



### AMENDING DOCUMENT

Under the provisions of the  
Greater Vancouver Regional District Air Quality Management Bylaw No. 1082, 2008,

**AIR QUALITY MANAGEMENT PERMIT NUMBER GVA0451**  
(issued November 30, 1992 and last amended June 7, 2006)

in the name of **Terasen Gas (Vancouver Island) Inc.**  
located at 1710 Eagle Mountain Drive, Coquitlam B.C. V3E 2Y6

is amended, subject to the terms and conditions listed below:

**Effective Date(s):** JUL 0 7 2011

**Face Page:** The company name is changed from Terasen Gas (Vancouver Island) Inc. to FortisBC Energy (Vancouver Island) Inc.

**Schedule H, Record of Permit Issuance:** Add new text under the headings:

Date	Action	Sections Affected
JUL 0 7 2011	Amended	Face Page

All other terms and conditions prescribed in Permit GVA0451 remain unchanged.

Amendment Date: JUL 0 7 2011

Don Miller, Assistant District Director



Policy & Planning Department  
Telephone: 604-432-6375 Fax: 604-436-6970

# PERMIT

(Under the provisions of the GVRD Air Quality Management Bylaw No. 937, 1999  
and the BC Environmental Management Act)

TERASEN GAS (VANCOUVER ISLAND) INC.

IS AUTHORIZED TO DISCHARGE AIR CONTAMINANTS

FROM A NATURAL GAS PIPELINE COMPRESSOR STATION

LOCATED AT 1710 EAGLE MOUNTAIN DRIVE, COQUITLAM BC

This permit has been issued under the terms and conditions  
prescribed in the attached Schedules A, B, C, D, E, F, G & H  
for works existing or planned on

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**INDEX OF SCHEDULES**

Schedule A.....Site Plan

Schedule B.....General Requirements

Schedule C.....Emission Monitoring, Sampling and Reporting Requirements

Schedule D.....Emission Sources and Discharge Points

Schedule E.....Authorized Rates of Discharge

Schedule F.....Authorized Discharge Criteria

Schedule G.....Authorized Works and Procedures

Schedule H.....Record of Permit Issuance Dates

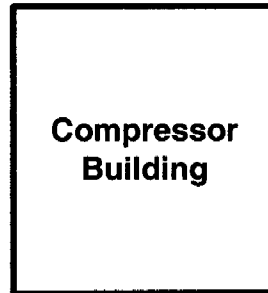
SITE PLAN



1998 Compressor Building

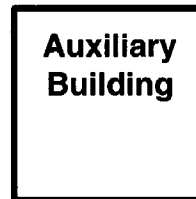
○ 06

○ 02

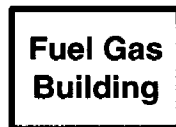


Compressor Building

○ 01



Auxiliary Building



Fuel Gas Building



THE NUMBERED LOCATIONS OF THE DISCHARGE POINTS ARE APPROXIMATE N.T.S.

LOCATION MAP



Compressor Station →



← B.C. Hydro Sub-Station

Lansdowne

Pipeline

Pinetree

Guildford

Glen

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**SCHEDULE B - Page 1  
to PERMIT GVA0451**

**A AMENDMENTS**

The terms and conditions of this Permit may be amended, as authorized by applicable legislation.

**B MAINTENANCE AND OPERATION OF WORKS**

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 Permittee shall regularly inspect and maintain all such works in good repair.

**C EMERGENCY PROCEDURES**

An emergency or other condition may prevent the continuous utilization of the above authorized works and procedures, or may result in a discharge of air contaminants which is not authorized by this Permit. If such a situation occurs, the Permittee shall report the circumstances of this event to the Greater Vancouver Regional District, Policy and Planning Department at 604-436-6777 (24 hours), at the first available opportunity.

No discharge that has bypassed control works is authorized unless the District Director's approval has been obtained. In the event of an emergency, bypassing facilities may be used for such periods as are necessary to effect a shutdown of the related processes.

