

Lambton Facility

Air Quality Monitoring



Air Quality Monitoring

Canadian ORTECH Environmental Inc. was retained by Clean Harbors to conduct the enhanced ambient air monitoring plan in addition to regular annual ambient air quality monitoring (AAQM) program in 2011.

The purpose of the enhanced air monitoring program is to assess ambient air levels during periods when the community is experiencing odours that are emanating from the Clean Harbors Lambton Facility. All samples taken are sited based on odour complaints and are collected upwind and downwind simultaneously. Notification is given to the Ministry of the Environment (MOE) one hour prior to sample collection as a provision for MOE to conduct audits or witness the collection of samples.

Clean Harbors Environmental Services (Clean Harbors) has been conducting an annual ambient air fence line monitoring program spanning more than ten years at its Lambton Facility, near Corunna, in order to ensure that potential substance releases from ongoing activities are within accepted regulatory limits. The monitoring requirement is

part of the facility's Certificate of Approval (CofA) and includes a series of upwind/downwind measurements for a selected group of speciated vapour and particulate constituents in accordance with a monitoring plan that was approved by the MOE. The target constituents were selected from previous monitoring data at the facility and the measured levels, which are potentially contributed by facility operations, have been compared each year with applicable MOE air quality standards and criteria.

On August 6, 2010, Clean Harbors received notice from the MOE that the Regulation 419/05 Schedule 3, 24-hour standard was now applicable to the facility as per a new CofA. The facility's ambient air monitoring plan addresses this change with specific focus on six issues.

1. Update the sampling program from ½-hour volatile organic compounds (VOC) collected on adsorbent tubes (EPA method TO-17) to 24-hour samples collected in evacuated canisters (EPA method TO-15)
2. Update the target VOC list to include additional compounds
3. Relocate the south sampling location
4. Fix the north sampling location
5. Sample from midnight to midnight
6. Initiate samples on the twelve day NAPs cycle

In the past, a total of five pairs of simultaneous upwind/downwind speciated VOC measurements were conducted by sampling for ½-hour periods on selected summer days with appropriate weather forecasts during August and September. Similarly, 24-hour upwind/downwind samples were collected on the same occasions for subsequent analysis of total suspended particulate (TSP) and selected



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elemental constituents, speciated carbonyls and airborne mercury, along with meteorological measurements.

The new approach requires 12 pairs of simultaneous upwind/downwind samples to be taken on a fixed 12 day schedule during the summer months.

Although the measurement methodologies are consistent with previous monitoring at the facility, the sampling duration for all samples collected is 24 hours. The speciated VOC measurements list has also been revised to include some additional compounds of concern. The fence line levels are compared with applicable air quality limits to which the various facility emission sources might contribute.

In most instances, the highest measured concentrations of the multiple speciated compounds being determined often represented only a small fraction of the accepted limits. While there were measurable facility contributions for a large variety of airborne substances at the plant fence line due to facility activities, there were no exceedances of any of the standards in Ontario Regulation 419.

On September 6, 2011, an on-site ½ hour air sample taken adjacent to the south leachate pond (pond was extremely odourous at the time). The purpose of the sample was to assess the worst case scenario for odours. Attached is a copy of the Ortech report which includes the results for large list of VOCs.





VOC Monitoring in Ambient Air for Clean Harbors Environmental Services Inc. Lambton Facility

A Report to: Clean Harbors Environmental Services Inc.
 4090 Telfer Road
 Corunna, Ontario N0N 1G0

Report No.: 50,699
 3 pages

Date: September 14, 2011

One thirty minute whole air sample was collected into a stainless steel electro-polished 6 L evacuated canister at a constant flow rate following EPA method TO-15. The sample was analyzed by a CALA accredited laboratory (ALS Laboratories).

Localized meteorological data was obtained from the nearby Sarnia-Lambton Environmental Association (SLEA) monitoring station (Moore Line).

Sample Location & Details



Sample Date	Sep. 6/11
Sample Duration	½ hour
Start (DST)	1435
Stop (DST)	1505
Canister I.D.	08
Controller I.D.	B05093
Initial Vac. (in. Hg)	-30
Final Vac. (in. Hg)	-5.5

Meteorological Data

Time (D.S.T.)	Wind Speed (kph)	Wind Direction (deg.)	Relative Humidity (%)	Rainfall (mm)	Temperature (°C)
14:35	23.5	20	75	0	16.5
14:40	26.5	8	75	0	16.4
14:45	27.9	10	74	0	16.2
14:50	26	12	75	0	16.4
14:55	25.8	26	73	0	16.8
15:00	21.3	21	75	0	16.6
15:05	24.2	17	74	0	16.8

