


AMENDED CERTIFICATE OF APPROVAL
AIR

NUMBER 7957-7UPNQE

Issue Date: August 19, 2009

TransAlta Cogeneration Ltd.
 2740 Derry Road East
 Mississauga, Ontario
 L4T 4J5

Site Location: Mississauga Cogeneration Plant
 2740 Derry Road East
 Mississauga, Ontario

You have applied in accordance with Section 9 of the Environmental Protection Act for approval of:

one (1) co-generation facility to generate both electrical power and steam, consisting of:

- two (2) General Electric Model LM6000 PC gas turbines, or equivalent, each turbine having a nominal generating capacity of 51 megawatts electrical, firing natural gas at a nominal heat input of 428.1 gigajoules per hour, equipped with a steam injection capacity of 13,600 kilograms per hour and discharging to one of two (2) heat recovery steam generators (HRSG), each HRSG equipped with natural gas fired duct burners with a maximum heat input of 78 million kilojoules per hour, exhausting to the atmosphere through a stack, having an exit diameter of 3.02 metres and extending 28 metres above grade,

- one (1) B.A.C. Model 3866-2 cooling tower, or equivalent, rated at 12.3 kilojoules per hour, complete with two (2) fans with a total volumetric flow rate of 158 cubic metres per second and discharging to the atmosphere at a height of 11 metres above grade,

- two (2) Resorcon Model RVC 136/78534-2F22, wet surface air cooling towers, or equivalent, each tower rated at 124.2 kilojoules per hour, complete with two (2) fans with a total volumetric flow rate of 1,186 cubic metres per second and discharging to the atmosphere at a height of 10.5 metres above grade,

- one (1) natural gas fired back-up steam boiler, to be used only when the on-site gas turbines, heat recovery steam generators and steam turbine are not operated, having a maximum heat input of 19 gigajoules per hour, exhausting to the atmosphere through a stack, having an exit diameter of 0.71 metre and extending 23.8 metres above grade,

all in accordance with the Application for Approval (Air & Noise) signed by Marcia Kennedy of TransAlta Cogeneration Ltd., dated March 4, 2009, the supporting documentation submitted by Jacques Whitford with the application, the additional information provided by TransAlta Cogeneration Ltd. and Jacques Whitford, the Applications for Approval (Air & Noise) dated November 15, 2004 and December 6, 2005 and the supporting documentation and additional information associated with these applications.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

(1) "Act" means the Environmental Protection Act.

(2) "CEM System" means the continuous emission monitoring system as described in the Company's application, this Certificate and in the supporting documentation referred to herein.

(3) "Certificate" means this Amended Certificate of Approval (Air), including Schedules "A", "B" and "C", issued in accordance with Section 9 of the Act.

- (4) "Company" means TransAlta Cogeneration Ltd.
- (5) "District Manager" means the District manager, Halton-Peel District Office, Central Region of the Ministry.
- (6) "Equipment" means the gas turbines, the HRSG, the cooling towers and the back-up steam boiler as described in the Company's application, this Certificate and in the supporting documentation referred to herein, to the extent approved by this Certificate.
- (7) "Facility" means the entire operation on the property where the Equipment is located.
- (8) "Fuel Flow Rate" means flow rate of the fuel, expressed in cubic metres per second at standard temperature and pressure, or kilograms per second.
- (9) "Heat Output" means the total useful heat energy recovered from the combustion turbine as heat, expressed in megawatts.
- (10) "Lower Heating Value" means the energy released during combustion of the fuel, excluding the latent heat content of the water vapour component of the products of combustion, expressed in megajoules per cubic metre at standard temperature and pressure, or megajoules per kilogram.
- (11) "Manual" means a document or a set of documents that provide written instructions to staff of the Company.
- (12) "Ministry" means Ontario Ministry of the Environment.
- (13) "NO_x" means oxides of nitrogen, including nitric oxide (NO) and nitrogen dioxide (NO₂), expressed as a nitrogen dioxide equivalent.
- (14) "Power Output" means the electricity and shaft power production of the combustion turbine, expressed in megawatts;
- (15) "Publication NPC-205" means Ministry Publication NPC-205, Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban), October, 1995;
- (16) "Thermal Efficiency" means the thermal efficiency of the Facility calculated according to the formula described in Schedule "C" of this Certificate.

You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

PERFORMANCE REQUIREMENTS:

1. The Company shall ensure that the Facility is designed and operated to comply, at all times, with the following performance requirements:

Stack Concentrations

(1) The concentrations of NO_x, sulphur dioxide and carbon monoxide in the undiluted gases emitted from the HRSG stacks are not greater than the limits specified in Schedule "A" of this Certificate.

Thermal Efficiency

(2) The Thermal Efficiency of the Facility is not less than the thermal efficiency specified in Schedule "A" of this Certificate.

Noise Limits

(3) The Company shall ensure that the noise emissions from the Facility comply with the limits set in Publication NPC-205.