**D AIR CONDITIONING, HEATING AND VENTILATION SYSTEMS**

Air contaminants discharged from any natural gas-fired air conditioning, heating or ventilation systems for buildings located at the discharge site are not specified in this Permit. These works 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. Notwithstanding the above, the District Director may at her/his discretion stipulate limits for emission of contaminants from these sources in the Permit at a future date under provisions of the Bylaw.

**E GENERAL SITE RESTRICTIONS**

No air contaminant(s) from any single source, or combination of sources shall pass the boundary of the property, described in Section I of this Schedule B, such that the District Director determines that pollution has occurred.

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**F INTERNAL COMBUSTION ENGINES**

Air contaminants discharged from any natural gas, propane, gasoline, diesel, or other fossil fuel fired internal combustion engines operated at the discharge site may not be specifically authorized in this Permit. These works shall be maintained and operated in a manner prescribed by the manufacturer to ensure good combustion of the fuel and to minimize emissions such that the requirements of Section E of this Schedule B are not exceeded. The District Director may at her/his discretion stipulate further limits for emission of contaminants from these sources in the Permit at a future date under provisions of the Bylaw.

**G ENGINEERING UNITS**

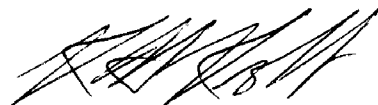
The engineering units specified in this Permit are in accordance with the Metric System of measure. Approximate equivalent values for the British System can be calculated using the following conversion factors.

$\text{mg/m}^3 \times 0.000437 = \text{gr/cf}$   
 $\text{m}^3/\text{min} \times 35.3 = \text{cf/min}$   
 $\text{kg/m}^3 \times 0.0624 = \text{lbs/cf}$   
 $\text{kg/L} \times 10.0 = \text{lbs/gal}$   
 $\text{mg/m}^3 \times 24.0/\text{M} = \text{ppm (by volume)}$   
 $\text{GJ/h} \times 0.9478 = \text{MMBTU/h}$

where

$\text{m}^3 = \text{cubic metre}$   
 $\text{min} = \text{minute}$   
 $\text{mg} = \text{milligram}$   
 $\text{cf} = \text{cubic feet}$   
 $\text{s} = \text{second}$   
 $\text{lb} = \text{pound}$   
 $\text{kg} = \text{kilogram}$   
 $\text{gal} = \text{gallon}$   
 $\text{L} = \text{litre}$   
 $\text{M} = \text{molecular weight}$   
 $\text{gr} = \text{grain}$   
 $\text{ppm} = \text{parts per million}$   
 $\text{GJ} = \text{GigaJoule}$   
 $\text{MMBTU} = \text{Million British Thermal Unit}$   
 $\text{h} = \text{hour}$

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**SCHEDULE B - Page 3  
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**H STANDARD CONDITIONS AND DEFINITIONS**

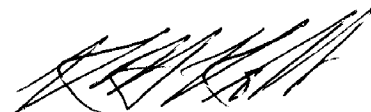
Except where otherwise indicated, the following standard conditions and definitions apply to this Permit.

1. The Restrictions in the attached Schedules are maximum limits.
2. Gaseous volumes are corrected to dry conditions of 20° Celsius & 760mm Hg.
3. Particulate matter from combustion sources is corrected to 12% Carbon Dioxide (unless otherwise stated).
4. Opacity is measured at the point of maximum density, nearest the discharge point.
5. Opacity measurements exclude the effect of condensed, uncombined water droplets.
6. Definitions in the Environmental Management Act and GVRD Air Quality Management Bylaw current at the time of issuance of this Permit apply to terminology used in this Permit. If the Permit is subsequently amended, definitions in the Environmental Management Act and GVRD Air Quality Management Bylaw current at the time of amendment shall 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 for the year 2006.
8. Any production, storage, transportation, handling, treatment, processing or ownership of a hazardous waste must comply with the requirements of the Environmental Management Act Hazardous Waste Regulation (BC Reg. 63/88).

