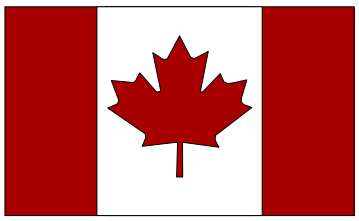

Environment Canada
Environmental Protection Service

Environnement Canada
Service de la protection de l'environnement

Sulphur in Liquid Fuels

2002

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August 2003

Environment Canada

Sulphur in Liquid Fuels

2002

Notice

The information contained in this report is compiled from data submitted by the producers and importers of liquid fuels in Canada pursuant to the requirements of the Federal *Fuels Information Regulations, No. 1,* the *Sulphur in Gasoline Regulations* and the *Diesel Fuel Regulations*. Submissions have been verified for reasonableness but are subject to potential errors made at the source.

Any comments concerning the content of this report should be directed to:

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1.0 Summary

This report summarizes data concerning the sulphur content in liquid fuels for the year 2002, provided to Environment Canada pursuant to the federal *Fuels Information Regulations, No.1,* the *Sulphur in Gasoline Regulations* and the *Diesel Fuel Regulations* of the *Canadian Environmental Protection Act, 1999*.

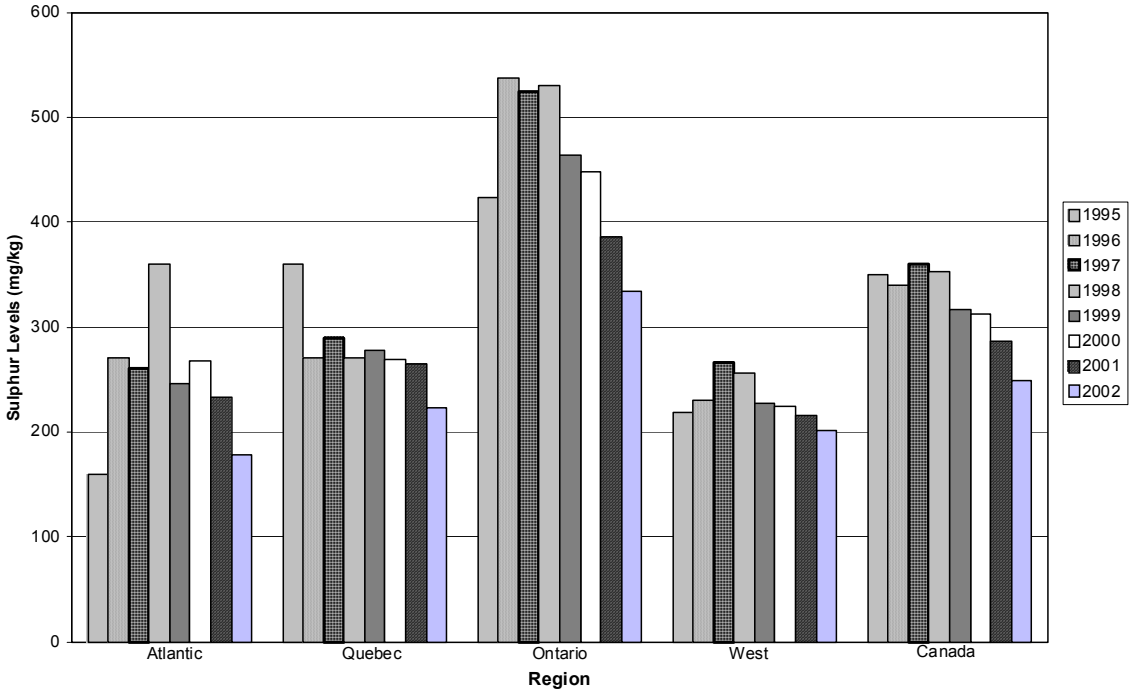
During 2002, there were two important developments with respect to federal regulations on sulphur in fuels:

- The requirements of the *Sulphur in Gasoline Regulations* came into effect. During the 2½ year interim period beginning July 1, 2002, these regulations limit the average sulphur content of gasoline to 150 mg/kg. A 30 mg/kg average limit comes into effect on January 1, 2005.

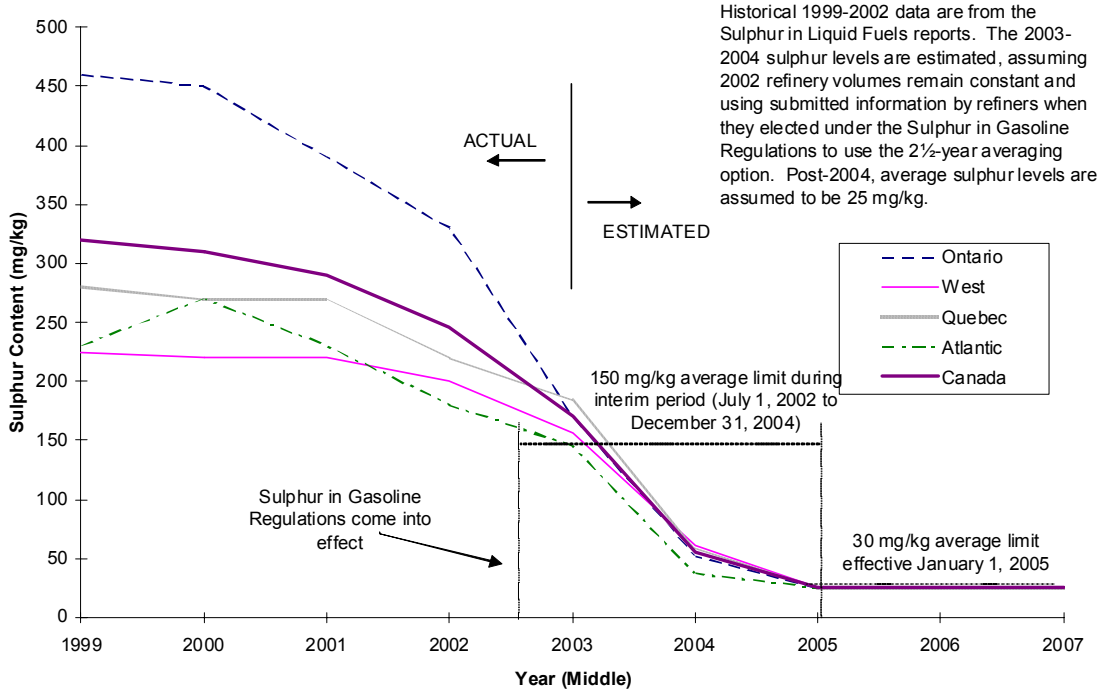
- The *Sulphur in Diesel Fuel Regulations* were passed in July 2002. These regulations revoke and replace the federal *Diesel Fuel Regulations* which had a maximum limit of 0.05% by weight (500 mg/kg) for on-road diesel fuel. The new regulations continue the 500 mg/kg limit until mid-2006, at which time a 15 mg/kg limit comes into effect for on-road diesel fuel.

The average sulphur content in gasoline nationally in 2002 was determined to be 246 mg/kg, 14.3 % lower than in 2001. Graph 1.1 shows the trend for sulphur content in gasoline nationally and by region for the period 1997 to 2002. Substantial reductions in sulphur levels are projected in 2003 and 2004 as the interim average requirements result in producers and importers reducing their sulphur levels to low levels (Graph 1.2).

Graph 1.1: Sulphur Levels in Motor/Aviation Gasoline by Region, 1995-2002



Graph 1.2: National Trend of Sulphur Content in Gasoline (1999-2007)



The reported mass of sulphur in all liquid fuels has decreased by 16.1 % in 2002 from 2001 values, as shown in Graph 1.3. This decrease is mainly due to a 17.7 % decrease in the volume of heavy fuel oil being produced/imported in Canada in combination with a decrease in the average sulphur content of the heavy fuel oil. The volumes of heavy fuel oil produced/imported have decreased by 22.2 % in the Atlantic provinces, 16.9 % in Quebec, and 27.9 % in Ontario. Only in the Western provinces did the volume increase (by 12.3 %).

Graph 1.3 : Sulphur Mass in Liquid Fuels by Region, 1995-2002

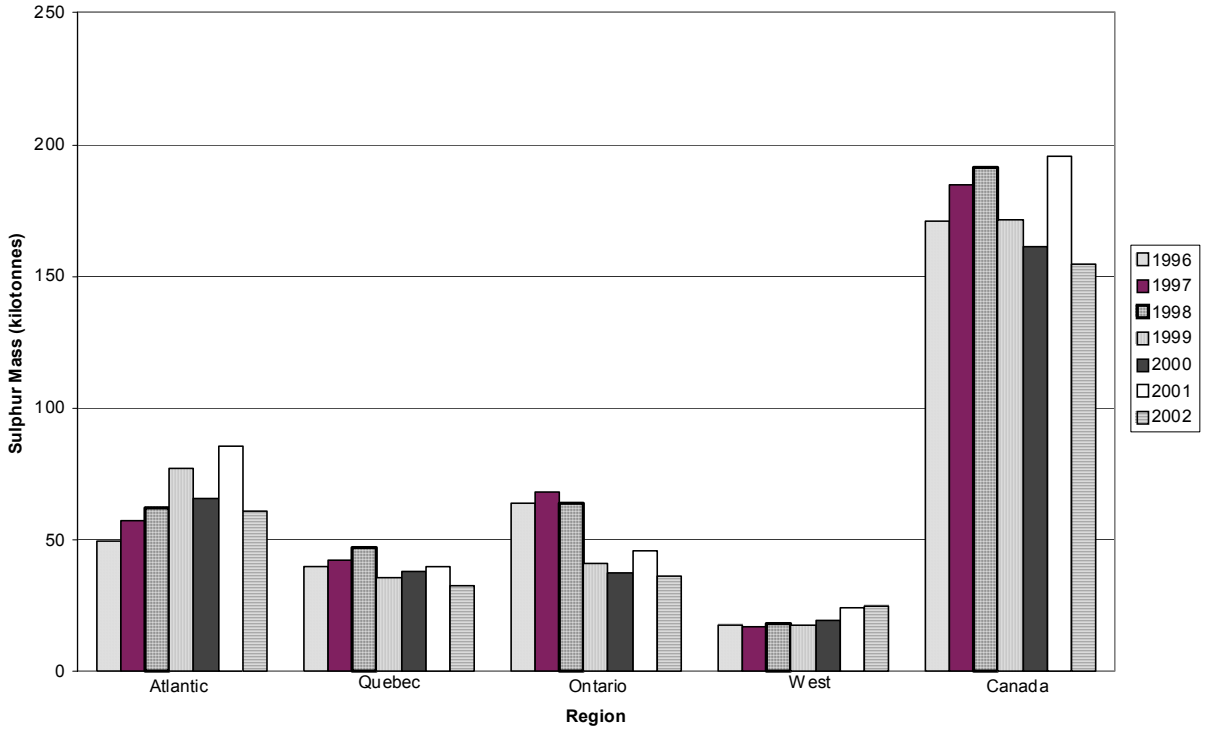


Table 1.1 is a national summary of data compiled from Form 1, "Report on Sulphur Content", of the *Fuels Information Regulations, No. 1*, which petroleum refineries and importing companies are required to submit to Environment Canada under those Regulations.

The largest reported volume of liquid fuel produced in, or imported into Canada was gasoline which constituted 47.1 % of all products, and accounted for 4.7 % of the sulphur mass in liquid fuels. Heavy fuel oil constituted only 8.0 % by volume of the total liquid fuels, but contained 68.6 % of the total sulphur mass in Canada. The Atlantic provinces, Quebec and Ontario accounted for 83.8% of the total mass of sulphur present in fuels. Thirty-nine percent (39%) of the total sulphur mass was attributed to the Atlantic provinces with heavy fuel oil totaling over 81 % of this sulphur mass.

TABLE 1.1 :
Fuel Production / Imports and Sulphur Content National Summary for 2002

Type of Fuel	Fuel Production / Imports		Sulphur Mass	Average Sulphur	Distribution of Sulphur
	(m^3)	(% of total)	(tonnes)	Content (%wt.)	in Products (%)
Aviation Turbo Fuel	6,580,009	7.7	3,251	0.061	2.1
Motor Gasoline	40,418,906	47.1	7,356	0.025	4.7
Aviation Gasoline	114,408	0.1	5	0.006	0.0
Kerosene/Stove Oil	1,408,598	1.6	527	0.046	0.3
Low-Sulphur Diesel Fuel	21,430,666	25.0	5,859	0.032	3.8
Diesel Fuel	3,335,836	3.9	7,023	0.247	4.5
Light Fuel Oil	4,297,324	5.0	6,483	0.176	4.2
Heavy Fuel Oil	6,899,463	8.0	106,279	1.537	68.6
Plant Consumption	1,243,052	1.4	18,108	1.435	11.7
TOTAL	85,728,262	100.0	154,890	0.188	100.0

Note: Totals may not add up to due to rounding.

2.0 Introduction

2.1 Fuels Information Regulations, No. 1

The *Fuels Information Regulations, No.1* (see Appendix 1) were adopted in 1978 to provide Environment Canada with information regarding liquid fuel composition, particularly concerning sulphur dioxide (SO_2) emissions from combustion. These Regulations require annual reporting on sulphur levels in fuels and one-time reporting of non-lead fuel additive content (additional reporting is required when there are changes). They apply to all fuels[1] in liquid form that originate from crude oils, coal or bituminous sands.

The Regulations require all producers and importers handling more than 400 cubic meters (m^3) of fuels intended for consumption in Canada within a calendar year to report the volume of fuels produced or imported, the fuel density and the fuel sulphur content for each quarter of the calendar year (see Appendix 2). Environment Canada uses the reported values to estimate the mass of sulphur in Canadian fuels. The definition of each type of liquid fuel to be reported can be found in Appendix 2. The Regulations also require all producers and importers who supply more than 400 m^3 of a fuel to report all the additives other than lead or lead compounds in fuels.

2.2 Regulations Controlling Sulphur Levels in Fuels

The federal *Diesel Fuel Regulations (*see Appendix 1), which were in effect from January 1, 1998 to December 31, 2002, required all on-road diesel fuel to have a sulphur level not exceeding 0.05% by weight (500 mg/kg)[2]. Those regulations were revoked and replaced on January 1, 2003 by the *Sulphur in Diesel Fuel Regulations (*see Appendix 1) which were passed on July 31, 2002. The *Sulphur in Diesel Fuel Regulations* continue the 500 mg/kg limit until June 1, 2006, at which time a 15 mg/kg limit comes into effect for on-road diesel fuel. The Canadian requirements for sulphur content in on-road diesel fuel align with those in the U.S. EPA's *Final Rule on Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements*, published January 18, 2001. Note that there is no volume threshold for reporting under these regulations.

On June 23, 1999, the *Sulphur in Gasoline Regulations* (see Appendix 1) were passed. These regulations limit the sulphur content in gasoline to an average of 30 mg/kg with a maximum of 80 mg/kg starting January 1, 2005. An interim period beginning July 1, 2002, limits the average sulphur content of gasoline to 150 mg/kg over a 2½ year period. The first administrative requirements consisting of election notices to meet pool averages and the submission of compliance plan information demonstrating how companies will

[1] Throughout this document, the word "fuel(s)" applies only to those fuels which are in liquid form and petroleum-based.

[2] From October 1, 1994 to December 31, 1997, a non-regulatory program was in place under which petroleum marketers agreed to make available only diesel fuel with a sulphur content not exceeding 0.05% by weight at all service stations, truck stops and on-road cardlocks and keylocks in Canada – approximately 50% of the on-road diesel fuel pool.

comply with the regulations were due May 2, 2002. Appendix 7 includes a summary of the election information provided by companies, including information on projected levels of sulphur in gasoline. Note that there is no volume threshold for reporting under these regulations.

On February 1, 2003 minor proposed amendments to the *Sulphur in Gasoline Regulations* were published in Part I of the *Canada Gazette*. The proposed amendments will (when finalized) update the test method for measuring sulphur content to a recently-developed method that provides for more accurate measurement of sulphur at low levels. Under the amendments, the limits of sulphur content for gasoline remain the same, but are expressed in milligrams per kilogram (mg/kg) rather than in percent by weight. The amendments also include a number of other minor changes to update the regulations, clarify some provisions, and make the regulations more consistent with other federal fuels regulations.

In the Notice of Intent on Cleaner Vehicles, Engines and Fuels, published in the Canada Gazette on February 2001, Environment Canada proposed the development of measures to reduce the level of sulphur in both light and heavy fuel oils, with the view to matching the requirements set by the European Union. The European Union requirements are 1% wt. for heavy fuel oil and 0.1% wt. for light fuel oil, and will be fully implemented by 2008. Recent work by the National Round Table on the Economy and the Environment (NRTEE) involved studying the environmental and economic implications of using fiscal instruments to reduce sulphur levels in light and heavy fuel oil. Environment Canada released a discussion paper in April 2003 regarding the options for new Canadian fuel oils requirements. A workshop was held in May in Halifax to discuss sulphur controls on light fuel oil (LFO) and heavy fuel oil (HFO). Environment Canada is currently reviewing the written comments received from stakeholders.

The Canadian General Standards Board (CGSB) has commercial standards for fuels, some of which have been adopted by provinces in regulations. The standards for sulphur in fuels vary considerable between fuels (see Appendix 4). CGSB standards are revised periodically to reflect developments in product, usage and manufacturing technology.

