



2009 Ontario Regulation 127/01,  
National Pollutant Release Inventory Report,  
and Greenhouse Gas Emissions Reporting

Horizon Utilities  
55 John Street North  
Hamilton, Ontario  
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Prepared for:  
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Attention: Joe Gerrior

April 27, 2010

Pinchin File: 56944

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## INTRODUCTION

Pinchin Environmental evaluated the 2009 National Pollutant Release Inventory, Ontario Regulation 127/01 and Greenhouse Gas Emissions reporting requirements of the Horizon Utilities facility located at 55 John Street North, Hamilton, Ontario.

Included in this report, for your reference, is the following information:

- Appendix I documents the supporting information specifically for the facility that was provided to Pinchin, which served as the basis of our assessment.
- Appendix II provides the 2009 reporting requirements for NPRI (Parts 1-5).
- Appendix III includes a copy of the Greenhouse Gas emissions table.
- Appendix IV includes copies of the calculation datasheets for O.Reg.127/01 and NPRI reporting.

## ONTARIO REGULATION 127/01 (O.REG.127/01)

O.Reg.127/01 is a provincial reporting requirement for Ontario that is triggered if a facility satisfies specific air discharge or processing criteria. Triggering this regulation requires that a facility publicly report air discharges on an annual basis. The only contaminant that needs to be considered under this regulation for the 2009 reporting year is Acetone.

In accordance with O.Reg.127/01, Pinchin has evaluated the reporting obligations for the aforementioned facility and concludes the following:

- Horizon Utilities has an NAICS code of 531120 (Lessors of Non-residential Buildings), which is not listed in Table 1 of the O.Reg.127 reporting Guide and is therefore subject to the requirements of the regulation.

## NATIONAL POLLUTANT RELEASE INVENTORY (NPRI)

The NPRI is a federal initiative directed by EC under the *Canadian Environmental Protection Act, 1999* (CEPA) that is triggered when specific facility and processing criteria are met. When the reporting criteria for this initiative are met environmental reporting for solid, liquid and air discharges is required.

The five groups of chemicals/substances that need to be considered under this initiative are:

- Part 1A substances include 232 substances with MPO thresholds of 10 tonnes.
- Part 1B substances include Mercury, Cadmium, Arsenic, Chromium VI, Lead and Tetraethyl Lead.
- Part 2 substances are polycyclic aromatic hydrocarbons (PAH's).
- Part 3 substances are dioxins and furans.
- Part 4 substances are Criteria Air Contaminants (CAC's) where reporting is triggered when emissions of these compounds are in excess of specific limits.
- Part 5 substances are 75 Volatile Organic Compounds (VOC's) that are triggered when Part 4-Total VOC's emissions are in excess of 10 tonnes and the annual emissions for an individual VOC is in excess of 1 tonne.

In accordance with NPRI, Pinchin has evaluated the reporting obligations for the aforementioned facility and concludes the following:

- Horizon Utilities is not required to report any NPRI substances.
  - Appendix II summarizes the data that was assessed for NPRI.

## GREENHOUSE GAS (GHG) REPORTING

In March 2004, the Government of Canada announced the introduction of mandatory reporting of GHG emissions. Statistics Canada jointly collects the information under the authority of the *Statistics Act*, Revised Statutes of Canada 1985, c.S-19, as well as under the authority of the CEPA and the *Climate Change Emissions Management Act* (Alberta). Completion of this report is a legal requirement under these Acts. The 2009 reporting threshold for facility emissions is set at 50 kilotonnes of carbon dioxide equivalent annually.

Pinchin provides all NPRI clients with a screening level assessment of GHG emissions. As per the Technical Guidance on Reporting GHG Emissions (2008), only *direct* emissions are evaluated for this Government of Canada program (i.e., indirect emissions from electricity generation are not evaluated and therefore this assessment should not be considered a completed

GHG inventory in accordance with ISO 14064 or the World Resource Institute's GHG Protocol).  
Pinchin has evaluated the reporting obligations for the aforementioned facility and concludes:

- Horizon Utilities is not required to report GHG emissions to the Government of Canada.
- Appendix IV summarizes the GHG emissions from the facility.

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Pinchin Master Report Guide, Ver. 1, January 2010

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**APPENDIX I**  
**SUPPORTING INFORMATION PROVIDED BY HORIZON UTILITIES**

**2009 Purchases**

<b>Product</b>	<b>Supplier</b>	<b>Quantity</b>	<b>Units</b>
<b>2009 Natural Gas Consumption</b>			
Natural Gas		223,390	m <sup>3</sup>

**APPENDIX II**  
**2009 REPORTING REQUIREMENTS FOR NPRI**

**Environment Canada NPRI - PART 1 SUBSTANCES**  
**Total Facility Emissions - Contaminants with NPRI Graded MPO Thresholds**

Contaminant	CAS #	MPO Threshold	Annual MPO*	Reportable?
		(kg/yr)	(kg/yr)	(Yes/No)
Anthracene	120-12-7	10,000	8.59E-06	No
Arsenic (and its compounds)	7440-38-8	50	7.16E-04	No
Benzene	71-43-2	10,000	7.51E-03	No
Cadmium (and its compounds)	7440-43-9	5	3.94E-03	No
Chromium (and its compounds)	7440-47-3	10,000	5.01E-03	No
Cobalt (and its compounds)	7440-48-4	10,000	3.01E-04	No
Copper (and its compounds)	7440-50-8	10,000	3.04E-03	No
Formaldehyde	50-00-0	10,000	2.68E-01	No
Lead (and its compounds) except tetraethyl lead	7439-92-1	50	1.79E-03	No
Manganese (and its compounds)	7439-96-5	10,000	1.36E-03	No
Mercury (and its compounds)	7439-97-6	5	9.30E-04	No
Naphthalene	91-20-3	10,000	2.18E-03	No
n-Hexane	110-54-3	10,000	6.44E+00	No
Nickel (and its compounds)	7440-02-0	10,000	7.51E-03	No
Selenium (and its compounds)	7782-49-2	10,000	8.59E-05	No
Toluene	108-88-3	10,000	1.22E-02	No
Vanadium (except when in an alloy) and its compounds	7440-62-2	10,000	8.23E-03	No
Zinc (and its compounds)	7440-66-6	10,000	1.04E-01	No

NA - Not Applicable

\*Includes emissions of by-products.

**Environment Canada NPRI - PART 2 SUBSTANCES**  
**Total Facility Emissions - Polycyclic Aromatic Hydrocarbons with NPRI Graded MPO Thresholds**

Contaminant	CAS #	Release Threshold (kg/yr)	Annual Emission Rate (Air) (kg/yr)	Estimation Method	Reportable? (Yes/No)
Acenaphthene	83-32-9	5	6.44E-06	E	No
Acenaphthylene	208-96-8	5	6.44E-06	E	No
Benzo(a)anthracene	56-55-3	5	6.44E-06	E	No
Benzo(a)phenanthrene	218-01-9	5	6.44E-06	E	No
Benzo(a)pyrene	50-32-8	5	4.29E-06	E	No
Benzo(b)fluoranthene	205-99-2	5	6.44E-06	E	No
Benzo(g,h,i)perylene	191-24-2	5	4.29E-06	E	No
Benzo(k)fluoranthene	207-08-9	5	6.44E-06	E	No
Dibenzo(a,h)anthracene	53-70-3	5	4.29E-06	E	No
7,12-Dimethylbenz(a)anthracene	57-97-6	5	5.73E-05	E	No
Fluoranthene	206-44-0	5	1.07E-05	E	No
Fluorene	86-73-7	5	1.00E-05	E	No
Indeno(1,2,3-c,d)pyrene	193-39-5	5	6.44E-06	E	No
3-Methylchloranthrene	56-49-5	5	6.44E-06	E	No
Phenanthrene	85-01-8	5	6.08E-05	E	No
Pyrene	129-00-0	5	1.79E-04	E	No
Total PAHs	NA - P/H	50	3.82E-04	E	No

NA - Not Applicable

E - Published Emission Factors

NOTE: The Polycyclic Aromatic Hydrocarbons (PAHs) listed in the above table for this facility are from natural gas combustion only; as such, they are considered insignificant. Additionally, the aggregate annual emission of all Part 2 substances incidentally manufactured at this facility is below the 50 kg reporting threshold.

**Environment Canada NPRI - PART 3 SUBSTANCES**  
**Total Facility Emissions - Dioxins/Furans and Hexachlorobenzene**

<b>Contaminant</b>	<b>CAS #</b>	<b>Annual Emission Rate (kg/yr)</b>	<b>Estimation Method</b>
No Reportable Part 3 Substances (i.e. company not engaged in identified activities)*			

\*identified activities - as listed in Table 11 of "Guide for Reporting to the National Pollutant Release Inventory"

**Environment Canada NPRI - PART 4 SUBSTANCES**  
**Total Facility Emissions - Criteria Air Contaminants**

<b>Contaminant</b>	<b>CAS #</b>	<b>Release Threshold (kg/yr)</b>	<b>Annual Emission Rate (kg/yr)</b>	<b>Estimation Method</b>	<b>Reportable? (Yes/No)</b>
Carbon Monoxide	630-08-0	20,000	3.01E+02	E	No
Oxides of Nitrogen	11104-93-1	20,000	3.58E+02	E	No
Sulphur Dioxide	7446-09-5	20,000	2.15E+00	E	No
Particulate Matter <=2.5 micrometers	NA - M10	300	6.80E+00	E	No
Particulate Matter <=10 micrometers	NA - M09	500	6.80E+00	E	No
Total Particulate Matter	NA - M08	20,000	6.80E+00	E	No
Volatile Organic Compounds	NA - M16	10,000	1.97E+01	E	No

NA - Not Applicable

E - Published Emission Factors

**Environment Canada NPRI - PART 5 SUBSTANCES (VOCs)**  
**Total Facility Emissions - Speciated Volatile Organic Compounds**

Contaminant	CAS #	Release Threshold (kg/yr)	Annual Emission Rate (kg/yr)	Estimation Method	Reportable? (Yes/No)
No Reportable Part 5 Substances (i.e. total facility VOC emissions < 10 tonne threshold in Part 4)					

NA - Not Applicable

C - Mass Balance

M - Monitoring or Direct Measurement

E - Published Emission Factors

O - Engineering Estimate

**APPENDIX III**  
**GREENHOUSE GAS EMISSIONS TABLE**

**Greenhouse Gas Reporting - Environment Canada and Statistics Canada  
 Total Facility Emissions - Greenhouse Gas Emissions**

<b>Contaminant</b>	<b>CAS #</b>	<b>Annual Emission Threshold (tonnes/yr)</b>	<b>Emission Rate (kg/yr)</b>	<b>100 Yr GWP (kg/yr)</b>	<b>Estimation Method</b>	<b>Annal Emission CO<sub>2</sub>e (tonnes/yr)</b>	<b>Reportable? (Yes/No)</b>
Carbon Dioxide	124-38-9	NA	4.29E+05	1	E	429	NA
Methane	74-82-8	NA	8.23E+00	21	E	0.2	NA
Nitrous Oxide	10024-97-2	NA	7.87E+00	310	E	2.4	NA
<b>Total</b>	NA	50,000	NA	NA	NA	432	No

