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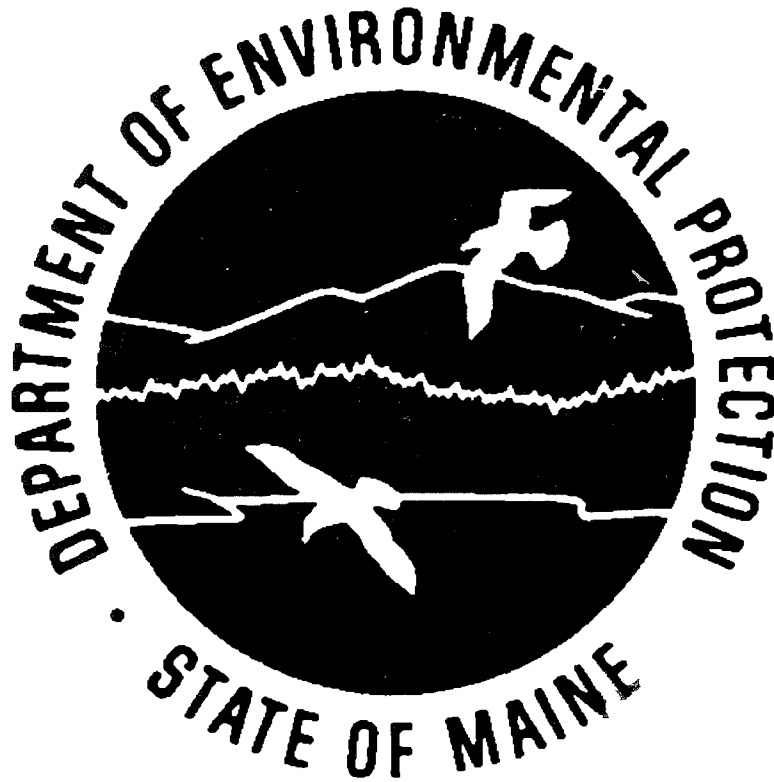


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MAINE
BOCS

1990
Statistical Report
Division of Response Services
Spill Report Case Load

Bureau of Hazardous Materials & Solid Waste Control
(formerly the Bureau of Oil & Hazardous Materials Control)



June 1995

Compiled by:
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Marcia Arnold

TABLE OF CONTENTS

<u>Reference</u>	<u>Page</u>
Introduction	1
Response Personnel Responsible for Writing Reports	2
Response Zones Map	3
Spill Reports by Month	4
Spill Reports by Month (Graph)	5
Oil vs Hazardous Material Reports by Incident and Investigation	6
Percentage of Oil and Hazardous Material Incident and Investigation Reports (Graph)	7
Number of Spill Reports Filed by Each Office (Graph)	8
Reports by Medium Effected	9
Medium Effected (Graph)	10
Comments Page for Man Hours	11
Man Hours Expended on Oil vs Hazardous Materials Reports Separated by Groundwater vs Surfacewater	12
Total Man-hours Expended(Surfacewater vs Groundwater) (Graph)	13
Reports Broken Down by Cause of Spill	14-15
Spills by Method of Detection	16
Reports by Detection Method (Graph)	17
Number of Reports by Products Spilled	18
Product Categories vs Wells Impacted (Graph)	19
Top Twelve Products Involved in Reports (Graph)	20
Top Twelve Products Contaminating Wells (Graph)	21
Oil vs Hazardous Reports Broken Down with Products Involved Where Wells are Impacted or Threatened	22-25
Amount of Material Spilled by Response Area and Incident Classification	26
Product Recovered by Response Area & Incident Class	27
Methods Used in the Recovery of Spilled Products	28
Recovery Methods Used (Graph)	29
Comments Page for Types of Hazardous Material Spilled	30
Types of Hazardous Materials and Other Non-Oil Materials Spilled	31-33
Types of Facilities With Corresponding Subcategories	34
Types of Facilities Involved in Hazardous Material Incidents (Graph)	35
Types of Facilities Involved in All Report Classes (Graph)	36
Reports by Facility Where Underground Storage Tanks were Involved (Graph)	37
Oil Terminal Transactions by Month Involving Payments to the Groundwater Fund	38
Oil Terminal Transactions by Month Involving Payments to the Coastal Surface Clean-up Fund	39

Introduction

This report is the statewide Statistical Report of the Division of Response Services spill case load for 1990. Response Services Division staff in the Bureau of Hazardous Materials & Solid Waste Control (formerly the Bureau of Oil and Hazardous Materials Control), respond to oil and hazardous material spills throughout the state and act to mitigate the damage of these events to Maine's environment, public safety, and public health. In 1990, the Division of Response Services, consisting of 21 Oil and Hazardous Material Specialists (OHMS), one Environmental Specialist, three Maintenance Mechanics, and one Division Director, filed 2616 reports dealing with oil and hazardous materials incidents and investigations throughout Maine. A summary of this activity follows. This statistical report examines Response Services' activity from a variety of perspectives in an attempt to highlight both Maine's environmental concerns and the kinds and numbers of situations Response Services personnel handle.

Most Response reports concern a product which is either oil or hazardous material and can be either:

- 1) An incident: a known or unknown product was released to the environment; or
- 2) An investigation: a known or unknown product was reported to have been released to the environment, but upon investigation none could be found or the product found did not meet the criteria of an oil or hazardous waste and so did not fall within this division's jurisdiction.

In general, comments have been kept to a minimum. Most of the presentations require no explanation; however, some graphs do have accompanying explanations on a preceding page to help the reader interpret the information presented. There are a few abbreviations used:

Office names are, on occasion, abbreviated:

Augusta	A
Bangor	B
Presque Isle	PI
South Portland	SP

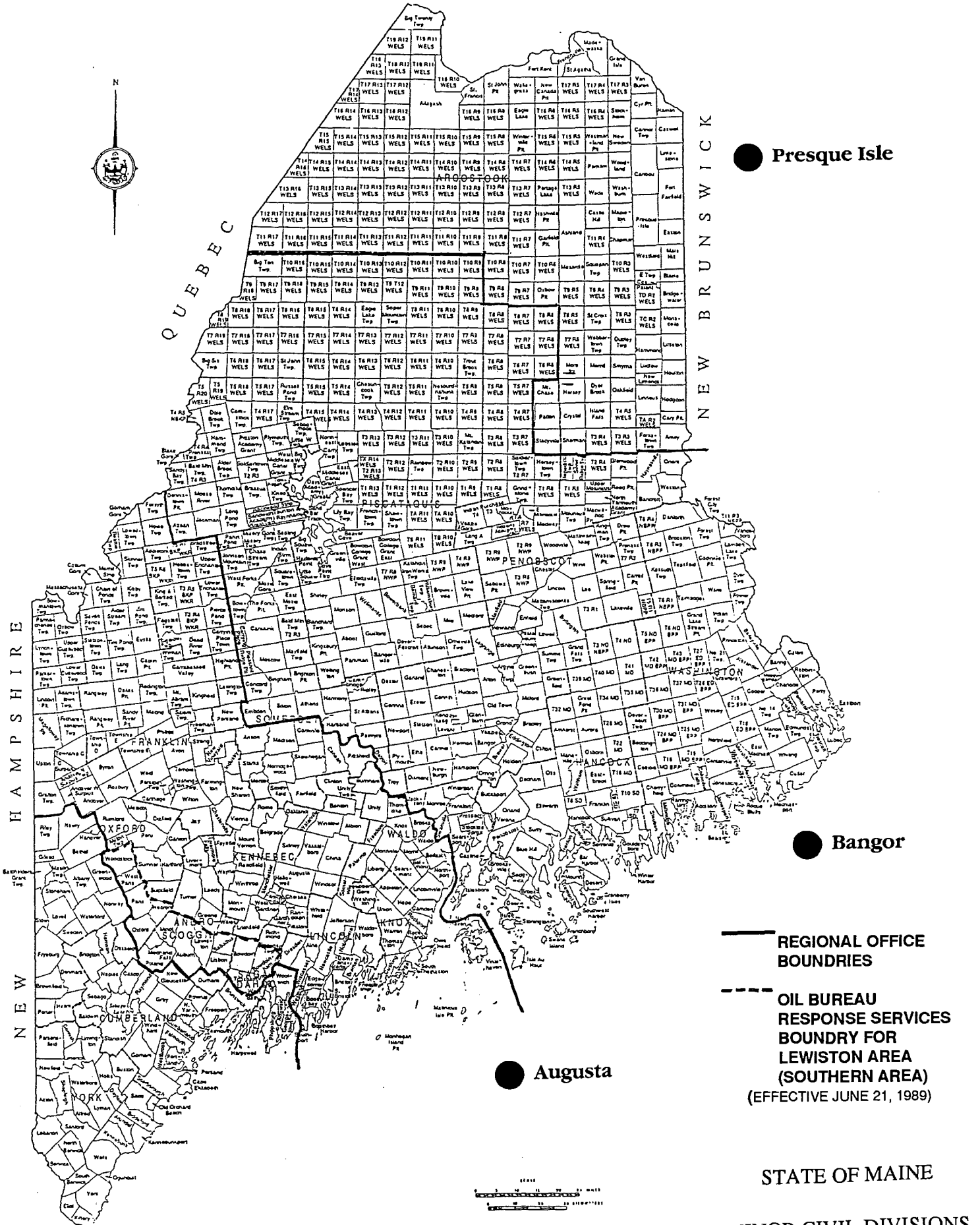
Abbreviations are also used with Incidents/Investigations and Hazardous Materials:

Incident	Inc
Investigation	Inv
Hazardous	Haz
Materials	Mat

RESPONSE PERSONNEL RESPONSIBLE FOR WRITING REPORTS

1990

INVESTIGATOR	POSITION	LOCATION
DAVID SAIT	Division Director	Augusta
PERRY COGBURN	OHMS III	"
FRED BRANN	OHMS II	"
DENNY PHILLIPS	OHMS II	"
WILLIAM WALLACE	OHMS II	"
JON ANDREWS	OHMS I	"
GLEN WALL	OHMS I	"
FRANK GERHLING	OHMS I	"
BILL KEENE	Maintenance Mechanic	"
ROBERT RANDALL	OHMS III	Bangor
TOM VARNEY	OHMS II	"
CLEVE LECKEY	OHMS II	"
TOM MALECK	OHMS I	"
DARRYL LUCE	OHMS I	"
JAKE WARD	ES II	"
MARTIN HOFFMAN	Maintenance Mechanic	"
CARL ALLEN	OHMS I	Presque Isle
FRANK WEZNER	OHMS I	"
STEVE EUFEMIA	OHMS III	South Portland
JOHN GORDON	OHMS I	"
STEVE BREZINSKI	OHMS I	"
BRADFORD HAHN	OHMS I	"
JOHN DUNLAP	OHMS I	"
STEPHEN FLANNERY	OHMS I	"
SHERYL SMITH	OHMS I	"
CHRIS ESTES	Maintenance Mechanic	"



● Presque Isle

● Bangor

● Augusta

● South Portland

— REGIONAL OFFICE BOUNDRIES

- - - OIL BUREAU RESPONSE SERVICES BOUNDRY FOR LEWISTON AREA (SOUTHERN AREA) (EFFECTIVE JUNE 21, 1989)

