



## PERMIT GVA1006

Pursuant to  
Greater Vancouver Regional District Air Quality Management Bylaw No. 1082, 2008  
and BC Environmental Management Act

### **VF Clean Energy Inc.**

located at  
**4526 80th Street, Delta, BC V4K 3N3**

is authorized to discharge air contaminants to the air from  
**AN ELECTRICAL COGENERATION FACILITY**


subject to the requirements in this Permit for the emission sources and works existing or planned on  
February 19, 2015.

Contravention of any of these requirements is a violation of the bylaw  
and may result in enforcement action.

All previous versions of this Air Quality Management Permit are hereby rescinded and rendered null and void.

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Issued: December 09, 2002  
Amended: February 19, 2015

  
Darrell Wakelin  
Assistant District Director

**GREATER VANCOUVER REGIONAL DISTRICT AIR QUALITY MANAGEMENT PERMIT**

**SECTION 1 – AUTHORIZED EMISSION SOURCES**

Authorization to discharge air contaminants from the authorized Emission Sources and Works listed below is subject to the specified terms and conditions.

Approximate locations of the emission sources are shown on the Site Plan in section 4.

**EMISSION SOURCE 01: Caterpillar G3532 reciprocating engine set #1 discharging through a Stack(s).**

MAXIMUM EMISSION FLOW RATE: **170** m<sup>3</sup>/min  
MAXIMUM ANNUAL OPERATING HOURS: **8760** hrs/yr

MAXIMUM EMISSION QUALITY:

1. 328 mg/m<sup>3</sup> Nitrogen Oxides at 6.3% Oxygen
2. 10% Opacity. Based on a six minute average.

WORKS AND PROCEDURES:

Caterpillar G3532 internal combustion engine sets equipped with "lean burn" technology and associated heat recovery systems together with good operating practices. Authorized fuel is landfill gas only.

The permittee shall keep written records pertaining to the inspection frequency, engine condition and maintenance and repairs carried out on the Caterpillar engines and related equipment. The records shall be kept on site, and available for inspection for a minimum of three years.

**EMISSION SOURCE 02: Caterpillar G3532 reciprocating engine set #2 discharging through a Stack(s).**

MAXIMUM EMISSION FLOW RATE: **170** m<sup>3</sup>/min  
MAXIMUM ANNUAL OPERATING HOURS: **8760** hrs/yr

MAXIMUM EMISSION QUALITY:


1. 328 mg/m<sup>3</sup> Nitrogen Oxides at 6.3% Oxygen.
2. 10% Opacity. Based on a six minute average.

WORKS AND PROCEDURES:

Caterpillar G3532 internal combustion engine sets equipped with "lean burn" technology and associated heat recovery systems together with good operating practices. Authorized fuel is landfill gas only.

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### **EMISSION SOURCE 03: Caterpillar G3532 reciprocating engine set #3 discharging through a Stack(s).**

MAXIMUM EMISSION FLOW RATE: **170** m<sup>3</sup>/min  
MAXIMUM ANNUAL OPERATING HOURS: **8760** hrs/yr

#### MAXIMUM EMISSION QUALITY:

1. 328 mg/m<sup>3</sup> Nitrogen Oxides at 6.3% Oxygen.
2. 10% Opacity. Based on a six minute average.

#### WORKS AND PROCEDURES:

Caterpillar G3532 internal combustion engine sets equipped with "lean burn" technology and associated heat recovery systems together with good operating practices. Authorized fuel is landfill gas only.

The permittee shall keep written records pertaining to the inspection frequency, engine condition and maintenance and repairs carried out on the Caterpillar engines and related equipment. The records shall be kept on site, and available for inspection for a minimum of three years.

### **EMISSION SOURCE 04: Caterpillar G3532 reciprocating engine set #4 discharging through a Stack(s).**

MAXIMUM EMISSION FLOW RATE: **170** m<sup>3</sup>/min  
MAXIMUM ANNUAL OPERATING HOURS: **8760** hrs/yr

#### MAXIMUM EMISSION QUALITY:

1. 328 mg/m<sup>3</sup> Nitrogen Oxides at 6.3% Oxygen.
2. 10% Opacity. Based on a six minute average.


#### WORKS AND PROCEDURES:

Caterpillar G3532 internal combustion engine sets equipped with "lean burn" technology and associated heat recovery systems together with good operating practices. Authorized fuel is landfill gas only.

