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WATER POLLUTION INCIDENTS IN ENGLAND AND WALES - 1992

Report of the National Rivers Authority

September 1993

NRA

National Rivers Authority

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r Quality Series No. 13

WATER POLLUTION INCIDENTS IN ENGLAND AND WALES 1992
(NRA Water Quality Series No. 13)

ERRATA

Executive Summary	2.1	31,680 should read 31,673
Page 8	2.1.1	8% should read 7%
Page 20	Figure 8	Figures on last bar are for 1992
	Figure 9	Figures on last bar are for 1992

PREFACE

Pollution incidents are unfortunately often the principal means by which the public first becomes aware of the state of the quality of the water in our rivers, estuaries and coastal seas. They are a sharp reminder of the need to minimise and prevent their occurrence, because each major incident can often put a stretch of water back to a state of quality which it has taken many years and much expense to improve. And numerous less serious incidents collectively undermine the progress being made to improve water quality generally.

The NRA does not hesitate to prosecute for all major pollution incidents, irrespective of the discharger or the nature of the discharge. Where dischargers have consents, however, the enforcement process is complicated by the varying form of existing consents. Such punitive action also has to be complemented by positive steps to prevent pollution from happening in the first place. This can only be done efficiently by having a more detailed knowledge of the sources, nature, severity and location of pollution incidents. Each year the NRA has, therefore, attempted to analyse the data in ever more detail in order to target its future pollution prevention campaigns to greater effect. The results of analysing the data for 1992 are encouraging.

Major pollution incidents have remained low compared with 1990, the NRA's first full calendar year of operation. Great credit for this trend must go to the farming community; indeed major agricultural incidents continue to decrease - particularly those caused by storing silage. The number of major incidents from sewage and water industry related sources has also declined, although somewhat disappointingly the overall number of incidents from such sources was slightly up and continues the trend over recent years; the majority arise from combined sewer overflows. This endorses the need for the investment currently being undertaken to maintain and improve the sewerage network system.

Perhaps the most worrying trend, however, is that in the increase in incidents due to oil, which account for most of the increased number of substantiated incidents reported to the NRA. Such pollution is of course highly visible - which perhaps accounts for the increase in reports - but often difficult to trace back to source.

Enforcement relating to pollution incidents is, like that of studying the cause of the incidents, a continual learning process. A number of useful lessons have indeed been learned during the past year, both by the NRA and those who wittingly or unwittingly cause pollution, and it is hoped that the examples cited in this report will help to minimise similar occurrences in the future - to the benefit of both the environment, industry, and the public in general.

R. J. Pentreath

DR R J PENTREATH
Chief Scientist and Director of Water Quality.

ACKNOWLEDGEMENTS

The material in this report was prepared by Dr J A Vale who would like to thank all the staff who compiled the data and contributed to the document.

EXECUTIVE SUMMARY

1 INTRODUCTION

Summary statistics are provided on substantiated incidents that occurred in 1992 and for the first time these have been presented by both **source** of pollution and **type** of pollutant. The sources of pollution categorised include sewage and water related operations, industry, agriculture and "other", whilst the broad types of incidents have been defined as oil, sewage, chemical, farm and "other". From the available information, indications of particularly important sources and types of pollution are noted. These will enable pollution control officers to target both these sources and types of pollution to minimise further incidents of this nature. Information on prosecutions taken by the NRA in respect of pollution incidents is given as well as details of some of the more notable prosecutions. In addition, sections describing the prevention of pollution and the costs recovered by the NRA for remedial work resulting from pollution incidents are included for the first time.

2 PRINCIPAL FINDINGS OF THE REPORT

2.1 A total of 31,680 incidents were reported in England and Wales during 1992, of which 23,331 (74%) were substantiated; these represent a small increase of 7% and 4% respectively over the 1991 figures, providing further evidence that the previous larger rises in incidents has been checked. Of the substantiated incidents, only 1.6% were classified as Category 1.

2.2 The number of Category 1 incidents in 1992 was essentially the same as in 1991. The majority of these incidents, by both source and type, fell into the "other" category. However, of those that could be categorised, industrial **sources** (26%) and sewage and oil **types** (both 18%) accounted for the greatest proportion of incidents.

2.3 Agricultural **sources** accounted for 12% of all substantiated incidents during 1992 and there was an overall decrease in these incidents by 183 (6%) relative to the previous year. The number of silage related incidents decreased by 52%. The NRA Regions with the greatest proportion of agricultural incidents were South West, Welsh and North West. Some 17% of Category 1 incidents were attributed to agricultural sources and there was a decrease in this category by 32% compared with 1991.

2.4 Industrial **sources** accounted for 19% of all substantiated incidents during 1992 and 26% of all Category 1 incidents. Oil from industry, landfill and waste disposal were the principal, definable, sources of industrial pollution.

2.5 Sewage and water related **sources** accounted for 28% of all substantiated incidents during 1992; but only 1.2% of these were classified as Category 1 pollution events, a decrease of 18% compared with 1991. The total number of incidents from these sources has continued to increase but the rate of increase has slowed considerably over previous years. Combined sewer overflows were the greatest source of pollution and supports the current attention being paid to the design and operation of sewer networks.

2.6 Incidents that did not fit into the broad categorisations of agriculture, industry, or sewage and water related sources accounted for 42% of substantiated incidents. Some 1.4% of these were classified as Category 1, of which 4% were related to transport and road traffic accidents.

2.7 Oil pollution incidents accounted for 26% of all substantiated incidents, by **type** of incident, during 1992. Although this categorisation of oil incidents is not directly comparable with previous years, the number of incidents involving oil is increasing. Of the 6136 substantiated incidents involving oil, 1.1% were classified as Category 1 incidents and these accounted for 18% of

incidents of this severity. Diesel was the most common type of oil pollution identified, and the greatest proportion of oil incidents occurred in Severn Trent, Thames and Anglian Regions.

2.8 Chemical pollution accounted for 6% of all substantiated incidents during 1992, and 13% of the national total of Category 1 incidents. Organic chemicals, paints and dyes, detergents and pesticides were the most common types of chemical pollutants that could be identified.

2.9 Incidents involving sewage accounted for 26% of all substantiated incidents classified by type of pollutant of which 71 (1.2%) were Category 1 incidents.

2.10 Other, unclassified, types of pollution accounted for 31% of all substantiated incidents. The principal types of "other" pollutant were miscellaneous industrial wastes and solid wastes. Some 2% of these incidents were classified as Category 1, and accounted for 35% of all incidents of this severity.

2.11 Prosecutions were brought for 297 substantiated pollution incidents and 290 (98%) were successfully convicted. At 1 April 1993 there were still a further 176 cases to be brought before the courts.

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1 INTRODUCTION

1.1 BACKGROUND

This report is the third annual analysis of pollution incident statistics for England and Wales issued by the NRA; it details the substantiated incidents that occurred in the calendar year 1992. Substantiated incidents are described according to both **source** of pollution and, where possible, by **type** of pollutant.

1.2 DEFINITIONS

The NRA uses a common pollution incident classification system throughout its ten* regions. This defines three categories in terms of the severity of their environmental impact: Categories 1 (major), 2 (significant), and 3 (minor). Appendix A details the criteria upon which these categories are based. In addition, the criteria formerly jointly agreed by the Water Authorities and the Ministry of Agriculture, Fisheries and Food (MAFF) to define a serious incident with respect to farm pollution are detailed for comparative purposes.

Pollution is categorised into four basic **sources:** farm, industrial, sewage and water related, and "other" sources. In addition, where data existed, the nature of the pollutant from all sources has categorised into five basic **types:** oil, sewage, chemical, farm (all agricultural incidents are discussed in section 3.1) and "other". All these sources and types of pollution have been further broken down to provide more detailed information on the nature of pollution in England and Wales.

Only substantiated pollution incidents are examined in detail, although records are kept of all the different incidents which are reported; every attempt is made by NRA staff to substantiate those which are reported.

1.3 POLLUTION PREVENTION

In addition to responding to, and investigating, the cause of pollution incidents, the NRA is actively trying to reduce the number of incidents that occur. Pollution prevention is an essential part of the work of NRA pollution control staff and often involves the inspection of industrial, commercial and agricultural premises to identify the potential for pollution and ways of minimising risks to the environment.

In some cases, very simple measures can be taken - such as repairing gutters on farm buildings, displaying notices to prevent the use of surface water gullies for the disposal of contaminated waste water and the bunding of oil tanks. By highlighting the risks to potential polluters a reduction in the number of incidents can be achieved. During 1992 a series of guidance notes on pollution prevention has been published. These cover activities of high risk and guidance on minimising accidental pollution such as the safe storage of oil, disposal of used oil, operations on construction sites, and disposal of sewage in the absence of mains drainage. Guidance notes are available to the public and a list of these is given in Appendix D.

Pollution prevention campaigns can take many forms and are planned to target specific problem areas and high risk activities at national, regional and local levels. The increasing level of detail of both sources and types of pollution documented in these reports helps to identify these problem areas. Examples of campaigns include an extensive series of farm visits which have taken place in both the Welsh and South West Regions, and a campaign using the press, television and radio as part of an initiative to minimise the number of oil pollution incidents in the Thames Region. Farm visits involve the identification and

* Yorkshire and Northumbria Regions and Wessex and South West Regions have now merged to give the NRA eight Regions in total.

assessment of risks in those areas from which pollution could arise. Prevention measures are usually directed at the storage facilities for animal slurries, silage, agricultural fuel oil and pesticides. Pollution incidents can frequently be avoided by implementing simple remedial measures to deal with potential problems identified at such visits.

Whilst pollution prevention campaigns are an effective tool in reducing accidental environmental damage, they are not the sole means of achieving such a reduction. Provided that the need is identified, appropriate safeguards can be built into developments at an early stage through specifications within planning consents issued under the Town and County Planning Acts. The Water Resources Act 1991 also permits the designation of water protection zones and nitrate sensitive areas within which certain activities may be restricted or prohibited. Although no water protection zones have yet been designated, the NRA is investigating their potential for pollution prevention and several nitrate sensitive areas are in operation as a pilot investigation.

As statutory Water Quality Objectives (WQOs) are introduced and the catchment management planning approach is adopted, pollution prevention will assume even greater importance. It is therefore imperative that the NRA maintains its commitment to pollution prevention activities in the future.

2 ANALYSIS OF INCIDENTS

2.1 ALL INCIDENTS

2.1.1 Reported Incidents

A total of 31,673 pollution incidents were reported to the NRA during the calendar year 1992; this is an increase of 8% on 1991. Every effort is made to substantiate reports received from the public, to filter out multiple reports of the same incident, and to identify the cause and the nature of any environmental impact. In 1992, 23,331 incidents (74% of those reported) were substantiated as having occurred. This is a slight increase of 4% on the number substantiated in 1991 (22,469). Only 388 incidents were classified as Category 1.

To maintain continuity with previous reports, both reported and substantiated incidents for 1990-1992 are illustrated in Figures 1 and 2; the former illustrates the trend since 1981 for England and Wales and the latter the trend since 1981 by NRA Region. The remainder of the report, however, focuses on analysing only those incidents that were substantiated.

2.1.2 Regional Distribution

The regional distribution of the 23,331 substantiated pollution incidents that occurred in 1992 is illustrated in Figure 3. The greatest proportion (19%) of these was seen in Severn Trent Region and the smallest (5%) was seen in both Northumbria and Southern Regions. However, this distribution does not necessarily reflect the relative impact of pollution in controlled waters across England and Wales, which depends on both the nature of the pollutant(s) and the severity of the incident as well the size, nature and population density of the different regions.

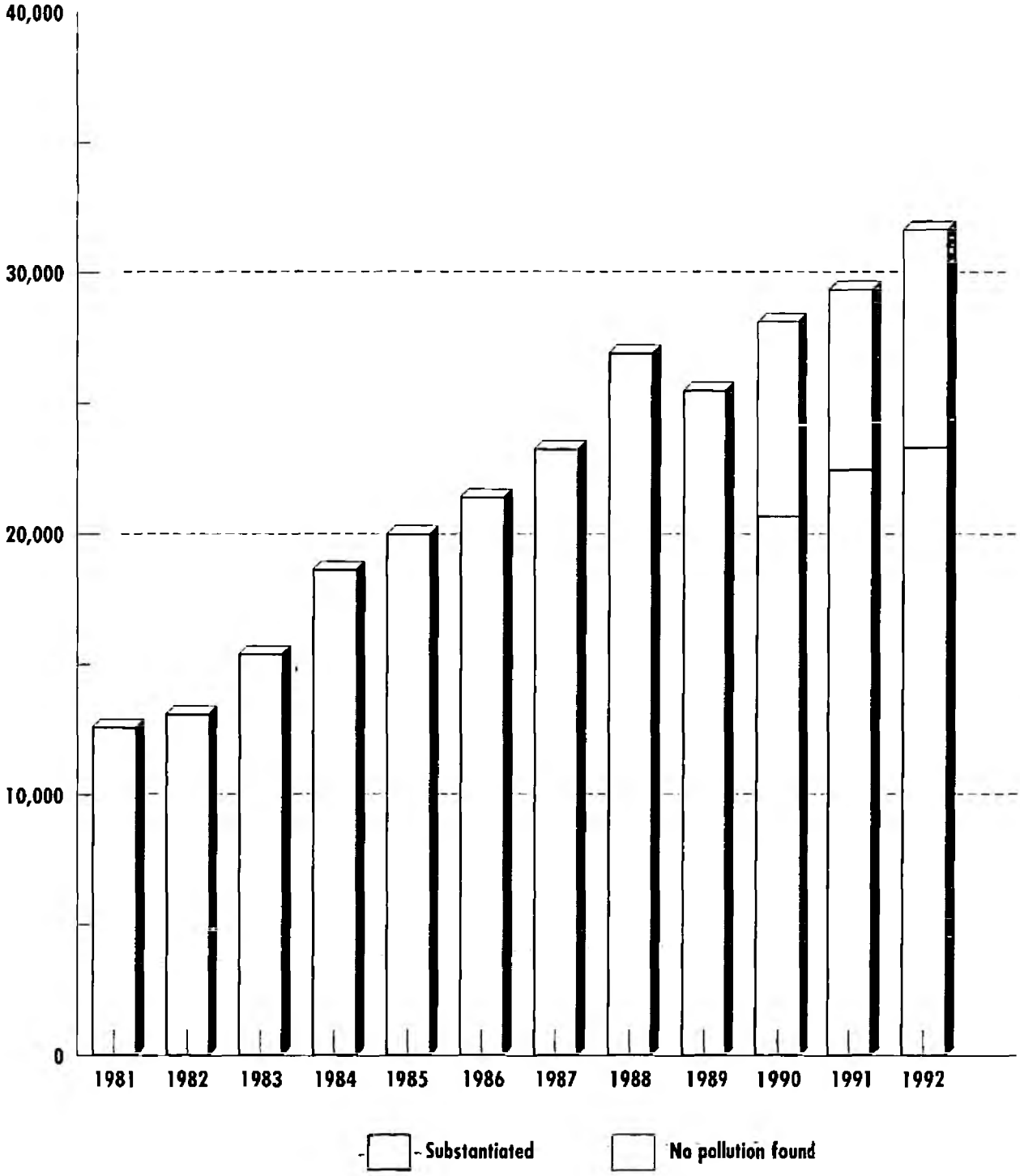
2.1.3 Distribution by Source of Pollution

Pollution sources (Figure 4a) have been assigned to major categories: agriculture, industrial, and sewage and water related sources. Any incidents that do not fall into these are categorised as "other" pollution events; these include, amongst many others, pollution arising from road traffic accidents, hospitals, and domestic premises. Of the three identified pollution categories (Table 1), the greatest proportion (28%) of incidents were related to water and sewage sources, and the least from agriculture (12%). Industry gave rise to 19% of incidents whilst the largest proportion (41%) of incidents could not be categorised into any of these identified sources and thus fell into the "other" category.

2.1.4 Distribution by Type of Pollutant

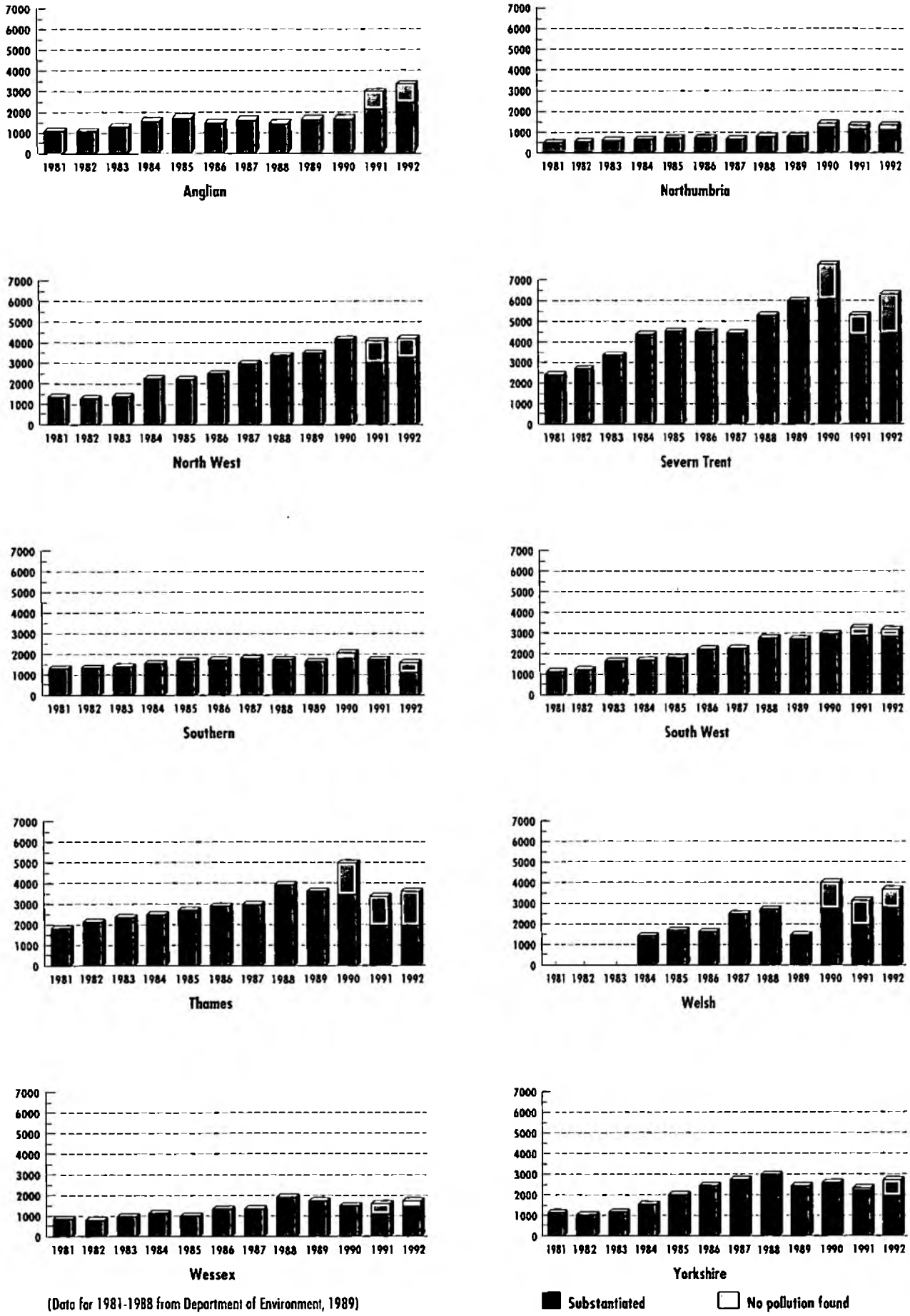
This year, for the first time, incidents have been categorised by type of pollution regardless of source (Table 2). This gives a useful broad picture despite some limitations with the data (see Section 5). Pollutants have been categorised into four broad groupings of oil, sewage, chemicals, and farm plus an "other" category where it was not possible to identify the pollutant. This last category includes vehicle washings, solid waste, construction industry wastes, foam, and many other contaminants which are not easily defined. The greatest proportion (Figure 5a) of incidents that could be defined by type of pollutant were oil and sewage pollution incidents (both 26%), followed by farm (11%) and chemicals (6%). The largest proportion of incidents (31%) could not, however, be categorised in this way.