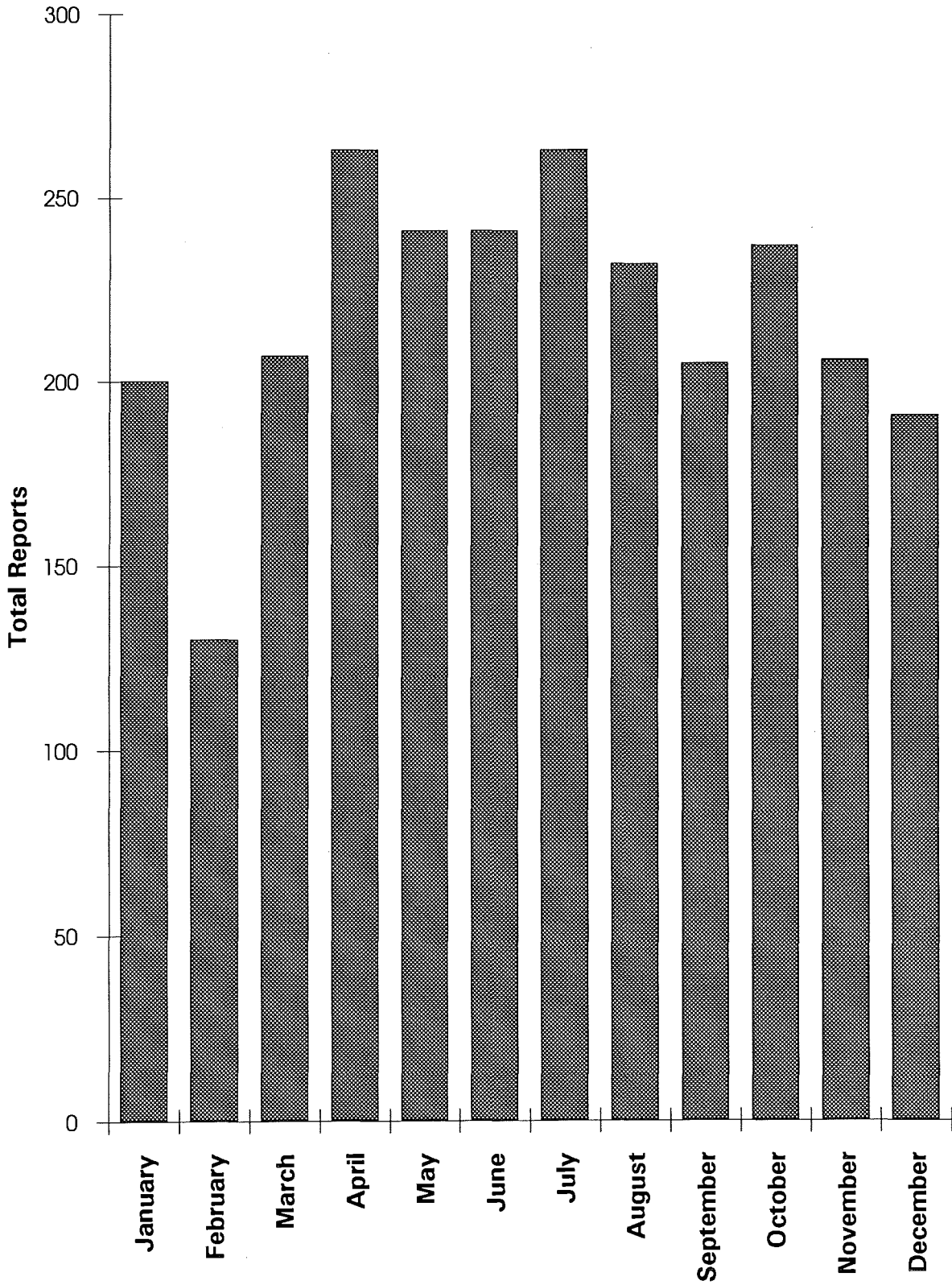
STATE OF MAINE

MINOR CIVIL DIVISIONS

NUMBER OF SPILL REPORT BY MONTH FOR 1990

<u>Month</u>	<u>No. of Reports</u>
January	200
February	130
March	207
April	263
May	241
June	241
July	263
August	232
September	205
October	237
November	206
December	191
Total	2616

NUMBER OF SPILL REPORTS BY MONTH - 1990



A Listing, by Response Office, of the Number of Oil vs Hazardous Material Reports: Broken Down By Incident & Investigation Types for 1990

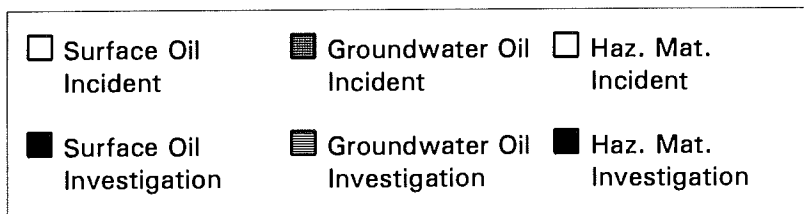
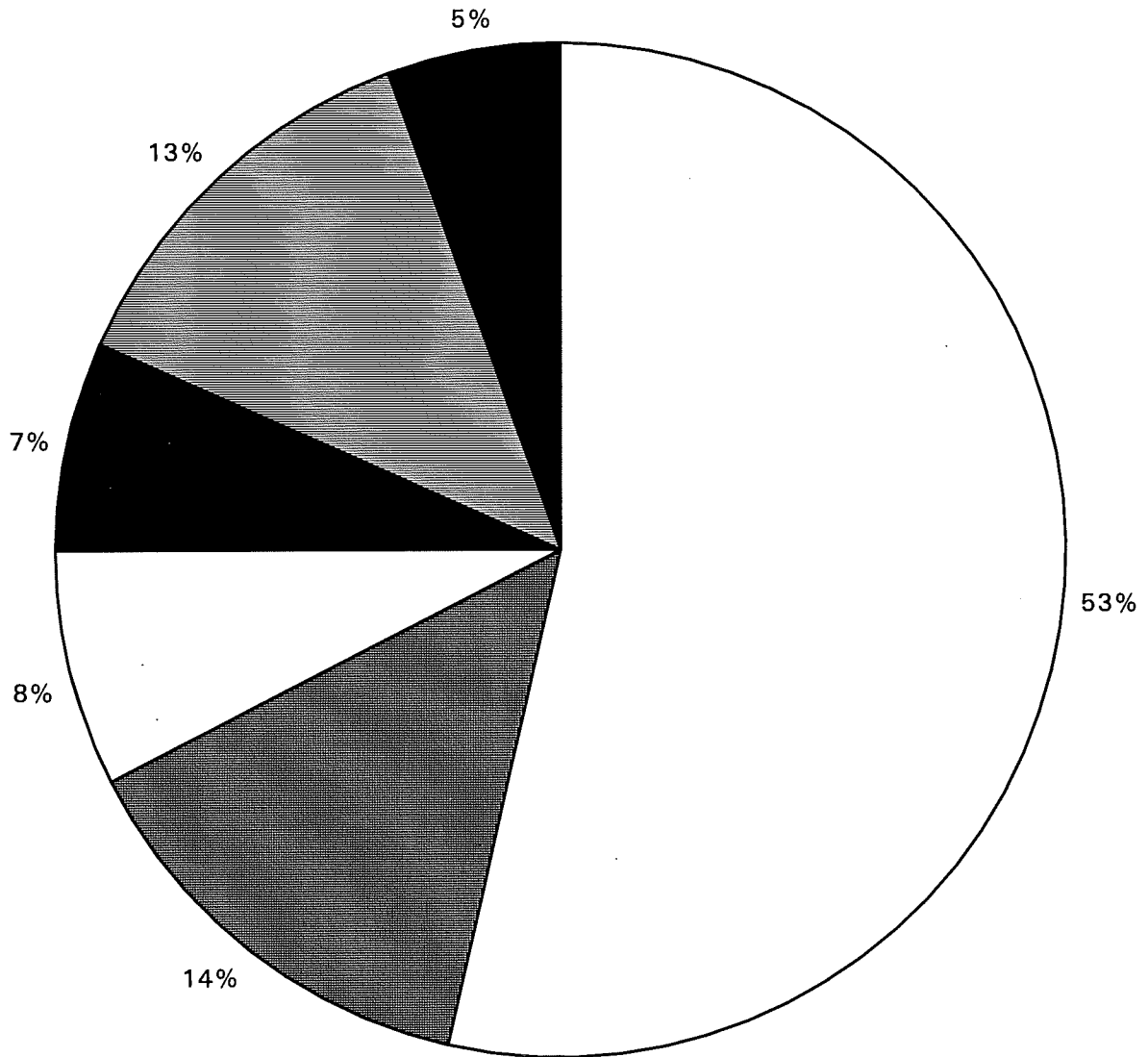
Office	Type	Count	Percent of Reports
Augusta	Surface Oil Incident	359	53%
	Groundwater Oil Incident	88	13%
	Haz. Mat. Incident	48	7%
	Surface Oil Investigation	37	5%
	Groundwater Oil Invest.	102	15%
	Haz. Mat. Invest.	43	6%
	Office Total		677
Bangor	Surface Oil Incident	426	54%
	Groundwater Oil Incident	91	12%
	Haz. Mat. Incident	91	12%
	Surface Oil Investigation	68	9%
	Groundwater Oil Invest.	67	9%
	Haz. Mat. Invest.	42	5%
	Office Total		785
Presque Isle	Surface Oil Incident	151	62%
	Groundwater Oil Incident	8	3%
	Haz. Mat. Incident	15	6%
	Surface Oil Investigation	13	5%
	Groundwater Oil Invest.	46	19%
	Haz. Mat. Invest.	11	5%
	Office Total		244
South Portland	Surface Oil Incident	471	52%
	Groundwater Oil Incident	173	19%
	Haz. Mat. Incident	43	5%
	Surface Oil Investigation	59	6%
	Groundwater Oil Invest.	120	13%
	Haz. Mat. Invest.	44	5%
	Office Total		910

1990 Grand Total for All Offices

2616

Totals of Types for All Offices		
Surface Oil Incident	1407	53%
Groundwater Oil Incident	360	14%
Haz. Mat. Incident	197	8%
Surface Oil Investigation	177	7%
Groundwater Oil Invest.	335	13%
Haz. Mat. Invest.	140	5%

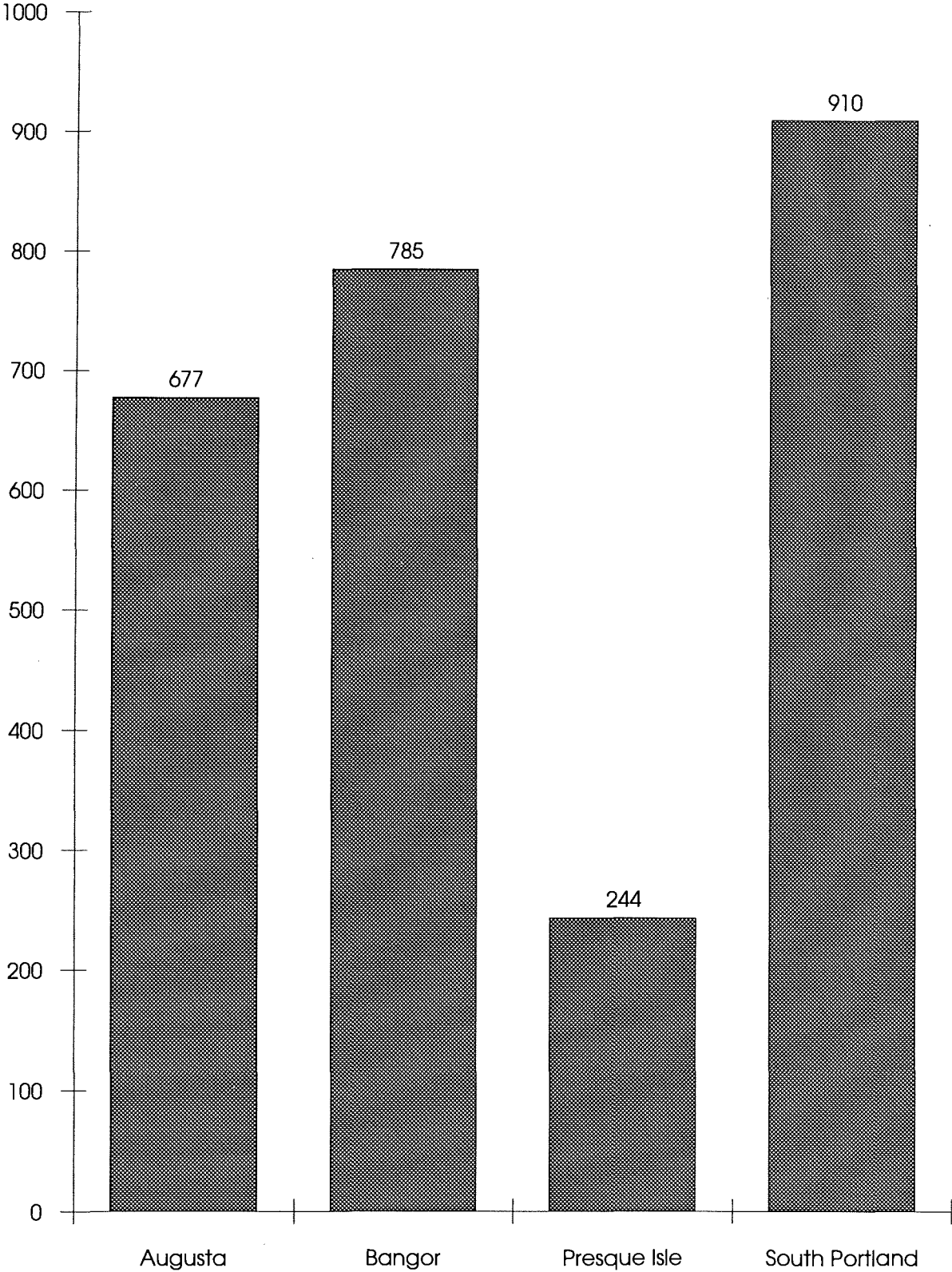
PERCENTAGE OF OIL AND HAZARDOUS MATERIAL INCIDENT AND INVESTIGATION REPORTS 1990



