costs that may arise from the misrepresentation of the material.

Authorized Signature	Company	Title	Date
_____	_____	_____	_____

In-House Laboratory – Audit and Continual Improvement Program

Project Location: 750 Pleasant Street, Dartmouth, Nova Scotia

Operator: Envirosoil Limited

Envirosoil Limited (Envirosoil) has been an ISO 9000 and 14000 registered company since 2006 and all of its operations are conducted under the requirements of its ISO guidelines. As part of its operations at the new Pleasant Street facility, Envirosoil will ensure that its operations continue to meet the requirements of its ISO commitments.

The goal of Envirosoil's in-house laboratory is to ensure that it consistently produces accurate, precise, reliable data that is scientifically defendable and traceable. This will ensure that all decisions related to the interpretation of laboratory data can be made with the highest degree of confidence.

As part of its commitment to quality, Envirosoil will establish its in-house analytical laboratory in accordance with all industry standard guidelines, standards and requirements. The setup and operations of its in-house lab will follow the general guidelines and recommendations outlined in the British Columbia Environmental Laboratory Manual (BCELM), as well as other industry documents.

To ensure that the in-house laboratory is operating in strict accordance with all relevant procedures, and at the highest level of quality assurance, a series of audits will be performed within the first year of operations. These audits will be conducted by an independent, third-party consultant and the lead auditor will have significant knowledge and experience in the operation and management of commercial environmental analytical laboratories and a detailed understanding of various laboratory accreditation programs such as the Standards Council of Canada (SCC) and the Canadian Association for Laboratory Accreditation (CALA).

The emphasis of the audits will be on documentation and other evidence demonstrating that the laboratory is following all standard, recommended procedures and is producing accurate and defensible data. Auditors will examine documents to verify that all information and operational aspects of the laboratory are being performed in accordance with recognized standards and procedures. The audit will examine the full range of laboratory operations and include the following:

- Safety procedures
- Environmental management procedures
- Personnel training and experience
- Facility features and equipment
- Equipment maintenance and calibration procedures
- Sample handling procedures
- QA/QC procedures
- Analytical procedures and testing methods
- Data management procedures and document control
- Reporting procedures

The QA/QC procedures will include the tracking of internal duplicates, blanks, spikes and standards, as well as external duplicates with comparisons to the same performance standards as the external

laboratories (i.e., RPDs, Blank thresholds, and standards performance). Performance will be reviewed to ensure comparable performance (within the analytical performance specs for the methods/instruments) and development of staff with the identification of potential optimization methods and confirmation of manufacturer performance specifications. The procedures will follow CCME and US EPA guidance on QA/QC.

In the first year of operations, the following audits will be completed:

1. Pre-startup Audit ✇Completed prior to initiating operations
2. Mid-Year Audit ✇Completed at the 6-month anniversary of starting operations
3. Year-End Audit ✇Completed at the 12-month anniversary of starting operations

Any deficiencies or recommendations for improvements discovered by the audits will be immediately rectified and/or implemented.

After the initial first year of operations, both internal and external audits will be scheduled in accordance with the requirements of Envirosoil's ISO procedures. The laboratory audits will ensure that the laboratory has quality systems in place, follows good laboratory practices, and generates data of high integrity and quality.

Supervisory Control and Data Acquisition System (SCADA)

Project Location: 750 Pleasant Street, Dartmouth, Nova Scotia

Operator: Envirosoil Limited

Envirosoil's new facility will be equipped with the latest in automation and process controls. A supervisory control and data acquisition system (SCADA) is a computer-monitored alarm, response, control, and data acquisition process that is used to monitor and adjust treatment processes and operate treatment facilities.

SCADA systems have become essential to operating wastewater treatment facilities. A SCADA system is a collection of monitoring and communication equipment with a computer interface running the SCADA software package. It is designed to help operators monitor and control treatment processes.

The SCADA system will utilize programmable logic controllers (PLCs) networked together with multiple operator interfaces. PLCs are control devices that act as replacements for hardwired relay panels that were used in the early years of process automation.

The SCADA system will allow the plant operators to control Envirosoil's entire Pleasant Street facility from a central computer located in the main control room. The operator can control tank levels, pump sequences, pump speeds, dosing, electrocoagulation operations, dewatering screw press operations, etc., all from the main computer control room.

