



AMENDED CERTIFICATE OF APPROVAL

AIR

NUMBER 9174-7J4RCQ

Issue Date: October 28, 2008

IGPC Ethanol Inc.
89 Progress Dr
Post Office Box, No. 205
Aylmer, Ontario
N5H 2R9

Site Location: 89 Progress Dr.
Aylmer Town, County of Elgin

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

- one (1) fuel grade ethanol production facility, operating at a maximum production rate of up to 173.13 million litres of denatured ethanol per year, and 465,857 tonnes of dried distiller grain per year, consisting of the equipment discharging to the atmosphere as outlined in Schedule "A", **and modified location and layout of the DDG and grain handling processes, the tank farm and process buildings;**

all in accordance with the application dated December 18, 2006 and signed by Doug Burt, for a Certificate of Approval (Air), and all supporting information associated with the application, including the Acoustic Assessment Report dated March 14, 2007, signed by Steven Titus, Vince Gambino and Bob Rimrott (Aercoustics Engineering Ltd.) and Addendum to Acoustic Assessment Report dated May 8, 2008, signed by Steven Titus and Vince Gambino (Aercoustics Engineering Ltd.), **the application dated March 18, 2008 and signed by Doug Burt, for amendment of Certificate of Approval (Air) No. 4655-6ZBS3B, and all supporting information associated with the application.**

SCHEDULE "A"

Source ID Number	Source Description	Maximum Heat Input	Stack Gas Flow Rate	Stack Diameter	Stack Height Above Grade	Stack Height Above Roof
		(mmkj/hr)	(m ³ /s)	(m)	(m)	(m)
S20	Grain Unloading Baghouse	NA	18.41	1.07	12.19	NA
S30a S30b	Milling Baghouses No. 1 and 2	NA	2.36 (each)	0.33 x 0.37 (each)	10.21 (each)	NA
S10	Thermal Oxidizer and two (2) WDGS Dryers	105.5 for thermal oxidizer 47.5 for each WDGS dryer	45.31	2.13	42.67	NA
S40	Fermentation CO ₂ Scrubber	NA	NA	NA	NA	NA
S45	Purge Scrubber	NA	NA	NA	NA	NA
S70	DDG Cooling Cyclone	NA	12.27	0.77	42.67	NA
V1	DDG Storage / Loading Building Vents (4)	NA	NA	3.05m by 1.22m	1.98m	NA
S60	Flare - Biomethanator	6.86	1.51	0.43	15.85	3.35
S50	Ethanol Loadout (truck) Flare	13.2	3.02	0.76	6.10	NA

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F100	Ethanol Loadout (rail)	NA	NA	NA	NA	NA
F80	Cooling Tower	NA	184	5.49	8.53	NA
S110	Diesel Fire Water Pump	142 kilowatts	0.52	0.08	8.54	2.44
190	190 Proof Ethanol Storage	NA	0.001	0.001	8.23	NA
200	200 Proof Ethanol Storage	NA	0.001	0.001	8.23	NA
DN	Denaturant Storage	NA	0.001	0.001	8.23	NA
DE1	Denatured Ethanol Storage	NA	0.001	0.001	13.41	NA
DE2	Denatured Ethanol Storage	NA	0.001	0.001	13.41	NA
T1	Thin Stillage Tank Vent	NA	0.001	0.05	11.00	NA
T2	Syrup Tank Vent	NA	0.001	0.05	9.25	NA
T3	Cook Water Tank Vent	NA	0.001	0.05	11.00	NA
T4	Liquifaction Tank No.1 Vent	NA	0.001	0.05	9.00	NA
T5	Whole Stillage Tank Vent	NA	0.001	0.05	9.25	NA
PMFug	Grain Handling; Receiving; Handling / Storage; Grain Scalping	NA	NA	NA	NA	NA

Notes for Schedule "A":

1. "m³/s" means cubic metres per second.

2. "mmkj/hr" means million kilojoules per hour.

3. "NA" means not applicable.

4. The wet scrubbers (with Sources No. S40 and S45 referred to as the CO₂ Scrubber and Purge Scrubber) are packed-tower type scrubbers, equipped with ball ring packing, with a liquid flow rate of 265 litres per minute and a pressure drop of 1.25 kilopascals, to control emissions from the fermentation & beerwell process and the vacuum pumps.

5. The thermal oxidizer, (with Source No. S10), is equipped with temperature monitoring and recording devices, for controlling emissions from the DDGS drying process.

6. The baghouses (with Sources No. S20, S30a and S30b) are equipped with pulse-jet filter cleaning mechanism and woven cloth filters, each having an air to cloth ratio of 7.63 : 1, 8.66 : 1 and 8.66 : 1, respectively.

7. Scrubbers (S40 and S45) are vented through the TO Stack (S10), and are accounted for in the stack gas flow rate listed at S10.

8. DDG Storage / Loading Building Vents (4) (V1) comprises four similar, louvered vents (two along the north wall and two along the south wall).

9. Sources F-100 and PMFug are fugitive emission sources.

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

1. "Acoustical Consultant" means a person currently active in the field of environmental acoustics and noise/vibration control, who is familiar with Ministry noise guidelines and procedures and has a combination of formal university education, training and experience necessary to assess noise emissions from a Facility;

2. "Acoustic Assessment Report" means the report, prepared in accordance with Publication NPC-233 and Schedule "G", submitted in support of the application, that documents all sources of noise emissions and Noise Control Measures present at the Facility. Acoustic Assessment Report also means the Acoustic Assessment Report dated March 14, 2007, prepared and signed by Steven Titus, Vince Gambino and Bob Rimrott (Aercoustics Engineering Ltd.);

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3. "Acoustic Assessment Report Procedure" means the Ministry procedure attached to this Certificate as Schedule "G";
4. "Acoustic Audit" means an investigative procedure consisting of measurements and/or acoustic modelling of all sources of noise emissions due to the operation of the Facility, assessed to determine compliance with the Performance Limits for the Facility regarding noise emissions, completed in accordance with the procedures set in Publication NPC-103 and reported in accordance with Publication NPC-233.
5. "Acoustic Audit Report" means a report presenting the results of an Acoustic Audit, prepared in accordance with Publication NPC-233.
6. "Act" means the Environmental Protection Act;
7. "AERMOD" means the dispersion model developed by the American Meteorological Society/U.S. Environmental Protection Agency Regulatory Model Improvement Committee (AERMIC) including the PRIME (Plume Rise Model Enhancement) algorithm, used to calculate one-hour average concentrations of a contaminant at the Point of Impingement and at the most impacted Sensitive Receptor;
8. "Best Management Practices Plan" means a document or a set of documents which describe measures to minimize odour/dust emissions from the Facility and/or Equipment;
9. "Certificate" means this Certificate of Approval, including Schedules "A" to "G", issued in accordance with Section 9 of the Act;
10. "Company" means IGPC Ethanol Inc.;
11. "Control Equipment" means the scrubbers, the thermal oxidizer, and the baghouses described in the Company's application, this Certificate and in the supporting documentation submitted with the application, to the extent approved by this Certificate;
12. "Director" means any Ministry employee appointed by the Minister pursuant to Section 5 of the Act;
13. "District Manager" means the District Manager of London District Office of the Ministry;
14. "Equipment" means the equipment described in the Company's application, this Certificate and in the supporting documentation submitted with the application, to the extent approved by this Certificate;
15. "Facility" means the entire operation located on the property where the Company is located;
16. "Independent Acoustical Consultant" means an Acoustical Consultant who is not representing the Company and was not involved in preparing the Acoustic Assessment Report or the design/implementation of Noise Control Measures for the Facility and/or Equipment. The Independent Acoustical Consultant shall not be retained by the Acoustical Consultant involved in the noise impact assessment or the design/implementation of Noise Control Measures for the Facility and/or Equipment;
17. "Manager" means the Manager, Technology Standards Section, Standards Development Branch of the Ministry, or any other person who represents and carries out the duties of the Manager as those duties relate to the conditions of this Certificate;
18. "Manual" means a document or a set of documents that provide written instructions to staff of the Company;
19. "Ministry" means the Ontario Ministry of the Environment;
20. "Noise Abatement Action Plan" means the noise abatement program developed by the Company (see details in Schedule C of this Certificate), submitted to the Director and District Manager and approved by the Director, designed to achieve compliance with the sound level limits set in Publication NPC-205 and/or Publication NPC-232, as applicable;
21. "Noise Control Measures" means measures to reduce the noise emissions from the Facility and/or Equipment including, but not limited to, mufflers, silencers, acoustical louvres, hoods and acoustical treatment and other measures described in Schedule "C" of this Certificate;

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22. "Organic Matter" means organic matter having a carbon content expressed as equivalent methane;
23. "Point of Impingement" means any point in the natural environment. With the exception of verifying compliance with a performance requirement for odour, the point of impingement for the purposes of verifying compliance with the Act shall be chosen as the point located outside the Company's property boundaries at which the highest concentration is expected to occur, when that concentration is calculated in accordance with Schedule "A", or any other method required and/or accepted by the Director;
24. "Pre-test Information" means the information outlined in Section 1.1 of the Source Testing Code;
25. "Publication NPC-103" means Publication NPC-103, Procedures, August 1978;
26. "Publication NPC-205" means Publication NPC-205, Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban), October, 1995 as amended;
27. "Publication NPC-232" means Publication NPC-232, Sound Level Limits for Stationary Sources in Class 3 Areas (rural), October, 1995 as amended;
28. "Publication NPC-233" means Publication NPC-233, Information to be submitted for Approval of Stationary Sources of Sound, October, 1995.
29. "Sensitive Receptor" means any location where routine or normal activities occurring at reasonably expected times would experience adverse effect(s) from odour discharges from the Facility, including one or a combination of:
- (a) private residences or public facilities where people sleep (e.g.: single and multi-unit dwellings, nursing homes, hospitals, trailer parks, camping grounds, etc.),
 - (b) institutional facilities (e.g.: schools, churches, community centres, day care centres, recreational centres, etc.),
 - (c) outdoor public recreational areas (e.g.: trailer parks, play grounds, picnic areas, etc.), and
 - (d) other outdoor public areas where there are continuous human activities (e.g.: commercial plazas and office buildings);
30. "Source Testing" means sampling and testing to measure emissions resulting from operating the equipment at a level of typical maximum production within the approved operating range of the Facility;
31. "Source Testing Code" means the Source Testing Code, Version 2, Report No. ARB-66-80, dated November 1980, prepared by the Ministry, as amended;
32. "Test Contaminants" means the test contaminants outlined in Schedule "E";
33. "Thermal Oxidizer" means the thermal oxidizer described in Note No. 5 for Schedule "A", in the Company's application, this Certificate and in the supporting documentation submitted with the application, to the extent approved by this Certificate.

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

TERMS AND CONDITIONS

1. MITIGATION MEASURES

The Company shall take measures to minimize noise, particulate and odorous emissions from all potential sources at the Facility.