Figure 1 - Total number of pollution incidents in England and Wales, 1981 - 1992



(Assumes that No. of incidents in Welsh Water Authority
1981-3 account for same percentage of national incidents 1984-1988)

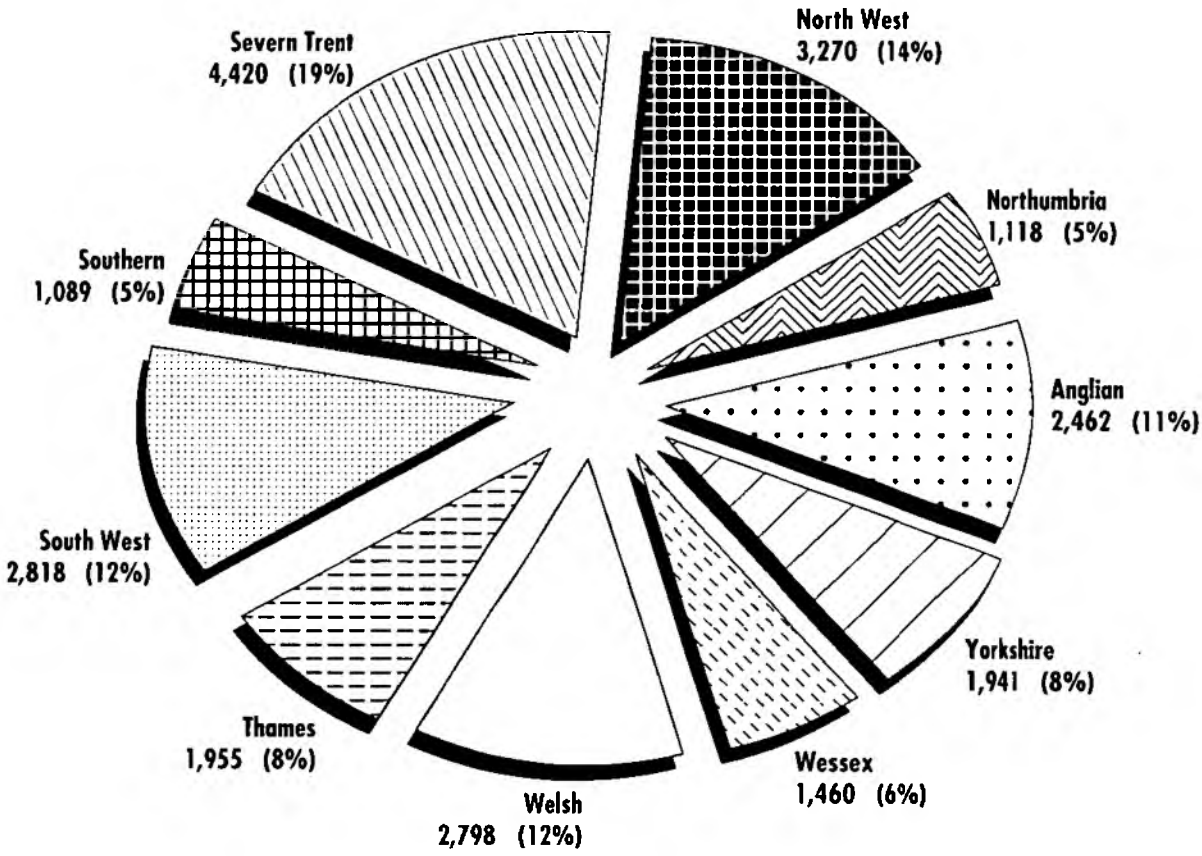
Figure 2 - Total number of pollution incidents by NRA Region, 1982 - 1992



(Data for 1981-1988 from Department of Environment, 1989)

Figure 3 - Total number of substantiated pollution incidents by NRA Region, 1992

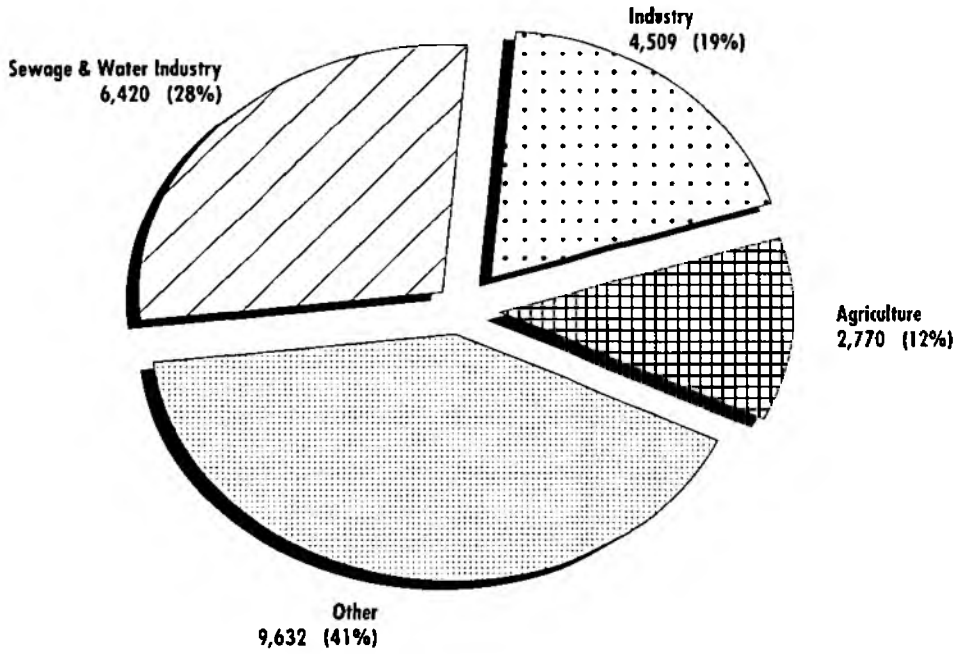
Total Number of Incidents



Total: 23,331

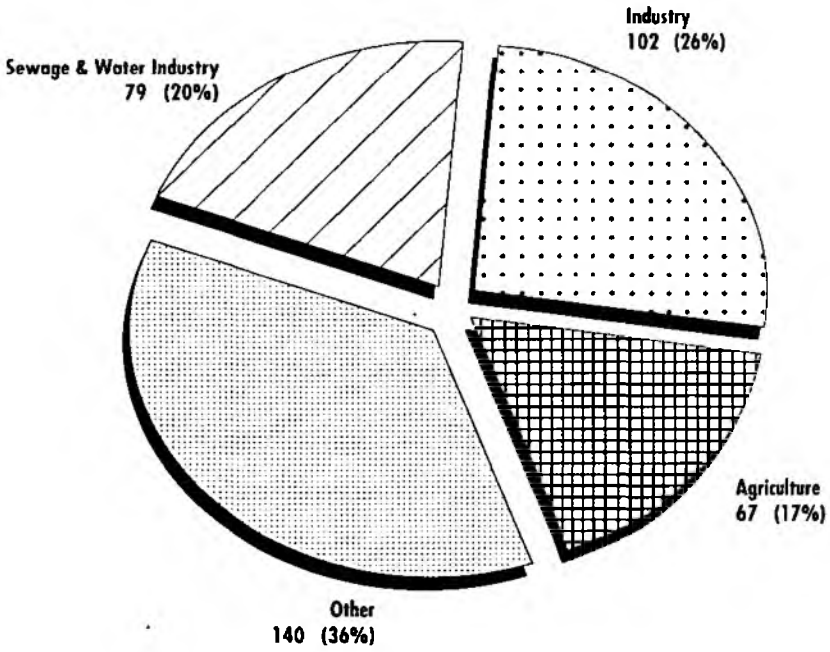
Figure 4 - Distribution of pollution incidents by source, 1992

a) Total Number of Incidents



Total: 23,331

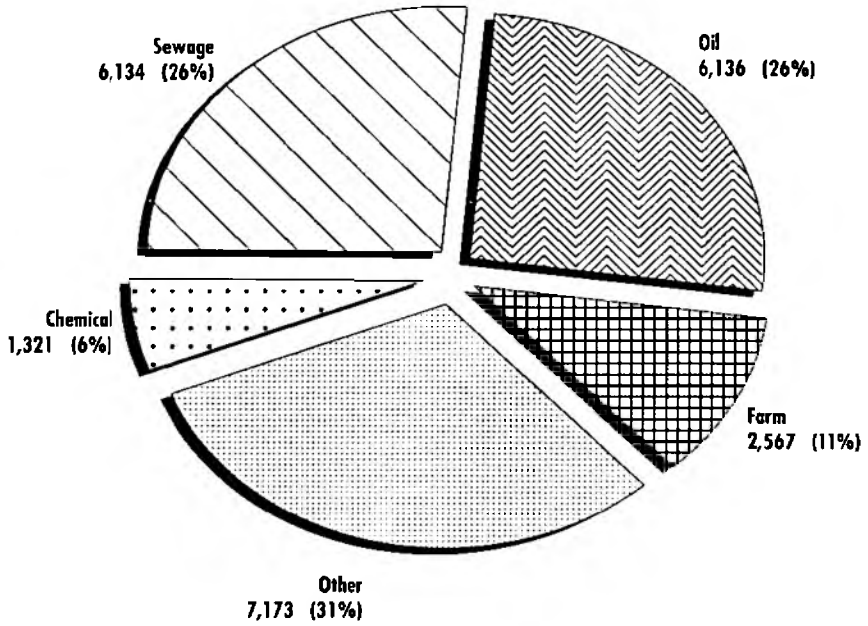
b) Category 1 Incidents only



Total: 388

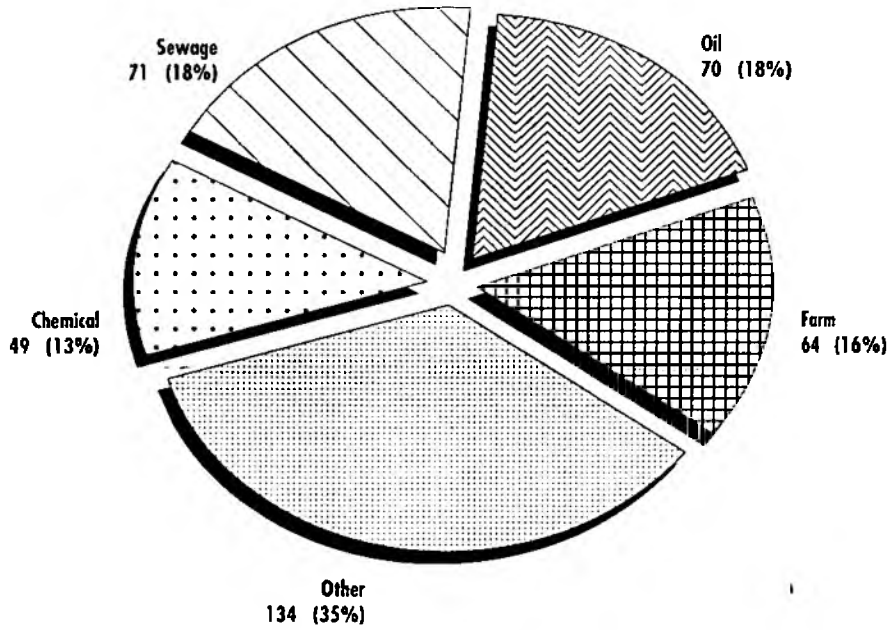
Figure 5 - Distribution of substantiated pollution incidents by type of pollutant, 1992

a) Total Number of Incidents



Total: 23,331

b) Category 1 Incidents only



Total: 388

Table 1 - Total number of substantiated pollution incidents in 1992 by pollution source category.

Region	Agricultural	Industrial	Sewage & Water	Other	Total	Percent
Anglian	283	584	657	938	2,462	11
Northumbria	51	169	457	441	1,118	5
North West	417	279	1,051	1,523	3,270	14
Severn Trent	320	715	961	2,424	4,420	19
Southern	71	236	446	336	1,089	5
South West	686	434	730	968	2,818	12
Thames	91	351	373	1,140	1,955	8
Welsh	446	864	858	630	2,798	12
Wessex	225	219	289	727	1,460	6
Yorkshire	180	658	598	505	1,941	8
TOTAL	**2,770**	**4,509**	**6,420**	**9,632**	**23,331**	**100**
Percent	12	19	28	41	100	

Table 2 - Total number of substantiated pollution incidents in 1992 by type of pollutant.

Region	Farm	Oil	Sewage	Chemicals	Other	Total	Percent
Anglian	203	873	657	209	520	2,462	11
Northumbria	48	264	448	108	250	1,118	5
North West	406	719	1,026	236	883	3,270	14
Severn Trent	296	1,379	961	206	1,578	4,420	19
Southern	63	357	392	57	220	1,089	5
South West	661	428	568	80	1,081	2,818	12
Thames	69	876	423	194	393	1,955	8
Welsh	425	426	786	160	1,001	2,798	12
Wessex	216	517	289	44	394	1,460	6
Yorkshire	180	297	584	27	853	1,941	8
TOTAL	**2,567**	**6,136**	**6,134**	**1,321**	**7,173**	**23,331**	**100**
Percent	11	26	26	6	31	100	

Table 3 - Total number of Category 1 (Major) substantiated pollution incidents by pollution source category, 1991 and 1992

Region	Farm		Industrial		Sewage & Water		Other		Total		Percent	
	1991	1992	1991	1992	1991	1992	1991*	1992	1991	1992	1991	1992
Anglian	3	3	4	6	1	1	3	8	11	18	3	5
Northumbria	5	1	2	2	6	2	5	4	18	9	5	2
North West	10	10	11	9	17	19	18	23	56	61	14	16
Severn Trent	27	17	35	43	23	15	37	76	122	151	32	39
Southern	3	1	2	1	0	4	2	1	7	7	2	2
South West	25	13	4	7	6	9	13	6	48	35	12	9
Thames	2	0	1	3	1	1	7	0	11	4	3	1
Welsh	4	10	4	5	4	5	3	8	15	28	4	7
Wessex	3	7	1	4	0	7	5	6	9	24	2	6
Yorkshire	17	5	19	22	38	16	15	8	89	51	23	13
TOTAL	**99**	**67**	**83**	**102**	**96**	**79**	**108**	**140**	**386**	**388**	**100**	**100**
Percent	26	17	22	26	24	20	28	36	100	100		

* Includes oil incidents 1991

Table 4 - Total number of Category 1 (Major) substantiated pollution incidents by type of pollutant, 1992

Region	Farm	Oil	Sewage	Chemical	Other	Total	Percent
Anglian	1	3	1	7	6	18	5
Northumbria	0	2	1	3	3	9	2
North West	10	9	19	6	17	61	16
Severn Trent	17	39	15	21	59	151	39
Southern	1	1	4	0	1	7	2
South West	13	3	6	4	9	35	9
Thames	0	2	0	2	0	4	1
Welsh	10	1	5	5	7	28	7
Wessex	7	5	7	1	4	24	6
Yorkshire	5	5	13	0	28	51	13
TOTAL	**64**	**70**	**71**	**49**	**134**	**388**	**100**
Percent	16	18	18	13	35	100	

2.1.5 Category 1 Incidents

Of the 23,331 pollution incidents substantiated by the NRA during 1992, only 388 (1.6%) were Category 1 incidents (Table 3). This represents a slight increase of 0.5% in Category 1 incidents compared with the number recorded for 1991, but indicates that the pollution prevention and control measures that are being constantly encouraged by the NRA are effective because there were 658 Category 1 incidents in 1990. The largest proportion (36%) of Category 1 incidents in 1992 (Table 3) arose from sources that could not be identified as either agricultural, industrial or sewage and water related. However, in contrast to previous years, the greatest proportion of definable incidents emanated from industrial sources (26%), with sewage and water related incidents (20%) and agricultural sources (17%) accounting for the remaining proportions. This shows a definite shift from 1991 where the greatest proportion of incidents were from agricultural sources with industrial and "other" sources accounting for the smaller proportion. The increase in "other" sources during 1992 reflects the inclusion of oil incidents within this source category;

previously any incidents involving oil were categorised as a separate source of incident. These are discussed separately in this report under the broad categorisation of type of pollutant.

The relative proportions of the types of pollution incident, both total and Category 1, are shown in Figures 5a and b respectively. A large proportion (35%) of incidents could not be categorised as chemical, sewage or oil and were thus classified as "other". Of those that were defined, oil and sewage (both 18%) made up the largest proportion of pollutants, followed by farm (16%) and chemicals (13%).

3 ANALYSIS OF INCIDENTS BY SOURCE

3.1 AGRICULTURAL POLLUTION INCIDENTS

3.1.1 Total Incidents

A total of 2,770 agricultural pollution incidents were substantiated in 1992 (12% of incidents from all sources), but only a few (67) fell into Category 1. A detailed breakdown of agricultural incidents for each NRA Region is given in Appendix B.

