Report No. 25918-2

ORTECH

Report:

An Odour Study Report for an Anaerobic Digester under Ontario Regulation 359/09
Part 2: Dispersion Modelling

Date: October 10, 2013



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An Odour Study Report for an Anaerobic Digester under Ontario Regulation 359/09
Part 2: Dispersion Modelling

Contact Information:

Submitted to:

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Report No.: 25918-2 (Revision 2)
15 pages, 1 Appendix

Odour Study Report

Part 2: Dispersion Modelling

Grimsby Energy Inc.

Table of Contents

1. INTRODUCTION

Grimsby Energy Inc. is planning to install and operate an Anaerobic Digester facility on rural land at 442 Sobie Road in the Town of Grimsby, Ontario, to generate about 1 MW of electrical energy from surplus material available in the local farming community and, perhaps, other renewable sources. The facility will be constructed in two phases (Phase 1 and Phase 2) commencing in 2014 with completion of the first phase expected about 6 months later. Each phase will generate about 500 kW. The facility will also produce thermal energy some of which will be used to heat the Anaerobic Digester equipment and the remainder will be surplus.

The project has received a Feed in Tariff (FIT) contract, F-000610-BIG-130-302, from the Ontario Government to supply the electricity to the local grid.

Under Regulation 359 of the Ontario Environmental Protection Act, a Renewable Energy Approval (REA), based on Part V.0.1 of the Act, is required for the facility. Since the facility will be a non-farm operation, it is a Class 3 Anaerobic Digester as defined by Regulation 359.

2. REQUIREMENTS OF ONTARIO REGULATION 359/09

The section *Supporting Documents 13.* of Regulation 359 specifies that certain documents need to be filed to support a REA and *TABLE 1 (REPORTS)* of Regulation 359 lists the various reports which need to be prepared and submitted with each type of REA. A REA for a Class 3 Anaerobic Digester facility requires an *Odour Study Report* with the following components, as specified in *TABLE 1 (REPORTS):*

1. *The significant process and fugitive sources of odour discharge from the renewable energy generation facility.*
2. *Any negative environmental effects that may result from the odour discharge mentioned in paragraph 1 at all odour receptors.*
3. *The technical methods that are expected to be employed to mitigate any negative environmental effects mentioned in paragraph 2 and the negative environmental effects that are expected to result if the technical methods are employed*

This Odour Study Report was prepared by ORTECH Environmental (ORTECH) to address these components. This part, Part 2, includes dispersion modelling. Part 1, which includes emission estimate calculations, was prepared separately.

Some of the other reports required for a Class 3 Anaerobic Digester are a *Project Description Report* and a *Design and Operations Report*. These two reports have already been prepared by Riepma Consultants Inc. and were used as a basis for preparing this Odour Study Report.

3. ODOUR EMISSION ESTIMATES

Estimated odour emission rates for the Anaerobic Digester are summarized in Table 1.

Table 1: Estimated Odour Emission Rates for all Emission Sources Operating

Source	Material	Odour Emission Factor (ou/s/m^3)	Area (m^2)	Odour Emission Rate (ou/s)
Solid Feed Trucks	Solid Feed	15.6	15	234
Solid Product Trucks	Solid Product	6.8	15	102
Receiving Bunker 1	Corn & Grass Silage	0.45	240	108
Receiving Bunker 2	Poultry Manure & Pomace	3.58	240	859
Receiving Bunker 3	Dry Solid Manure	0.49	240	118
Receiving Bunkers 4 to 6	Silage, Manure & Pomace	-	0	0
Inground Storage Tank	Liquid Manure	-	0	0
Front End Loader	Solid Feed	0.50	6	3
Gravity Feeder 1	Solid Feed	0.50	16	8
Gravity Feeder 2	Solid Feed	0.50	16	8
Biogas Storage 1	Biogas	-	-	1
Biogas Storage 2	Biogas	-	-	1
Separator	Filtrate/Digestate	0.00	25	0
Slurry Pit	Solid Digestate	6.8	28	190
Concrete Floor	Solid Digestate	6.8	15	102
Flare	Combustion Products	-	-	36
Estimated Total				1770

The total odour emission rate of 1770 ou/s is based on the theoretical process condition (Condition A) that all of the sources are emitting odour at the same time and that there are no mitigation measures in place to reduce the odour emissions, particularly for Receiving Bunker 2 which is estimated to emit 48.5% of the total odour emissions because of the poultry manure component.