(refer to page 6 for details)

NUMBER OF SPILL REPORTS FILED BY REGIONAL OFFICE

1990



(refer to page 6 for details)

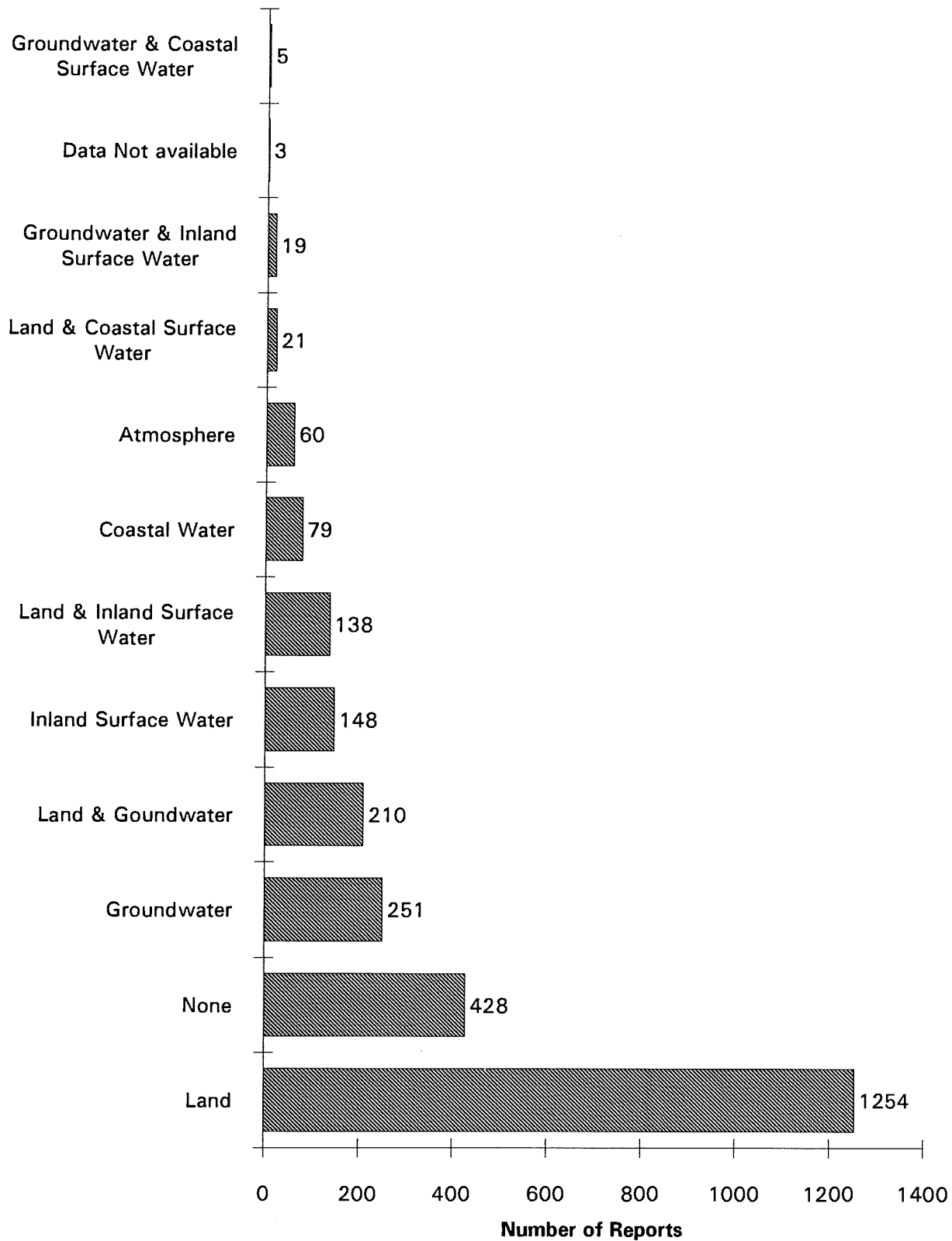
Spill Reports

Broken Down by Medium Effected

for 1990

Medium Effected	FIELD OFFICES				Medium Tally
	Augusta	Bangor	Presque Isle	Portland	
Atmosphere	13	36	1	10	60
Coastal Water	13	14	0	52	79
Data Not available	1	0	0	2	3
Groundwater	59	17	23	152	251
Inland Surface Water	52	46	13	37	148
Land	347	359	125	423	1254
None	112	156	40	120	428
Land & Coastal Surface Water	1	9	0	11	21
Land & Inland Surface Water	24	73	10	31	138
Groundwater & Coastal Surface Wa	0	3	1	1	5
Groundwater & Inland Surface Wate	2	2	6	9	19
Land & Goundwater	53	70	25	62	210
Totals	677	785	244	910	2616

Medium Effected - 1990



The following two pages deal with man hour expenditures of the Division of Response Services during 1990. Oil incidents make up the majority of the work load. Surface oil spills were reported or came to our attention three to four times as often as groundwater oil spills. However, the potential for damage when groundwater becomes contaminated is generally far greater than that of surface spills. Soil generally acts as a barrier to the movement of contaminants, whereas groundwater helps dissolve and spread them.

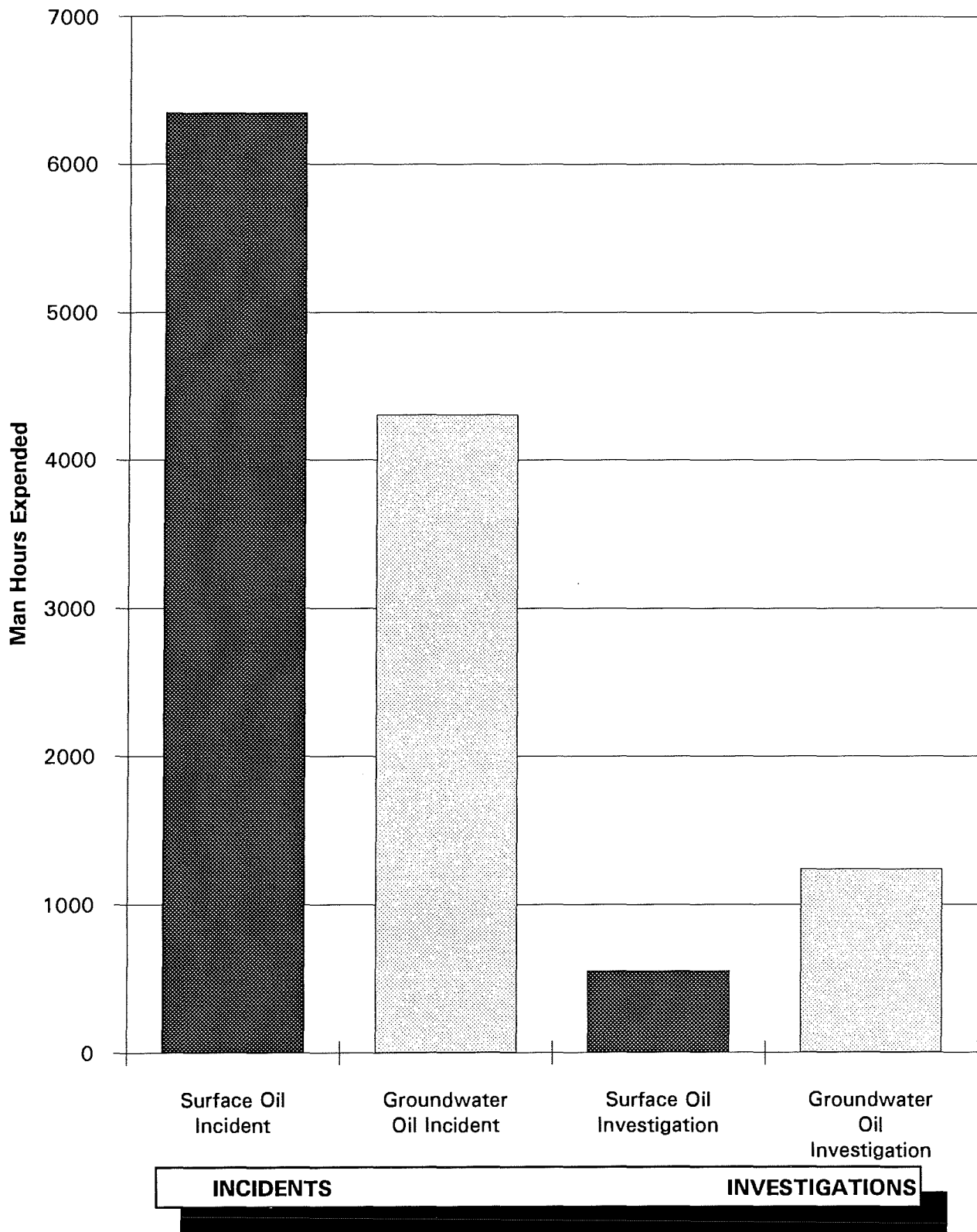
A close examination of the data reveals that, in 1990, groundwater spills generated two and a half times as many man hours of work per event. That is to say if an OHMS spends **2 hours** on an average surface oil spill he/she will spend **5 hours** on the average groundwater spill event. It is important to remember these statistics take into consideration only the first year of a groundwater spill.

Normally, a surface spill is cleaned up within the first year. Groundwater spills, in contrast, require a good deal of follow-up time in later years. Groundwater recovery systems can often only be run from spring to fall, since many recovery systems require pumping contaminated water out of the ground for treatment. In the winter months, the water freezes in the recovery unit and clogs the system or bursts its piping. Warm weather operation of groundwater recovery equipment is not without incident either. Most microorganisms like oxygen and carbon. In a recovery system both are often present and this makes filters and air strippers magnificent breeding ground for bacteria. All these quick breeding bacteria eventually clog the recovery unit and it has to be cleaned, requiring further man hour expenditures. These factors and others make the clean up of groundwater a cost intensive undertaking.