2.3 Period Covered

This report covers the period from January 1 to December 31, 2002. Under the *Fuels Information Regulations No. 1*, petroleum refineries and importing companies are required to submit information for each calendar quarter to the regional office of Environment Canada before January 31 of the following year. Under the *Diesel Fuel Regulations,* quarterly reports were also required on the level of sulphur in on-road diesel fuel. The *Sulphur in Gasoline Regulations* require annual reporting on the level of sulphur in gasoline.

Failure to submit the data on time, incomplete data or unsigned forms are offenses under the *Canadian Environmental Protection Act, 1999* and are punishable by fines and imprisonment.

2.4 Reporting Petroleum Refineries and Importing Companies

The following petroleum refineries, blenders, and upgrading plants reported, under the three regulations, information pertaining to production volume and fuel sulphur content for 2002.

Table 2.1: Refineries, Blenders and Upgraders Reporting under the Respective Regulations

Company	Location	Prov.	FIR	Gasoline	Diesel
Chevron Canada Limited	Burnaby	BC	X		X
Consumers' Co-operative Refineries Limited	Regina	SK	X	X	X
Husky Oil Operations	Prince George	BC	X	X	X
Imperial Oil Limited (Dartmouth Refinery)	Dartmouth	NS	X	X	X
Imperial Oil Limited (Sarnia Refinery)	Sarnia	ON	X	X	X
Imperial Oil Limited (Nanticoke Refinery)	Nanticoke	ON	X	X	X
Imperial Oil Limited (Strathcona Refinery)	Edmonton	AB	X	X	X
Irving Oil Limited	Saint John	NB	X	X	X
North Atlantic Refining Limited	Come-By-Chance	NF	X	X	X
NOVA Chemicals Canada Limited (Corunna Plant)	Sarnia	ON	X		
Parkland Refining Limited (Bowden Refinery)	Bowden	AB	X		X
Petro-Canada Lubricants (Lubricants Centre)	Mississauga	ON	X		X
Petro-Canada Products Limited (Montréal Refinery)	Montréal	QC	X		X
Petro-Canada Products Limited (Edmonton Refinery)	Edmonton	AB	X	X	X
Petro-Canada Products Limited (Lake Ontario Refinery)	Oakville	ON	X	X	X
Robbins Feed and Fuel Limited (Blender)	Thorold	ON	X	X	
Shell Canada Limited (Montréal-East Refinery)	Montréal-Est	QC	X	X	X
Shell Canada Products Limited (Sarnia Manufacturing Centre)	Corunna	ON	X	X	X
Shell Canada Products Limited (Scotford Refinery	Fort Saskatchewan	AB	X	X	X
Shell Canada Products Limited Sherwood Terminal	Edmonton	AB		X	
Suncor Energy Inc. (Oil Sands)	Fort McMurray	AB	X		X
Suncor Energy Inc. (Sarnia Refinery)	Sarnia	ON	X	X	X
Syncrude Canada Inc. (Mildred Lake Facility)	Fort McMurray	AB	X		
Ultramar Canada Inc. (Montreal East Terminal)	Montreal East	QC	X	X	X
Ultramar Canada Inc. (St-Romuald	St- Romuald	QC	X	X	X

Refinery					

The following petroleum importers reported, under the three regulations, information pertaining to import volume and fuel sulphur content for 2002:

Table 2.2: Importers Reporting under the Respective Regulations

Company	Location	Prov	FIR	Gasoline	Diesel
Air Canada	Westridge / Shellburn	BC	X		
Air Canada	Quebec City	QC	X		
BP Cherry Point	Vancouver	BC	X		
CAMI Automotive Inc.	Ingersoll	ON		X	
Canadian Pacific Railway	Calgary	AB	X		
Daigle Oil Limited	Edmundston	NB	X		X
Ford Motor Company of Canada	St. Thomas & Windsor	ON	X	X	
General Motors of Canada Limited	Oshawa	ON		X	
Honda of Canada Mfg.	Alliston	ON		X	
Imperial Oil Limited (Burrard Terminal)	Burnaby	BC	X	X	
Fraser Papers Inc.	Edmundston	NB	X		
Kildair Services Limited	Tracy	QC	X		
Mackenzie Petroleum Limited	Dawson City	YT	X		X
Marine Petrobulk Limited	North Vancouver	BC	X		
Neste Petroleum (Terminal Canterm Montréal)	Montréal-Est	QC	X		
Neste Petroleum (Terminal Canterm Québec)	Beauport	QC	X		
New Brunswick Power Corporation	Fredericton	NB	X		
Newfoundland and Labrador Hydro	St. John's	NF	X		
Noco Energy Canada	Nobleton	ON	X		
Norske Canada (Elf Falls Division)	Campbell River	BC	X		
Northern Transportation Company Limited	Iqaluit	NU	X		X
North 60 Petro Limited	Whitehorse	YT	X		
Nova Scotia Power Inc.	Halifax	NS	X		
Olco Petroleum Group Inc.	Hamilton	ON	X		
Parkland Refining Limited	Bowden	AB	X		X
Petro-Canada Products (Burrard Products Terminal)	Port Moody	BC	X		
Petro-Canada Products Limited (Montréal Refinery)	Montréal	QC	X		X
Petro-Canada Products Limited (Lake Ontario Refinery)	Oakville	ON	X		
Pétroles Norcan Inc.	Montréal	QC	X		
Pope and Talbot Limited (Harmac Pulp Operations)	Nanaimo	BC	X		
Robbins Feed and Fuel Limited (Blender)	Thorold	ON	X		
Suncor Energy Inc	Sarnia	ON	X	X	X
Ultramar Canada Inc. (Maitland	Maitland	ON	X		

Terminal)					
Ultramar Canada Inc. (Holyrood Terminal)	Holyrood	NF	X		
Ultramar Canada Inc. (Montreal East Terminal)	Montreal East	QC	X		X
Ultramar Canada Inc. (St-Romuald Refinery	St- Romuald	QC	X		X
United Refining Company (Warren	Pennsylvania	USA	X		
Western Pulp Inc.	Port Alice	BC	X		

2.5 Company Specific Sulphur Levels

Appendix 3 presents data on the annual volume-weighted sulphur content (in mg/kg) for gasoline, diesel and fuel oil during the period of 1995 to 2002 for each Canadian refinery and importer.

3.0 Volumes of Liquid Fuels Produced / Imported

In order to verify the accuracy of the reported volumes of produced fuels were compared to Statistics Canada figures for 2002 (see Table 3.1). The "plant consumption" volumes of oil sand processing plants are included in the Environment Canada numbers but are not included in the Statistics Canada numbers. There appears to be reasonable agreement between the two sets of data, given the differences in approaches noted below.

TABLE 3.1: Volumes of Liquid Fuels Produced / Imported for Sale in Canada
Reported to Statistics Canada[1] and Environment Canada for 2002

Type of Fuel	Statistics Canada (m^3)	Environment Canada (m^3)
Aviation Turbo Fuel	5,956,487	6,580,009
Motor Gasoline	39,610,295	40,418,906
Aviation Gasoline	102,697	114,408
Kerosene/Stove oil	333,542	1,408,598
Low-Sulphur Diesel Fuel	-	21,430,666
Diesel Fuel	22,750,603	3,335,836
Light Fuel Oil	4,966,402	4,297,324
Heavy Fuel Oil	7,566,489	6,899,463
Plant Consumption	800,237	1,243,052
TOTAL	82,086,752	85,728,262

Notes:
1 Statistics Canada data were compiled for the period December 2001 - December 2002
Source: Statistics Canada, Catalogue no. 45-004-XIB Monthly, December 2002
2 According to Statistics Canada, approximately 75-80% of refinery-produced kerosene and stove oil are later transferred to diesel and light fuel oils.
3 Statistics Canada does not distinguish between low-sulphur and regular diesel grades.
4 Plant consumption fuel is almost all heavy fuel oil, but in some instances may consist of light fuel oil and diesel.
5 Volumes reported to Environment Canada mostly reflect production at the various refineries while Statistics Canada considers opening and closing inventories and inter-product transfers.

4.0 Volumes of Liquid Fuels Produced / Imported and Fuel Sulphur Content

4.1 National and Regional Summaries

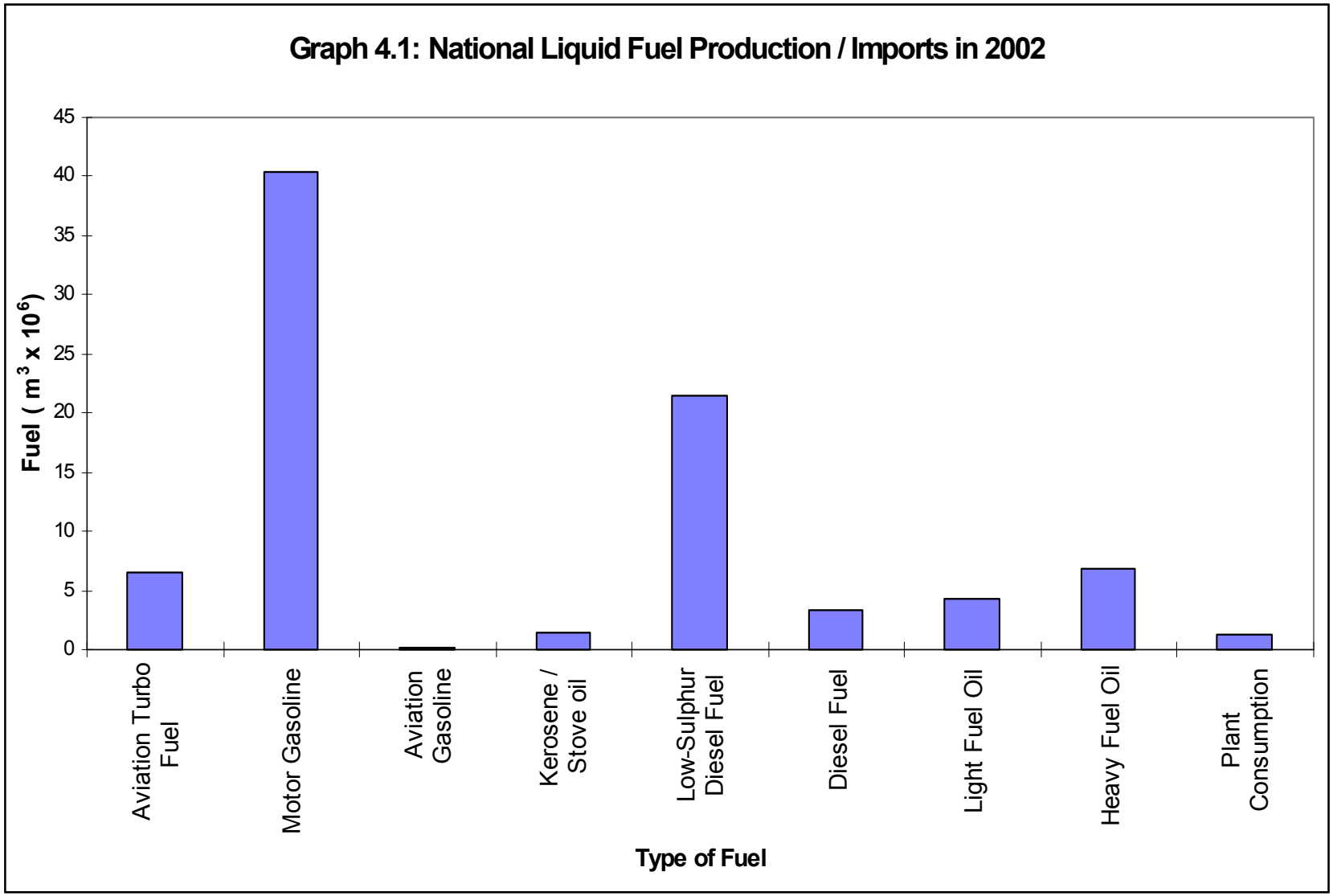
The following graphs and tables summarize the data compiled from reports submitted pursuant to the *Fuels Information Regulations No. 1* for 2002:

- National Data for Liquid Fuels: Table 4.1, Graphs 4.1 and 4.2
- Regional Data for Liquid Fuels: Tables 4.2A-E, Graphs 4.3 and 4.4
- Regional Data for Motor/Aviation Gasoline: Graph 4.5
- Refinery Data for Motor Gasoline: Graph 4.6
- Refinery Data for Diesel Fuel: Graphs 4.7 and 4.8
- Historical Trends (National): Graphs 4.9 to 4.14

TABLE 4.1 :
Fuel Production / Imports and Sulphur Content
National Summary for 2002

Type of Fuel	Fuel Production / Imports		Sulphur Mass	Average Sulphur	Distribution of Sulphur
	(m^3)	(% of total)	(tonnes)	Content (%wt.)	in Products (%)
Aviation Turbo Fuel	6,580,009	7.7	3,251	0.061	2.1
Motor Gasoline	40,418,906	47.1	7,356	0.025	4.7
Aviation Gasoline	114,408	0.1	5	0.006	0.0
Kerosene/Stove Oil	1,408,598	1.6	527	0.046	0.3
Low-Sulphur Diesel Fuel	21,430,666	25.0	5,859	0.032	3.8
Diesel Fuel	3,335,836	3.9	7,023	0.247	4.5
Light Fuel Oil	4,297,324	5.0	6,483	0.176	4.2
Heavy Fuel Oil	6,899,463	8.0	106,279	1.537	68.6
Plant Consumption	1,243,052	1.4	18,108	1.435	11.7
TOTAL	85,728,262	100.0	154,890	0.188	100.0

Note: Totals may not add up to due to rounding.


Graph 4.1: National Liquid Fuel Production / Imports in 2002
Fuel (m3 x 10^6)
45
40
35
30
25
20
15
10
5
0
Aviation Turbo Fuel
Motor Gasoline
Aviation Gasoline
Kerosene / Stove oil
Low-Sulphur Diesel Fuel
Diesel Fuel
Light Fuel Oil
Heavy Fuel Oil
Plant Consumption
Type of Fuel

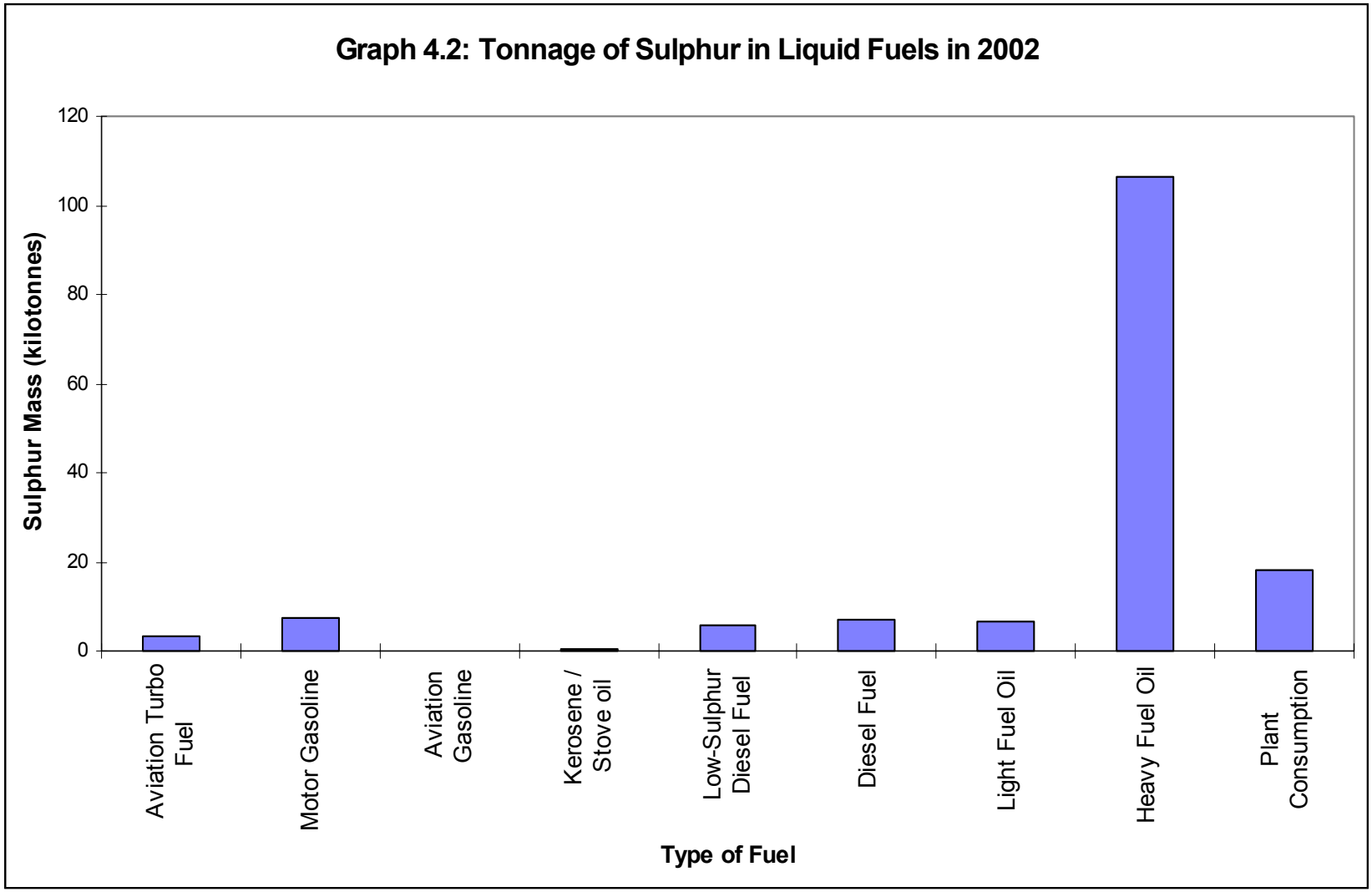

Graph 4.2: Tonnage of Sulphur in Liquid Fuels in 2002
Sulphur Mass (kilotonnes)
120
100
80
60
40
20
0
Aviation Turbo Fuel
Motor Gasoline
Aviation Gasoline
Kerosene / Stove oil
Low-Sulphur Diesel Fuel
Diesel Fuel
Light Fuel Oil
Heavy Fuel Oil
Plant Consumption
Type of Fuel

TABLE 4.2A : Fuel Production/Imports and Sulphur Content for 2002

Atlantic Region				
Type of Fuel	**Fuel Production/Imports (m^3)**	**Sulphur Mass (tonnes)**	**Average Sulphur Content (%wt.)**	**Distribution of Sulphur in Products (%)**
Aviation Turbo Fuel	486,384	563	0.145	0.9
Motor Gasoline	2,814,802	368	0.018	0.6
Aviation Gasoline	0	0	0.000	0.0
Kerosene/Stove oil	118,671	50	0.052	0.1
Low-Sulphur Diesel Fuel	1,826,865	642	0.042	1.1
Diesel Fuel	N/A [1]	157	0.066	0.3
Light Fuel Oil	1,558,302	1,670	0.127	2.7
Heavy Fuel Oil	2,568,002	49,634	1.915	81.2
Plant Consumption	470,428	8,068	1.720	13.2
TOTAL	9,843,454 [2]	61,152	0.607	100.0

Notes:
1. Volume not included to protect confidential data.
2. Total volume excludes the volume not included, as per note 1.