MONITORING:

2. The Company shall monitor the emissions and operation of the Facility as follows:

Continuous Emissions Monitoring (CEM)

(1) The Company shall install and maintain operational a CEM System to continuously monitor and record the concentrations of NO_x, carbon monoxide and oxygen in the undiluted gases leaving the HRSG. The locations and the specifications of the CEM System are outlined in Schedule "B".

Thermal Efficiency Calculations

(2) The Company shall perform a test once within two (2) months after the full commencement of operation of the Facility, and once every two (2) calendar years thereafter, to determine the Thermal Efficiency of the Facility. The Company shall:

- (a) determine the parameters described in Schedule "C" of this Certificate during the Thermal Efficiency testing;
- (b) calculate the Thermal Efficiency of the Facility according to the formula described in Schedule "C" of this Certificate;
- (c) prepare a summary of the results of the Thermal Efficiency testing no later than two (2) months after completing the test. The summary shall indicate the Thermal Efficiency of the Facility and also include all parameters described in Schedule "C" of this Certificate.

OPERATION AND MAINTENANCE:

3. The Company shall ensure that the Equipment and the CEM System are properly operated and maintained at all times. The Company shall:

(1) prepare and update, as necessary, a Manual outlining the operating procedures and a maintenance program for the Equipment and the CEM System, including:

- (a) the routine operating and maintenance procedures according to good engineering practices and as recommended by equipment suppliers;
- (b) the emergency procedures;
- (c) the procedures to calibrate the CEM System;
- (d) the procedures to record and respond to environmental complaints;
- (e) a list of personnel responsible for the operation of the Equipment and the CEM System;

(2) implement the recommendations of the Manual.

RECORD RETENTION:

4. The Company shall retain, for a minimum of two years from the date of their creation, all records and information related to or resulting from the maintenance of the Equipment and monitoring activities required by this Certificate. The Company shall retain:

CONTENT COPY OF ORIGINAL

- (1) all records on the maintenance of the Equipment and the CEM System;
- (2) all records produced by the CEM System;
- (3) all records on the calibration of the CEM System;
- (4) all records of the Thermal Efficiency tests, including calculations of the Thermal Efficiency of the Facility;
- (5) all records on the equipment upset/malfunction;
- (6) all records on the environmental complaints.

These records shall be made available for inspection by staff of the Ministry upon request.

SCHEDULE "A"

PARAMETER	LIMIT
Nitrogen Oxides	38.6 ppmv ¹
Carbon Monoxide	60 ppmv ¹
Sulphur Dioxide	158.3 ppmv ¹
Thermal Efficiency	46.9 percent

NOTE:

"ppmv" means parts per million by volume on a dry basis normalized to 15 percent oxygen on a 24-hour average period.

SCHEDULE "B"

B.1 CONTINUOUS NITROGEN DIOXIDE MONITOR AND DATA RECORDER

INSTALLATION:

The continuous nitrogen dioxide monitor shall be installed at an accessible location where the measurements are representative of the actual concentrations of NO_x in the undiluted gases leaving the HRSG and shall meet the following installation specifications:

	PARAMETERS	SPECIFICATION
1	Analyser Operating Range (parts per million, ppm):	0 to highest concentration anticipated from the source
2	Calibration Gas Ports:	close to the sample point

PERFORMANCE:

The continuous nitrogen dioxide monitor shall meet the following minimum performance specifications for the following parameters:

CONTENT COPY OF ORIGINAL

	PARAMETERS	SPECIFICATION
1	Span Value (nearest ppm equivalent):	2 times the average normal concentration of the source
2	Relative Accuracy:	≤ 10 percent of the mean value of the reference method test data
3	Calibration Error:	≤ 2 percent of actual concentration
4	System Bias:	≤ 4 percent of the mean value of the reference method test data
5	Procedure for Zero and Span Calibration Check:	all system components checked
6	Zero Calibration Drift (24-hour):	≤ 2.5 percent of span value
7	Span Calibration Drift (24-hour):	≤ 2.5 percent of span value
8	Response Time (90 percent of full scale):	≤ 200 seconds
9	Operational Test Period :	≥ 168 hours without corrective maintenance

CALIBRATION:

Daily calibration drift checks on the monitor shall be performed and recorded when the HRSG is operating and in accordance with the requirements of Report EPS 1/PG/7.

DATA RECORDER:

The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 2 minutes or better.

RELIABILITY:

The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time for each calendar quarter during the first full year of operation, and 95 percent, thereafter when the HRSG is operating.