The SCADA system will provide the operator with an effective visual interface. The SCADA system will provide animated graphic depictions of the processes combined with individual process values. The display will inform the operator of the status of the process being monitored, including alerting the operator to any problems in the system and providing the means to make any necessary adjustments to the process. Small displays may be mounted directly on process equipment to allow process changes to be made at the equipment location.

Data Logging Functions

In addition to process control, the SCADA system will perform automated monitoring, data logging, alarm, and diagnostic functions that will allow the treatment facility to be run safely and efficiently. As the PLC receives information from the equipment and water treatment processes and subsystems, the data is transferred to the SCADA system.

The SCADA system will electronically archive the data to be able to recall and review it as needed. These files can be used in other applications for further analysis or formatting into reports. Hard copies of status and alarm data can be printed and retained for plant recordkeeping. These records include date, time, and changes made. Changes to the processes can be tracked through an archive of set-point changes, alarms, and equipment adjustments. This historical data assists operators with investigating process upsets and equipment failures, and it provides well-documented data for reporting purposes.

Alarm Functions

SCADA alarm functions are important tools for operators. The alarm functions are integrated into the SCADA system, alerting operators to process upsets by pinpointing the precise area where the upset occurs. Operators can respond quickly and accurately, reducing the chance that a process upset will result in having to retreat any wastewaters.

Process Computer Control Systems

The SCADA system collects, stores, and analyzes information concerning all aspects of operation and maintenance, transmits alarm signals, and allows fingertip control of alarms, equipment, and processes. The SCADA system provides the information that operators need to resolve minor problems before they become major incidents. As the nerve center at the treatment plant, the system allows operators to enhance the efficiency of their facility by keeping

them fully informed and fully in control.

The SCADA system will monitor levels, pressures, and flows and operate pumps, valves, and alarms. It will monitor temperatures, speeds, motor currents, online analyzers (i.e. pH, TPH, TSS, BOD/COD) and other operating parameters. The SCADA system will provide a log of historical data for events, analog signal trends, and equipment operating time for maintenance purposes. The information collected may be read by an operator on computer screen readouts or analyzed and plotted by the computer as trend charts.

The SCADA system will provide a picture of the plant's overall status on a computer screen. In addition, detailed pictures of specific portions of the system can be examined by the operator through the computer workstation. The graphical displays on the computer screens can include current operating information, which the operator can use to determine if the guidelines are within acceptable operating ranges or if any adjustments are necessary.

Emergency response procedures can also be programmed into a computer control system. Operator responses can be provided for different operational scenarios that might be encountered as a result of adverse weather changes, fires, earthquakes, or other emergency situations.

Typical SCADA System Functions

SCADA control systems are being continually improved to help operators do a more effective job. Operators can create display screens the show graphics and whatever operating characteristics that are wished to be displayed. The main screen could be a flow diagram from influent to effluent showing the main treatment and auxiliary process areas. Critical operating information could be displayed for the main treatment flow path and process area, with navigation capabilities to easily access detailed screens for each piece of equipment.

Information on the screen should be color-coded to indicate if a pump is running, ready, unavailable, or failed, or if a valve is open, closed, moving, unavailable, or failed. The computer uses a failed signal to inform the operator that something is wrong with the information or the signal it is receiving or is being instructed to display. The computer senses and reports information that is not consistent with the rest of the information available.

The operator can request a computer to display a summary of all alarm conditions in a plant, a particular plant area, or a process system. A blinking alarm signal indicates that the alarm condition has not yet been acknowledged by the operator. A steady alarm signal, one that is not blinking, indicates that the alarm has been acknowledged but the condition causing it has not yet been fixed. Also, the screen could be set up to automatically designate certain alarm conditions as priority alarms, requiring immediate operator attention.

These tools provide the operator with the ability to monitor the treatment plant systems effectively and to catch process upsets, often before they occur.

Treatment System Component Commissioning

Project Location: 750 Pleasant Street, Dartmouth, Nova Scotia

Operator: Envirosoil Limited

Treatment Component Commissioning

The commissioning of Envirosoil's water treatment facility will be conducted in five phases. Each phase will have varying levels of production and testing to ensure that all components of the facility are operating properly and that the facility can process wastewaters while achieving compliance with the discharge criteria.