Since the sources will not all be emitting odours at the same time, Table 2 provides the estimated odour emission rates for the sources which will be emitting at the same time under five process operating conditions (Condition B to Condition F).

This table assumes that several mitigation measures are in place for the five operating conditions. These measures include covers on the Solid Feed Trucks and Solid Product Trucks, and ensuring that only mature poultry manure with reduced odour emissions is delivered to the facility.

Table 2: Estimated Odour Emission Rates for Combinations of Process Conditions

Source	Material	Anaerobic Digester Process Operating Conditions					
		All Processes Operating (ou/s)	Front End Loader & Gravity Feeder (ou/s)	Solid Feed Delivery (ou/s)	Solid Product Removal (ou/s)	Gas Torch Operating (ou/s)	Poultry Manure Delivery (ou/s)
		A	B	C	D	E	F
Solid Feed Trucks	Solid Feed	234		23			117
Solid Product Trucks	Solid Product	102			10		
Receiving Bunker 1	Corn & Grass Silage	108		108			
Receiving Bunker 2	Poultry Manure, Pomace	859	113	113			113
Receiving Bunker 3	Dry Solid Manure	118	118				
Receiving Bunkers 4 to 6	Silage, Manure, Pomace	0					
Inground Storage Tank	Liquid Manure	0					
Front End Loader	Solid Feed	3	3				
Gravity Feeder 1	Solid Feed	8	8				
Gravity Feeder 2	Solid Feed	8	8				
Biogas Storage 1	Biogas	1	1	1	1	1	1
Biogas Storage 2	Biogas	1	1	1	1	1	1
Separator	Filtrate/Digestate	0					
Slurry Pit	Solid Digestate	190			190		
Loading Plate	Solid Digestate	102			102		
Flare	Combustion Products	36				36	
Estimated Total		1770	252	246	304	38	231

4. AERMOD ODOUR DISPERSION MODELLING

Modelling Options: The United States Environmental Protection Agency (US EPA) AERMOD atmospheric dispersion model, Version 11103, was used to determine the impact of odour emissions from the Anaerobic Digester facility at off-site receptors, including specific sensitive receptors. The dispersion modelling was conducted using the default regulatory options in accordance with the Air Dispersion Modelling Guideline for Ontario (ADMGO), March 2009.

Since the Anaerobic Digester facility will be located in an agricultural area which is at least 50% rural, the modelling was run using rural dispersion coefficients. This site location is shown in Figure 1. The Universal Transverse Mercator (UTM) projection, NAD 83, Zone 17, was used as the coordinate system for defining all model objects. The Anaerobic Digester site is flat, sloping gently to the south. There are a number of poultry and cattle farms in the area, with a disused landfill site immediately to the west of the Anaerobic Digester site and a wooded area to the south.

Figure 1: Site Location

Source Information: The Flare and an assumed vent on the Biogas Storage building were modelled as point sources and the remaining sources were modelled as area sources. The source input parameters which were used for the modelling are shown in Table 3.

Table 3: Source Input Parameters

Source	Odour Emission Rate (ou/s)	Release Height (m)	Location	
			Easting (m)	Northing (m)
Solid Feed Trucks	234	3	618837	4778284
Solid Product Trucks	102	3	618861	4778278
Receiving Bunker 1	108	2	618721	4778831
Receiving Bunker 2	859	2	618715	4778311
Receiving Bunker 3	118	2	618709	4778292
Receiving Bunkers 4 to 6	0	2	618697	4778254
Inground Storage Tank	0	0	618770	4778250
Front End Loader	3	3	618778	4778278
Gravity Feeder 1	8	8	618780	4778238
Gravity Feeder 2	8	8	618775	4778221
Biogas Storage 1	1	12	618842	4778265
Biogas Storage 2	1	12	618842	4778265
Separator	0	2	618851	4778247
Slurry Pit	190	3	618864	4778273
Concrete Floor	102	1	618866	4778276
Flare	36	10	618810	4778250

The odour emission rates shown in Table 3, which were used in the initial modeling, are based on the theoretical conditions that all of the sources were emitting odours at the same time and that odour mitigation measures, particularly for Bunker 2 which contains poultry manure, were not in place.