3.1.2 Sources of Agricultural Pollution

The national distribution of agricultural pollution incidents since 1985 is given in Table 5. The data for 1985-1990 are the total reported figures for each type of incident whilst those since 1991 are for substantiated incidents only. The distribution by sources of agricultural incident is given in Figure 6. The greatest proportion (65%) of the 2,770 substantiated agricultural incidents was related to cattle, in particular to slurry and pollution from solid stores (38% of cattle incidents) and yard and parlour washings (25% of cattle incidents). Pollution from slurry and solid stores also comprised a large component (44%) of those incidents related to pig farming. Land run-off was a major cause of agricultural pollution associated with cattle (18%) and pig farming (33%) activities. Other important sources of agricultural pollution were silage stores (8% of all agricultural incidents) and oil spillages (5%).

3.1.3 Regional Distribution

The regional distribution of agricultural pollution incidents is shown in Figure 7. As expected this varied from a relatively low proportion of the total in Northumbria Region (2%) and Thames Region (3%), to the greatest proportions in South West Region (25%), Welsh Region (16%) and North West (15%). The largest sources of incidents in South West, North West and Welsh Regions were both cattle yard washings and slurry stores/waste collection tanks. Oil pollution incidents emanating from farms were high in Thames Region (24%), Anglian Region (16%), and Severn Trent Region (6%). All of these sources of agricultural pollution are being targeted by the regulations controlling the storage of silage, slurry and agricultural fuel oil that came into force in September 1991. Poultry incidents were especially high in Anglian Region, some 30% of the national total.

3.1.4 Historical Trends

Table 6 gives the numbers of agricultural pollution incidents, by NRA Region, for the years 1988 to 1992, and Figure 8 shows the total number of agricultural pollution incidents reported (and substantiated in 1991 & 1992) annually between 1988 and 1992. In comparison with 1991, the total number of substantiated pollution incidents in 1992 has decreased by 7%. The largest decrease was seen in the number of silage incidents (52%). Regionally, the biggest decreases were seen in Thames (86%), Southern (75%), Northumbria (60%), Yorkshire (60%) and North West (51%) Regions. These decreases are partly attributable to the lower than average rainfall experienced during the silage cutting months, the introduction of the above mentioned regulations, as well as significant initiatives having been taken by the farming community to prevent pollution. A national decrease (12%) in the number of cattle slurry pollution incidents also occurred. However, there was not a corresponding decrease in the number of oil pollution incidents from agricultural sources.

3.1.5 Category 1 Incidents

Agriculture accounted for 17% of all Category 1 pollution incidents, by source, in 1992 and the number of these decreased by 32% compared with 1991, and indicate a substantial reduction over the last couple of years (Figure 9). However, the decrease since 1988 also reflects the change to the NRA classification of Category 1 incidents from the MAFF definition of a "serious" incident; many of these are now defined as Category 2. The decrease in the 1992 figures shows a shift from 1991 when agriculture accounted for the largest proportion of Category 1 incidents; the largest proportion is now accounted for by Industrial sources. The number of Category 1 agricultural incidents is also a reflection of the fact that agricultural effluents are particularly concentrated and naturally have a severe effect on the environment. By region the largest number of Category 1 incidents in 1992 (Table 6) occurred in Severn Trent (25%) and there were no major agricultural pollutions in Thames Region. By specific source (Table 7), cattle slurry (54%) made up the vast majority of Category 1 pollutions, with land drainage from both cattle and pigs accounting for 15%. As for the overall number of incidents, the reasons for the reduction in Category 1 agricultural incidents may well parallel those for total incidents.

Table 5 - Farm pollution incidents by source, 1985-1992.
(Data prior to 1990 from NRA/MAFF (1989) and Water Authority/MAFF annual farm waste reports).

Source of Pollution	1985	1986	1987	1988	1989	1990	1991	1992
COWS								
Slurry Stores	717	695	705	801	589	531	591	521
Solids Stores	185	143	148	194	121	118	133	155
Yard/Parlour Washing	610	816	821	836	578	697	607	531
Land Run-off	180	244	212	345	380	335	306	325
Treatment System Failure	116	177	84	96	65	110	79	58
Silage Liquor	1,006	592	1,003	815	245	470	461	220
Total	**2,814**	**2,667**	**2,973**	**3,087**	**1,978**	**2,261**	**2,177**	**1,810**
PIGS								
Slurry Stores	164	169	217	231	169	101	90	98
Yard Washing	85	89	54	59	64	66	45	35
Land Run-off	57	69	74	89	92	60	37	75
Treatment System Failure	7	21	21	20	19	20	19	16
Total	**313**	**348**	**366**	**399**	**344**	**247**	**191**	**224**
Others	383	412	551	655	567	639	586	736
Total	**3,510**	**3,427**	**3,890**	**4,141**	**2,889**	**3,147**	**2,954**	**2,770**

Data for 1991 and 1992 are based on substantiated reports

Figure 6 - Farm pollution incidents by source, 1992

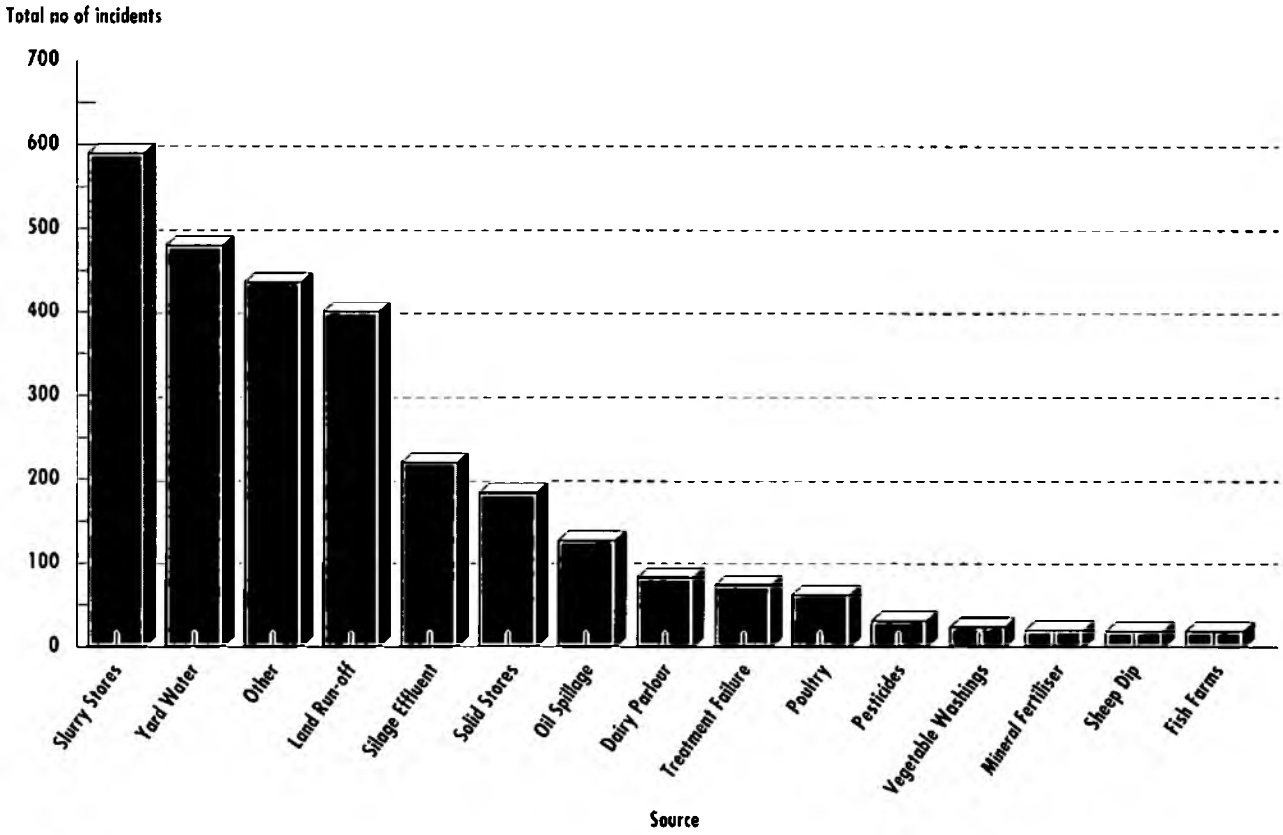
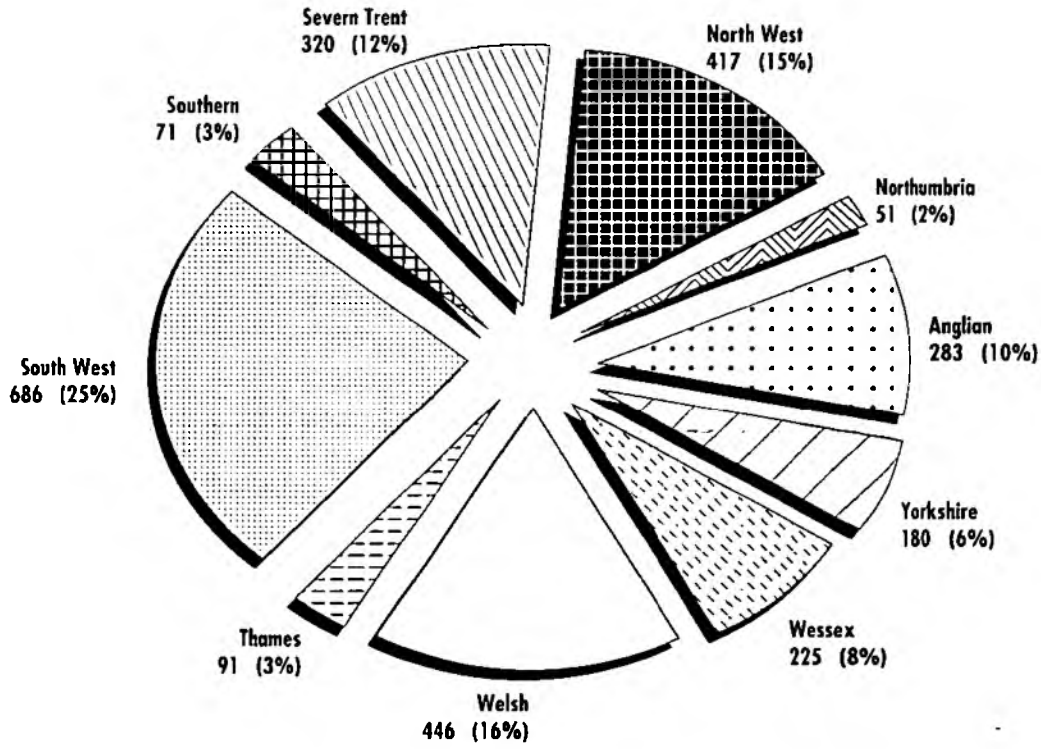


Figure 7 - Total substantiated agricultural pollution incidents by NRA Region, 1992



Total: 2,770

Figure 8 - Total number of reported agricultural pollution incidents in England & Wales, 1988 - 1992

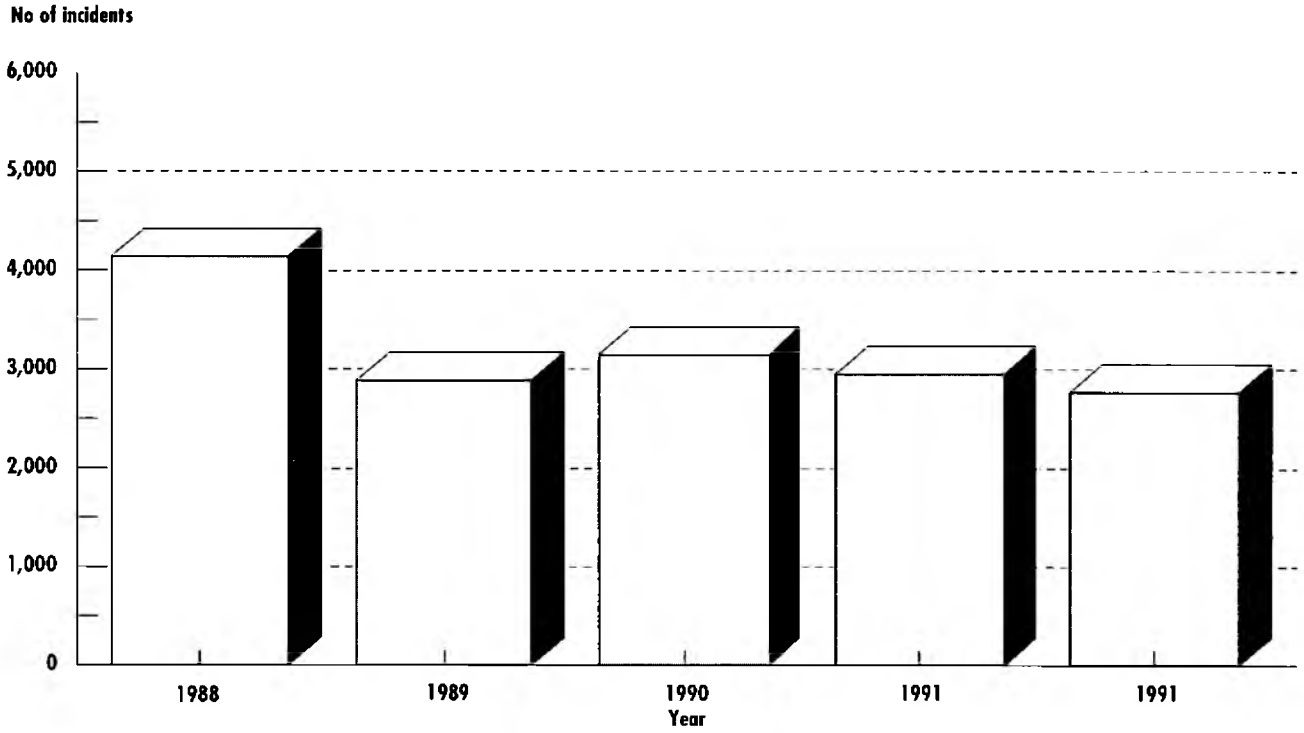
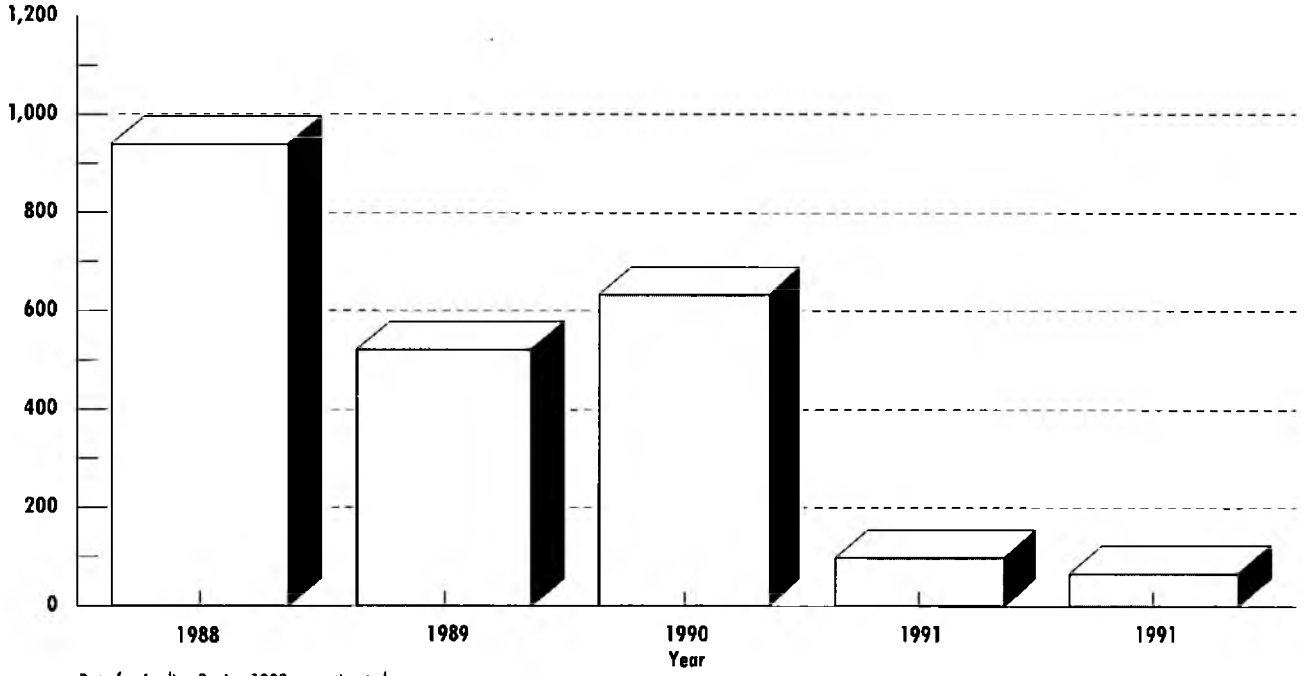


Figure 9 - Total number of Category 1/serious agricultural pollution incidents, 1988 - 1992



Data for Anglian Region 1990 are estimated

Table 6 - Total farm pollution incidents by NRA Region, 1988 - 1992
(Data for 1989 from NRA/MAFF annual farm waste reports; prior to 1989 from WA/MAFF reports).
(R=reported; S=serious; M = NRA Category 1, i.e. major; Sub = substantiated)

NRA Region	1988		1989		1990		1991		1992	
	R	S	R	S	R	S	Sub	M	Sub	M
Anglian	205	31	204	23	179	-	212	3	283	3
Northumbria	80	15	63	6	65	6	79	5	51	1
North West	841	125	468	89	630	140	469	10	417	10
Severn Trent	625	77	431	44	271	46	402	27	320	17
Southern	95	17	80	13	84	12	93	3	71	1
South West	836	420	589	160	782	173	718	25	686	13
Thames	160	36	125	7	58	9	78	2	91	0
Welsh	567	112	354	67	547	134	421	4	446	10
Wessex	401	70	306	90	226	49	218	3	225	7
Yorkshire	331	37	269	23	305	39	264	17	180	5
Total	**4,141**	**940**	**2,889**	**522**	**3,147**	**-**	**2,954**	**99**	**2,770**	**67**

Table 7 - Major (NRA category 1) farm pollution incidents by source, 1991/1992

Source of Pollution	Incidents		Major		% Major	
	1991	1992	1991	1992	1991	1992
COWS						
Slurry Stores	591	521	26	36	4.4	6.9
Solid Stores	133	155	1	0	0.8	-
Yard/Parlour Washings	607	531	7	4	1.2	0.8
Land Run-off	306	325	13	7	4.2	2.2
Treatment System Failure	79	58	3	2	3.7	3.4
Silage Liquor	461	220	22	3	4.8	1.4
PIGS						
Slurry Stores	90	98	3	3	3.3	3.1
Yard Washing	45	35	0	0	-	-
Land Run-off	37	75	0	3	-	4.0
Treatment System Failure	19	16	1	0	5.3	-
Others	586	738	23	9	3.9	1.2
Total	**2,954**	**2,770**	**99**	**67**	**3.4**	**2.4**

3.2 INDUSTRIAL POLLUTION INCIDENTS

3.2.1 Total Incidents

A total of 4,509 pollution incidents from industrial sources were substantiated in 1992, 19% of the total.

