Spills Action Centre:

2005 Summary Report

Protecting our environment. Ontario

PIBs #6039e

2005 Spills Summary

Introduction

The Ministry of the Environment is committed to keeping the public informed about environmental events and activities under its jurisdiction. This summary report provides information about the number of reported spills recorded by the ministry's Spills Action Centre (SAC) during 2005.

Provincial law requires that all pollutants spilled into the natural environment must be reported immediately to the ministry. This requirement applies broadly; it not only extends to the person who causes or permits the spill but extends to *any* public sector employees who have knowledge of a spill.

SAC provides a province-wide toll-free number – 1-800-268-6060 – which is answered by environmental officers 24 hours a day, seven days a week.

The primary role of SAC is to receive reports of spills and other environmental matters. When spills do happen, the consequences can be serious, threatening or potentially threatening the health and safety of people, as well as the environment. All reports of spills and any other reported events are assessed by SAC's environmental officers who then determine what, if any, further response should be taken by the ministry.

Supporting other agencies in the discharge of their responsibilities is another aspect of SAC's work. SAC serves as a reporting conduit for Environment Canada (Ontario Regional Office) and Ontario's Technical Standards and Safety Authority (TSSA), among others.

About the Information

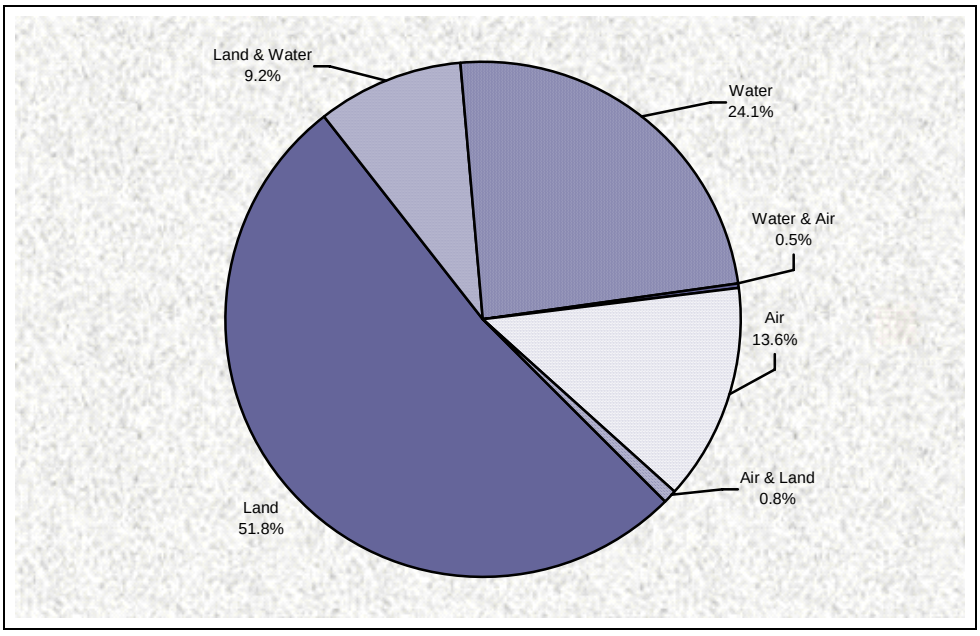
The information found in this report is taken from the reports made to SAC and the documentation that resulted from the initial point of contact between the person reporting the spill and SAC. As a result, the 2005 Spills Summary should be viewed as a "snapshot" of the data as first reported and documented in SAC's database.

All spills reported to SAC are recorded in the ministry's database, regardless of whether or not the ministry becomes directly involved. For example, the database captures fuel related spills that fall under the mandate of the Technical Standards and Safety Authority (TSSA).

Overview: 2005 Spills

The Spills Action Centre documented 4,198 spills during 2005. More than half – 2,177 or 51.8% – were spills to land. Spills to water numbered 1,013 (24.1%) and spills to air 568 (13.6%). The remaining spills affected more than one media: 386 were to land and water; 32 were to land and air; water and air received 22 spills. Figure 1 shows the relative proportions of spills to the various media and combinations thereof.