TABLE 4.2B : Fuel Production/Imports and Sulphur Content for 2002

Quebec Region				
Type of Fuel	**Fuel Production/Imports (m^3)**	**Sulphur Mass (tonnes)**	**Average Sulphur Content (%wt.)**	**Distribution of Sulphur in Products (%)**
Aviation Turbo Fuel	1,772,396	999	0.070	3.1
Motor Gasoline	10,871,777	1,785	0.022	5.5
Aviation Gasoline	N/A [1]	2	0.005	0.0
Kerosene/Stove oil	1,222,297	453	0.045	1.4
Low-Sulphur Diesel Fuel	4,887,436	1,680	0.041	5.2
Diesel Fuel	N/A [1]	468	0.205	1.4
Light Fuel Oil	1,548,028	2,615	0.198	8.0
Heavy Fuel Oil	1,982,041	22,286	1.128	68.6
Plant Consumption	157,236	2,206	1.387	6.8
TOTAL	22,489,068 [2]	32,494	0.151	100.0

Notes:
1. Volumes not included to protect confidential data.
2. Total volume includes the volume not included, as per note 1.

TABLE 4.2C : Fuel Production/Imports and Sulphur Content for 2002

Ontario Region				
Type of Fuel	**Fuel Production/Imports (m^3)**	**Sulphur Mass (tonnes)**	**Average Sulphur Content (%wt.)**	**Distribution of Sulphur in Products (%)**
Aviation Turbo Fuel	1,471,768	796	0.066	2.2
Motor Gasoline	13,055,996	3,202	0.033	8.9
Aviation Gasoline	0	0	0.000	0.0
Kerosene/Stove oil	N/A [1]	21	0.044	0.1
Low-Sulphur Diesel Fuel	4,526,446	1,334	0.035	3.7
Diesel Fuel	999,703	2,615	0.308	7.2
Light Fuel Oil	1,172,682	2,187	0.216	6.1
Heavy Fuel Oil	1,234,805	18,183	1.495	50.3
Plant Consumption	319,838	7,792	2.348	21.6
TOTAL	22,781,237 [2]	36,129	0.169	100.0

Notes:
1. Volume not included to protect confidential data.
2. Total volume excludes the volume not included, as per note 1.

TABLE 4.2D : Fuel Production/Imports and Sulphur Content for 2002

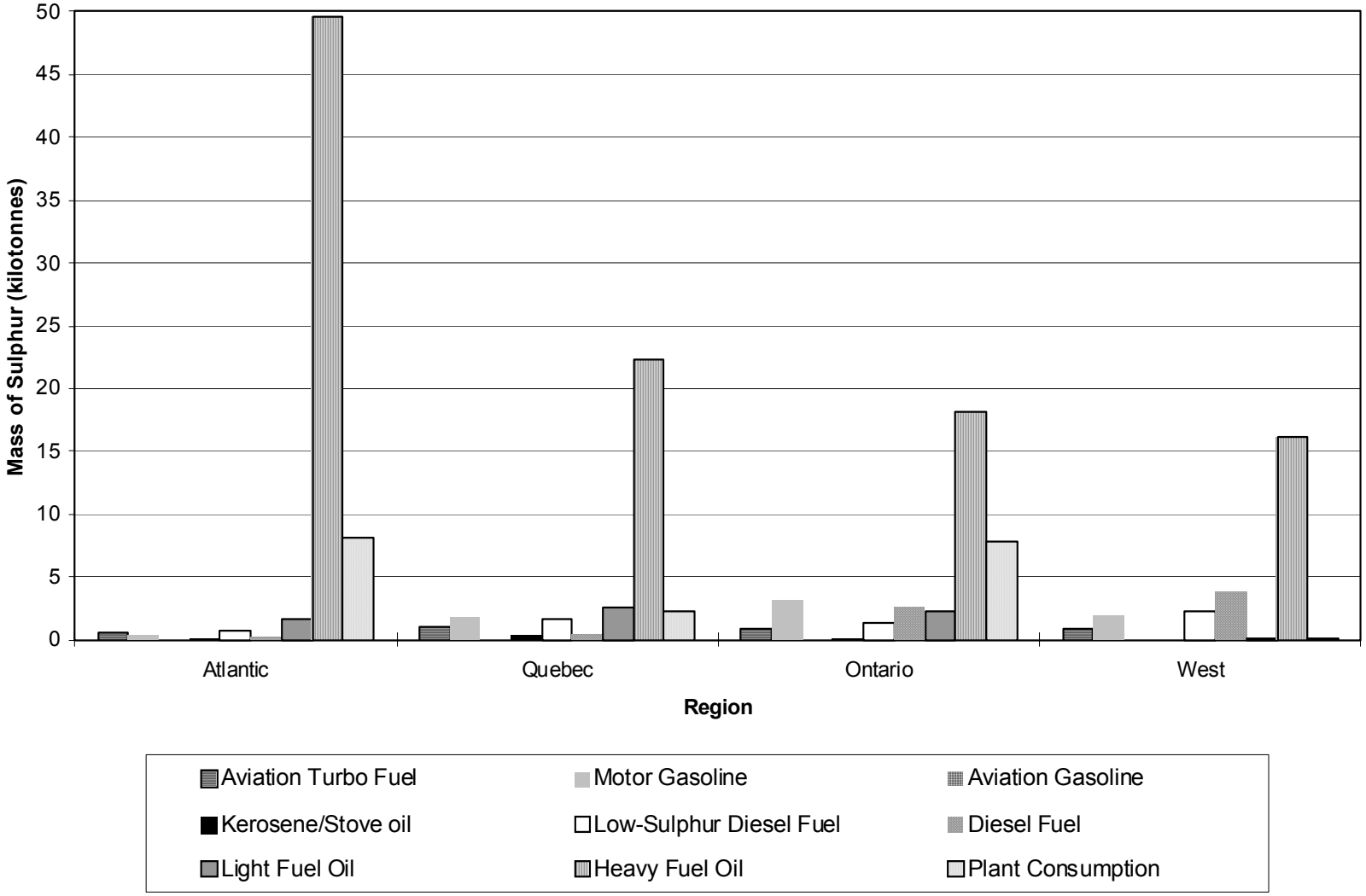
West Region				
Type of Fuel	**Fuel Production/Imports (m^3)**	**Sulphur Mass (tonnes)**	**Average Sulphur Content (%wt.)**	**Distribution of Sulphur in Products (%)**
Aviation Turbo Fuel	2,849,460	893	0.039	3.6
Motor Gasoline	13,676,332	2,001	0.020	8.0
Aviation Gasoline	N/A [1]	3	0.007	0.0
Kerosene/Stove oil	10,811	3	0.034	0.0
Low-Sulphur Diesel Fuel	10,189,920	2,204	0.025	8.8
Diesel Fuel	1,786,870	3,783	0.247	15.1
Light Fuel Oil	N/A [1]	11	0.070	0.0
Heavy Fuel Oil	1,114,615	16,176	1.439	64.4
Plant Consumption [3]	295,550	42	0.017	0.2
TOTAL	30,008,420	25,116	0.090	100.0

Notes:
1. Volumes not included to protect confidential data.
2. Total volume includes the volume not included, as per note 1.
3. Plant consumption in the West consists mostly of diesel and light fuel oil.

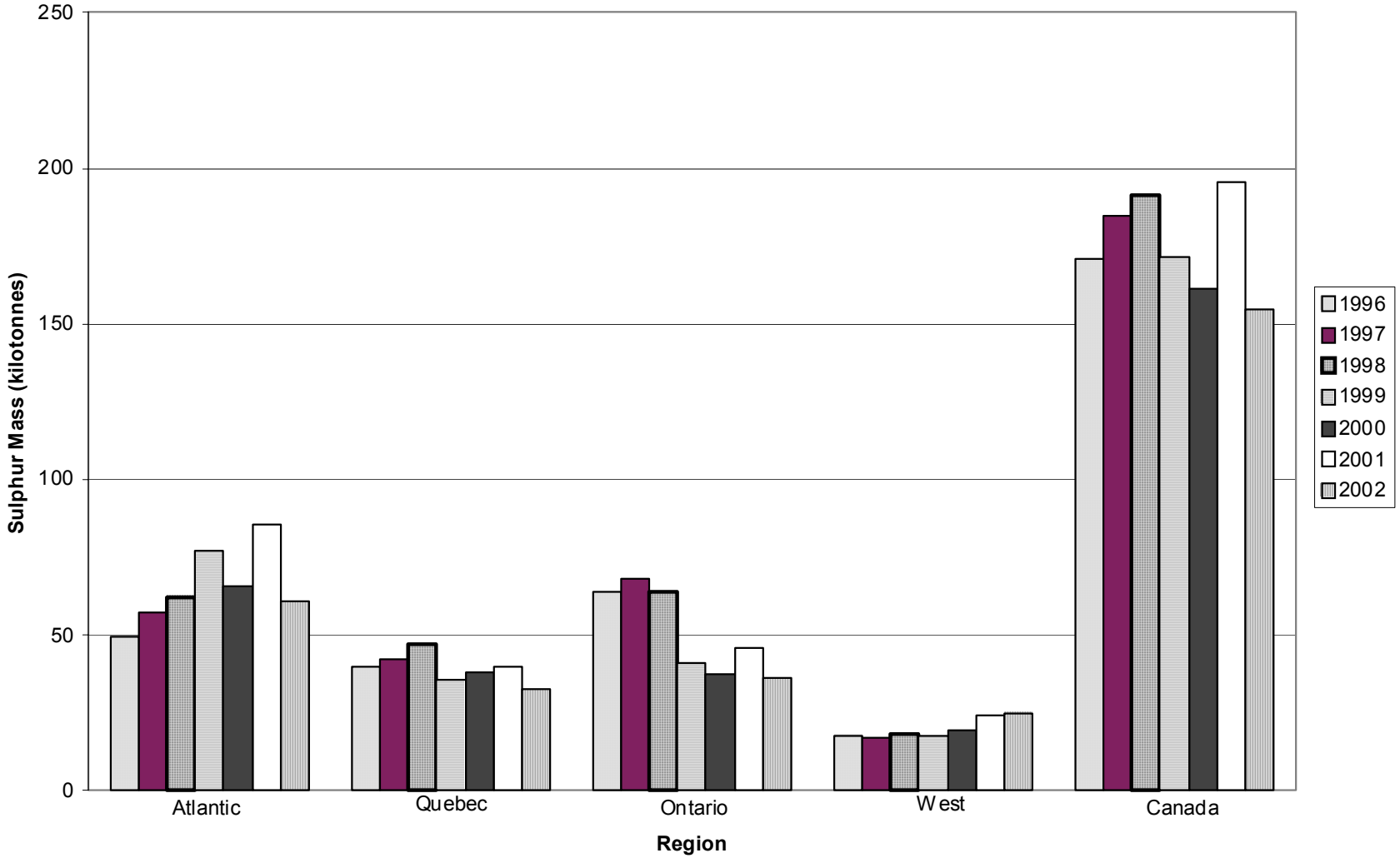
TABLE 4.2E : Regional and National Volume Weighted Averages of the Density of Fuels Produced/Imported in 2002 (in kg/m^3)

	Atlantic	Quebec	Ontario	West	Canada
Aviation Turbo Fuel	798.6	808.8	814.1	811.7	810.5
Motor Gasoline	736.4	729.8	733.7	726.3	730.3
Aviation Gasoline	0.0	707.0	0.0	707.9	707.0
Kerosene/Stove Oil	821.5	820.6	824.3	812.3	820.8
Low-Sulphur Diesel Fuel	846.0	838.6	843.7	848.3	844.9
Diesel Fuel	857.9	843.0	848.3	854.9	852.2
Light Fuel Oil	847.0	856.4	860.8	857.0	854.2
Heavy Fuel Oil	1007.3	995.9	984.6	1009.3	1000.3
Plant Consumption	993.1	1012.3	1024.1	809.1	959.8

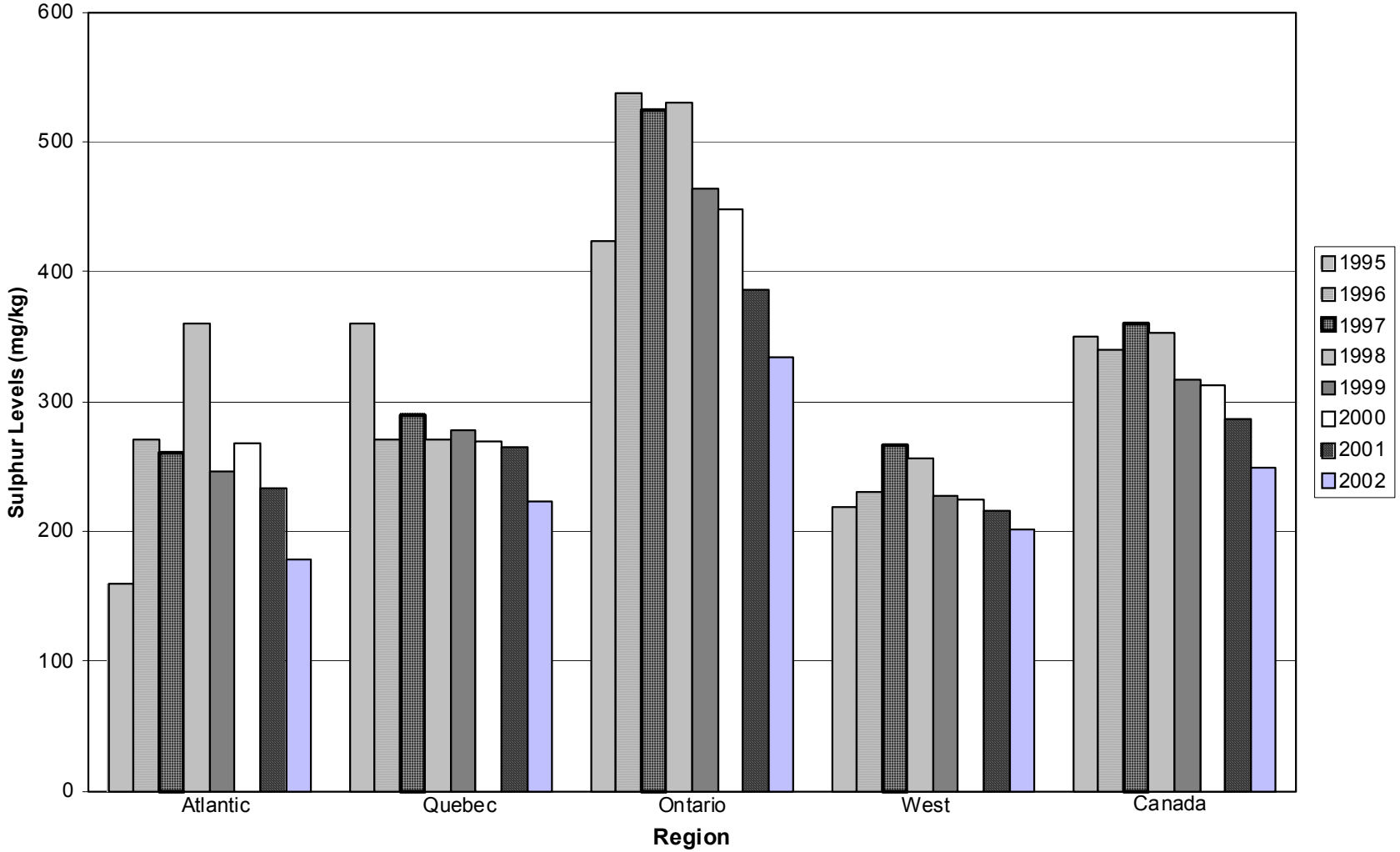
Gaph 4.3 : Mass of Sulphur in Liquid Fuels Produced or Imported in 2002