**I DESCRIPTION OF DISCHARGE SITE**

The land from which the air contaminants are discharged is described as "NE 1/4, SE 1/4, and SW 1/4 of Section 22, Township 39, W.C.M. New Westminster District".

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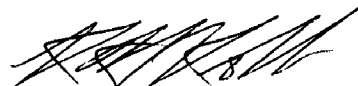
**SCHEDULE C - Page 1  
to PERMIT GVA0451**

This Schedule describes emission monitoring, sampling and reporting requirements.

The Permittee shall conduct the following monitoring and sampling program on the discharges and submit the results to the District Director. The need for increased or decreased monitoring may be reviewed periodically by the District Director.

<b>EMISSION NUMBER</b>	<b>DUE DATES</b>	<b>REQUIREMENTS</b>
01, 02, 06	November 30, 2006 and annually thereafter	A report detailing the measured rate and concentration of Nitrogen Oxides (NOx) and Carbon Monoxide in the emissions.
01, 02, 06	Continuously	Record the predicted concentration of NOx in the emissions using a Predictive Emissions Monitoring System (PEMS).
01, 02, 06	November 30, 2006 and annually thereafter	A report detailing the results of the PEMS annual evaluation in accordance with the most current approved Quality Assurance/Quality Control protocol to be conducted by a qualified independent consultant.
01, 02, 06	October 31, 2006 and at 3 month intervals thereafter	A report summarizing operations in the preceding calendar quarter including: a) hours of operation b) calculated total rate of discharge c) NOx concentration values predicted by the PEMS including hourly average and 720 hour rolling average maximums, minimums and means (expressed at standard conditions and corrected to flue gas oxygen content of 15% dry basis) for each day of operation. d) exceedances of NOx concentration restrictions as per Schedule F with explanations for the exceedances and actions taken or planned to achieve compliance e) daily mass emission rate of NOx, expressed in kilograms for each operating day.
02	March 31, 2007	Submission of a PEMS Quality Assurance/Quality Control (QA/QC) Plan, including Initial Verification Test Procedures, for approval by the District Director. All reports related to this plan shall be submitted to the District Director at such intervals required.

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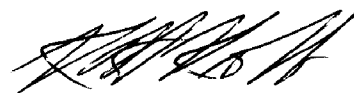
**SCHEDULE C - Page 2  
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<b>EMISSION NUMBER</b>	<b>DUE DATES</b>	<b>REQUIREMENTS</b>
General	March 31, 2007 and annually thereafter	A report detailing the types and amounts of fuel burned in the preceding calendar year for each turbine.
General	November 30, 2008 and every three years thereafter	Written report providing research on proven, application-specific technologies available for the reduction of nitrogen oxides emissions for the existing turbines that are commercially available. This report shall include information on the feasibility of such technology implementation, associated costs and its effectiveness.

Unless otherwise approved by the District Director prior to any sampling or analysis, all emission measurements shall be performed by an independent agency in accordance with those procedures described in applicable source test codes and laboratory manuals which have been published by the British Columbia Ministry of Environment, as they may be amended from time to time. Any variance from these procedures must receive prior approval from the District Director. Monitoring results shall be reported in the metric units which are used in this Permit to specify the authorized discharge criteria. These submissions shall include the production rate at the time of the test, and all field data and calculations. In addition, the Permittee shall provide the Greater Vancouver Regional District, Policy and Planning Department, with a minimum of 3 working days advance notice before any emission measurements required by this Monitoring and Sampling Program are carried out.

Ambient air sampling and monitoring shall be undertaken by the Permittee, when required by the District Director.