Figure 1 - Spills by Receiving Media for 2005



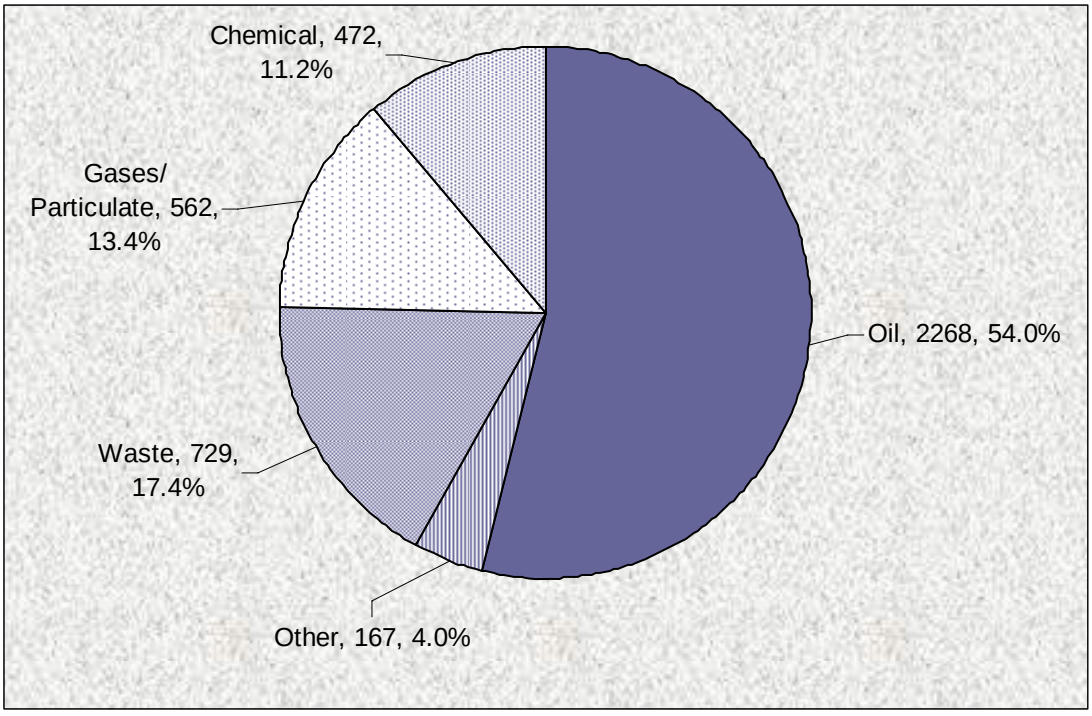
Types of Materials Spilled

SAC records only the primary material involved in a spill, though a few spills will involve more than one material. The categories used to group the materials spilled are:

- Oils: includes crude, gasoline, jet fuel, kerosene, and all light and heavy petroleum oils.
- Chemicals: includes acids, bases, solvents, pesticides and other organic and inorganic chemicals.
- Gases and Particulates: includes smoke, dust/particulates, nitrous oxide, natural gas, etc.
- Wastes: includes liquid industrial, liquid hazardous, sewage, agricultural and other wastes.
- Other: includes feed and foodstuffs and other substances.

In descending order, for 2005, the number of spills by material is as follows: oils (2,268); wastes (729); gases (562); chemicals (472); other (167). As shown in Figure 2 below, spills of "oil" made up the majority of spills in 2005.

Figure 2 - Material Groups for 2005

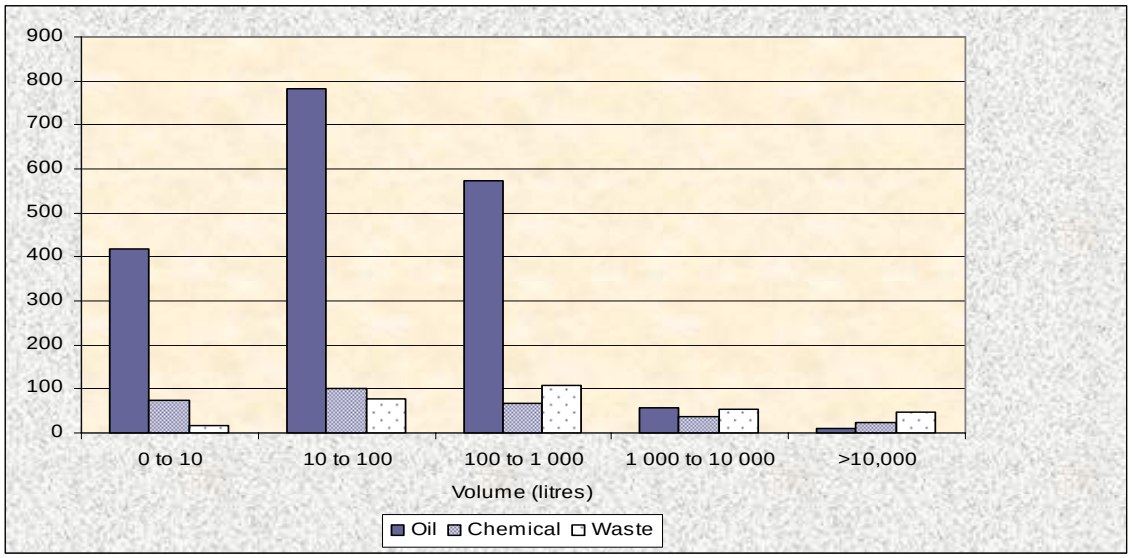


Volumes of Materials Spilled

SAC documents the volume of a spill **if** it is known and, if known, is reported. Also, SAC documents the information available when the report is first made. Information on volume, for example, that becomes available later is not necessarily included in this summary data. Note also that volume is not related to toxicity or environmental threat; a small, highly concentrated spill may be more serious than a larger spill of a highly diluted substance.