B.2 CONTINUOUS CARBON MONOXIDE MONITOR AND DATA RECORDER

INSTALLATION:

The continuous carbon monoxide monitor shall be installed at an accessible location where the measurements are representative of the actual concentrations of carbon monoxide in the undiluted gases leaving the HRSG and shall meet the following installation specifications:

	PARAMETERS	SPECIFICATION
1	Range (parts per million, ppm):	0 to highest concentration anticipated from the source
2	Calibration Gas Ports:	close to the sample point

PERFORMANCE:

The continuous carbon monoxide monitor shall meet the following minimum performance specifications for the following parameters:

CONTENT COPY OF ORIGINAL

	PARAMETERS	SPECIFICATION
1	Span Value (nearest ppm equivalent):	2 times the average normal concentration of the source
2	Relative Accuracy:	≤ 10 percent of the mean value of the reference method test
3	Calibration Error:	≤ 2 percent of actual concentration
4	System Bias:	≤ 4 percent of the mean value of the reference method test
5	Procedure for Zero and Span Calibration Check:	all system components check
6	Zero Calibration Drift (24-hour):	≤ 5 percent of span value
7	Span Calibration Drift (24-hour):	≤ 5 percent of span value
8	Response Time (90 percent response to step change):	≤ 90 seconds
9	Operational Test Period :	≥ 168 hours without corrective maintenance

CALIBRATION:

Daily calibration drift checks on the monitor shall be performed and recorded when the HRSG is operating and in accordance with the requirements of Report EPS 1/PG/7.

DATA RECORDER:

The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 2 minutes or better.

RELIABILITY:

The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time for each calendar quarter during the first full year of operation, and 95 percent, thereafter when the HRSG is operating.

B.3 CONTINUOUS OXYGEN MONITOR AND DATA RECORDER

INSTALLATION:

The continuous oxygen monitor shall be installed at an accessible location where the measurements are representative of the actual concentrations of oxygen in the undiluted gases leaving the HRSG and shall meet the following installation specifications:

	PARAMETERS	SPECIFICATION
1	Range (percentage):	0 - 20 or 0 - 25
2	Calibration Gas Ports:	close to the sample point

PERFORMANCE:

The continuous oxygen monitor shall meet the following minimum performance specifications for the following parameters:

CONTENT COPY OF ORIGINAL

	PARAMETERS	SPECIFICATION
1	Span Vale (percentage):	2 times the average normal concentration of the source
2	Relative Accuracy:	≤ 10 percent of the mean value of the reference method test
3	Calibration Error:	0.25 percent O ₂
4	System Bias:	≤ 4 percent of the mean value of the reference method test
5	Procedure for Zero and Span Calibration Check:	all system components checked
6	Zero Calibration Drift (24-hour):	≤ 0.5 percent O ₂
7	Span Calibration Drift (24-hour):	≤ 0.5 percent O ₂
8	Response Time (90 percent of full scale):	≤ 90 seconds
9	Operational Test Period:	≥ 168 hours without corrective maintenance

CALIBRATION:

Daily calibration drift checks on the monitor shall be performed and recorded when the HRSG is operating and in accordance with the requirements of Report EPS 1/PG/7.

DATA RECORDER:

The data recorder must be capable of registering continuously the measurement of the monitor with an accuracy of 0.5 percent of a full scale reading or better and with a time resolution of 2 minutes or better.

RELIABILITY:

The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time for each calendar quarter during the first full year of operation, and 95 percent, thereafter when the HRSG is operating.

SCHEDULE "C"

THERMAL EFFICIENCY TESTING PROCEDURES:

Parameters to be tested/measured:

1. Power Output
2. Heat Output
3. Fuel Flow Rate
4. Lower Heating Value
5. (a) Ambient air temperature (expressed in degrees of Celsius)
(b) Barometric pressure (expressed in kilopascal)
(c) Relative humidity (expressed in percent)
6. Date, time and duration of test

FORMULA:

(Power Output + Heat Output) x 100%

Thermal Efficiency = -----
Fuel Flow Rate x Lower Heating Value

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is included to outline the minimum performance requirements considered necessary to prevent an adverse effect resulting from the operation of the Facility.
2. Condition 2 is included to require the Company to gather accurate information so that the environmental impact and subsequent compliance with the Act, the regulations and this Certificate can be verified.
3. Condition 3 is included to emphasize that the Equipment and the CEM System must be maintained and operated according to a procedure that will result in compliance with the Act, the regulations and this Certificate.
4. Condition 4 is included to require the Company to keep records to assist the Ministry in determining whether or not the Equipment and the CEM System are being inspected and maintained as required by the Act, the regulations and this Certificate.

This Certificate of Approval revokes and replaces Certificate(s) of Approval No. 1284-6DSHZX, 7176-6KXSJV issued on June 30, 2005, January 18, 2006

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by written Notice served upon me, the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, S.O. 1993, Chapter 28, the Environmental Commissioner, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto, Ontario
M5G 1E5

AND

The Environmental Commissioner
1075 Bay Street, 6th Floor
Suite 605
Toronto, Ontario
M5S 2B1

AND

The Director
Section 9, *Environmental Protection Act*
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

CONTENT COPY OF ORIGINAL

This instrument is subject to Section 38 of the Environmental Bill of Rights, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at www.ene.gov.on.ca, you can determine when the leave to appeal period ends.

The above noted works are approved under Section 9 of the Environmental Protection Act.

DATED AT TORONTO this 19th day of August, 2009

Victor Low, P.Eng.
Director

KW/
c: District Manager, MOE Halton-Peel
Jason Brimble, TransAlta Cogeneration Ltd.
Arash Bina, Jacques Whitford Limited