

The Evolution of Air Emissions Inventories in Ontario, Canada

US EPA Emission Inventory Conference

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Why Mandatory Emissions Reporting?

- Air emissions data are needed for air program development and tracking
- Ontario has been monitoring and reporting on air quality throughout the province since the 1970's
- In 1993, Ontario embarked on its first effort to inventory point source emissions via voluntary survey
- Since 1993, the ministry's voluntary surveys have typically had a low response rate (<20%)

Regulation 127/01 Context

- O. Reg. 227/00 - Electricity Generation Sector: Monitoring and Reporting Regulation came into effect May 1st, 2000
- O. Reg.127/01 - Airborne Contaminant Discharge Monitoring and Reporting Reporting (all sectors) came into effect May 1, 2001
- O. Reg.127/01 was phased-in by sector:
 - larger industrial sectors (Classes A and B) - May 2001
 - smaller sectors (Class C) - January 2002

Objectives

➤ O.Reg.127/01 allows for:

- public right-to-know, which acts as an incentive for Ontario companies to be held accountable for and to subsequently reduce their emissions
- an information base to assist future policy development
- a means of tracking progress of the ministry's air programs
- a level playing field for all sectors with respect to emissions reporting

Overview of O.Reg.127/01

➤ O.Reg.127/01:

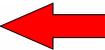
- Applicable to all sectors listed in Table 1 of the Step by Step Guideline
- Requires mandatory tracking and reporting of over 350 substances:
 - 11 substances (criteria air contaminants and greenhouse gases) have release-based thresholds (Table 2A)
 - 75 substances have Ministry of the Environment (MOE) graded “Manufactured, Processed or otherwise used” (MPO) thresholds (Table 2B)
 - over 260 substances are on the National Pollutant Release Inventory (NPRI) substance list and use NPRI thresholds (Table 2C)

Table 1: Source Sectors for Airborne Contaminant Discharge Reporting



SECTOR DESCRIPTION WITH NAICS ²⁴ CODES	
CLASS A - ELECTRICITY GENERATION	
<i>ELECTRIC POWER GENERATION</i>	
221111	Hydro-Electric Power Generation
221112	Fossil-Fuel Electric Power Generation
221113	Nuclear Electric Power Generation
221119	Other Electric Power Generation
CLASS B - LARGE SOURCES	
<i>METAL ORE MINING</i>	
212210	Iron Ore Mining
212220	Gold and Silver Ore Mining
212231	Lead-Zinc Ore Mining
212232	Nickel-Copper Ore Mining
212233	Copper-Zinc Ore Mining
212291	Uranium Ore Mining
212299	All Other Metal Ore Mining
<i>NON-METALLIC MINERALS MINING</i>	
212314	Granite Mining and Quarrying
212315	Limestone Mining and Quarrying
212316	Marble Mining and Quarrying
212317	Sandstone Mining and Quarrying
212323	Sand and Gravel Mining and Quarrying
212326	Shale, Clay and Refractory Minerals Mining and Quarrying
212394	Asbestos Mining
212395	Gypsum Mining
212396	Potash Mining
<i>NATURAL GAS DISTRIBUTION</i>	
221210	Natural Gas Distribution
<i>WATER, SEWAGE AND OTHER SYSTEMS</i>	
221330	Steam and Air-Conditioning Supply
CLASS C - SMALL SOURCES	
<i>WATER, SEWAGE AND OTHER SYSTEMS</i>	
221320	Sewage Treatment Facilities
<i>FOOD MANUFACTURING (FOR ANIMAL CONSUMPTION)</i>	
311111	Dog and Cat Food Manufacturing
311119	Other Animal Food Manufacturing
<i>FOOD MANUFACTURING (FOR HUMAN CONSUMPTION)</i>	
<i>This sector applies to facilities using food ingredients which are subject to the Canadian Food and Drug Act in the manufacturing of products for human consumption, who:</i>	
<i>a) derive <50% revenues from annual retail sales on premises; OR</i>	
<i>b) utilize combustion with the maximum rated heat input capacity > 10 MMBTU/hour burning fuel other than coal, wood or waste oil.</i>	
311211	Flour Milling
311214	Rice Milling and Malt Manufacturing
311221	Wet Corn Milling
311224	Oilseed Processing
311225	Fat and Oil Refining and Blending
311230	Breakfast Cereal Manufacturing
311310	Sugar Manufacturing
311320	Chocolate and Confectionery Manufacturing from Cacao Beans