2. OPERATION AND MAINTENANCE

The Company shall ensure that the Facility is properly operated and maintained at all times. The Company shall:

Complaint Response Procedure

(1) prepare, before commencement of operation of the Facility, and implement and maintain on ongoing basis a Complaint

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Response Procedure for receiving and logging environmental complaints from the neighbouring public and the actions taken in response. This procedure shall include, but not be limited to the following:

- (a) a description, date and time of the incident;
- (b) operating conditions (such as operating parameters and production or processing rates), as well as any upset conditions, or unusual events at the time of the incident;
- (c) wind direction, wind speed and atmospheric condition at the time of the incident;
- (d) a description of any measures taken to address the cause of the complaint and to prevent a similar occurrence in the future; and
- (e) notify the District Manager, in writing within two (2) business days of the receipt of a complaint;

Operating and Maintenance Manual

(2) prepare, before commencement of operation of the Facility, and update as necessary, an Operating and Maintenance Manual outlining the maintenance and operating procedures for the Control Equipment. This Manual shall contain, but not be limited to:

- (a) routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the Control Equipment suppliers;
- (b) all measures to minimize noise, fugitive dust and odorous emissions from all potential sources at the Facility, including but not limited to, any measures employed to satisfy the requirements of the condition titled "Complaint Response Procedure".
- (c) emergency procedures;
- (d) frequency of inspection of the Control Equipment and replacement of the filters of dust collectors;
- (e) procedures for any record keeping activities relating to operation and maintenance of the Control Equipment;
- (f) procedures for recording and responding to environmental complaints relating to operation of the Facility; and
- (g) list of trained personnel responsible for the operation and maintenance of the Facility;

Best Management Practices Plan

(3) prepare, before commencement of operation of the Facility, and update as necessary a Best Management Practices Plan for the control of minor odour emissions, fugitive odour emissions and fugitive particulate emissions to provide effective preventative/control measures to any potential sources of minor odour and fugitive odour and/or particulate emissions resulting from the operation of the Facility. This Best Management Practices Plan shall include, but not be limited to:

- (a) identification of the main sources of minor odour emissions, fugitive odour emissions and fugitive particulate emissions such as:
 - (i) process related sources;
 - (ii) ancillary equipment;
 - (iii) materials handling systems;
 - (iv) storage equipment and areas;
 - (v) general ventilation systems; and
 - (vi) doors/windows/fresh air openings;
- (b) potential causes for high odour and/or particulate emissions resulting from these sources;
- (c) preventative and control measures to be implemented to minimize the likelihood of high odour and/or particulate emissions from the sources of emissions identified above. Details of the preventative and control measures shall include:
 - (i) a description of the control equipment;
 - (ii) a description of the preventative procedures to be implemented; and/or
 - (iii) the frequency of occurrence of periodic preventative activities;
- (d) training of Facility personnel; and

(e) inspection and maintenance procedures and monitoring initiatives to ensure effective implementation of the preventative and control measures.

(4) record, in a log book, each time a specific preventative and control measure described in the Best Management Practices Plan is implemented. The Company shall record, as a minimum:

(a) the date when each new preventative measure or operating procedure to minimize emissions is implemented, including a description of the preventative measure or operating procedure; and

(b) the date, time of commencement, and time of completion of each periodic activity conducted to minimize emissions, including a description of the preventative measure/procedure and the name of the individual performing the periodic activity.

(5) implement the Complaint Response Procedure, the Best Management Practices Plan and the requirements of the Operating and Maintenance Manual.

3. THERMAL OXIDIZER OPERATION

(1) The Company shall ensure that the Thermal Oxidizer is designed and operated to comply, at all times, with the following requirements:

(a) The combustion chamber of the Thermal Oxidizer shall be preheated to a minimum of 816 degrees Celsius, as measured by the continuous monitoring and recording system, prior to introducing the process exhaust gases;

(b) The temperature in the combustion chamber of the Thermal Oxidizer, is maintained at a minimum of 816 degrees Celsius, as measured by the continuous monitoring and recording system, at all times, when the Thermal Oxidizer is in operation;

(c) The residence time of the combustion gases in the combustion chamber of the Thermal Oxidizer shall not be less than 0.9 seconds at a temperature of 816 degrees Celsius minimum.

(d) The concentration of Organic Matter in the undiluted gas emitted from the Thermal Oxidizer, being an average of ten measurements taken at approximately one minute intervals, shall not be greater than 100 parts per million by volume.

(2) The Company shall continuously monitor and record the operating temperature in the combustion chamber of the Thermal Oxidizer when the Thermal Oxidizer is in operation. The continuous temperature monitoring and recording system shall comply with the requirements outlined in the attached Schedule "B".

SCHEDULE "B"

Continuous Temperature Monitoring and Recording System Requirements

PARAMETER: Temperature

LOCATION: The sample point for the continuous temperature monitoring and recording system shall be located at a location where the measurements are representative of the minimum temperature of the gases leaving the combustion chamber of the Thermal Oxidizer.

PERFORMANCE: The continuous temperature monitoring and recording system shall meet the following minimum performance specifications for the following parameters.

PARAMETERS SPECIFICATION

Type: shielded "K" type thermocouple, or equivalent.

Accuracy: ± 1.5 percent of the minimum gas temperature.

DATA RECORDER: The data recorder must be capable of registering continuously the measurement of the monitoring system without a significant loss of accuracy and with a time resolution of 1 minute or better.

RELIABILITY: The monitoring system shall be operated and maintained so that accurate data is obtained during a minimum of 95 percent of the time for each calendar quarter.

4. NOISE

- (1) The Company shall ensure that the noise emissions from the Facility comply with the limits set in Publication NPC-205 or Publication NPC-232, as applicable;
- (2) The Company shall fully implement the Noise Control Measures prior commencement of operations of the Equipment or not later than three (3) months after the date of this Certificate.
- (3) The Company shall ensure that the Noise Control Measures are properly maintained to ensure that the acoustical performance of the Noise Control Measures does not deteriorate and complies with the requirements of the Noise Report;
- (4) The Company shall submit a revised Acoustic Assessment Report for the Facility by an Acoustical Consultant, to the District Manager and the Director not later than six (6) months after the date of this Certificate or not later than six (6) months following the commencement of production;
- (5) In the event that the findings of the Acoustic Assessment Report demonstrate that the Facility is not in compliance with the limits set in Publication NPC-205 or Publication NPC-232, as applicable, the Acoustic Assessment Report must incorporate a Noise Abatement Action Plan that includes but is not limited to the following:
 - (a) required Noise Control Measures to reduce the noise emissions from the Facility to comply with the limits set in Publication NPC-205 or Publication NPC-232, as applicable;
 - (b) a timetable for implementation of the Noise Control Measures, including the identification of specific dates for achieving compliance with specific milestones; and
 - (c) a timetable for submitting further assessments to demonstrate compliance with the limits set in Publication NPC-205 or Publication NPC-232, as applicable;
 - (d) a timetable for submitting an Acoustic Audit Report, prepared by an Independent Acoustical Consultant, in accordance with the requirements of Publication NPC-233;
- (6) The Director may not accept the results of any Acoustic Assessment Report if the requirements of Publication NPC-233 or the Acoustic Assessment Report Procedure were not followed;

(7) The Director may not accept the results of any Acoustic Audit Report if the requirements of Publication NPC-233 were not followed.

(8) If the Director does not accept the results of an Acoustic Assessment Report or an Acoustic Audit Report, the Director may, upon written notice, require the Company to repeat the Acoustic Assessment Report or the Acoustic Audit Report within the time frame specified in the notice.

SCHEDULE "C"
Noise Abatement Action Plan

1. Energy Center Building Construction

The wall construction will be as follows:

- First 2.3 m of the wall height will be of 26 gauges sheet steel on exterior, than 8.5” air space, 4” acoustic fibreglass insulation and 18 gauges sheet steel interior.
- For the remaining wall height the single skin construction shall be upgraded to a double shell construction by adding an interior layer of 18 gauges sheet metal.

The construction of this building must satisfy the following minimum transmission loss (“TL”) spectrum for the entire wall assembly:

O.B. Frequency (Hz)	31.5	63	125	250	500	1k	2k	4k	8k
TL (dB)	2	8	15	30	44	54	60	60	60

The roof construction of the energy center building must satisfy the following minimum transmission loss (“TL”) spectrum:

O.B. Frequency (Hz)	31.5	63	125	250	500	1k	2k	4k	8k
TL (dB)	0	0	5	11	17	23	29	35	41

2. Process Building Construction

The wall construction for North and East facades will be as follows:

- First 2.3 m of the wall height will be of 26 gauges sheet steel on exterior, than 8.5” air space, 4” acoustic fibreglass insulation and 18 gauges sheet steel interior.
- For the remaining wall height the single skin construction shall be upgraded to a double shell construction by adding an interior layer of 18 gauges sheet metal.

The construction of the North and East facades of the building must satisfy the following minimum transmission loss (“TL”) spectrum for the entire wall assembly:

O.B. Frequency (Hz)	31.5	63	125	250	500	1k	2k	4k	8k
TL (dB)	2	8	15	30	44	54	60	60	60

The wall construction of the South and West facades will be as follows:

- First 2.3 m of the wall height will be of 26 gauges sheet steel on exterior, than 8.5” air space, 4” acoustic fibreglass insulation and 26 gauges sheet steel interior.
- For the remaining wall height there will be 26 gauges single sheet steel

The construction of the South and West facades of the building must satisfy the following minimum transmission loss (“TL”) spectrum for the entire wall assembly:

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O.B. Frequency (Hz)	31.5	63	125	250	500	1k	2k	4k	8k
TL (dB)	0	0	6	12	18	24	30	36	42

The roof construction of the process building must satisfy the following minimum transmission loss (“TL”) spectrum:

O.B. Frequency (Hz)	31.5	63	125	250	500	1k	2k	4k	8k
TL (dB)	0	0	5	11	17	23	29	35	41

3. Receiving Baghouse, Milling Baghouse and DDGS Cyclone Outlet Silencer

The outlets of the receiving baghouse outlet (S20), both milling baghouse outlets (S30-1&S30-2), and the DDGS cyclone outlet (S70), must be equipped with silencers (proposed are 72” long Vibro-Acoustics CD-HV-F1 or equivalent silencers), with the following minimum dynamic insertion loss values:

O.B. Center Freq. (Hz)	31.5	63	125	250	500	1K	2K	4K	8K
DIL (dB)	-	5	11	23	33	44	36	24	17

4. Hammer Mill Silo and Silo Openings

The hammer mills are to be located between the grain silos. The silo should be of masonry or equivalent construction to ensure that the noise from the hammer mills and the scalper is contained within the enclosure. There is also a ventilation opening in the hammer silo located on the north side of the silo. This opening should be mitigated using the acoustical louvre. This acoustical louvre should have at least the following minimum transmission loss:

O.B. Frequency (Hz)	31.5	63	125	250	500	1k	2k	4k	8k
TL (dB)	-	8	12	17	22	24	24	19	20

5. Biomethanotor Flare – Sound Power Restriction

The sound power produced by the operation of biomethanol flare burner (S60), must not exceed 106 dBA.

6. Buildings Ventilation Openings

Each of the building ventilation openings should be mitigated using an acoustic louvre. The recommended louvre should have at least the following transmission loss (“TL”):

O.B. Frequency (Hz)	31.5	63	125	250	500	1k	2k	4k	8k
TL (dB)	-	9	9	12	16	18	19	19	18

5. ODOUR PERFORMANCE LIMIT

(1) The Company shall ensure that the 10-minute average concentration of odour at the most impacted Sensitive Receptor, resulting from the operation of the Facility, shall not exceed 1 odour unit per cubic metre.

(2) The Company shall demonstrate compliance with the Odour Performance Limit set out in Condition No. 4(1) in accordance with the methodology described in Schedule “D”.

SCHEDULE “D”

Procedure to calculate and record the 10-minute average concentration of odour at the Point of Impingement and at the most impacted Sensitive Receptor

- (a) Calculate and record one-hour average concentration of odour at the Point of Impingement and at the most impacted Sensitive Receptor, employing the AERMOD atmospheric dispersion model or with another atmospheric dispersion model acceptable to the Director that employs at least five (5) years of hourly local meteorological data and that can provide results reported as individual one-hour average odour concentrations;
- (b) Convert and record each of the one-hour average concentrations predicted over the five (5) years of hourly local meteorological data at the Point of Impingement and at the most impacted Sensitive Receptor to 10-minute average concentrations using the One-Hour Average to 10-Minute Average Conversion described below; and
- (c) Record and present the 10-Minute Average concentrations predicted to occur over a five (5) year period at the Point of Impingement and at the most impacted Sensitive Receptor in a histogram. The histogram shall identify all predicted 10-minute average odour concentration occurrences in terms of frequency, identifying the number of occurrences over the entire range of predicted odour concentration in increments of not more than 1/10 of one odour unit. The maximum 10-minute average concentration of odour at the Sensitive Receptor will be considered to be the maximum odour concentration at the most impacted Sensitive Receptor that occurs and is represented in the histogram, disregarding outlying data points on the histogram as agreed to by the Director.