3.2.2 Sources of Industrial Pollution

Where discrete data were available the breakdown of industrial pollution incidents by source has been provided by NRA Regions. Although it was not possible to provide a complete breakdown and the majority of industrial incidents (57%) could not be specifically defined (and were therefore categorised under "other" industrial sources), the pattern of the categorised incidents is illustrated in Figure 10. It is clear that important sources arise from the demolition/construction industries (20%, excluding "others"), oil from industry (20%), landfill/waste disposal (18%), mining (15%) and the chemical industries (14%). By comparison engineering (3%), paper manufacture (2%) and the metallurgical and textile industries contributed only small proportions of categorised industrial incidents.

3.2.3 Regional Distribution

The regional distribution of substantiated industrial pollution incidents is given in Figure 11. The proportions in Regions vary from 4% in Northumbria to 16% and 19% in Severn Trent and Welsh Region respectively. Of incidents attributable to demolition/construction activities more than half occurred in Welsh (26% of Regional total), Southern (17%) and Thames (15%) Regions. In Anglian Region most incidents were attributable to oil (61%) and chemicals (27%). Chemicals were also important in Northumbria (25%) as were mining (28%) and the construction industry (13%).

3.2.4 Historical Trends

In contrast to earlier reports, the breakdown of incidents by source includes all incidents which involved oil from industry. (Previously oil pollution incidents, whether by source or type, were categorised separately). As a result, therefore, the number of industrial pollution incidents appears to have increased 55% over the value for 1991 and this can be partially attributed to the inclusion of oil pollution from industry. Nevertheless, if these incidents are disregarded the number of industrial pollution incidents still shows an increase of 40%. The greatest increases, including oil (Table 8) occurred in Anglian Region (3-fold), Welsh Region and Yorkshire Region (both 2-fold). In Anglian Region if oil data are discounted the number for 1992 has increased by 17.5%. North West Region was the only area where pollution from industrial sources had declined.

3.2.5 Category 1 Incidents

Of the 388 Category 1 pollution incidents, 102 (26%) of these were classified as arising from industrial sources (Figure 4b), but these represent only 2% of all industrial incidents.

Figure 10 - Distribution of industrial pollution incidents by source, 1992

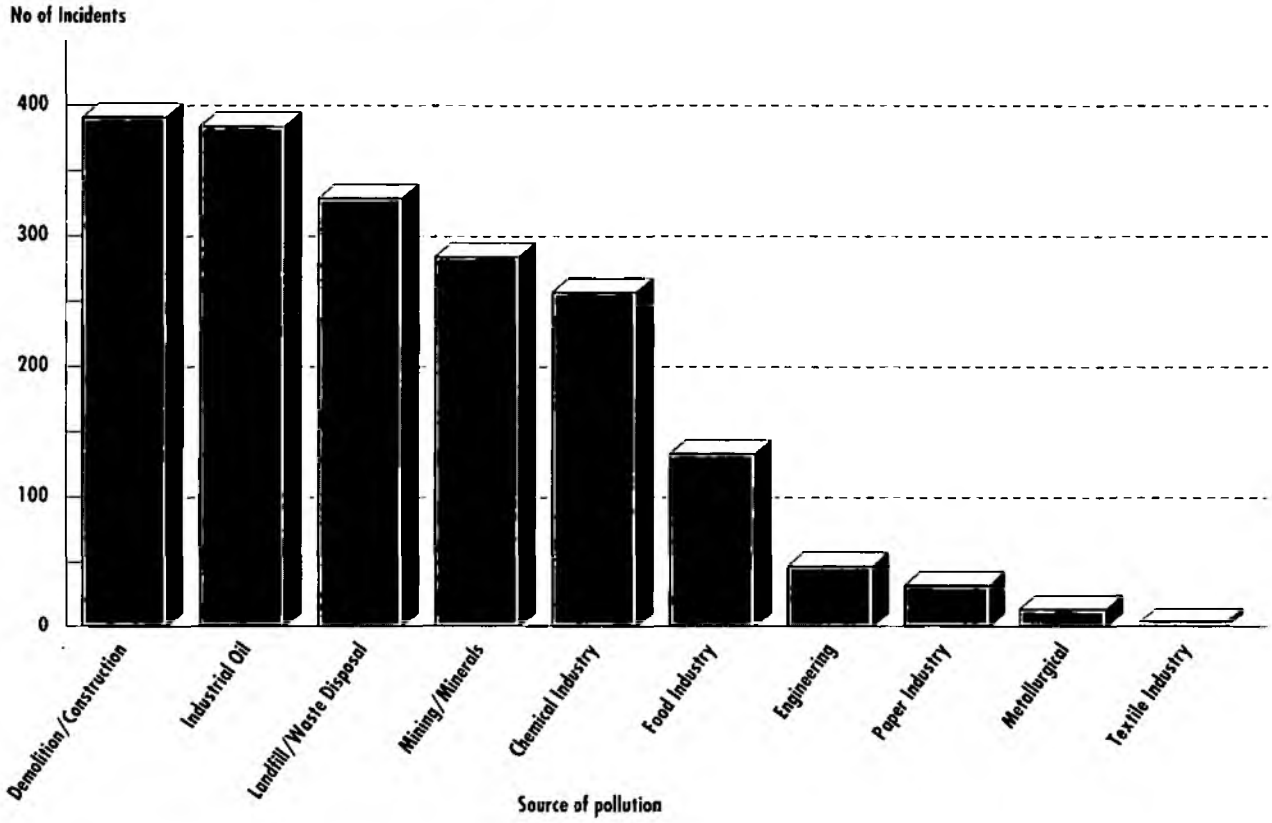
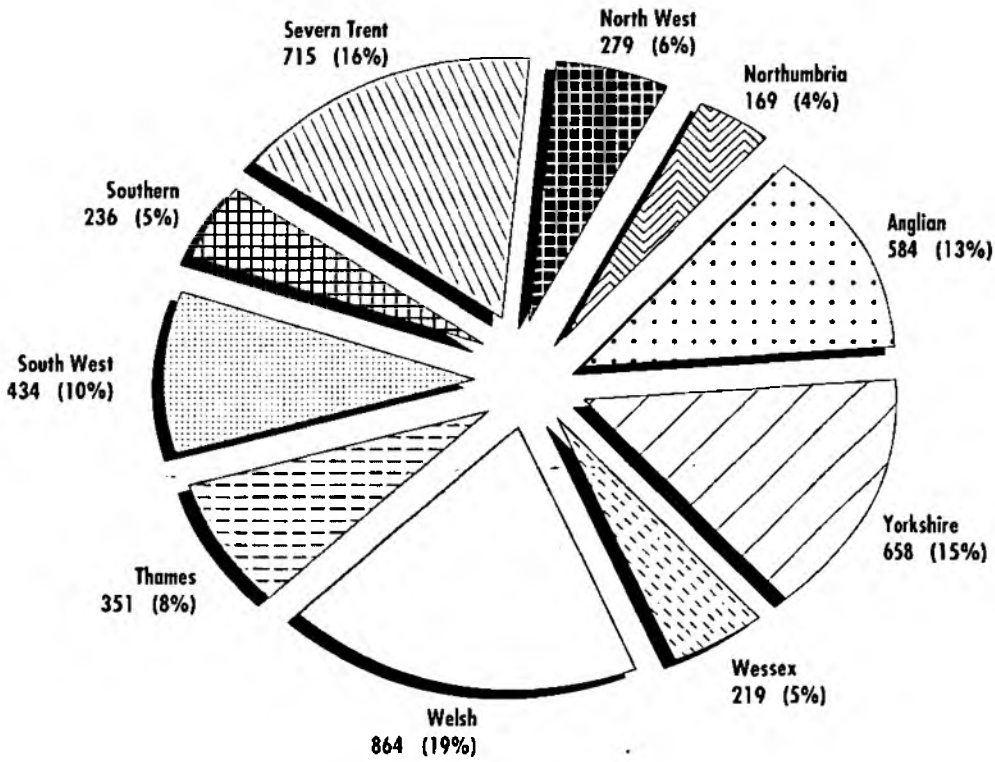


Figure 11 - Total industrial pollution incidents by NRA Region, 1992



Total: 4,509

Table 8 - Total reported industrial pollution incidents by NRA Region, 1987-1992.
(Data up to 1988 from DoE Digest of Environmental Pollution and Water Statistics 1988 and 1989 and provided by previous Water Authorities)

NRA Region	1987	1988	1990	1991*	1992*a
Anglian	180	169	213	194	584
Northumbria	42	66	117	123	169
North West	336	338	267	336	279
Severn Trent	785	1,108	350	608	715
Southern	181	182	164	168	236
South West	252	341	339	345	434
Thames	190	323	385	211	351
Welsh	237	353	138	428	864
Wessex	52	160	403a	67	219
Yorkshire	537	620	426	323	658
Total	**2,792**	**3,660**	**2,802**	**2,803**	**4,509**

* Substantiated Incidents
a Includes oil based incidents

3.3 SEWAGE & WATER INDUSTRY RELATED POLLUTION INCIDENTS

3.3.1 Total Incidents

There were 6,420 sewage and water industry related pollution incidents substantiated during 1992, accounting for 28% of the total in England and Wales during the year.

3.3.2 Sources of Sewage and Water Industry related incidents

Where possible, the data provided for sewage and water related incidents have been broken down to define the particular sources of pollution. Sources were defined for 67% of sewage and water incidents and the distribution of these is illustrated in Figure 12. Water Service Company (WSC) combined sewer overflows accounted for 44% of the definable incidents and 30% of all sewage and water related incidents. These high proportions support the current level of attention being paid to the design and operation of sewer networks. Other important sources were WSC sewage treatment works (11%), WSC pumping stations (8%), private sewage treatment works (11%) and surface water outfalls (9%).

3.3.3 Regional Distribution

The Regional distribution of substantiated sewage and water related pollution incidents is shown in Figure 13. This ranged from 4% in Wessex to 15% and 16% in Severn Trent and North West Regions respectively. The problems associated with Water Service Company combined sewer overflows varied considerably between regions from 53% (of all sewage and water related incidents) in North West to only 3% in Thames Region. Surface water outfalls were an important source of incidents and were particularly high proportions of the totals in Thames (49%), and North West (16%).

3.3.4 Historical Trends

Figures for the regional distribution of sewage and water related pollution incidents from 1987 to 1992 are given in Table 9. Nationally the number of these incidents has increased slightly by 1.4% in the last year. This continues the upward trend since 1987 with an increase by some 50% over the period. Increases in the number of substantiated incidents when compared with 1991 were seen in Anglian (15%), North West (7%), Southern (19%), South West (3%), Welsh (63%) and Wessex (34%). In contrast Northumbria, Severn Trent, Thames and Yorkshire Regions all recorded a decrease in the number of sewage and water related incidents.

3.3.5 Category 1 Incidents

Only 1.2% (79) of the sewage and water related incidents (Table 3) were classified as Category 1; however, these represented 20% of all Category 1 incidents recorded during the year. This represents a decrease by 18% relative to 1991. The regional distribution of these incidents varied, with just one Category 1 incident being recorded in Anglian and in Thames Regions to 15 (19%) and 19 (24%) in Severn Trent and North West Regions respectively. The sources of the majority of Category 1 incidents were accounted for by combined sewer overflows (42%) and Water Service Company sewage treatment works (15%).

Figure 12 - Distribution of sewage and water industry related pollution incidents by source, 1992

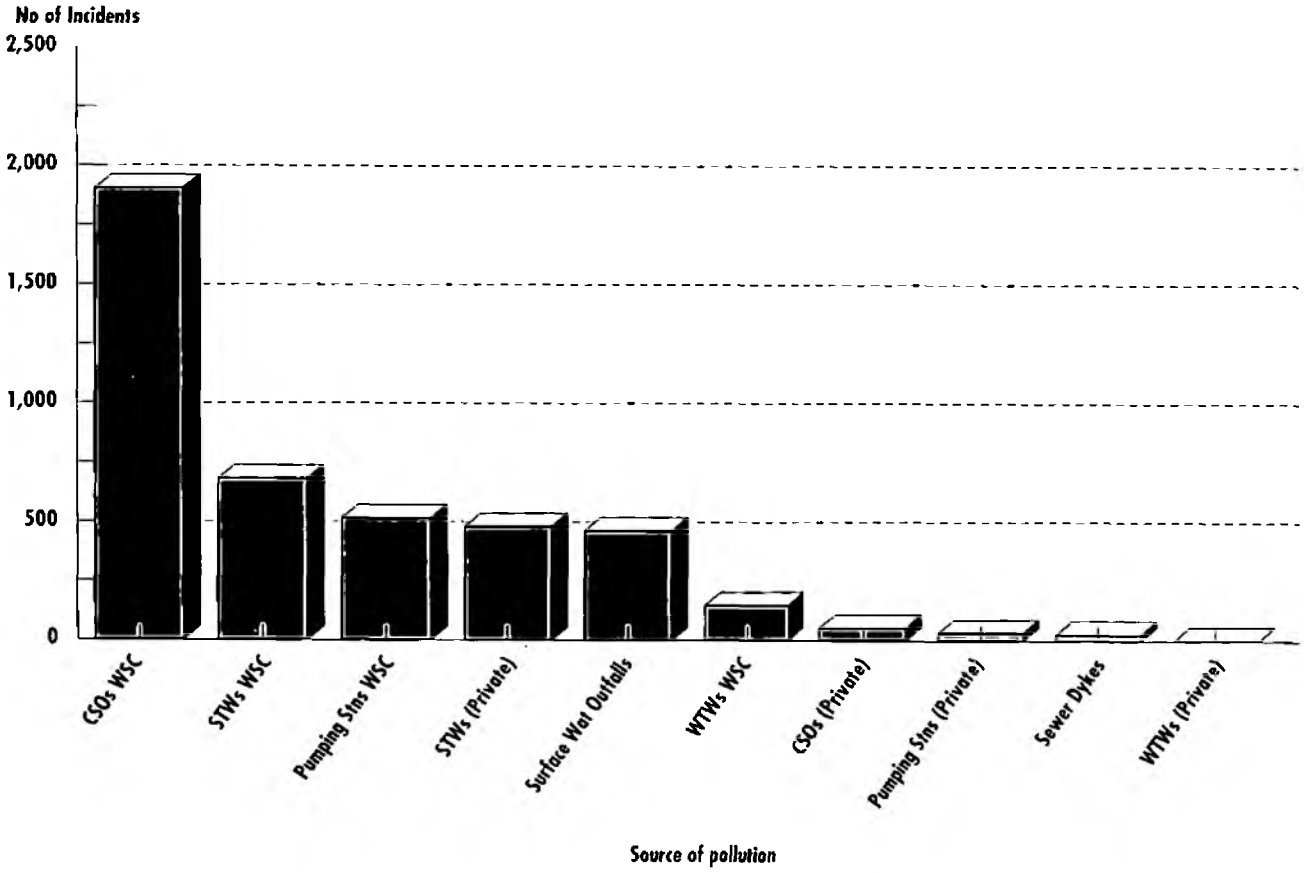
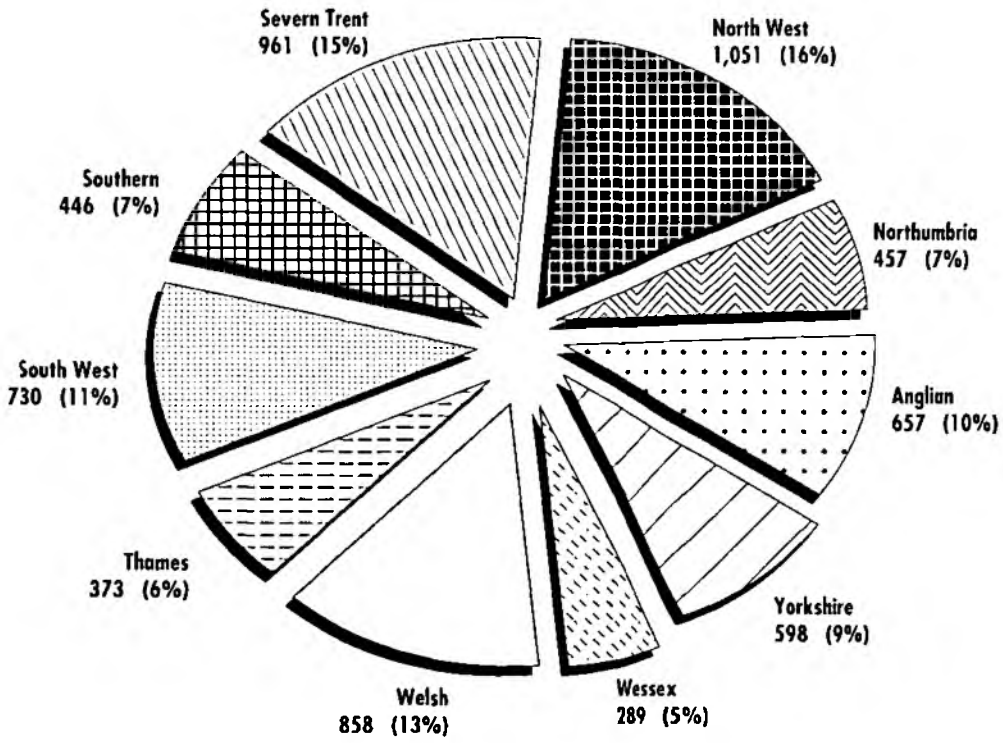


Figure 13 - Total sewage and water related industry pollution incidents by NRA Region, 1992



Total: 6,420

Table 9 - Total sewage and water industry related incidents by NRA Region, 1987-1990 plus substantiated incidents for 1991 and 1992.
(Data up to 1988 from DoE Digest of Environmental Pollution and Water Statistics 1988 and 1989)

NRA Region	1987	1988	1990	1991*	1992*
Anglian	381	373	362	570	657
Northumbria	232	273	477	486	457
North West	460	614	968	986	1,051
Severn Trent	880	772	424	1,329	961
Southern	320	345	487	376	446
South West	427	488	656	710	730
Thames	423	610	765	416	373
Welsh	402	476	717	525	858
Wessex	129	168	218	215	289
Yorkshire	524	459	737	734	598
Total	**4,177**	**4,578**	**5,811**	**6,351**	**6,420**

* Substantiated Incidents

3.4 "OTHER" POLLUTION SOURCES

3.4.1 Total Incidents

A total of 9,771 other pollution incidents were substantiated in 1992, 42% of the substantiated pollution incidents that were recorded during the year.

