

THE NPRI IN ESSEX COUNTY: 1997 SUMMARY REPORT

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Introduction: What is the National Pollutant Release Inventory (NPRI)?

The NPRI is the only legislated, nation-wide, publicly accessible pollutant inventory in Canada. The 1997 report is the fifth annual report published by Environment Canada. The report provides information on 176 substances, specifically on their releases to air, water, land and underground injection and off-site transfers for disposal and treatment from 1,987 point-sources (facilities) across Canada.

The data contained in the NPRI represents only a small portion of all the pollutant releases and transfers in Canada on an annual basis. As a result, the NPRI should not be considered a comprehensive or conclusive pollutant inventory of Canada.

This review includes data for Essex County from the 1997 NPRI. It also compares Essex County on a provincial and national level and compares the 1996 and 1997 inventories. Data from the 1995, 1996 and 1997 inventories are used to form a trend analysis in this review.

Highlights of the 1997 NPRI

- **A total of 36 Essex County facilities submitted reports to the NPRI in 1997, an increase of 2 (+5.9%) from 1996 and an increase of 1 (+2.9%) from 1995**
- **There were 164 pollutant reports submitted by facilities in Essex County in 1997, an average of 4.6 pollutants per facility**
- **Facilities in Essex County reported 42 pollutants to the 1997 NPRI, including 7 toxic/carcinogenic substances, an increase of 8 (+23.5%) and 1 (+16.7%) from 1996, respectively**

In 1997, facilities across Essex County reported:

- **On-site releases totaling 4 092 tonnes, an increase of 501 tonnes (+14%) from 1996 and an increase of 564 tonnes (+16%) from 1995**
- **Off-site transfers of 3 892 tonnes, an increase of 2,027 tonnes (+108.7%) from 1996 and an increase of 1,968 tonnes (+102.2%) from 1995**
- **A combined total (release + transfer) of toxic/carcinogenic pollutants of 191 tonnes, an increase of 64 tonnes (+50.2%) from 1996 and an increase of 89 tonnes (+87.8%) from 1995**

Methodology

This report mimics the format of the 1997 NPRI. Since the NPRI database is the main source of this report, all the limitations of NPRI data apply to this report.

Combined totals (release + transfer) are used in this report partly to reemphasize that off-site transfers are not less significant qualitatively than on-site releases and partly for consistency with previous reports. Recycling and reuse are not considered in this report due to the inconsistency of the data submitted to the NPRI. All facilities located in Tilbury are considered to be part of Essex County.

Data compiled in this report were collected from the NPRI database in December 1999 and January 2000, the *NPRI in Ontario (November 1999)* and the CEA's *Review of the National Pollutant Release Inventory (1996) – September 1998*. Updates are made to the NPRI database continually and may differ with the data compiled in this report.

Analysis

More facilities reported to the NPRI in 1997: 1,987 compared to 1,818 in 1996. Obviously, the more facilities that report to the NPRI the more credible a tool the NPRI is for tracking progress in pollution reduction. The format of the report, with the inclusion of regional fact sheets, has improved the detail of the pollution data. However, there are continuing weaknesses in the NPRI: high threshold reporting limits; excessive exemptions from reporting; a lack of accurate data submitted to the NPRI; and an insufficient substance list.

Three criteria must be met before a facility must report to the NPRI: employees work a total of 20 000 hours or more (equivalent of 10 full-time employees); the facility manufactured, processed or otherwise used 10 tonnes or more of an NPRI substance during the calendar year; and, the NPRI substance was manufactured, processed or otherwise used at a concentration $>$ or $=$ to 1 % by weight, with the exception of NPRI substances considered to be by-products, regardless of their concentration, must be included in the calculation of the 10-tonne threshold for each NPRI substance.

These criteria effectively exclude many small facilities across the country; for example, dry cleaners. **Lowering the thresholds would require smaller facilities to report releases and transfers, and improve the credibility of the NPRI.**

Outright exemptions from reporting to the NPRI are another factor in excluding pollution data from the NPRI. Facilities are not required to report to the NPRI when they perform specified activities:

- Education and training of students (universities, colleges, etc.)
- The maintenance and repair of transportation vehicles
- The distribution, storage or retail sale of fuels

- The wholesale or retail sale of articles or products which contain listed substances, but which were not released during normal use at the facility
- The retail sale of listed substances
- Growing harvesting and management of renewable resources (forestry, fisheries and agriculture), but not those facilities which process or otherwise use their products
- Mining, but not those facilities engaged in the further processing of mined materials
- The drilling or operating of oil and gas wells, but not those facilities which process or otherwise use their products

The 1997 NPRI threshold limits and facility exemptions are similar to those included in the 1996 NPRI.