ONE-HOUR AVERAGE TO 10-MINUTE AVERAGE CONVERSION

Use the following formula to convert and record one-hour average concentrations predicted by the AERMOD atmospheric dispersion model to 10-minute average concentrations:

$$X_{10min} = X_{60min} * 1.65$$

where X_{10min} = 10-minute average concentration
 X_{60min} = one-hour average concentration

6. SOURCE TESTING

(1) The Company shall perform Source Testing to determine the rates of emission of the Test Contaminants outlined in Column 2 of Schedule "E" from each source identified in Column 1 of Schedule "D" in accordance with the procedure described in Schedule "F".

SCHEDULE "E"

<u>Source Testing Requirements</u>	
Source Description and Source ID	Test Contaminants
Grain Unloading Baghouse (Source S20) Milling Baghouses (Sources S30a and S30b)	Odour Suspended Particulate Matter
Thermal Oxidizer (Source S10) Dryers A and B (Source S10)	Carbon Dioxide (CAS No. 37210-16-5) Nitrogen Oxides (CAS No. 10102-44-0) Sulphur Dioxide (CAS No. 7446-09-5) Methanol (CAS No. 67-56-1) Acetaldehyde (CAS No.75-07-0) Acrolein (CAS No. 107-02-8) Suspended Particulate Matter Odour
DDGS Cooling Cyclone (S70) DDGS Storage / Loading Building Vents (V1)	Formaldehyde (CAS No. 50-00-0.) Acetaldehyde (CAS No.75-07-0) Acrolein (CAS No. 107-02-8) Methanol (CAS No. 67-56-1) Suspended Particulate Matter Odour

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Fermentation Scrubber (Source S40) Purge Scrubber (Source S45)	Methanol (CAS No. 67-56-1) Acetaldehyde (CAS No.75-07-0) Acrolein (CAS No. 107-02-8) Formaldehyde (CAS No. 50-00-0) Acetic Acid (CAS No. 64-19-7) Butyric Acid (CAS No. 107-92-6) Lactic Acid (CAS No. 50-21-5) Glycerol (CAS No. 56-81-5) 2-Furaldehyde (CAS No. 98-01-1) Formic Acid (CAS No. 64-18-6) Suspended Particulate Matter Odour
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SCHEDULE "E" (continued)

<u>Source Testing Requirements</u>	
Source Description and Source ID	Test Contaminants
Any new odour and/or suspended particulate matter emission source (not listed in this schedule) that is identified after commencement of Facility operation, having a potential impact at the Sensitive Receptors, and Source Testing can be conducted on the emission source	Odour and/or Suspended Particulate Matter

Notes for Schedule "D"

* Source Testing shall be conducted under normal equipment operating conditions to determine the maximum total odour emission from the Facility.

SCHEDULE "F"

<p align="center"><u>Procedure for Source Testing</u></p> <ol style="list-style-type: none"> 1. The Company shall submit, not later than three (3) months after the commencement of operation of the Facility, to the District Manager and the Manager a test protocol, including the Pre-Test Information for the Source Testing required by the Source Testing Code. The Company shall finalize the test protocol in consultation with the Manager. 2. The Company shall not commence the Source Testing until the M anager has accepted the test protocol. 3. The Company shall complete the Source Testing not later than three (3) months after the Manager has accepted the test protocol. 4. The Company shall notify the District Manager and the Manager in writing of the location, date and time of any impending Source Testing required by this Certificate, at least fifteen (15) days prior to the Source Testing.
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SCHEDULE "F" (continued)

Procedure for Source Testing

5. The Company shall submit a report on the Source Testing to the District Manager and the Manager not later than two (2) months after completing the Source Testing. The report shall be in the format described in the Source Testing Code, and shall also include, but not be limited to:

- (a) an executive summary;
- (b) records of operating conditions;
- (c) results of dispersion calculations for the 10-minute average concentrations of odour at ten (10) most impacted Sensitive Receptors, calculated in accordance with the procedure outlined in **Schedule "C"** of this Certificate, and based on odour emission from the entire Facility, including
 - (i) odour emission rates determined by Source Testing for odour emission sources listed in Schedule "E", and
 - (ii) odour emission rates for all odour emission sources that can not be determined by Source Testing but can be estimated using methods accepted by the Ministry;
- (d) concentration profiles of 10-minute average concentrations of odour within a radius of 2000 metres from the Facility, calculated with appropriate grid intervals and in accordance with the procedure outlined in **Schedule "C"** of this Certificate, and based on odour emission from the entire Facility, including
 - (i) odour emission rates determined by Source Testing for odour emission sources listed in Schedule "E", and
 - (ii) odour emission rates for all odour emission sources that can not be determined by Source Testing but can be estimated using methods accepted by the Ministry;
- (e) results of dispersion calculations in accordance with Regulation 419 indicating the maximum concentrations of the **Test Contaminants** at the Point of Impingement.

6. The Director may not accept the results of the Source Testing if:

- (a) the Source Testing Code or the requirements of the Manager were not followed;
- (b) the Company did not notify the District Manager and the Manager of the Source Testing; or
- (c) the Company failed to provide a complete report on the Source Testing.

7. If the Director does not accept the results of the Source Testing, the Director may require re-testing.

(2) The Company shall repeat the Source Testing for Odour, required by Condition No. 6(1), annually from the date of the first Source Testing, in accordance with the procedures noted in this Certificate, for an additional three (3) years.

7. RECORD RETENTION

The Company shall retain, for a minimum of two (2) years from the date of their creation, and make these records available for review by staff of the Ministry upon request:

- (1) all records and information related to or resulting from the Operation and Maintenance Manual, Complaint Response Procedure and Best Management Practices Plan required by this Certificate; and
- (2) all records produced by the continuous temperature monitoring and recording equipment.

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

1. Condition No. 1 is included to outline the minimum performance requirements considered necessary to prevent an adverse effect resulting from the operation of the Facility.

2. Conditions No. 2 and 3 are included to emphasize that the Equipment and the Facility must be maintained and operated according to a procedure that will result in compliance with the Act, the regulations and this Certificate.
3. Conditions No. 4.1-4.3 and 5 are included to outline the minimum performance requirements considered necessary to prevent an adverse effect resulting from the operation of the Facility.
4. Conditions No. 4.4-4.8 and 6 are 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.
5. Condition No. 7 is included to require the Company to keep records and provide information to staff of the Ministry so that compliance with the Act, the regulations and this Certificate can be verified.

SCHEDULE "G"

Supporting Information for the Preparation of an Acoustic Assessment Report

Prepared by the Air and Noise Unit, Environmental Assessment and Approvals Branch
November 2003

Ontario's Environmental Protection Act (EPA) defines a contaminant to include sound or vibration. In order to obtain an approval under Section 9 of the EPA, applicants are, as a minimum, required to assess and document the impacts of the noise¹ emissions from their facility on Point(s) of Reception in comparison to specific sound level limits contained in published ministry Noise Pollution Control (NPC) guidance documents (see Section 1). Depending on the type of equipment and nature of the activities taking place at a facility, a detailed Acoustic Assessment Report² is not required if the facility is located further from the nearest Point of Reception than the minimum separation distance, as outlined in the "Guide to Applying for Approval(Air): Noise and Vibration", April 1998 as amended. In all other cases a detailed Acoustic Assessment Report must be submitted.

The Acoustic Assessment Report demonstrates compliance with the sound level limits. Central to these reports is the preparation of Summary Tables to present the results of the report in a tabular manner and to confirm continued compliance with the sound level limits (Performance Limits).

This Document is designed to assist the individual who is responsible for preparing an Acoustic Assessment Report and the Summary Tables included as part of the Report. Reports prepared and documented in accordance with the format described below may be considered in a format acceptable to the Director in order to document compliance with the sound level limits. Reports that do not follow the format described may not be acceptable to the Director and proponents wishing to obtain a CofA will be directed to resubmit the supporting information accompanying the application.

1. References

- NPC-205 - Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban)
- NPC-232 - Sound Level Limits for Stationary Sources in Class 3 Areas (Rural)
- NPC-207 - Impulse Vibration in Residential Buildings (draft)
- NPC-206 - Sound Levels Due to Road Traffic
- NPC-233 - Information to be Submitted for Approval of Stationary Sources of Sound

1 For the purposes of this document the term noise will also mean vibration or a combination of both as appropriate.

2 When references are made within this document to Acoustic Assessment Reports and other requirements relating to sources of noise emissions, it should be noted that there are similar requirements for Vibration Assessment Reports and summary tables for facilities with significant sources of vibration emissions.

2. Documentation Requirements

The Acoustic Assessment Report must include sufficient information and analysis to demonstrate the facility's compliance

with the applicable noise sound level limit. To ensure consistency in identifying sources of air and/or noise emissions the Acoustic Assessment Report should be linked with the Emission Summary and Dispersion Modelling (ESDM) Report prepared in accordance with the ESDM Procedure Document dated June 1998 and submitted with the application for Certificate of Approval.

The suggested format and content for the report is provided in the following section. The person preparing a report must be able to defend the accuracy of the data presented in the report and tables.

3. Acoustic Assessment Reports

3.1 Introduction

The purpose of the Introduction is to provide an overview of the facility, list the objectives of the report and identify its relationship to the Certificate of Approval application. Specific information in the introduction should include the site location, facility overview and the type and number of noise sources at the facility. The introduction should also provide detailed information on the environmental noise climate surrounding the facility and should include:

- An up-to-date land use zoning designation plan of the surrounding area, complete with legend and scale. The zoning plan will be required within a radius of either 500 metres or 1,000 metres, depending on the type of equipment and nature of the activities taking place at a facility. (See “Guide to Applying for Approval (Air): Noise and Vibration”, dated April 1998 for more information and the required separation distances).
- Scaled area location plan, indicating the topography and nature of the neighbourhood surrounding the facility, including the location of adjacent buildings and structures, and the nearest Point(s) of Reception. As with the zoning plan, the area location plan will be required within a radius of either 500 metres or 1,000 metres, depending on the type of equipment and nature of the activities taking place at a facility.
- The location of the nearest Point(s) of Reception that may be impacted by the facility must be clearly shown on the scaled area location plan. Point(s) of Reception include any of the following existing or zoned for future use premises:
 - permanent, seasonal or rental residences;
 - hotels/motels;
 - nursing/retirement homes;
 - hospitals;
 - campgrounds; or
 - noise sensitive buildings such as schools, day care facilities and places of worship

3.2 Facility Description

The purpose of the Facility Description is to provide a detailed description of the facility, processes and types of equipment that may produce noise emissions. The information listed in the ESDM Procedure Document should be included or referenced, along with the following information:

- Operating hours of the equipment/facility (including start time and stop time) and sequence of operation of multiple and/or intermittent sources.
- Relevant architectural and mechanical drawings (scaled plans, elevations and sections) of the equipment/facility. Drawings should show:

- size and location of all exterior openings in the building(s) housing the equipment/facility;
- details of the construction materials forming the exterior envelope of the building(s) (e.g. concrete block, brick, etc.);
- details of the construction materials forming the interior surfaces of the building(s) (e.g. dry wall, concrete, etc.); and

- orientation of, and distance from, all exterior openings with respect to the nearest Point(s) of Reception.