**Man Hours Expended on Oil & Hazardous Materials
Incident and Investigation Reports
By Regional Office
for 1990**

Office	Report Type	Number of Reports	Hours	Ratio of Hours to Reports
Augusta	Surface Oil Incident	359	1,610.6	4
	Groundwater Oil Incident	88	906.4	10
	Haz. Mat. Incident	49	217.0	
	Surface Oil Investigation	37	118.6	
	Groundwater Oil Invest.	102	518.6	
	Haz. Mat. Invest.	43	210.0	
Bangor	Surface Oil Incident	426	2,025.0	5
	Groundwater Oil Incident	91	897.8	10
	Haz. Mat. Incident	91	408.5	
	Surface Oil Investigation	68	273.5	
	Groundwater Oil Invest.	67	289.5	
	Haz. Mat. Invest.	42	210.5	
Presque Isle	Surface Oil Incident	151	993.0	7
	Groundwater Oil Incident	8	183.5	23
	Haz. Mat. Incident	15	98.5	
	Surface Oil Investigation	13	41.5	
	Groundwater Oil Invest.	46	179.2	
	Haz. Mat. Invest.	11	119.0	
S. Portland	Surface Oil Incident	471	1,717.9	4
	Groundwater Oil Incident	172	2,315.4	13
	Haz. Mat. Incident	43	292.9	
	Surface Oil Investigation	59	118.0	
	Groundwater Oil Invest.	120	252.6	
	Haz. Mat. Invest.	44	106.5	
Totals for all Offices		2616	14,104.0	

TOTAL MAN HOURS EXPENDED IN SURFACE VS GROUNDWATER WORK



REPORTS IN 1990 BROKEN DOWN BY CAUSE OF SPILL

<i>Cause of Spill</i>	<i>Number Of Reports</i>
Augusta	
No Cause Apparent	98
External Corrosion(tank)	47
Internal Corrosion (tank)	5
Piping Corrosion	10
Corrosion other	8
Physical Breakage	35
Piping or Hose Failure	52
Valve Failure	17
Loose Fitting	26
Overfill (tank or vessel)	65
Bilge Discharge	2
Accident	54
Sunken Vessel	0
Containment Unit Sunken	0
Accident other	37
Storm Damage	4
Poor Workmanship	15
Human Error	36
Unknown	118
Vandalism	13
Deliberate Discharge	35
Augusta Total	677
Bangor	
No Cause Apparent	150
External Corrosion(tank)	15
Internal Corrosion (tank)	34
Piping Corrosion	6
Corrosion other	6
Physical Breakage	51
Piping or Hose Failure	71
Valve Failure	32
Loose Fitting	46
Overfill (tank or vessel)	63
Bilge Discharge	0
Accident	59
Sunken Vessel	2
Containment Unit Sunken	0
Accident other	38
Storm Damage	5
Poor Workmanship	7
Human Error	82
Unknown	89
Vandalism	14
Deliberate Discharge	15
Bangor Total	785

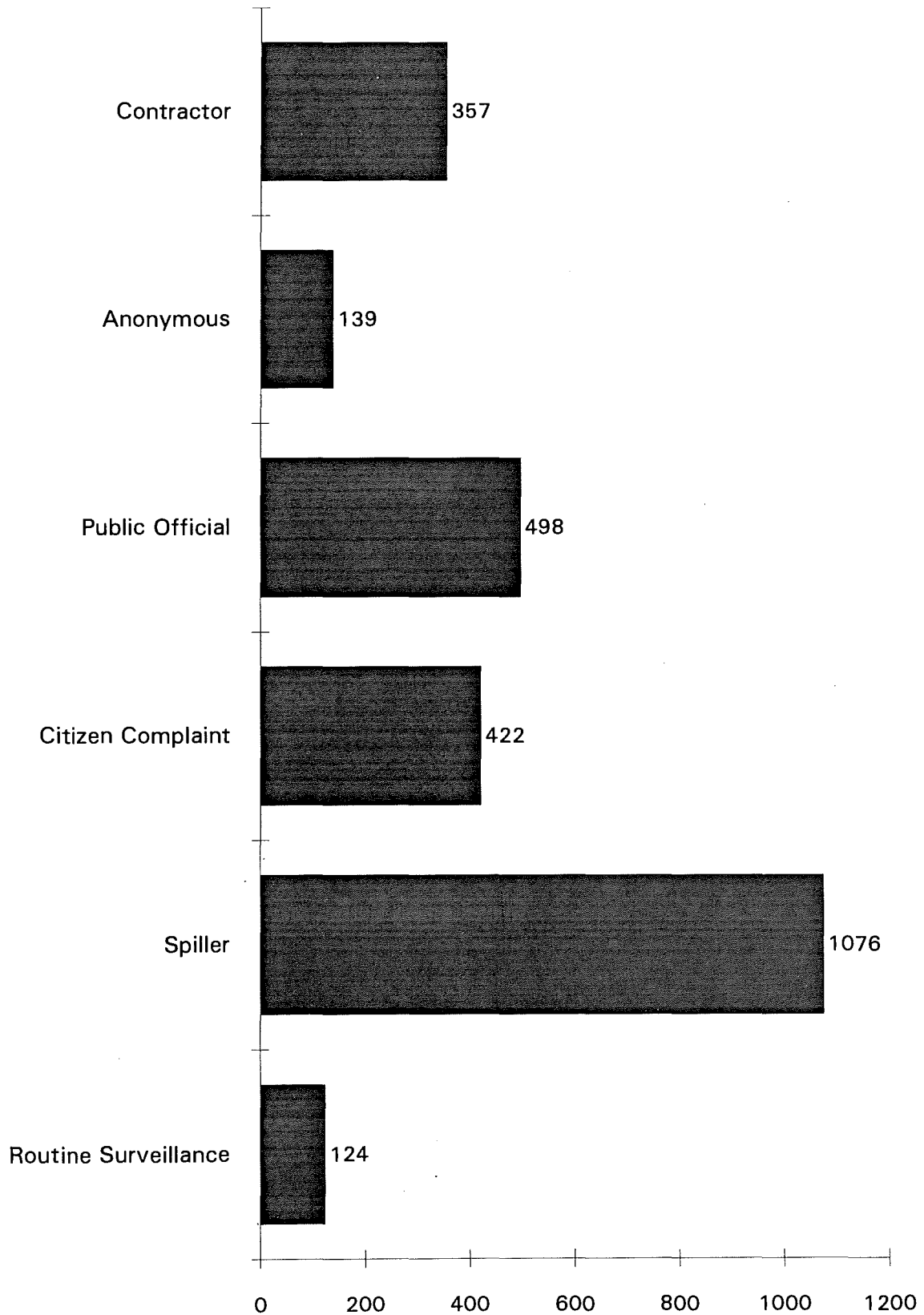
REPORTS IN 1990 BROKEN DOWN BY CAUSE OF SPILL

<i>Cause of Spill</i>	<i>Number Of Reports</i>
Presque Isle	
No Cause Apparent	46
External Corrosion(tank)	11
Internal Corrosion (tank)	3
Piping Corrosion	1
Corrosion other	2
Physical Breakage	30
Piping or Hose Failure	14
Valve Failure	15
Loose Fitting	11
Overfill (tank or vessel)	17
Bilge Discharge	0
Accident	22
Sunken Vessel	0
Containment Unit Sunken	0
Accident other	11
Storm Damage	2
Poor Workmanship	1
Human Error	24
Unknown	15
Vandalism	6
Deliberate Discharge	13
Presque Isle Total	244
South Portland	
No Cause Apparent	169
External Corrosion(tank)	75
Internal Corrosion (tank)	4
Piping Corrosion	8
Corrosion other	8
Physical Breakage	50
Piping or Hose Failure	82
Valve Failure	19
Loose Fitting	53
Overfill (tank or vessel)	101
Bilge Discharge	5
Accident	56
Sunken Vessel	3
Containment Unit Sunken	0
Accident other	25
Storm Damage	12
Poor Workmanship	14
Human Error	67
Unknown	97
Vandalism	10
Deliberate Discharge	52
Portland Total	910
1990 Grand Total	2616

Spills by Method of Detection for 1990

Office	Method of Detection	Number of Reports
Augusta	Routine Surveillance	15
	Spiller	285
	Citizen Complaint	117
	Public Official	141
	Anonymous	33
	Contractor	86
	Office Total	677
Bangor	Routine Surveillance	3
	Spiller	367
	Citizen Complaint	96
	Public Official	164
	Anonymous	57
	Contractor	98
	Office Total	785
Presque Isle	Routine Surveillance	0
	Spiller	130
	Citizen Complaint	50
	Public Official	31
	Anonymous	11
	Contractor	22
	Office Total	244
South Portland	Routine Surveillance	106
	Spiller	294
	Citizen Complaint	159
	Public Official	162
	Anonymous	38
	Contractor	151
	Office Total	910

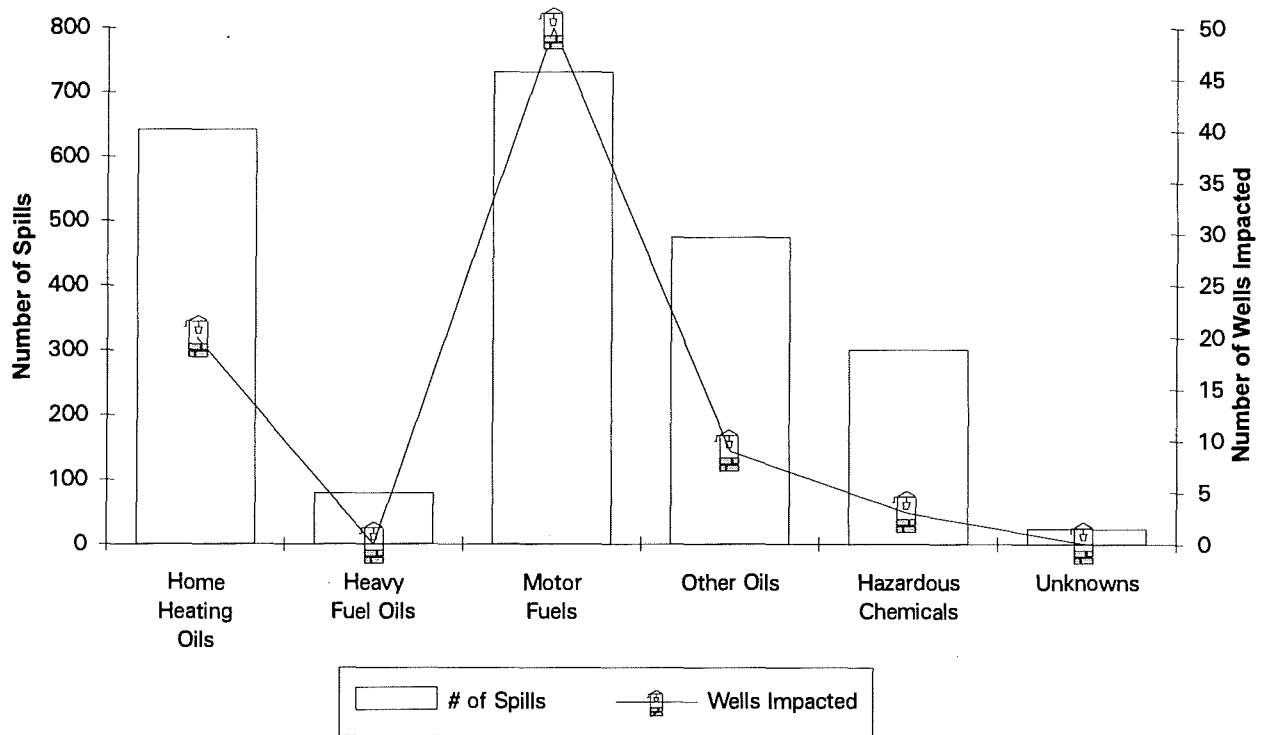
Reports by Method of Detection 1990



Products Spilled - 1990

Product Type	Number of Reports	Product Type	Number of Reports
None	313	Asphalt	6
#1 Fuel	130	Animal Fats/Remains	3
#2 Fuel	497	Marsh Sheen	13
#3 Fuel	0	Algae Bloom	6
#4 Fuel	12	Demolition Debris	2
#5 Fuel	5	Non-Chem. Non-Oil Unspecified	14
#6 Fuel	62	Crude oil	4
Heating Oil Unspecified	15	Pesticide General	10
Lube Oil	53	PCB Oil	24
Chemical	2	Sulfuric Acid	16
Unknown Substance	24	Caustic Soda	19
Gasoline Unspecified	276	Chlorine	31
Regular Gas	18	Hazardous Chemical Unspecified	152
Premium Leaded Gas	6	Unspecified Oil	59
Unleaded Gasoline	114	Waste Oil	138
Aviation Gasoline	5	Anti-Freeze	5
JP-3	2	Transmission Oil	7
JP-4	8	Water Storage	0
JP-1 or Jet A	1	Hydraulic Oil	110
Premium Unleaded Gas	10	Transformer (non-PCB) Oil	108
Diesel	261	Black Liquor	10
Unspecified Motor Fuel	31	Non-Hazardous Chem Unspecified	34
		Total	2616