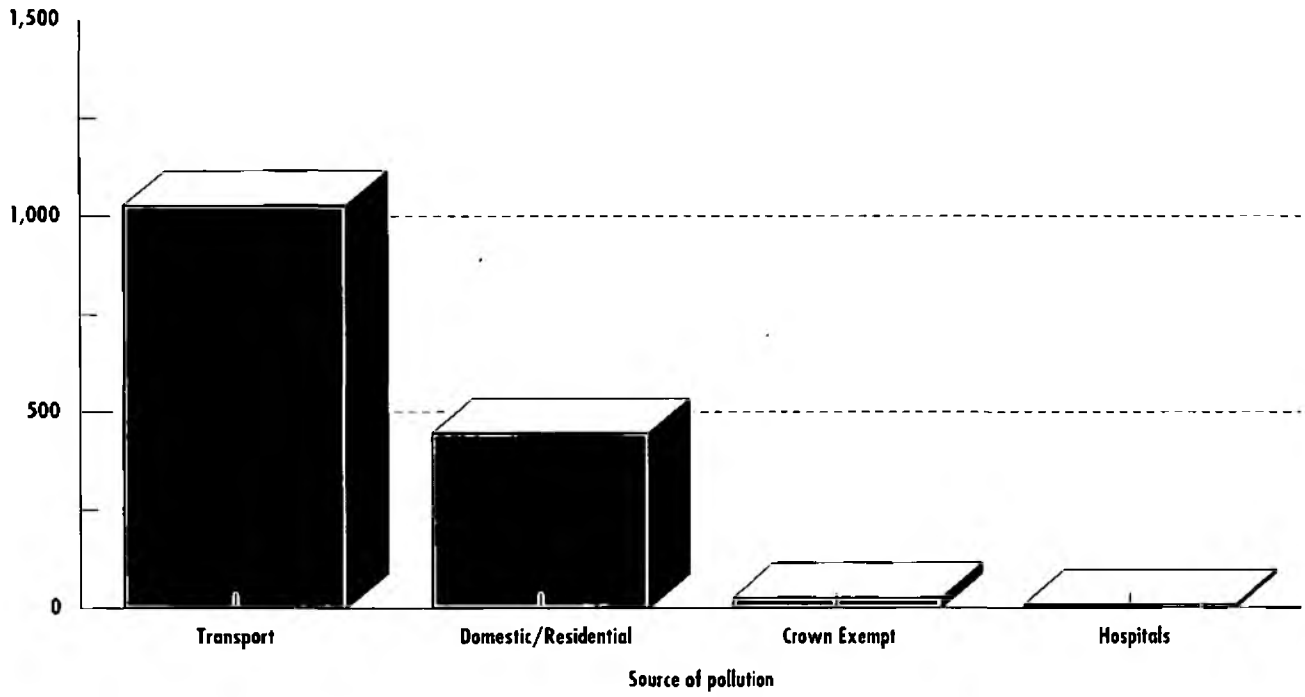
3.4.2 Sources of "Other" Pollution

The majority of pollution incidents categorised as "other" could not be further broken down; however it is interesting to note that 11% of all "other" incidents could be attributed to transport related incidents (Figure 14). A further 5% emanated from domestic and residential sources whilst 27 incidents came from Crown exempt sources and 9 incidents were related to hospital sources.

3.4.3 Category 1 Incidents

Of the 9,771 "other" pollution incidents, 140 (1.4%) were classified as Category 1. This figure represents 36%, the largest proportion, of Category 1 incidents (Figure 4b). Although these were individually identifiable, both in terms of their source and type, they did not fit within any of the major categories. Of these, 4% were related to transport and road traffic accidents and there was one incident arising from domestic premises.

Figure 14 - Distribution of "other" incidents by source of pollution, 1992



4 ANALYSIS OF INCIDENTS BY TYPE OF POLLUTANT

4.1 OILS AND RELATED PRODUCTS

4.1.1 Total Incidents

There were 6,136 oil pollution incidents substantiated in 1992 which accounts for 26% of the total.

4.1.2 Type of Oil Pollution

The distribution of oil pollution incidents by type is given in Figure 15. The majority could not be classified. However of those that could be identified, diesel (16%) was the most common type of oil pollutant. The remaining types of oil accounted for similar proportions of about 3% each of all the substantiated oil incidents.

4.1.3 Regional Distribution

The Regional distribution of oil pollution incidents is illustrated in Figure 16. Severn Trent (22%), Thames and Anglian (14% each), and North West (12%) dealt with the greatest number of oil related incidents during 1992, whilst Northumbria (4%) and Yorkshire (5%) had the smallest proportions.

Oil pollution accounted for a large number of the incidents substantiated within NRA Regions during 1992, especially in Thames Region (45% of the Region's incidents). Similarly, high proportions were notified in Anglian (35%), Wessex (35%) and Southern (33%) Regions. The lowest, but nonetheless quite high, proportions were seen in South West, Welsh and Yorkshire Regions (all at 15%).

A breakdown of the types of oil pollution was available in some Regions and incidents involving diesel comprised large proportions of the number of oil incidents in Northumbria (43%), Southern (34%), Thames (35%), Welsh (37%) and Wessex (29%) Regions. Petrol accounted for 22% of oil related incidents in Northumbria and 10% in both Southern and Wessex Regions. Waste oil was an important type of oil pollutant in both South West (31%) and Thames (14%) Regions whilst fuel oil accounted for 35% of these incidents in Welsh Region.

4.1.4 Historical Trends

Table 10 gives the regional distribution of oil pollution incidents between 1987 and 1992. Most Regions have recorded an increase in the number of substantiated oil pollution incidents during 1992, although oil related incidents from agriculture and industrial sources have not previously been recorded under this categorisation. The largest increase was seen in Welsh Region where a four-fold rise in the number of incidents was recorded. Wessex (44%), North West (19%), South West and Severn Trent (both 15%), Northumbria (16%) and Anglian (13%) Regions all showed quite large increases whilst Thames (3%) and Yorkshire (0.3%) showed much smaller rises. The only Region to show a decrease was Southern which recorded a large fall of 33%.

Figure 15 - Distribution of oil incidents by type of oil, 1992

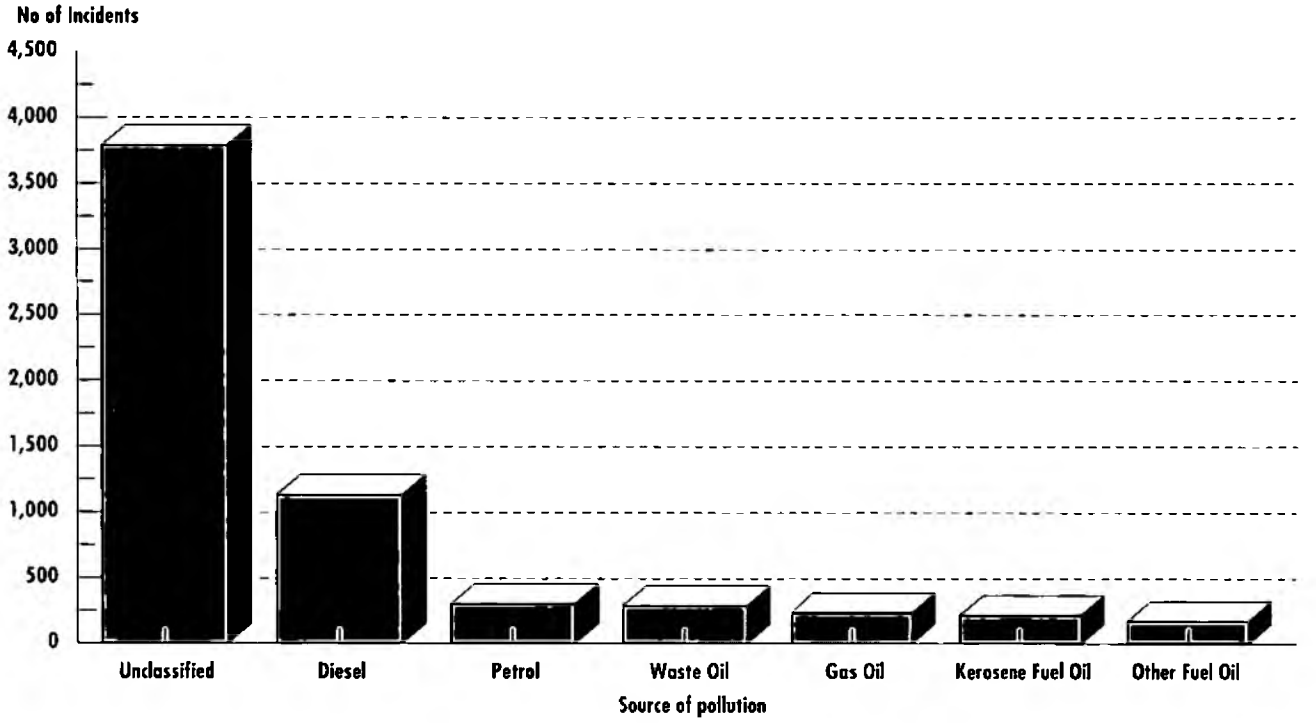
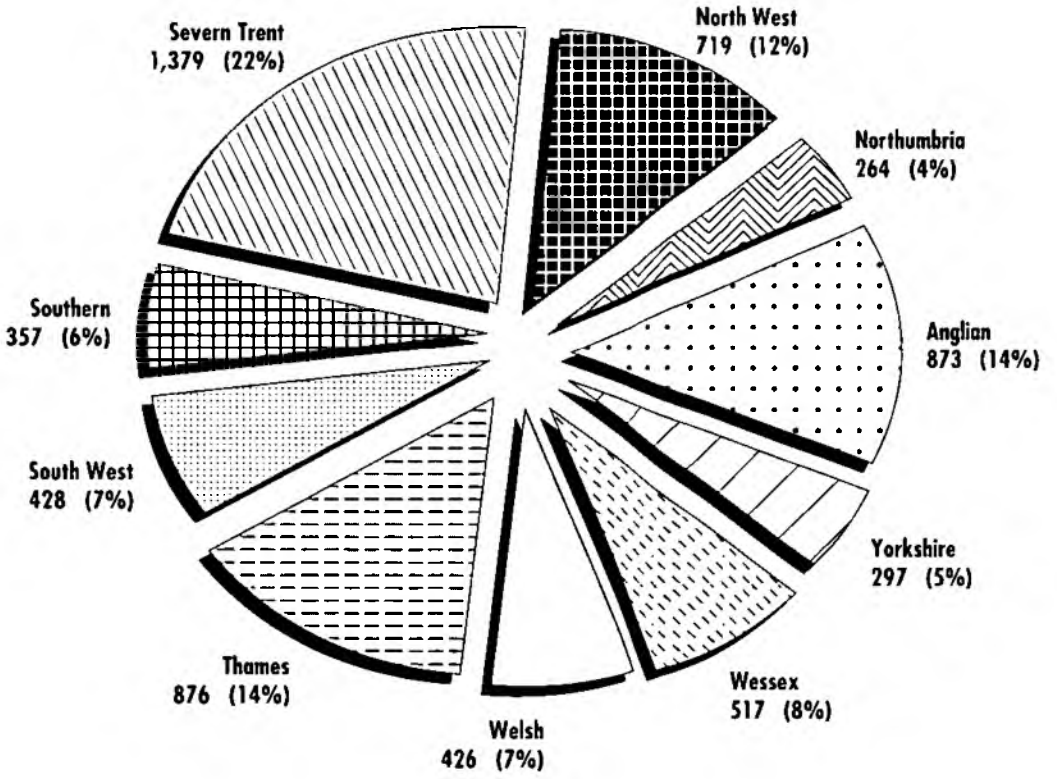


Figure 16 - Total oil pollution incidents by NRA Region, 1992



Total: 6,136

Table 10 - Total oil pollution incidents by NRA Region, 1987-1992
(Data up to 1988 from DoE Digest of Environmental Pollution and Water Statistics 1988 and 1989)

NRA Region	1987	1988	1990	1991*	1992*
Anglian	603	478	620	775	873
Northumbria	128	135	248	228	264
North West	494	508	593	571	719
Severn Trent	1,078	1,300	1,893	1,194	1,379
Southern	483	459	492	536	357
South West	208	254	349	375	428
Thames	861	1,256	1,122	851	876
Welsh	133	197	250	103	426
Wessex	393	435	34[a]	359	517
Yorkshire	402	403	345	296	297
Total	**4,783**	**5,425**	**5,946**	**5,288**	**6,136**

* Substantiated Incidents

a Does not include oil from industrial sources.

4.1.5 Category 1 Incidents

Only 1.1% of oil related incidents fell into the Category 1 definition but, nevertheless, these incidents (70) accounted for 18% of all such incidents (Figure 5b) thus tending to support the case for oil regulations - which are currently being considered. These proportions have shown no change in absolute numbers when compared with 1991 although the Regional distributions have altered. The greatest number of Category 1 pollution incidents was recorded in Severn Trent Region (56%) whilst the remaining Regions contributed between 1% in Southern and Welsh to 12% in North West Region.

4.2 CHEMICALS

4.2.1 Total Incidents

The total number of incidents defined as chemical (1,321) represented 6% of all incidents substantiated during 1992.

4.2.2 Types of Chemical Pollutants

The distribution of chemical pollutants is given in Figure 17 and shows that most incidents could not be categorised precisely and were recorded as "unclassified". However, of the remaining incidents organic chemicals (28%) were the biggest pollutant throughout England and Wales. Other important types of chemical pollutant included paints and dyes (10% of all chemical incidents), detergents (8%), and pesticides (7%).

4.2.3 Regional Distribution

The Regional distribution of chemical pollutants is illustrated in Figure 18 and the data are given in Table 11. The proportions range from 16% and 15% respectively in Anglian and Thames Regions to 2% in Yorkshire Region.

Table 11 - Regional distribution of chemical pollutants, 1992

Region	Category 1	Total
Anglian	7	209
Northumbria	3	108
North West	6	236
Severn Trent	21	206
Southern	0	57
South West	4	80
Thames	2	194
Welsh	5	160
Wessex	1	44
Yorkshire	0	27
Total	**49**	**1,321**
Percent	4	100

4.2.4 Category 1 Incidents

The distribution of Category 1 incidents is given in Table 11. Of the 1,321 incidents involving chemical pollutants only 4% fell into the Category 1 classification and comprised 13% of the national total of incidents of this severity (Figure 5). Organic chemicals (14%) and alkalis (6%) accounted for the largest proportions of chemical incidents whilst there were only a few involving fertilisers and pesticides .

Figure 17 - Distribution of chemical incidents by type of chemical, 1992

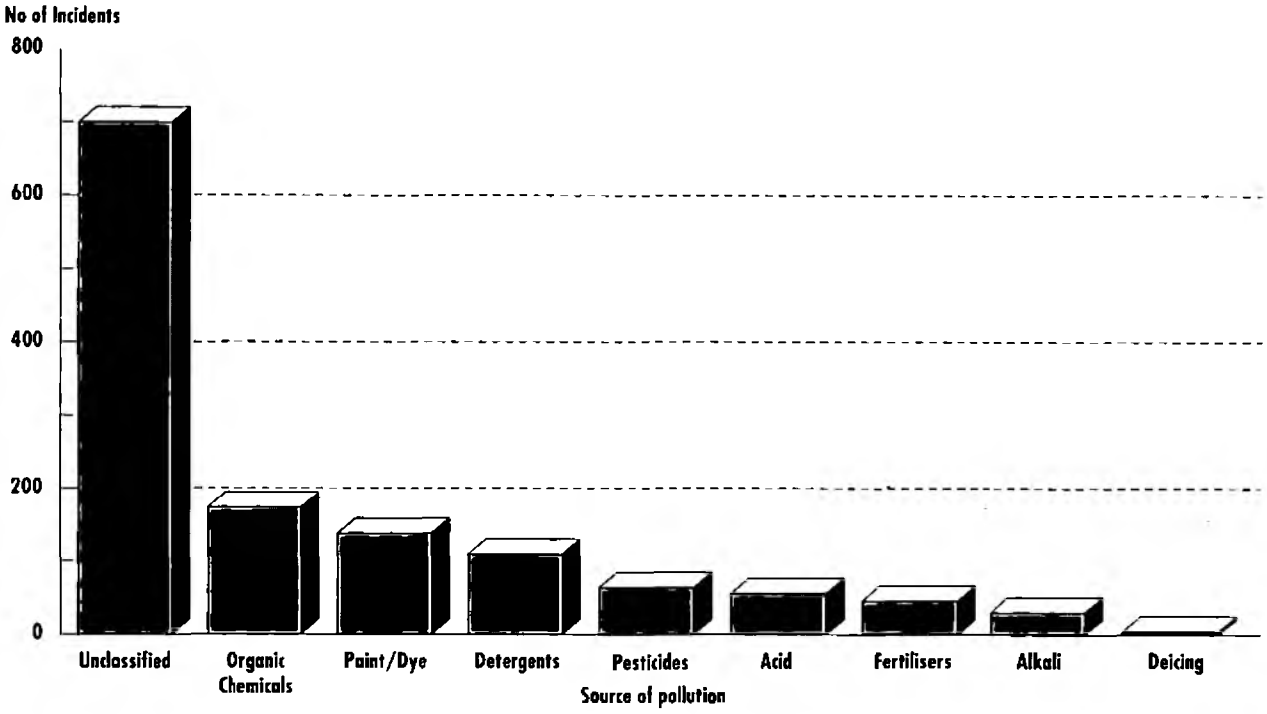
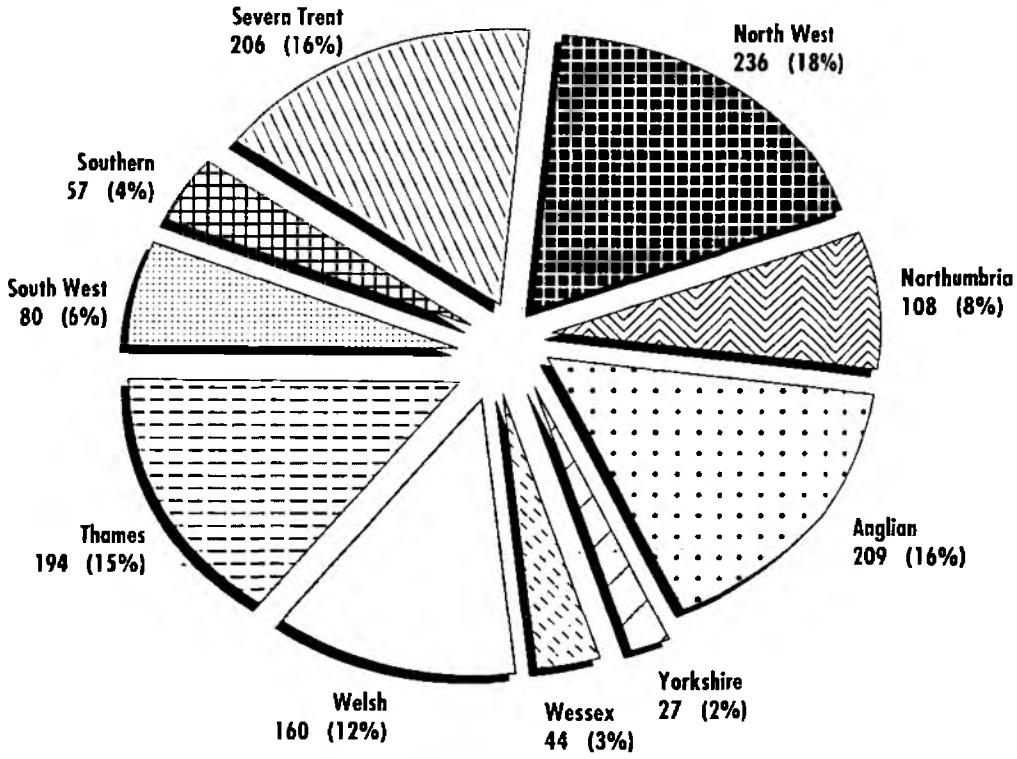


Figure 18 - Total chemical pollution incidents by NRA Region, 1992



Total: 1,321

4.3 SEWAGE

4.3.1 Total Incidents

Most NRA Regions were able to provide details of incidents involving sewage in order to identify this as a specific type of pollutant and 6,134 such incidents, 26% of the national total, were identified as having occurred in 1992.