3.3 Noise Source Summary

The Noise Source Summary should identify all noise sources at the facility and provide all required technical information to predict the worst case noise impacts from the facility. Each source must be assigned a unique identifier and be clearly located on the site drawings included in the Facility Description. Where possible, the Noise Source Summary should use the same identification system used in the ESDM Report.

The use of source description sheets summarizing the following information for each source is encouraged. Sufficient information must be provided for each source to calculate the worst case noise impact from the facility. The following information should be provided as required:

- Manufacturer's make and model number, power rating, flow rate or other specifications to uniquely identify the source and calculate the sound level emissions;
- Time varying characteristics of generated sound (steady or intermittent);
- Tonal characteristics;
- Impulsive characteristics;
- Directivity pattern of the source;
- Measurement techniques and equipment used for evaluation of source emission;
- Octave or 1/3 octave sound power levels for the sources where available;
- Octave or 1/3 octave sound pressure levels generated by the sources including measurement conditions, procedure and location of measurement points; or
- noise/vibration control equipment or measures designed to reduce the noise/vibration emissions.

Detailed information may not be required for noise sources that are insignificant in comparison to the overall facility noise levels. However, noise sources that are considered insignificant should be listed as such in an appendix to the report.

Selected details relating to sources of noise emissions must be documented in the form of a Noise Source Summary Table. An example of a completed Noise Source Summary Table is included as Table A1. The following information should be included in the Noise Source Summary Table:

Source Identifier A unique identifier for each source. Wherever possible this identifier should be the same as used in the ESDM Report.

Source Description A brief description of the source.

Sound Power Level A measurement in decibels of the acoustical power radiated by a given source with respect to the international reference of 10^{-12} Watts.

Source Location An indication of where the source is located, either inside a building (I) or outside (O).

Sound Characteristics Acoustical characteristics of the source that affect the measurements, including Tonal, Impulsive, or Quasi-Steady Impulsive.

Noise Control Measures An indication of the type (if any) of Noise Control Measures that are applied to the noise source or are used to control the noise emissions from the source. The following codes should be used:

S: silencer, acoustic louvre, muffler

A: acoustic lining, plenum

B: barrier, berm, screening

L: lagging

E: acoustic enclosure

O: other

U: uncontrolled

3.4 Point of Reception Summary

The Point of Reception Summary should identify all required Point(s) of Reception in the vicinity of the facility. At a minimum, the closest Point(s) of Reception in each cardinal direction should be identified. For more complex facilities, additional Point(s) of Reception may be required to determine the critical Point(s) of Reception. Each Point of Reception must be assigned a unique identifier and located on the scaled area location plan included in the Introduction.

Sufficient information must be provided to assess the impacts of each source identified in the Source Summary Section on each Point of Reception. The following information should be provided as required:

- One Hour Equivalent Sound Level (L_{eq}) of the source. For multiple sources or sources generating intermittent or time-varying sound, the hourly L_{eq} over a minimum period of 24 hours or for the operating cycle of the source, whichever is shorter, should be provided;
- Logarithmic Mean Impulse Sound Level (LLM) of the source, if applicable;
- Prevailing meteorological conditions such as wind direction and speed, percent relative humidity, temperature;
- For a location in a Class 3 Area, the existing One Hour Ninetieth Percentile Sound Level (L_{90}) of the background sound level at Point(s) of Reception, obtained through monitoring over a minimum period of 48 hours. The monitoring should be conducted during times when the background sound level is at its lowest level. The lowest hourly L_{90} value should be selected to represent the background sound level;
- For all Areas, the existing One Hour Equivalent Sound Level (L_{eq}) of the background sound level obtained either by prediction or through monitoring over a minimum period of 48 hours. The monitoring should be conducted during times when the background sound level is at its lowest level. The lowest hourly L_{eq} value should be selected to represent the background sound level; or
- Sound level using other specialized descriptors.

The relationship between the sources identified in the Noise Source Summary section and the Point of Reception Summary section should be documented in the form of a Point of Reception Noise Impact Table. An example Point of Reception Noise Impact Table is included as Table A2.

The following information should be included in the Point of Reception Noise Impact Table:

Source ID The unique identifier used in the Source Summary Section.

Distance to The distance in metres from each individual source to the Point of Reception Point of Reception.

Sound Level at The predicted or measured sound level (L_{eq} or LLM)
Point of Reception identified as units of dBA or dBAI at the Point of Reception resulting from the individual source.

3.5 Mitigation Measures Summary

The Mitigation Measures Summary should identify the noise mitigation measures that are used to control the noise emissions from the facility. This section identifies common mitigation measures such as berms or enclosures that are used to control more than one source. Individual mitigation measures may be detailed in the Source Summary Section.

The following information is should be provided as required when noise mitigation measures are used:

- Where sound sources are silenced, enclosed or shielded by barriers, indicate the location, dimensions, structural details, materials used and the specification of abatement equipment and materials, such as transmission loss, insertion loss, noise reduction or barrier attenuation;
- If the devices are standard catalogue items, indicate the type, manufacturer's make and model number and spectral acoustic performance specification data, such as insertion loss, transmission loss, absorption coefficient values, noise reduction; or
- If alternative measures for noise abatement are proposed, provide a full description of the alternatives, administrative

steps, changes in operational procedure or structural alterations.

3.6 Assessment Criteria (Performance Limits)

The Assessment Criteria section should indicate the applicable Performance Limit at each Point of Reception and the method used to determine that limit. The noise assessment process relates to the worst-case noise impact of the facility at Points of Reception. This means that the applicable Performance Limit at a Point of Reception is determined by identifying the time when the sound level produced by the source is at a maximum in relation to the background sound level.

The resulting Performance Limit at the Point of Reception is then based on the background sound level in accordance with Publications NPC-205 or NPC-232 and is the greater of either:

- the sound level limit based on the minimum background sound level that occurs or is likely to occur during operation of the source under assessment; or
- the exclusionary limit, as indicated in Table 205-1 for urban areas and Table 232-1 for rural areas.

Depending on the characteristics of the noise sources and the location of Point(s) of Reception, the Performance Limit may be expressed in terms of:

- L_{eq} - One Hour Equivalent Sound Level;
- L_{LM} - Logarithmic Mean Impulse Sound Level; or
- L_{90} - One Hour Ninetieth Percentile Sound Level.

The Performance Limit may be expressed in units of dBA or dBAI.

3.7 Impact Assessment

The Impact Assessment section should describe the method used to calculate the noise levels at the individual Points of Reception³ and compare them to the applicable assessment criteria for the individual Point of Reception Performance Limits. The section should also outline the results of pre- and post-abatement assessment at Point(s) of Reception.

³ Large manufacturing and/or process plants or industrial complexes where a multitude of sources exist may require a more detailed analysis of the noise impact. The impact reports should include sound level mapping in addition to the information specified above. The sound level mapping should include the existing level of road traffic in the vicinity of the proposed installation.

The noise impact assessment must also be presented in an Acoustic Assessment Summary Table, summarizing the results of the Acoustic Assessment Report and demonstrating compliance with the Performance Limits for the Facility regarding noise emissions.

An example Acoustic Assessment Summary Table is included as Table A3. The following information must be included in the Acoustic Assessment Summary Table:

Point of Reception A unique identifier for each receptor used in the Point of Identifier Reception Summary section.

Point of Reception A brief description of the Point of Reception to assist in the Description identification of the Point of Reception on the table.

Sound Level at The predicted or measured sound level at the Point of Point of Reception Reception, in terms of L_{eq} or L_{LM} and reported in units of dBA or dBAI.

Verified by Indication whether or not the reported Sound Level of Point Acoustic Audit of Reception has been verified by an Acoustic Audit.

Performance Limit The prescribed Performance Limit required by the CofA, in terms of L_{eq} , L_{90} or L_{LM} and reported in units of dBA or dBAI.

Compliance with Indication that the predicted sound level at the Point of Performance Limit Reception is below the Performance Limit. The response should be Yes. No is not an acceptable response.

3.8 Conclusions and Recommendations

The Conclusions and Recommendations section should provide a written statement of compliance with the Performance Limits, signed by the qualified professional that completed the assessment. This section should also include an overview of the effects of the control measures employed at the facility and a description of verification activities conducted at the site.

3.9 Supporting Information

All supporting information necessary to support the conclusions of the report, but not specifically referenced as required in the above sections, should be referenced and attached as appendices to the report. Supporting information could include any information used to assess the impact of noise sources on Point(s) of Reception, such as details of measurements and calculations, specifications, plans, engineering drawings, etc.

Acoustic Assessment Summary Tables

**Table A1
Noise Source Summary Table**

Source ID ¹	Source Description	Sound Power Level (dBA)	Source Location ²	Sound Characteristics ³	Noise Control Measures ⁴
1	Diesel Generator Exhaust Stack	128	O	S	S
2	Diesel Generator Casing	111	I	S	S,A
3	Compressor	105	O	S	E
4	Exhaust Fan	101	O	S,T	U

Notes:

1. Wherever possible, the Source ID must be identical with that used in the ESDM report.

2. Source Location:

O - located/installed outside the building, including on the roof

I - located/installed inside the building

3. Sound Characteristics:

S: Steady

Q: Quasi Steady Impulsive

I: Impulsive

B: Buzzing

T: Tonal

C: Cyclic

4. Noise Control Measures

S: silencer, acoustic louvre, muffler

A: acoustic lining, plenum

B: barrier, berm, screening

L: lagging

E: acoustic enclosure

O: other

U: uncontrolled

Table A2
Point of Reception Noise Impact Table
 (add columns or tables to address additional Points of Receptions)

Source ID ¹	Point of Reception 1		Point of Reception 2		Point of Reception 3		Point of Reception 4	
	Distance to POR1 (metre)	Sound Level at POR1 ² (L _{eq})	Distance to POR2 (metre)	Sound Level at POR2 ² (L _{eq})	Distance to POR3 (metre)	Sound Level at POR3 ² (L _{eq})	Distance to POR4 (metre)	Sound Level at POR4 ² (L _{eq})
1	100	41 dBA	110	40 dBA	180	36 dBA	90	42 dBA
2	95	38 dBA	100	34 dBA	180	28 dBA	85	35 dBA
3	130	37 dBA	150	36 dBA	150	36 dBA	50	45 dBA
4	90	42 dBA	80	43 dBA	190	36 dBA	120	40 dBA

Notes:

1. Wherever possible, the Source ID must be identical with that used in the ESDM report.
2. Indicate sound level format (L_{eq} or LLM) and units (dBA or dBAI).

Table A3
Acoustic Assessment Summary Table

Point of Reception ID	Point of Reception Description	Sound Level at Point of Reception ¹ (L _{eq})	Verified by Acoustic Audit (Yes/No)	Performance Limit ² (L _{eq})	Compliance with Performance Limit ³ (Yes/No)
POR1	House to North	46 dBA	Yes	54 dBA	Yes
POR2	House to East	46 dBA	Yes	52 dBA	Yes
POR3	Nursing Home to South	41 dBA	Yes	50 dBA	Yes
POR4	School to West	48 dBA	Yes	50 dBA	Yes

Notes:

1. Indicate sound level format (L_{eq} or LLM) and units (dBA or dBAI).
2. Indicate sound level format (L_{eq}, L90 or LLM) and units (dBA or dBAI).
3. The response should be “Yes”. “No” is not an acceptable response.

This Certificate of Approval revokes and replaces Certificate(s) of Approval No. 4655-6ZBS3B issued on June 20, 2007

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**

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 28th day of October, 2008

Victor Low, P.Eng.
Director

AH/
c: District Manager, MOE London - District
Gayle Giesbrecht, Water & Earth Science Associates Ltd.


