

NATIONAL POLLUTANT RELEASE INVENTORY (ESSEX COUNTY):  
1998 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 1998 report is the sixth 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 or recycling from 2 007-point sources (facilities) across Canada.

Data from the NPRI represent a small portion of the total pollutant releases and transfers in Canada on an annual basis. As a result, the NPRI is not a comprehensive or conclusive pollutant inventory.

This report is the fourth annual review of NPRI data published by the Citizens' Environment Alliance (CEA). This report incorporates data from the 1998 NPRI; data comparisons include Essex County, Ontario and Canada from the 1997 and 1998 inventories. Data from the 1996, 1997 and 1998 inventories are used for a trend analysis.

**Highlights of the 1998 NPRI**

- **A total of 37 facilities from Essex County submitted reports to the NPRI in 1998, an increase of 1 (+2.8%) from 1997 and an increase of 3 (+8.8%) from 1996**
- **There were 167 pollutant reports submitted by facilities in Essex County in 1998, an average of 4.5 pollutants per facility**
- **Facilities in Essex County reported 40 pollutants to the 1998 NPRI, including 7 toxic/carcinogenic substances, a change of -2 (-4.8%) and 0 from 1997, respectively**
- **1998 is the first year in which reporting recycling activities is mandatory**

In 1998, facilities across Essex County reported:

- **On-site releases totalling 3 414 tonnes, a decrease 678 tonnes (-16.6%) from 1997 and a decrease of 177 tonnes (-4.9%) from 1996**
- **Off-site transfers totalling 3 354 tonnes, a decrease of 538 tonnes (-13.8%) from 1997 and an increase of 1 489 tonnes (+125.3%) from 1996**

- **A combined total (release + transfer) of toxic/carcinogenic pollutants of 218 tonnes, an increase of 27 tonnes (+14.1%) from 1997 and an increase of 91 tonnes (+71.7%) from 1996**
- **Off-site transfers for recycling totalling 5 173 tonnes**

## **METHODOLOGY**

This report mimics the format of the 1998 NPRI and previous summary reports. 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) emphasize the importance of transfers as a source of pollution emissions – as significant as releases in Essex County. Also, combined totals are tracked for consistency with previous reports. Off-site transfers do not always represent an entry of the pollutant into the environment, however transfers can result in a delayed release to the environment or the eventual release of pollutants not included in the NPRI. Reporting recycling data was mandatory for the 1998 NPRI and has been included in this report.

All facilities in Essex County required to report to the NPRI are included in this summary report. Facilities located in Tilbury are considered to be part of Essex County.

Data compiled in this report were collected from the NPRI database in July-September 2000, *the NPRI in Ontario (August 2000)* and the CEA's *The NPRI in Essex County: 1997 Summary Report-February 2000*. Updates are made to the NPRI database continually and may differ with the data compiled in this report.

## **ANALYSIS**

The 1998 NPRI did not significantly improve from previous years; 2 007 facilities reported to the NPRI in 1998 compared to 1 987 in 1997 and reporting recycling data was mandatory for the '98 report. The NPRI has recurring weaknesses that undermine its efficacy and it continues to lack what is required for a comprehensive or conclusive pollutant release and transfer registry.

The number of facilities included in the NPRI fluctuates from year to year. However, the scope of the NPRI remains relatively small, only 2 007 facilities reported their pollutant emission in '98. The small scope of the NPRI results from a number of built-in limitations that have hindered the NPRI for several years: high threshold reporting limits; excessive exemptions from reporting; a lack of accurate data submitted to the NPRI; and an insufficient pollutant list.

Three criteria must be met before a facility reported to the NPRI:

- Employees worked a total of 20 000 hours or more (equivalent to 10 full-time employees) during the calendar year
- The facility manufactured, processed or otherwise used 10 tonnes or more of an NPRI substance in the calendar year, and

- The NPRI substance was manufactured, processed or otherwise used at a concentration greater than or equal to 1% by weight, with the exception of NPRI substances considered to be by-products. By-products, regardless of their weight must be included in the concentration of the 10-tonne threshold for each NPRI substance.

These criteria are identical to the threshold limits of previous years. The threshold limits effectively exclude small facilities, such as dry cleaners. An aggregate of facilities excluded from the NPRI, as a result of threshold limits, is a clear indication of large amounts of pollutant releases not included in the NPRI. Lowering the threshold limits would improve the NPRI database.