NA - Not Applicable

E - Published Emission Factors

**APPENDIX IV**  
**EMISSIONS CALCULATIONS DATASHEETS**

**Natural Gas Emissions**

**Consumption :** 223,390 m<sup>3</sup>  
7,889,015 ft<sup>3</sup>  
918,584 BTU/hr

Contaminant	CAS #	Emission Factor (lb/1000000 ft <sup>3</sup> )	Emission Rate (kg/yr)	Reporting Criteria	VOC?
Sulphur Dioxide	7446-09-5	0.6	2.1	4	
Nitrogen Oxides	11104-93-1	100	357.8	4	
Carbon Monoxide	630-08-0	84	300.6	4	
Nitrous Oxide	10024-97-2	2.2	7.9	GHG	
Particulate Matter	NA - M10	1.9	6.8	4	
Carbon Dioxide	124-38-9	120,000	429,407	GHG	
TOC	N/A	11	39.4		
Lead	7439-92-1	0.0005	0.0018	1B	
Methane	74-82-8	2.3	8.2	GHG	
VOC	NA - M16	5.5	19.7	4	Y
<b>Speciated Organic Compounds</b>					
2-Methylnaphthalene	91-57-6	0.000024	8.59E-05		Y
3-Methylchloranthrene	56-49-5	< 0.0000018	6.44E-06	2	Y
7,12-Dimethylbenz(a)anthracene	57-97-6	< 0.000016	5.73E-05	2	Y
Acenaphthene	83-32-9	< 0.0000018	6.44E-06	2	Y
Acenaphthylene	208-96-8	< 0.0000018	6.44E-06	2	Y
Anthracene	120-12-7	< 0.0000024	8.59E-06	1A	Y
Benz(a)anthracene	56-55-3	< 0.0000018	6.44E-06	2	Y
Benzene	71-43-2	0.0021	7.51E-03	1A, 5	Y
Benzo(a)pyrene	50-32-8	< 0.0000012	4.29E-06	2	Y
Benzo(b)fluoranthene	205-99-2	< 0.0000018	6.44E-06	2	Y
Benzo(g,h,i)perylene	191-24-2	< 0.0000012	4.29E-06	2	Y
Benzo(k)fluoranthene	207-08-9	< 0.0000018	6.44E-06	2	Y
Butane	106-97-8	2.1	7.51E+00	5	Y
Benzo(a)phenanthrene	218-01-9	< 0.0000018	6.44E-06	2	Y
Dibenzo(a,h)anthracene	53-70-3	< 0.0000012	4.29E-06	2	Y
Dichlorobenzene	25321-22-6	0.0012	4.29E-03		Y
Ethane	74-84-0	3.1	1.11E+01		
Fluoranthene	206-44-0	0.000003	1.07E-05	2	Y
Fluorene	86-73-7	0.0000028	1.00E-05	2	Y
Formaldehyde	50-00-0	0.075	2.68E-01	1A, 5	Y
Hexane	110-54-3	1.8	6.44E+00	1A, 5	Y
Indeno(1,2,3-cd)pyrene	193-39-5	< 0.0000018	6.44E-06	2	Y
Naphthalene	91-20-3	0.00061	2.18E-03	1A, VOC	Y
Pentane	109-66-0	2.6	9.30E+00	5	Y
Phenanthrene	85-01-8	0.000017	6.08E-05	2	Y
Propane	74-98-6	1.6	5.73E+00	5	Y
Pyrene	129-00-0	0.00005	1.79E-04	2	Y
Toluene	108-88-3	0.0034	1.22E-02	1A, 5	Y

**Natural Gas Emissions (cont'd)**

Contaminant	CAS #	Emission Factor (lb/1000000 ft <sup>3</sup> )	Emission Rate (kg/yr)	Reporting Criteria	VOC?
<b>Metals</b>					
Arsenic	7440-38-8	0.0002	7.16E-04	1B	
Barium	7440-39-3	0.0044	1.57E-02		
Beryllium	7440-41-7	< 0.000012	4.29E-05		
Cadmium	7440-43-9	0.0011	3.94E-03	1B	
Chromium	7440-47-3	0.0014	5.01E-03	1A	
Cobalt	7440-48-4	0.000084	3.01E-04	1A	
Copper	7440-50-8	0.00085	3.04E-03	1A	
Manganese	7439-96-5	0.00038	1.36E-03	1A	
Mercury	7439-97-6	0.00026	9.30E-04	1B	
Molybdenum	7439-98-7	0.0011	3.94E-03		
Nickel	7440-02-0	0.0021	7.51E-03	1A	
Selenium	7782-49-2	0.000024	8.59E-05	1A	
Vanadium	7440-62-2	0.0023	8.23E-03	1A	
Zinc	7440-66-6	0.029	1.04E-01	1A	

Emission Factors from USEPA AP-42, "Compilation of Air Pollution Emission Factors", Section 1.4, 1998  
 For Boilers < 100MMBtu/hour

**Sample Calculations:**

$$\begin{aligned} \text{NOx Emission Rate} &= \text{Consumption (ft}^3\text{/yr)} \times \text{Emission Factor (lb/10}^6\text{ ft}^3) \times 0.4536 \text{ kg/lb} \\ &= 7,889,015 \text{ ft}^3\text{/yr} \times 100 \text{ lb/10}^6\text{ ft}^3 \times 0.4356 \text{ kg/lb} \\ \text{NOx Emission Rate} &= 357.8 \text{ kg/yr} \end{aligned}$$



2009 Ontario Regulation 127/01,  
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and Greenhouse Gas Emissions Reporting

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## INTRODUCTION

Pinchin Environmental evaluated the 2009 National Pollutant Release Inventory, Ontario Regulation 127/01 and Greenhouse Gas Emissions reporting requirements of the Horizon Utilities facility located at 450 Nebo Road, Hamilton, Ontario.

Included in this report, for your reference, is the following information:

- Appendix I documents the supporting information specifically for the facility that was provided to Pinchin, which served as the basis of our assessment.
- Appendix II provides the 2009 reporting requirements for NPRI (Parts 1-5).
- Appendix III includes a copy of the Greenhouse Gas emissions table.
- Appendix IV includes copies of the calculation datasheets for O.Reg.127/01 and NPRI reporting.

## ONTARIO REGULATION 127/01 (O.REG.127/01)

O.Reg.127/01 is a provincial reporting requirement for Ontario that is triggered if a facility satisfies specific air discharge or processing criteria. Triggering this regulation requires that a facility publicly report air discharges on an annual basis. The only contaminant that needs to be considered under this regulation for the 2009 reporting year is Acetone.

In accordance with O.Reg.127/01, Pinchin has evaluated the reporting obligations for the aforementioned facility and concludes the following:

- Horizon Utilities has NAICS codes of 488490 (Support Activities for Road Transportation) and 531120 (Lessors of Nonresidential Buildings), which are not listed in Table 1 of the O.Reg.127 reporting Guide and is therefore subject to the requirements of the regulation.

## NATIONAL POLLUTANT RELEASE INVENTORY (NPRI)

The NPRI is a federal initiative directed by EC under the *Canadian Environmental Protection Act, 1999* (CEPA) that is triggered when specific facility and processing criteria are met. When the reporting criteria for this initiative are met environmental reporting for solid, liquid and air discharges is required.

The five groups of chemicals/substances that need to be considered under this initiative are:

- Part 1A substances include 232 substances with MPO thresholds of 10 tonnes.
- Part 1B substances include Mercury, Cadmium, Arsenic, Chromium VI, Lead and Tetraethyl Lead.
- Part 2 substances are polycyclic aromatic hydrocarbons (PAH's).
- Part 3 substances are dioxins and furans.
- Part 4 substances are Criteria Air Contaminants (CAC's) where reporting is triggered when emissions of these compounds are in excess of specific limits.
- Part 5 substances are 75 Volatile Organic Compounds (VOC's) that are triggered when Part 4-Total VOC's emissions are in excess of 10 tonnes and the annual emissions for an individual VOC is in excess of 1 tonne.

In accordance with NPRI, Pinchin has evaluated the reporting obligations for the aforementioned facility and concludes the following:

- Horizon Utilities is not required to assess any Parts 1, 2 or 3 associated substances solely with the maintenance and repair of motor vehicles. Only Part 4 or Part 5 substances released as a result of other processes must be assessed.
- Horizon Utilities is not required to report any substances.
  - Appendix II summarizes the data that was assessed for NPRI.

## GREENHOUSE GAS (GHG) REPORTING

In March 2004, the Government of Canada announced the introduction of mandatory reporting of GHG emissions. Statistics Canada jointly collects the information under the authority of the *Statistics Act*, Revised Statutes of Canada 1985, c.S-19, as well as under the authority of the CEPA and the *Climate Change Emissions Management Act* (Alberta). Completion of this report is a legal requirement under these Acts. The 2009 reporting threshold for facility emissions is set at 50 kilotonnes of carbon dioxide equivalent annually.

Pinchin provides all NPRI clients with a screening level assessment of GHG emissions. As per the Technical Guidance on Reporting GHG Emissions (2008), only *direct* emissions are

evaluated for this Government of Canada program (i.e., indirect emissions from electricity generation are not evaluated and therefore this assessment should not be considered a completed GHG inventory in accordance with ISO 14064 or the World Resource Institute's GHG Protocol). Pinchin has evaluated the reporting obligations for the aforementioned facility and concludes:

- Horizon Utilities is not required to report GHG emissions to the Government of Canada.
- Appendix IV summarizes the GHG emissions from the facility.

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**APPENDIX I**  
**SUPPORTING INFORMATION PROVIDED BY HORIZON UTILITIES**

**2009 Purchases**

<b>Product</b>	<b>Quantity</b>	<b>Units</b>
<b>DESCRIPTION</b>		
2 STROKE OIL	36	L
ANTI-FREEZE	2,130	L
BRAKE CLEAN	9	Kg
DIESEL FUEL/TRUCK USE	246,760	L
DEGREASER	11	L
DOT 3 BREAK FLUID	4	L
ENGINE SHAMPOO	205	L
GLACIER BLUE	205	L
GREASE CHASSIS /ULTI PLEX GREASE	120	L
MOTOR OIL	1,713	L
PAINT - SPRAY TRANSFORMER GREY	29	L
PAINT MARKING RED TRIG-A-CAP	90	L
PAINT ORANGE SAFETY	4	L
PAINT RUST YELLOW	11	L
PAINT SPRAY EQUIPMENT GREEN	34	L
PAINT TRANSFORMER MUNSEL GREY	11	L
SILICONE SEALANT	5	Kg
UNLEADED FUEL/TRUCK USE	1,627	L
VANDALISM MARK REMOVER	52	L
WINDSHIELD WASHER	1,662	L
ARCYLIC SAFE DECAL REMOVER	472	ml
<b>NATURAL GAS CONSUMPTION</b>		
Natural Gas	80,518	m <sup>3</sup>

**APPENDIX II**  
**2009 REPORTING REQUIREMENTS FOR NPRI**

**Environment Canada NPRI - PART 1 SUBSTANCES**  
**Total Facility Emissions - Contaminants with NPRI Graded MPO Thresholds**

Contaminant	CAS #	MPO Threshold	Annual MPO*	Reportable?
		(kg/yr)	(kg/yr)	(Yes/No)
Anthracene	120-12-7	10,000	3.10E-06	No
Arsenic (and its compounds)	7440-38-8	50	2.58E-04	No
Benzene	71-43-2	10,000	2.71E-03	No
Cadmium (and its compounds)	7440-43-9	5	1.42E-03	No
Chromium (and its compounds)	7440-47-3	10,000	1.81E-03	No
Cobalt (and its compounds)	7440-48-4	10,000	1.08E-04	No
Copper (and its compounds)	7440-50-8	10,000	1.10E-03	No
Formaldehyde	50-00-0	10,000	9.67E-02	No
Lead (and its compounds) except tetraethyl lead	7439-92-1	50	6.45E-04	No
Manganese (and its compounds)	7439-96-5	10,000	4.90E-04	No
Mercury (and its compounds)	7439-97-6	5	3.35E-04	No
Naphthalene	91-20-3	10,000	7.87E-04	No
n-Hexane	110-54-3	10,000	2.32E+00	No
Nickel (and its compounds)	7440-02-0	10,000	2.71E-03	No
Selenium (and its compounds)	7782-49-2	10,000	3.10E-05	No
Toluene	108-88-3	10,000	4.39E-03	No
Vanadium (except when in an alloy) and its compounds	7440-62-2	10,000	2.97E-03	No
Zinc (and its compounds)	7440-66-6	10,000	8.98E+01	No

NA - Not Applicable

\*Includes emissions of by-products.