AMENDED CERTIFICATE OF APPROVAL
AIR

NUMBER 9329-87DH33

Issue Date: November 26, 2010

Suncor Energy Products Inc.
 36 York Mills Rd, No. Unit 1
 North York, Ontario
 M2P 2C5

Site Location: Suncor Energy Products, Inc. Suncor Ethanol Plant.
 535 Rokeby Line Mooretown
 St. Clair Township, County of Lambton
 N0N 1M0

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

Description Section

A fuel grade ethanol production facility, consisting of the following process and support units:

- grain receiving, handling and milling;
 - mash cooking;
 - fermentation;
 - distillation and dehydration;
 - liquids and solids separation;
 - evaporation;
 - drying;
 - product storage and transportation;
 - carbon dioxide recovery;
 - utilities;
- one (1) recuperative thermal oxidizer (C10), complete with a waste heat recovery boiler (B10), fired by natural gas with a maximum heat input of approximately 168.9 million kilojoules per hour, exhausting into the atmosphere at a volumetric flow rate of approximately 52.9 actual cubic metres per second through a stack (S10), having an exit diameter of 2.13 metres and extending 38.1 metres above grade, serving the following operations and equipment:
- DDGS drying operations;
 - slurry blender;
 - slurry tank;
 - yeast tank;
 - 190 proof condenser;
 - regen receiver tank;
 - evaporator condenser;
 - centrifuges;
 - centrate tank;
- one (1) DDG cooling cyclone and baghouse (P70) serving Dryer B (P10), **exhausting into the atmosphere through a common stack (S200) at a combined volumetric flow rate of approximately 30.05 actual cubic metres per second, having an exit diameter of 1.68 metres and extending 60.0 metres above grade;**

- one (1) DDG baghouse (P90) serving Truck/Rail Loadout (P90), **exhausting into the atmosphere through the a common stack (S200) at a combined volumetric flow rate of approximately 30.05 actual cubic metres per second, having an exit diameter of 1.68 metres and extending 60.0 metres above grade;**
- one (1) unloading baghouse (C20) serving Corn Day Bin (P20), discharging into the atmosphere at a volumetric flow rate of approximately 19.8 actual cubic metres per second through a stack (S20), having an exit diameter of 1.10 metres and extending 7.5 metres above grade;
- one (1) milling baghouse (C30) serving Mills (P30), discharging into the atmosphere at a volumetric flow rate of approximately 7.6 actual cubic metres per second through a stack (S30), having an exit diameter of 0.90 metres and extending 7.2 metres above grade;
- one (1) dual stage type CO₂ scrubber (C40) with packed beds and the option for sodium bisulphite utilization, serving four (4) fermenters and one (1) beerwell, operating with a maximum pressure drop of 4.98 kilopascals and a maximum liquid flow rate of approximately 4.73 litres per second, discharging into the atmosphere through the Thermal Oxidizer stack (S10);
- one (1) single stage type CO₂ purge scrubber (C110) with packed beds and the option for sodium bisulphite utilization, for the control of purge vapours from four (4) fermenters and one (1) beerwell, operating with a maximum pressure drop of 4.98 kilopascals and a maximum liquid flow rate of approximately 0.473 litres per second, discharging into the atmosphere through the Thermal Oxidizer stack (S10);
- **one (1) recuperative thermal oxidizer (C11), complete with a waste heat recovery boiler (B11), fired by natural gas with a maximum heat input of approximately 168.9 million kilojoules per hour, exhausting into the atmosphere at a volumetric flow rate of approximately 52.9 actual cubic metres per second through a stack (S11), having an exit diameter of 2.13 metres and extending 38.1 metres above grade, serving the following operations and equipment:**
 - **DDGS drying operations;**
 - **slurry blender;**
 - **slurry tank;**
 - **yeast tank;**
 - **190 proof condenser;**
 - **regen receiver tank;**
 - **evaporator condenser;**
 - **centrifuges;**
 - **centrate tank;**

- one (1) DDG cooling cyclone and baghouse (P71) serving Dryer B (P11), **exhausting into the atmosphere through a common stack (S200) at a combined volumetric flow rate of approximately 30.05 actual cubic metres per second, having an exit diameter of 1.68 metres and extending 60.0 metres above grade;**

- one (1) dual stage type CO₂ scrubber (C41) with packed beds and the option for sodium bisulphite utilization, serving four (4) fermenters, operating with a maximum pressure drop of 4.98 kilopascals and a maximum liquid flow rate of approximately 4.73 litres per second, discharging into the atmosphere through the Thermal Oxidizer stack (S11);

including the *Equipment*, processes and any other ancillary and support processes and activities, excluding the carbon dioxide recovery plant, **operating at a Facility Production Limit of up to 420 million litres per year of fuel grade ethanol and/or 352,000 tonnes per year (dry basis) of distillers grain with solubles**, exhausting to the atmosphere as described in the ESDM Report.

- One (1) Silencer for the Phase 2 Main Thermal Oxidizer Fan Stack Outlet (S11), capable of providing the following values of Insertion-Loss in 1/1 octave frequency bands:

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Centre Frequency (Hertz)	31.5	63	125	250	500	1000	2000	4000	8000
Insertion-Loss (decibel)	3	7	11	25	27	25	15	-	-

- One (1) Silencer for Duct Between CO₂ Collection Blower and Phase 2 Thermal Oxidizer Stack (S11), capable of providing the following values of Insertion-Loss in 1/1 octave frequency bands:

Centre Frequency (Hertz)	63	125	250	500	1000	2000	4000	8000
Insertion-Loss (decibel)	7	12	15	10	5	-	-	-

- One (1) muffler for the Emergency Generator (S100) diesel engine combustion exhaust, capable of providing the following values of Insertion-Loss in 1/1 octave frequency bands:

Centre Frequency (Hertz)	63	125	250	500	1000	2000	4000	8000
Insertion-Loss (decibel)	-	2	29	19	13	13	13	13

- Two (2) Silencers for Outlets of Phase 1 and Phase 2 Cooling Cyclone Fans discharging to a common stack (S200), each capable of providing the following values of Insertion-Loss in 1/1 octave frequency bands:

Centre Frequency (Hertz)	63	125	250	500	1000	2000	4000	8000
Insertion-Loss (decibel)	-	5	12	-	-	-	-	-

- Three (3) metres high acoustic barrier in the form of an earthen berm constructed along the northern boundary of the Facility property, from the western property line to the trucking route entrance.

All in accordance with the documents set out in Schedule "A" attached to this Certificate.

SCHEDULE "A"

Application, dated September 9, 2004 and signed by Warren MacLean, submitted by the Company for a Certificate of Approval (Air);

Application, dated February 24, 2006 and signed by Warren MacLean, submitted by the Company for amendment of Certificate of Approval (Air) No. 3432-67JMEV;

Application, dated December 15, 2007 and signed by Warren MacLean, submitted by the Company for amendment of Certificate of Approval (Air) No. 8071-6NZKUX ;

Emission Summary and Dispersion Modelling Report, dated December, 2006.

Environmental Noise Impact Assessment report, dated February 9, 2010, prepared by HGC Engineering;

Application, dated September 15, 2009 and signed by Jack Wysman, submitted by the Company for amendment of Certificate of Approval (Air) No. 4678-72RLJW;

Emission Summary and Dispersion Modelling Report, dated September 2009.

Letter dated June 7, 2010 and June 12, 2010 from AMEC Earth & Environmental, a division of AMEC Americas Limited to the Ontario Ministry of the Environment.

Other supporting documentation and correspondences.

SCHEDULE "B"

TEST CONTAMINANTS:

Contaminant CAS Number

sulphur dioxide 7446-09-5
nitrogen oxides 10102-44-0
carbon monoxide 630-08-0
suspended particulate matter not applicable
acetaldehyde 75-07-0
acrolein 107-02-8
methanol 67-56-1
ethanol 64-17-5
formaldehyde 50-00-0
acetic acid 64-19-7
furfural 98-01-1
benzene 71-43-2
hexane 110-54-3
toluene 108-88-3
xylenes 1330-20-7
ethylbenzene 100-41-4
cumene 98-82-8
carbon disulphide 75-15-0
ethyl acetate 141-78-6
butyric acid 107-92-6
lactic acid 50-21-5
glycerol 56-81-5
carbonyl sulfide 463-58-1
methane 74-82-8
Organic Matter (total hydrocarbons) not applicable

Schedule "B" continued

EXHAUST STACKS FOR SOURCE TESTING:

Equipment Stack Number

thermal oxidizer (C10),

waste heat recovery boiler (B10),
CO₂ scrubber (C40),
purge scrubber (C110), S10

unloading/loading baghouse (C20) S20

milling baghouse (C30) S30

**thermal oxidizer (C11),
waste heat recovery boiler (B11),
CO₂ scrubber (C41) S11**

**DDG cooling cyclone (P70),
DDG cooling cyclone (P71),
DDG baghouse (C90) S200**

Notes for Schedule "B"

*** Since the thermal oxidizers (C10 and C11), waste heat recovery boilers (B10 and B11), CO₂ scrubbers (C40 and C41), purge scrubber (C110) all discharge to the atmosphere through Stacks S10 and S11, Source Testing on Stacks S10 and S11 shall be conducted under normal equipment operating conditions to determine the maximum total odour emission from the Facility.**

Since the DDG cooling cyclones (P70 and P71) and DDG baghouse (C90) all discharge to the atmosphere through Stack S200, Source Testing on Stack S200 shall be conducted under normal equipment operating conditions to determine the maximum total odour emission from the Facility.

SCHEDULE "C"

**Procedure to calculate and record the 10-minute average concentration of odour
at the Point of Impingement and at the most impacted Sensitive Receptor**

- (a) Calculate and record one-hour average concentration of odour at the Point of Impingement and at the most impacted Sensitive Receptor, employing the AERMOD atmospheric dispersion model or with another atmospheric dispersion model acceptable to the Director that employs at least five (5) years of hourly local meteorological data and that can provide results reported as individual one-hour average odour concentrations;
- (b) Convert and record each of the one-hour average concentrations predicted over the five (5) years of hourly local meteorological data at the Point of Impingement and at the most impacted Sensitive Receptor to 10-minute average concentrations using the One-Hour Average to 10-Minute Average Conversion described below; and
- (c) Record and present the 10-Minute Average concentrations predicted to occur over a five (5) year period at the Point of Impingement and at the most impacted Sensitive Receptor in a histogram. The histogram shall identify all predicted 10-minute average odour concentration occurrences in terms of frequency, identifying the number of occurrences over the entire range of predicted odour concentration in increments of not more than 1/10 of one odour unit. The maximum 10-minute average concentration of odour at the Sensitive Receptor will be considered to be the maximum odour concentration at the most impacted Sensitive Receptor that occurs and is represented in the histogram, disregarding outlying data points on the histogram as agreed to by the Director.