The permittee shall keep written records pertaining to the inspection frequency, engine condition and maintenance and repairs carried out on the Caterpillar engines and related equipment. The records shall be kept on site, and available for inspection for a minimum of three years.

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### **SECTION 2 – GENERAL REQUIREMENTS AND CONDITIONS**

#### **A. AMENDMENTS**

The terms and conditions of this permit may be amended, as authorized by applicable legislation. New and modified sources must receive authorization prior to start-up.

#### **B. POLLUTION**

Notwithstanding any conditions in this permit, no person shall discharge or allow or cause the discharge of any air contaminant so as to cause pollution as defined in the Greater Vancouver Regional District Air Quality Management Bylaw No. 1082, 2008 and the Environmental Management Act.


#### **C. STANDARD CONDITIONS AND DEFINITIONS**

Unless otherwise specified, the following applies to this permit:

1. Gaseous volumes are corrected to standard conditions of 20° Celsius & 101.325 kPa with zero percent moisture.
2. Contaminant concentrations from the combustion of specific fuel types are corrected to the following Oxygen content, unless specified otherwise:
  - 3% O<sub>2</sub> for natural gas and fuel oil;
  - 8% O<sub>2</sub> for wood fuel;
  - 15% O<sub>2</sub> for turbines.
3. Where compliance testing is required, each contaminant concentration limit in this permit will be assessed for compliance based on a valid test using test methods approved by the District Director.
4. Visual opacity measurements are made at the point of maximum density, nearest the discharge point and exclude the effect of condensed, uncombined water droplets. Compliance determinations are based on a 6 minute average in accordance with the provincial "Source Testing Code for the Visual Measurement of The Opacity of Emissions from Stationary Sources". Continuous Emission Monitor System (CEMS) opacity compliance determinations are based on a one hour average (taken from the top of each hour).
5. If authorized in section 1 of this permit, standby fuel use is restricted to a maximum of 350 hrs/yr and to those periods during which the primary authorized fuel is not available. Fuel oil sulphur content shall not exceed 15 mg/kg and emissions during fuel oil firing shall not exceed 10% Opacity.
6. Definitions in the Environmental Management Act and Air Quality Management Bylaw apply to terminology used in this permit.
7. Threshold Limit Values (TLV) refer to the Time Weighted Average (TWA) exposure limits for substances specified in the American Conference of Governmental Industrial Hygienists Threshold Limit Values handbook, current on the latest date that this permit issuance or amendment came into effect.
8. Sulphur Oxides (SO<sub>x</sub>) are expressed as Sulphur Dioxide.
9. Nitrogen Oxides (NO<sub>x</sub>) are expressed as Nitrogen Dioxide.

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10. The Canadian Council of Ministers of the Environment (CCME) "Environmental Guidelines for Controlling Emissions of Volatile Organic Compounds from Aboveground Storage Tanks (June 1995, CCME-EPC-87E)" shall be adhered to for all applicable tanks unless otherwise stated in this permit.
11. Authorized 'Maximum Annual Operating Hours' of 8760 hrs/yr for an emission source is equivalent to authorization for continuous operation of the emission source for an entire calendar year, including leap years.

### **D. HEATING, VENTILATION, AIR CONDITIONING AND INTERNAL COMBUSTION ENGINES**

Air contaminants discharged from any natural gas-fired heating, ventilation or air conditioning systems for buildings and any internal combustion engines located at the discharge site shall be maintained and operated in a manner prescribed by the manufacturer to ensure good combustion of the fuel with minimum discharge of air contaminants.

### **E. AUTHORIZED WORKS AND PROCEDURES**

Works and procedures, which this permit authorizes to control the discharge of air contaminants, shall be employed during all operating periods of the related facilities. The permit holder shall regularly inspect and maintain all such works in good repair.

The discharge criteria described in this permit are applicable on the issued or amended date of this permit unless specified otherwise. If a date different to the issued or amended date is specified, the existing control works and procedures must be maintained in good operating condition and operated in a manner to minimize emissions.

### **F. BYPASSES**

The discharge of contaminants which have bypassed authorized control works during non-emergency conditions is prohibited unless approval has been obtained in writing from the District Director.


### **G. EMERGENCY PROCEDURES**

In the event of an emergency that prevents compliance with a requirement(s) of this permit, that requirement(s) shall be suspended for such time as the emergency continues or until otherwise directed by the District Director, provided that:

1. Due diligence was exercised in relation to the process, operation or event that caused the emergency and that the emergency occurred notwithstanding this exercise of due diligence; and,
2. The District Director is notified at the first available opportunity of the emergency and of contingency actions invoked or planned to mitigate adverse impacts and restore compliance. Notification shall be made to Metro Vancouver's 24-hour number: 604-436-6777; and,
3. Due diligence is exercised in shutting down related processes and/or taking action to restore compliance in the shortest possible time frame, unless specified otherwise in this permit or by written notice from the District Director.