Building Downwash: For US EPA regulatory applications, a building or structure is considered sufficiently close to a stack to cause wake effects when the distance between the stack and the nearest part of the building is less than or equal to five (5) times the lesser of the building height or the projected width of the building. All buildings and structures within the Area of Influence were input into the current version of the Building Profile Input Program for PRIME (BPIP-PRIME) for calculating building downwash effects.

Receptor Information and Terrain Conditions: The following receptor grid layout was used in the dispersion modelling:

- 10 m spacing along the property lines;
- 20 m spacing within 200 m of the emission source;
- 50 m spacing from 200-500 m;
- 100 m spacing from 500 – 1,000 m;
- 200 m spacing from 1,000 – 2,000 m;
- 500 m spacing from 2,000 – 5,000 m; and
- 1000 m spacing from 5,000 – 10,000 m

In addition, the nearest residences around the facility were modelled as a set of discrete receptors, representing the sensitive receptors. The actual facility property (not the total property owned by Grimsby Energy) was used to determine the property lines.

The coordinates for the most impacted sensitive receptors are listed in Table 4.

Table 4: Sensitive Receptor Locations

Sensitive Receptor	Direction from the Facility	Elevation (m)	Distance from Facility (m)	Location	
				Easting (m)	Northing (m)
Little Oaks Stables	West	194	425	618318	4778360
House	West South-West	193	385	618290	4778273
Farm	North-West	195	390	618388	4778535
Poultry Farm	East	191	644	619492	4778093

The United States Geological Survey (USGS) 7.5-minute Ontario data set was used as digital terrain input to the AERMAP. The US EPA recommended elevation data import technique was used to import the elevations for receptors, sources and buildings.

Meteorological Data and Concentration Conversion: The Ontario Ministry of the Environment has pre-processed meteorological data for driving the AERMOD model in different regions of the province. The 5-year (1996-2000) London meteorological data set for the West Central Region processed for CROPS surface conditions was used initially in the dispersion modelling. This data set was downloaded from the Ministry web site directly without any additional processing and used for the modelling. Then, at the request of the Ministry, the dispersion modelling was repeated using a local meteorological data set which was also supplied by the Ministry. Only the dispersion modeling results based on the local meteorological data set are provided in this report. Copies of an application form to the Ministry requesting approval to use the local meteorological data and a letter from the Ministry confirming the approval are shown in Appendix 1.

The shortest averaging period that can be calculated by the AERMOD model is 1 hour. For odour, the Ministry point of impingement calculations are based on a 10-minute averaging time period. Therefore, the 1-hour averaging time period results obtained from the AERMOD modelling have to be converted to 10-minute averaging time periods. As detailed in the ADMGO, the 1-hour concentrations predicted by the AERMOD model were multiplied by a factor of 1.65 to derive the 10-minute concentrations.

Meteorological Outliers: As indicated in the ADMGO, for 1-hour concentrations, the eight hours with the highest 1-hour average predicted concentrations in each single meteorological year may be discarded. The Ministry will consider for compliance assessment the highest concentration after elimination of these forty hours over the five year period from the modelling results. As a consequence, the highest 8 hours per year were discarded for the combined odour emission sources.

5. EFFECTS AT ODOUR RECEPTORS

The dispersion modelling results based on the local meteorological data set are summarized in Table 5 which shows the maximum 10-minute average odour concentration which is predicted to occur at any off-property receptor for any hour over the 5-year modelling period for the combined emission sources. This concentration is 17.51 ou over a 10-minute averaging period, which will be at a receptor located near the property boundary since most of the odour emission sources are relatively low level sources. Table 5 also shows the maximum odour concentrations predicted for the individual odour emission sources and expresses these concentrations as percentages of the odour concentration for all the emission sources (17.51 ou). The receptors where the maximum concentrations occur will be different for the different sources.