ONE-HOUR AVERAGE TO 10-MINUTE AVERAGE CONVERSION

Use the following formula to convert and record one-hour average concentrations predicted by the AERMOD atmospheric dispersion model to 10-minute average concentrations:

$$X_{10min} = X_{60min} * 1.65$$

where X_{10min} = 10-minute average concentration

X_{60min} = one-hour average concentration

SCHEDULE "D"

PARAMETER:	Temperature						
LOCATION:	The sample point for the continuous temperature monitoring and recording system shall be located at a location where the measurements are representative of the minimum temperature of the gases leaving the combustion chamber of the Thermal Oxidizer.						
PERFORMANCE:	The continuous temperature monitoring and recording system shall meet the following minimum performance specifications for the following parameters.						
DATA RECORDER:	<table border="1"> <thead> <tr> <th>PARAMETERS</th> <th>SPECIFICATION</th> </tr> </thead> <tbody> <tr> <td>Type:</td> <td>shielded "K" type thermocouple, or equivalent</td> </tr> <tr> <td>Accuracy:</td> <td>±1.5 percent of the minimum gas temperature</td> </tr> </tbody> </table>	PARAMETERS	SPECIFICATION	Type:	shielded "K" type thermocouple, or equivalent	Accuracy:	±1.5 percent of the minimum gas temperature
PARAMETERS	SPECIFICATION						
Type:	shielded "K" type thermocouple, or equivalent						
Accuracy:	±1.5 percent of the minimum gas temperature						
RELIABILITY:	<p>The data recorder must be capable of registering continuously the measurement of the monitoring system without a significant loss of accuracy and with a time resolution of 1 minute or better.</p> <p>The monitoring system shall be operated and maintained so that accurate data is obtained during a minimum of 95 percent of the time for each calendar quarter.</p>						

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

1. "Acoustical Consultant" means a qualified professional currently active in the field of environmental acoustics and noise/vibration control, who has a combination of formal university education, training and experience necessary to assess noise emissions from a Facility and to develop or evaluate appropriate Noise Control Measures.
2. "Acoustic Assessment Report" means the report, prepared in accordance with Publication NPC-233 and Appendix A of the Basic Comprehensive User Guide, by HGC Engineering and dated February 9, 2010, submitted in support of the application, that documents all sources of noise emissions and Noise Control Measures present at the Facility and includes all up-dated Acoustic Assessment Reports as required by the Documentation Requirements conditions of this Certificate to demonstrate continued compliance with the Performance Limits following the implementation of any Modification.
3. "Acoustic Assessment Summary Table" means a table prepared in accordance with the Basic Comprehensive User Guide summarising the results of the Acoustic Assessment Report, up-dated as required by the Documentation Requirements conditions of this Certificate.
4. "Acoustic Audit" means an investigative procedure consisting of measurements and/or acoustic modelling of all sources

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of noise emissions due to the operation of the *Facility*, assessed in comparison to the Performance Limits for the *Facility* regarding noise emissions, completed in accordance with the procedures set in *Publication NPC-103* and reported in accordance with *Publication NPC-233*.

5. "*Acoustic Audit Report*" means a report presenting the results of an *Acoustic Audit*, prepared in accordance with *Publication NPC-233*.

6. "*AERMOD*" means the dispersion model, used in the application and supporting documents for this Certificate, developed by the American Meteorological Society/U.S. Environmental Protection Agency Regulatory Model Improvement Committee (AERMIC) including the PRIME (Plume Rise Model Enhancement) algorithm, used to calculate one-hour average concentrations of a contaminant at the Point of Impingement.

7. "*Air Standards Manager*" means the Manager, Human Toxicology and Air Standards Section, Standards Development Branch, or any other person who represents and carries out the duties of the Manager, Human Toxicology and Air Standards Section, Standards Development Branch, as those duties relate to the conditions of this *Certificate*.

8. "*Basic Comprehensive User Guide*" means the *Ministry* document titled Basic Comprehensive Certificates of Approval (Air) User Guide" dated April 2004 as amended.

9. "*Certificate*" means this entire certificate of approval document, issued in accordance with section 9 of the *EPA* and includes all the *Schedules*, and the *Supporting Documentation*.

10. "*Company*" means Suncor Energy Products Inc. that is responsible for the construction or operation of the *Facility* and includes any successors and assigns.

11. "*Compound of Concern*" means a contaminant that, based on generally available information, may be emitted to the atmosphere in a quantity from any source at the *Facility* that is significant either in comparison to the relevant *Ministry Point of Impingement Limit* or if a *Ministry Point of Impingement Limit* is not available for the compound then, based on generally available toxicological information, the compound has the potential to cause an adverse effect as defined by the *EPA* at a *Point of Impingement*.

12. "*Description Section*" means the section on page one of the *Certificate* describing the *Company's* operations and the *Equipment* located at the *Facility* and specifying the *Facility Production Limit* for the *Facility*.

13. "*Director*" means any person appointed in writing by the Minister of the Environment pursuant to section 5 of the *EPA* as a Director for the purposes of section 9 of the *EPA*.

14. "*District Manager*" means the District Manager of the appropriate local district office of the *Ministry*, where the *Facility* is geographically located.

15. "*Emission Summary Table*" means the table prepared in accordance with O. Reg. 419/05 and the *Procedure Document* listing the appropriate *Point of Impingement* concentrations of each *Compound of Concern* from the *Facility* and providing comparison to the corresponding *Ministry Point of Impingement Limit* or *Maximum Concentration Level Assessment*.

16. "*Environmental Assessment Act*" means the Environmental Assessment Act, R.S.O. 1990, c.E.18.

17. "*EPA*" means the Environmental Protection Act, R.S.O. 1990, c.E.19.

18. "*Equipment*" means equipment or processes described in the *ESDM Report*, this *Certificate* and in the *Supporting Documentation* referred to herein and any other equipment or processes.

19. "*Equipment with Specific Operational Limits*" means any *Equipment* related to the thermal oxidation of waste or waste derived fuels, fume incinerators (including the Thermal Oxidizers) or any other *Equipment* (including the cooling cyclones, CO₂ scrubbers, CO₂ purge scrubber, and the DDG loadout baghouse (S90), that is specifically referenced in any published *Ministry* document that outlines specific operational guidance that must be considered by the *Director* in issuing of a Certificate of Approval.

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20. "*ESDM Report*" means the Emission Summary and Dispersion Modelling Report prepared in accordance with the *Procedure Document*, by AMEC Americas Limited and dated September, 2004, December, 2006 and September 2009, submitted in support of the application, and includes any amendments to the ESDM Report listed in *Schedule A* and all updated ESDM Reports prepared as required by the Documentation Requirements conditions of this *Certificate*.
21. "*Facility*" means the entire operation located on the property where the *Equipment* is located.
22. "*Facility Production Limit*" means the production limit placed on the main product(s) or raw materials used by the *Facility* that represents the design capacity of the *Facility* and assists in the definition of the operations approved by the *Director*.
23. "*Log*" means the up-to-date log that is used to track all *Modifications* to the *Facility* since the date of this *Certificate* as required by the Documentation Requirements conditions of this *Certificate*.
24. "*Independent Acoustical Consultant*" means an *Acoustical Consultant* who is not representing the *Company* and was not involved in preparing the *Acoustic Assessment Report* or the design/implementation of *Noise Control Measures* for the *Facility* and/or *Equipment*. The *Independent Acoustical Consultant* shall not be retained by the *Acoustical Consultant* involved in the noise impact assessment or the design/implementation of *Noise Control Measures* for the *Facility* and/or *Equipment*.
25. "*Manager*" means the Manager, Technology Standards Section, Standards Development Branch, or any other person who represents and carries out the duties of the Manager, as those duties relate to the conditions of this *Certificate*;
26. "*Maximum Concentration Level Assessment*" means the Maximum Concentration Level Assessment for the purposes of a Basic Comprehensive Certificate of Approval, described in the *Basic Comprehensive User Guide*, prepared by a *Toxicologist* using currently available toxicological information, that demonstrates that the concentration at any *Point of Impingement* for a *Compound of Concern* that does not have a *Ministry Point of Impingement Limit* is not likely to cause an adverse effect as defined by the *EPA*. The concentration at *Point of Impingement* for a *Compound of Concern* must be calculated in accordance with O. Reg. 419/05.
27. "*Ministry*" means the ministry of the government of Ontario responsible for the *EPA* and includes all officials, employees or other persons acting on its behalf.
28. "*Ministry Point of Impingement Limit*" means the appropriate Standard from Schedule 1, 2 or 3 from O. Reg. 419/05 and if a standard is not provided for a *Contaminant of Concern* the appropriate criteria listed in the Ministry publication titled "Summary of O. Reg. 419/05 Standards and Point of Impingement Guidelines and Ambient Air Quality Criteria (AAQCs)", dated December 2005, as amended.
29. "*Modification*" means any construction, alteration, extension or replacement of any plant, structure, equipment, apparatus, mechanism or thing, or alteration of a process or rate of production at the *Facility* that may discharge or alter the rate or manner of discharge of a *Compound of Concern* to the atmosphere or discharge or alter noise or vibration emissions from the *Facility*.
30. "*Noise Control Measures*" means measures to reduce the noise emissions from the *Facility* and/or *Equipment* including, but not limited to, silencers, acoustic louvres, enclosures, absorptive treatment, plenums and barriers.
31. "*Odour Unit*" means the number of unit volumes of odourless gas required to dilute one unit volume of odorous gas to reach the odour threshold;
32. "*Odour Threshold Values*" means odour unit value at which 50 per cent of the population detects an odour;
33. "*Organic Matter*" means organic matter having a carbon content expressed as equivalent methane;
34. "*O. Reg. 419/05*" means the Ontario Regulation 419/05, Air Pollution – Local Air Quality.
35. "*Operating Envelope*" means the limits on the *Company's* approved operations set out in Conditions 2.3 to 2.7 of this *Certificate*.

36. "*Performance Limits*" means the performance limits specified in the section of this *Certificate* titled Performance Limits.
37. "*Phase II of the Facility*" means the new ethanol production plant to be constructed in phase II of the Facility described in the *ESDM Report*, this *Certificate* and in the *Supporting Documentation* referred to herein and any other equipment or processes.
38. "*Point of Impingement*" means any point outside the facility in the natural environment and as defined by s.2 of O. Reg. 419/05.
39. "*Point of Reception*" means Point of Reception as defined by *Publication NPC-205* and/or *Publication NPC-232*, as applicable.
40. "*Pre-test Information*" means the information outlined in Section 1. of the Source Testing Code.
41. "*Procedure Document*" means *Ministry* Procedure titled "Procedure for Preparing an Emission Summary and Dispersion Modelling Report" dated July 2005, as amended.
42. "*Processes with Significant Environmental Aspects*" means the *Equipment* which, during regular operation or if not properly operated or maintained, may cause or are likely to cause an adverse effect.
43. "*Publication NPC-103*" means the *Ministry* Publication NPC-103 of the Model Municipal Noise Control By-Law, Final Report, August 1978, published by the *Ministry* as amended.
44. "*Publication NPC-205*" means the *Ministry* Publication NPC-205, "Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban)", October, 1995 as amended.
45. "*Publication NPC-207*" means the *Ministry* draft technical publication "Impulse Vibration in Residential Buildings", November 1983, supplementing the Model Municipal Noise Control By-Law, Final Report, August 1978, published by the *Ministry*.
46. "*Publication NPC-232*" means the *Ministry* Publication NPC-232, "Sound Level Limits for Stationary Sources in Class 3 Areas (Rural)", October, 1995 as amended.
47. "*Publication NPC-233*" means the *Ministry* Publication NPC-233, "Information to be Submitted for Approval of Stationary Sources of Sound", October, 1995 as amended.
48. "*Schedules*" means the following schedules attached to the *Certificate* and forming part of the *Certificate* namely:
- Schedule A - Supporting Documentation;
Schedule B - Test Contaminants;
Schedule C - Procedure for Calculating Odour Point of Impingement Concentration;
Schedule D - Continuous Temperature Monitoring and Recording System.
49. "*Sensitive Receptor*" means any location where routine or normal activities occurring at reasonably expected times would experience adverse effect(s) from odour discharges from the Facility, including one or a combination of:
- (a) private residences or public facilities where people sleep (for example: single and multi-unit dwellings, nursing homes, hospitals, trailer parks, camping grounds, etc.),
 - (b) institutional facilities (for example: schools, churches, community centres, day care centres, recreational centres, etc.),
 - (c) outdoor public recreational areas (for example: trailer parks, play grounds, picnic areas, etc.), and
 - (d) commercial areas where there are continuous public activities (for example: commercial plazas and office buildings);
50. "*Source Testing Code*" means the Source Testing Code, Version 2, Report No. ARB-66-80, dated November 1980, prepared by the *Ministry*, as amended.