Exemptions from the NPRI comprise another example of NPRI weakness. Many facilities are excluded even if the threshold criteria are attained:

- education and training of students (universities, colleges and schools)
- research or testing
- 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, and
- the drilling or operating of oil and gas wells, but not those facilities which process or otherwise use their products

Smaller facilities that are exempt, collectively, may account for a significant amount of pollution. The NPRI must be considered in the context of other pollutants, sources and facilities not assessed by the NPRI.

The method of reporting to the NPRI is varied and consideration is given to the economic costs of reporting, undermining the accuracy of the NPRI. In some instances existing monitoring for provincial permits or licences may suffice. In other instances, a variety of estimation methodologies are used, depending on information available and type of industry. Estimates can be based on direct measurements, mass balances, emission factors or engineering estimates.

Some facilities are granted confidential status when reporting to the NPRI. NPRI data released to the public do not include confidential information: 38 pollutant reports, 66 tonnes of on-site releases and 3 489 tonnes of off-site releases.

Pollution prevention (P2) reporting remains minimal to the NPRI. The information provided by facilities to the NPRI (qualitative data) indicates if P2 activities have occurred. A list of P2 techniques and practices is provided to the facilities for their reports, but the list does not indicate the frequency and comprehensiveness of these activities or their effect on the generation of pollutants and waste.

### **Essex County In The 1998 NPRI**

The three pollutants released in the largest quantity in Essex County were ammonia (total), methyl ethyl ketone, and toluene. General Chemical was the major contributor of ammonia releases in Essex County and Maple Roll Leaf was the major contributor of methyl ethyl ketone and toluene releases.

The three pollutants transferred off-site in the largest quantity in Essex County were zinc (and its compounds), copper (and its compounds), and sulphuric acid. AlliedSignal dominated transfers of sulphuric acid and Zalev Brothers was the major contributor of transfers of copper (and its compounds) and zinc (and its compounds).

### **Essex County's Largest Polluters**

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

**Table 1: Largest Polluters of Essex County (1998)**

Number of Reports	Facility	Releases (tonnes)	Transfers (tonnes)	Total
3	General Chemical	1 767.3 [1]	0	1 767.3 [1]
8	Zalev Brothers	0.3	1 279.3 [1]	1 279.6 [2]
12	Maple Roll Leaf	1 037.7 [2]	228.6 [5]	1 266.3 [3]
6	Philip Services	0	713.1 [2]	713.1 [4]
2	Windsor-West Pollution Control Plant	472.9 [3]	17.3	490.1 [5]
12	Ford-Windsor Casting Plant	27.5	441.1 [3]	468.6
13	Daimler Chrysler-Pillette Road Plant	361.3 [4]	8.0	369.3
3	Allied-Signal	1.9	355.7 [4]	357.6
15	Daimler Chrysler-Windsor Assembly Plant	107.4 [5]	34.3	141.7

Note: values have been rounded  
 [ ] ranking by category

The five largest polluters in Essex County (1998) were General Chemical, Zalev Brothers, Maple Roll Leaf, Philip Services, and the Windsor West Pollution Control Plant. These are the same top five polluters from 1997, although there was a change in the ranking: General Chemical, Philip Services, Zalev Brothers, Maple Roll Leaf, and the Windsor West Pollution Control Plant were the top five polluters in 1997.

General Chemical, Philip Services and the Windsor West Pollution Control Plant reported a decrease in pollution emissions from 1997. Zalev Brothers and Maple Roll Leaf reported an increase in emissions from 1997.

### Trends In Essex County

Table 2 details Essex County's on-site releases and off-site transfers from the 1996, 1997 and 1998 NPRI. Data from 1996 and 1997 are from the 1997 CEA review of the NPRI.

**Table 2: On-Site Releases and Off-Site Transfers in Essex County (1996-1998)**

	1996	1997	1998	% change (1996-1998)	% change (1997-1998)
Total Facilities	34	36	37	+8.8	+2.8
<b>On-Site Releases (tonnes)</b>					
Air	2 719.7	3 299.5	2 788.9	+2.5	-15.5
Water	863.2	784.7	624.6	-27.6	-20.4
Land	7.0	6.5	0	-100	-100
Total	3 589.9	4 090.7	3 413.5	-4.9	-16.6
<b>Off-Site Transfers (tonnes)</b>					
Chemical Treatment	0.8	114.6	394.7	-	+244.4
Physical Treatment	9.1	0.1	0.1	-98.9	0
MSTP*	34.8	25.1	21.6	-37.9	-13.9
Incineration	458.2	1 666.2	559.4	+22.1	-66.4
Landfill	1 361.9	1 570.4	1 804.9	+32.5	+14.9
Storage	0.1	515.8	573.6	-	+11.2
Total	1 864.9	3 892.2	3 354.3	+79.9	-13.8
Combined Total	5 454.8	7 982.9	6 767.8	+24.1	-15.2

Note: changes greater than 500% not included

Amounts less than 100kg 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: 76% in 1996, 81% in 1997, and 82% in 1998. Transfers to landfill dominated off-site transfer totals: 73% in 1996, 40% in 1997, and 54% in 1998.