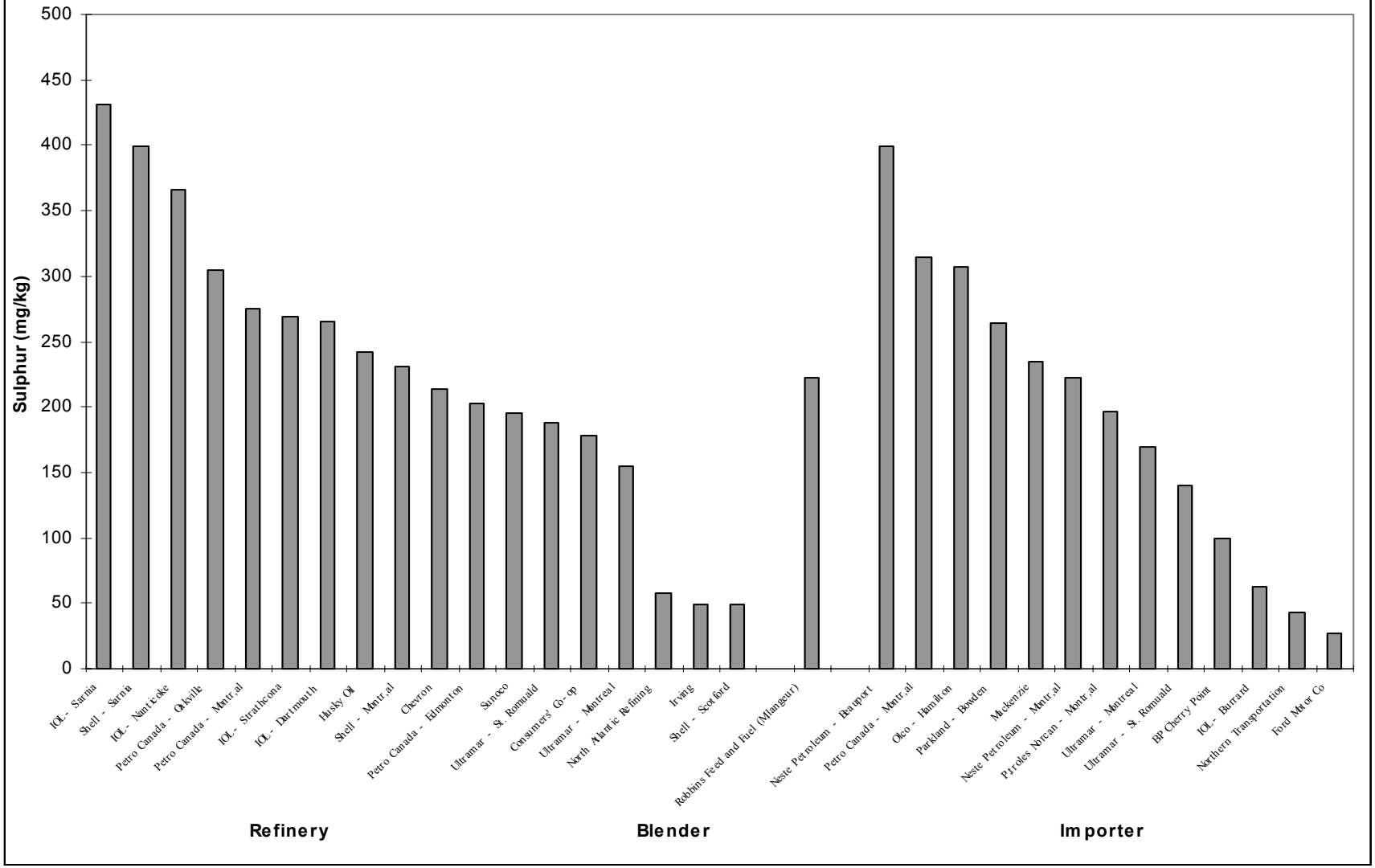
Graph 4.4 : Sulphur Mass in Liquid Fuels by Region, 1995-2002

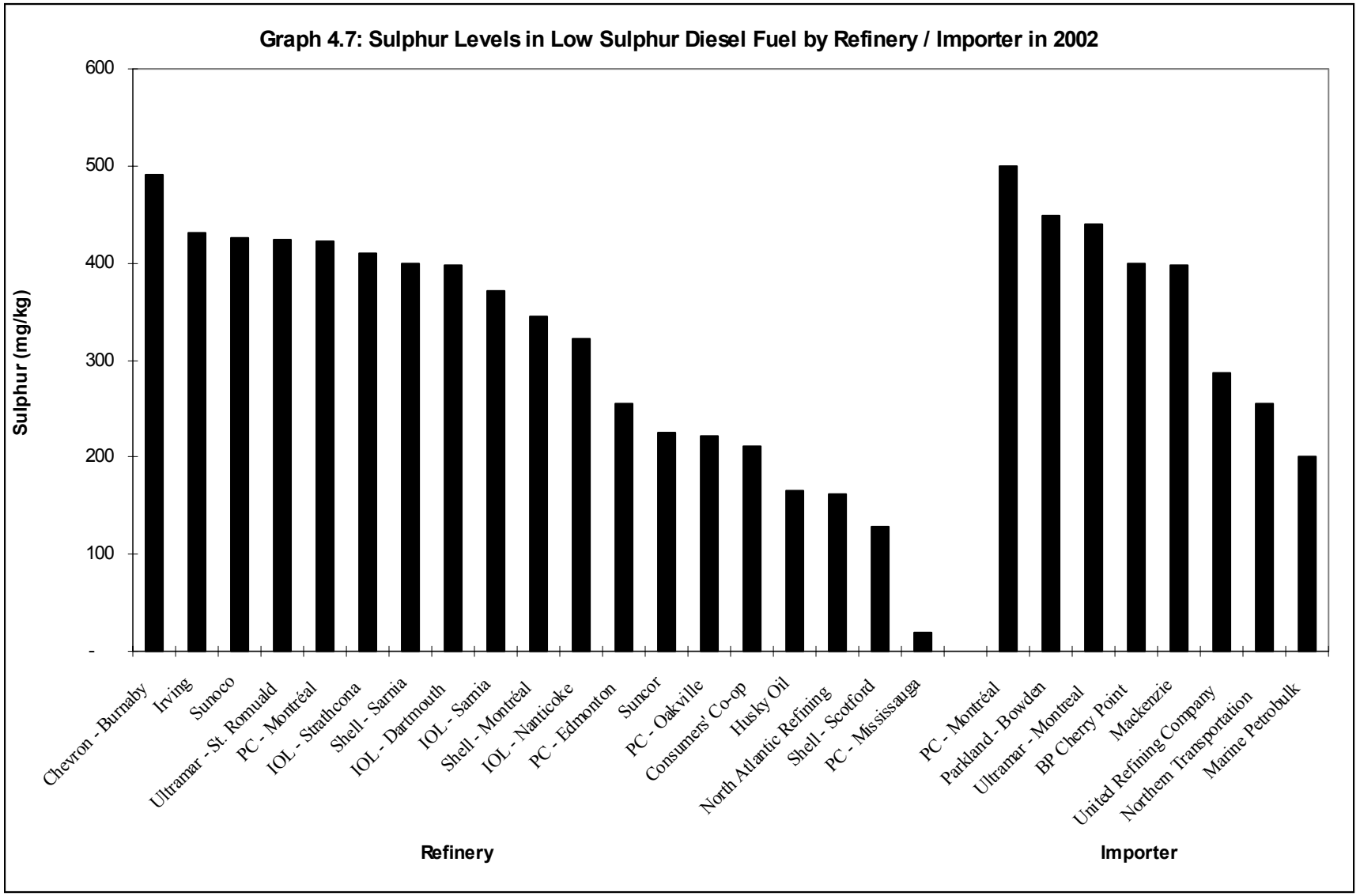


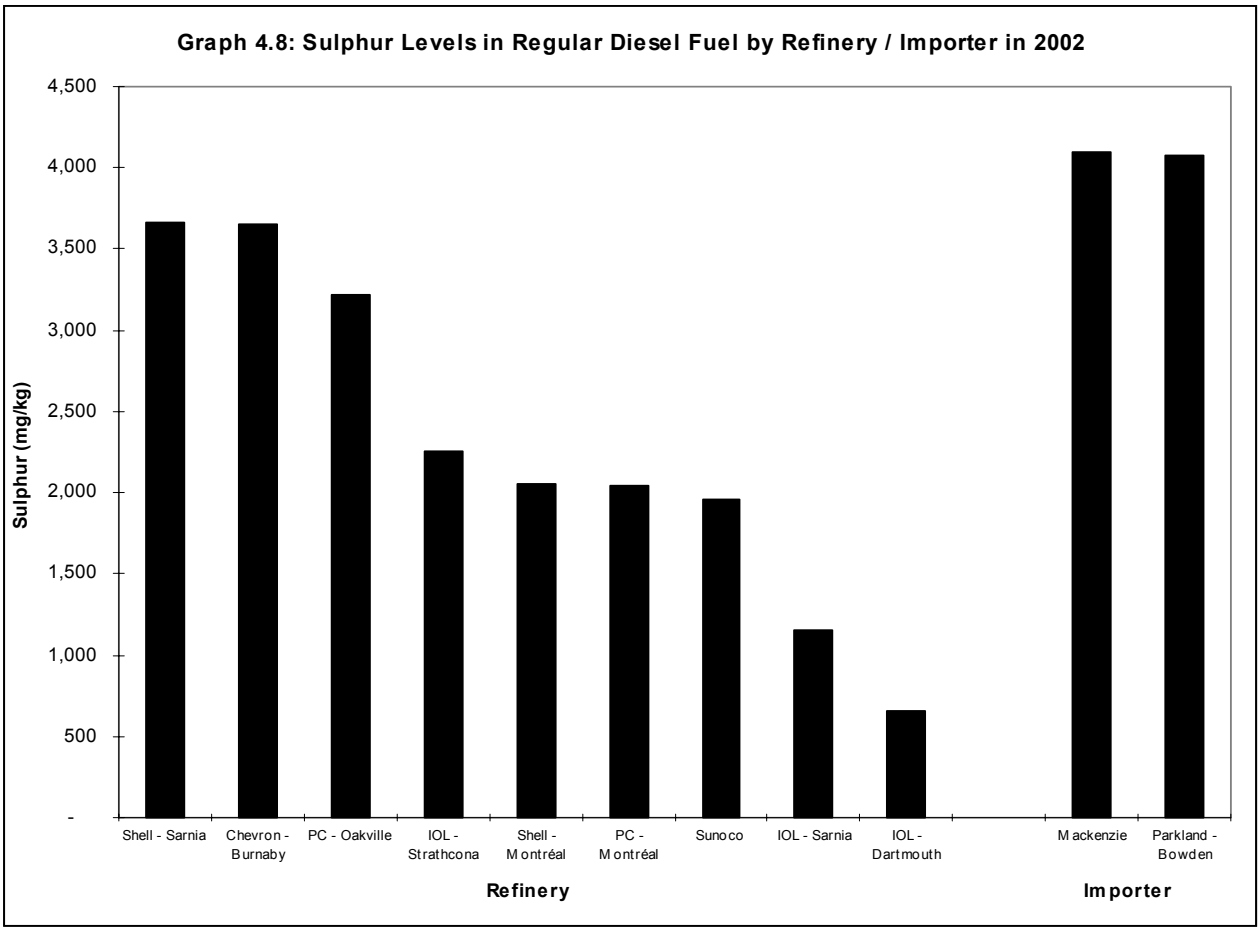
Graph 4.5 : Sulphur Levels in Motor/Aviation Gasoline by Region, 1995-2002

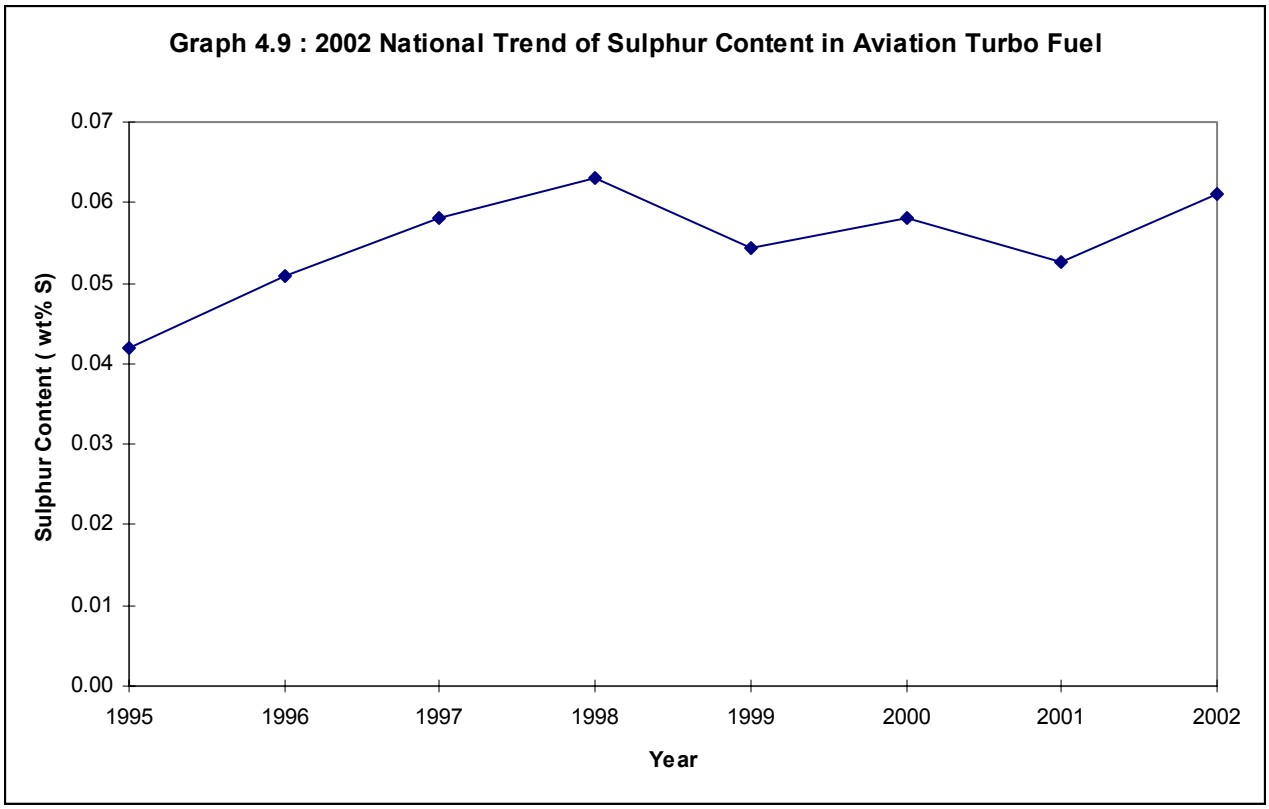


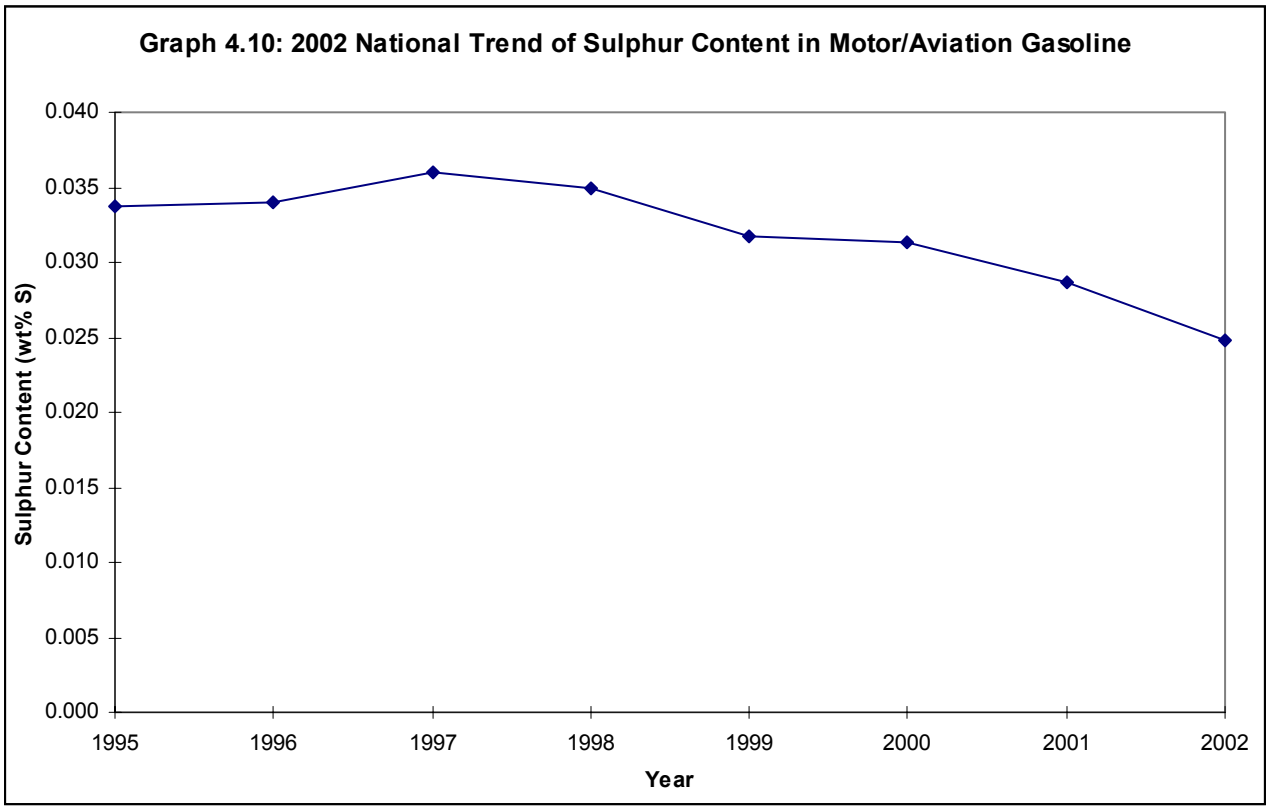
Graph 4.6: Sulphur Levels in Motor Gasoline by Refinery / Importer in 2002