Inconsistent and inaccurate reporting mechanisms are also featured in the 1997 NPRI. A variety of estimation methodologies were allowed, by the NPRI, to be used by reporting facilities: direct measurements; mass balances; emission factors; or, engineering estimates. Without consistent, accurate data collection, the credibility of facility reports suffers.

One new addition to the 1997 NPRI is mandatory pollution prevention (P2) reporting. However, the requirements for reporting – qualitative reporting – are ambiguous and have dubious value. There is no indication of the extent of P2 activities or their effect on the generation of pollutants and waste. Indeed, detailed information about P2 initiatives was not a mandatory requirement in the 1997 NPRI.

Essex County In The 1997 NPRI

The three pollutants released in the largest quantities in Essex County, 1997, were ammonia (total), methyl ethyl ketone, and methanol. Two facilities dominated these releases: General Chemical, ammonia (total); and, Maple Roll Leaf Co., methyl ethyl ketone and methanol.

The three pollutants transferred off-site in the largest quantities in Essex County, 1997, were xylene (mixed isomers), zinc (and its compounds), and toluene. Two facilities dominated these transfers: Philip Services Corp., xylene (mixed isomers) and toluene; and, Zalev Brothers, zinc (and its compounds).

Essex County's Largest Polluters

Table 1 summarizes the data of the five largest polluters in Essex County for releases, transfers and the combined total of releases and transfers.

Table 1: Largest Polluters of Essex County (1997)

Number of Reports	Facility	Releases (tonnes)	Transfers (tonnes)	Total (tonnes)
3	General Chemical	1,913.7 [1]	0	1,913.7 [1]
12	Philip Services	0	1,706.6 [1]	1,706.6 [2]

8	Zalev Brothers	0.4	1,104.9 [2]	1,105.3 [3]
12	Maple Roll Leaf	915.8 [2]	164.2 [4]	1,080 [4]
2	Windsor-West Pollution Control Plant	526 [3]	8.3	534.3 [5]
11	Ford-Windsor Casting Plant	26.3	362.9 [3]	389.2
12	Chrysler-Pillette Road Plant	350.7 [4]	2	352.7
16	Chrysler- Windsor Assembly Plant	230.1 [5]	43.8	273.9
10	BASF	59.8	143.3 [5]	203.1

Note: values have been rounded
[] ranking by category

The five largest polluters in Essex County, 1997, were General Chemical, Philip Services Corp., Zalev Brothers, Maple Roll Leaf, and the Windsor West Pollution Control Plant. In 1996, the five largest polluters in Essex County were General Chemical, Zalev Brothers, Chrysler-Windsor Assembly Plant, the Windsor West Pollution Control Plant, and Ford-Windsor Casting Plant.

Maple Roll Leaf Co. did not previously report to the NPRI. This facility's releases and transfers were a significant contribution to the increase in Essex County's release and transfer totals in 1997.

Trends in Essex County

Table 2 details Essex County's on-site releases and off-site transfers from the 1995, 1996 and 1997 NPRI reports. Data from 1995 and 1996 are from the 1996 CEA review of the NPRI.

Table 2: On-site Releases and Off-site Transfers in Essex County (1995-1997)

	1995 (tonnes)	1996 (tonnes)	1997 (tonnes)	% change (1995-1997)	% change (1996- 1997)
Total Facilities	35	34	36	+2.9	+5.9
On-site Releases					

Air	2,805	2,719.7	3,299.5	+17.6	+21.3
Water	721.6	863.2	784.7	+8.7	-9.1
Land	0.3	7	6.5	-	-7.1
Total	3,526.9	3,589.9	4,090.7	+16	+14
Off-site Transfers					
Chemical Treatment	40.2	0.8	114.6	+185.1	-
Physical Treatment	-	9.1	0.1	-	-
MSTP*	31.2	34.8	25.1	-19.6	-27.9
Incineration	502.2	458.2	1,666.2	+231.8	+263.6
Landfill	1,350.5	1,361.9	1,570.4	+16.3	+15.3
Storage	0.3	0.1	515.8	-	-
Total	1,924.4	1,864.9	3,892.2	+102.3	+108.7
Combined Total	5,451.3	5,454.8	7,982.9	+46.4	+46.3

Note: changes greater than 500% were not included

Amounts less than 100kg were not included

Totals do not include undifferentiated totals

* Municipal Sewage Treatment Plant

Table 2 shows on-site releases were dominated by releases to the air: 80% in 1995; 76% in 1996; and, 81% in 1997. Transfers to landfills dominated off-site transfers in 1995 (70%) and 1996 (73%). In 1997, transfers to landfills (40%) and incineration (43%) comprised the majority of off-site transfers.