There were no releases to land in 1998 and a substantial decrease in releases to water. Air emissions also decreased in 1998, but remained above the 1996 total.

Significant changes occurred in 1998 off-site release totals for incineration, landfills, and chemical treatment. Overall, 1998 off-site release totals decreased from 1997, but remained well above 1996 totals.

The 1998 NPRI introduced mandatory reporting of recycling efforts. A total of 5 172.8 tonnes were recycled in Essex County. Recovery of metals (68.7%), other-unknown (21.1%), and energy recovery (5.1%) comprised the largest recycling efforts in 1998.

## Toxic and Carcinogenic Pollutants in Essex County

The NPRI lists significant or priority pollutants as toxic/carcinogenic based upon the designation of the Canadian Environmental Protection Act and the International Agency for Research on Cancer.

Table 3 summarizes the data of on-site releases of toxic/carcinogenic substances in Essex County.

**Table 3: Toxic/Carcinogenic Releases in Essex County, 1998**

Substance	Air (tonnes)	Water (tonnes)	Total (tonnes)
Chromium (and its compounds)	.02	.06	.07
Formaldehyde	1.91	-	1.91
Lead (and its compounds)	.5	.12	.62
Nickel (and its compounds)	.01	-	.01
Tetrachloroethylene	6.83	-	6.83
Total	9.27 (98.1%)	.18 (1.9%)	9.45

Note: undifferentiated totals are not included

Table 3 shows the majority of toxic/carcinogenic releases (98.1%) were to the air, and tetrachloroethylene was the substance released in the greatest quantity in 1998.

Table 4 summarizes the data of off-site transfers of toxic/carcinogenic substances in Essex County.

**Table 4: Toxic/Carcinogenic Transfers in Essex County, 1998**

Substance	C.T. (tonnes)	MSTP (tonnes)	Storage (tonnes)	Incineration (tonnes)	Landfill (tonnes)	Total (tonnes)
Arsenic	66.7	-	-	-	-	66.7
Cadmium (and its compounds)	-	-	-	-	2.66	2.66
Chromium (and its compounds)	-	.01	.01	-	12.68	12.67
Lead (and its compounds)	-	.08	.01	-	104.85	104.94
Nickel (and its compounds)	-	.05	.01	.05	21.48	21.59
Total	66.7 (32%)	.14 (-)	.03 (-)	.05 (-)	141.67 (67.9%)	208.59

Note: C.T.: Chemical Treatment

MSTP: Municipal Sewage Treatment Plant

Table 4 shows the majority of toxic/carcinogenic transfers were to landfill (67.9%) and lead was the substance transferred in the greatest quantity in 1998.

**Overall, the combined total of releases and transfers of toxic/carcinogenic pollutants in 1998 was 218 tonnes, an increase of 27 tonnes (14%) from 1997 and an increase of 91 tonnes (72%) from 1996.**

#### **Essex County on a Provincial and National Scale**

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

**Table 5: Comparison of Essex County, Ontario and Canada (1998)**

	Essex County	Ontario	Canada
Total Facilities	37 [3.8%] (1.8%)	982 (48%)	2 037
Total Pollutant Reports	167 [4.5%] (2.2%)	3 672 (48.3%)	7 596
Pollutant Reports (avg.)	4.5	3.7	3.7
On-site Release Total (tonnes)	3 414 [5.3%] (2.1%)	63 960 (40%)	159 620
Off-site Transfer Total (tonnes)	3 354 [5.1%] (3.8%)	65 515 (75%)	87 821
Off-site Recycling	5 173 [2.9%] (2.0%)	176 274 (68%)	258 770

[ ] percentage of provincial total

( ) percentage of national total

Table 5 shows that Essex County exceeds the provincial and national average of pollutant reports. Essex County's releases and transfers, as a percentage of provincial and national totals, exceed the county's distribution of total facilities reporting to the NPRI. Data from the 1998 NPRI indicates that facilities in Essex County released and transferred pollutants at a disproportionate rate.