PRODUCT CATEGORIES VS WELLS IMPACTED IN 1990



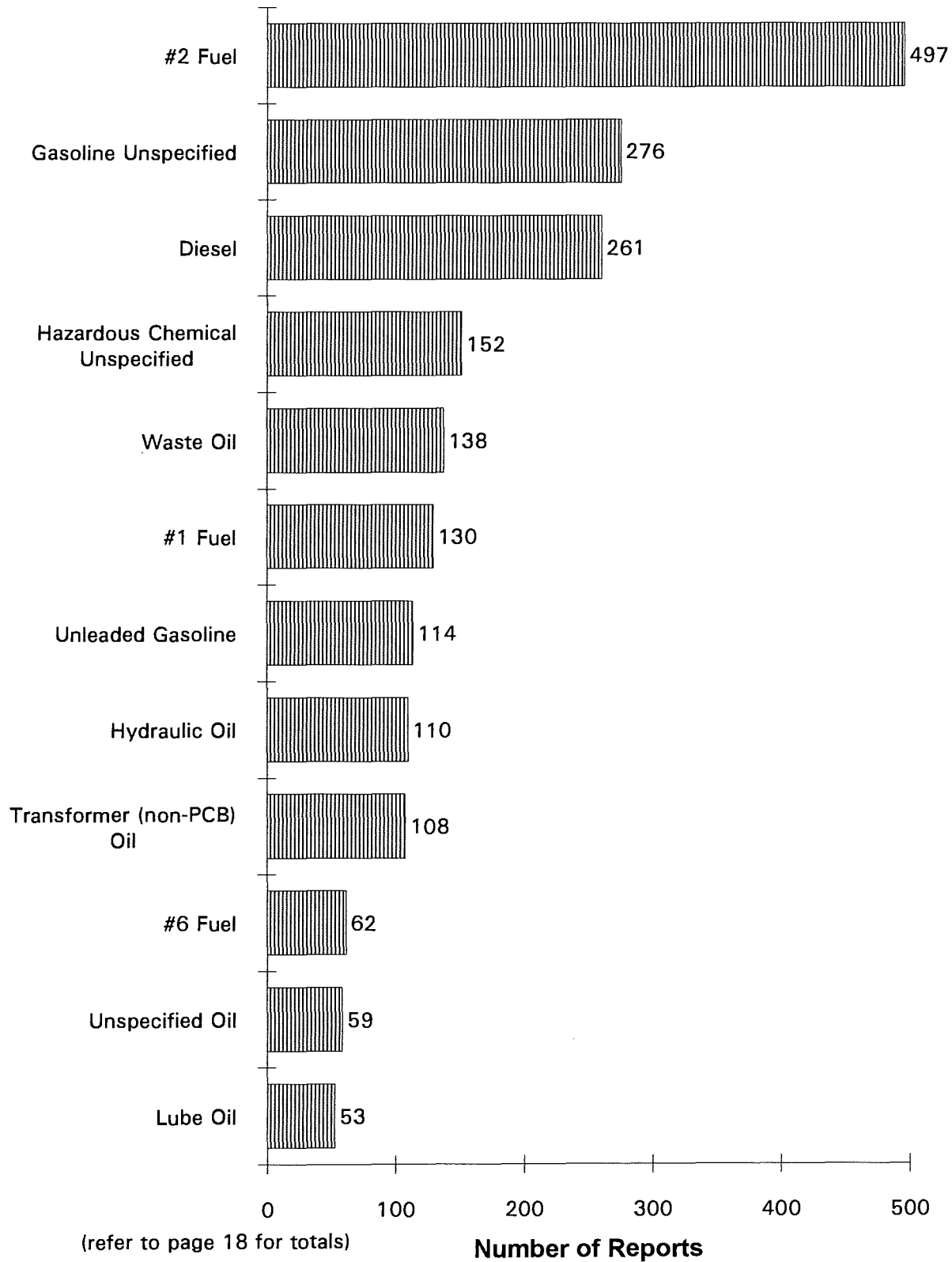
The Product Categories above contain the following product types:

<u>Home Heating Oils</u>	<u>Heavy Fuel Oils</u>	<u>Motor Fuels</u>	<u>Other Oils</u>	<u>Hazardous & Nonhazardous Chemicals</u>
#1 Fuel or Kerosene	#4 Fuel	Gasoline Unspecified	Lube Oil	Pesticide (general)
#2 Fuel	#5 Fuel	Regular Gasoline	Unspecified Oil	PCB Oil
#3 Fuel	#6 Fuel	Premium Leaded Gas	Waste Oil	Sulfuric Acid
Heating Oil		Unleaded Gasoline	Transmission Oil	Caustic Soda
Unspecified		Aviation Gasoline	Hydraulic Oil	Chlorine
		JP-1, 3, 4	Transformer Oil	Haz. Chem. Unspec.
		Premium Unleaded Gas		Anti-Freeze
		Diesel		Black Liquor
		Unspecified Motor Fuel		Nonhaz. Chem. Unspec.

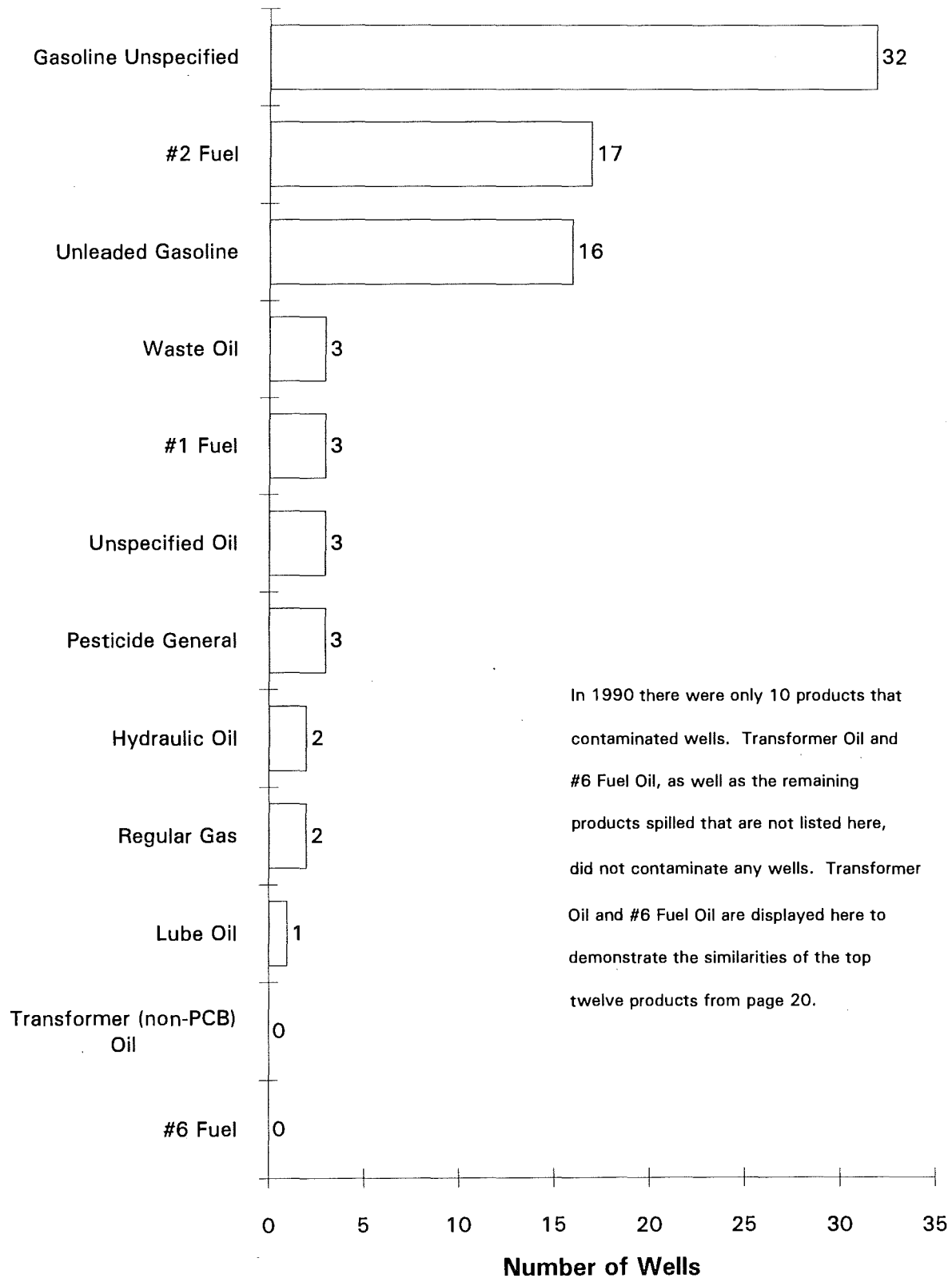
NOTE 1) This chart's primary purpose is to show that Home Heating Oils and Motor Fuels are the most frequent contaminants found by response services in wells (or groundwater). By this analysis, they are the greatest threat to Maine's groundwater. Close examination of the chart data shows also that the ratio of home heating oil and motor fuel spills to well contaminations is about 27:1. That is to say, on average, every twenty-seventh spill of home heating oil or motor fuel results in one contaminated well case.

NOTE 2) Eighty-three wells were contaminated in 1990. This is an increase of approximately 15% over the preceding year. Totaling only the last three years (1988-1990) of wells contaminated cases gives us 223 events. This means that, statistically speaking, over half of Maine's 400 communities could contain at least one contaminated groundwater source.

