

Ministry of the Environment

P.O. Box 22032  
Kingston, Ontario  
K7M 8S5  
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Ministère de l'Environnement

C.P. 22032  
Kingston (Ontario)  
K7M 8S5  
613/549-4000 ou 1-800/267-0974  
Fax: 613/548-6908



## **PROGRAM APPROVAL**

Under section 10 of the *Environmental Protection Act*

Submitted by

**Plasco Trail Road Inc. ("Plasco")**

**WHEREAS** Plasco is the current owner of the plasma gasification facility ("Plasco demonstration project") located at Part Lot 9, Concession 4, Rideau Front in the former Township of Nepean, now in the City of Ottawa which is commonly known as the former Nepean Landfill;

**AND WHEREAS** the Plasco demonstration project generates electrical power from the gasification of up to 85 tonnes per day of municipal solid wastes and the combustion of synthetic gas for demonstration and pilot purposes and the feasibility of this demonstration activity is being assessed to determine the commercial and environmental viability of this as an alternative to the landfilling of municipal solid wastes while simultaneously generating electricity;

**AND WHEREAS** the gas engines at the Plasco demonstration project discharge a contaminant, organic matter, to the natural environment and the emissions have been recorded in excess of maximum emission limits for organic matter prescribed by O. Reg. 254/06 under the *Environmental Protection Act* ("EPA") and a Certificate of Approval 6925-6REN9E (air) for discharges to air issued under section 9 of the EPA.

**AND WHEREAS** Plasco has submitted to the Ministry of the Environment ("MOE") a proposal for a program to establish a temporary program to tune engine performance to find ways to stabilize the operation of the gas engines to reduce and control the discharge of organic matter, a copy of which is set out in "Schedule A";

**AND WHEREAS** the Director considers it consistent with the purpose of the EPA to issue the Program Approval, pursuant to section 10 of the EPA, to Plasco on the terms and conditions set out in this document.

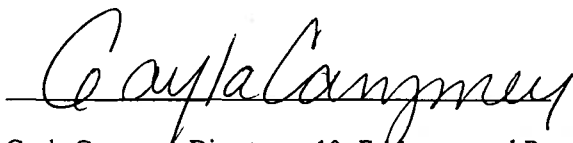
**AND WHEREAS** Plasco knows and understands that the MOE, through the Director noted below or any other Director appointed for the purposes of section 10, may amend or revoke this Program Approval.

**I HEREBY approve this Program directed to Plasco Trail Road Inc. The details of the Program Approval are as follows:**

- 1.1 This Program Approval will expire on and no longer be applicable after October 24, 2009.
- 1.2 The issuance of this Program Approval in no way abrogates Plasco's responsibility to comply with applicable federal legislation. Also, it does not relieve Plasco of the obligation to comply with provincial regulatory requirements that are not addressed as part of the Program Approval.

- 1.3 Upon review of the information submitted in connection with this Program Approval the Director may, pursuant to, but not limited to, subsections 11(2), 11(3) and section 12 of the EPA, require Plasco to take further measures to control the discharge of air contaminants from the Plasco demonstration facility.
- 1.4 While this Program Approval is in effect, Plasco
- i) will carry out tests and modify operating conditions with a purpose to stabilize the operation of gas engines and to bring emissions into compliance with the emissions limits set out in the O. Reg. 254/06 and the Certificate of Approval 6925-6REN9E (air);
  - ii) shall ensure that the concentration of organic matter in discharges from gas engines at the Plasco demonstration project into the air do not exceed a maximum limit of 225 ppmv; and
  - iii) shall ensure that the steps set out in subsection 13(2) of O. Reg. 254/06 are taken if the concentration of organic matter in discharges from gas engines at the Plasco demonstration project into the air exceed 200 ppmv for more than one (1) hour.
- 1.5 Plasco shall ensure that the monthly engineer reports required by condition 49 of Provisional Certificate of Approval # 3166-6TYMDZ (waste) and condition 9 of Certificate of Approval 6925-6REN9E (air) include a summary of the activities undertaken pursuant to condition 1.4 of this Program Approval and describe the progress that has been achieved in reducing and controlling the discharge of organic matter.
- 1.6 Plasco shall ensure that a report is submitted to the Ministry's Ottawa District Manager within fifteen (15) days following the expiry of the Program Approval which summarizes the results of tests and experiments completed and documents conclusions and recommendations to ensure future discharges of organic matter comply with O. Reg. 254/06 and the Certificate of Approval 6925-6REN9E (air).