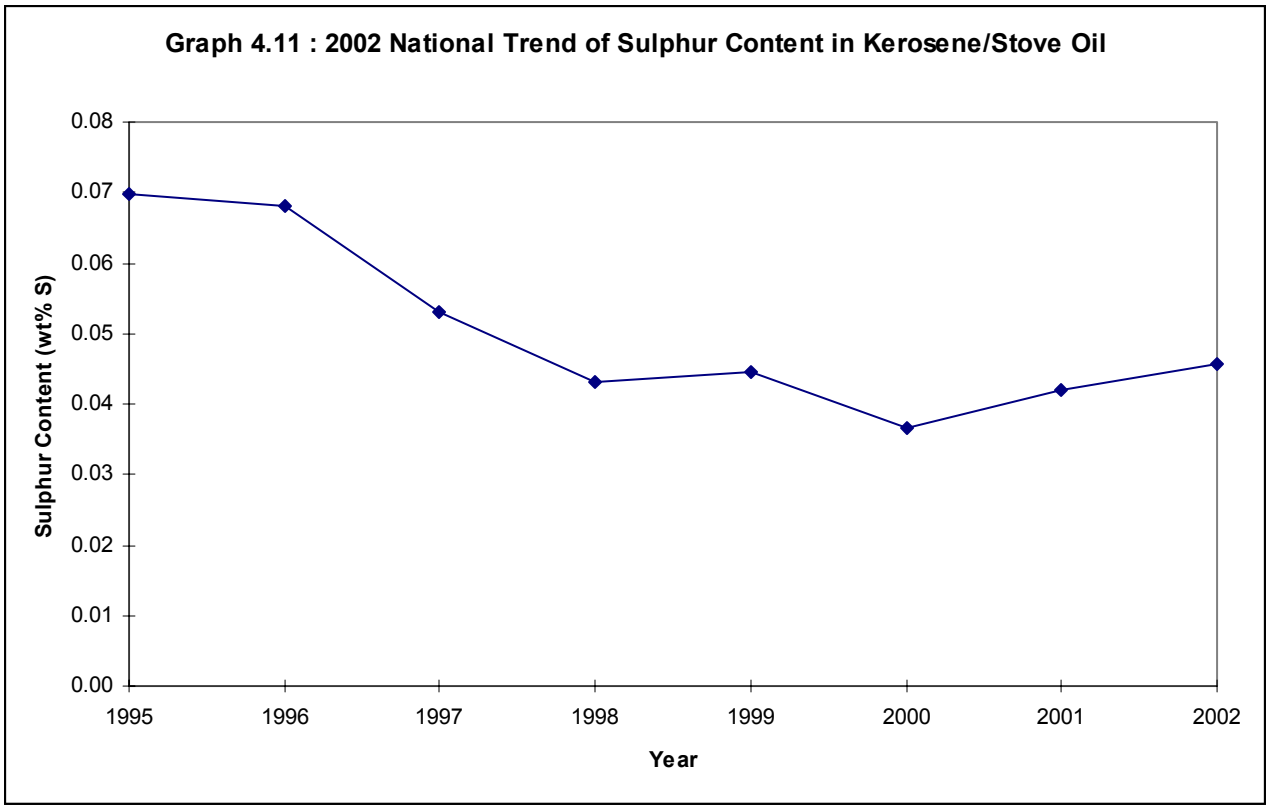


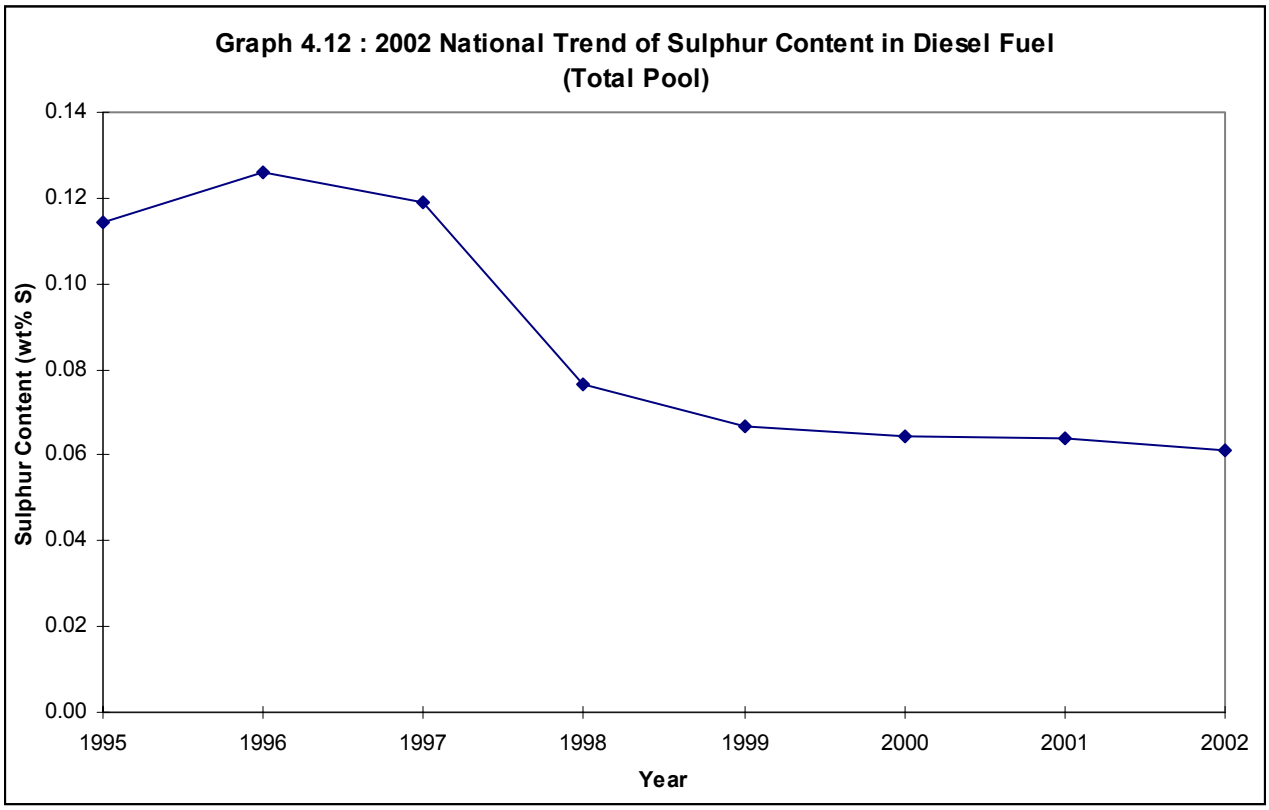

Graph 4.7: Sulphur Levels in Low Sulphur Diesel Fuel by Refinery / Importer in 2002
Sulphur (mg/kg)
600
500
400
300
200
100
-
Chevron - Burnaby
Irving
Sunoco
Ultramar - St. Romuald
PC - Montréal
IOL - Strathcona
Shell - Sarnia
IOL - Dartmouth
IOL - Sarnia
Shell - Montréal
IOL - Nanticoke
PC - Edmonton
Suncor
PC - Oakville
Consumers' Co-op
Husky Oil
North Atlantic Refining
Shell - Scotford
PC - Mississauga
PC - Montréal
Parkland - Bowden
Ultramar - Montreal
BP Cherry Point
Mackenzie
United Refining Company
Northern Transportation
Marine Petrobulk
Refinery
Importer


Graph 4.8: Sulphur Levels in Regular Diesel Fuel by Refinery / Importer in 2002
Sulphur (mg/kg)
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
-
Shell - Sarnia
Chevron - Burnaby
PC - Oakville
IOL - Strathcona
Shell - Montréal
PC - Montréal
Sunoco
IOL - Sarnia
IOL - Dartmouth
Mackenzie
Parkland - Bowden
Refinery
Importer

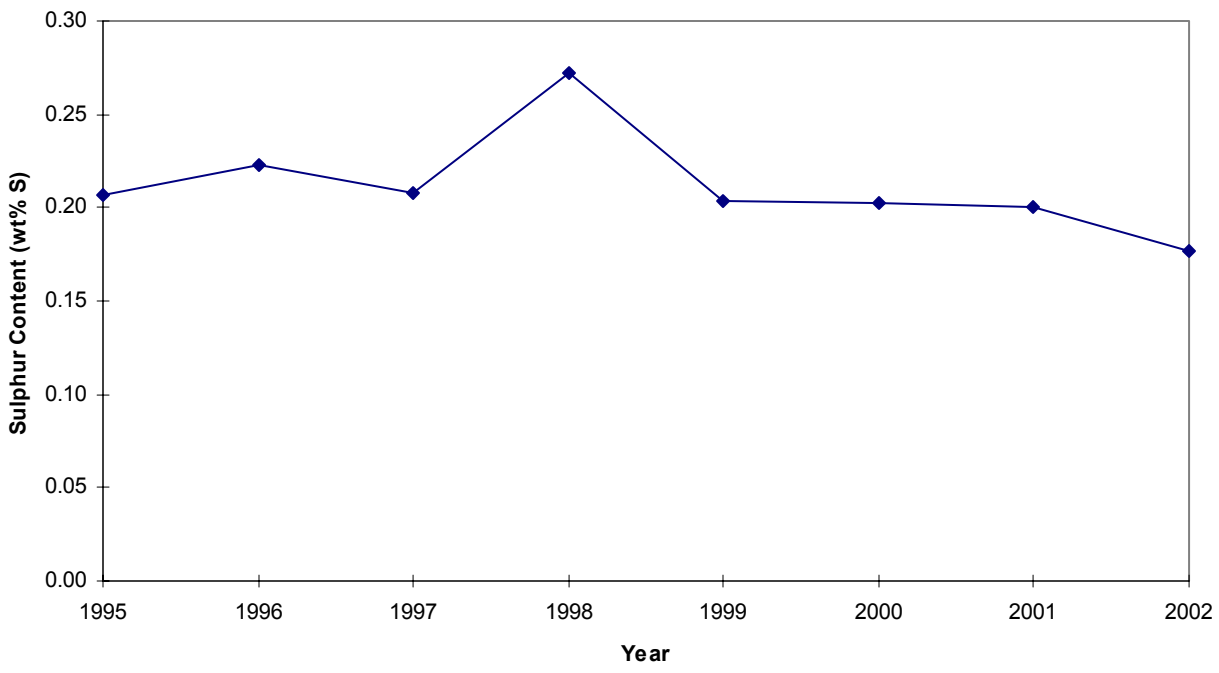

Graph 4.9 : 2002 National Trend of Sulphur Content in Aviation Turbo Fuel
Sulphur Content (wt% S)
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
1995
1996
1997
1998
1999
2000
2001
2002
Year


Graph 4.10: 2002 National Trend of Sulphur Content in Motor/Aviation Gasoline
Sulphur Content (wt% S)
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
1995
1996
1997
1998
1999
2000
2001
2002
Year

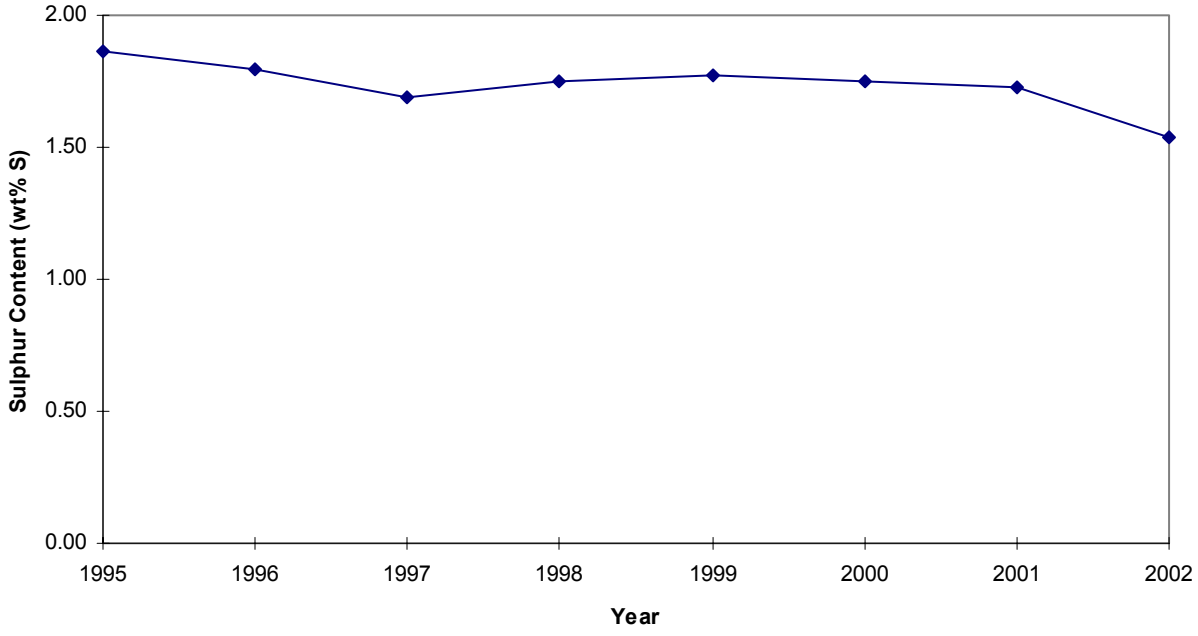

Graph 4.11 : 2002 National Trend of Sulphur Content in Kerosene/Stove Oil
Sulphur Content (wt% S)
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
1995
1996
1997
1998
1999
2000
2001
2002
Year


Graph 4.12 : 2002 National Trend of Sulphur Content in Diesel Fuel
(Total Pool)
Sulphur Content (wt% S)
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
1995
1996
1997
1998
1999
2000
2001
2002
Year

Graph 4.13 : 2002 National Trend of Sulphur Content in Light Fuel Oil



Graph 4.14 : 2002 National Trend of Sulphur Content in Heavy Fuel Oil



Appendix 1

Web-site References for Fuels Information Regulation, No. 1, Sulphur in Gasoline Regulations, Diesel Fuel Regulation and *Sulphur in Diesel Fuel Regulationss*

Fuels Information Regulations, No. 1:

http://www.ec.gc.ca/CEPARegistry/regulations/DetailReg.cfm?intReg=10&x=16&y=6

Sulphur in Gasoline Regulations:

http://www.ec.gc.ca/CEPARegistry/regulations/DetailReg.cfm?intReg=18&x=21&y=9

Diesel Fuel Regulations (repealed):

http://www.ec.gc.ca/CEPARegistry/regulations/DetailReg.cfm?intReg=6&x=13&y=8

Sulphur in Diesel Fuel Regulations:

http://www.ec.gc.ca/CEPARegistry/regulations/DetailReg.cfm?intReg=63&x=16&y=7

Appendix 2

Sample Forms for Reporting Sulphur Content under the Regulations:

Fuel Information Regulations, No. 1;

Sulphur In Gasoline Regulations;

Sulphur in Diesel Fuel Regulations;

Diesel Fuel Regulations (do not use after 2002).

Fuels Information Regulations, No. 1

NOTE: Information contained in this page is for compliance promotional purposes and has no legal status. For requirements under the regulations, refer to the actual regulations.

The *Fuels Information Regulations, No. 1,* require every person who produces or imports **more than 400 cubic metres** (i.e., 400,000 L or 87,988 Imp. gallons) of aviation turbo fuel, gasoline, kerosene, diesel fuel or fuel oils per year to submit to Environment Canada the following information as outlined in Form 1 and Form 2 described below:

Form 1: Report on Sulphur Content of Liquid Fuels.

The Report on Sulphur Content of Liquid Fuels for each quarter of the calendar year is due on or before January 31st of each year following the year of production or import. (a form is attached for your convenience),

Form 2: Report on Fuel Additives (other than lead or lead compounds) in Petroleum Fuels.

The Report on Fuel Additives in Petroleum Fuels is due within sixty days of selling the fuel. This information does not have to be reported annually once the initial report is made, but any changes in the information regarding additives must be reported within 60 days of any change. (a form is attached for your convenience).