TOP TWELVE PRODUCTS INVOLVED IN REPORTS 1990



Top Twelve Products Contaminating Wells - 1990



1990
Number of Wells Impacted or Threatened
Broken Down by Spill Type, Product Found, and Regional Office

Office	Product Found	Surface Oil Incident	Wells At risk	Wells Impacted
AUGUSTA				
	#1 Fuel	11	11	0
	#2 Fuel	13	20	10
	Heating Oil Unspecified	1	1	0
	Gasoline Unspecified	1	2	1
	Diesel	1	1	0
	Waste Oil	4	5	0
	Hydraulic Oil	1	1	1

Groundwater Oil Incident

#2 Fuel	3	3	1
Gasoline Unspecified	13	28	16
Unleaded Gasoline	3	4	6
Diesel	1	1	0
Hydraulic Oil	1	2	1

Haz. Mat Incident

Haz. Chem. Unspec.	1	2	0
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Groundwater Oil Investigation

#2 Fuel Oil	1	1	0
Gasoline Unspecified	3	4	0
Regular Gasoline	1	1	1

Haz. Mat Investigation

Haz. Chem. Unspec.	1	2	0
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Augusta Office Totals		89	37
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Office	Product Found	Surface Oil Incident	Wells At risk	Wells Impacted
BANGOR	#1 Fuel	9	16	1
	#2 Fuel	5	7	0
	Lube Oil	1	2	0
	Gasoline Unspecified	1	0	1
	Diesel	5	6	0
	Unspecified Oil	1	1	0
	Waste Oil	3	3	0

Groundwater Oil Incident

#2 Fuel Oil	2	2	0
Gasoline Unspecified	3	4	0
Unleaded Gasoline	2	1	2
JP 1	1	1	0
Diesel	2	3	0
Unspecified Oil	2	2	2
Waste Oil	2	1	3

Bangor Office Totals	49	9
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Office	Product Found	Surface Oil Incident	Wells At risk	Wells Impacted
PRESQUE ISLE	#1 Fuel	6	6	1
	#2 Fuel	5	6	1
	Gasoline Unspecified	2	2	0
	Regular Gasoline	1	1	0
	Unleaded Gasoline	1	1	0
	Diesel	3	4	0
	Unspecified Oil	1	4	0
	Hydraulic Oil	3	4	0

Groundwater Oil Incident

#2 Fuel	2	3	0
Gasoline Unspecified	1	1	0

Haz. Mat Incident

Pesticide General	1	1	0
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Office	Product Found	Surface Oil Investigation	Wells At risk	Wells Impacted
PRESQUE ISLE (Cont.)	#2 Fuel	1	1	0
	Gasoline Unspecified	1	1	0
	Waste Oil	1	1	0

Groundwater Oil Investigation

None	1	1	0
#2 Fuel	2	2	1
Lube Oil	1	1	1
Gasoline Unspecified	6	7	2
Regular Gasoline	2	2	0
Diesel	2	2	0
Marsh Sheen	1	1	0

Haz. Mat. Investigation

Pesticide General	1	7	3
Non-Haz Chem. Unspec.	1	1	0

Presque Isle Office Totals	60	9
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Office	Product Found	Surface Oil Incident	Wells At risk	Wells Impacted
SOUTH PORTLAND	None	1	2	0
	#1 Fuel Oil	5	5	1
	#2 Fuel	19	20	1
	Gasoline Unspecified	3	4	3
	Regular Gasoline	1	1	1
	Unleaded Gasoline	2	2	0
	Diesel	4	6	0
	Haz. Chem. Unspec.	1	1	0
	Waste Oil	3	5	0
	Transmission Oil	1	2	0
	Hydraulic Oil	1	1	0

Office	Product Found	Groundwater Oil Incident	Wells At risk	Wells Impacted
SOUTH PORTLAND (Cont.)	None	1	1	0
	#1 Fuel Oil	1	1	0
	#2 Fuel Oil	11	18	3
	Gasoline Unspecified	5	26	5
	Unleaded Gasoline	4	16	8
	Unspecified Oil	1	1	1

Haz. Mat Incident

Haz. Chem. Unspec.	1	5	0
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Surface Oil Investigation

None	1	1	0
Lube Oil	1	1	0
Asphalt	1	1	0
Unspecified Oil	1	1	0
Waste Oil	2	4	0

Groundwater Oil Investigation

None	3	8	1
Gasoline Unspecified	6	21	4
Unleaded Gasoline	2	2	0
Unspecified Oil	1	3	0

Haz. Mat Investigation

None	2	2	0
Non-Haz. Chem. Unspec.	1	1	0

Portland Office Totals	162	28
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	At Risk	Impacted
1990 Grand Totals	360	83

**AMOUNTS OF MATERIAL SPILLED
BY RESPONSE AREA AND INCIDENT CLASSIFICATION FOR 1990**

REGIONAL OFFICE	SPILL INCIDENT CLASSIFICATION	CUBIC		
		GALLONS	YARDS	POUNDS
AUGUSTA	Surface Oil Incident	26,251	0	0
	Groundwater Oil Incident	3,348	101	0
	Haz. Mat. Incident	109,658	0	643
	Surface Oil Investigation	23	6	0
	Groundwater Oil Investigation	63	0	0
	Haz. Mat. Investigation	25,598	11	0
	Office Totals	<u>164,941</u>	<u>118</u>	<u>643</u>
BANGOR	Surface Oil Incident	25,336	0	0
	Groundwater Oil Incident	3,923	27	0
	Haz. Mat. Incident	26,981	0	515
	Surface Oil Investigation	30	0	0
	Groundwater Oil Investigation	9	0	0
	Haz. Mat. Investigation	76,105	10	0
	Office Totals	<u>132,384</u>	<u>37</u>	<u>515</u>
PRESQUE ISLE	Surface Oil Incident	12,374	0	0
	Groundwater Oil Incident	1,342	0	0
	Haz. Mat. Incident	5,094	0	528
	Surface Oil Investigation	23	0	0
	Groundwater Oil Investigation	621	0	0
	Haz. Mat. Investigation	578	0	5
	Office Totals	<u>20,032</u>	<u>0</u>	<u>533</u>
SOUTH PORTLAND	Surface Oil Incident	41,928	104	0
	Groundwater Oil Incident	29,322	212	0
	Haz. Mat. Incident	6,511	5	1,565
	Surface Oil Investigation	519	0	0
	Groundwater Oil Investigation	193	0	0
	Haz. Mat. Investigation	1,087	0	1
	Office Totals	<u>79,560</u>	<u>320</u>	<u>1,566</u>
All Offices Total				
Surface Oil Incidents	105,889	104	0	
Total Groundwater Oil Incidents	37,935	340	0	
Total Haz. Mat. Incidents	148,245	5	3,251	
Total Surface Oil Investigations	595	6	0	
Total Groundwater Oil Investigations	885	0	0	
Total Haz. Mat. Investigations	103,368	21	6	
Grand Total All Offices & Classifications		<u>396,917</u>	<u>475</u>	<u>3,257</u>

NOTE: All Numeric fields are BEST ESTIMATES based on the years of experience with spill events of the OHMSs involved.

PRODUCT RECOVERED FOR 1990
By Response Area & Incident Class

REGIONAL OFFICE	SPILL INCIDENT CLASSIFICATION	CUBIC		
		GALLONS	YARDS	POUNDS
AUGUSTA	Surface Oil Incident	21,577	251	0
	Groundwater Oil Incident	1,178	100	0
	Haz. Mat. Incident	2,735	0	352
	Surface Oil Investigation	0	0	0
	Groundwater Oil Investigation	41	0	0
	Haz. Mat. Investigation	344	11	0
	Office Totals		25,875	362
BANGOR	Surface Oil Incident	20,860	0	0
	Groundwater Oil Incident	2,969	26	0
	Haz. Mat. Incident	15,761	0	16
	Surface Oil Investigation	30	0	0
	Groundwater Oil Investigation	8	0	0
	Haz. Mat. Investigation	1,456	0	0
	Office Totals		41,083	26
PRESQUE ISLE	Surface Oil Incident	7,043	0	0
	Groundwater Oil Incident	537	0	0
	Haz. Mat. Incident	37	0	478
	Surface Oil Investigation	6	0	0
	Groundwater Oil Investigation	446	0	0
	Haz. Mat. Investigation	262	0	0
	Office Totals		8,331	0
SOUTH PORTLAND	Surface Oil Incident	40,583	1,501	0
	Groundwater Oil Incident	16,909	1,097	74
	Haz. Mat. Incident	4,295	5	1,562
	Surface Oil Investigation	25	30	0
	Groundwater Oil Investigation	742	0	0
	Haz. Mat. Investigation	597	0	1
	Office Totals		63,151	2,633
All Offices Total	Surface Oil Incidents	90,062	1,752	0
	Total Groundwater Oil Incidents	21,592	1,223	74
	Total Haz. Mat. Incidents	22,828	5	2,408
	Total Surface Oil Investigations	61	30	0
	Total Groundwater Oil Investigations	1,238	0	0
	Total Haz. Mat. Investigations	2,659	11	1
	Grand Total	138,440	3,021	2,483

Percentage of Products Recovered in Spill Incidents for All Offices

Surface Oil Incidents	85%	FR	NA
Groundwater Oil Incidents	57%	FR	FR
Haz. Mat. Incident	15%	FR	74%

FR - Full recovery or seemingly so

NA- Not Applicable

For some spills gallons of a material are released and cubic yards or pounds are recovered.

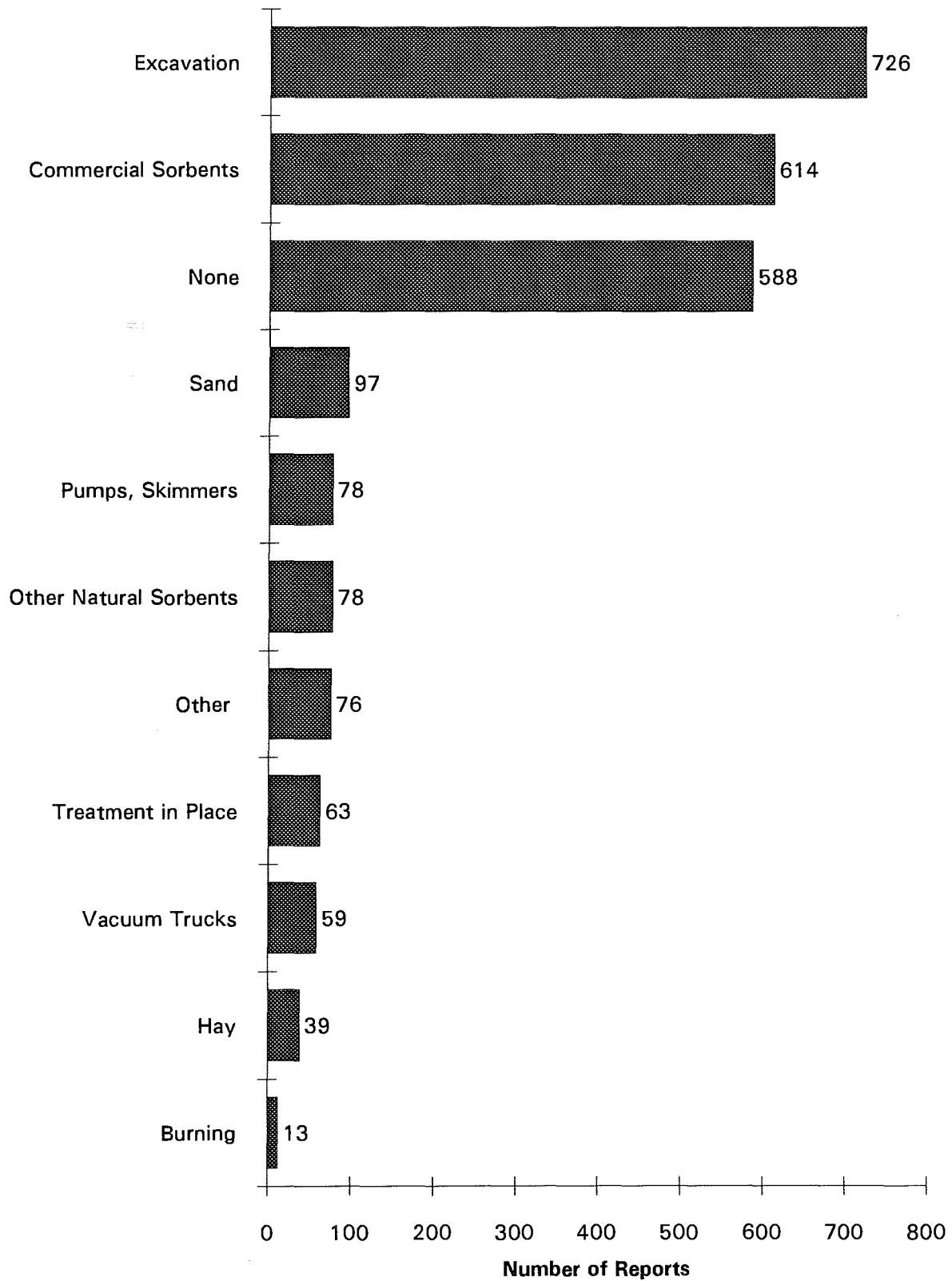
NOTE : All Numeric fields are BEST ESTIMATES

1990 Methods Used in the Recovery of Spilled Products

Recovery Method	Regional Field Offices				Total
	A	B	PI	SP	
Vacuum Trucks	21	5	2	31	59
Pumps, Skimmers	13	36	7	22	78
Commercial Sorbents	167	229	37	181	614
Sand	29	31	2	35	97
Hay	9	4	3	23	39
Other Natural Sorbents	8	25	12	33	78
Excavation	178	224	82	242	726
Burning	0	6	3	4	13
Treatment in Place	16	30	1	16	63
Other	18	20	4	34	76
None	48	302	0	238	588

<p>A - Augusta B - Bangor PI - Presque Isle SP - South Portland</p>
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Recovery Methods Used - 1990



The following table, "Hazardous Materials and Other Non-Oil Materials Spilled in 1990", contains a summary of the best information available to Response Services as to the types of chemicals and other materials spilled during 1990. It is not always possible to identify an unknown substance in any but the broadest of terms. General characteristics such as flash point, or pH are often the only factors that can be determined about an unknown without costly laboratory analysis. Given these factors, a substance may qualify as a hazardous material, yet remain an unknown.