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Notwithstanding 1, 2 and 3 above, the District Director may specify contingency actions to be implemented to protect human health and the environment while authorized works and/or standard operating procedures are being restored.

If an emergency situation results in a "spill" as defined in the Environmental Management Act Spill Reporting Regulation, the spill shall also be reported immediately to the Provincial Emergency Program by telephoning 1-800-663-3456.

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**SECTION 3 – REPORTING REQUIREMENTS**

**A. MONITORING REQUIREMENTS AND REPORTING**

Unless otherwise approved by the District Director prior to any sampling or analysis, all measurements shall be performed by an independent agency in accordance with Metro Vancouver Air Emissions Sampling Program Manual of Methods and Standard Operating Procedures and the BC Ministry of Environment Field Sampling Manual, as they may be amended from time to time. Any variance from these procedures must receive prior approval from the District Director.

A minimum of 3 working days advance notice must be given prior to taking measurements required by this Monitoring and Sampling Program. Notification must be given to the Metro Vancouver Environmental Regulation & Enforcement Division (phone 604-436-6777, Fax 604-436-6707, email [regulationenforcement@metrovancover.org](mailto:regulationenforcement@metrovancover.org)).

Unless otherwise specified, sampling shall be performed under operating conditions representative of the previous 90 calendar days of operation. All field data and calculations must be submitted with monitoring results and they shall be reported in the metric units which are used in this permit. These submissions shall include process data relevant to the operation of the source of the emissions and the performance of the emission control works.

The permit holder shall conduct the following monitoring and sampling and submit electronic reports of the results to the District Director by the dates specified below using a password enabled web based application provided by Metro Vancouver.

| EMISSION SOURCE | INITIAL DUE DATE | SUBSEQUENT DUE DATES                            | REQUIREMENT   | PARAMETER(S)               | TEST METHOD | REPORT TYPE |
|-----------------|------------------|---|---|----------------------------|-------------|-------------|
| 01, 02, 03, 04  | March 31, 2015   | Every 6 months from the initial due date, on or | For all installed and operating engine sets, a written report detailing the | Nitrogen Oxides,<br>Carbon |             | Stack       |

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| EMISSION SOURCE | INITIAL DUE DATE | SUBSEQUENT DUE DATES                        | REQUIREMENT  | PARAMETER(S)   | TEST METHOD | REPORT TYPE |
|-----------------|------------------|---|--|--|-------------|-------------|
|                 |                  | before the last day of each 6-month period. | measured discharge rate together with the concentration of particulate matter, nitrogen oxides, sulphur oxides, total volatile organic compounds (as methane) and carbon monoxide in the emissions. Schedule B - Section H -3. of this Permit shall not apply. | Monoxide, Particulate Matter, Sulphur Oxides, Total Volatile Organic Compounds |             |             |

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**B. INFORMATION REPORTING REQUIREMENTS**

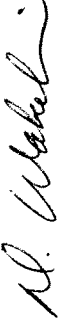
The permit holder shall submit electronic reports containing the required information to the District Director by the dates specified below using a password enabled web based application provided by Metro Vancouver.

| EMISSION SOURCE | INITIAL DUE DATE   | SUBSEQUENT DUE DATES  | REQUIREMENT  | REPORT TYPE         |
|-----------------|--------------------|---|--|---------------------|
| Facility        | September 30, 2015 | Every 2 years, on or before September 30 every second year. | Written report providing research on technologies available for the reduction of nitrogen oxides emissions from the engine sets. This report shall include information on the feasibility of implementation, associated costs and the effectiveness of the operational methods and technologies.   | Information - Other |
| Facility        | March 31, 2015     | On or before March 31 for each subsequent year.             | Written reports pertaining to the quantity, quality and characteristics of the landfill gas received from the Vancouver Landfill and used as fuel in the reciprocating engine sets for the previous calendar year. These reports shall include but not be limited to the total volumes of landfill gas used in the engine sets, average sulphur content and methane content in the landfill gas. | Information - Other |
| 01, 02, 03, 04  | March 31, 2015     | On or before March 31 for each subsequent year.             | Written report providing details of the total number of hours and days operated in the preceding calendar year. Detailed records are to be maintained in a written bound log or other format approved by the District Director and made available for inspection by Metro Vancouver staff for a minimum period of three years.   | Operating Period    |

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**C. AMENDED OR ADDITIONAL REQUIREMENTS**


Based on the results of the monitoring program, including the stack sampling results or any other information, the District Director may:

1. Amend the monitoring and reporting requirement of any of the information required by this Permit including plans, programs and studies.
2. Require additional investigations, tests, surveys or studies.