**Environment Canada NPRI - PART 2 SUBSTANCES**  
**Total Facility Emissions - Polycyclic Aromatic Hydrocarbons with NPRI Graded MPO Thresholds**

Contaminant	CAS #	Release Threshold (kg/yr)	Annual Emission Rate (Air) (kg/yr)	Estimation Method	Reportable? (Yes/No)
Acenaphthene	83-32-9	5	2.32E-06	E	No
Acenaphthylene	208-96-8	5	2.32E-06	E	No
Benzo(a)anthracene	56-55-3	5	2.32E-06	E	No
Benzo(a)phenanthrene	218-01-9	5	2.32E-06	E	No
Benzo(a)pyrene	50-32-8	5	1.55E-06	E	No
Benzo(b)fluoranthene	205-99-2	5	2.32E-06	E	No
Benzo(g,h,i)perylene	191-24-2	5	1.55E-06	E	No
Benzo(k)fluoranthene	207-08-9	5	2.32E-06	E	No
Dibenzo(a,h)anthracene	53-70-3	5	1.55E-06	E	No
7,12-Dimethylbenz(a)anthracene	57-97-6	5	2.06E-05	E	No
Fluoranthene	206-44-0	5	3.87E-06	E	No
Fluorene	86-73-7	5	3.61E-06	E	No
Indeno(1,2,3-c,d)pyrene	193-39-5	5	2.32E-06	E	No
3-Methylchloranthrene	56-49-5	5	2.32E-06	E	No
Phenanthrene	85-01-8	5	2.19E-05	E	No
Pyrene	129-00-0	5	6.45E-05	E	No
Total PAHs	NA - P/H	50	1.38E-04	E	No

NA - Not Applicable

E - Published Emission Factors

NOTE: The Polycyclic Aromatic Hydrocarbons (PAHs) listed in the above table for this facility are from natural gas combustion only; as such, they are considered insignificant. Additionally, the aggregate annual emission of all Part 2 substances incidentally manufactured at this facility is below the 50 kg reporting threshold.

**Environment Canada NPRI - PART 3 SUBSTANCES**  
**Total Facility Emissions - Dioxins/Furans and Hexachlorobenzene**

<b>Contaminant</b>	<b>CAS #</b>	<b>Annual Emission Rate (kg/yr)</b>	<b>Estimation Method</b>
No Reportable Part 3 Substances (i.e. company not engaged in identified activities)*			

\*identified activities - as listed in Table 11 of "Guide for Reporting to the National Pollutant Release Inventory"

**Environment Canada NPRI - PART 4 SUBSTANCES**  
**Total Facility Emissions - Criteria Air Contaminants**

<b>Contaminant</b>	<b>CAS #</b>	<b>Release Threshold (kg/yr)</b>	<b>Annual Emission Rate (kg/yr)</b>	<b>Estimation Method</b>	<b>Reportable? (Yes/No)</b>
Carbon Monoxide	630-08-0	20,000	1.08E+02	E	No
Oxides of Nitrogen	11104-93-1	20,000	1.29E+02	E	No
Sulphur Dioxide	7446-09-5	20,000	7.74E-01	E	No
Particulate Matter <=2.5 micrometers	NA - M10	300	2.45E+00	E	No
Particulate Matter <=10 micrometers	NA - M09	500	2.45E+00	E	No
Total Particulate Matter	NA - M08	20,000	2.45E+00	E	No
Volatile Organic Compounds	NA - M16	10,000	7.09E+00	E	No

NA - Not Applicable

E - Published Emission Factors

**Environment Canada NPRI - PART 5 SUBSTANCES (VOCs)**  
**Total Facility Emissions - Speciated Volatile Organic Compounds**

Contaminant	CAS #	Release Threshold (kg/yr)	Annual Emission Rate (kg/yr)	Estimation Method	Reportable? (Yes/No)
No Reportable Part 5 Substances (i.e. total facility VOC emissions < 10 tonne threshold in Part 4)					

NA - Not Applicable

C - Mass Balance

M - Monitoring or Direct Measurement

E - Published Emission Factors

O - Engineering Estimate

**APPENDIX III**  
**GREENHOUSE GAS EMISSIONS TABLE**

**Greenhouse Gas Reporting - Environment Canada and Statistics Canada  
 Total Facility Emissions - Greenhouse Gas Emissions**

<b>Contaminant</b>	<b>CAS #</b>	<b>Annual Emission Threshold (tonnes/yr)</b>	<b>Emission Rate (kg/yr)</b>	<b>100 Yr GWP (kg/yr)</b>	<b>Estimation Method</b>	<b>Annal Emission CO<sub>2</sub>e (tonnes/yr)</b>	<b>Reportable? (Yes/No)</b>
Carbon Dioxide	124-38-9	NA	1.55E+05	1	E	155	NA
Methane	74-82-8	NA	2.97E+00	21	E	0.1	NA
Nitrous Oxide	10024-97-2	NA	2.84E+00	310	E	1	NA
<b>Total</b>	NA	50,000	NA	NA	NA	156	No

NA - Not Applicable

E - Published Emission Factors

**APPENDIX IV**  
**EMISSIONS CALCULATIONS DATASHEETS**

**Facility Wide Contaminant Summary Table**

Contaminant	CAS #	MPO (kg/yr)	Releases			Reporting Section
			Air (kg/yr)	Recycle (kg/yr)	Disposal (kg/yr)	
Synthetic Hydrocarbons	mix.	9.00E+03	0.00E+00	-	-	-
Lithium Thickener	mix.	1.80E+03	0.00E+00	-	-	-
MSDS not available. Assume Mineral Spirit Group #1 based on MSDS' of similar products.	n/a	2.05E+04	1.42E+01	-	-	-
Zinc Compounds	7440-66-6	8.98E+01	3.74E-02	-	-	1A
Petroleum Base Oil	n/a	2.64E+03	1.42E+01	-	-	-
Sulphur Dioxide	7446-09-5	7.74E-01	7.74E-01	-	-	4
Nitrogen Oxides	11104-93-1	1.29E+02	1.29E+02	-	-	4
Carbon Monoxide	630-08-0	1.08E+02	1.08E+02	-	-	4
Nitrous Oxide	10024-97-2	2.84E+00	2.84E+00	-	-	GHG
Particulate Matter	NA - M10	2.45E+00	2.45E+00	-	-	4
Carbon Dioxide	124-38-9	1.55E+05	1.55E+05	-	-	GHG
TOC	N/A	1.42E+01	1.42E+01	-	-	
Lead	7439-92-1	6.45E-04	6.45E-04	-	-	1B
Methane	74-82-8	2.97E+00	2.97E+00	-	-	GHG
VOC	NA - VOC	7.09E+00	7.09E+00	-	-	4
2-Methylnaphthalene	91-57-6	3.10E-05	3.10E-05	-	-	
3-Methylchloranthrene	56-49-5	2.32E-06	2.32E-06	-	-	2
7,12-Dimethylbenz(a)anthracene	57-97-6	2.06E-05	2.06E-05	-	-	2
Acenaphthene	83-32-9	2.32E-06	2.32E-06	-	-	2
Acenaphthylene	208-96-8	2.32E-06	2.32E-06	-	-	2
Anthracene	120-12-7	3.10E-06	3.10E-06	-	-	1A
Benz(a)anthracene	56-55-3	2.32E-06	2.32E-06	-	-	2
Benzene	71-43-2	2.71E-03	2.71E-03	-	-	1A, 5
Benzo(a)pyrene	50-32-8	1.55E-06	1.55E-06	-	-	2
Benzo(b)fluoranthene	205-99-2	2.32E-06	2.32E-06	-	-	2
Benzo(g,h,i)perylene	191-24-2	1.55E-06	1.55E-06	-	-	2
Benzo(k)fluoranthene	207-08-9	2.32E-06	2.32E-06	-	-	2
Butane	106-97-8	2.71E+00	2.71E+00	-	-	5
Benzo(a)phenanthrene	218-01-9	2.32E-06	2.32E-06	-	-	2
Dibenzo(a,h)anthracene	53-70-3	1.55E-06	1.55E-06	-	-	2
Dichlorobenzene	25321-22-6	1.55E-03	1.55E-03	-	-	
Ethane	74-84-0	4.00E+00	4.00E+00	-	-	
Fluoranthene	206-44-0	3.87E-06	3.87E-06	-	-	2
Fluorene	86-73-7	3.61E-06	3.61E-06	-	-	2
Formaldehyde	50-00-0	9.67E-02	9.67E-02	-	-	1A, 5
Hexane	110-54-3	2.32E+00	2.32E+00	-	-	1A, 5
Indeno(1,2,3-cd)pyrene	193-39-5	2.32E-06	2.32E-06	-	-	2
Naphthalene	91-20-3	7.87E-04	7.87E-04	-	-	1A, VOC
Pentane	109-66-0	3.35E+00	3.35E+00	-	-	5
Phenanthrene	85-01-8	2.19E-05	2.19E-05	-	-	2
Propane	74-98-6	2.06E+00	2.06E+00	-	-	5
Pyrene	129-00-0	6.45E-05	6.45E-05	-	-	2
Toluene	108-88-3	4.39E-03	4.39E-03	-	-	1A, 5
Arsenic	7440-38-8	2.58E-04	2.58E-04	-	-	1B

**Facility Wide Contaminant Summary Table**

Contaminant	CAS #	MPO (kg/yr)	Releases			Reporting Section
			Air (kg/yr)	Recycle (kg/yr)	Disposal (kg/yr)	
Barium	7440-39-3	5.68E-03	5.68E-03	-	-	
Beryllium	7440-41-7	1.55E-05	1.55E-05	-	-	
Cadmium	7440-43-9	1.42E-03	1.42E-03	-	-	1B
Chromium	7440-47-3	1.81E-03	1.81E-03	-	-	1A
Cobalt	7440-48-4	1.08E-04	1.08E-04	-	-	1A
Copper	7440-50-8	1.10E-03	1.10E-03	-	-	1A
Manganese	7439-96-5	4.90E-04	4.90E-04	-	-	1A
Mercury	7439-97-6	3.35E-04	3.35E-04	-	-	1B
Molybdenum	7439-98-7	1.42E-03	1.42E-03	-	-	
Nickel	7440-02-0	2.71E-03	2.71E-03	-	-	1A
Selenium	7782-49-2	3.10E-05	3.10E-05	-	-	1A
Vanadium	7440-62-2	2.97E-03	2.97E-03	-	-	1A
Zinc	7440-66-6	3.74E-02	3.74E-02	-	-	1A
Total VOC's	NA - M16	7.09E+00		-	-	4