Phase I

Phase I of the commissioning plan will involve the treatment of a minimum of 500 m^3 of wastewater. This phase will be defined by the following parameters:

1. The system will be operated in batch mode
2. A batch is defined as being > 50 m^3 and < 100 m^3
3. Duplicate samples of each batch of untreated wastewater will be collected
4. The treatment system will be operated at 50% nominal flow capacity
5. Duplicate samples of each batch of treated water will be collected using the automatic, online water sampler
6. 100% of the untreated and treated water samples will be analyzed in-house
7. 100% of the duplicate untreated and treated water samples will be sent to an accredited third-party commercial laboratory for analysis
8. Microtox testing of all treated water samples will be performed in the in-house laboratory
9. All analytical data will be analyzed for compliance to the discharge criteria

Phase II

Phase II of the commissioning plan will occur after the completion of Phase I and will involve the treatment of a minimum of 500 m^3 of wastewater. Phase II is identical to Phase I with the exception that the plant will operate at 100% of its nominal design flow rate. This phase will be defined by the following parameters:

1. The system will be operated in batch mode
2. A batch is defined as being > 50 m^3 and < 100 m^3
3. Duplicate samples of each batch of untreated wastewater will be collected
4. The treatment system will be operated at 100% nominal flow capacity
5. Duplicate samples of each batch of treated water will be collected using the automatic, online water sampler
6. 100% of the untreated and treated water samples will be analyzed in-house
7. 100% of the duplicate untreated and treated water samples will be sent to an accredited third-party commercial laboratory for testing
8. Microtox testing of all treated water samples will be performed in the in-house laboratory
9. All analytical data will be analyzed for compliance to the discharge criteria

Phase III

Phase III of the commissioning plan will start at the completion of Phase II. Phase III will involve the treatment of a minimum of 1,000 m^3 of wastewater. This phase will be defined by the following parameters:

1. The system will be operated in batch mode
2. A batch is defined as being > 50 m^3 and < 100 m^3
3. Duplicate samples of each batch of untreated wastewater will be collected
4. The treatment system will be operated at 100% of its nominal flow capacity
5. Duplicate samples of each batch of treated water will be collected using the automatic, online water sampler
6. 100% of the untreated and treated water samples will be analyzed in-house
7. 50% of the duplicate untreated and treated water samples will be sent to an accredited third-party commercial laboratory for analysis
8. Microtox testing of all treated water samples will be performed in the in-house laboratory
9. One sample of treated water will be sent for LC50 testing at an accredited third-party commercial laboratory
10. All analytical data will be analyzed for compliance to the discharge criteria

Phase IV

Phase IV of the commissioning plan will start at the completion of Phase III. Phase IV will involve the treatment of a minimum of 1,000 m^3 of wastewater. During Phase III the facility will operate at flow rates between 50% - 150% of its nominal design flow rate. This phase will be defined by the following parameters:

1. The system will be operated in batch mode
2. A batch is defined as being > 50 m^3 and < 100 m^3
3. Duplicate samples of each batch of untreated wastewater will be collected
4. The treatment system will be operated at 50% - 150% of its nominal flow capacity
5. Duplicate samples of each batch of treated water will be collected using the automatic, online water sampler
6. 100% of the untreated and treated water samples will be analyzed in-house
7. 25% of the duplicate treated water samples will be sent to an accredited third-party commercial laboratory for analysis
8. Microtox testing of all treated water samples will be performed in the in-house laboratory
9. All analytical data will be analyzed for compliance to the discharge criteria

Phase V

Phase V of the commissioning plan will start at the completion of Phase IV. Phase V will involve the treatment of a minimum of 2,000 m3 of wastewater. This phase will be defined by the following parameters:

1. The system will be operated in batch mode
2. A batch is defined as being > 50 m^3 and < 150 m^3
3. Duplicate samples of each batch of untreated wastewater will be collected
4. The treatment system will be operated at 50% - 150% of its nominal flow capacity
5. Duplicate samples of each batch of treated water will be collected using the automatic, online water sampler

6. 50% of the untreated water samples will be analyzed in-house
7. 100% of the treated water samples will be analyzed in-house
8. 10% of the duplicate treated water samples will be sent to an accredited third-party commercial laboratory for analysis
9. Microtox testing of all treated water samples will be performed in the in-house laboratory
10. One sample of treated water will be sent for LC50 testing at an accredited third-party commercial laboratory
11. All analytical data will be analyzed for compliance to the discharge criteria

Treatment Plant Operator Training

Project Location: 750 Pleasant Street, Dartmouth, Nova Scotia

Operator: Envirosoil Limited

Envirosoil's new water treatment facility will involve the treatment of various types of non-municipal wastewater. Since most wastewater treatment courses and programs available today are focused primarily with the operations of a municipal water treatment facility or drinking water treatment facilities, they are not directly applicable to Envirosoil's operations.