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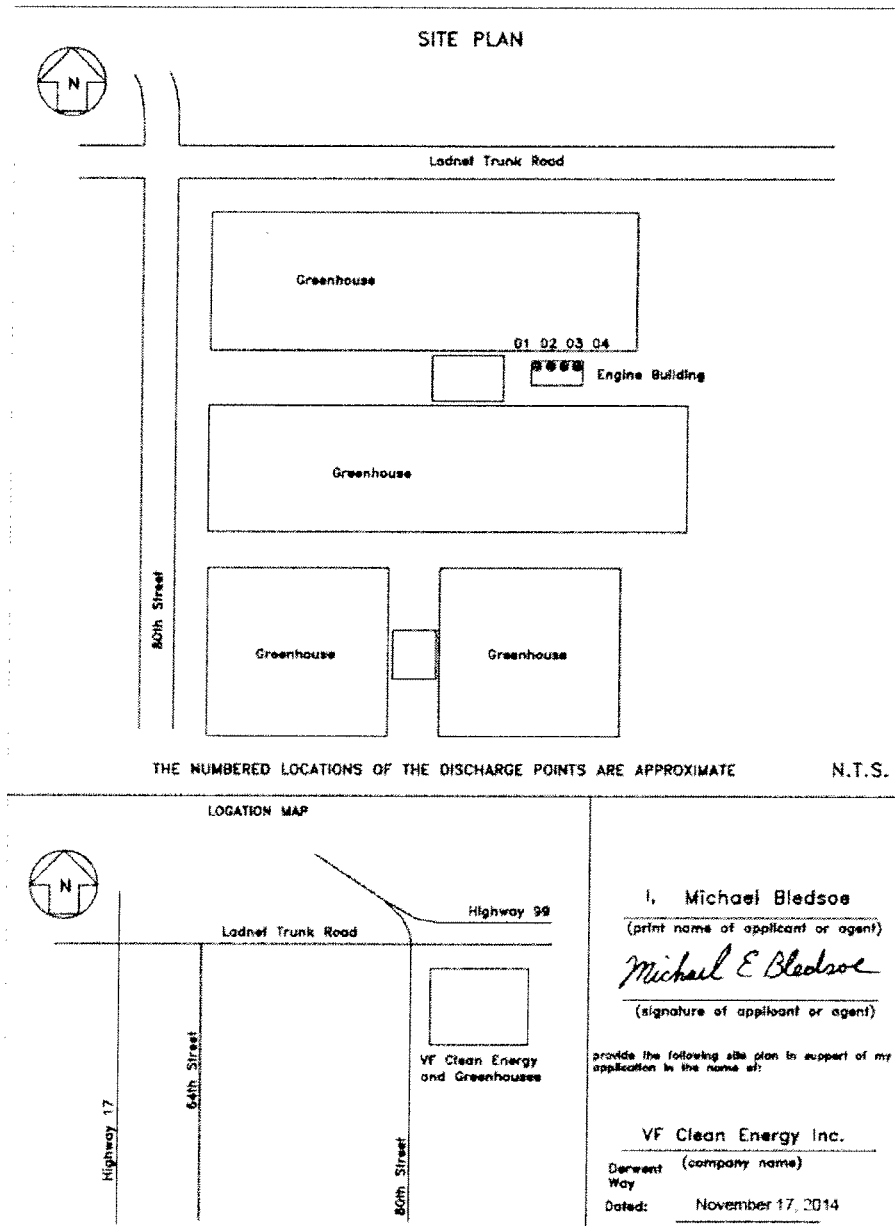
  
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**SECTION 4 – SITE PLAN**

LEGAL DESCRIPTION OF DISCHARGE SITE: "Parcel Identifier: 024-579-254, Parcel 1 except: Part Road Plan LMP50211, Section 32, TWP 3, New Westminster District Plan LMP42884."

The following site plan is not to scale and the locations of the discharge points are approximate.



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*D. Wakelin*  
Darrell Wakelin  
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