MSDS Summary

Product	Specific Gravity (kg/L)	Purchased/ Used	Units	Contaminant	CAS #	Average Concentration (%)	MPO* (kg/yr)
<b>PRODUCT</b>							
Paints	n/a	179	L	Since the total amount of paint used does not exceed the individual MPO threshold for any of the compounds typically found in paints, it was assumed that reporting was not required and MSDS' were not examined.			
Glacier Blue	0.86	205	L	Zinc Compounds	n/a	0.5	8.98E+01
				Petroleum Base Oil	n/a	94.5	2.64E+03

**Natural Gas Emissions**

**Consumption :** 80,518 m<sup>3</sup>  
2,843,486 ft<sup>3</sup>  
331,091 BTU/hr

Contaminant	CAS #	Emission Factor (lb/1000000 ft <sup>3</sup> )	Emission Rate (kg/yr)	Reporting Criteria	VOC?
Sulphur Dioxide	7446-09-5	0.6	0.8	4	
Nitrogen Oxides	11104-93-1	100	129.0	4	
Carbon Monoxide	630-08-0	84	108.3	4	
Nitrous Oxide	10024-97-2	2.2	2.8	GHG	
Particulate Matter	NA - M10	1.9	2.5	4	
Carbon Dioxide	124-38-9	120,000	154,774	GHG	
TOC	N/A	11	14.2		
Lead	7439-92-1	0.0005	0.0006	1B	
Methane	74-82-8	2.3	3.0	GHG	
VOC	NA - VOC	5.5	7.1	4	Y
<b>Speciated Organic Compounds</b>					
2-Methylnaphthalene	91-57-6	0.000024	3.10E-05		Y
3-Methylchloranthrene	56-49-5	< 0.0000018	2.32E-06	2	Y
7,12-Dimethylbenz(a)anthracene	57-97-6	< 0.000016	2.06E-05	2	Y
Acenaphthene	83-32-9	< 0.0000018	2.32E-06	2	Y
Acenaphthylene	208-96-8	< 0.0000018	2.32E-06	2	Y
Anthracene	120-12-7	< 0.0000024	3.10E-06	1A	Y
Benz(a)anthracene	56-55-3	< 0.0000018	2.32E-06	2	Y
Benzene	71-43-2	0.0021	2.71E-03	1A, 5	Y
Benzo(a)pyrene	50-32-8	< 0.0000012	1.55E-06	2	Y
Benzo(b)fluoranthene	205-99-2	< 0.0000018	2.32E-06	2	Y
Benzo(g,h,i)perylene	191-24-2	< 0.0000012	1.55E-06	2	Y
Benzo(k)fluoranthene	207-08-9	< 0.0000018	2.32E-06	2	Y
Butane	106-97-8	2.1	2.71E+00	5	Y
Benzo(a)phenanthrene	218-01-9	< 0.0000018	2.32E-06	2	Y
Dibenzo(a,h)anthracene	53-70-3	< 0.0000012	1.55E-06	2	Y
Dichlorobenzene	25321-22-6	0.0012	1.55E-03		Y
Ethane	74-84-0	3.1	4.00E+00		
Fluoranthene	206-44-0	0.000003	3.87E-06	2	Y
Fluorene	86-73-7	0.0000028	3.61E-06	2	Y
Formaldehyde	50-00-0	0.075	9.67E-02	1A, 5	Y
Hexane	110-54-3	1.8	2.32E+00	1A, 5	Y
Indeno(1,2,3-cd)pyrene	193-39-5	< 0.0000018	2.32E-06	2	Y
Naphthalene	91-20-3	0.00061	7.87E-04	1A, VOC	Y
Pentane	109-66-0	2.6	3.35E+00	5	Y
Phenanthrene	85-01-8	0.000017	2.19E-05	2	Y
Propane	74-98-6	1.6	2.06E+00	5	Y
Pyrene	129-00-0	0.00005	6.45E-05	2	Y
Toluene	108-88-3	0.0034	4.39E-03	1A, 5	Y

**Natural Gas Emissions (cont'd)**

Contaminant	CAS #	Emission Factor (lb/1000000 ft <sup>3</sup> )	Emission Rate (kg/yr)	Reporting Criteria	VOC?
<b>Metals</b>					
Arsenic	7440-38-8	0.0002	2.58E-04	1B	
Barium	7440-39-3	0.0044	5.68E-03		
Beryllium	7440-41-7	< 0.000012	1.55E-05		
Cadmium	7440-43-9	0.0011	1.42E-03	1B	
Chromium	7440-47-3	0.0014	1.81E-03	1A	
Cobalt	7440-48-4	0.000084	1.08E-04	1A	
Copper	7440-50-8	0.00085	1.10E-03	1A	
Manganese	7439-96-5	0.00038	4.90E-04	1A	
Mercury	7439-97-6	0.00026	3.35E-04	1B	
Molybdenum	7439-98-7	0.0011	1.42E-03		
Nickel	7440-02-0	0.0021	2.71E-03	1A	
Selenium	7782-49-2	0.000024	3.10E-05	1A	
Vanadium	7440-62-2	0.0023	2.97E-03	1A	
Zinc	7440-66-6	0.029	3.74E-02	1A	

Emission Factors from USEPA AP-42, "Compilation of Air Pollution Emission Factors", Section 1.4, 1998  
 For Boilers < 100MMBtu/hour

**Sample Calculations:**

$$\begin{aligned} \text{NOx Emission Rate} &= \text{Consumption (ft}^3\text{/yr)} \times \text{Emission Factor (lb/10}^6\text{ ft}^3) \times 0.4536 \text{ kg/lb} \\ &= 2,843,486 \text{ ft}^3\text{/yr} \times 100 \text{ lb/10}^6\text{ ft}^3 \times 0.4356 \text{ kg/lb} \\ \text{NOx Emission Rate} &= 129.0 \text{ kg/yr} \end{aligned}$$



2009 Ontario Regulation 127/01,  
National Pollutant Release Inventory Report,  
and Greenhouse Gas Emissions Reporting

Horizon Utilities  
703 Highway #8  
Stoney Creek, Ontario  
L8E 5J6

Prepared for:  
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Attention: Joe Gerrior

April 27, 2010

Pinchin File: 56944

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## INTRODUCTION

Pinchin Environmental evaluated the 2009 National Pollutant Release Inventory, Ontario Regulation 127/01 and Greenhouse Gas Emissions reporting requirements of the Horizon Utilities facility located at 703 Highway #8, Stoney Creek, Ontario.

Included in this report, for your reference, is the following information:

- Appendix I documents the supporting information specifically for the facility that was provided to Pinchin, which served as the basis of our assessment.
- Appendix II provides the 2009 reporting requirements for NPRI (Parts 1-5).
- Appendix III includes a copy of the Greenhouse Gas emissions table.
- Appendix IV includes copies of the calculation datasheets for NPRI reporting.

## ONTARIO REGULATION 127/01 (O.REG.127/01)

O.Reg.127/01 is a provincial reporting requirement for Ontario that is triggered if a facility satisfies specific air discharge or processing criteria. Triggering this regulation requires that a facility publicly report air discharges on an annual basis. The only contaminant that needs to be considered under this regulation for the 2009 reporting year is Acetone.

In accordance with O.Reg.127/01, Pinchin has evaluated the reporting obligations for the aforementioned facility and concludes the following:

- Horizon Utilities has an NAICS code of 488490 (Support Activities for Road Transportation) and 531120 (Lessors of Nonresidential Buildings), which is not listed in Table 1 of the O.Reg.127 reporting Guide and is therefore subject to the requirements of the regulation.

## NATIONAL POLLUTANT RELEASE INVENTORY (NPRI)

The NPRI is a federal initiative directed by EC under the *Canadian Environmental Protection Act, 1999* (CEPA) that is triggered when specific facility and processing criteria are met. When the reporting criteria for this initiative are met environmental reporting for solid, liquid and air discharges is required.

The five groups of chemicals/substances that need to be considered under this initiative are:

- Part 1A substances include 232 substances with MPO thresholds of 10 tonnes.
- Part 1B substances include Mercury, Cadmium, Arsenic, Chromium VI, Lead and Tetraethyl Lead.
- Part 2 substances are polycyclic aromatic hydrocarbons (PAH's).
- Part 3 substances are dioxins and furans.
- Part 4 substances are Criteria Air Contaminants (CAC's) where reporting is triggered when emissions of these compounds are in excess of specific limits.
- Part 5 substances are 75 Volatile Organic Compounds (VOC's) that are triggered when Part 4-Total VOC's emissions are in excess of 10 tonnes and the annual emissions for an individual VOC is in excess of 1 tonne.

In accordance with NPRI, Pinchin has evaluated the reporting obligations for the aforementioned facility and concludes the following:

- Horizon Utilities is not required to assess any Parts 1, 2 or 3 substances solely associated with the maintenance and repair of motor vehicles.
- Horizon Utilities is not required to report any substances
  - Appendix II summarizes the data that was assessed for NPRI.

## GREENHOUSE GAS (GHG) REPORTING

In March 2004, the Government of Canada announced the introduction of mandatory reporting of GHG emissions. Statistics Canada jointly collects the information under the authority of the *Statistics Act*, Revised Statutes of Canada 1985, c.S-19, as well as under the authority of the CEPA and the *Climate Change Emissions Management Act* (Alberta). Completion of this report is a legal requirement under these Acts. The 2009 reporting threshold for facility emissions is set at 50 kilotonnes of carbon dioxide equivalent annually.

Pinchin provides all NPRI clients with a screening level assessment of GHG emissions. As per the Technical Guidance on Reporting GHG Emissions (2008), only *direct* emissions are evaluated for this Government of Canada program (i.e., indirect emissions from electricity generation are not evaluated and therefore this assessment should not be considered a completed

GHG inventory in accordance with ISO 14064 or the World Resource Institute's GHG Protocol).  
Pinchin has evaluated the reporting obligations for the aforementioned facility and concludes:

- Horizon Utilities is not required to report GHG emissions to the Government of Canada.
- Appendix IV summarizes the GHG emissions from the facility.