Dated this 28<sup>th</sup> day of April, 2009.



Gayla Campney, Director, s. 10, *Environmental Protection Act*  
Regional Director – Eastern Region - Operations Division  
Ministry of the Environment

## **APPENDIX A**

April 24, 2009 letter from Ken Campbell (Plasco) to Steve Burns (Ontario Ministry of the Environment)

April 20, 2009 letter from Ken Campbell (Plasco) to Steve Burns (Ontario Ministry of the Environment)



**Plasco Energy Group Inc.**  
1000 Innovation Drive, Suite 400  
Ottawa, Ontario, K2K 3E7  
Telephone: 613 591-9438  
Fax: 613 591-9441

April 24, 2009

Steve Burns  
District Manager  
Ministry of the Environment – Ottawa District  
2430 Don Reid Drive  
Ottawa, Ontario  
K1H 1E1

Subject: Plasco Trail Road  
Topic: Plasco Trail Road Engine Emissions

Dear Mr. Burns,

As requested during our teleconference on Thursday, April 23, 2009, please accept this letter as Plasco's documented plan under the proposed amendment to the Program Approval (issued December 1, 2008).

During the timeframe of the amended Program Approval, Plasco would endeavour to accomplish the following:

- Operate the engines as much as possible;
- Work closely with the manufacturer (Jenbacher) to tune the engines and to understand the limitations of tuning;
- Collect and characterize Continuous Emissions Monitoring (CEMS) data on the engine exhaust. This will be done to help us understand how we can minimize methane slip as a function of process conditions;
- Continue efforts to ensure the engine emissions meet the existing organic matter limits;
- Understand how the thermal oxidizer affects emissions; and,
- Conduct two (2) rounds of source testing on the engines.

In addition to the above goals and plans, Plasco would repost the amended Program Approval on the Zerowaste Ottawa website. At the end of the amended Program Approval period, Plasco would provide a report detailing the accomplishments achieved during the Program Approval timeframe.

Should you have any questions or comments, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Ken Campbell".

Ken Campbell  
Vice President, Operations

Come Visit us at...  
[www.plascoenergygroup.com](http://www.plascoenergygroup.com)



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1000 Innovation Drive, Suite 400  
Ottawa, Ontario, K2K 3E7  
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Fax: 613 591-9441

April 20, 2009

Steve Burns  
District Manager  
Ministry of the Environment – Ottawa District  
2430 Don Reid Drive  
Ottawa, Ontario  
K1H 1E1

Subject: Plasco Trail Road  
Topic: Air emissions from engines

Dear Mr. Burns,

As you are aware, we have been endeavouring to reduce the organic matter emissions from our gas engines, to bring them into compliance with our regulation. We have also worked to identify the specific organic contaminants which are in the engine exhaust. To that end we have installed a methane channel (February 2009) on the Continuous Emissions Monitoring system (CEMS) and rerouted the exhaust of one engine to the flare (Certificate of Approval (Air)#6925-6REN9E – Amendment Notice No. 4). On December 1, 2008 the Ministry of the Environment also issued a Program Approval (Attachment 1) that temporarily granted organic matter operational and maximum limits of 200 ppm and 225 ppm at 11% O<sub>2</sub>. That approval expired on March 31, 2009.