Most of the individual emission sources have small maximum predicted odour concentrations compared with the maximum receptor odour concentration for the combined sources. The most significant source is Bunker 2 which contains some poultry manure and whose maximum concentration at any receptor (11.85 ou) is 67.7% of the maximum concentration for the combined sources (17.51 ou). The next most significant sources are the Solid Feed Trucks (10.3%), Slurry Pit (6.6%), Concrete Floor (5.5%) and the Solid Product Trucks (3.8%).

Table 5: Predicted Maximum Odour Concentrations (10-Minute Averages) based on Local Meteorological Data

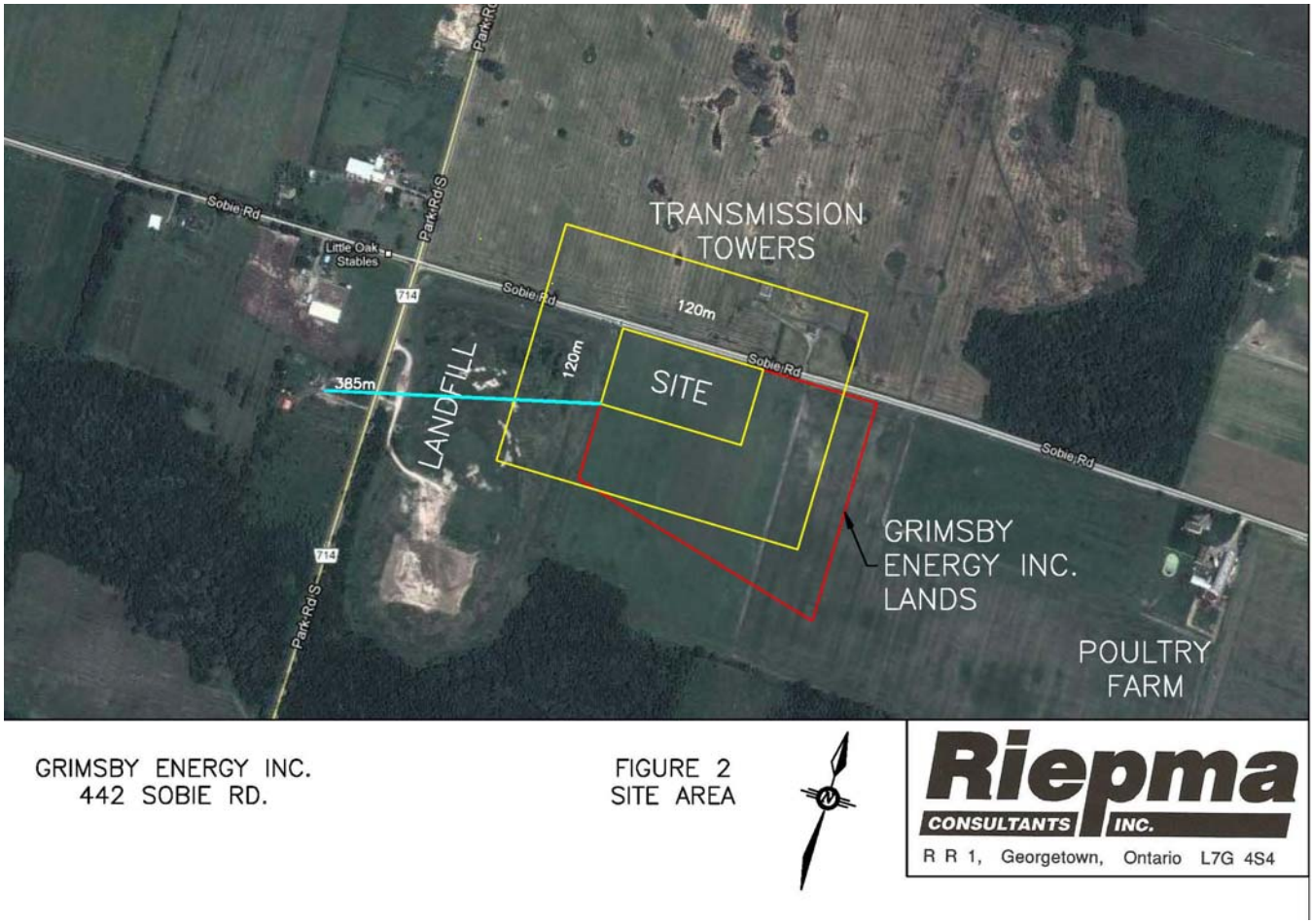
Source	Maximum Odour Concentration at any Receptor (ou)	Fraction of Total Concentration (%)
Solid Feed Trucks	1.80	10.3
Solid Product Trucks	0.66	3.8
Receiving Bunker 1	0.52	3.0
Receiving Bunker 2	11.85	67.7
Receiving Bunker 3	0.51	2.9
Receiving Bunkers 4 to 6	0.00	0.0
Inground Storage Tank	0.00	0.0
Front End Loader	0.04	0.2
Gravity Feeder 1	0.01	0.1
Gravity Feeder 2	0.00	0.0
Biogas Storage 1	0.00	0.0
Biogas Storage 2	0.00	0.0
Separator	0.00	0.0
Slurry Pit	1.16	6.6
Concrete floor	0.97	5.5
Flare	0.00	0.0
All Sources	17.51	100.0