In 2005, of the 4,198 spills reported, there were volumes (litres) associated with 2,448 spills (58.9%).

Figure 3 - Spills by Volume for 2005



For reporting on this aspect of spills, they are grouped into one of three categories: oils, chemicals, wastes. As Figure 3 shows, most of the smaller spills (<1,000 litres) are spills of oil, though the number of them is quite large – 1,773 in 2005. The largest spills (>10,000 litres) where volume was reported are of wastes, though they are much fewer in number – 46 in 2005.

Many oil spills are related to the loss of fuels and cargo in transportation accidents. The 2005 data shows that, where volumes were known and reported, the number of oil spills with volumes between 10 to 100 litres was the single largest grouping of any material spilled, and accounted for almost 32% of all spilled materials with known volumes.

Spills of waste reported to SAC in 2005 normally involve unintended wastewater discharges where the material of concern likely constitutes a relatively small proportion of the total volume spilled (e.g. an abnormal bypass of wastewater treatment processes resulting in the discharge of raw or partially treated sewage).

Environmental Impact

Spills are reported to the Ministry of the Environment, through SAC, because of the potential for environmental impacts. When a spill is first reported, an environmental officer makes an assessment of the seriousness of the spill, including the likelihood that an environmental impact may result. This is only a preliminary assessment, in order to identify those spills that require an immediate and/or emergency response.

In categorizing reports of spills by seriousness, SAC uses a framework consistent with the Environmental Protection Act that places spills into one of three categories:

- Environmental Impact Not Anticipated (e.g. small spill to concrete)
- Environmental Impact Possible but Not Confirmed (e.g. spill to catch basin)
- Environmental Impact Confirmed (e.g. by the ministry or another agency)

During 2005, 30.2% of spills reported to SAC were categorized as “environmental impact not anticipated”. Spills in the category of “environmental impact possible but not confirmed” accounted for 56.2% of the total 2005 spills. This category includes spills reported not because they were known to cause an adverse effect, but because the spills “may cause an adverse effect” as this phrase is defined in the Environmental Protection Act. An environmental impact was confirmed for 13.6% of spills reported to SAC in 2005.

The table below shows the distribution of 2005 spills by environmental medium and impact.

Table 1 – 2005 Spills by Environmental Medium and Impact

Medium	Environmental Impact			Total
	Not Anticipated	Possible	Confirmed	
Air	174	337	57	**568**
Land	743	1,147	287	**2,177**
Water	248	592	173	**1,013**
Multiple media	104	282	54	**440**
Air & Land	7	20	5	**32**
Land & Water	94	246	46	**386**
Water & Air	3	16	3	**22**
Total	**1,269**	**2,358**	**571**	**4,198**
Percentage	**30.2%**	**56.2%**	**13.6%**	**100%**

The information in the SAC database related to environmental impact can also be organized by types of material spilled as demonstrated in the following table.

Table 2 – 2005 Spills by Material Group and Environmental Impact

Material Group	Environmental Impact			Total
	Not Anticipated	Possible	Confirmed	
Oils	692	1,205	371	**2,268**
Chemicals	163	245	64	**472**
Gases and Particulates	164	349	49	**562**
Wastes	204	455	70	**729**
Other	46	104	17	**167**
Total	**1,269**	**2,358**	**571**	**4,198**
Percentage	**30.2%**	**56.2%**	**13.6%**	**100%**

Sources of Spills

Identifying the predominant sources of spills assists the ministry in achieving its environmental protection mandate. The SAC database records the "sources" or "sectors" of the spills, as applicable and to the extent possible, based on the information in the reports.