Data collected from the CEMS while the Program Approval was in effect indicate that the mean 10 minute average organic matter concentration from the engines is 135 ppm at 11% O<sub>2</sub>. It should be noted that this concentration is well below the temporary operational limit of 200 ppm. The mean one minute average organic matter concentration is 125 ppm adjusted to 11% O<sub>2</sub> and the mean one minute average methane concentration is 123 ppm adjusted to 11% O<sub>2</sub>. The statistical distributions of the organic matter and methane concentrations are attached (Attachment 2). These charts indicate that the mean and median for organic matter and methane is essentially the same but the variance of the methane instrument is higher. The methane analyzer appears to have a slower response time and it also shows higher variability (uncertainty) than the analyzer used for organic matter. The data indicate that the concentration of methane and the concentration of TOC are identical, to within the measurement uncertainty of the analyzers. Plasco has also drawn samples of exhaust gas from engines. The only measurable organic contaminant that was detected in the exhaust gas samples was methane.

As you are aware, Plasco has applied to amend our Certificate of Approval (Air) to extend the permit to reroute the exhaust of one engine to the flare for an additional six (6) months. This arrangement would allow us to continue to run a single gas engine while facility testing/commissioning is completed. Plasco considers that this amendment is essential to continued operations. Testing and commissioning would however be accomplished more effectively if engines could exhaust to atmosphere and the emissions be recorded by the CEMS. In addition, source testing of the engines is really only possible if the engines can vent to atmosphere.

During the period of time that the Program Approval was in effect Plasco made very substantial progress towards consistently generating the quality and flow of syngas that is required to reliably operate an engine. We are now at the point where we can run engines on syngas for extended periods of time, and can experiment with our process to determine how (or whether) various process parameters affect our emissions. I therefore request that the previous Plasco Program Approval limits be extended for an additional three (3) months. During this period of time we will continue to endeavour to find ways to stabilize the operation of the engines, and will schedule and perform a source test of the engines. Current data suggests that Plasco could continue with our development, and could proceed to source testing, even if the limits are reduced from 225 ppm and 200 ppm, to 200 ppm and 175 ppm.

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Should you have any questions or comments, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "K. Campbell", written in a cursive style.

Ken Campbell  
Vice President, Operations

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**Attachment 1**

Come Visit us at...  
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Dated this 19<sup>th</sup> day of Dec, 2008.

Gayla Campney

Gayla Campney, Director, s. 10, *Environmental Protection Act*  
Regional Director - Eastern Region - Operations Division  
Ministry of the Environment



## SCHEDULE "A"

Plasco Energy Group Inc.  
1000 Innovation Drive, Suite 400  
Ottawa, Ontario, K2K 3E7  
Telephone: 813 591-8438  
Fax: 813 591-8441

November 28, 2008

Steve Burns  
District Manager, Ottawa District  
Ministry of the Environment  
2430 Don Reid Dr  
Ottawa, Ont: K1K 1B1

Subject: Plasco Trail Road  
Topic: Air emissions from engines during testing and commissioning

Dear Sir,

As you are aware, we have been endeavouring to reduce the TOC emissions from our gas engines, to bring them into compliance with our regulation. The CEMs that is mounted on the engine stack indicates that our TOC emissions average 138 ppm at 11% O<sub>2</sub>. Methane is the major contributor to our TOCs.

It is very difficult to find ways to reduce emission levels when we can only run the engines for very brief periods before we exceed our operational limits and are forced to shut down.

I therefore request that we be allowed to operate the engines in test mode for a period of four months. During this period of time we will endeavour to find ways to stabilize the operation of the engines and to bring their emissions into compliance with our regulation. During this period of time, we would request an operational limit of 200 ppm and a maximum limit of 225 ppm on our engine TOCs; all other air emissions limits would remain unchanged.

It is worth noting that the SO<sub>2</sub> channel on our CEMs has a cross-sensitivity to methane (i.e. SO<sub>2</sub> readings are elevated whenever our engine stack gas contains methane). We have ordered a methane channel for our CEMs, so that our SO<sub>2</sub> can be properly accounted for. Until the new instrument is received and commissioned, I propose that we use SO<sub>2</sub> emissions from the flare to indicate SO<sub>2</sub> emissions from the engines.