There were small decreases in releases to water and land in 1997. However, there was a significant increase in air emissions, which resulted in the large increase in total on-site releases in 1997.

Significant increases in transfers to landfills and incineration were mainly responsible for the huge increase in total off-site transfers. **The combined total of on-site releases and off-site transfers increased significantly in 1997.**

Toxic and Carcinogenic Pollutants in Essex County

The NPRI recognizes that some substances have special significance. These significant or priority

pollutants have been categorized as toxic/carcinogenic based upon the designation of the Canadian Environmental Protection Act.

Table 3 summarizes the data for Essex County's toxic/carcinogenic on-site releases, in 1997.

Table 3: Toxic/Carcinogenic Releases In Essex County (1997)

Substance	Air (tonnes)	Water (tonnes)	Total (tonnes)
Chromium (and its compounds)	0.03	0.07	0.1
Formaldehyde	29.03	-	29.03
Lead (and its compounds)	0.39	0.14	0.53
Nickel (and its compounds)	0.02	-	0.02
Tetrachloroethylene	8.45	-	8.45
Total	37.53 (99.4%)	0.21 (0.6%)	37.74

Note: undifferentiated totals are not included

Table 3 shows the majority of toxic/carcinogenic on-site releases (99.4%) were to the air, and formaldehyde was the substance released in the greatest quantity in 1997.

Table 4 summarizes the data for Essex County's toxic/carcinogenic off-site transfers, in 1997.

Table 4: Toxic/Carcinogenic Transfers In Essex County (1997)

Substance	Incineration (tonnes)	Landfill (tonnes)	MSTP (tonnes)	C.T. (tonnes)	Storage (tonnes)	Total (tonnes)
Benzene	14.34	-	-	-	2.56	16.9
Cadmium	-	2.3	-	-	-	2.3
Chromium (and its compounds)	-	11.18	0.01	-	-	11.19
Lead (and its compounds)	-	101.96	0.1	0.06	0.3	102.42

Nickel (and its compounds)	-	19.32	0.05	-	-	19.37
Total	14.34 (9.4%)	134.76 (88.6%)	0.16 (-)	0.06 (-)	2.86 (1.9%)	152.18

Note: MSTP: Municipal Sewage Treatment Plant
C.T.: Chemical Treatment

Table 4 shows the majority of toxic/carcinogenic off-site transfers (88.6%) were to landfills, and lead was the substance transferred in the greatest quantity in 1997.

Overall, the combined total of on-site releases and off-site transfers of toxic/carcinogenic pollutants in 1997 was 191 tonnes, an increase of 64 tonnes (+50.2%) from 1996, and an increase of 89 tonnes (+87.8%) from 1995.

Essex County on a Provincial And National Scale

Table 5 compares NPRI data from Essex County, Ontario, and Canada.

Table 5: Comparison of Essex County, Ontario, and Canada (1997)

	Essex County	Ontario	Canada
Total Facilities	36 [3.7%] (1.8%)	974 (49%)	1,987
Total Pollutant Reports	164 [4.5%] (2.2%)	3,636 (49%)	7,411
Pollutant Reports (avg.)	4.6	3.7	3.7
On-site Release Total (tonnes)	4,092 [6.5%] (2.5%)	62,973 (39%)	162,164
Off-site Transfer Total (tonnes)	3,892 [5.4%] (4%)	72,495 (74%)	98,099

[] percentage of provincial total
() percentage of national total

Table 5 shows the percentage of pollutant reports, on-site releases and off-site transfers in Essex County exceeded the percentage of facilities in Essex County. The average of pollutant reports per facility (4.6) was significantly higher than the provincial and national average.

Facilities in Essex County were intense manufacturers, processors and users of NPRI pollutants in 1997.