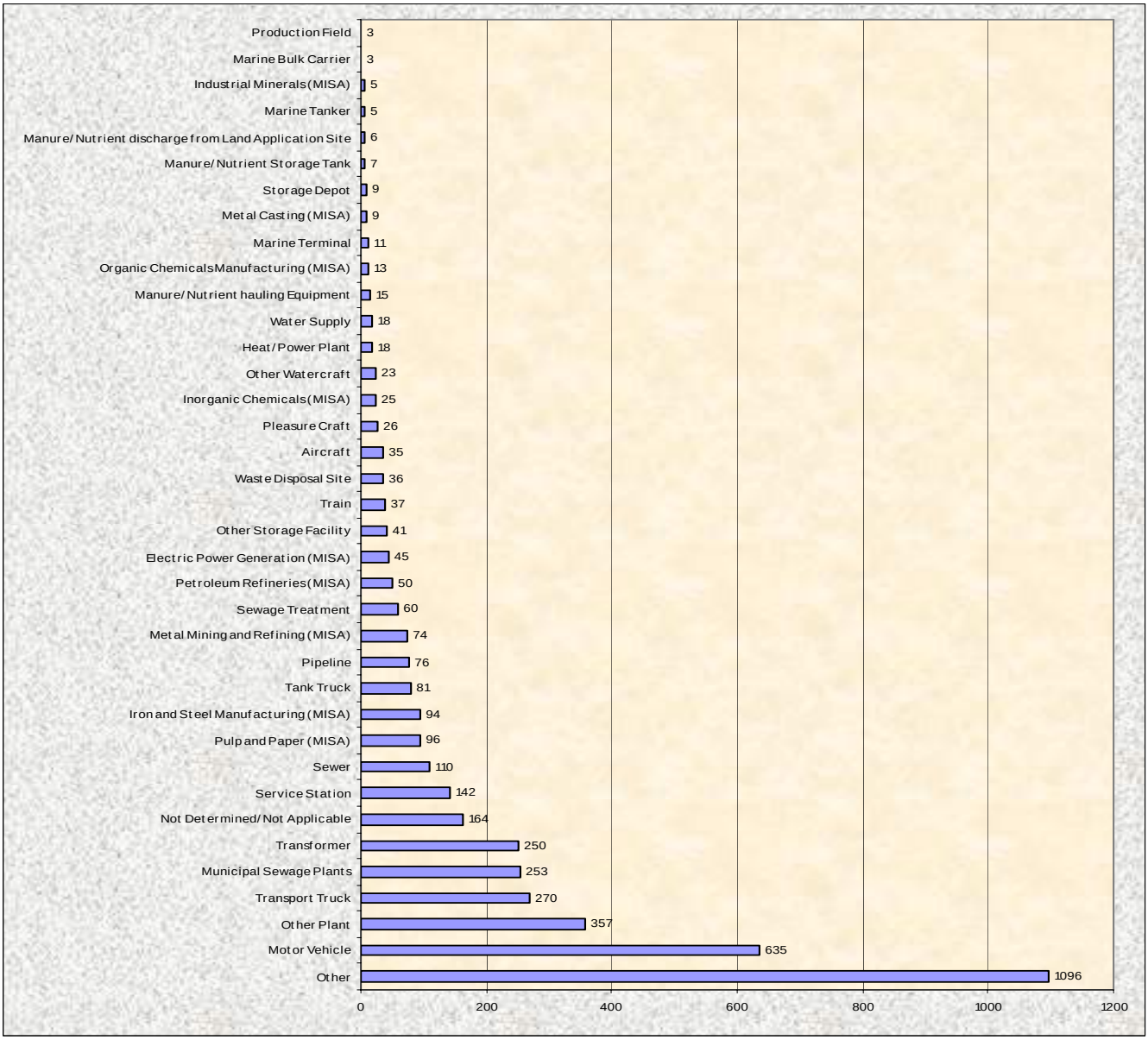
An important part of Ontario's environmental regulatory framework is the MISA program, where MISA stands for the Municipal/Industrial Strategy for Abatement. The MISA regulations cover the following sectors: petroleum refining, iron and steel, mining, pulp and paper, metal mining and refining, inorganic chemicals, organic chemicals, electric power generation, industrial minerals. These sectors comprise the majority of Ontario's direct dischargers of specific toxic pollutants. The following table shows the numbers of reported spills from MISA-regulated sources in 2005.

Table 3 – 2005 Spills from MISA Facilities

Spill Sources	Numbers
Electric Power Generation (MISA)	45
Industrial Minerals (MISA)	5
Inorganic Chemicals (MISA)	25
Iron and Steel Manufacturing (MISA)	94
Metal Casting Facilities (MISA)	9
Metal Mining and Refining (MISA)	74
Organic Chemicals Manufacturing (MISA)	13
Petroleum Refineries (MISA)	50
Pulp and Paper Industries (MISA)	96
Total	**411**
Percentage of 2005 Spills	**9.8%**

The data for 2005 shows that, when aggregated, transportation-related spills (motor vehicles, transport trucks and tank trucks) are the single largest group of spills reported to SAC, accounting for 986 or 23.5% of spills.

Figure 4 – Spill Sources for 2005



Not Determined/Not Anticipated – source not known, e.g. spill to storm sewer and source could not be determined.

Other Plants – any plant not more specifically classified, e.g. small factory or auto body shop.

Other – all other sources not more specifically identified, e.g. retail store and recreational and educational facilities.