Table 6 shows the maximum predicted odour concentrations for the four most impacted sensitive receptors in the vicinity of the Anaerobic Digester facility based on the local meteorological data set. These receptors are shown on the site area plan in Figure 2. The receptors are the Little Oaks Stables, the nearest house to the west-south-west of the facility, a farm to the north-west of the facility and a poultry farm to the east of the facility. The highest predicted maximum 10-minute average odour concentration for the combined sources over the 5-year modelling period occurs at the Little Oaks Stables and is 4.01 ou compared with the maximum concentration of 17.51 ou at any off-site receptor.

Table 6: Sensitive Receptor Predicted Odour Concentrations (10-Minute Averages) based on Local Meteorological Data

Sensitive Receptor	Direction from the Facility	Maximum Odour Concentration at a Sensitive Receptor (ou)	Frequency Above 1 ou Concentration (%)
Little Oaks Stables	West	4.01	0.31
House	West-South-West	3.47	0.33
Farm	North-West	3.63	0.33
Poultry Farm	East	1.21	0.05
All Receptors		17.51	

Figure 2: Sensitive Receptor Locations



All of the above predicted receptor odour concentrations are calculated on the assumption that all the processes at the facility which generate significant odour emissions are operating, as shown in Table 1.

At an odour concentration of 1 ou, 50 % of a population with a normal olfactory response can detect an odour and at a concentration of about 5 ou all of a population with a normal olfactory response can usually detect an odour. The odour concentration at which there may be an odour complaint depends on many factors and might typically be 10 ou to 15 ou but could be significantly higher or lower under specific circumstances. The odours which will be discharged from the Anaerobic Digester facility will have a typical rural character and, therefore, any odour complaints are unlikely to occur at any of the four most impacted sensitive receptors since the maximum predicted 10-minute odour concentration in any hour over the 5-year modelling period is only 4.01 ou and this is based on odour being emitted from all the significant sources in the facility at the same time.

Table 6 also shows the frequency for each specific receptor when the 10-minute average odour concentration is predicted to exceed 1 ou during any hour over the 5-year modelling period, assuming that all the processes at the facility which discharge significant odours are operating continuously during this period. The highest frequency was 0.33% at the nearest house to the west-south-west of the facility and the farm to the north-west, based on the local meteorological data. The actual number of hours when the 1 ou concentration is exceeded will be much lower, however, because the processes will not all be operating continuously during this period, and some processes will operate infrequently.