Table 2: Reportable Contaminants

Table 2A 

Airborne Contaminants with MOE Release Based Thresholds

The following contaminants have MOE release based thresholds.		
Contaminant	CAS ^[1]	Release Threshold (kg/yr)
CARBON DIOXIDE	124-38-9	100,000,000
CARBON MONOXIDE	630-08-0	20,000
HFC-134A	811-97-2	10
METHANE	74-82-8	5,000,000
NITROUS OXIDE	10024-97-2	2,700
OXIDES OF NITROGEN (EXPRESSED AS NO)	10102-43-9	14,000
PM - PARTICULATE MATTER	N/A - M08	20,000
PM ₁₀ - PARTICULATE MATTER <=10 MICROMETERS	N/A - M09	500
PM _{2.5} - PARTICULATE MATTER <=2.5 MICROMETERS	N/A - M10	300
SULPHUR DIOXIDE	7446-09-5	20,000
VOLATILE ORGANIC COMPOUNDS (VOC) ^[20]	N/A - M16	10,000
Total Contaminants:		11

Table 2B 

Airborne Contaminants with MOE Graded MPO^[22] Thresholds

The following contaminants have MOE graded MPO thresholds.		
Contaminant	CAS ^[1]	MPO ^[22] Threshold (kg/yr)
ACETIC ACID	64-19-7	3,000
ACETONE	67-64-1	3,000
ACETYLENE	74-86-2	3,000
BORON	7440-42-8	3,000
BORON TRIBROMIDE	10294-33-4	3,000
BORON TRICHLORIDE	10294-34-5	3,000
CALCIUM HYDROXIDE	1305-62-0	3,000
CALCIUM OXIDE	1305-78-8	3,000
DECABORANE	17702-41-9	3,000
DICAPRYL PHTHALATE	131-15-7	3,000
1,1-DICHLOROETHANE	75-34-3	3,000
DIMETHYL DISULPHIDE	624-92-0	3,000
DIMETHYL SULPHIDE	75-18-3	3,000

Table 2C 

Airborne Contaminants with NPRI^[23] Thresholds

Table 2C consists of all contaminants listed in the most current National Pollutant Release Inventory (NPRI) *Canada Gazette* notice.

Further information and the list of contaminants may be obtained through Environment Canada's NPRI website at <http://www.ec.gc.ca/pdb/npri/>

Overview of O. Reg.127/01 (cont'd)

➤ O. Reg.127/01:

- Requires annual and smog season emission reporting
 - smog season reporting of Criteria Air Contaminants (CACs) emissions only
- Requires reports to be made available (by the dischargers) to the public when they are filed with the ministry
- Requires that records be kept for 7 years

What Needs to be Reported?

➤ Annual Reporting:

- Table 2A Criteria Air Contaminants and Greenhouse Gases
- Table 2B Substances with MOE graded MPO Thresholds
- Table 2C Substances with NPRI Thresholds

What Needs to be Reported? (cont'd)

➤ Smog Season Reporting:

- Reporting facility required to report Criteria Air Contaminant (CAC) emissions for the smog period (May 1 to September 30) for each CAC in Table 2A that is equal to or greater than its respective annual reporting threshold
- CAC pollutants for O.Reg.127/01 are Sulphur Dioxide (SO₂), Oxides of Nitrogen (NO_x), Volatile Organic Compounds (VOC), Carbon Monoxide (CO), particulate matter (PM), PM₁₀ and PM_{2.5}
- Single value to be reported for smog season emissions (May 1 - September 30) per CAC pollutant for O.Reg.127/01

When to Report Emissions

- Reports for annual and smog season emissions are to be filed annually (by June 1) by all reporting facilities (Classes A, B and C).

O.Reg.227/00 and O.Reg.127/01 Annual/Smog Season Facility Reports Trend by Class

	2000 (O.Reg.227/00) ANNUAL/SMOG	2001 (O.Reg.127/01) ANNUAL/SMOG	2002 (O.Reg.127/01) ANNUAL/SMOG
CLASS			
A	153	128	152
B	N/A	1,805	2,041
C	N/A	244	1,889
Other	N/A	29	28
Total	153	2,206	4,110

QA/QC and Compliance

- The MOE reviews reports submitted by facilities and performs quality assurance and quality control (QA/QC) procedures on the data
- The ministry contacts facilities concerning anomalous data, including gross error checks and data consistency checks
- The ministry has implemented compliance audit and inspection activities to identify non-reporting facilities and bring them into compliance with O.Reg.127/01

O.Reg.127/01

Reporting

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OnAIR

Welcome to the Ontario Ministry of Environment and Energy's Air Emissions Monitoring Web site.



Get the latest
OnAIR Reports now!

[Air pollution](#) is a serious threat to our health, environment and economy. People need information on today's air emissions to help guide future actions to reduce air pollution from human activities.



Through OnAIR, the Ministry of Environment and Energy is providing the people of Ontario with timely and accurate information about the discharge of airborne pollutants.

Regulated emitters report the results of their monitoring through the OnAIR Web site. With OnAIR, you can review emissions reports as soon as they are received by the ministry.