**Pinchin Environmental Ltd.**

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Pinchin Master Report Guide, Ver. 1, January 2010

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**APPENDIX I**  
**SUPPORTING INFORMATION PROVIDED BY HORIZON UTILITIES**

### 2009 Purchases

<b>Product</b>	<b>Quantity</b>	<b>Units</b>
<b>PRODUCTS</b>		
DIESEL FUEL/TRUCK USE	25816	L
UNLEADED FUEL/TRUCK USE	4487	L
<b>NATURAL GAS CONSUMPTION</b>		
Natural gas	54,472.11	m <sup>3</sup>

**APPENDIX II**  
**2009 REPORTING REQUIREMENTS FOR NPRI**

**Environment Canada NPRI - PART 1 SUBSTANCES**  
**Total Facility Emissions - Contaminants with NPRI Graded MPO Thresholds**

Contaminant	CAS #	MPO Threshold	Annual MPO*	Reportable?
		(kg/yr)	(kg/yr)	(Yes/No)
Anthracene	120-12-7	10,000	2.09E-06	No
Arsenic (and its compounds)	7440-38-8	50	1.75E-04	No
Benzene	71-43-2	10,000	1.83E-03	No
Cadmium (and its compounds)	7440-43-9	5	9.60E-04	No
Chromium (and its compounds)	7440-47-3	10,000	1.22E-03	No
Cobalt (and its compounds)	7440-48-4	10,000	7.33E-05	No
Copper (and its compounds)	7440-50-8	10,000	7.42E-04	No
Formaldehyde	50-00-0	10,000	6.54E-02	No
Lead (and its compounds) except tetraethyl lead	7439-92-1	50	4.36E-04	No
Manganese (and its compounds)	7439-96-5	10,000	3.32E-04	No
Mercury (and its compounds)	7439-97-6	5	2.27E-04	No
Naphthalene	91-20-3	10,000	5.32E-04	No
n-Hexane	110-54-3	10,000	1.57E+00	No
Nickel (and its compounds)	7440-02-0	10,000	1.83E-03	No
Selenium (and its compounds)	7782-49-2	10,000	2.09E-05	No
Toluene	108-88-3	10,000	2.97E-03	No
Vanadium (except when in an alloy) and its compounds	7440-62-2	10,000	2.01E-03	No
Zinc (and its compounds)	7440-66-6	10,000	2.53E-02	No

NA - Not Applicable

\*Includes emissions of by-products.

**Environment Canada NPRI - PART 2 SUBSTANCES**  
**Total Facility Emissions - Polycyclic Aromatic Hydrocarbons with NPRI Graded MPO Thresholds**

Contaminant	CAS #	Release Threshold (kg/yr)	Annual Emission Rate (Air) (kg/yr)	Estimation Method	Reportable? (Yes/No)
Acenaphthene	83-32-9	5	1.57E-06	E	No
Acenaphthylene	208-96-8	5	1.57E-06	E	No
Benzo(a)anthracene	56-55-3	5	1.57E-06	E	No
Benzo(a)phenanthrene	218-01-9	5	3.14E-06	E	No
Benzo(a)pyrene	50-32-8	5	1.05E-06	E	No
Benzo(b)fluoranthene	205-99-2	5	1.57E-06	E	No
Benzo(g,h,i)perylene	191-24-2	5	1.05E-06	E	No
Benzo(k)fluoranthene	207-08-9	5	1.57E-06	E	No
Dibenzo(a,h)anthracene	53-70-3	5	1.05E-06	E	No
7,12-Dimethylbenz(a)anthracene	57-97-6	5	1.40E-05	E	No
Fluoranthene	206-44-0	5	2.62E-06	E	No
Fluorene	86-73-7	5	2.44E-06	E	No
Indeno(1,2,3-c,d)pyrene	193-39-5	5	1.57E-06	E	No
3-Methylchloranthrene	56-49-5	5	1.57E-06	E	No
Phenanthrene	85-01-8	5	1.48E-05	E	No
Pyrene	129-00-0	5	4.36E-05	E	No
Total PAHs	NA - P/H	50	9.48E-05	E	No

NA - Not Applicable

E - Published Emission Factors

NOTE: The Polycyclic Aromatic Hydrocarbons (PAHs) listed in the above table for this facility are from natural gas combustion only; as such, they are considered insignificant. Additionally, the aggregate annual emission of all Part 2 substances incidentally manufactured at this facility is below the 50 kg reporting threshold.

**Environment Canada NPRI - PART 3 SUBSTANCES**  
**Total Facility Emissions - Dioxins/Furans and Hexachlorobenzene**

<b>Contaminant</b>	<b>CAS #</b>	<b>Annual Emission Rate (kg/yr)</b>	<b>Estimation Method</b>
No Reportable Part 3 Substances (i.e. company not engaged in identified activities)*			

\*identified activities - as listed in Table 11 of "Guide for Reporting to the National Pollutant Release Inventory"

**Environment Canada NPRI - PART 4 SUBSTANCES**  
**Total Facility Emissions - Criteria Air Contaminants**

<b>Contaminant</b>	<b>CAS #</b>	<b>Release Threshold (kg/yr)</b>	<b>Annual Emission Rate (kg/yr)</b>	<b>Estimation Method</b>	<b>Reportable? (Yes/No)</b>
Carbon Monoxide	630-08-0	20,000	7.33E+01	E	No
Oxides of Nitrogen	11104-93-1	20,000	8.73E+01	E	No
Sulphur Dioxide	7446-09-5	20,000	5.24E-01	E	No
Particulate Matter <=2.5 micrometers	NA - M10	300	1.66E+00	E	No
Particulate Matter <=10 micrometers	NA - M09	500	1.66E+00	E	No
Total Particulate Matter	NA - M08	20,000	1.66E+00	E	No
Volatile Organic Compounds	NA - M16	10,000	4.80E+00	E	No

NA - Not Applicable

E - Published Emission Factors

**Environment Canada NPRI - PART 5 SUBSTANCES (VOCs)**  
**Total Facility Emissions - Speciated Volatile Organic Compounds**

Contaminant	CAS #	Release Threshold (kg/yr)	Annual Emission Rate (kg/yr)	Estimation Method	Reportable? (Yes/No)
No Reportable Part 5 Substances (i.e. total facility VOC emissions < 10 tonne threshold in Part 4)					

NA - Not Applicable

C - Mass Balance

M - Monitoring or Direct Measurement

E - Published Emission Factors

O - Engineering Estimate

**APPENDIX III**  
**GREENHOUSE GAS EMISSIONS TABLE**

**Greenhouse Gas Reporting - Environment Canada and Statistics Canada  
 Total Facility Emissions - Greenhouse Gas Emissions**

<b>Contaminant</b>	<b>CAS #</b>	<b>Annual Emission Threshold (tonnes/yr)</b>	<b>Emission Rate (kg/yr)</b>	<b>100 Yr GWP (kg/yr)</b>	<b>Estimation Method</b>	<b>Annal Emission CO<sub>2</sub>e (tonnes/yr)</b>	<b>Reportable? (Yes/No)</b>
Carbon Dioxide	124-38-9	NA	1.05E+05	1	E	105	NA
Methane	74-82-8	NA	2.01E+00	21	E	0.04	NA
Nitrous Oxide	10024-97-2	NA	1.92E+00	310	E	0.6	NA
<b>Total</b>	NA	50,000	NA	NA	NA	105	No

NA - Not Applicable

E - Published Emission Factors

**APPENDIX IV**  
**EMISSIONS CALCULATIONS DATASHEETS**

DNP = DO NOT PRINT

Facility Wide Contaminant Summary Table

Contaminant	CAS #	MPO (kg/yr)	Releases			Reporting Section
			Air (kg/yr)	Recycle (kg/yr)	Disposal (kg/yr)	
Sulphur Dioxide	7446-09-5	5.24E-01	5.24E-01	0.00E+00	0.00E+00	4
Nitrogen Oxides	11104-93-1	8.73E+01	8.73E+01	0.00E+00	0.00E+00	4
Carbon Monoxide	630-08-0	7.33E+01	7.33E+01	0.00E+00	0.00E+00	4
Nitrous Oxide	10024-97-2	1.92E+00	1.92E+00	0.00E+00	0.00E+00	GHG
Particulate Matter <=2.5	NA - M10	1.66E+00	1.66E+00	0.00E+00	0.00E+00	4
Particulate Matter <=10	NA - M09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4
Carbon Dioxide	124-38-9	1.05E+05	1.05E+05	0.00E+00	0.00E+00	GHG
TOC	N/A - TOC	9.60E+00	9.60E+00	0.00E+00	0.00E+00	-
Lead	7439-92-1	4.36E-04	4.36E-04	0.00E+00	0.00E+00	1B
Methane	74-82-8	2.01E+00	2.01E+00	0.00E+00	0.00E+00	GHG
VOC	NA - M16	4.80E+00	4.80E+00	0.00E+00	0.00E+00	4
2-Methylnaphthalene	91-57-6	2.09E-05	2.09E-05	0.00E+00	0.00E+00	-
3-Methylchloranthrene	56-49-5	1.57E-06	1.57E-06	0.00E+00	0.00E+00	2
7,12-Dimethylbenz(a)anthracene	57-97-6	1.40E-05	1.40E-05	0.00E+00	0.00E+00	2
Acenaphthene	83-32-9	1.57E-06	1.57E-06	0.00E+00	0.00E+00	2
Acenaphthylene	208-96-8	1.57E-06	1.57E-06	0.00E+00	0.00E+00	2
Anthracene	120-12-7	2.09E-06	2.09E-06	0.00E+00	0.00E+00	1A
Benz(a)anthracene	56-55-3	1.57E-06	1.57E-06	0.00E+00	0.00E+00	2
Benzene	71-43-2	1.83E-03	1.83E-03	0.00E+00	0.00E+00	1A, 5
Benzo(a)pyrene	50-32-8	1.05E-06	1.05E-06	0.00E+00	0.00E+00	2
Benzo(b)fluoranthene	205-99-2	1.57E-06	1.57E-06	0.00E+00	0.00E+00	2
Benzo(g,h,i)perylene	191-24-2	1.05E-06	1.05E-06	0.00E+00	0.00E+00	2
Benzo(k)fluoranthene	207-08-9	1.57E-06	1.57E-06	0.00E+00	0.00E+00	2
Butane	106-97-8	1.83E+00	1.83E+00	0.00E+00	0.00E+00	5
Benzo(a)phenanthrene	218-01-9	1.57E-06	1.57E-06	0.00E+00	0.00E+00	2
Dibenzo(a,h)anthracene	53-70-3	1.05E-06	1.05E-06	0.00E+00	0.00E+00	2
Dichlorobenzene	25321-22-6	1.05E-03	1.05E-03	0.00E+00	0.00E+00	-
Ethane	74-84-0	2.70E+00	2.70E+00	0.00E+00	0.00E+00	-
Fluoranthene	206-44-0	2.62E-06	2.62E-06	0.00E+00	0.00E+00	2
Fluorene	86-73-7	2.44E-06	2.44E-06	0.00E+00	0.00E+00	2
Formaldehyde	50-00-0	6.54E-02	6.54E-02	0.00E+00	0.00E+00	1A, 5
Hexane	110-54-3	1.57E+00	1.57E+00	0.00E+00	0.00E+00	1A, 5
Indeno(1,2,3-cd)pyrene	193-39-5	1.57E-06	1.57E-06	0.00E+00	0.00E+00	2
Naphthalene	91-20-3	5.32E-04	5.32E-04	0.00E+00	0.00E+00	1A, VOC
Pentane	109-66-0	2.27E+00	2.27E+00	0.00E+00	0.00E+00	5
Phenanthrene	85-01-8	1.48E-05	1.48E-05	0.00E+00	0.00E+00	2
Propane	74-98-6	1.40E+00	1.40E+00	0.00E+00	0.00E+00	5
Pyrene	129-00-0	4.36E-05	4.36E-05	0.00E+00	0.00E+00	2
Toluene	108-88-3	2.97E-03	2.97E-03	0.00E+00	0.00E+00	1A, 5
Arsenic	7440-38-8	1.75E-04	1.75E-04	0.00E+00	0.00E+00	1B
Barium	7440-39-3	3.84E-03	3.84E-03	0.00E+00	0.00E+00	-
Beryllium	7440-41-7	1.05E-05	1.05E-05	0.00E+00	0.00E+00	-
Cadmium	7440-43-9	9.60E-04	9.60E-04	0.00E+00	0.00E+00	1B
Chromium	7440-47-3	1.22E-03	1.22E-03	0.00E+00	0.00E+00	1A
Cobalt	7440-48-4	7.33E-05	7.33E-05	0.00E+00	0.00E+00	1A
Copper	7440-50-8	7.42E-04	7.42E-04	0.00E+00	0.00E+00	1A
Manganese	7439-96-5	3.32E-04	3.32E-04	0.00E+00	0.00E+00	1A
Mercury	7439-97-6	2.27E-04	2.27E-04	0.00E+00	0.00E+00	1B
Molybdenum	7439-98-7	9.60E-04	9.60E-04	0.00E+00	0.00E+00	-
Nickel	7440-02-0	1.83E-03	1.83E-03	0.00E+00	0.00E+00	1A
Selenium	7782-49-2	2.09E-05	2.09E-05	0.00E+00	0.00E+00	1A
Vanadium	7440-62-2	2.01E-03	2.01E-03	0.00E+00	0.00E+00	1A
Zinc	7440-66-6	2.53E-02	2.53E-02	0.00E+00	0.00E+00	1A
Aldehydes	NA - A	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-
Xylenes	1330-20-7	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1A, 5
Propylene	115-07-1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1A, 5
1,3-Butadiene	106-99-0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1A, 5
Acetaldehyde	75-07-0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1A
Acrolein	107-02-8	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1A
Chrysene	218-01-9	1.57E-06	1.57E-06	0.00E+00	0.00E+00	2
Total PAH	NA - PAH	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-