This is shown in Table 7 which includes the dispersion modelling results for the five process operating conditions (Condition B to Condition E) and the results for all of the processes operating at the same time (Condition A), using the local meteorological data. Mitigation measures are included in the results for the five process operating conditions. These measures pertain to covers on the Solid Feed Trucks and Solid Product Trucks, and ensuring that only mature poultry odour with lower odour emissions is delivered to the facility.

Table 7: Maximum Predicted Odour Concentrations (10-Minute Averages) at the Specific Sensitive Receptor with each Process Operating Condition based on Local Meteorological Data

Source	Material	All Processes Operating (ou)	Front End Loader & Gravity Feeder (ou)	Solid Feed Delivery (ou)	Solid Product Removal (ou)	Flare Operating (ou)	Poultry Manure Delivery (ou)
		A	B	C	D	E	F
Solid Feed Trucks	Solid Feed	0.45		0.04			0.19
Solid Product Trucks	Solid Product	0.19			0.02		
Receiving Bunker 1	Corn & Grass Silage	0.23		0.28			0.09
Receiving Bunker 2	Poultry Manure, Pomace	2.21	0.29	0.27			0.08
Receiving Bunker 3	Dry Solid Manure	0.30	0.30				0.06
Receiving Bunkers 4 to 6	Silage, Manure, Pomace	0.00					
Inground Storge Tank	Liquid Manure	0.00					
Front End Loader	Solid Feed	0.01	0.01				
Gravity Feeder 1	Solid Feed	0.01	0.01				
Gravity Feeder 2	Solid Feed	0.01	0.01				
Biogas Storage 1	Biogas	0.00	0.00	0.00	0.00	0.00	0.00
Biogas Storage 2	Biogas	0.00	0.00	0.00	0.00	0.00	0.00
Separator	Filtrate/Digestate	0.00					
Slurry Pit	Solid Digestate	0.35			0.36		
Loading Plate	Solid Digestate	0.25			0.27		
Flare	Combustion Products	0.00				0.00	
Estimated Total		4.01	0.62	0.60	0.64	0.00	0.42

These maximum predicted odour concentrations for each process operating condition occur at:

- Little Oaks Stables for Condition A and Condition B
- Farm to the north-west for Condition C, Condition D and Condition E
- House to the west-south-west for Condition F

6. CONCLUSIONS

To determine the effect of the Anaerobic Digester emissions on nearby sensitive receptors, atmospheric dispersion modelling was used to predict odour concentrations at these receptors assuming that all the processes in the Anaerobic Digester facility are operating at the same time. Both regional meteorological data and, at the request of the Ministry of the Environment, local meteorological data were used for the modeling. Only the results for the local meteorological data are provided in this report.

Using 5-years of hourly meteorological data in conjunction with the dispersion modelling, the highest 10-minute odour concentration at any off-site receptor is predicted to be 17.51 ou with the local meteorological data. This is a theoretical concentration which assumes that all of the sources in the facility are discharging odour at the same time, as shown by the odour emission rates in Table 1, and that there are no odour mitigation measures in place.

The highest 10-minute odour concentration at the most impacted sensitive receptor is predicted to be 4.01 ou with the local meteorological data. Again, these are theoretical concentrations which assume that all of the sources in the facility are discharging odour at the same time, as shown by the odour emission rates in Table 1, and that there are no odour mitigation measures in place. The most impacted sensitive receptor is the White Oaks Stables.

When the the sources in the facility are not discharging odour at the same time, but under different operating conditions and there are odour mitigation measures in place, the estimated odour emission rates for each condition are reduced as shown in Table 2. Then, the highest 10-minute odour concentration at the most impacted sensitive receptor (the farm to the north-west) is predicted to be 0.64 ou with the local meteorological data. The local meteorological data is more representative of conditions at the Anaerobic Digester facilities than the regional meteorological data.

At this concentration of 0.64 ou, some people might just be able to detect the odour in the absence of other odours at the receptor, but it is very unlikely that anyone would complain about the odour, particularly since it will have the same odour character as normal rural odours and the odour concentration will be much lower than the odour concentrations which would normally prevail in this rural area with numerous cattle and poultry farms.