VOC Analysis Data

CAS	Compound Name	Concentration (µg/m ³)	1/2-hr POI
56-23-5	Carbon Tetrachloride	<1.3	7.2
67-63-0	Isopropyl alcohol	58.9	22000
67-64-1	Acetone	214	35640
67-66-3	Chloroform	<0.98	3
71-43-2	Benzene	0.9	7
71-55-6	1,1,1 -Trichloroethane	<1.1	350000
75-01-4	Vinyl chloride	<0.51	3
75-09-2	Methylene chloride	10.2	660
75-34-3	1,1-Dichloroethane	<0.81	495
75-35-4	1,1-Dichloroethene	<0.79	30
75-69-4	Trichlorofluoromethane	1.2	18000
75-71-8	Dichlorodifluoromethane	1.99	1500000
76-13-1	Freon 113	<1.5	2400000
78-87-5	1,2-Dichloropropane	<0.92	2400
78-93-3	Methyl ethyl ketone	93	3000
79-01-6	Trichloroethylene	3.1	36
91-20-3	Naphthalene	3.4	36
95-47-6	o-Xylene	11.5	2200
95-50-1	1,2-Dichlorobenzene	<1.2	37000
95-63-6	1,2,4-Trimethylbenzene	3.26	660
100-41-4	Ethyl benzene	12.4	1400
100-42-5	Styrene	5.65	400
106-46-7	1,4-Dichlorobenzene	<1.2	285
106-93-4	1,2-Dibromoethane	<1.5	9
107-06-2	1,2-Dichloroethane	<0.81	6
108-10-1	Methyl isobutyl ketone	28.7	1200
108-38-3/106-42-3	m+p-Xylene	38.7	2200
108-67-8	1,3,5-Trimethylbenzene	1.09	660
108-88-3	Toluene	57.5	2000
108-90-7	Chlorobenzene	<0.92	4200
110-54-3	n-Hexane	2.98	22500
110-82-7	Cyclohexane	0.76	18300
120-82-1	1,2,4-Trichlorobenzene	<1.5	100
127-18-4	Tetrachloroethylene	331	1080
141-78-6	Ethyl acetate	17.7	19000
142-82-5	n-Heptane	1.48	33000
156-59-2	cis-1,2-Dichloroethene	6.69	315
156-60-5	trans-1,2-Dichloroethene	<0.79	315

Note: < = less than MDL

VOC Analysis Data (continued)

CAS	Compound Name	Concentration ($\mu\text{g}/\text{m}^3$)	1/2-hr POI
71-55-6	1,1,1-Trichloroethane	<0.20	350,000
74-83-9	Bromomethane	<0.78	4,000
74-87-3	Chloromethane	0.91	960
75-00-3	Chloroethane	<0.53	16,800
75-09-2	Methylene chloride	2.93	660
75-15-0	Carbon Disulfide	1.25	330
75-25-2	Bromoform	<2.1	165
75-27-4	Bromodichloromethane	<1.3	na
75-34-3	1,1-Dichloroethane	<0.20	495
75-35-4	1,1-Dichloroethene	<0.20	30
75-71-8	Dichlorodifluoromethane	0.4	1,500,000
76-14-2	Freon 114	<1.4	2,100,000
78-87-5	1,2-Dichloropropane	<0.20	2,400
79-00-5	1,1,2-Trichloroethane	<1.1	na
79-34-5	1,1,2,2-Tetrachloroethane	<1.4	na
87-68-3	Hexachlorobutadiene	<2.1	na
95-50-1	1,2-Dichlorobenzene	<0.20	3,700
100-41-4	Ethyl benzene	2.85	1,400
100-44-7	Benzyl chloride	<1.0	na
106-46-7	1,4-Dichlorobenzene	<0.20	285
106-93-4	1,2-Dibromoethane	<0.20	9
106-99-0	1,3-Butadiene	<0.44	na
107-06-2	1,2-Dichloroethane	<0.20	6
108-05-4	Vinyl acetate	5.38	na
109-99-9	Tetrahydrofuran	5.75	93,000
115-07-1	Propylene	2.56	12,000
120-82-1	1,2,4-Trichlorobenzene	<0.20	100
123-91-1	1,4-Dioxane	0.8	3,500
124-48-1	Dibromochloromethane	<1.7	na
141-78-6	Ethyl acetate	4.92	19,000
156-59-2	cis-1,2-Dichloroethene	1.69	315
156-60-5	trans-1,2-Dichloroethene	<0.20	315
540-84-1	Isooctane	<0.93	na
541-73-1	1,3-Dichlorobenzene	<1.2	na
591-78-6	2-Hexanone	<2.0	na
593-60-2	Vinyl bromide	<0.87	na
622-96-8	4-Ethyltoluene	1.09	na
10061-01-5	cis-1,3-Dichloropropene	<0.91	na
10061-02-6	trans-1,3-Dichloropropene	<0.91	na
1634-04-4	MTBE	<0.72	2,200

Note: < = less than MDL, na = no applicable standard