4.3.2 Types of Sewage Pollution

The distribution of various forms of sewage pollution is illustrated in Figure 19. The principal type was crude sewage which accounted for 25% of these type of incidents. Sewage effluent (22%) and storm sewage (16%) were important types of sewage pollution whilst sewage sludge (1%) made up only a small proportion.

4.3.3 Regional Distribution

The Regional distribution of incidents involving sewage is illustrated in Figure 20 and given in Table 12. The distribution between Regions varied quite considerably from 5% in Wessex Region to 17% in North West Region. Crude sewage was the most common type of sewage pollution in many Regions and accounted for 62% of this type of incident in Northumbria Region and 52% in Thames Region.

Table 12 - Regional distribution of sewage pollution, 1992

Region	Category 1	Total
Anglian	1	657
Northumbria	1	448
North West	19	1,026
Severn Trent	15	961
Southern	4	392
South West	6	568
Thames	0	423
Welsh	5	786
Wessex	7	289
Yorkshire	13	584
Total	**71**	**6,134**
Percent	1	100

4.3.4 Category 1 Incidents

There were 71 Category 1 sewage pollution incidents during 1992 which represented only 1% of all sewage incidents. Nevertheless, these incidents accounted for 18% of the national total. The greatest proportion of these incidents consisted of crude effluent (28%) and storm sewage and sewage effluent (both 15%).

Figure 19 - Distribution of sewage incidents by type of sewage, 1992

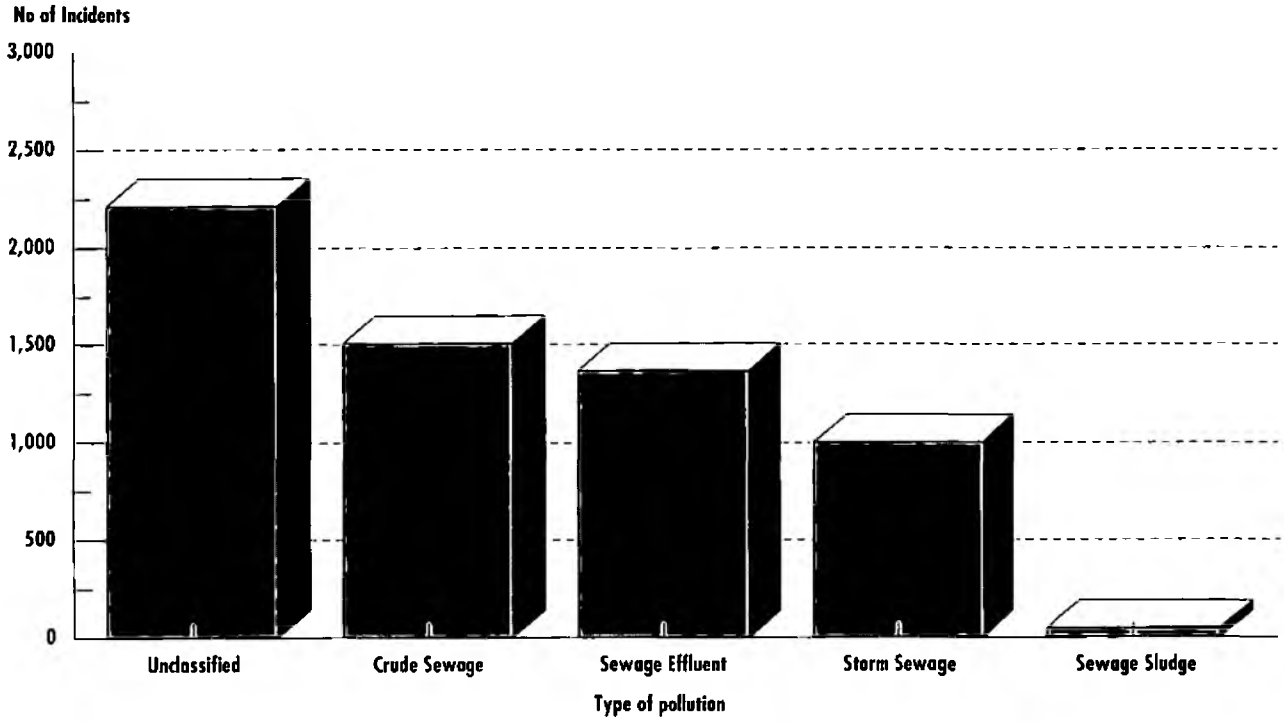
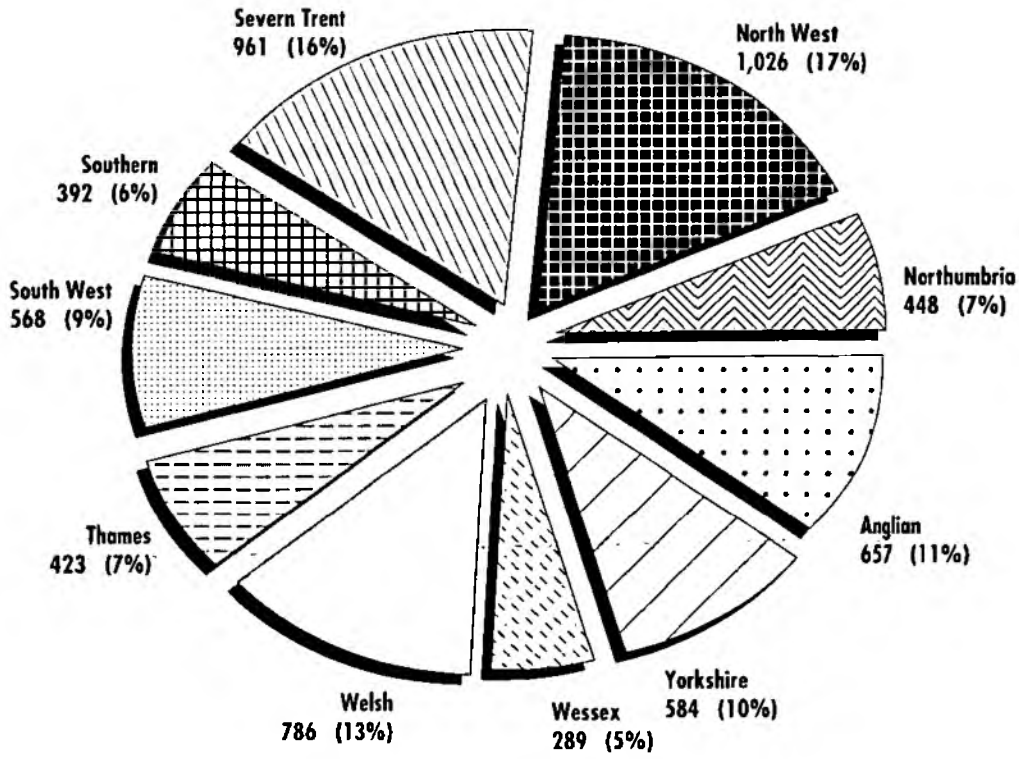


Figure 20 - Total sewage pollution incidents by NRA Region, 1992



Total: 6,134

4.4 "OTHER" TYPES OF POLLUTANTS

4.4.1 Total Incidents

A total of 7,167 incidents involving other types of pollutant were substantiated during 1992. This figure represents 31% of the total number of incidents recorded during the year.

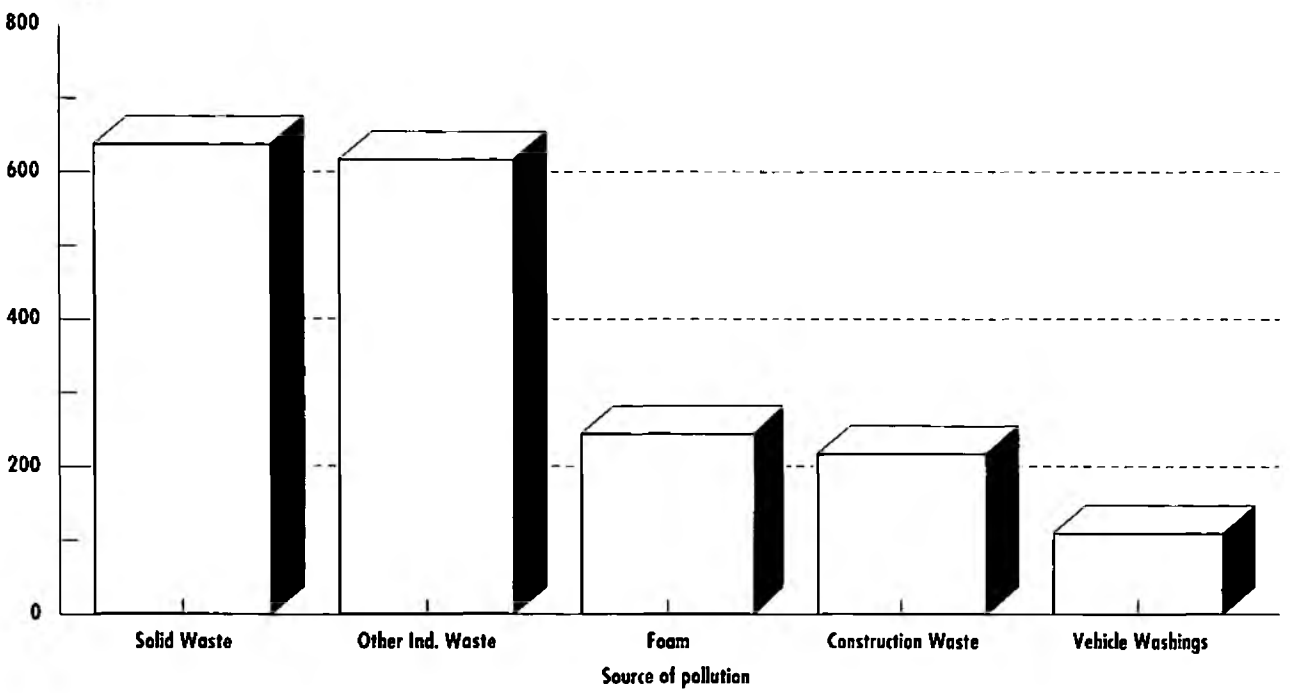
4.4.2 Types of Pollutant

As with sources of "other" pollution, the precise nature of the type of pollutant in these incidents could not easily be identified; however, the distribution of those that could be classified in more detail are illustrated in Figure 21. Of these, the principal types of pollutant were solid wastes (35% excluding undefinable others) and industrial wastes (34%). Other types of pollution included foam and construction wastes (both 3% of total "other"), and vehicle washings (2%).

4.4.3 Category 1 Incidents

Of the 7,167 "other" types of incident, 134 (2%) fell into the Category 1 classification. This figure represents 35% of the majority of Category 1 incidents by pollution type (Figure 5b). The largest proportion (82%) of these were not further defined by NRA Regions, but the remainder were attributable to solid wastes (3%) and industrial wastes (15%).

Figure 21 - Distribution of "other" incidents by type of pollutant, 1992



5 LIMITATIONS OF DATA

Reports of pollution incidents are dependant on public observation and for this reason their quality will be influenced by factors such as population density, public awareness, and the visibility of the pollution. Incident information is therefore likely to underestimate the true extent of episodic problems to a degree which varies across England and Wales.

For a number of reasons, difficulties arise in the assessment of impact severity associated with an incident. The public may not report the incident until a long time after it has occurred, or the entry of polluting material may cease prior to the arrival of NRA staff. In both instances it may be impossible to substantiate the incident. Some incidents occur after dark which makes their immediate investigation more difficult. There is also an inevitable amount of subjectivity remaining in the assessment of severity, and this leads to regional differences in the interpretation of the national categorisation system, particularly in the designation of incidents into Categories 2 (Significant) and 3 (Minor).

The problems associated with positively identifying the pollutant source and type when investigating an incident have led to a large number being categorised as "other" incidents, rather than being assigned to specific pollutant sources or types. In 1992, 9,632 incidents were classified as "other" by source and 7,167 by type, representing 42% and 31% of substantiated incidents. The removal of oil and related products as a source of pollution has led to increases in "other" incidents by source of pollution. The classification of incidents by type, for the first time in this report, has also led to some difficulties with assigning incidents to specific types and this has led to an artificial increase in the "other" category by type.

The "other" category does not, however, equate to 'unknown' because it includes the wide variety of alternative sources of pollution including road and rail accidents, domestic spillages, illegal dumping, leachate problems and many other individual sources which cannot be ascribed to one or other of the main categories.

Lastly, even when the pollutant source has been identified, the interpretation of pollutant source categories (ie oil, industrial, sewage, farm and indeed for the type of farm incident where this is separately categorised) is often rather subjective. For instance, within the farm category it is often difficult to assign an incident to a source category due to the involvement of more than one pollutant material (eg slurry and silage liquor).

6 NRA COURT ACTIONS

6.1 COURT ACTIONS

Table 13 shows the Regional distribution of prosecutions and convictions that were taken for pollution offences that occurred in 1992. By the end of March 1993, 297 prosecutions for pollution incidents that occurred in 1992 had been heard in court and 290 (98%) of these resulted in convictions. There were 176 cases which had still to come to court as of 1 April 1993.

In addition to the court action taken against polluters, the NRA can also issue formal cautions. The purpose of these is to deal quickly with less severe incidents, but nevertheless minimise the chances of further pollution being caused. Before a formal caution is issued there must be evidence of the polluters guilt, the polluter must admit the offence and also understand the significance of a caution and give informed consent to being cautioned. Such cautions can be produced in court if the polluter should subsequently offend again. The Regional distribution of cautions issued by the NRA during 1992 is also given in Table 13. A total of 250 formal cautions were issued during the period January 1992 to March 1993, with a further 40 still to be issued as of 1 April 1993.

Table 13 - Regional distribution of prosecutions and convictions, by NRA Region, against incidents occurring in 1992 and prosecutions outstanding at 1 April 1993.

NRA Region	Number of Category 1 Incidents	Number of Incidents Prosecuted	Convictions	Outstanding Prosecutions	Number of Cautions Issued	Number of Cautions still to be issued at 31 March 1993
Anglian	18	34	34	17	21	0
Northumbria	9	14	14	10	5	1
North West	61	61	60	22	96	13
Severn Trent	151	72	72	20	15	6
Southern	7	5	4	5	4	2
South West	35	18	17	9	19	0
Thames	4	32	30	11	16	2
Welsh	28	34	32	25	19	5
Wessex	24	19	19	9	37	4
Yorkshire	51	8	8	48	18	7
Total	**388**	**297**	**290**	**176**	**250**	**40**

Table 14 - Prosecutions in 1992 by pollution source category

Category	Number Incidents Prosecuted	Number Convicted
Farm	92	90
Industrial	147	143
Sewage/ Water Industry	45	44
Other	13	13
Total	**297**	**290**

Table 15 - Prosecutions by pollution source category with detailed breakdown of agricultural incidents, 1987-91.
(Data up to 1989 from NRA/MAFF, 1990) (I=Incidents, P=Prosecutions)

Source of Pollution	1988		1989		1990		1991*		1992*	
	I	P	I	P	I	P	I	P	I	P
FARM - Cows										
Slurry stores	801	41	589	64	531	40	591	46	521	39
Solid stores	194	1	121	2	118	1	133	0	155	2
Yard/Parlour washings	836	11	578	14	697	27	607	14	531	9
Land run-off	345	8	380	20	335	15	306	15	325	8
Treatment system failure	96	1	65	3	110	10	79	7	58	3
Silage liquor	815	55	245	28	470	13	461	41	220	7
FARM - Pigs										
Slurry Stores	231	16	169	16	101	11	90	9	98	4
Yard washings	59	0	64	0	66	0	45	3	35	0
Land run-off	89	5	92	2	60	1	37	9	75	3
Treatment system failure	20	0	19	3	20	1	19	4	16	1
FARM Other	655	10	567	9	639	4	586	11	736	8
FARM TOTAL	4,141	148	2,889	161	3,147	123	2,954	159	2,770	92
INDUSTRIAL	3,660	103	2,770	27	2,802	76	2,803	96	4,509	147
SEWAGE/WATER RELATED	4,578	12	4,350	61	5,811	27	6,351	40	6,442	45
OTHER	6,039	0	8,671	60	10,437	35	5,073	18	9,632	13
TOTAL	**23,843**$_o$	**292**$_o$	**24,190**$_o$	**164**$_o$	**28,143**$_o$	**282**$_o$	**22,469**$_o$	**356**$_o$	**23,331**	**297**

* Substantiated Incidents

o Includes oil incidents

6.2 DISTRIBUTION OF PROSECUTIONS BY POLLUTION SOURCE CATEGORY

The variation in the number of prosecutions by pollution source is presented in Table 14 and in Figure 22.

All Regions follow the policy of prosecuting Category 1 pollution incidents where there is sufficient evidence to take such action. There were occasions where the source of pollution could not be identified or where the event was caused by persons unknown, or where there was overwhelming mitigation (such as an emergency discharge) or the source of pollution, for example highway drainage, was exempt from prosecution. In some cases an emergency discharge is a statutory defence against prosecution. These uncertainties partially account for the low rate of prosecution under the "Other" source section where only 9% of category 1 cases, for example incidents caused by road traffic accidents, were prosecuted. In a few cases formal cautions or solicitors' letters have been issued as an alternative to court action.