**Natural Gas Emissions**

**Consumption :** 54,472 m<sup>3</sup>  
1,923,682 ft<sup>3</sup>  
223,990 BTU/hr

Contaminant	CAS #	Emission Factor (lb/1000000 ft <sup>3</sup> )	Emission Rate (kg/yr)	Reporting Criteria	VOC?
Sulphur Dioxide	7446-09-5	0.6	0.5	4	
Nitrogen Oxides	11104-93-1	100	87.3	4	
Carbon Monoxide	630-08-0	84	73.3	4	
Nitrous Oxide	10024-97-2	2.2	1.9	GHG	
Particulate Matter	NA - M10	1.9	1.7	4	
Carbon Dioxide	124-38-9	120,000	104,708	GHG	
TOC	N/A - TOC	11	9.6		
Lead	7439-92-1	0.0005	0.0004	1B	
Methane	74-82-8	2.3	2.0	GHG	
VOC	NA - M16	5.5	4.8	4	Y
<b>Speciated Organic Compounds</b>					
2-Methylnaphthalene	91-57-6	0.000024	2.09E-05		Y
3-Methylchloranthrene	56-49-5	< 0.0000018	1.57E-06	2	Y
7,12-Dimethylbenz(a)anthracene	57-97-6	< 0.000016	1.40E-05	2	Y
Acenaphthene	83-32-9	< 0.0000018	1.57E-06	2	Y
Acenaphthylene	208-96-8	< 0.0000018	1.57E-06	2	Y
Anthracene	120-12-7	< 0.0000024	2.09E-06	1A	Y
Benz(a)anthracene	56-55-3	< 0.0000018	1.57E-06	2	Y
Benzene	71-43-2	0.0021	1.83E-03	1A, 5	Y
Benzo(a)pyrene	50-32-8	< 0.0000012	1.05E-06	2	Y
Benzo(b)fluoranthene	205-99-2	< 0.0000018	1.57E-06	2	Y
Benzo(g,h,i)perylene	191-24-2	< 0.0000012	1.05E-06	2	Y
Benzo(k)fluoranthene	207-08-9	< 0.0000018	1.57E-06	2	Y
Butane	106-97-8	2.1	1.83E+00	5	Y
Benzo(a)phenanthrene	218-01-9	< 0.0000018	1.57E-06	2	Y
Dibenzo(a,h)anthracene	53-70-3	< 0.0000012	1.05E-06	2	Y
Dichlorobenzene	25321-22-6	0.0012	1.05E-03		Y
Ethane	74-84-0	3.1	2.70E+00		
Fluoranthene	206-44-0	0.000003	2.62E-06	2	Y
Fluorene	86-73-7	0.0000028	2.44E-06	2	Y
Formaldehyde	50-00-0	0.075	6.54E-02	1A, 5	Y
Hexane	110-54-3	1.8	1.57E+00	1A, 5	Y
Indeno(1,2,3-cd)pyrene	193-39-5	< 0.0000018	1.57E-06	2	Y
Naphthalene	91-20-3	0.00061	5.32E-04	1A, VOC	Y
Pentane	109-66-0	2.6	2.27E+00	5	Y
Phenanthrene	85-01-8	0.000017	1.48E-05	2	Y
Propane	74-98-6	1.6	1.40E+00	5	Y
Pyrene	129-00-0	0.00005	4.36E-05	2	Y
Toluene	108-88-3	0.0034	2.97E-03	1A, 5	Y

**Natural Gas Emissions (cont'd)**

Contaminant	CAS #	Emission Factor (lb/1000000 ft <sup>3</sup> )	Emission Rate (kg/yr)	Reporting Criteria	VOC?
<b>Metals</b>					
Arsenic	7440-38-8	0.0002	1.75E-04	1B	
Barium	7440-39-3	0.0044	3.84E-03		
Beryllium	7440-41-7	< 0.000012	1.05E-05		
Cadmium	7440-43-9	0.0011	9.60E-04	1B	
Chromium	7440-47-3	0.0014	1.22E-03	1A	
Cobalt	7440-48-4	0.000084	7.33E-05	1A	
Copper	7440-50-8	0.00085	7.42E-04	1A	
Manganese	7439-96-5	0.00038	3.32E-04	1A	
Mercury	7439-97-6	0.00026	2.27E-04	1B	
Molybdenum	7439-98-7	0.0011	9.60E-04		
Nickel	7440-02-0	0.0021	1.83E-03	1A	
Selenium	7782-49-2	0.000024	2.09E-05	1A	
Vanadium	7440-62-2	0.0023	2.01E-03	1A	
Zinc	7440-66-6	0.029	2.53E-02	1A	

Emission Factors from USEPA AP-42, "Compilation of Air Pollution Emission Factors", Section 1.4, 1998  
 For Boilers < 100MMBtu/hour

**Sample Calculations:**

$$\begin{aligned} \text{NOx Emission Rate} &= \text{Consumption (ft}^3\text{/yr)} \times \text{Emission Factor (lb/10}^6\text{ ft}^3) \times 0.4536 \text{ kg/lb} \\ &= 1,923,682 \text{ ft}^3\text{/yr} \times 100 \text{ lb/10}^6\text{ ft}^3 \times 0.4356 \text{ kg/lb} \\ \text{NOx Emission Rate} &= 87.3 \text{ kg/yr} \end{aligned}$$



2009 Ontario Regulation 127/01,  
National Pollutant Release Inventory Report,  
and Greenhouse Gas Emissions Reporting

Horizon Utilities  
340 Vansickle Road  
St. Catharines, Ontario  
L2R 6P7

Prepared for:  
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Attention: Joe Gerrior

April 27, 2010

Pinchin File: 56944

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## INTRODUCTION

Pinchin Environmental evaluated the 2009 National Pollutant Release Inventory, Ontario Regulation 127/01 and Greenhouse Gas Emissions reporting requirements of the Horizon Utilities facility located at 340 Vansickle Road, St. Catharines, Ontario.

Included in this report, for your reference, is the following information:

- Appendix I documents the supporting information specifically for the facility that was provided to Pinchin, which served as the basis of our assessment.
- Appendix II provides the 2009 reporting requirements for NPRI (Parts 1-5).
- Appendix III includes a copy of the Greenhouse Gas emissions table.
- Appendix IV includes copies of the calculation datasheets for O.Reg.127/01 and NPRI reporting.

## ONTARIO REGULATION 127/01 (O.REG.127/01)

O.Reg.127/01 is a provincial reporting requirement for Ontario that is triggered if a facility satisfies specific air discharge or processing criteria. Triggering this regulation requires that a facility publicly report air discharges on an annual basis. The only contaminant that needs to be considered under this regulation for the 2009 reporting year is Acetone.

In accordance with O.Reg.127/01, Pinchin has evaluated the reporting obligations for the aforementioned facility and concludes the following:

- Horizon Utilities has an NAICS code of 488490 (Support Activities for Road Transportation) and 531120 (Lessors of Nonresidential Buildings), which is not listed in Table 1 of the O.Reg.127 reporting Guide and is therefore subject to the requirements of the regulation.

## NATIONAL POLLUTANT RELEASE INVENTORY (NPRI)

The NPRI is a federal initiative directed by EC under the *Canadian Environmental Protection Act, 1999* (CEPA) that is triggered when specific facility and processing criteria are met. When the reporting criteria for this initiative are met environmental reporting for solid, liquid and air discharges is required.

The five groups of chemicals/substances that need to be considered under this initiative are:

- Part 1A substances include 232 substances with MPO thresholds of 10 tonnes.
- Part 1B substances include Mercury, Cadmium, Arsenic, Chromium VI, Lead and Tetraethyl Lead.
- Part 2 substances are polycyclic aromatic hydrocarbons (PAH's).
- Part 3 substances are dioxins and furans.
- Part 4 substances are Criteria Air Contaminants (CAC's) where reporting is triggered when emissions of these compounds are in excess of specific limits.
- Part 5 substances are 75 Volatile Organic Compounds (VOC's) that are triggered when Part 4-Total VOC's emissions are in excess of 10 tonnes and the annual emissions for an individual VOC is in excess of 1 tonne.

In accordance with NPRI, Pinchin has evaluated the reporting obligations for the aforementioned facility and concludes the following:

- Horizon Utilities is not required to assess any Parts 1, 2 or 3 associated substances solely with the maintenance and repair of motor vehicles.
- Horizon Utilities does not meet the reporting thresholds for any substances.
  - Appendix II summarizes the data that was assessed for NPRI.

## GREENHOUSE GAS (GHG) REPORTING

In March 2004, the Government of Canada announced the introduction of mandatory reporting of GHG emissions. Statistics Canada jointly collects the information under the authority of the *Statistics Act*, Revised Statutes of Canada 1985, c.S-19, as well as under the authority of the CEPA and the *Climate Change Emissions Management Act* (Alberta). Completion of this report is a legal requirement under these Acts. The 2009 reporting threshold for facility emissions is set at 50 kilotonnes of carbon dioxide equivalent annually.