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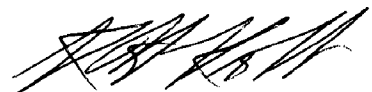
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**SCHEDULE D - Page 1  
to PERMIT GVA0451**

The authorized emission sources and discharge points located approximately as shown on Schedule A are:

<b>EMISSION NUMBER</b>	<b>EMISSION SOURCE</b>	<b>DISCHARGE POINT</b>
01	Unit 1 - Simple Cycle Turbine	Stack(s)
02	Unit 2 - Simple Cycle Turbine	Stack(s)
06	Unit 3 - Simple Cycle Turbine	Stack(s)

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**SCHEDULE E - Page 1  
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The authorized rates of discharge for the emission sources described in Schedule D are:

EMISSION NUMBER	MAXIMUM AUTHORIZED RATE OF DISCHARGE			NOTES & ADDITIONAL REQUIREMENTS
	FLOW m3/min	DURATION hours/day	FREQUENCY days/week	
01	950	24	7	
02	950	24	7	
06	1,500	24	7	

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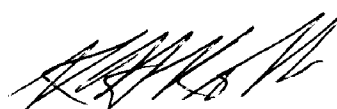
**SCHEDULE F - PAGE 1**

**to PERMIT GVA0451**

The authorized maximum discharge criteria for emission sources described in Schedule D are:

<b>EMISSION NUMBER</b>	<b>PARAMETER</b>	<b>RESTRICTION</b>	<b>NOTES</b>
06	Nitrogen Oxides	48 mg/m <sup>3</sup>	<p>The 48 mg/m<sup>3</sup> restriction is based on a 720 hour rolling average (expressed as Nitrogen Dioxide at standard conditions and corrected to flue gas oxygen content of 15% dry basis). Subject to Schedule B, Section E, this restriction does not apply for the duration of startup, shutdown or unavoidable upset conditions as defined in Schedule G.</p> <p>Additionally, a 58 mg/m<sup>3</sup> restriction based on a one hour average (expressed as Nitrogen Dioxide at standard conditions and corrected to flue gas oxygen content of 15% dry basis) shall also apply. Subject to Schedule B, Section E, this restriction does not apply for the duration of startup, shutdown or unavoidable upset conditions as defined in Schedule G.</p>

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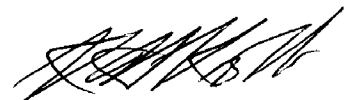
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**SCHEDULE F - PAGE 2**  
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The authorized maximum discharge criteria for emission sources described in Schedule D are:

<b>EMISSION NUMBER</b>	<b>PARAMETER</b>	<b>RESTRICTION</b>	<b>NOTES</b>
01, 02	Nitrogen Oxides	58 mg/m3	<p>The 58 mg/m3 restriction is based on a 720 hour rolling average (expressed as Nitrogen Dioxide at standard conditions and corrected to flue gas oxygen content of 15% dry basis). Subject to Schedule B, Section E, this restriction does not apply for the duration of startup, shutdown or unavoidable upset conditions as defined in Schedule G. This restriction may be reduced to 48 mg/m3 if operating experience demonstrates the lower limit can be met on a consistent basis.</p> <p>Additionally, an 80 mg/m3 restriction based on a one hour average (expressed as Nitrogen Dioxide at standard conditions and corrected to flue gas oxygen content of 15% dry basis) shall also apply. Subject to Schedule B, Section E, this restriction does not apply for the duration of startup, shutdown or unavoidable upset conditions as defined in Schedule G. This restriction may be reduced to 58 mg/m3 if operating experience demonstrates the lower limit can be met on a consistent basis.</p>
01, 02, 06	Opacity	10%	
01, 02	Combustion Products	See notes	Typical products of natural gas combustion at a maximum firing rate of 54.0 GJ/hr for each unit.
06	Combustion Products	See notes	Typical products of natural gas combustion at a maximum firing rate of 82.8 GJ/hr.

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**SCHEDULE G - Page 1**

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The authorized emission control works and procedures to control the discharge of air contaminants from the emission sources described in Schedule D are indicated below. The District Director may require that further works be installed, if the existing works, in her/his opinion, do not provide an acceptable level of emission control. New works or alterations to existing works must be approved, in principle, by the District Director.

Where the District Director has specified that additional works are required, the maximum discharge criteria described in Schedule F of this Permit are applicable as specified by the Completion Date(s) listed below. Prior to the specified date(s) the existing control works and procedures must be maintained in good operating condition and operated in a manner to minimize emissions.