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51. "Source Testing" means sampling and testing to measure contaminant emissions resulting from operating the *Facility* at a production rate at or greater than **1.12 million litres per day** of fuel grade ethanol and/or **950 tonnes per day** (dry basis) of distillers grain with solubles.

52. "Supporting Documentation" means the documents listed in Schedule A of this *Certificate* which forms part of this *Certificate*.

53. "Test Contaminants" means the contaminants listed in Schedule "B".

54. "Thermal Oxidizers" means the thermal oxidizers described in the Company's application, this *Certificate* and in the supporting documentation referred to herein, to the extent approved by this *Certificate*.

55. "Toxicologist" means a qualified professional currently active in the field of risk assessment, risk management and toxicology that has a combination of formal university education, training and experience necessary to assess the *Compound of Concern* in question.

56. "Written Summary" means the written summary that must be submitted annually to the *Ministry* as required by the Section titled Reporting Requirements 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

1. GENERAL

1.1 Except as otherwise provided by this *Certificate*, the *Facility* shall be designed, developed, built, operated and maintained in accordance with the terms and conditions of this *Certificate* and in accordance with the application, the *ESDM Report*, the *Acoustic Assessment Report*, plans, specifications and *Supporting Documentation* submitted and the following *Schedules* attached hereto:

Schedule A - Supporting Documentation;

Schedule B - Test Contaminants and Exhaust Stacks for Source Testing;

Schedule C - Procedure for Calculating Odour Point of Impingement Concentration;

Schedule D - Continuous Temperature Monitoring and Recording System.

2. OPERATIONAL FLEXIBILITY

2.1 The *Company* may make *Modifications* to the *Facility* in accordance with this *Certificate*.

2.2 Despite Condition 2.1, all *Modifications* made by the *Company* shall be within the *Operating Envelope* of the *Facility* as defined by conditions 2.3 to 2.7.

2.3 Despite Condition 2.1, the *Company* shall not make *Modifications* to the *Facility* that are outside the scope of the intended operations of the *Facility* as described in the *Description Section*.

2.4 Despite Condition 2.1, the *Company* shall not make *Modifications* to the *Facility* that result in an increase of the *Facility Production Limit* above the level specified in this *Certificate*.

2.5 Despite Condition 2.1, the *Company* shall not make *Modifications* to the *Facility* that would add any *Equipment with Specific Operational Limits*. The *Company* shall operate *Equipment with Specific Operational Limits* approved by this *Certificate* in accordance with the original *ESDM Report* and Conditions in the *Certificate*.

2.6 Despite Condition 2.1, the *Company* shall only make *Modifications* to the *Facility* which comply with the *Performance Limits*.

2.7 Despite Condition 2.1, the *Company* shall not make *Modifications* to the *Facility* if the *Modifications* would be subject

to the *Environmental Assessment Act*.

2.8 Condition 2.1 of this *Certificate* shall expire five (5) years from the date of this *Certificate*, unless this *Certificate* is revoked prior to this date. Upon expiry of Condition 2.1 of this *Certificate*, the Company shall apply for amendment to include the current *ESDM Report* and the current *Acoustic Assessment Report* in Schedule A as *Supporting Documentation* to this *Certificate*.

3. PERFORMANCE LIMITS

3.1 The *Company* shall, at all times, ensure that all *Equipment* that are a source of a *Compound of Concern* from the *Facility* are operated to comply with the following *Performance Limits*:

(a) the maximum concentration of any *Compound of Concern* at a *Point of Impingement* shall not exceed the corresponding *Ministry Point of Impingement Limit*;

(b) for any *Compound of Concern* that does not have a *Ministry Point of Impingement Limit*, the maximum concentration of any *Compound of Concern* at a *Point of Impingement* shall not be greater than a level assessed as part of the original *ESDM Report*; or

(c) for any *Compound of Concern* that does not have a *Ministry Point of Impingement Limit*, the maximum concentration of any *Compound of Concern* at a *Point of Impingement* shall not be greater than the *Maximum Concentration Level Assessment* submitted to the *Ministry* and accepted by the *Air Standards Manager*.

3.2 The *Company* shall, no later than thirty (30) days prior to:

(a) the introduction of a new *Compound of Concern* that does not have a *Ministry Point of Impingement Limit*;

(b) an increase to the concentration at a *Point of Impingement* of a *Compound of Concern* that does not have a *Ministry Point of Impingement Limit* such that the resulting concentration at a *Point of Impingement* will be greater than the level that was reviewed as part of the original *ESDM Report*; or

(c) an increase to the concentration at a *Point of Impingement* of a *Compound of Concern* that does not have a *Ministry Point of Impingement Limit* such that the resulting concentration at a *Point of Impingement* will be greater than the corresponding *Maximum Concentration Level Assessment* previously accepted by the *Air Standards Manager*;

submit a proposed or revised *Maximum Concentration Level Assessment* for the *Compound of Concern* to the *Director* for review by the *Air Standards Manager*.

3.3 The *Company* may not use the *Maximum Concentration Level Assessment* prior to thirty (30) days from the date of an acknowledgment letter from the *Ministry* unless the *Company* receives written acceptance by the *Director*.

3.4 If the *Air Standards Manager* does not accept the proposed *Maximum Concentration Level Assessment*, the *Company* shall not introduce or increase the emission rate of the *Compound of Concern* without approval from the *Director*.

3.5 The *Company* shall, at all times, ensure that the noise emissions from the *Facility* comply with the limits set out in *Ministry Publication NPC-205*.

3.6 The *Company* shall, at all times, ensure that the vibration emissions from the *Facility* comply with the limits set out in *Ministry Publication NPC-207*

3.7 The *Company* shall ensure that each *Thermal Oxidizer* is designed and operated to comply with the following requirements:

(a) The combustion chamber of each *Thermal Oxidizer* shall be preheated to a minimum of 816 degrees Celsius, as measured by the continuous monitoring and recording system, prior to introducing the process exhaust gases;

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- (b) The temperature in the combustion chamber of each *Thermal Oxidizer*, is maintained at a minimum of 816 degrees Celsius, as measured by the continuous monitoring and recording system, at all times, when the *Thermal Oxidizer* is in operation;
- (c) The residence time of the combustion gases in the combustion chamber of each *Thermal Oxidizer* shall not be less than 0.75 seconds at a temperature of 816 degrees Celsius minimum.
- (d) The concentration of *Organic Matter* in the undiluted gas emitted from each *Thermal Oxidizer*, being an average of ten measurements taken at approximately one minute intervals, shall not be greater than 100 parts per million by volume.

3.8 The *Company* shall ensure that the design and operation of the *Facility* comply with the following requirements:

- (a) The *Company* shall ensure that the 10-minute average concentration of odour at the most impacted *Sensitive Receptor*, resulting from the operation of the *Facility*, shall not exceed 1.0 *Odour Unit*.
- (b) The *Company* shall demonstrate compliance with the Odour Performance Limit set out in Condition No. 3.8(a) in accordance with the methodology in Schedule "C".

4. DOCUMENTATION REQUIREMENTS

4.1 The *Company* shall, at all times, maintain documentation that describes the current operations of the *Facility*, including but not limited to:

- (a) a current *ESDM Report* that demonstrates compliance with the *Performance Limits* for the *Facility* regarding all *Compounds of Concern*;
- (b) a current *Acoustic Assessment Report* that demonstrates compliance with the *Performance Limits* for the *Facility* regarding noise emissions;
- (c) an up-to-date *Log* that describes each *Modification* to the *Facility*; and
- (d) a record of the changes to the *ESDM Report* and *Acoustic Assessment Report* that documents how each *Modification* is in compliance with the *Performance Limits*.

4.2 The *Company* shall, during regular business hours, make the current *Emission Summary Table* and *Acoustic Assessment Summary Table* available for inspection at the *Facility* by any interested member of the public.

5. REPORTING REQUIREMENTS

5.1 The *Company* shall provide the *District Manager* and the *Director* no later than June 1 of each year, a *Written Summary* of activities undertaken in the previous calendar year that shall include the following:

- (a) a signed statement that the *Facility* was in compliance with the *Performance Limits*;
- (b) a summary of each *Modification* that took place in the previous calendar year and resulted in a change in the previously calculated concentration at the *Point of Impingement* for any *Compound of Concern* or resulted in a change in the sound levels reported in the *Acoustic Assessment Summary Table* at any *Point of Reception*;
- (c) a list of each *Compound of Concern* submitted to the *Air Standards Manager* for review in the previous calendar year;
- (d) a review of any changes to a *Ministry Point of Impingement Limit* undertaken in the previous calendar year that affect a *Compound of Concern* emitted from the *Facility*;
- (e) a tabulated summary of the changes in the emission rate of any *Compound of Concern* and the resultant increase or decrease in the *Point of Impingement* concentration reported in the *ESDM Report* over the previous calendar year; and

(f) the *Emission Summary Table* and *Acoustic Assessment Summary Table* for the *Facility* as of December 31 from the previous calendar year.

6. COMPLAINT RESPONSE, OPERATION AND MAINTENANCE, BEST MANAGEMENT PRACTICES

Complaint Response and Recording Procedure

6.1 If at any time, the *Company* receives any environmental complaints from the public regarding the operation of the *Equipment* approved by this *Certificate*, the *Company* shall respond to these complaints according to the following procedure:

(a) the *Company* shall record and number each complaint, either electronically or in a log book, and shall include the following information: the time and date of the complaint and incident to which the complaint relates, the nature of the complaint, wind direction at the time and date of the incident to which the complaint relates and the address of the complainant, if known;

(b) the *Company*, upon notification of a complaint, shall initiate appropriate steps to determine all possible causes of the complaint, and shall proceed to take the necessary actions to appropriately deal with the cause of the subject matter of the complaint; and

(c) the *Company* shall complete and retain on-site a report written within one (1) week of the complaint date, listing the actions taken to appropriately deal with the cause of the subject matter of the complaint and any recommendations for remedial measures, and managerial or operational changes to reasonably avoid the recurrence of similar incidents.

(d) the *Company* shall notify the District Manager, in writing such as e-mail or fax, within two (2) business days of the receipt of a complaint.

Operating and Maintenance Programs

6.2 The *Company* shall prepare and implement, not later than three (3) months from the date of this *Certificate*, operating procedures and maintenance programs for all *Processes with Significant Environmental Aspects*. The *Company* shall ensure that all *Processes with Significant Environmental Aspects* are operated and maintained at all times in accordance with this *Certificate*, the operating procedures and maintenance programs. The operating procedures and maintenance programs shall specify as a minimum:

(a) frequency of inspections and scheduled preventative maintenance;

(b) procedures to prevent upset conditions;

(c) procedures to minimize all fugitive emissions;

(d) procedures and all reasonable measures to prevent and/or minimize odorous emissions from all potential sources at the *Facility*, including but not limited to, any measures employed to satisfy the requirements of Condition No. 6.1;

(e) procedures for record keeping activities relating to the operation and maintenance programs.