Pinchin provides all NPRI clients with a screening level assessment of GHG emissions. As per the Technical Guidance on Reporting GHG Emissions (2008), only *direct* emissions are evaluated for this Government of Canada program (i.e., indirect emissions from electricity generation are not evaluated and therefore this assessment should not be considered a completed

GHG inventory in accordance with ISO 14064 or the World Resource Institute's GHG Protocol).  
Pinchin has evaluated the reporting obligations for the aforementioned facility and concludes:

- Horizon Utilities is not required to report GHG emissions to the Government of Canada.
- Appendix IV summarizes the GHG emissions from the facility.

**Pinchin Environmental Ltd.**

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Pinchin Master Report Guide, Ver. 1, January 2010

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**APPENDIX I**  
**SUPPORTING INFORMATION PROVIDED BY HORIZON UTILITIES**

**2009 Purchases**

<b>Product</b>	<b>Quantity</b>	<b>Units</b>
<b>PRODUCT</b>		
ANTI-FREEZE	75	L
BRAKE CLEAN	23	Kg
DELO 400 SYN 5W40	104	L
DIESEL FUEL/TRUCK USE	47,846	L
DOT 3 BREAK FLUID	4	L
PAINT - SPRAY TRANSFORMER GREY	24	L
PAINT MARKING RED TRIG-A-CAP	24	L
PAINT RUST BLACK GLOSS	23	L
PAINT RUST YELLOW	38	L
PAINT SPRAY EQUIPMENT GREEN	5	L
PAINT TRANSFORMER MUNSEL GREY	22	L
SILICONE SEALANT	3	Kg
UNLEADED FUEL/TRUCK USE	32,344	L
WINDSHIELD WASHER	445	L
ARCYLIC SAFE DECAL REMOVER	472	ml
<b>NATURAL GAS CONSUMPTION</b>		
Natural Gas	28,749	m <sup>3</sup>
<b>GASOLINE GENERATOR</b>		
Total Time Running	10	hrs/yr

**APPENDIX II**  
**2009 REPORTING REQUIREMENTS FOR NPRI**

**Environment Canada NPRI - PART 1 SUBSTANCES**  
**Total Facility Emissions - Contaminants with NPRI Graded MPO Thresholds**

Contaminant	CAS #	MPO Threshold	Annual MPO*	Reportable?
		(kg/yr)	(kg/yr)	(Yes/No)
1,3-Butadiene	106-99-0	10,000	6.47E-04	No
Acetaldehyde	75-07-0	10,000	1.27E-02	No
Acrolein	107-02-8	10,000	1.53E-03	No
Anthracene	120-12-7	10,000	3.21E-05	No
Arsenic (and its compounds)	7440-38-8	50	9.21E-05	No
Benzene	71-43-2	10,000	1.64E-02	No
Cadmium (and its compounds)	7440-43-9	5	5.07E-04	No
Chromium (and its compounds)	7440-47-3	10,000	6.45E-04	No
Cobalt (and its compounds)	7440-48-4	10,000	3.87E-05	No
Copper (and its compounds)	7440-50-8	10,000	3.91E-04	No
Formaldehyde	50-00-0	10,000	5.41E-02	No
Isopropyl alcohol	67-63-0	10,000	7.02E+01	No
Lead (and its compounds) except tetraethyl lead	7439-92-1	50	2.30E-04	No
Manganese (and its compounds)	7439-96-5	10,000	1.75E-04	No
Mercury (and its compounds)	7439-97-6	5	1.20E-04	No
Naphthalene	91-20-3	10,000	1.68E-03	No
n-Hexane	110-54-3	10,000	1.87E+03	No
Nickel (and its compounds)	7440-02-0	10,000	9.67E-04	No
Propylene	115-07-1	10,000	4.27E-02	No
Selenium (and its compounds)	7782-49-2	10,000	1.11E-05	No
Toluene	108-88-3	10,000	8.34E-03	No
Vanadium (except when in an alloy) and its compounds	7440-62-2	10,000	1.06E-03	No
Xylene (all isomers)	1330-20-7	10,000	4.72E-03	No
Zinc (and its compounds)	7440-66-6	10,000	1.34E-02	No

NA - Not Applicable

\*Includes emissions of by-products.

**Environment Canada NPRI - PART 2 SUBSTANCES**  
**Total Facility Emissions - Polycyclic Aromatic Hydrocarbons with NPRI Graded MPO Thresholds**

Contaminant	CAS #	Release Threshold (kg/yr)	Annual Emission Rate (Air) (kg/yr)	Estimation Method	Reportable? (Yes/No)
Acenaphthene	83-32-9	5	2.43E-05	E	No
Acenaphthylene	208-96-8	5	8.29E-07	E	No
Benzo(a)anthracene	56-55-3	5	2.86E-05	E	No
Benzo(a)phenanthrene	218-01-9	5	1.33E-05	E	No
Benzo(a)pyrene	50-32-8	5	3.66E-06	E	No
Benzo(b)fluoranthene	205-99-2	5	2.47E-06	E	No
Benzo(g,h,i)perylene	191-24-2	5	8.65E-06	E	No
Benzo(k)fluoranthene	207-08-9	5	8.29E-07	E	No
Dibenzo(a,h)anthracene	53-70-3	5	1.02E-05	E	No
7,12-Dimethylbenz(a)anthracene	57-97-6	5	7.37E-06	E	No
Fluoranthene	206-44-0	5	1.27E-04	E	No
Fluorene	86-73-7	5	4.85E-04	E	No
Indeno(1,2,3-c,d)pyrene	193-39-5	5	7.04E-06	E	No
3-Methylchloranthrene	56-49-5	5	8.29E-07	E	No
Phenanthrene	85-01-8	5	4.94E-04	E	No
Pyrene	129-00-0	5	1.02E-04	E	No
Total PAHs	NA - P/H	50	1.32E-03	E	No

NA - Not Applicable

E - Published Emission Factors

NOTE: The Polycyclic Aromatic Hydrocarbons (PAHs) listed in the above table for this facility are from natural gas combustion only; as such, they are considered insignificant. Additionally, the aggregate annual emission of all Part 2 substances incidentally manufactured at this facility is below the 50 kg reporting threshold.

**Environment Canada NPRI - PART 3 SUBSTANCES**  
**Total Facility Emissions - Dioxins/Furans and Hexachlorobenzene**

<b>Contaminant</b>	<b>CAS #</b>	<b>Annual Emission Rate (kg/yr)</b>	<b>Estimation Method</b>
No Reportable Part 3 Substances (i.e. company not engaged in identified activities)*			

\*identified activities - as listed in Table 11 of "Guide for Reporting to the National Pollutant Release Inventory"

**Environment Canada NPRI - PART 4 SUBSTANCES**  
**Total Facility Emissions - Criteria Air Contaminants**

<b>Contaminant</b>	<b>CAS #</b>	<b>Release Threshold (kg/yr)</b>	<b>Annual Emission Rate (kg/yr)</b>	<b>Estimation Method</b>	<b>Reportable? (Yes/No)</b>
Carbon Monoxide	630-08-0	20,000	1.08E+03	E	No
Oxides of Nitrogen	11104-93-1	20,000	7.30E+01	E	No
Sulphur Dioxide	7446-09-5	20,000	1.67E+00	E	No
Particulate Matter <=2.5 micrometers	NA - M10	300	8.75E-01	E	No
Particulate Matter <=10 micrometers	NA - M09	500	2.53E+00	E	No
Total Particulate Matter	NA - M08	20,000	2.53E+00	E	No
Volatile Organic Compounds	NA - M16	10,000	3.75E+00	E	No

NA - Not Applicable

E - Published Emission Factors

**Environment Canada NPRI - PART 5 SUBSTANCES (VOCs)**  
**Total Facility Emissions - Speciated Volatile Organic Compounds**

Contaminant	CAS #	Release Threshold (kg/yr)	Annual Emission Rate (kg/yr)	Estimation Method	Reportable? (Yes/No)
No Reportable Part 5 Substances (i.e. total facility VOC emissions < 10 tonne threshold in Part 4)					

NA - Not Applicable

C - Mass Balance

M - Monitoring or Direct Measurement

E - Published Emission Factors

O - Engineering Estimate

**APPENDIX III**  
**GREENHOUSE GAS EMISSIONS TABLE**

**Greenhouse Gas Reporting - Environment Canada and Statistics Canada  
 Total Facility Emissions - Greenhouse Gas Emissions**

<b>Contaminant</b>	<b>CAS #</b>	<b>Annual Emission Threshold (tonnes/yr)</b>	<b>Emission Rate (kg/yr)</b>	<b>100 Yr GWP (kg/yr)</b>	<b>Estimation Method</b>	<b>Annal Emission CO<sub>2</sub>e (tonnes/yr)</b>	<b>Reportable? (Yes/No)</b>
Carbon Dioxide	124-38-9	NA	57,928	1	C	58	NA
Methane	74-82-8	NA	1	21	E	0.02	NA
Nitrous Oxide	10024-97-2	NA	1	310	E	0.3	NA
<b>Total</b>	NA	50,000	NA	NA	NA	58	No

NA - Not Applicable

C - Mass Balance

E - Published Emission Factors

**APPENDIX IV**  
**EMISSIONS CALCULATIONS DATASHEETS**

Company Name

Facility Wide Contaminant Summary Table

Contaminant	CAS #	MPO	Reporting Section
		(kg/yr)	
Zinc Compounds	7440-66-6	1.34E-02	1A
N-Hexane	110-54-3	1.87E+03	5
2-Propanol	67-63-0	7.02E+01	-
Sulphur Dioxide	7446-09-5	1.67E+00	4
Nitrogen Oxides	11104-93-1	4.61E+01	4
Carbon Monoxide	630-08-0	3.87E+01	4
Nitrous Oxide	10024-97-2	1.01E+00	GHG
Particulate Matter <= 2.5	NA - M10	2.53E+00	4
Carbon Dioxide	124-38-9	5.79E+04	GHG
TOC	NA - TOC	3.48E+01	-
Lead	7439-92-1	2.30E-04	1B
Methane	74-82-8	1.06E+00	GHG
VOC	NA - VOC	3.75E+00	4
2-Methylnaphthalene	91-57-6	1.11E-05	-
3-Methylchloranthrene	56-49-5	8.29E-07	2
7,12-Dimethylbenz(a)anthracene	57-97-6	7.37E-06	2
Acenaphthene	83-32-9	2.43E-05	2
Acenaphthylene	208-96-8	8.29E-07	2
Anthracene	120-12-7	3.21E-05	1A
Benz(a)anthracene	56-55-3	2.86E-05	2
Benzene	71-43-2	1.64E-02	1A, 5
Benzo(a)pyrene	50-32-8	3.66E-06	2
Benzo(b)fluoranthene	205-99-2	2.47E-06	2
Benzo(g,h,i)perylene	191-24-2	8.65E-06	2
Benzo(k)fluoranthene	207-08-9	8.29E-07	2
Butane	106-97-8	9.67E-01	5
Benzo(a)phenanthrene	218-01-9	6.67E-06	2
Dibenzo(a,h)anthracene	53-70-3	1.02E-05	2
Dichlorobenzene	25321-22-6	5.53E-04	-
Ethane	74-84-0	1.43E+00	-
Fluoranthene	206-44-0	1.27E-04	2
Fluorene	86-73-7	4.85E-04	2
Formaldehyde	50-00-0	5.41E-02	1A, 5
Indeno(1,2,3-cd)pyrene	193-39-5	7.04E-06	2
Naphthalene	91-20-3	1.68E-03	1A, VOC
Pentane	109-66-0	1.20E+00	5
Phenanthrene	85-01-8	4.94E-04	2
Propane	74-98-6	7.37E-01	5
Pyrene	129-00-0	1.02E-04	2
Toluene	108-88-3	8.34E-03	1A, 5
Arsenic	7440-38-8	9.21E-05	1B
Barium	7440-39-3	2.03E-03	-
Beryllium	7440-41-7	5.53E-06	-
Cadmium	7440-43-9	5.07E-04	1B
Chromium	7440-47-3	6.45E-04	1A
Cobalt	7440-48-4	3.87E-05	1A
Copper	7440-50-8	3.91E-04	1A
Manganese	7439-96-5	1.75E-04	1A
Mercury	7439-97-6	1.20E-04	1B
Molybdenum	7439-98-7	5.07E-04	-
Nickel	7440-02-0	9.67E-04	1A
Selenium	7782-49-2	1.11E-05	1A
Vanadium	7440-62-2	1.06E-03	1A
Aldehydes	NA - A	1.16E+00	-
Acetaldehyde	75-07-0	1.27E-02	-
Propylene	115-07-1	4.27E-02	5
Acrolein	107-02-8	1.53E-03	1A
Chrysene	218-01-9	6.67E-06	-
Butadiene (1,3-bc)	106-99-0	6.47E-04	1A
Xylenes	1330-20-7	4.72E-03	1A,5
TOTAL VOCs	NA - M16	1.95E+03	