Sincerely

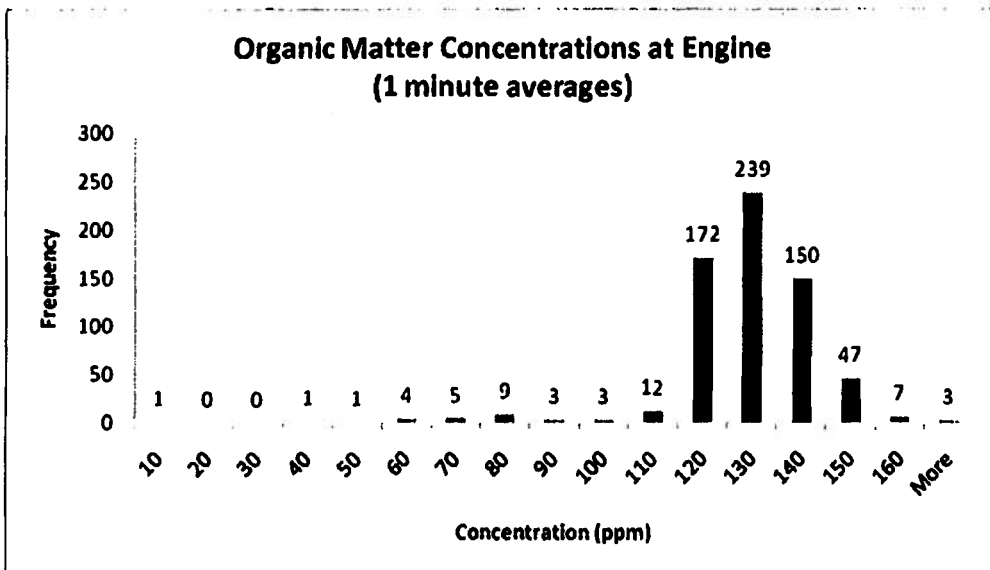
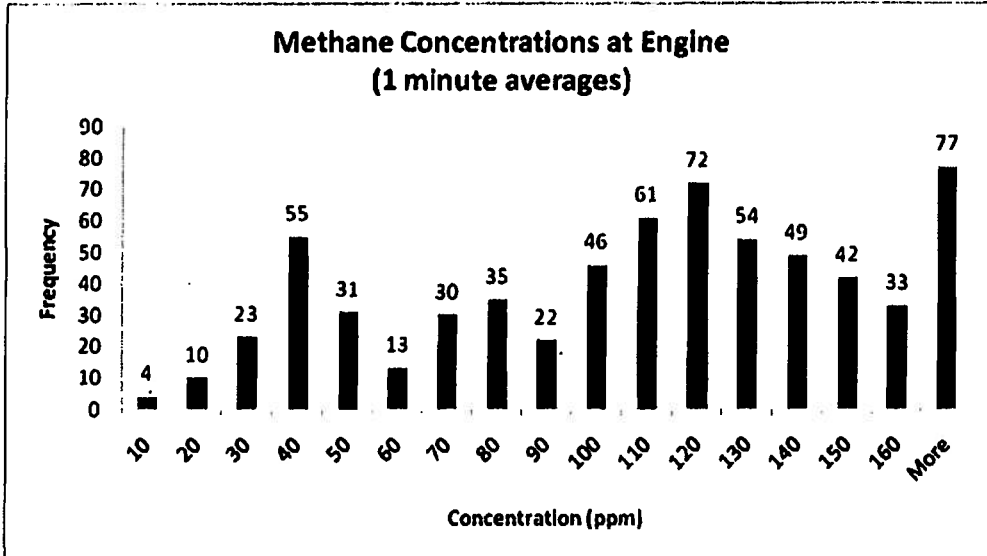
A handwritten signature in black ink that reads "Ken Campbell".

Ken Campbell  
VP Operations

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**Attachment 2**

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