(f) procedures for recording and responding to environmental complaints relating to operation of the *Facility*; and

(g) list of trained personnel responsible for the operation and maintenance of the *Facility*;

Best Management Practices Plan

6.3 The *Company* shall prepare, before commencement of operation of the *Facility*, and update as necessary a Best Management Practices Plan or similar such program for the control of minor odour emissions, fugitive odour emissions and fugitive dust emissions to provide effective preventative/control measures to any potential sources of minor odour/fugitive emissions resulting from the operation of the *Facility*. This Best Management Practices Plan shall include, but not be limited to:

- (a) identification of the sources of minor odour emissions, fugitive odour emissions and fugitive dust emissions;
- (b) potential causes for high odour/dust emissions resulting from these sources;
- (c) preventative and control measures in place to minimize the likelihood of high odour/dust emissions from the sources of emissions identified above. Details of the preventative and control measures shall include:
 - (i) a description of the control equipment;
 - (ii) a description of the preventative procedures to be implemented; and/or
 - (iii) the frequency of occurrence of periodic preventative activities;
- (d) training of *Facility* personnel; and
- (e) inspection and maintenance procedures and monitoring initiatives to ensure effective implementation of the preventative and control measures.

6.4 The *Company* shall provide written documentation of specific preventative and control measures described in the Best Management Practices Plan is implemented. The *Company* shall record, as a minimum:

- (a) the date when each new preventative measure or operating procedure to minimize emissions is implemented, including a description of the preventative measure or operating procedure; and
- (b) each periodic activity conducted to minimize emissions.

6.5 The *Company* shall implement the Complaint Response and Recording Procedure, the Operating and Maintenance Programs and the Best Management Practices Plan.

6.6 The *Company* shall submit a summary of activities, conducted during the year under the Best Management Practices Plan, as part of the *Written Summary* required by Condition No. 5.1.

7. RECORD KEEPING REQUIREMENTS

7.1 Any information requested by the *Ministry* concerning the *Facility* and its operation under this *Certificate*, including, but not limited to, any records required to be kept by this *Certificate*, shall be provided to the *Ministry*, upon request, in a timely manner.

7.2 The *Company* shall retain, for a minimum of seven (7) years from the date of their creation, except as noted below, all reports, records and information described in this *Certificate* and shall include but not be limited to:

- (a) the current *ESDM Report*;
- (b) the *Acoustic Assessment Report*;
- (c) supporting information used in the emission rate calculations performed in the *ESDM Report* and *Acoustic Assessment Report* to document compliance with the *Performance Limits* (superseded information must be retained for a period of three (3) years after *Modification*);
- (d) the *Log* that describes each *Modification* to the *Facility*;
- (e) the *Written Summaries* provided to the *Ministry*;
- (f) the operating procedures and maintenance programs, including records on the maintenance, repair and inspection of the *Equipment* related to all *Processes with Significant Environmental Aspects*;
- (g) the complaints recording procedure, including records related to all environmental complaints made by the public as required by the section titled Complaints Response and Recording Procedure of this *Certificate*;

- (h) the Best Management Practices Plan required by the *Certificate*;
- (i) the continuous temperature monitoring and recording systems for the *Thermal Oxidizers*.

8. NOISE CONTROL REQUIREMENTS

- (1) The *Company* shall fully implement all *Noise Control Measures* identified in this *Certificate*, prior to the commencement of operation of the Facility or not later than three (3) months after the date of this *Certificate*.
- (2) The *Company* shall carry out acoustic audit measurements on the actual noise emissions due to the operation of the Facility, in accordance with the measurement procedures in Publication NPC-103.
- (3) The *Company* shall submit an acoustic audit report, prepared by an Independent Acoustic Consultant, in accordance with Publication NPC-233, to the District Manager and the Director not later than six (6) months after the commencement of operations at the Facility.
- (4) The Director may not accept the results of the acoustic audit if the requirements of Publication NPC-233 were not followed.
- (5) If the Director does not accept the results of the acoustic audit the Director may:
 - a) require the Company to repeat the acoustic audit, and/or
 - b) in accordance with the Act, impose additional conditions to the Company's Certificate of Approval.
- (6) If the acoustic audit report indicates that the Facility is not in compliance with the noise limits stated in Ministry Publication NPC-205 then the Company shall submit to the District Manager and the Director a Noise Abatement Action Plan for approval by the Director, by a date not exceeding six (6) months after the commencement of operation of the Facility.

The Noise Abatement Action Plan shall include a detailed timetable of scheduled mitigating measures, with the objective to ensure that the noise emissions from the Facility comply with limits in Publication NPC-205. The Noise Abatement Action Plan shall also be based upon the objective to complete the implementation of the required mitigating measures by a date not exceeding twelve (12) months after the commencement of operation of the Facility.

9. MONITORING

9.1 The *Company* shall monitor the emissions and operation of the *Facility* as follows:

- (1) The *Company* shall perform *Source Testing* to determine:
 - (a) the rate of odour emission from the exhaust stacks listed in Schedule "B", and any additional sources identified as odour emission sources that have a potential of significant impact at the off site *Sensitive Receptors*, and *Source Testing* can be conducted on the emission source, after the commencement of *Facility* operation.
 - (b) the rate of emission of each *Test Contaminant* from their respective emission sources as per supporting information in the application, where *Source Testing* can be conducted on the emission source, after the commencement of *Facility* operation.
- (2) The *Company* shall repeat the *Source Testing*, required by Condition No. 9.1(1)(a), annually from the date of the first *Source Testing* for two (2) years, in accordance with the procedures stated in this *Certificate*, unless the frequency is reduced in writing by the *District Manager*.
- (3) The *Company* may conduct the *Source Testing* required by Condition No. 9.1(1)(b) once only.

CONTENT COPY OF ORIGINAL

(4) The *Company* shall submit, not later than one (1) month prior to the commencement of operation of the *Facility*, to the *Manager* a test protocol, including the *Pre-Test Information* for the *Source Testing* required by the *Source Testing Code*. The *Company* shall finalize the test protocol in consultation with the *Manager*.

(5) The *Company* shall not commence the *Source Testing* until the *Manager* has accepted the test protocol.

(6) The *Company* shall complete the first *Source Testing* required by Condition No. 9.1(1) not later than two (2) months after the *Manager* has accepted the test protocol, or six (6) months after the commencement of operation of the *Facility*, whichever comes later.

(7) The *Company* shall notify the *District Manager* and the *Manager* in writing of the location, date and time of any impending *Source Testing* required by this *Certificate*, at least fifteen (15) days prior to the *Source Testing*.

(8) The *Company* shall submit a report on the first *Source Testing* to the *District Manager* and the *Manager* not later than three (3) months after completing the *Source Testing*. The report shall be in the format described in the *Source Testing Code*, and shall also include, but not be limited to:

- (a) an executive summary;
- (b) records of operating conditions;
- (c) results of dispersion calculations for the 10-minute average concentration of Odour, at the most impacted *Sensitive Receptors*; calculated in accordance with the procedure outlined in Schedule "C" of this *Certificate*, and based on Odour emission rates determined by *Source Testing*;
- (d) results of dispersion calculations for the 10-minute average concentration profile of Odour, within a 5000-metre radius with appropriate grids, calculated in accordance with the procedure outlined in Schedule "C" of this *Certificate*, and based on Odour emission rates determined by *Source Testing*;
- (e) the results of dispersion calculations in accordance with Regulation 419 indicating the maximum concentrations of the *Test Contaminants* at the *Point of Impingement*, for the maximum production rate of the *Facility*, based on contaminant emission rates
 - (i) determined by *Source Testing*; and
 - (ii) estimated based on methods accepted by the *Ministry* for emission sources that have a potential of environmental impact but *Source Testing* can not be performed.

(9) The *Company* shall submit a report on each subsequent annual *Source Testing* on odour emission to the *District Manager* and the *Manager* not later than three (3) months after completing the *Source Testing*. The report shall be in the format required by Condition No. 9.1(8) with exclusion of information required by Condition No. 9.1(8)(e).

(10) The *Director* may not accept the results of the *Source Testing* if:

- (a) the *Source Testing Code* or the requirements of the *Manager* were not followed;
- (b) the *Company* did not notify the *District Manager* and the *Manager* of the *Source Testing*;
- (c) the *Company* failed to provide a complete report on the *Source Testing*.

(11) If the *Director* does not accept the results of the *Source Testing*, the *Director* may require re-testing.

9.2 The *Company* shall continuously monitor and record the temperature in the combustion chamber of the *Thermal Oxidizer*, when the *Thermal Oxidizer* is in operation. The temperature monitor and recorder shall comply with the requirements outlined in the attached Schedule "D".

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

1. GENERAL

Condition No. 1 is included to require the *Certificate* holder to build, operate and maintain the *Facility* in accordance with the *Supporting Documentation* considered by the *Director* in issuing this *Certificate*.

2. OPERATIONAL FLEXIBILITY AND PERFORMANCE LIMITS

Condition Nos. 2 and 3 are included to limit *Modifications* and define the operating envelope permitted by this *Certificate*. The holder of the *Certificate* is approved for operational flexibility for the *Facility* that is consistent with the description of the operations included with the application up to the *Facility Production Limit*. In return for the operational flexibility the *Certificate* places performance based limits that can not be exceeded under the terms of this *Certificate*. *Certificate* holders will still have to obtain other relevant approvals required to operate the *Facility*, including requirements under other environmental legislation such as the *Environmental Assessment Act*. In addition, Condition No. 3.7 is included to: (a) prevent an adverse effect resulting from the operation of the Thermal Oxidizers; (b) ensure that the Thermal Oxidizers are actually operated at the required temperature and residence time; (c) comply with Regulation 419 requirement on thermal incinerators. Condition No. 3.8 is included to provide the minimum performance requirement considered necessary to prevent an adverse effect resulting from the operation of the Facility.

3. DOCUMENTATION REQUIREMENTS

Condition No. 4 is included to require the *Company* to maintain ongoing documentation that demonstrates compliance with the *Performance Limits* of this *Certificate* and allows the *Ministry* to monitor on-going compliance with these *Performance Limits*. The *Company* is required to have an up to date *ESDM Report* and *Acoustic Assessment Report* that describe the *Facility* at all times and make the *Emission Summary Table* and *Acoustic Assessment Summary Table* from these reports available to the public on an ongoing basis in order to maintain public communication with regard to the emissions from the *Facility*.

4. REPORTING REQUIREMENTS

Condition No. 5 is included to require the *Company* to provide a yearly *Written Summary* to the *Ministry*.

5. OPERATION AND MAINTENANCE, COMPLAINT RESPONSE AND RECORDING, BEST MANAGEMENT PRACTICES

Condition No. 6 is included to require the *Company* to: (a) properly operate and maintain the *Processes with Significant Environmental Aspects* to minimize the impact to the environment from these processes; (b) require the *Company* to respond to any environmental complaints regarding the operation of the *Equipment*, according to a procedure that includes methods for preventing recurrence of similar incidents and a requirement to prepare and retain a written report; (c) provide notification of any environmental complaints so that the *Ministry* can monitor any impacts to the local community; (d) develop and implement effective control measures to minimize fugitive and minor odour and dust emissions from all sources at the *Facility*.

6. RECORD KEEPING REQUIREMENTS

Condition No. 7 is included to require the *Company* to retain all documentation related to this *Certificate* and provide access to *Ministry* staff, upon request, so that the *Ministry* can determine if a more detailed review of compliance with the *Performance Limits* is necessary.

7. ACOUSTIC/VIBRATION AUDIT

Condition No. 8 is included to require the *Company* to gather accurate information so that the environmental impact and subsequent compliance with the Act, the regulation and this *Certificate* can be verified.

8. MONITORING

Condition No. 9 is included to require the *Company* to gather accurate information so that compliance with the Act, the regulations and this *Certificate* can be verified.

This Certificate of Approval revokes and replaces Certificate(s) of Approval No. 4678-72RLJW issued on

November 17, 2007

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

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 26th day of November, 2010

Victor Low, P.Eng.
Director
Section 9, *Environmental Protection Act*

ST/
c: District Manager, MOE Sarnia
Tony van der Vooren, Amec Americas Ltd