The problem of estimating amounts spilled can also be difficult. Uncontrolled sites may have had any number of products dumped there for months or years, before anyone noticed or decided to report the event(s). Catastrophic events, like floods, result in barrels, jugs, and other containers, being released into the environment full or partially filled with product and turning up empty or with their contents diluted. When a tank truck rolls over, a best estimate is made of the amount spilled, but the exact amount is seldom measured. If an OHMS is called to inspect leaking barrels at a site, it is often difficult to know how much product has already been lost into the ground. As a result of all this, estimates of amounts spilled are often based on past experience with other similar spills. Each substance listed was discharged in at least the amount listed, usually it is reasonable to assume more than that amount was lost to the environment.

There are cases where this assumption should not be made. Most spills are industrial in nature, that is to say, a company either public or private has had an accident and product was lost. In general, industries know what chemicals are in what processes and in what volumes. CMP, for instance, knows how much oil is in a transformer and on those occasions when one is ruptured can make a fairly accurate assessment as to how much oil is lost. Keeping in mind the health and safety of the public as well as its employees, CMP then handles the material as though it were PCB contaminated until enough evidence is collected to show otherwise. Also, paper companies are quite precise in their reports of the amount of chlorine released into the atmosphere and the amount of chlorine dioxide spilled. Pure product fields, as a result of this industry scrutiny, should contain accurate data. Cases where only a general family of hazardous materials are listed may well contain spill amounts that are quite a bit more than the amounts listed.

The following symbols have been utilized:

G	-	Gallons
P	-	Pounds
Y	-	Cubic Yards
?	-	Unknown Amount

G ?	-	
P ?	-	The amount listed plus an unknown additional amount was lost.
Y ?	-	

Hazardous Materials and Other Non-Oil Materials Spilled in 1990

Number of Incidents	Material	Amount Spilled	Units
1	1,1,1-Trichloroethane	3	G ?
1	Acenaphthene, Acenaphthylene, Anthracene, Chrysene, Fluoranthene, Fluorene, Naphthalene, Phenanthrene, Pyrene		?
1	Acetone, Polyester Resin, MEK Peroxide	40	G ?
1	Acid	75	G
1	Alkaline liquid	10,000	G ?
1	Alum Brite (Acid)		?
1	Ammonia	2,400	P
1	Ammonia	75	P ?
1	Ammonium Persulfate (Sulfuric & Nitric Acid Vapors)		?
1	Anhydrous Ammonia	100	P
4	Anhydrous Ammonia	155	P ?
1	Antifreeze	5	G
5	Antifreeze	27	G ?
1	Bearing Grease	1.5	G
1	Benzoic Acid, Benzyl Alcohol	100	G ?
1	Biological Waste	1	P ?
2	Black & White Liquors	1,000	G ?
8	Black Liquor	98,595	G ?
1	Borid (Pesticide)	0.25	P ?
1	Borol (Sodium Hydroxide, Sodium Borohydride)	10	G ?
1	Burning Tires		?
1	Calcium Hypochlorite, Hydrochloric Acid, Sulfuric Acid, Nitric Acid, Methanol, Formaldehyde	5	P ?
1	Carbosol	35	G
1	Carolid MXS (Dichlorobenzene, Biphenyl)	1	G
2	Caustic Soda	350	G ?
2	Caustic Soda		?
1	Caustic Soda (Powder)		?
4	Caustic Soda (Sodium Hydroxide)	1,365	P
3	Caustic Soda (White Liquor)	511	G ?
8	Chlorine	117	P
20	Chlorine	229	P ?
2	Chlorine	3	G ?
6	Chlorine Dioxide	23.32	P
3	Chlorine Dioxide	35	P ?
5	Chlorine Dioxide	485	G ?
1	Chlorine, Chlorine Dioxide	30	G ?
2	Chlorine, Hydrochloric Acid	1	P ?
1	Chromium Saltcake	2	P
2	Chromium Saltcake	10	P ?
1	Citric Acid (pH 1.5)	750	G
1	Coal Tar		?
1	Coal Tar Pitch	30	G
1	Copper Sulfate, Powdered Sulfur		?
1	Cromium sludge	4	Y
1	Diethanolamine	20	G

Hazardous Materials and Other Non-Oil Materials Spilled in 1990

Number of Incidents	Material	Amount Spilled	Units
1	Dinitrophenol (Pesticide)	2	G ?
1	Dowtherm A (Diphenyl Oxide)	2.5	G
1	Dye (Contains Ascetic Acid)	2	G ?
1	Ferric Chloride	2	G ?
1	Fiberglass Resin	1	G ?
1	Formaldehyde, Acid, Isopropanol	5	G
1	Freon	100	P ?
1	Freon R-22 (Chlorodifluoromethane)	100	P
1	Garlon 4 (Herbicide)	5	G ?
1	Green Liquor	1,000	G
2	Green Liquor	2,010	G ?
1	Green Liquor	362	P ?
1	Guthion (Pesticide)	5	G
1	Hydrocarbon Solvent	8.5	G
1	Hydrochloric Acid	1	G
2	Hydrochloric Acid	2,015	G ?
1	Hydroflouric Acid	1	G ?
2	Hydrogen Peroxide	6,000	G ?
1	Hydrogen Peroxide (50%)	5,260	P
1	Insecticide General	10	G ?
1	Keene 602-RR (Parts Cleaner)	100	G ?
1	Lead, Chromium		?
1	Lime (pH 13)	150	G
1	Lime Mud (pH 12.2)	10	Y ?
1	Liquid Petroleum Gas	2	G ?
1	Medical Debris (Needles, Bottles, Plasma Bags)		?
1	Medical Waste	0.5	Y
1	Mercury	0.02	P
1	Mercury (30 ppm in Brine)	750	G ?
1	Methanol	65	G ?
1	Methyl Methacrylate & Polymerizer	500	P
2	Mineral Spirits	8.1	G
2	Mineral Spirits	40	G ?
1	Muriac Acid	1	G
1	Nalclean 8295 Cleaner (Sodium Hydroxide, Organic Detergent, Water)	550	G
1	Naphtha	50	G ?
1	Naphtha	2	P ?
1	Nitric & Hydrochloric Acid mixed	1,500	G ?
54	non-PCB Oil	180	G
46	non-PCB Oil	1,133	G ?
1	Oakite Deoxidizer (Nitrogen-Nitrate plus Nitrit)	10	G ?
1	Paint	20	G ?
1	Paint (Lead Based)	100	P ?
1	Paint (Oil Based)	1	G ?
1	Paint (Zinc Based)	20	G ?
3	Paint Thinner	201	G ?
9	PCB Oil	627.8	G
9	PCB Oil	11	G ?

Hazardous Materials and Other Non-Oil Materials Spilled in 1990

Number of Incidents	Material	Amount Spilled	Units
1	Pentachlorophenol, Creosote		?
1	Perchlorethylene	10	G ?
3	Pesticide General	20	P ?
1	Pesticides (2,4-D,2,4,5-T,DDT,Chlorodane, Malathion, Methoxychlor, Lindane, Sodium Arsenite, Lead Arsenite)	50	P ?
1	Petroleum Naphtha	2	G ?
1	Phenol Formaldehyde Resin	2	G ?
1	Phosphate Solution (Sodium Phosphate & Sodium Sulfide)	1,300	G
1	Phosphoric Acid	2	G
1	Phosphoric Acid	1,700	G ?
1	Photo Finishing Chemicals (Spent)	1	G ?
1	Polyester Resin & Hardener	2	G
1	Potassium Hydroxide	1	G
1	Potty Fresh "Plus" (Microbiocide & Odor Counteractant)	1	G ?
1	Propane	5	P ?
1	Propane	100	G
1	Resins and Glues	25	G ?
1	Roofing Adhesive (Xylene, Hexane, Toluene)	175	G
1	Roundup	115	G
1	Silver in developer/fixer	30	G ?
2	Sodium Chromate (1000 ppm) in water	21	G ?
1	Sodium Hydrosulfide (45%)	25	G
1	Sodium Hypochlorite	15	G
1	Sodium Hypochlorite	250	P ?
1	Solvent	2	G
1	Solvents (Ethyl Benzene, Styrene)	25	G ?
2	Solvents, Paint Thinners, Waste Paint	10	G ?
1	Stahl Finish (2-Butoxyethanol - Ethylene Glycol, Monobutyl Ether)		?
1	Styrene Monomer	1	G ?
1	Sulfur (Total Reduced)	9	Y ?
2	Sulfur Dioxide	13	P ?
3	Sulfuric Acid	56	G
13	Sulfuric Acid	867	G ?
2	Tetrachloroethene		?
1	Tetrachlorethene, Trichloroethene		?
1	Tetrachloroethene, Methylene Chloride		?
1	Toluene, Xylenes, Acetone, Naphthalene, Carbon Disulfide		?
2	Unknown Hazardous Material	51	G ?
1	Untreated Waste Water	74,300	G ?
1	Vanadium Pentoxide	0.5	G ?
1	Vinyl Acetate Polymer	5	G ?
4	White Liquor (Sodium Hydroxide)	1,315	G
3	White Liquor (Sodium Hydroxide)	1,030	G ?
1	White Liquor (Sodium Hydroxide, Sodium Hydrosulfide)	15	G ?
1	White Liquor (Wash water from tank)	200	G
2	Wood Preservative	502	G ?