One point which should be noted is that the collection of evidence for presentation in court and proving culpability in the case of sewage related incidents is often more difficult than in others. This accounts for the relatively low number of prosecutions of this type of incident. Sewage pollution incidents are often due to problems on the sewerage network or are due to cross connections, and in these cases it can be difficult to apportion blame. There is also a defence in law, for the Water Companies, when pollution is caused by an illegal discharge by a third party. These are often difficult to apprehend and when there is a prosecution it will usually be brought by the Water Company under the Water Industry Act 1991 and thus do not appear in the NRA's statistics. In addition, most Water Company consents, which were inherited from pre-NRA consenting procedures, are based on look-up tables which require compliance by 95% of samples within a specified time frame, usually of one year. Thus if a pollution event is the only tripartite sampled breach in a rolling twelve month period, the company cannot be prosecuted. The NRA is continuing to replace such consents with new ones which include limits that may not be breached at any time.

Table 16 - Fines and costs awarded for pollution incidents which occurred in 1992 and resulted in convictions (Jan 1992 - Mar 1993)

NRA Region	Range of Fines £	Range of Costs £
Anglian	0 - 7,500	0 - 1,167
Northumbria	0 - 7,500	0 - 21,908
North West	0 - 15,000	150 - 2,420
Severn Trent	0 - 10,000	140 - 2,000
Southern	0 - 2,000	0 - 850
South West	0 - 2,000	300 - 1,000
Thames	0 - 7,500	0 - 515
Welsh	0 - 7,000	0 - 5,033
Wessex	0 - 10,000	0 - 2,650
Yorkshire	1,000 - 9,000	485 - 917
Nationally	**0 - 15,000**	**0 - 21,908**

Figure 22 - Prosecutions by pollution incident source, 1992

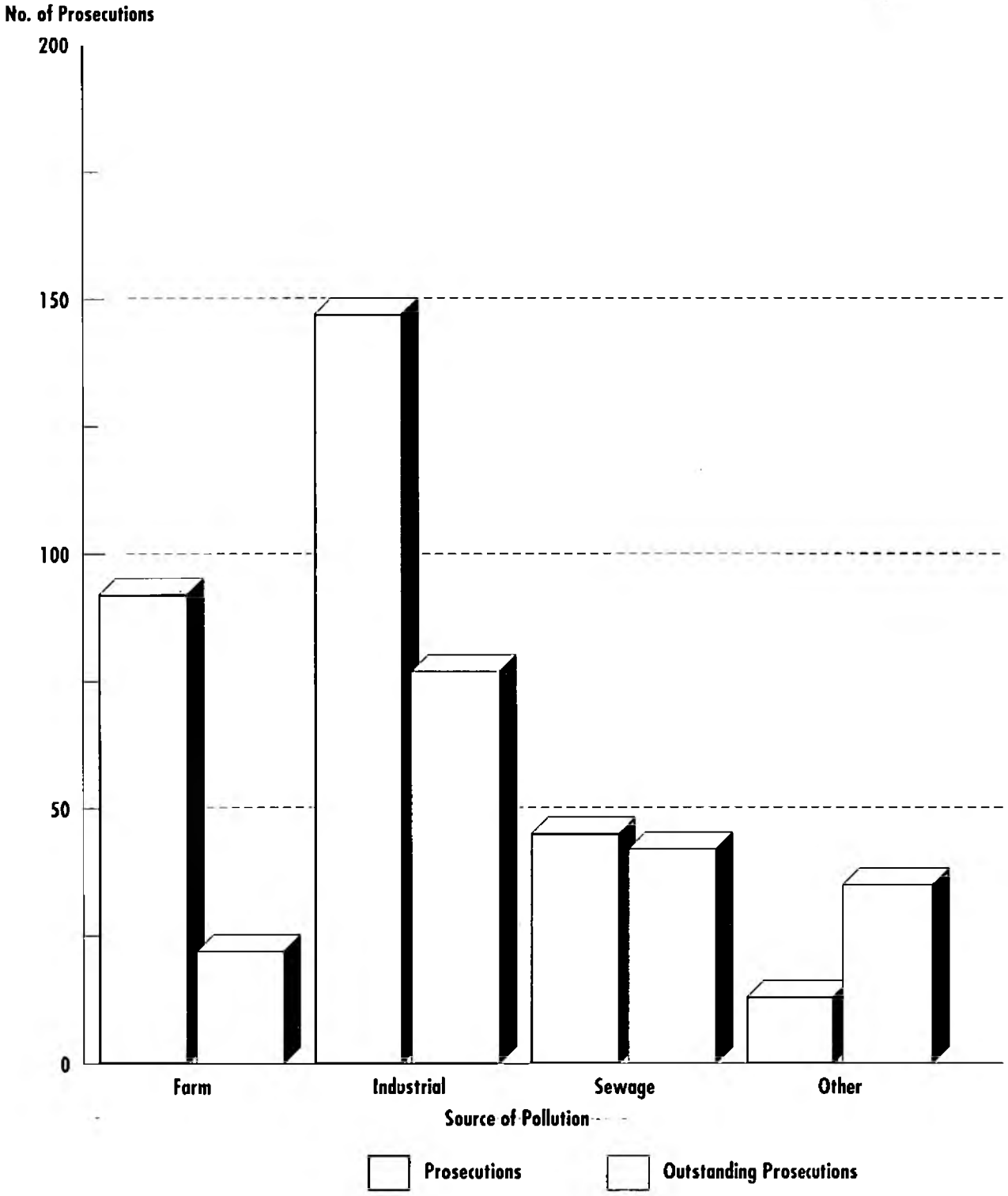


Table 17 - Range of fines and costs by pollution incident source (Jan 1992 - Mar 1993)

Pollution Source	Range of Fines £	Range of Costs £
FARM	0 -7,500	125 - 2,000
INDUSTRY	0 - 12,000	0 - 21,908
SEWAGE	0 - 15,000	100 - 1871
OTHER	0 - 12,000	350 - 5033
OIL	0 - 7,500	0 - 5,033

6.3 HISTORICAL TRENDS

The prosecutions taken for pollution incidents according to their source between 1988 and 1992 are given in Table 15. The prosecutions taken in respect of incidents arising from agriculture are further broken down into the categories used in previous years.

6.4 FINES

Tables 16 and 17 give the ranges of fines and costs awarded for pollution incidents that occurred in 1992; Table 16 gives a Regional breakdown whilst Table 17 presents those obtained by pollution source category. The largest fine (£15,000) was obtained for a sewage pollution incident in North West Region. The levels of fines remain similar to those recorded during 1991, and indicate that magistrates courts are using the provisions for fining as laid down in Section 85(6)(a) of the Water Resources Act 1991 which allow for fines of not more than £20,000. (The Water Act 1989 had previously allowed for maximum fines of £2,000.) The fines imposable in a Crown Court are unlimited.

6.5 RECHARGING FOR POLLUTION INCIDENTS

Under Section 161 of the Water Resources Act 1991, the NRA is entitled to carry out works and operations to prevent polluting matter entering controlled waters or where matter is already in a watercourse to either remove or dispose of it, remedy or mitigate any pollution caused by its presence, or to restore the waters, including any flora and fauna, to their state immediately before the matter became present in the water. The costs of these works and operations can be charged back to the polluter, if known. This provision is entirely separate from any court action, so in addition to fines and costs imposed by a court, the offender may face heavy clean-up costs. Values supplied by NRA Regions indicate that these can be as high as £14,000.

6.6 NRA PROSECUTIONS FOR INCIDENTS THAT OCCURRED IN 1992

6.6.1 Introduction

This section highlights a number of pollution incidents that occurred during 1992, or that are ongoing from 1991, for which legal action was taken. These cases illustrate the way in which the legal process has operated and depicts the types of incidents dealt with by the NRA on a regular basis. This section further clarifies case law and examines some of the more unusual and interesting cases. Prosecutions brought for breach of consent conditions are not examined, in any detail, in this section. (Note: In 1991 the Water Act 1989 was replaced by the Water Resources Act 1991; prosecutions were taken under the legislation in force at the time of the offence.)

6.6.2 Water and Sewage Undertakers

A sewage undertaker in the south west was fined £1,000 and ordered to pay costs of £350 for a pollution incident that occurred in August 1992. Pollution staff on a routine inspection of a sewage treatment works discharging to Aylesbeare Brook, a tributary of the River Clyst, found that an untreated discharge was occurring. Sewage was found in the works outfall and large deposits of sewage were seen on the bed of the brook. The water had become cloudy over a half kilometre stretch of the brook and killed fish including 52 bullheads, 11 eels, 7 stonebacks and 2 minnows. A significant mortality of the invertebrate population had also occurred.

A malfunction at the plant had caused the discharge but, despite an automatic alarm signalling the fault at the company's regional control room, no-one attended the works for a further twenty-four hours. Clearly in this case the pollution could have been minimised if the company's pollution control procedures had been more efficient.

A highly visible pollution incident occurred in the north west. Pollution control staff, again on routine inspection, found a three-quarter mile stretch of Court Hey Brook littered with sewage debris. This was traced to a surface water drain outfall at the head of the brook and a further surface water drain immediately downstream. This second outfall was discharging a grey liquid containing traces of macerated toilet paper. Sanitary plastics, contraceptives and macerated toilet paper were spread over the river bed and along the upper banks of the watercourse. In addition, growths of thick sewage fungus were observed coating the bed of the Court Hey Brook.

Investigations by the NRA showed that an underground wall separating a foul water drain from a surface water drain had disintegrated, allowing the foul water to enter the brook through the surface water drain. The company pleaded guilty to illegally discharging sewage effluent and was fined £10,000, with a further £420 to be paid in costs.

6.6.3 Case Law - Legal Clarification

Prosecutions for many environmental offences are taken using sections of the law which state that the defendant either "caused" or "knowingly permitted" the pollution under consideration. These offences are distinct from each other and choosing the correct offence provision is very important in obtaining a conviction. This was highlighted on 30 September 1992 when the Queen's Bench Division overturned, on appeal, a decision made by local magistrates who had convicted Wychavon District Council of "causing" pollution. In this case the local council was operating and maintaining sewers for the area's sewerage undertaker and had been convicted for discharging raw sewage from an overflow pipe into the River Avon as a result of a blockage at the nearby works. Pollution control staff informed the council of the problem twice on the day that the discharge was discovered, but the council did not act for a further twenty-four hours.

At the magistrates hearing the council disputed that it had performed any positive act which resulted in "causing" pollution although it did, indeed, have a contractual duty to maintain the system. However, the magistrates disagreed and convicted the council on the grounds that it had, by failing to implement an effective maintenance programme, "caused" the pollution. On appeal the defendants referred to the legal precedent set in the House of Lords in the **Alphacell v Woodward** case whereby "causing" involved a positive step by the polluter. The Queen's Bench maintained this principle and quashed the council's conviction. However, it was implied that a conviction could have been obtained if the case had been prosecuted under the "knowingly permitted" offence provision, which does not necessarily involve any positive action.

As a result of the decision by the Queen's Bench Division to overturn the Magistrates decision, another case was dismissed when the NRA appealed against a decision made in a lower court. A Development Agency had been acquitted by Llantrisant Magistrates when prosecuted for river pollution caused by one of its tenants. The Agency had been prosecuted under the provision of "causing" pollution, but Mr Justice Potts, in the Queen's Bench Division, maintained that although the Agency had designed, constructed and maintained the sewers through which the pollutants passed on route to the river, this did not equate to a positive act. The principle established in **Wychavon District Council v NRA** was upheld and applied.

Another incident is of legal interest. In May 1990 discharges from a sewerage undertaker exceeded biochemical oxygen demand (BOD) and suspended solids (SS) standards and when prosecuted by the NRA in May 1991, under Section 107 of the Water Act 1989, the undertaker was found guilty. The undertaker appealed against the decision on the grounds that it had neither "caused" nor "knowingly permitted" the polluting discharge to enter the watercourse. The polluting discharge was caused by an illegal discharge of a solvent to sewer which, on entering the sewage treatment works, disabled the filters. The sewerage undertaker relied on Section 108, sub-section 7 of the Water Act 1989 which states that a sewerage undertaker cannot be convicted of an offence under Section 107 which can be attributed to an illegal discharge to sewer and the undertaker could not have reasonably been expected to prevent the discharge from entering controlled waters. The NRA contended that the sewerage undertaker could have taken more action. However, the discharge occurred at night when the works was not manned. The NRA argued that the key precedent was, again, the case of **Alphacell Ltd vs Woodward**. This precedent was interpreted by the Court as involving some active operation, as opposed to standing by and looking on, which was how the undertaker's operation could be viewed, and the appeal was allowed.

In a case in the NRA's Northumbria Region concerning a breach of a discharge consent, Newcastle upon Tyne Crown Court gave the first judicial definition to the term **"polluting matter"** - which is a key phrase in the Water Resources Act 1991. A chipboard manufacturing company was found to be discharging contaminated run-off, from an area undergoing construction work, into the River Tyne and was prosecuted by the NRA. The company argued that the run-off did not have an appreciable effect on the watercourse and was therefore not polluting matter. In addition, it also argued that it had a consent to discharge both cooling water and surface water into the river. The judge ruled that matter only became polluting after it entered the environment but that it was not necessary to wait for harm to have been done before establishing that an offence had occurred. He said the question that should be posed was whether the matter was capable of causing harm to controlled waters. The company's first defence was therefore dismissed. The defence of holding a consent to discharge was also disregarded as the consent stated that "discharged cooling or surface waters shall be free of any poisonous, noxious or polluting matter". Thus the company was found guilty and fined £20,000 with costs of £9,503

6.6.4 Automatic Monitoring

In February 1993, the NRA obtained its first conviction for a water pollution case based on evidence collected by an automatic sampler. A company in Wessex Region had agreed to test a prototype automatic sampling device, Cyclops, which was developed by the Authority. Cyclops automatically monitored the company's effluent, which discharges to the Severn Estuary via a small river. The device detects variations in the quality of discharges. In June 1991 a change in the pH level, which breached the

company's consent conditions, was recorded. Cyclops alerted pollution control staff in the Wessex Region control centre. The device was instructed, by remote control, to take a sample of the discharge. Cyclops was subsequently opened in the presence of a company representative and the sample was divided into three parts and one of these was served on the representative. The company pleaded guilty to the pollution offence under Section 85(6) of the Water Resources Act 1991 and was fined £10,000 and had to pay further costs of £1,000.

6.6.5 Environmental Responsibility

Another case in the NRA Wessex Region was brought against a smelting company for an illegal discharge of cadmium. Cadmium is included in the UK's Priority Red List, a list which was drawn up as a result of the Second International Conference on the Protection of the North Sea aimed at the reduction of substances entering coastal waters via land-based discharges. This was a novel case because the company was prosecuted using evidence collected through its own sampling efforts and the pollution may not have been detected otherwise. The incident occurred as a result of routine cleaning of the effluent treatment system. An NRA inspector was given a sample of the effluent which he divided according to the tripartite procedure and served one part back to the company. The company pleaded guilty to an offence under Section 85(6) of the Water Resources Act 1991 and was fined £1,000 and had to pay costs of £887. The Court, when determining the fine, clearly took into account the company's decision to report the pollution, as the fine is a relatively low one for a pollution offence involving a Red List substance.

6.6.6 Environmental Claims by Companies

Companies are increasingly making environmental awareness claims for their operations but a case heard in Grimsby Crown Court showed that these may be flawed. A company employee emptied 16 drums of industrial detergent contaminated with chromium down a drain which he believed was connected to sewer. It was, in fact, connected to surface drains connected to Pike Drain, a tributary of the River Witham. This company had claimed that it was environmentally responsible but it was shown that it did not have a consent to discharge at all. The discharge contained 185 mg per litre of chromium, over 700 times the environmental quality standard for the receiving water and resulted in the death of over 300 mature fish and other aquatic life along 2.5 km of the watercourse. In addition, Water Quality staff discovered trade effluent with high chromium concentrations discharging to the same drainage system.

The company was charged under Section 107(1)(a) of the Water Act 1989 and was fined £30,000 and ordered to pay costs of £2,750. It has now taken substantial remedial action but this cannot reverse the damage which could have been avoided. The case highlights the care needed for management and safe disposal of hazardous liquids.

In another case, in the Thames Region of the NRA, an oil pollution incident was discovered only two weeks after the company's Environmental Audit had approved its site. NRA staff visited the site in May 1992 and discovered oil contamination along 500 metres of a tributary of the Bonesgate Stream. Transformer oil had leaked into the stream as a result of faulty bunding around a storage tank. The oil leaked from a sight gauge and was collected in the bund; however, the crushed rock base of the bund allowed oil to seep through. The oil then passed through a broken seal into the site's drainage system and thence into the watercourse. The company was found guilty under Section 85(1) of the Water Resources Act 1991, was fined £5,000 and ordered to pay costs of £295 by Kingston Magistrates Court.

6.6.7 Industrial and Commercial Polluters

A national dairy company was prosecuted for two offences that occurred in 1992. The company had been convicted twelve times for pollution offences since the NRA was formed. The first prosecution was brought after NRA inspectors found milk entering the Hall Green Brook, having been alerted by

members of the public. The pollution was traced to a spillage into surface water drains. The company was charged under Section 85(1) of the Water Resources Act 1991, fined £4,500, and ordered to pay further costs of £100. The second offence occurred when the company breached a trade effluent discharge consent from one of its sites in North Wales. It was fined £7,000 and had costs of £600 imposed. The total value of fines imposed on the company to date is £36,800.

A high fine was imposed on a chemical company for an incident which resulted from faulty procedures and the failure of an alarm system. Members of the public informed the NRA that the River Beam had become red and soapy. The pollution was traced to the company's pharmaceutical site. Formal, tripartite samples were taken and found to contain toluene. At the site, drainage water and effluent are mixed and then pumped to a treatment system. Heavy rain had washed debris into the pumps thereby blocking them and causing the mixture of effluent and drainage water to back up into surface drains and then into the nearby watercourse. The alarm system on the pumps failed and the pollution incident was aggravated by the failure to close a valve. The company was fined £5,000 and had to pay costs of £310. The company has since improved its operating procedures and alarm system.