Environment Canada Environnement Canada

REPORT ON SULPHUR CONTENT OF LIQUID FUELS (Form 1)

QUARTER: _____ YEAR: _____

This report should be submitted:

a) by January 31st for each quarter separately of the preceding calendar year, except in respect of diesel fuel as per notice below.
b) by every person who during the calendar year has produced or imported over 400 cubic meters of petroleum fuels for use in Canada. (No minimum for diesel fuel)
c) for the purpose of informing the Minister of Environment
d) to: Manager, Emergencies and Enforcement Division
Environment Canada – Ontario Region
Environmental Protection Branch
4905 Dufferin Street, Second floor
Downsview, Ontario, M3H 5T4

Notice: 30 days after the last day of each quarter if this form includes information scheduled under subsection 4(1) of the Diesel Fuel Regulations (applies only in respect of the first quarter in 2003 as the Diesel Fuel Regulations are revoked and replaced by the Sulphur in Diesel Fuel Regulations on January 1st, 2003).

This form is provided for your convenience. Please refer to the Canadian Environmental Protection Act, Fuels Information Regulation No. 1, Diesel Fuel Regulations, for information on compliance with the requirements for reporting on sulphur content of liquid fuels.

FUELS PRODUCED OR IMPORTED FOR USE OR SALE IN CANADA

COMPANY							
FACILITY NAME:							
FACILITY ADDRESS:							
TYPE OF LIQUID FUEL		**VOLUME (m^3)**		**DENSITY (kg/m^3) or API**	**SULPHUR CONTENT (WEIGHT %)**		
		PRODUCED	**IMPORTED**		**Highest**	**Lowest**	**Volume weighted average**
1	**AVIATION TURBO FUEL 1.1 Jet A**						
	1.2 Jet B						
2	**GASOLINE 2.1 Regular**						
	2.2 Mid-Grade						
	2.3 Premium						
	2.4 Aviation						
3	**KEROSENE AND STOVE OIL**						
4	**DIESEL FUEL (by type)**						
5	**NUMBER 2 - LIGHT FUEL OIL**						
6	**HEAVY FUEL OIL 6.1 NUMBER 4**						
	6.2 NUMBER 5						
	6.3 NUMBER 6						
7	**Other: specify (including Plant Consumption and Synthetic Crude used as a fuel)**						
AUTHORIZED COMPANY OFFICIAL: (PLEASE PRINT)		**TITLE:**		**SIGNATURE**			
TELEPHONE NUMBER:		**FAX NUMBER:**		**DATE:**			

LIQUID FUEL DEFINITIONS

Aviation Turbo Fuel
All kerosene-type (Jet A) and naphtha/wide-cut type (Jet B) fuels for turbo-jet or straight-jet type aircraft engines.

Gasoline
All gasoline-type fuels for internal combustion engines including aviation gasoline.

Kerosene and Stove Oil
Kerosene, mineral lamp oil, stove oil, type 1 fuel oil including all fuels intended for atomizing burners.

Diesel Fuel
All grades of distillate fuel suitable for diesel engines.

No. 2 Light Fuel Oil
Distillate fuel intended for use in most atomizing-type burner applications.

Heavy Fuel Oil
Fuel oils are heating fuel oil - type 4,5,and 6 containing residual components and include bunker C.

Other:
-plant consumption: liquid fuels used onsite or in company operations and not accounted for in items 1 to 6. Data should be provided for each fuel type using the definitions listed above.
-synthetic crude used as a fuel
-does not include gases

PROTECTED - BUSINESS INFORMATION

REPORT ON FUEL ADDITIVES IN PETROLEUM FUELS (FORM 2)

This report, should be submitted:

a) each time a new additive has been introduced into a fuel produced in Canada or imported into Canada and when the quantity of fuel produced or imported exceeds 400 cubic metres,
b) within 60 days of selling the fuel,
c) when concentration of reported additives has been changed.

This form is provided for your convenience. Please refer to the Canadian Environmental Protection Act and Fuels Information Regulation No. 1 for information on compliance with the requirements for reporting on fuel additives in petroleum fuels.

Mail marked "PROTECTED" to: Manager, Emergencies and Enforcement Division
Environment Canada – Ontario Region
Environmental Protection Branch
4905 Dufferin Street, Second floor
Downsview, Ontario, M3H 5T4

Company Name: _____

Name of Refiner or importer: _____

Address: _____

If Importer, State Name: _____
and
Location of Petroleum Fuel Storage Tanks: _____

Additive Manufacturer: _____

Address: _____

1. Type of Fuel: _____ Brand Name of Additive: _____

   Quantity of Additive Used Annually (kg): _____ Purpose of Additive: _____

2. Fuel Additive Concentration (mg/L): Highest: _____ Lowest : _____ Weighted Average: _____

3. Composition of Fuel Additive *(Complete A,B* or C)

   A. Chemical Name of Constituent: _____ Percent by Weight: _____

   _____ _____

   B. Elements: CARBON, HYDROGEN, OXYGEN Total Percent by Weight: _____

   List all other elements which are present in a concentration greater than 0.1 weight % in the fuel additive. (Complete on a separate sheet if necessary)

   C. Attach copy of confirmation letter from the fuel additive manufacturer that the information required under A or B has been forwarded to Environment Canada

   Name of Official: _____ Signature of Official _____

   Title: _____ Telephone: (_____) _____ -- _____

   Date: _____ (**Please print information**)

9809 (revised from 05-88)

Sulphur in Gasoline Regulations

NOTE: Information contained in this page is for compliance promotional purposes and has no legal status. For requirements under the regulations, refer to the actual regulations.

The *Sulphur in Gasoline Regulations* restrict the sulphur content in gasoline produced in or imported into Canada for the purposes of section 139 of the Act. Primary suppliers have the option of either meeting the limit on a "flat" basis or on a "pool average" basis with an never-to-be-exceeded cap. Each option has different limits and timeline.

For primary suppliers choosing "flat" limit, limits and timeline:

170 ppm (i.e. 0.0170 % wt.)	from July 1, 2002 to December 31, 2004
40 ppm (0.0040 % wt)	starting on January 1, 2005

For primary suppliers who have selected a “pool average”

Primary suppliers electing to meet the limit on the basis of a pool average must notify the Minister at least 60 days before the start of the first year in respect of which the calculation will be made (first notice by May 2, 2002 for year 2002 and by November 2 for subsequent years). Election of pool average whether on an annual basis or over the period of 30 month interim period, cannot be changed part way through an averaging period.

"Pool averages", limits and timeline:

150 ppm (0.0150 % wt)	from July 1, 2002 to December 31, 2004 (option for 30 month averaging period)
30 ppm (0.0030 % wt)	starting on January 1, 2005

Associated never-to-be-exceeded limits for those selecting pool average:

300 ppm (0.0300 % wt)	from October 1, 2003	(sellers allowed till January 1, 2004)
80 ppm (0.0080 % wt)	from January 1, 2005	(sellers allowed till April 1, 2005)

IMPORTANT DATES IN THE SULPHUR IN GASOLINE REGULATIONS

February 15, 2003	First annual report on gasoline composition (subsequent annual reports are due by February 15 of each year).
May 31, 2003	First auditor's report is due for those on a pool average (subsequent annual reports are due by May 31 of each year).
October 1, 2003	The never-to-be-exceeded cap for sulphur of 300 ppm comes into force for anyone producing or importing gasoline.
January 1, 2004	The never-to-be-exceeded cap for sulphur of 300 ppm comes into force for anyone selling gasoline.
January 1, 2005	Final requirements for sulphur come into force for refiners, importers and blenders.
April 1, 2005	The never-to-be-exceeded cap for sulphur of 80 ppm comes into force for anyone selling gasoline.

Further details on the above are contained in an Environment Canada guidance document entitled "Questions and Answers on the Federal *Sulphur in Gasoline Regulations* (June 2001). Copies are available upon request.

SULPHUR IN GASOLINE REGULATIONS (SOR/99-236)

Note: This form is provided for your convenience in reporting. For reporting details, refer to the Regulations.
Section 4 of the federal Sulphur in Gasoline Regulations requires that certain information be submitted:

a) by each primary supplier that produces or imports gasoline identified as low-sulphur gasoline, California phase 2 gasoline or gasoline-like blend stock as identified under section 5 of the Regulations,
b) for each refinery and blending facility at which the primary supplier produced the gasoline, for each province into which it imported the gasoline and for each combination which it elected under section 9 of the Regulations,
c) annually, on or before February 15 of the year following the year for which the report is prepared, first report on or before February 15, 2003 for year 2002.

The information should be submitted to the appropriate regional office of Environment Canada

Registration Number under the Benzene in Gasoline Regulations	**Year**
Company name	
Company address	

Type of primary supplier (check one or more) : [ ] Producer at a refinery [ ] Producer at a blending facility [ ] Importer

Which method has been elected to meet the Sulphur limit? [ ] Pool Average [ ] Flat
If pool average, what is the averaging period during the interim period that was elected? (annual basis or 30 month period)
Please note that, once pool average election has been made, it can not be changed part way through an averaging period .

Name and location of the refinery, blending facility or points of importation in the province, covered by this report:

Type of Gasoline	**Annual Volume (m^3)**		**Flat Limit**	**Pool Average**	
	PRODUCED	**IMPORTED**	**Maximum S Concentration in Gasoline (% wt)**	**Maximum S Concentration in Gasoline (% wt)**	**Volume Weighted average (% wt)**
1. Low Sulphur Gasoline					
2. California Phase 2 Gasoline				NOT REQ'D	NOT REQ'D
3. Gasoline-Like Blendstock			NOT REQ'D	NOT REQ'D	NOT REQ'D

Authorized Official	**Telephone No. ( ) -**
Title	**Fax No. ( ) -**
Signature	**Date**
Contact Name	**Contact Telephone No. ( ) -**

Sulphur in Diesel Fuel Regulations

NOTE: Information contained in this page is for compliance promotional purposes and has no legal status. For requirements under the regulations, refer to the actual regulations.

The goal of the *Sulphur in Diesel* Fuel Regulations is to ensure that the level of sulphur in diesel fuel used in on-road vehicles in Canada will not impede the effective operation of advanced emission control technologies planned to be introduced on 2007 and later model year vehicles to comply with stringent new exhaust emissions standards. Key elements of the proposed regulations are:

- The Regulations came into force January 1, 2003 and will revoke and replace the present *Diesel Fuel Regulations.* They set a maximum limit of 15 ppm for sulphur in on-road diesel fuel that is produced or imported for use or sale in Canada and for on-road diesel fuel that is sold or offered for sale (the present maximum is 500 ppm);

- The compliance date to meet the 15 ppm level for on-road diesel fuel that is produced or imported is June 1, 2006. The compliance date for sales of on-road diesel fuel is September 1, 2006. In northern Canada (including Nunavut; Yukon north of the arctic circle; Northwest Territories excluding major highways; areas of Manitoba, Ontario and Quebec along the coast of Hudson Bay and James Bay; Quebec mostly north of latitude 51°N and Labrador, defined as the Northern Supply Area), where the distribution and turnover of diesel fuel is much slower, the compliance date for sales of on-road diesel fuel is September 1, 2007.

Further details on the above are contained in an Environment Canada guidance document entitled “Questions and Answers on the Federal *Sulphur in Diesel Fuel Regulations*”. For a copy of this document, please refer to following website:

http://www.ec.gc.ca/CEPARegistry/regulations/

Attached, Schedule 1 (quartely reporting form) , schedule 2 (one time registration form) and recommended form for reporting quarterly Sales of diesel fuel are provided for your convenience.

IMPORTANT DATES IN THE *SULPHUR IN DIESEL FUEL REGULATIONS*

January 1, 2003	*Sulphur in Diesel Fuel Regulations* come into force and the *Diesel Fuel Regulations* are repealed. Limit for sulphur in diesel fuel for use in on-road vehicles does not change. Some changes in administrative provisions (eg. reporting, record keeping).
March 2, 2003	Every person who produces or imports diesel fuel must submit registration information as set out in Schedule 2 of the regulations.
May 15, 2003	Every person who produces or imports diesel fuel must submit first quarterly report under the new regulations providing the information prescribed by subsection 5(1). Future reports are due no later than 45 days after the end of each quarter.
January 1, 2004	Reference method for measuring the concentration of sulphur in diesel changes from CAN/CGSB-3.0 No. 16.0-95 to ASTM D 5453-00. Method for reporting concentration of sulphur in diesel are ASTM D 5453-00 or an equivalent method if the conditions of 5(2)(f) are met
June 1, 2006	15 mg/kg limit for concentration of sulphur in diesel fuel for use in on-road vehicles comes into effect for production and imports of diesel fuel.
September 1, 2006	15 mg/kg limit for concentration of sulphur in diesel fuel for use in on-road vehicles comes into effect for sales and offers to sell of diesel fuel (except in northern supply area).
September 1, 2007	15 mg/kg limit for concentration of sulphur in diesel fuel for use in on-road vehicles comes into effect for sales and offers to sell of diesel fuel in the northern supply area.

Comparison between New Sulphur in Diesel Fuel regulations and Old Diesel Fuel Regulations

Regulations	Application and Exceptions	Activity / Regulatee	Regulated Parameters and Limits	Reporting	Records	Sampling / Analysis / Retention	Other

Sulphur in Diesel Fuel Regulations **(come into effect on January 1, 2003)**	Diesel fuel for use in on-road vehicles (also off-road diesel fuel for reporting only)
	
	Exceptions
	S 2:
	• Fuel for export
	• Fuel in transit
	• Fuel imported that will meet regs before used or sold
	• Fuel in vehicle tank
		S 3:
		• production (refineries)
		• imports
		• Sales (eg. service stations)
			Regulated parameters
			• sulphur
			
			Limits
			S 3:
			• 500 ppm max
			• 15 ppm max (starting June 1, 2006 for imports/production, 3 months later for sales, additional 12 months for northern supply area)
				• one-time registration plus changes - boiler plate information: by later of 60 days after regs come into effect or 15 days before start of production/imports (ss 5(5) to 5(6))
				• quarterly information by producers and importers of any diesel fuel (ss 5(1) to (2)):
				  • by facility and province of import: volumes and sulphur levels (min, max, average) for both on-road and off-road diesel fuel
				  • by province: volume of on-road diesel fuel sold
				• All reports to be signed by authorized official (s 5(7))
					• Volumes of diesel fuel <500/15 ppm and >500/15 ppm produced, imported and sold (s 6(1))
					• Identification of off-road diesel batches, volume and date prior to dispatch or import (s 6(2))
						• analysis method specified (s 4)
						• No requirements for sampling or retention
							• none

Diesel Fuel Regulations **(will be revoked on December 31, 2002)**	Same, but no reporting is required for off-road diesel fuel
	
	No exceptions listed
	
	• the first 2 are included in CEPA and apply anyway
	
	• last 2 do not apply
		Same	Same
			
			• Same 500 ppm max
			• No 15 ppm limit
				• no registration requirements
				
				• quarterly reporting by producers and importers of on-road diesel fuel
				  • no requirement to report by facility or province of import;
				  • only one set of min / max / average sulphur levels required to be reported
				  • sales volume must also be reported
				  • no reporting required on off-road diesel fuel
					• volumes of on-road diesel fuel produced, imported and sold
					• identification not required
						• analysis method for 500 ppm only	• none

SCHEDULE 1

(Paragraph 5(1)(b))

QUARTERLY REPORT OF SULPHUR CONCENTRATION IN DIESEL FUEL

1. Calendar quarter _____

2. Year _____

3. Name of producer or importer

_____

4. Name of the facility in Canada producing diesel fuel or the province of import

_____

5. Street address (and mailing address if different) of the facility in Canada producing diesel fuel or of the importer's place of business in Canada

_____

_____

_____

6. Volume of diesel fuel, in m^3

*(*a) Diesel fuel with a concentration of sulphur that was less than or equal to 500 mg/kg until May 31, 2006 or that was less than or equal to 15 mg/kg after May 31, 2006

(i) Produced at the facility _____

(ii) Imported into the province _____

*(*b) Diesel fuel with a concentration of sulphur that exceeded 500 mg/kg until May 31, 2006 or exceeds 15 mg/kg after May 31, 2006

(i) Produced at the facility _____

(ii) Imported into the province _____

7. (1) Sulphur concentration (mg/kg, or percent by weight if the units are identified), reported separately for diesel fuel produced and diesel fuel imported

*(*a) Diesel fuel with a concentration of sulphur that was equal to or less than 500 mg/kg until May 31, 2006 or that was equal to or less than 15 mg/kg after May 31, 2006

(i) Highest _____

(ii) Lowest _____

(iii) Volume-weighted average _____

*(*b) Diesel fuel with a concentration of sulphur that exceeded 500 mg/kg until May 31, 2006 or exceeded 15 mg/kg after May 31, 2006

(i) Highest _____

(ii) Lowest _____

(iii) Volume-weighted average _____

(2) Method used (for reporting purposes) to measure sulphur concentration

_____

_____

8. Authorized official

Name _____

Title _____

Signature and date _____

Telephone number (_____) _____

Fax number (_____) _____

SCHEDULE 2

(Subsection 5(4))

REPORT BY PRODUCERS AND IMPORTERS OF DIESEL FUEL

1. Name of producer or importer _____

2. Mailing address of producer or importer _____

_____

_____

_____

3. Registration number(s), if any were provided by the Minister under section 7 of the *Benzene in Gasoline Regulations*

_____

4. Indicate if one or more of the following apply

[ ] Producer in Canada of diesel fuel for use in on-road vehicles

[ ] Producer in Canada of diesel fuel for any use other than in on-road vehicles

[ ] Importer of diesel fuel for use in on-road vehicles

[ ] Importer of diesel fuel for any use other than in on-road vehicles

5. For each facility producing diesel fuel in Canada

*(*a) Name and street address (and mailing address if different) of the facility

_____

_____

_____

*(*b) Typical annual volume, in m^3, of diesel fuel produced

(i) for use in on-road vehicles _____

(ii) for any use other than in on-road vehicles _____

6. For importers

*(*a) Street address (and mailing address if different) for place of business in Canada where records and reports will be kept

_____

_____

_____

*(*b) Each usual port of entry in Canada and usual mode of importation (e.g., ship, rail, truck, pipeline, etc.)