TYPES OF FACILITIES WITH CORRESPONDING SUBCATEGORIES

The graphs on the next three pages utilize the following categories and subcategories:

INDUSTRIAL includes:

- Industrial
- Commercial
- Other

RESIDENTIAL includes:

- Single Family
- Multifamily
- Other

TERMINAL includes:

- Licensed
- Bulk Plant
- Service Station
- Other

VESSEL includes:

- Fishing
- Tanker
- Freighter
- Pleasure
- Government
- Other

TRANSPORTATION

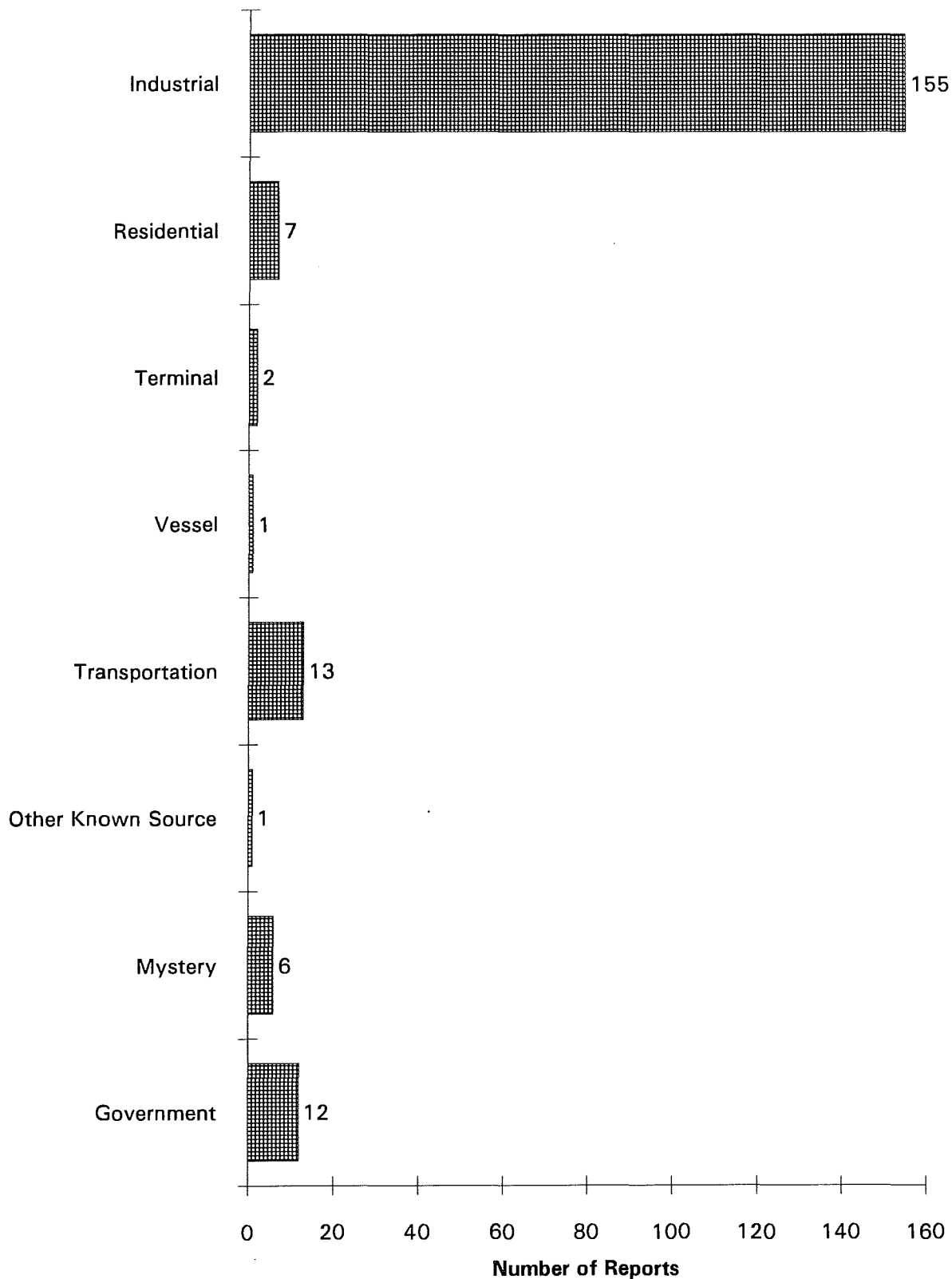
- Tank Truck
- Private Car
- Commercial Truck
- Railroad
- Air Craft
- Other

OTHER KNOWN SOURCE

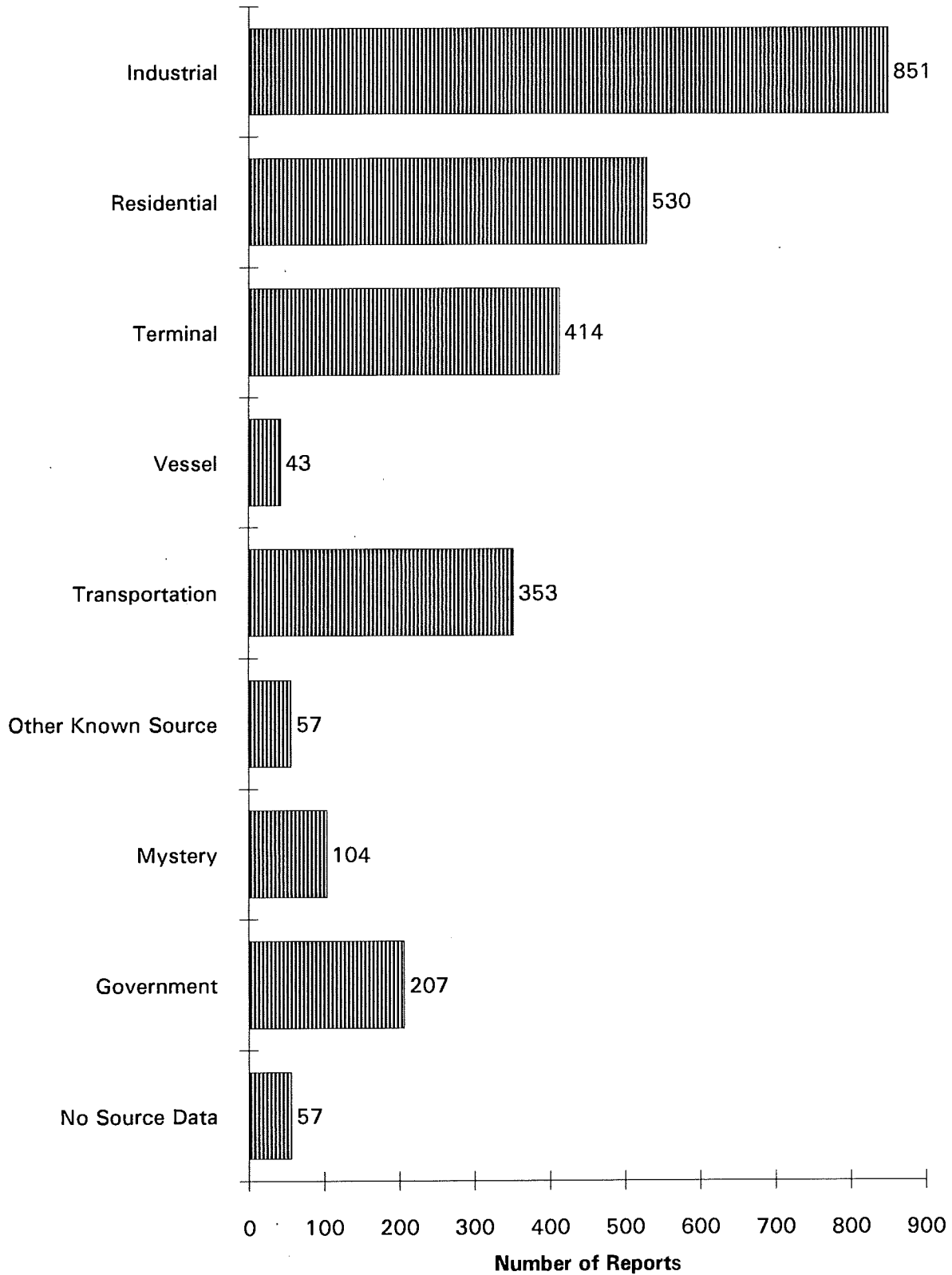
MYSTERY

GOVERNMENT, MUNICIPAL or RELIGIOUS FACILITY
(schools, hospitals, jail, church, etc.)

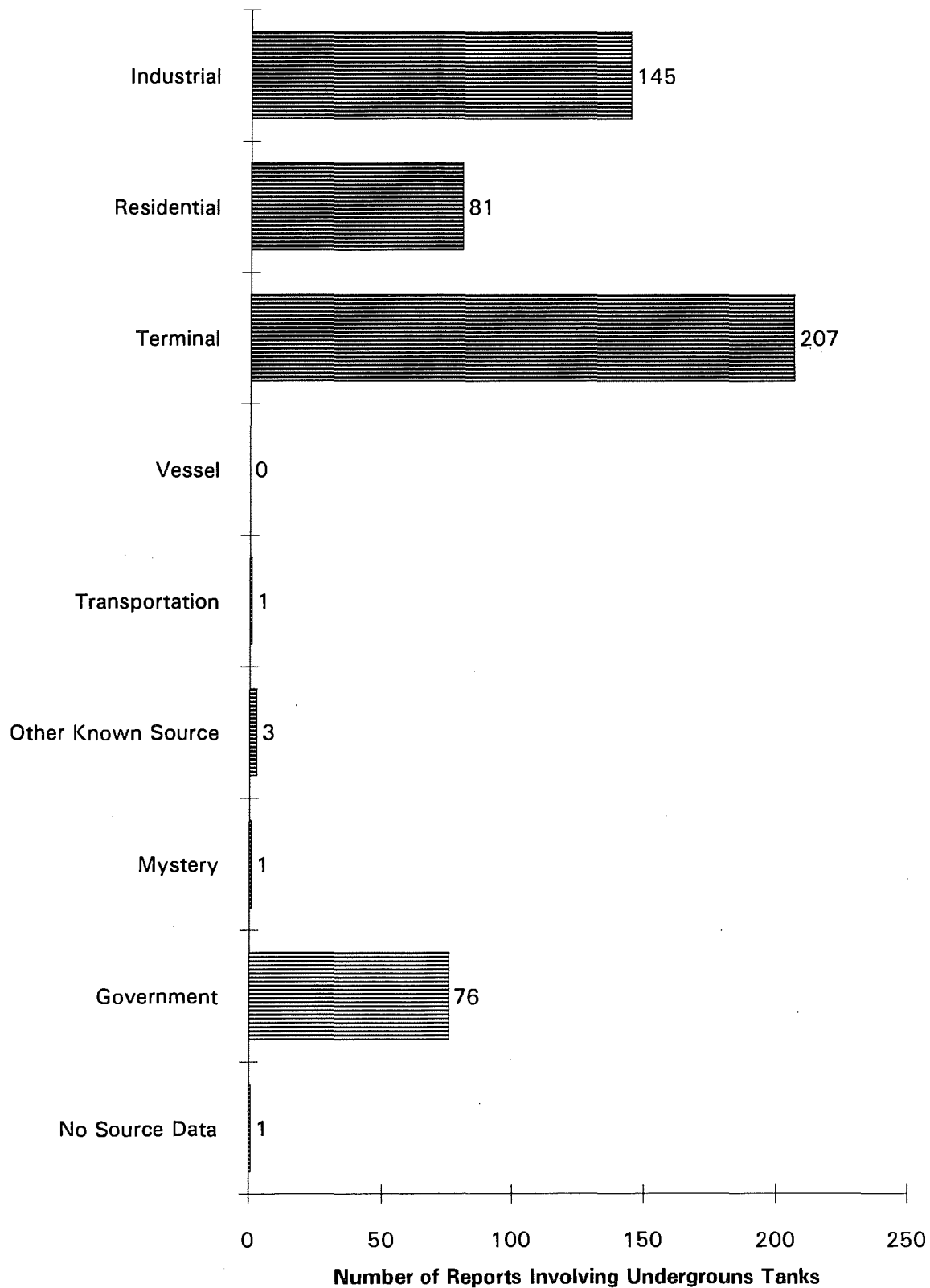
TYPES OF FACILITIES INVOLVED IN HAZARDOUS MATERIAL INCIDENTS IN 1990



Types of Facilities Involved in All Report Classes - 1990



Reports by Facility Where Underground Storage Tanks Were Involved - 1990



1990
Oil Terminal Transactions
by Month
Involving Payments to The Groundwater Fund

	TOTAL TRANSACTIONS	TOTAL BARRELS
January	197	6,024,572.10
February	162	3,698,680.02
March	195	4,479,300.72
April	163	4,348,185.55
May	240	4,468,305.70
June	236	4,399,359.28
July	244	4,426,931.85
August	304	4,067,312.74
September	271	3,995,982.10
October	272	3,239,248.82
November	301	4,162,593.11
December	254	4,271,407.57
FINAL TOTALS	2839	51,581,879.56

1990
Oil Terminal Transactions
by Month
Involving Payments to
The Inland and Coastal Surface Clean-up Fund

	TOTAL TRANSACTIONS	TOTAL BARRELS
January	203	9,188,728.10
February	166	5,789,635.02
March	204	9,179,325.72
April	165	5,343,448.55
May	244	6,504,595.70
June	239	5,647,969.28
July	253	9,203,136.85
August	310	7,270,544.74
September	278	7,173,947.10
October	283	8,468,544.82
November	309	8,393,757.11
December	262	8,504,447.57
FINAL TOTALS	2916	90,668,080.56