An international oil company claimed that it was not wholly responsible for a spillage of several thousand gallons of oil at Stansted Airport in February 1991. Kerosene oil leaked from a newly fitted pipeline into a tributary of the River Stort and killed many thousands of fish as well as swans and ducks. The leak occurred from a valve that had not been fitted properly by the contractor; a dip pipe that enabled sediment to be removed from the oil pipeline was too long and prevented the valve from being screwed in fully. The contractor warned the company that the pipeline would have to be pressure tested with air on completion, however, it was tested by filling it with kerosene. Unfortunately, the leak was not detected. The NRA brought prosecutions under Section 107(1)(a) and (6) of the Water Act 1989 against both the contractor and the oil company. The oil company pleaded guilty and was fined £50,000 and ordered to pay costs of £14,000. In addition the company had to pay the NRA clean-up charges of £48,300 and it spent more than £117,000 on environmental restoration work. The contractor pleaded not guilty and the Court ruled that there was insufficient evidence and asked for the charges against it to be dropped.

Another large chemical company was responsible for pollution to Hillylaid Pool in the NRA's North West Region. A routine inspection of the pool in January 1992 showed that the watercourse was polluted with a milky-white discoloration and foam for approximately 1km. The pollution was traced to a surface water drain outlet on the company's site. Analysis of the discharge showed that it had a very high BOD and chemical oxygen demand (COD) and that it would have been depleting the water of oxygen. Initially the company denied the pollution but then admitted that the discharge had been under investigation for several days. It was eventually traced to a leakage from the plant effluent treatment system. The company pleaded guilty to illegally discharging trade effluent and was fined £2,000 and ordered to pay costs of £960.

A construction company was convicted for failure to maintain and store red diesel oil on one of its industrial units. NRA pollution officers found red diesel oil along 4km of a tributary to the River Axe and this was traced via surface drainage to the company's premises. A large oil storage tank had been left with its valve open and the diesel was running out. The company had installed a blockwork wall around the tank but this was not secure and oil had escaped into the site's surface water system and then into the brook. The case highlights the need to install and maintain storage facilities for potentially polluting substances and ensure that pollution prevention measures are taken.

Following a complaint from a member of the public in March 1992, an NRA inspector found that a tributary of Fenton Lode was black and septic from the discharges of a company's effluent treatment plant close to the watercourse. The company, involved in carrot washing, was informed of the pollution and advised to change its methods of waste disposal. The inspector returned to the site in August and found that the discharge was still occurring and the tributary remained black and septic and was contaminated with soil and peelings from the carrot washing operations. The company was fined £8,000 and had costs of £679 imposed.

The highest fine obtained by the NRA's North West Region, at the time, in a Magistrates Court was awarded against a commercial egg producer. A complaint from a member of the public alerted the NRA to a pollution problem in a tributary of Westfield Brook. Severe growths of sewage fungus along the bed of the brook were traced to slurry overflowing from the waste storage system on the company's premises. The pollution officer discovered evidence that a slurry lagoon close to the brook and the reception pit of the main slurry store had both overflowed. General rubbish, including chicken carcasses, had been dumped on a field close to the brook and seepage from the area was also found to be polluting the watercourse. A biological survey of the watercourse was carried out the day after the pollution was found and this showed that, although the water quality was already poor, the discharge had caused a severe deterioration in the appearance of the brook and that even normally resistant fauna had been severely affected by the pollution. The company was fined £15,000 in Preston Magistrates Court. This was the largest fine imposed since the maximum fine for pollution incidents was raised from £2,000 to £20,000 on 1 January 1990. The fine in respect of this incident has since been reduced on appeal to £7,500.

6.6.8 Agricultural Incidents

As highlighted in the NRA's Farm Waste Group report (NRA, Water Quality Series No 6, 1992) the approaches required for preventing pollution and dealing with agricultural waste are much broader than legal action. These include catchment management planning, waste disposal planning, farm waste management plans, farm visits and cooperation and liaison with the farming community. Legal actions open to the NRA include prosecution, issuing a formal caution or sending a warning letter. In addition to Section 85 of the Water Resources Act 1991, the Control of Pollution (Silage, Slurry, and Agricultural Fuel Oil) Regulations 1991 aim to prevent pollution by setting minimum standards for storing and handling these materials. New or extensively enlarged or reconstructed facilities are required to comply with the Regulations: however, compliance with them is not a defence against prosecution, but may be a mitigating factor. The following examples detail some offences where formal action could not be avoided.

An incident was discovered in the south west when NRA pollution inspectors visited a farm to check on its farm waste disposal system which had not been adequately maintained. The inspectors found that a blocked drain was causing surface water from recent rainfall to run across a cattle yard into a slurry lagoon. The slurry lagoon had been opened and the pump and disposal system switched off. As a result, dirty water was overflowing into an adjacent field and then into a side ditch, and from there into a tributary of Binneford Water. The watercourse was grossly contaminated over a stretch of 1.5 km. Sewage fungus had developed along 200m and overall the water was discoloured and foaming. Two farmers were fined £375 each, together with costs of £175.

Again in the south west, a poorly maintained silage clamp caused pollution to a tributary of the Liverton Brook. A pollution inspector found over half a mile of watercourse affected by fungus and there was a strong smell of silage effluent. The pollution was traced to a nearby farm and samples of the discharge revealed that the effluent was 50 times stronger than untreated sewage. The farmer pleaded guilty to the offence and was fined £750, with £450 costs, by Teignbridge Magistrates.

The poor design of a waste storage system and lack of operator training led to a slurry pollution incident that killed fish in over a mile of the River Wolf. Twenty four brown trout and many other fish were killed when 4,000 gallons of slurry overflowed from a waste storage system. This discoloured the water, caused frothing, and a considerable quantity of the slurry was deposited on both the river banks and bed. The farmer pleaded guilty and was fined £500 with £400 costs.

A major slurry pollution incident could have been avoided in June 1992 if more care had been taken with a waste storage system. After receiving reports of pollution on the Hole Brook, NRA pollution inspectors found that the watercourse was a brown/green colour, foaming and smelling strongly of farm waste. The pollution was traced to a nearby farm where over 10,000 gallons of slurry had escaped from a weeping wall storage system. A one and a half mile slick developed along the river and killed over 500 fish, including at least 200 brown trout. As a result of the volume and strength of the discharge the NRA

had to launch a special operation to break up the pollution using pumps and hydrogen peroxide to raise oxygen levels. In addition, "fast fish rescue" units were used and a total of 1,344 fish were saved - these included 240 brown trout and nearly 300 juvenile salmon. The farmer pleaded not guilty but he was fined £500 for the pollution as well as £500 for the fish kill. In addition he was ordered to pay costs of £592 by West Devon Magistrates.

Again, failure to follow the correct procedures for safe storage of waste led to an incident in Essex which polluted a tributary of Ardleigh reservoir. During a routine inspection a pollution inspector noticed that the watercourse had been fouled by an illegal discharge from a local farm. The inspection cover between the farm's collection tank and the surface water system revealed that it was full of yellow/brown effluent and covered with maggots. Another inspection chamber was filled with sewage fungus. On the advice of the NRA the farmer has now concreted up all the connections with the muck collection tank to prevent recurrence of the pollution. The farmer was fined £3,000 and had further costs of £1,650 imposed.

An incident involving the discharge of silage effluent to the River Cywyn illustrates the importance of ensuring that silage storage facilities are properly maintained and that adequate precautions are taken to contain any accidental spillages. Pollution inspectors found that a tributary of the River Cywyn had become discoloured and there was a strong smell of silage effluent. The stream bed was also contaminated with significant growths of sewage fungus. The pollution officers traced the pollution to the adjoining farm and concluded that the silage liquor had escaped between the wall and the floor joint of a silo some days previously. A biological survey estimated that some 150 trout fry and 600 trout parr had been killed. The farmer had spent £8,000 reinforcing the base of the silo since an incident in 1984 and had fully cooperated with the NRA. However, failure to maintain the system led to the effluent discharge and the farmer was found guilty under Section 85 of the Water Resources Act, and Section 4 of the Salmon and Freshwater Fisheries Act 1975. He was fined £1,000 for the silage discharge, £500 for the fish kill and was ordered to pay £1,000 in costs and a further £300 in compensation.

Failure to maintain and monitor an irrigation system led to a farmer polluting the River Axe. Following a call from a member of the public to report that the watercourse was dark brown and frothy, a pollution officer traced the discharge to a mobile irrigation system used to spray slurry water on land. The cause of the incident was a faulty setting on the irrigation equipment which had led the system to continue spreading instead of stopping when it had crossed the field boundary. The slurry water was five times the strength of raw sewage and affected the stream where there was a minor fish kill, and the River Axe was also discoloured. The farmer pleaded not guilty but Axminster magistrates fined him £1,500 and ordered costs of £1,000 to be paid.

7 CONCLUSIONS

7.1 A total of 31,673 incidents were reported in England and Wales during 1992, of which 23,331 (74%) were substantiated; these represent a slight increase of 7% and 4% respectively over the 1991 figures, providing further evidence that the previous larger rises in incidents has been checked. Of the substantiated incidents, only 1.6% were classified as Category 1.

7.2 The number of Category 1 incidents in 1992 was essentially the same as in 1991. The majority of these incidents, by both source and type, fell into the "other" category. However, of those that could be categorised, industrial **sources** (26%) and sewage and oil **types** (both 18%) accounted for the greatest proportion of incidents.

7.3 Agricultural sources accounted for 12% of all substantiated incidents during 1992 and there was an overall decrease in these incidents by 183 (6%). The number of silage related incidents decreased by 52%. The NRA Regions with the greatest proportion of agricultural incidents were South West, Welsh and North West. Some 17% of Category 1 incidents were accounted for by agricultural sources and there was a decrease in this category of major incidents of 32% compared with 1991.

7.4 Industrial sources accounted for 19% of all substantiated incidents during 1992 and for 26% of all category 1 incidents. Industrial oil, landfill and waste disposal were the principal, definable, sources of industrial pollution.

7.5 Sewage and water related sources accounted for 28% of all substantiated incidents during 1992; 1.2% of these were classified as Category 1 pollution events, a decrease of 18% of major incidents over 1991. The total number of incidents from these sources has continued to increase but the rate of increase has slowed considerably over previous years. Combined sewer overflows were the greatest source of pollution within this categorisation.

7.6 Incidents that did not fit into the broad categorisations of agriculture, industry, or sewage and water related sources accounted for 41% of substantiated incidents. Some 1.4% of these were classified as Category 1, of which 4% were related to transport and road traffic accidents.

7.7 Oil pollution incidents accounted for 26% of all substantiated incidents, by **type** of incident, during 1992. Although this categorisation of oil incidents is not directly comparable with previous years, the number of incidents involving oil is increasing. Of the 6,136 substantiated incidents, 1.1% were classified as Category 1 incidents and these accounted for 18% of incidents of this severity. Diesel was the most common type of oil pollution identified, and the greatest proportion of oil incidents occurred in Severn Trent, Thames and Anglian Regions.

7.8 Chemical pollution incidents accounted for 6% of all substantiated incidents during 1992, and made up 13% of the national total of Category 1 incidents. Organic chemicals, paints and dyes, detergents and pesticides were the most common types of chemical pollutants that could be identified.

7.9 Incidents involving sewage accounted for 26% of all substantiated incidents classified by type of pollutant. The 71 Category 1 incidents accounted for 1.2% of this type of pollutant and 18% of the national total.

7.10 "Other", unclassified, types of pollution accounted for 31% of all substantiated incidents. The principal types of "other" pollutant were miscellaneous industrial wastes and solid wastes. Some 2% of these incidents were classified as Category 1, and accounted for 35% of all incidents of this severity.

7.11 A total of 299 substantiated pollution incidents were the subject of prosecutions and 290 were successfully convicted. At 1 April 1993 there were still a further 176 incidents to be brought before the courts. Some 250 formal cautions were also issued, with another 40 still to be issued at 1 April 1993.

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APPENDIX A

DEFINITIONS

NRA Definitions of Pollution Incident Categories

Category 1

A major incident involving one or more of the following:

a) potential or actual persistent effect on water quality or aquatic life;
b) closure of potable water, industrial or agricultural abstraction necessary;
c) extensive fish kill;
d) excessive breaches of consent conditions;
e) extensive remedial measures necessary;
f) major effect on amenity value.

Category 2

A significant pollution which involves one or more of the following:

a) notification to abstracters necessary;
b) significant fish kill;
c) measurable effect on invertebrate life;
d) water unfit for stock;
e) bed of watercourse contaminated;
f) amenity value to the public, owners or users reduced by odour or appearance.

Category 3

Minor suspected or probable pollution which, on investigation, proves unlikely to be capable of substantiation or to have no notable effect.

MAFF Definition of a Serious Incident

An incident that has any of the following effects and includes all cases where legal proceedings are initiated:

a) downgrades the class of any water course classified in the River Quality Survey by more than 10% over 0.5 km;
b) interferes with water abstraction through quantity and quality;
c) results in fish mortality;
d) causes significant interference with legitimate use of water, including stock watering;
e) adversely affects any SSSI, nature reserve or area of high conservation interest.

APPENDIX B

Substantiated Farm Pollution Incidents in 1992

Incidents 1992	A	N	NW	ST	S	SW	T	W	WX	Y	TOT
Cows											
Slurry Stores/											
Waste Collection Tanks	14	3	94	86	8	102	2	126	67	19	521
Solid Stores	26	10	33	22	8	20	1	23	4	8	155
Yard Washing	6	5	72	20	2	215	9	88	26	5	448
Dairy/Parlour Washing	6	0	19	14	0	11	0	16	8	9	83
Land Run-off	5	1	56	61	22	41	6	77	35	21	325
Treatment System Failure	1	1	4	2	1	25	2	9	5	8	58
Silage	10	8	57	36	3	38	2	37	15	14	220
TOTAL CATTLE	**68**	**28**	**335**	**241**	**44**	**452**	**22**	**376**	**160**	**84**	**1,810**
Pigs											
Slurry Stores	45	2	6	11	3	2	2	6	9	12	98
Yard Washing	9	0	4	4	1	8	3	4	0	2	35
Land Run-off	17	0	5	15	5	7	6	2	6	12	75
Treatment System Failure	2	0	2	8	0	2	0	0	0	2	16
TOTAL PIGS	**73**	**2**	**17**	**38**	**9**	**19**	**11**	**12**	**15**	**28**	**224**
Others											
Poultry	19	0	10	11	4	5	2	7	2	2	62
Sheep Dips	1	1	8	0	1	1	0	7	0	0	19
Pesticides	20	1	1	3	2	3	1	0	0	0	31
Mineral Fertiliser	13	0	2	3	2	0	0	0	0	0	20
Vegetable Washing	4	3	1	4	0	1	0	4	7	0	24
Oil Spillages	46	1	2	18	3	21	22	5	9	0	127
Fish Farms	0	0	0	2	1	11	1	1	2	1	19
Other	39	15	41	0	5	173	32	34	30	65	434
TOTAL OTHER	**142**	**21**	**65**	**41**	**918**	**215**	**58**	**58**	**50**	**68**	**736**
TOTAL FARM	283	51	417	320	71	686	91	446	225	190	2,770

APPENDIX C

Prosecutions relating to pollution incidents that occurred in 1991 irrespective of the date of hearing.
(P = Prosecutions; C = Convictions)

REGION	Form		Industry		Oil		Sewage		Other		Total	
	P	C	P	C	P	C	P	C	P	C	P	C
Anglian	11	11	20	20	4	4	8	8	4	4	47	47
Northumbria	8	7	14	14	6	4	4	4	1	1	33	30
North West	29	29	32	32	10	10	7	6	3	3	81	80
Severn Trent	33	33	15	15	6	6	12	12	0	0	66	66
Southern	4	4	8	8	3	3	9	9	1	1	25	25
South West	31	31	4	4	1	0	0	0	2	2	38	37
Thames	18	18	16	16	18	16	7	7	2	2	61	59
Welsh	27	24	14	12	8	8	13	11	4	4	66	59
Wessex	11	10	7	6	2	1	5	5	5	5	30	27
Yorkshire	20	20	17	16	1	1	3	3	0	0	41	40
Total	**192**	**187**	**147**	**143**	**59**	**53**	**68**	**65**	**22**	**22**	**488**	**470**

There is still one prosecution outstanding for a sewage and water related pollution incident in Thames Region.

APPENDIX D

POLLUTION PREVENTION GUIDELINES - AVAILABLE IN MOST REGIONS.

PPG1 General guide to the prevention of pollution of controlled waters

PPG2 Safe storage and disposal of used oils

PPG3 Above ground oil storage tanks

PPG4 The use and design of oil separators in surface water drainage systems

PPG5 Disposal of sewage where no mains drainage is available

PPG6 Works in, near or liable to affect watercourses

PPG7 Working at demolition and construction sites

PPG8 Fuelling Stations: Construction and Operation

TECHNICAL GUIDANCE NOTES

TGN1 Guidance note on the use of high pressure water and steam cleaners (Thames Region only)

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Rivers House
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Aztec West
Almondsbury
Bristol
BS12 4UD
Tel: (0454) 624400
Fax: (0454) 624409

LONDON OFFICE
30-34 Albert Embankment
London SE1 7TL
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Fax: (071) 8201603

ANGLIAN REGION
Kingfisher House
Goldhay Way
Orton Goldhay
Peterborough PE2 5ZR
Tel: (0733) 371811
Fax: (0733) 231840

NORTHUMBRIA & YORKSHIRE REGION
21 Park Square House
Leeds LS1 2QG
Tel: (0532) 440191
Fax: (0532) 461889

Gosforth Office
Eldon House
Regent Centre
Gosforth
Newcastle Upon Tyne
NE3 3UD
Tel: (091) 2130266
Fax: (091) 2845069

NORTH WEST REGION
Richard Fairclough House
Knutsford Road
Warrington WA4 1HG
Tel: (0925) 53999
Fax: (0925) 415961

SEVERN-TRENT REGION
Sapphire East
550 Streetsbrook Road
Solihull B91 1QT
Tel: (021) 7112324
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SOUTHERN REGION
Guildbourne House
Chatsworth Road
Worthing
West Sussex BN11 1LD
Tel: (0903) 820692
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SOUTH WESTERN REGION
Manley House
Kestrel Way
Exeter EX2 7LQ
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Bridgwater Office
Rivers House
East Quay
Bridgwater
Somerset TA6 4YS
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THAMES REGION
Kings Meadow House
Kings Meadow Road
Reading RG1 8DQ
Tel: (0734) 535000
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WELSH REGION
Rivers House/Plas-yr-Afon
St Mellons Business Park
St Mellons
Cardiff CF3 0LT
Tel: (0222) 770088
Fax: (0222) 798555

TO REPORT ANY ENVIRONMENTAL INCIDENTS (E.G. FLOODING OR POLLUTION) PLEASE CONTACT US ON THE FOLLOWING FREEFONE NUMBER: 0800 80 70 60

NRA

National Rivers Authority