_____

_____

_____

*(*c) For each port of entry in Canada, typical annual volume, in m^3, of diesel fuel imported

(i) for use in on-road vehicles _____

(ii) for any use other than in on-road vehicles _____

7. Authorized official

Name _____

Title _____

Signature and date _____

Telephone number (_____) _____

Fax number (_____) _____

Recommended Form for Reporting Quarterly Sales of Diesel Fuel

(<u>not</u> required by the Sulphur in Diesel Fuel Regulations but can be used as an aid for regulatees in the submission of information required under paragraph 5(1)(a) of those regulations)

Submitted to the appropriate regional office of Environment Canada
45 days after each quarter

Volume of diesel fuel (m^3) with a concentration of sulphur that was less than or equal to:

- 500 mg/kg from January 1, 2003 and until May 31, 2006
- 15 mg/kg after May 31, 2006

sold by: _____ *(Company)*

in: _____ *(Province)*

Quarterly Sales	Volume of Diesel Fuel Produced by Company (m^3) (1)	Volume of Diesel Fuel Received from Others (m^3) (2)
Retail		
Other Sales		

NOTES:

(1) including estimated portion of co-mingled volume (lifted from terminals) that was produced by the company.

(2) including estimated portion of co-mingled volume (lifted from terminals) that was received from others.

Diesel Fuel Regulations (Repealed – Do Not Use after 2002)

NOTE: Information contained in this page is for compliance promotional purposes and has no legal status. For requirements under the regulations, refer to the actual regulations.

The *Diesel Fuel Regulations* restrict the sulphur content in diesel fuel for use in light-duty vehicles, light-duty trucks and heavy-duty vehicles. Section 2 of the regulations states that for the purposes of section 46 of the Act, where diesel fuel is for use in light-duty vehicles, light-duty trucks and heavy-duty vehicles, the maximum concentration of sulphur is **0.05%** of the fuel by weight (i.e. 500 ppm).

The enclosed form entitled "Quarterly report of sulphur concentration in diesel fuel for use in light duty vehicles, light duty trucks and heavy duty vehicles" was produced by Environment Canada with advice from the Canadian Petroleum Producers Institute. Electronic version of the form is also available.

The Regulations require producers and importers to submit **quarterly** reports on the quantity of diesel fuel produced or imported and the corresponding sulphur content. Note that all quantities are requried to be reported, there is no minimum reporting quantity. The quarterly reports are due 30 days after the last day of each quarter. For calendar year 2002, reports will be due on January 30, April 30, July 30 and October 30. (refer to Section 4)

Producers, importers and persons who sell or offer for sale diesel fuel must keep records of the quantities produced, imported or sold. Records are to be maintained for a period of five years after the record is made. (refer to Section 5)

For producers and importers who are also required to submit "Report on sulphur content of liquid fuels (Form 1)" as per the Fuels Information Regulations No.1, the reporting format in Form 1, has been revised to include section 4 reporting requirements and can be used for reporting sulphur information under the *Fuels Information Regulations, No. 1* and/or the *Diesel Fuel Regulations*. Note that under the Diesel Fuel Regulations, all quantities are required to be reported (i.e. there is no minimum reporting quantity).

The completed forms should be submitted to the address appearing on the forms or to the Regional Director of Environmental Protection in Environment Canada's Regional Offices. A list of addresses for Environment Canada's regional offices is attached at the end.

QUARTERLY REPORT OF SULPHUR CONCENTRATION IN DIESEL FUEL FOR USE IN LIGHT-DUTY VEHICLES, LIGHT-DUTY TRUCKS AND HEAVY-DUTY VEHICLES

(Quarterly Report - reports due on January 30, April 30, July 30, and October 30)

COMPANY: _____ QUARTER: _____ YEAR: _____

ADDRESS: _____

PERSON SUBMITTING REPORT: _____ TELEPHONE NUMBER: _____

	LOCATION: PRODUCTION FACILITY OR PROVINCE OF IMPORT			
PRODUCED **LOW SULPHUR DIESEL FUEL**				
Facility Address				
Quantity of Diesel Fuel (m^3)				
Sulphur Concentration (% mass) - Highest - Lowest - Weighted Average				
IMPORTED **LOW SULPHUR DIESEL FUEL**				
Province of Import				
Quantity of Diesel Fuel (m^3)				
Sulphur Concentration (% mass) - Highest - Lowest - Weighted Average				
SOLD IN CANADA **LOW SULPHUR DIESEL FUEL**				
Total Fuel Quantity (m^3)				

Signature of Authorized Person:_____ Title: _____ Date: _____

Appendix 3

Volume Weighted Annual Sulphur Levels by Refiner for 1995 to 2002

Table A3.1: Volume-Weighted Annual Sulphur Level in Motor Gasoline

			Sulphur Levels (mg/kg)							
	Name	City	1995	1996	1997	1998	1999	2000	2001	2002
Refiners	Chevron	Burnaby	215	273	294	246	199	174	171	213
	Consumer's Co-op	Regina	97	179	103	148	187	242	197	178
	Husky Oil	Prince George	183	261	225	282	170	248	239	242
	Imperial Oil	Dartmouth	365	419	374	491	329	382	356	265
	Imperial Oil	Sarnia	728	787	712	792	694	693	596	432
	Imperial Oil	Nanticoke	340	506	530	529	450	456	376	366
	Imperial Oil	Strathcona	239	243	346	297	272	252	302	268
	Irving Oil Limited	Saint-John	71	35	43	129	96	85	48	50
	North Atlantic Refining Ltd.	Come-by-Chance	38	75	118	76	55	47	49	58
	Parkland	Bowden	0	1	1	4	4	8	4	-
	Petro-Canada	Montreal	472	356	387	316	367	292	320	275
	Petro-Canada	Oakville	528	489	519	514	523	479	396	305
	Petro-Canada	Edmonton	360	380	394	377	311	311	250	202
	Shell	Montreal	392	319	333	312	269	318	280	231
	Shell	Sarnia	553	579	582	567	453	466	462	399
	Shell	Scotford	50	50	50	50	50	50	49	50
	Sunoco	Sarnia	368	276	298	301	209	192	180	196
	Ultramar	Montreal								155
	Ultramar	St-Romuald	219	174	186	171	173	218	212	188
	Robbins Feed & Fuel (Blender)	Thorold	N/A	N/A	N/A	137	271	239	307	222
Importers	BP Cherry Point	Blaine	N/A	N/A	N/A	70	103	105	110	100
	Delta Western Fuel (Totem Oil)	Whitehorse	N/A	N/A	N/A	610	73	236	-	-
	Ford Motor Company	Ontario	N/A	N/A	N/A	-	-	28	22	28
	Husky Oil	Prince George	N/A	N/A	N/A	80	-	-	-	-
	Imperial Oil	Burnaby	N/A	N/A	N/A	210	-	-	63	63
	Imperial Oil	Montreal	N/A	N/A	N/A	-	340	-	-	-
	Mackenzie Petroleum	Dawson City	N/A	N/A	N/A	170	301	280	234	234
	Murphy Oil USA	Superior	N/A	N/A	N/A	540	430	-	-	-
	Neste Petroleum	Beauport							386	400
	Neste Petroleum	Montreal							361	222
	Northern Transportation	Iqaluit	N/A	N/A	N/A	100	310	107	743	43
	Olco Petroleum Group	Quebec	N/A	N/A	N/A	457	511	299	-	-
	Olco Petroleum Group	Hamilton	N/A	N/A	N/A	410	540	394	317	307
	PaceSetter Enterprises	Whitehorse	N/A	N/A	N/A	-	246	220	-	-
	Parkland	Bowden	N/A	N/A	N/A	110	18	18	82	265
	Petro-Canada	Montreal	N/A	N/A	N/A	340	360	-	420	315
	Petro-Canada	Oakville	N/A	N/A	N/A	610	520	490	368	-
	Petro-Canada	Port Moody	N/A	N/A	N/A	210	321	-	-	-
	Petroles Norcan	Montreal	N/A	N/A	N/A	470	560	273	243	196
	Robbins Feed & Fuel	Thorold	N/A	N/A	N/A	140	270	-	-	-
	TransCanada Energy	Calgary	N/A	N/A	N/A	100	500	-	-	-
	Ultramar	Montreal								170
	Ultramar	St-Romuald	N/A	N/A	N/A	120	300	270	262	140
	National Average		345	340	360	350	320	310	290	246

Note: For the years 1995 to 2000, sulphur levels for motor gasoline were averaged with levels for aviation gasoline. For 2001, the values are for sulphur in motor gasoline only.

Table A3.2: Volume-Weighted Annual Sulphur Level in Low-Sulphur Diesel

			Sulphur Levels (mg/kg)							
	Name	City	1995	1996	1997	1998	1999	2000	2001	2002
Refiners	Chevron	Burnaby	350	390	380	400	400	400	389	490
	Consumer's Co-op	Regina	200	270	250	230	220	190	211	211
	Husky Oil	Prince George	140	200	200	210	190	190	188	165
	Imperial Oil	Dartmouth	340	360	390	400	330	370	402	397
	Imperial Oil	Sarnia	-	-	420	290	410	350	349	371
	Imperial Oil	Nanticoke	-	-	160	290	280	310	356	322
	Imperial Oil	Strathcona	290	400	410	380	430	400	420	409
	Irving Oil Limited	Saint-John	400	400	440	450	440	430	433	432
	North Atlantic Refining Ltd.	Come-by-Chance	-	-	490	130	330	260	148	163
	Petro-Canada	Montreal	340	420	330	400	400	430	451	422
	Petro-Canada	Oakville	-	-	170	320	300	300	278	222
	Petro-Canada	Edmonton	190	220	210	230	240	280	283	256
	Petro-Canada Lubricants	Mississauga	10	20	20	20	20	20	20	20
	Shell	Montreal	390	370	210	280	360	350	378	344
	Shell	Sarnia	330	340	360	360	370	390	392	400
	Shell	Scotford	50	80	100	210	140	150	196	129
	Suncor	Fort McMurray	70	90	140	160	200	250	225	225
	Sunoco	Sarnia	340	300	370	460	450	440	437	425
	Ultramar	St-Romuald	450	380	400	410	430	420	420	424
	Robbins Feed & Fuel (Blender)	Thorold	N/A	N/A	N/A	-	-	410	-	-
Importers	BP Cherry Point	Blaine	N/A	N/A	N/A	380	380	360	339	400
	Daigle Oil	Edmundston	N/A	N/A	N/A	-	-	500	500	-
	Delta Western Fuel (Totem Oil)	Whitehorse	N/A	N/A	N/A	160	400	430	-	-
	Husky Oil	Prince George	N/A	N/A	N/A	380	-	-	-	-
	Imperial Oil	Burnaby	N/A	N/A	N/A	230	-	360	345	-
	Mackenzie Petroleum	Dawson City	N/A	N/A	N/A	300	400	450	400	398
	Marine Petrobulk	Vancouver	N/A	N/A	N/A	N/A	N/A	N/A	N/A	200
	Murphy Oil USA	Superior	N/A	N/A	N/A	270	270	-	-	-
	Northern Transportation	Iqaluit	N/A	N/A	N/A	20	210	270	271	255
	Olco Petroleum Group	Beauport	N/A	N/A	N/A	400	310	-	-	-
	Olco Petroleum Group	Montreal	N/A	N/A	N/A	-	310	-	-	-
	Parkland	Bowden	N/A	N/A	N/A	400	500	480	500	448
	Petro-Canada	Montreal	N/A	N/A	N/A	390	400	400	473	500
	Petro-Canada	Oakville	N/A	N/A	N/A	310	-	-	-	-
	Petro-Canada	Port Moody	N/A	N/A	N/A	-	-	360	251	-
	Petroles Norcan	Montreal	N/A	N/A	N/A	450	450	-	-	-
	Robbins Feed & Fuel	Thorold	-	-	-	-	-	-	289	-
	Sunoco	Sarnia	-	-	-	-	-	-	430	-
	Ultramar	Montreal	N/A	N/A	N/A	N/A	N/A	N/A	N/A	440
	Ultramar	St-Romuald	N/A	N/A	N/A	410	430	410	412	-
	United Refining Company	Warren	-	-	-	-	-	-	282	286
	National Average		210	260	270	310	320	330	340	324

Table A3.3: Volume-Weighted Annual Sulphur Level in Regular Diesel

			Sulphur Levels (mg/kg)							
	Name	City	1995	1996	1997	1998	1999	2000	2001	2002
Refiners	Chevron	Burnaby	1,680	2,670	4,140	3,750	4,050	3,110	3,290	3,648
	Husky Oil	Prince George	570	580	-	-	-	-	-	-
	Imperial Oil	Dartmouth	2,010	1,460	1,840	890	510	740	989	656
	Imperial Oil	Sarnia	660	690	-	-	-	1,430	1,297	1,154
	Imperial Oil	Nanticoke	3,480	3,880	4,300	-	-	-	-	-
	Imperial Oil	Strathcona	1,820	2,100	1,980	2,100	2,140	2,170	2,495	2,253
	Irving Oil Limited	Saint-John	1,820	1,840	1,750	2,150	1,700	1,690	-	-
	North Atlantic Refining Ltd.	Come-by-Chance	2,320	1,270	1,100	4,220	-	1,100	485	-
	Parkland	Bowden	5,650	5,680	4,620	4,730	3,880	4,820	3,781	-
	Petro-Canada	Montreal	2,910	3,720	3,540	2,430	5,330	3,510	3,071	2,044
	Petro-Canada	Oakville	3,570	3,500	3,810	3,720	3,160	2,990	2,839	3,216
	Shell	Montreal	2,060	2,230	1,900	3,020	2,470	2,110	2,431	2,050
	Shell	Sarnia	4,050	4,040	4,200	4,090	3,720	3,780	3,676	3,658
	Shell	Scotford	-	-	270	-	480	470	-	-
	Sunoco	Sarnia	1,290	1,620	2,370	2,650	2,010	2,300	2,291	1,958
	Ultramar	St-Romuald	800	760	860	-	-	-	-	-
Importers	Daigle Oil	Edmundston	N/A	N/A	N/A	-	-	1,750	-	-
	Mackenzie Petroleum	Dawson City	N/A	N/A	N/A	4,730	3,730	4,130	3,592	4,100
	Marine Petrobulk	Vancouver	-	-	-	-	-	-	500	-
	Murphy Oil USA	Superior	N/A	N/A	N/A	2,900	820	-	-	-
	North 60 Petro	Whitehorse	N/A	N/A	N/A	-	-	2,710	-	-
	Northern Transportation	Iqaluit	N/A	N/A	N/A	800	-	1,840	-	-
	Parkland	Bowden	N/A	N/A	N/A	4,730	3,500	4,780	3,621	4,074
	Petro-Canada	Oakville	N/A	N/A	N/A	3,700	2,510	3,030	2,812	-
	Petro-Canada	Port Moody	N/A	N/A	N/A	-	490	-	-	-
	National Average		2,150	2,360	2,580	2,990	2,300	2,170	2,480	2,467

Table A3.4: Volume-Weighted Annual Sulphur Level in Light Fuel Oil

			Sulphur Levels (mg/kg)							
	Name	City	1995	1996	1997	1998	1999	2000	2001	2002
Refiners	Husky Oil	Prince George	-	-	514	599	590	600	599	703
	Imperial Oil	Dartmouth	2,125	2,004	1,928	1,360	940	1,230	1,168	1,037
	Imperial Oil	Sarnia	1,668	1,803	1,417	2,260	1,830	1,690	2,277	2,047
	Imperial Oil	Nanticoke	2,950	3,189	3,327	1,791	2,000	1,950	1,269	-
	Irving Oil Limited	Saint-John	-	-	1,731	2,080	1,770	1,660	1,630	1,553
	North Atlantic	Come-By-Chance	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,282
	Nova	Sarnia	1,520	1,450	1,550	1,850	1,770	1,450	1,449	1,252
	Petro-Canada	Montreal	2,577	3,591	2,753	3,336	3,360	3,470	3,129	2,509
	Petro-Canada	Oakville	3,642	4,069	3,663	4,253	4,120	3,650	3,368	3,819
	Shell	Montreal	2,357	2,256	2,784	2,837	2,720	2,770	2,895	2,291
	Shell	Sarnia	3,000	-	-	-	-	-	-	-
	Sunoco	Sarnia	1,591	1,758	2,144	2,578	2,190	2,960	1,810	2,376
	Ultramar	St-Romuald	1,120	1,281	1,355	2,231	1,810	1,630	1,539	1,215
Importers	Daigle Oil	Edmundston	N/A	N/A	N/A	-	-	3,000	3,000	3,000
	North 60 Petro	Whitehorse	N/A	N/A	N/A	1,000	1,000	1,000	2,700	-
	Olco Petroleum Group	Montreal	N/A	N/A	N/A	-	2,300	-	-	-
	Olco Petroleum Group	Beauport	N/A	N/A	N/A	-	2,300	-	-	-
	Petro-Canada	Montreal	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,914
	Petro-Canada	Oakville	N/A	N/A	N/A	3,880	3,880	-	3,440	3,600
	Statia Terminals Canada	Point Tupper	-	-	-	-	-	-	1,020	-
	Ultramar	St. Romuald	-	-	-	-	-	-	1,643	-
	National Average		1,980	2,150	2,000	2,270	2,030	2,030	1,890	1,763