APPENDIX 1

Application and Approval to Use Local Meteorological Data
(4 pages)

1. Requestor Information *(Owner of works/facility)*

Requestor Name *(legal name of individual or organization as evidenced by legal documents)*: Grimsby Energy Inc

Business Identification Number: 1227540 66

Business Name *(the name under which the entity is operating or trading if different from the Requestor Name - also referred to as trade name)*:

Requestor Type:

- [x] Corporation
- [ ] Individual
- [ ] Partnership
- [ ] Sole Proprietor
- [ ] Federal Government
- [ ] Municipal Government
- [ ] Provincial Government
- [ ] Other *(describe)*:

North American Industry Classification System (NAICS) Code: 5622

Business Activity Description *(a narrative description of the business endeavour, this may include products sold, services provided or machinery/equipment used, etc.)*: Farm waste treatment facility with recovery of biogas for energy production

2. Site Information

Site Name: Grimsby Energy

MOE District Office: Niagara District Office

Address Information:

Site Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)*: 442 Sobie Road

Unit Identifier *(i.e. suite or apartment number)*:

Survey Address *(used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)*

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number — Lot: ; Conc.:

Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan — Part: ; Reference Plan:

Non Address Information *(includes any additional information to clarify the requestor's physical location)*:

Municipality/Unorganized Township: Grimsby

County/District: Ontario

Postal Code: L3M 4E7

Geo Reference (mandatory)

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing
NAD83	17	+/- 2m	google earth	618795	4778272

Which of the following sections of O. Reg. 419/05 currently applies to your facility?

- [ ] s.18 (Schedule 1)
- [ ] s.19 (Schedule 2)
- [x] s.20 (Schedule 3)

3. Project Technical Information Contact

Name: Steve Thorndyke

Company: ORTECH Consulting Inc

Civic Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)*: 804 Southdown Road

Unit Identifier *(i.e. suite or apartment number)*:

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)*:

Municipality	Postal Station	Province/State	Country	Postal Code
Mississauga		Ontario	Canada	L5J 2Y4

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
905-822-4120		sthorndyke@ortech.ca

4. Reason(s) for Request

The use of site specific meteorological data is being requested in regards to (check all that apply):

- [ ] An application for a Certificate of Approval
  (Please provide Certificate of Approval Number or Application Reference Number):
- [ ] A request because of a notice issued under s.13(2) requiring the use of Local Meteorological data
- [ ] A submission under s.23, s.24 or s.25 of O. Reg. 419/05 (to prepare an ESDM Report)
- [ ] An ESDM Report required by s.30 (exceedence of Upper Risk Thresholds)
- [ ] A request for approval of an alteration of a Schedule 3 standard under s. 32 of O. Reg. 419/05
- [ ] Abatement activity
- [x] Other *(please indicate)*: Renewable Energy Approval submission

5. Information about the Proposed Meteorological Monitoring Station

Name	Station Operator	WMO Code (if applicable)

Civic Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)*

Municipality	Postal Station	Province/State	Country	Postal Code

Geo Reference (mandatory)

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing

6. Information about the Proposed Meteorological Data Set

☒ Local meteorological data set developed by the Ministry of the Environment available from the Ministry

Please specify the location of the meteorological data set: provided by MOE Environmental Monitoring & Reporting Branch

☐ Local meteorological data from other sources (e.g. Environment Canada sites)

Are the following attached or submitted?

An electronic copy of the Data Set	☐ Yes	☐ No (if no, reason?)	
Wind Rose	☐ Yes	☐ No (if no, reason?)	
Assessment of the Completeness of the data and proposed fill-in strategy (if required)	☐ Yes	☐ No (if no, reason?)	

☐ Meteorological data generated from a meteorological tower located on the facility premises or a data set developed by an Industry Association

Are the following attached or submitted?