<b>EMISSION NUMBER</b>	<b>COMPLETION DATE</b>	<b>DESCRIPTION OF CONTROL WORKS/PROCEDURES</b>
01	Completed	<p>EN 01: The firing of the Centaur Model 6102S simple cycle turbine with natural gas, utilizing dry low-NOx combustion technology together with good operating practices.</p> <p>Unavoidable upset conditions, as noted in Schedule F, are contingent upon the Permittee adequately demonstrating that:</p> <p>(a) the event was not caused by poor or inadequate design, operation, maintenance, or any other reasonably preventable condition;</p> <p>(b) the operator took immediate and appropriate corrective action in a manner consistent with good air pollution control practice for minimizing emissions during the event, taking into account the total emissions impact of the corrective action, including slowing or shutting down the emission source as necessary to minimize emissions, when the operator knew or should have known that an emission standard or permit condition was being exceeded.</p>

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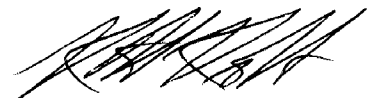
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<b>EMISSION NUMBER</b>	<b>COMPLETION DATE</b>	<b>DESCRIPTION OF CONTROL WORKS/PROCEDURES</b>
02	August 1, 2006	<p>EN 02: The firing of the Centaur Model 6102S simple cycle turbine with natural gas using dry low-NOx combustion technology together with good combustion practices and operating procedures.</p> <p>Unavoidable upset conditions, as noted in Schedule F, are contingent upon the Permittee adequately demonstrating that:</p> <p>(a) the event was not caused by poor or inadequate design, operation, maintenance, or any other reasonably preventable condition;</p> <p>(b) the operator took immediate and appropriate corrective action in a manner consistent with good air pollution control practice for minimizing emissions during the event, taking into account the total emissions impact of the corrective action, including slowing or shutting down the emission source as necessary to minimize emissions, when the operator knew or should have known that an emission standard or permit condition was being exceeded.</p> <p>The previously authorized Emission Number 02, 51.6 GJ/hr natural gas fired turbine, is authorized to operate subject to the terms and conditions of the previously amended Permit dated July 29, 2005, until September 30, 2006.</p>

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**SCHEDULE G - Page 3**  
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<b>EMISSION NUMBER</b>	<b>COMPLETION DATE</b>	<b>DESCRIPTION OF CONTROL WORKS/PROCEDURES</b>
06	Completed	<p>EN 06: The firing of the Solar Taurus 70 Model T9702S simple cycle turbine with natural gas, utilizing dry low-NOx combustion technology together with good operating practices.</p> <p>Unavoidable upset conditions, as noted in Schedule F, are contingent upon the Permittee adequately demonstrating that:</p> <p>(a) the event was not caused by poor or inadequate design, operation, maintenance, or any other reasonably preventable condition;</p> <p>(b) the operator took immediate and appropriate corrective action in a manner consistent with good air pollution control practice for minimizing emissions during the event, taking into account the total emissions impact of the corrective action, including slowing or shutting down the emission source as necessary to minimize emissions, when the operator knew or should have known that an emission standard or permit condition was being exceeded.</p>

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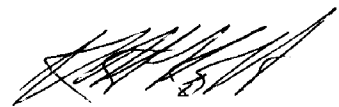
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**SCHEDULE H - Page 1  
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**RECORD OF PERMIT ISSUANCE**

<b>DATE</b>	<b>ACTION</b>	<b>SECTIONS AFFECTED</b>
JUN 07 2006	AMENDMENT	Face, Schedules A, B, C, D, E, F, G & H
November 30, 1992	ISSUANCE	Face, Schedules A, B, C, D, E, F, G & H
July 17, 1998	AMENDMENT	Face, Schedules A, B, C, D, E, F, G & H
July 29, 2005	AMENDMENT	Face, Schedules A, B, C, D, E, F, G & H

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