In order to ensure that Envirosoil's operators are fully trained and capable of operating the facility, operators will undergo a series of in-house training, hands-on vendor/supplier training programs and online vendor training courses. Extensive training is provided by both the electrocoagulation and multi-disk screw press vendors. This training consists of a combination of hands-on training, in class training and online instruction.

For general principles related to industrial wastewater treatment, Envirosoil is adopting the University of Sacramento training program to develop a custom in-house training program specifically designed for its treatment operations. The training program will be based on the standard Industrial Waste Treat ment Volumes I and II program offered by the University.

This course is designed to train operators in the practical aspects of operating and maintaining industrial wastewater treatment plants, emphasizing safe practices and procedures. Information is presented on the importance and responsibilities of an industrial treatment plant operator, why industrial wastewaters must be treated, regulations governing industrial wastewaters, sources of industrial wastes and industrial wastewater monitoring.

The core program will be augmented/supplemented by information that relates to the specifics of the treatment process to be utilized at the Envirosoil facility.

Operators will learn to operate and maintain flow measurement equipment, preliminary treatment processes (filtration, oil/water separation screening, pH adjustment, etc.), physical-chemical treatment processes (coagulation, flocculation, emulsion breaking), pressure filters, physical treatment processes (carbon adsorption, organoclay adsorption, etc.), and processes for the treatment of metals contaminated wastewater streams.

Operators will also learn to operate and maintain treatment plant instrumentation, pumps, monitoring equipment and various other systems. Additional program emphasis will be placed on detailed safety procedures and plant maintenance. This course will focus on actual operating procedures and will teach Envirosoil's operators to analyze and solve operational problems.

The core training will cover the following subject areas:

- Basic Principles of Water Treatment
- Basic Water Mathematics
- Basic Water Chemistry
- General Safety Procedures
- Chemical Safety

- Electrical Safety
- Truck Offloading Procedures
- Bag Filter Operations
- Oil/Water Separator Operations
- Electrocoagulation Operations
- Coagulation & Flocculation
- Chemical Feed Calculations
- Adsorption Processes: Activated Carbon, Organoclay and Zeolite Media
- pH Adjustment
- Water Sample Collection Techniques
- Autosampler Operations
- Facility & Equipment Maintenance
- Instrumentation & SCADA Control
- Records Keeping & Administration
- Waste Disposal

Operational Phase - Continuous Operations Option

Project Location: 750 Pleasant Street, Dartmouth, Nova Scotia

Operator: Envirosoil Limited

After one (1) year of operations, Envirosoil may chose to treat certain types of wastewaters in a continuous discharge mode versus batch mode. These wastewaters will represent "routine/normal" wastewaters that the facility receives on a "regular" basis from a particular Customer/Owner. They are consistent in contaminant types and concentrations and the facility has proved it can easily treat the wastewaters to the required discharge criteria. Wastewaters defined as being "suitable for continuous discharge" (SCD Wastewaters) are characterized by the following:

- Generated by a single source/Owner
- Generated by a single, established, consistent, process (i.e. car wash, manhole cleaning, metal plating, etc.)
- Have been successfully treated on a project basis for over 6 individual projects[1]
- The main contaminants are hydrocarbons, metals and/or PAHs

During storage and/or treatment operations these SCD wastewaters will not be mixed/comingled with non-SCD wastewater streams.

This phase of operations will be defined by the following parameters:

1. The system will be operated in continuous mode
2. The treatment system will be operated at a maximum rate of 100% nominal flow capacity
3. Duplicate samples of the untreated wastewater will be collected at a frequency of 1 sample per 100 m^3
4. Duplicate samples of treated water will be collected using the automatic, online water sampler at a rate of 1 sample per 12-hour shift
5. 100% of the untreated and treated water samples will be analyzed inhouse
6. 10% of the duplicate untreated and treated water samples will be sent to a certified third-party commercial laboratory for testing
7. Microtox testing of all treated water samples will be performed in the inhouse laboratory at a frequency of 1 sample per 12-hour shift
8. All analytical data will be analyzed for compliance to the discharge criteria
9. If the online analyzers, inhouse lab or third-party lab indicates failure to achieve the discharge criteria, then continuous discharge will stop and treatment will revert to batch mode.

[1] A project is defined as a particular wastewater stream that is generated from a particular customer by the same process.