[Ontario Regulation 127/01](#) – "Airborne Contaminant Discharge - Monitoring and Reporting" – is the regulation that applies to emitters in the province's industrial, commercial, institutional and municipal sectors. It came into effect on May 1, 2001.



Read more about
Airborne Contaminant
Discharge - Monitoring
and Reporting

Before O.Reg. 127/01 came into effect, electricity generation facilities were required to file annual and smog season reports on emissions of 28 substances through O. Reg. 227/00 – "Electricity Generation - Monitoring and Reporting."



Qualifying Facilities

Register
Now!



Log In &
Submit Data

00110100

For questions related to the
OnAir web site or Registration
please call the Administration Help Desk
at 1-866-494-6663.

➤ OnAIR website developed by the MOE.

➤ All O.Reg.127/01 reports can be submitted using this website >> annual, smog season and quarterly reports.

➤ Extensive help is available on the website.

Registration - Confirmation



Home		Register		View Data	
Registration Verification					
Please check the information carefully. If you need to make corrections to a specific area, click on the 'Edit' icon specific to that area. Once you are satisfied with the information entered, click on the 'Confirm' icon at the bottom of the page to receive your registration confirmation date and verification number.					
Facility Information					Edit:
Facility Name:	Test Facility - Class C				
Facility Address	123 Industrial ST, Toronto, ON, M2M 1M2				
NAICS Codes:	1: 339990 2: 3:				
Geo Location					
Map Datum:		Geo-referencing Method:			
Accuracy Estimate:		Location Reference:			
Georeferencing:	Latitude:	Longitude:			
Facility Contact(s)					
Name	Contact Type	Phone #	Address	Edit	
Jane Doe	FACILITY SYS ADMIN FACILITY PUBLIC CONTACT FACILITY CERTIFYING CONTACT FACILITY TECHNICAL CONTACT FACILITY REPORT ENTRY CONTACT	416-235-4567	123 Industrial ST, Toronto, ON M2M 1M2		
Company Information					
Company Name	Business ID #	Company Address	% Ownership	Edit	Replace
ACME Parent Co.		123 Main ST, Toronto, Ontario, M2M 1L1, Canada	100		
Confirm					

➤ Confirm information entered is correct

➤ Use "Edit" to revise information

Reporting - Confirmation

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Submit Data

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- Summary of all substances listed

- Certifying contact submits report

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Annual/Smog Period Report Verification for 2001

PLEASE VERIFY THIS INFORMATION AND CLICK THE SUBMIT BUTTON TO SAVE

Company Name:	<input type="text"/>
Facility Name:	<input type="text"/>
Facility Registration #:	<input type="text"/>
Date Postmarked:	May-31-2002
Date Received: *	Jul-17-2002
Year:	2001

6.1.0 Total Facility Emissions

CAS Number	Substance Name	BT	Year 2001 Threshold (unit)	Estimating Method (C/E/M/O)	Release Mode	Emissions (unit)	
						Annual May 01-Dec 31 2001	Smog Period May 1 - Sep 30 2001
10024-97-2	NITROUS OXIDE		1.8	E2	STK TOT	0.11 T 0.11 T	
85-44-9	PHTHALIC ANHYDRIDE			O	STOR TOT	0.01 0.01	

Messages:

- An existing report last updated on Jul-18-2002 16:01:59 EDT by will be replaced, if this report is submitted
- Annual emission amount for NITROUS OXIDE is below the reporting threshold.

Please specify a Technical Contact:

Reporting Software

NPRI - [Substance Identification Screen: 2 of 2]

A1.1 NPRI ID / Year / Name 9000000003 / 2003 / CCCCC3 / FFFFF3, ON
B1.1 Substance 124-38-9 / Carbon dioxide - [MOE]

B1.4 This substance is reportable to the following Inventory Program(s):
[ON MOE]

B1.5 - Report this substance to all selected Inventory Program(s) listed below:
[ON MOE]

OR - This substance will only be reported to the selected Inventory Program(s) checked below:

NPRI EPA ON MOE NERM AENV

B1.6 Does this substance occur on your site? Y N
B1.7 Do total emissions for this substance meet or exceed ON MOE thresholds? Y N
B1.8 If no, enter the following ... **Basis of Estimate** **Zero Emissions**
 Y N

Help



Further Information

➤ Joint Environment Canada-MOE Help Desk

- Phone: 1-416-739-4707
- Fax: 1-416-739-4762
- E-mail: npri_onair@ec.gc.ca

➤ OnAir Web Page

- <http://www.ene.gov.on.ca/environet/onair/splash.htm>
- OnAir Web Administration Help Desk at 1-866-494-6663

➤ Information on O.Reg.127/01

- <http://www.ene.gov.on.ca/envision/monitoring/monitoring.htm>