**MSDS Summary**

<b>Product</b>	<b>Specific Gravity (kg/L)</b>	<b>Purchased/ Used</b>	<b>Units</b>	<b>Contaminant</b>	<b>CAS #</b>	<b>Average Concentration (%)</b>	<b>MPO* (kg/yr)</b>
<b>PRODUCTS</b>							
Paints	n/a	112	L	Since the total amount of paint used does not exceed the individual MPO threshold for any of the compounds typically found in paints, it was assumed that reporting was not required and MSDS' were not examined.			

**Natural Gas Emissions**

**Consumption :** 28,749 m<sup>3</sup>  
1,015,271 ft<sup>3</sup>  
118,216 BTU/hr

Contaminant	CAS #	Emission Factor (lb/1000000 ft <sup>3</sup> )	Emission Rate (kg/yr)	Reporting Criteria	VOC?
Sulphur Dioxide	7446-09-5	0.6	0.3	4	
Nitrogen Oxides	11104-93-1	100	46.1	4	
Carbon Monoxide	630-08-0	84	38.7	4	
Nitrous Oxide	10024-97-2	2.2	1.0	GHG	
Particulate Matter	NA - M10	1.9	0.9	4	
Carbon Dioxide	124-38-9	120,000	55,262	GHG	
TOC	N/A - TOC	11	5.1		
Lead	7439-92-1	0.0005	0.0002	1B	
Methane	74-82-8	2.3	1.1	GHG	
VOC	NA - VOC	5.5	2.5	4	Y
<b>Speciated Organic Compounds</b>					
2-Methylnaphthalene	91-57-6	0.000024	1.11E-05		Y
3-Methylchloranthrene	56-49-5	< 0.0000018	8.29E-07	2	Y
7,12-Dimethylbenz(a)anthracene	57-97-6	< 0.000016	7.37E-06	2	Y
Acenaphthene	83-32-9	< 0.0000018	8.29E-07	2	Y
Acenaphthylene	208-96-8	< 0.0000018	8.29E-07	2	Y
Anthracene	120-12-7	< 0.0000024	1.11E-06	1A	Y
Benz(a)anthracene	56-55-3	< 0.0000018	8.29E-07	2	Y
Benzene	71-43-2	0.0021	9.67E-04	1A, 5	Y
Benzo(a)pyrene	50-32-8	< 0.0000012	5.53E-07	2	Y
Benzo(b)fluoranthene	205-99-2	< 0.0000018	8.29E-07	2	Y
Benzo(g,h,i)perylene	191-24-2	< 0.0000012	5.53E-07	2	Y
Benzo(k)fluoranthene	207-08-9	< 0.0000018	8.29E-07	2	Y
Butane	106-97-8	2.1	9.67E-01	5	Y
Benzo(a)phenanthrene	218-01-9	< 0.0000018	8.29E-07	2	Y
Dibenzo(a,h)anthracene	53-70-3	< 0.0000012	5.53E-07	2	Y
Dichlorobenzene	25321-22-6	0.0012	5.53E-04		Y
Ethane	74-84-0	3.1	1.43E+00		
Fluoranthene	206-44-0	0.000003	1.38E-06	2	Y
Fluorene	86-73-7	0.0000028	1.29E-06	2	Y
Formaldehyde	50-00-0	0.075	3.45E-02	1A, 5	Y
Hexane	110-54-3	1.8	8.29E-01	1A, 5	Y
Indeno(1,2,3-cd)pyrene	193-39-5	< 0.0000018	8.29E-07	2	Y
Naphthalene	91-20-3	0.00061	2.81E-04	1A, VOC	Y
Pentane	109-66-0	2.6	1.20E+00	5	Y
Phenanthrene	85-01-8	0.000017	7.83E-06	2	Y
Propane	74-98-6	1.6	7.37E-01	5	Y
Pyrene	129-00-0	0.00005	2.30E-05	2	Y
Toluene	108-88-3	0.0034	1.57E-03	1A, 5	Y

**Natural Gas Emissions (cont'd)**

Contaminant	CAS #	Emission Factor (lb/1000000 ft <sup>3</sup> )	Emission Rate (kg/yr)	Reporting Criteria	VOC?
<b>Metals</b>					
Arsenic	7440-38-8	0.0002	9.21E-05	1B	
Barium	7440-39-3	0.0044	2.03E-03		
Beryllium	7440-41-7	< 0.000012	5.53E-06		
Cadmium	7440-43-9	0.0011	5.07E-04	1B	
Chromium	7440-47-3	0.0014	6.45E-04	1A	
Cobalt	7440-48-4	0.000084	3.87E-05	1A	
Copper	7440-50-8	0.00085	3.91E-04	1A	
Manganese	7439-96-5	0.00038	1.75E-04	1A	
Mercury	7439-97-6	0.00026	1.20E-04	1B	
Molybdenum	7439-98-7	0.0011	5.07E-04		
Nickel	7440-02-0	0.0021	9.67E-04	1A	
Selenium	7782-49-2	0.000024	1.11E-05	1A	
Vanadium	7440-62-2	0.0023	1.06E-03	1A	
Zinc	7440-66-6	0.029	1.34E-02	1A	

Emission Factors from USEPA AP-42, "Compilation of Air Pollution Emission Factors", Section 1.4, 1998  
 For Boilers < 100MMBtu/hour

**Sample Calculations:**

$$\begin{aligned} \text{NOx Emission Rate} &= \text{Consumption (ft}^3\text{/yr)} \times \text{Emission Factor (lb/10}^6\text{ ft}^3\text{)} \times 0.4536 \text{ kg/lb} \\ &= 1,015,271 \text{ ft}^3\text{/yr} \times 100 \text{ lb/10}^6\text{ ft}^3 \times 0.4356 \text{ kg/lb} \\ \text{NOx Emission Rate} &= 46.1 \text{ kg/yr} \end{aligned}$$

### 2009 Gasoline Fired Emergency Generator

Specified Rating:  Generator Output (kW) ▼  
 Specified Fuel: ..... ▼  
 Generator Time : 10 Hrs/Yr

**Calculated Ratings**

Energy Input		Engine Output	
(Btu/h)	(MJ/h)	(HP)	(kW)
3,649,091	3,850	522	389

**Emissions Calculation**

Emission Factors from USEPA AP-42, "Gasoline and Diesel Industrial Engines", Section 3.3, Oct. 1996

Uncontrolled Gasoline & Diesel Industrial Engines.

<http://www.epa.gov/ttn/chief/ap42/ch03/final/c03s03.pdf>

Contaminant	CAS #	Emission Factor (lb/MMBtu)	Maximum Emission Rate (kg/yr)	NPRI Criteria
Nitrogen Oxides	10102-44-0	1.63E+00	2.70E+01	4
Carbon monoxide (CO)	630-8-0	6.27E+01	1.04E+03	4
Sulphur Dioxide (SO <sub>2</sub> )	7446-09-5	8.40E-02	1.39E+00	4
Particulate Matter 10 (PM <sub>10</sub> )	NA - M10	1.00E-01	1.66E+00	4
Carbon dioxide	124-38-9	1.54E+02	2.55E+03	GHG
Aldehydes	NA - A	7.00E-02	1.16E+00	
TOC	NA - TOC	2.10E+00	3.48E+01	
Total VOC	NA - VOC	7.35E-02	1.22E+00	4,5
Acenaphthene	83-32-9	1.42E-06	2.35E-05	2
Acenaphthylene	203-96-8	5.06E-06	8.38E-05	2
Acetaldehyde	75-07-0	7.67E-04	1.27E-02	
Acrolein	107-02-8	9.25E-05	1.53E-03	1A
Anthracene	120-12-7	1.87E-06	3.10E-05	1A
Benzo(a)anthracene	56-55-3	1.68E-06	2.78E-05	2
Benzene	71-43-2	9.33E-04	1.54E-02	1A, 5
Benzo(a)pyrene	50-32-8	1.88E-07	3.11E-06	2
Benzo(b)fluoranthene	205-99-2	9.91E-08	1.64E-06	2
Benzo(g,h,i)perylene	191-24-2	4.89E-07	8.09E-06	2
Benzo(k)fluoranthene	205-82-3	1.55E-07	2.57E-06	2
Chrysene	218-01-9	3.53E-07	5.84E-06	
Butadiene (1,3-bc)	106-99-0	3.91E-05	6.47E-04	1A
Dibenzo(a,h)anthracene	53-70-3	5.83E-07	9.65E-06	2
Fluoranthene	206-44-0	7.61E-06	1.26E-04	2
Fluorene	86-73-7	2.92E-05	4.83E-04	2
Formaldehyde	50-00-0	1.18E-03	1.95E-02	1A, 5
Indeno(1,2,3-cd)pyrene	193-39-5	3.75E-07	6.21E-06	2
Naphthalene	91-20-3	8.48E-05	1.40E-03	1A
Phenanthrene	85-01-8	2.94E-05	4.87E-04	2
Pyrene	129-00-0	4.78E-06	7.91E-05	2
Propylene	115-07-1	2.58E-03	4.27E-02	5
Toluene	108-88-3	4.09E-04	6.77E-03	1A, 5
Xylenes	1330-20-7	2.85E-04	4.72E-03	

**Sample Calculation:**

$$\begin{aligned}
 \text{NOx Emission Rate} &= \text{Fuel Input (MMBtu/hr)} \times \text{EF (lb/MMBtu)} \times 0.4536 \text{ kg/lb} \times \text{Generator Time (hr/yr)} \\
 &= 3.649 \text{ (MMBtu/hr)} \times 1.63 \text{ (lb/MMBtu)} \times 0.4536 \text{ (kg/lb)} \times 10 \text{ (hr/yr)} \\
 &= 27.0 \text{ kg/yr}
 \end{aligned}$$