Table A3.5: Volume-Weighted Annual Sulphur Level in Heavy Fuel Oil

			Sulphur Levels (mg/kg)							
	Name	City	1995	1996	1997	1998	1999	2000	2001	2002
Refiners	Chevron	Burnaby	14,663	17,832	15,153	15,107	17,880	-	-	-
	Consumer's Co-op	Regina	8,313	12,315	11,207	8,986	8,870	10,640	7,032	9,122
	Husky Oil	Prince George	26,300	16,636	13,800	19,549	20,340	17,200	14,818	16,976
	Imperial Oil	Dartmouth	14,698	13,590	12,664	15,820	13,540	14,130	14,959	12,553
	Imperial Oil	Sarnia	21,970	20,153	21,840	22,530	19,900	17,980	19,465	14,922
	Imperial Oil	Nanticoke	23,022	23,325	25,815	27,319	22,780	17,030	14,610	12,613
	Imperial Oil	Strathcona	15,302	15,080	15,493	13,697	12,660	12,930	13,864	13,598
	Irving Oil Limited	Saint-John	20,850	18,612	18,396	18,409	17,800	16,270	17,454	15,917
	North Atlantic Refining Ltd.	Come-by-Chance	17,876	22,302	28,323	26,460	28,070	28,410	26,267	-
	Nova	Sarnia	11,840	11,990	13,520	14,690	13,870	11,750	11,751	12,411
	Petro-Canada	Montreal	20,644	22,130	21,072	19,730	15,450	18,810	17,034	16,348
	Petro-Canada	Oakville	14,702	15,029	15,848	16,099	14,270	14,240	13,425	14,540
	Petro-Canada	Edmonton	23,009	26,568	25,890	23,736	22,160	24,500	22,128	21,219
	Shell	Montreal	17,723	19,447	18,230	17,679	15,960	14,210	15,828	12,890
	Shell	Sarnia	25,835	27,398	28,326	26,485	25,130	25,540	25,736	24,339
	Sunoco	Sarnia	17,317	18,351	20,169	20,539	17,220	20,240	18,239	19,480
	Ultramar	St-Romuald	8,324	10,070	11,361	11,440	11,100	10,990	10,165	9,790
Importers	Fraser Papers	Edmundston	N/A	N/A	N/A	-	4,280	3,980	4,214	4,379
	Kildair Services	Tracy	N/A	N/A	N/A	4,150	8,290	18,080	8,006	15,000
	Marine Petrobulk	North Vancouver	N/A	N/A	N/A	-	-	17,920	24,000	16,390
	Murphy Oil USA	Superior	N/A	N/A	N/A	45,710	18,230	-	-	-
	New Brunswick Power	Fredericton	N/A	N/A	N/A	27,360	27,820	27,800	27,269	25,194
	Newfoundland & Labrador Hydro	St. John's	N/A	N/A	N/A	19,960	19,940	20,970	20,600	20,186
	Norske Canada	Campbell River	-	-	-	-	-	-	10,237	9,400
	Norske Canada	Crofton	-	-	-	-	-	-	9,871	-
	North 60 Petro	Whitehorse	N/A	N/A	N/A	6,530	3,440	2,430	4,313	4,288
	North Atlantic Refining Ltd.	Come-by-Chance	N/A	N/A	N/A	N/A	N/A	N/A	N/A	25,491
	Nova Scotia Power	Halifax	N/A	N/A	N/A	27,030	25,990	26,810	28,102	19,728
	Pope and Talbot	Nanaimo	N/A	N/A	N/A	-	-	10,600	10,216	10,749
	Statia Terminals Canada	Point Tupper	-	-	-	-	-	-	8,268	-
	Vancouver General Hospital	North Vancouver	N/A	N/A	N/A	-	-	10,600	10,600	-
	Western Pulp	Port Alice	N/A	N/A	N/A	-	-	14,510	14,840	13,478
	Western Pulp	Squamish	-	-	-	-	-	-	11,000	-
	National Average		16,761	17,300	17,250	17,220	17,710	17,400	17,280	15,366

Table A3.6: Volume-Weighted Annual Sulphur Level in Aviation Gasoline

			Sulphur Levels (mg/kg)							
	Name	City	1995	1996	1997	1998	1999	2000	2001	2002
Refiners	Shell	Montreal	-	-	-	-	-	-	14	50
	Imperial Oil	Strathcona	-	-	-	-	-	-	-	10
	Petro-Canada	Edmonton	-	-	-	-	-	-	352	229
Importers	Imperial Oil	Burnaby	-	-	-	-	-	-	30	0
	Imperial Oil	Strathcona	-	-	-	-	-	-	10	0
	National Average		-	-	-	-	-	-	51	59

Note: Sulphur levels in aviation gasoline were averaged with motor gasoline levels for the years 1995 to 2000. See Table A3.1

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Appendix 4

Canadian General Standards Board Standards for Sulphur Content in Fuels

Appendix 4: Canadian General Standards Board
Standards for Sulphur Content in Fuels

Specification Number	Fuel Category	Maximum Sulphur Content (% mass)
	Gasoline	
CAN/CGSB-3.5-99	Unleaded, Automotive	0.10
CAN/CGSB-3.25-94	Aviation	0.05
	Aviation Turbo Fuel	
CAN/CGSB-3.23-97	Kerosene Type (Jet A, A-1, F-34)	0.30
CAN/CGSB-3.22-97	Wide Cut Type (Jet b, F-40)	0.40
	Kerosene	
CAN/CGSB-3.3-99	Type No. 1-K	0.04
	Type No. 2-K	0.30
	Diesel Fuel	
CAN/CGSB 3.6-2000	Regular Sulphur - Type A	0.30
	Regular Sulphur - Type B	0.50
CAN/CGSB-3.517-2000	Automotive Low Sulphur	0.05
	Mining Diesel Fuel	
CAN/CGSB-3.16-99	Special	0.25
	Special - Low Sulphur	0.05
	Fuel Oil, Heating Type	
CAN/CGSB-3.2-99	Type 0	0.30
	Type 1	0.50
	Type 2	0.50
	Type 4	no limit
	Type 5	no limit
	Type 6	no limit
	Fuel, Naval Distillate	
3-GP-11c (1996)	Type 11	1.00
	Type 15	1.00
	Naphtha Fuel	
CAN/CGSB-3.27-M89	Type 1	5 mg/kg
	Type 2	500 mg/kg
	Aviation Fuel	
3-GP-24c (1994)	High Flash Type	0.40
	Diesel Fuel for Locomotive Type	
CAN/CGSB-3.18-2000	Medium Speed Diesel Engines	0.50

Appendix 5

Maximum Sulphur Content in Fuel Oils
Provincial Regulations and By-Laws

Appendix 5: Maximum Sulphur Content in Fuel Oils
Provincial Regulations and By-Laws

Province	*Act* / Regulation / By-Law	Regulation Adoption	Maximum Sulphur Content (% mass)
Canada	*Canadian Environmental Protection Act 1999*, Diesel Fuel Regulations (end 2002) Sulphur in Diesel Fuel Regs (start 2003) Sulphur in Gasoline Regulation	 1997, revoked 2002 2002 1999	 0.05 (on-road) 0.05 (on-road) 0.0015 (2006 – on-road) 0.015 avg/0.03cap(2002-04)[1] 0.003 avg/0.008cap(2005)[1]
New Brunswick	*Clean Air Act*, Air Quality Regulation	1983, amended 1990 & 1998	#1 - 0.5 #2 - 0.5 #4 - 1.5 #5 - 2.0 #6b - 3.0 #6c - 3.0
Quebec	*Petroleum Products and Equipment Act*, Petroleum Products Regulation	1991 amended 1996, 1998 & 1999	Gasoline: Grades 1,2,3,4 - 0.15 Diesel (Regular): Type AA - 0.2 Types A,B,C,D,E - 0.5 Diesel (Low-sulphur content): Type AA, A, B, C, D, E – 0.05 Heating Oil: Type 00 - 0.2 Types 0,1,2 - 0.5
	Environment Quality Act Regulation Respecting the Quality of the Atmosphere	1981	Light Oil (LFO) – 0.5 Intermediate Oil – 1.0 Heavy Oil (HFO) – 2.0
	By-Law 90, Montreal Urban Community	1987	#2 – 0.4 #6 – 1.25 to 1.4
Ontario	*Environmental Protection Act*, Regulation 361, Sulphur Content of Fuels	1970 amended 1980, 1990 & 1999 (effective in Metro Toronto only)	#1 - 0.5 #2 - 0.5 #4 - 1.5 #5 - 1.5 #6b - 1.5 #6c - 1.5
	Environmental Protection Act, Regulation 338, Boilers Regulation	1986 amended 1999	All fuel oils - 1.0
British Columbia	*Waste Management Act*, Sulphur Content of Fuel Regulation *Waste Management Act*, Cleaner Gasoline Regulation	1989 1995 -effective 1999 in Southwest B.C., -effective 2000 for the rest of B.C.	1.1 0.015[2] 0.020[2]

[1] Has various options - see regulation for details.
[2] Annual limit, also can use the U.S. Complex Model to provide equivalent emission levels.

Appendix 6

Comparison of Average Sulphur Content from the 2002 Liquid Fuels Report with the Limits Set Forth by the Canadian General Standards Board and the Provincial Regulations

Appendix 6: Comparison of 2002 Reported Liquid Fuel Average Sulphur Levels and Standards Set Forth by the Canadian General Standards Board and the Provincial Regulations

1) Average Reported Sulphur Content (%) Versus the Standards Set Forth by the CGSB

Type of Fuel	Reported Average Sulphur Content (%)			CGSB (%)
	Low Value	National Average	High Value	
Aviation Turbo Fuel	0.0	0.073	0.263	0.3 - Jet A 0.4 - Jet B
Motor Gasoline	0.0	0.029	0.072	0.10 - Leaded/Unleaded
Aviation Fuel	0.001	0.005	0.030	0.05
Kerosene/Stove Oil	0.0	0.046	0.21	0.04 - Type No. 1-K 0.3 - Type No. 2-K
Low Sulphur Diesel Fuel	0.002	0.037	0.089	0.05
Diesel Fuel	0.04	0.279	0.420	0.30 - Type A 0.50 - Type B
Light Fuel Oil	0.05	0.177	0.199	0.50
Heavy Fuel Oil	.0416	1.546	2.89	No Limits

2) Average Reported Sulphur Content (%) for Heavy Fuel Oil Versus the Limits Set Forth by Provincial Regulations

		Provincial Regulations	
Region	Sulphur Content (%) in Heavy Fuel Oil (2002)	Province	Sulphur Content Limit (%)
Atlantic	1.915	New Brunswick	1.5 - Type 4 2.0 - Type 5 3.0 - Type 6
Quebec	1.128	Quebec	2.0 1.25/1.4 - Montreal
Ontario	1.495	Ontario	1.0 - Boilers 1.5 - All Types - Toronto
West	1.495	B.C.	1.1 - All Types

Appendix 7

Summary of the Election Information submitted under the *Sulphur in Gasoline Regulations*

Appendix 7: Summary of the Election Information as per *Sulphur in Gasoline Regulations*

Election Information under Section 11(1) of the *Sulphur and Gasoline Regulations*

Company	Locations	Type	Registration No.	No Election (flat limits)	Yearly Avg.	2½ Year Avg.	Averaging Type Used [Note 1]	Estimate of Volume weighted average concentration of Sulphur (cumulative) End of 2002	End of 2003	End of 2004	Estimate of Volume weighted average concentration of Sulphur (annual) Last half of 2002	2003	2004
Chevron	British Columbia	R	CHV-R1-BC-98			Y	Straight	*180*	*173*	*144*	**180**	**170**	**100**
Husky	Prince George, BC	R	HUS-R1-BC-98			Y	Cumulative	**250**	**200**	**150**	*250*	*175*	*75*
Petro-Can	Edmonton, AB	R	PCL-R4-AB-98			Y	Cumulative	**220**	**190**	**150**	*220*	*175*	*90*
Imperial	Strathcona, AB	R	IOL-R4-ON-98			Y	Cumulative	**270**	**230**	**150**	*270*	*210*	*30*
Shell	Scotford, AB	R	SHL-R3-AB-98			Y	Straight	*50*	*50*	*50*	**50**	**50**	**50**
Co-op	Regina, SK	R	CCR-R1-SK-98			Y	Cumulative	**200**	**125**	**100**	*200*	*87.5*	*63*
Imperial	Sarnia, ON	R	IOL-R2-ON-98			Y	Cumulative	**230**	**198**	**150**	*230*	*182*	*78*
Shell	Sarnia, ON	R	SHL-R2-ON-98			Y	Straight	*530*	*230*	*150*	**530**	**80**	**30**
Sunoco	Sarnia, ON	R	SUN-R1-ON-98			Y	Cumulative	**250**	**213**	**140**	*250*	*194.5*	*31*
Imperial	Nanticoke, ON	R	IOL-R3-ON-98			Y	Cumulative	**295**	**246**	**150**	*295*	*221.5*	*6*
Petro-Can	Oakville, ON	R	PCL-R2-ON-98			Y	Cumulative	**220**	**160**	**150**	*220*	*130*	*135*
Petro-Can	Montreal, QC	R	PCL-R1-QU-98			Y	Cumulative	**230**	**230**	**150**	*230*	*230*	*30*
Shell	Montreal, QC	R	SHL-R1-QU-98			Y	Straight	*350*	*230*	*150*	**350**	**170**	**30**
Ultramar	Quebec, QC	R	ULM-R1-QC-98			Y	Cumulative	**200**	**180**	**145**	*200*	*170*	*93*
Irving	St.John, NB	R	IRV-R1-NB-98		Y		*Assumed [2]*	*48*	*48*	*48*	*48*	*48*	*48*
Imperial	Dartmouth, NS	R	IOL-R1-NS-98			Y	Cumulative	**270**	**230**	**150**	*270*	*210*	*30*
North Atlantic	Come-by-Chance, NF	R	NAR-R1-NF-98	Y			*Assumed [2]*	*49*	*49*	*49*	*49*	*49*	*49*
Sunoco	Montreal, QC	B	SUN-B6-QU-02			Y	Cumulative	**300**	**222**	**145**	*300*	*183*	*30*
Ultramar	Montreal, QC	B	ULM-B1-QU-98			Y	Cumulative	**200**	**160**	**140**	*200*	*140*	*110*
Ultramar	Dartmouth, NF	B	ULM-B2-NF-98			Y	Cumulative	**200**	**160**	**140**	*200*	*140*	*110*
Petro-Can	British Columbia	I	PCL-I3-BC-98			Y	Cumulative	**150**	**150**	**150**	*150*	*150*	*150*
Petro-Can	Ontario	I	PCL-I2-ON-98			Y	Cumulative	**Note 3**	**Note 3**	**150**	Note 3	Note 3	150
Neste	Ontario	I	NES-I2-ON-98			Y	Straight	*300*	*200*	*140*	**300**	**150**	**50**
Olco	Ontario	I	OLC-I1-QU-98			Y	Straight	*300*	*200*	*140*	**300**	**150**	**50**
Olco	Ontario	I	OLC-I2-ON-98			Y	Straight	*300*	*200*	*140*	**300**	**150**	**50**
Sunoco	Ontario	I	SUN-I1-ON-98			Y	Cumulative	**300**	**222**	**145**	*300*	*183*	*30*
Petro-Can	Quebec	I	PCL-I1-QU-98			Y	Cumulative	**Note 3**	**Note 3**	**150**	Note 3	Note 1	150
Neste	Quebec	I	NES-I1-QU-98			Y	Straight	*300*	*200*	*140*	**300**	**150**	**50**
Sunoco	Quebec	I	SUN-I2-QU-00			Y	Cumulative	**300**	**222**	**145**	*300*	*183*	*30*

Regional Averages (Note 4)

Year	Ontario	West	Quebec	Atlantic	Canada
1999	460	224	280	230	320
2000	450	220	270	270	310
2001	390	220	270	230	290
2002	293	204	253	182	246
2003	171	157	184	145	170
2004	52	61	58	37	56
2005	25	25	25	25	25

Notes

1. Companies either provided an average value for gasoline produced in each of the years 2002, 2003, and 2004 OR provided a running average for 2002, 2002-2003, and 2002-2004. The numbers in italics were computed by the Environment Canada based on the assumption of annual volumes remaining constant between 2003-2004.

2. Sulphur levels for Irving and North Atlantic are based on 2001 levels.

3. The regulatees stated that while a 30 month volume-weighted election has been made, it is their intention to combine all imported batches with their refinery pool, in that province of import. Therefore unless their location of import changes, there will be no reported imports in those provinces. If such a change occurs the estimated number for the period in question is 0.0150 wt%.

4. Historical 1999-2002 data is from the Sulphur in Liquid Fuels reports. Regional volume-weighted averages for 2003-2004 assume 2001 refinery volumes remain constant.