Site Plan	☐ Yes	☐ No (if no, reason?)	
Location of Meteorological Tower Identified	☐ Yes	☐ No (if no, reason?)	
Building locations identified	☐ Yes	☐ No (if no, reason?)	
Elevation Plan	☐ Yes	☐ No (if no, reason?)	
Anemometer Height	☐ Yes	☐ No (if no, reason?)	
Rationale for use – why more accurate	☐ Yes	☐ No (if no, reason?)	
Rationale for siting of monitor	☐ Yes	☐ No (if no, reason?)	
Details of local topographic issues	☐ Yes	☐ No (if no, reason?)	
QA/QC Procedures	☐ Yes	☐ No (if no, reason?)	
An electronic copy of the Data Set	☐ Yes	☐ No (if no, reason?)	
Wind Rose	☐ Yes	☐ No (if no, reason?)	
Assessment of the Completeness of the data and proposed fill-in strategy (if available)	☐ Yes	☐ No (if no, reason?)	

☐ Meteorological data generated from a computational method (e.g. meteorological modelling data set)

Contact the Environmental Monitoring and Reporting Branch for pre-submission consultation

7. Statement of Requestor

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted in support of this application is complete and accurate in every way and I am aware of the penalties against providing false information as per s. 184(2) of the *Environmental Protection Act*..
- The Project Technical Information Contact identified this form is authorized to act on my behalf for the purpose of obtaining approval for use of an site specific meteorological data under Section 13 of O. Reg. 419/05 for the equipment/processes identified herein.
- I have used the most recent request form (as obtained from the Ministry of the Environment internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or the Environmental Assessment and Approvals Branch at 1-800-461-6290) and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title	
Clare Riepma	President	
Telephone Number *(including area code & extension)*	**Fax Number** *(including area code)*	**E-mail Address**
905-877-6751		riepma@riepma.ca
Signature	**Date** *(dd/mm/yyyy)*	
	Oct 3/13	

Address Information:

Civic Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
c/o Riepma Consultants Inc., 13041 Highway 7	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)*

Municipality	Postal Station	Province/State	Country	Postal Code
Georgetown		Ontario	Canada	L7G 4S4

Ministry of the Environment

Environmental Monitoring and Reporting Branch

125 Resources Road
Toronto ON M9P 3V6
Tel.: 416 235-6300
Fax: 416 235-6235

Ministère de l'Environnement

Direction de la surveillance environnementale

125, chemin Resources
Toronto ON M9P 3V6
Tél. : 416 235-6300
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Ontario

October 07, 2013

Clare Riepma, President
Grimsby Energy Inc.
c/o Riepma Consultants Inc.
13041 Highway 7
Georgetown, Ontario
L7G 4S4

Dear Madam/Sir:

Re: Request for Approval under Paragraph 3 of section 13(1) of Regulation 419/05
For use of Site Specific Meteorological Data
Grimsby Energy, 442 Sobie Road, Grimsby, Ontario

This letter provides approval under paragraph 3 of section 13(1) of Regulation 419/05 for use of site specific meteorological data. I am approving the use of site specific data in preparing an Emission Summary Dispersion Modelling (ESDM) report pursuant to the request submitted on behalf of Grimsby Energy Inc. signed by you and dated October 03, 2013. I am of the opinion that the site specific meteorological data referenced as the Hamilton Airport data is an accurate reflection of the meteorological conditions for the proposed modelling assessment, given the proximity of the Hamilton Airport station to the facility's location.

A fully processed meteorological data set for the 5 years from 2005 to 2009 has been prepared by the Ministry of the Environment with wind-sector dependent land use specific to the application area, using data from Hamilton Airport station, which is operated and maintained by Environment Canada. This meteorological dataset can be used to run the AERMOD model and has been prepared only for this specific assessment to model discharges from the above-referenced facility.

The data are approved under O. Reg. 419 for use in Environmental Compliance Approval (ECA) applications for this specific facility provided there are not recent significant land use changes in vicinity of the facility.

Yours truly,

Robert Bloxam

Dr. Robert Bloxam
Director, Section 13, O. Reg. 419/05

cc: District Manager, Niagara District Office
Director, Section 9, Environmental Protection Act
Environmental Approvals Branch