

Pollution incidents in England and Wales 2000



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Cover photo: A major recovery operation under way following the death of three thousand fish in Lincolnshire's Louth Canal in July 2000 (see page 9).

Pollution incidents in England and Wales 2000

Report of the Environment Agency

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Executive summary

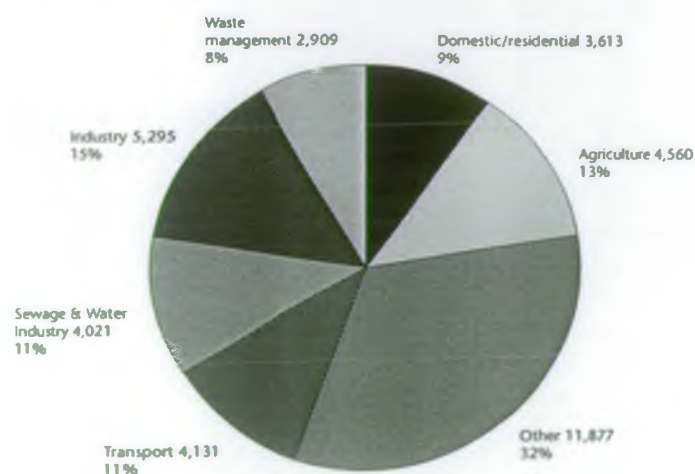
The Environment Agency is a non-departmental government body charged with protecting and improving the environment of England and Wales. Pollution events including the dumping of waste materials damage that environment. The Agency responds to complaints and reported incidents, which are dealt with and then logged and categorised. The recorded data is used to direct future efforts to prevent pollution. This report details incidents recorded in 2000 having an effect on air, land and water, and is one of a series that started in 1997. Previous reports only considered the water media.

The Agency responded to 47,840 reports of environmental pollution in 2000, of which 36,406 were substantiated as having an environmental impact, an increase of 18% compared with 1999. 14,662 incidents were substantiated as having an impact on water (an increase of 2% compared with 1999 data), 8,260 affected land and 3,876 air. The downward trend in the number of the most harmful, Category 1 (Major), water incidents has continued, with the total now standing at 77, the lowest since records began. There were 8 Category 1 incidents affecting land and 14 affecting air. Successful prosecutions were brought for 661 incidents of environmental pollution in 2000, of which 235 related to water pollution, 415 related to incidents prosecuted under waste legislation (affecting mainly land) and 11 were for sites regulated under Integrated Pollution Control. The maximum penalty related to a case involving a discharge of sewage and trade effluent, where fines amounting to £250,000 were imposed under both water and waste legislation.

Pollution incidents are categorised in the report by source and type of pollution. Of all the substantiated incidents (Category 1-4), there was no significant change in the proportions due to any source. Waste management, previously recorded under industry, is reported separately for the first time in this report. Within the industrial sector, the construction industry was the most frequently identified source of water and land pollution, although there was a significant (21%) decrease in the number of water pollution incidents from this sector. The construction products sector was responsible for the largest number of air pollution incidents.

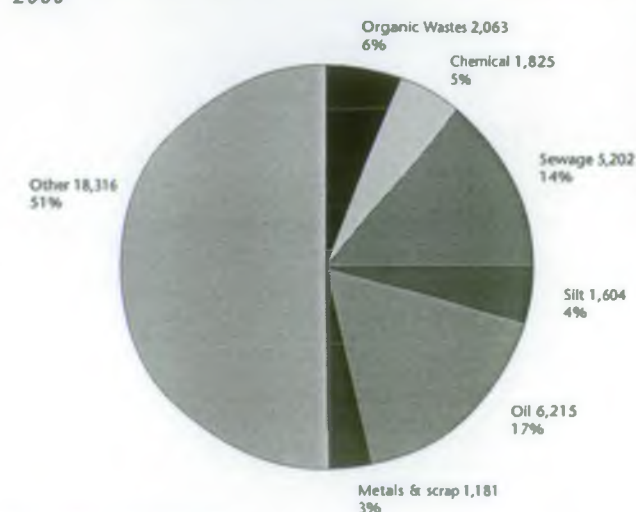
Dairy farming was the largest source of agricultural water pollution with beef production replacing arable farming as the second largest source. Pollution from domestic and residential sources accounted for 9% of all incidents and waste management 8%. Of the organic wastes, the most frequently identified were dirty water, yard water and farm slurry. Paints and dyes were the most commonly recorded chemical pollutants.

Figure A Distribution of substantiated incidents by source, 2000



All incidents total: 36,406

Figure B Distribution of substantiated pollution incidents by type, 2000



All incidents total: 36,406

Fuels and oils (17%) remain the most significant type of pollutant identified separately. Diesel was the most commonly identified oil. The number of incidents involving fuels and oil has increased in the last year. The proposed Government regulations on the storage of oil should address this issue. They will also support the Oil Care Campaign, which was successful in attracting funding for a full time campaign co-ordinator in 2000.

In 1999, the Agency introduced a temporary computerised incident recording system as part of its programme to ensure all systems were Year 2000 compliant. This report has been structured to facilitate comparison of water pollution incidents with previous data. However, it should be noted that the temporary system captures data in a different format to that in previous years. As a result, caution must be exercised in the comparison with pre 1999 data.

Figure C Category 1 and 2 water pollution incidents by source, 2000

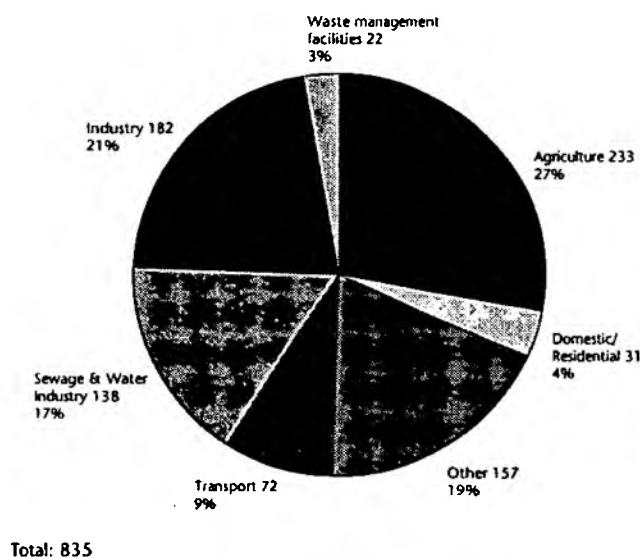


Figure D Category 1 and 2 water pollution incidents by type, 2000

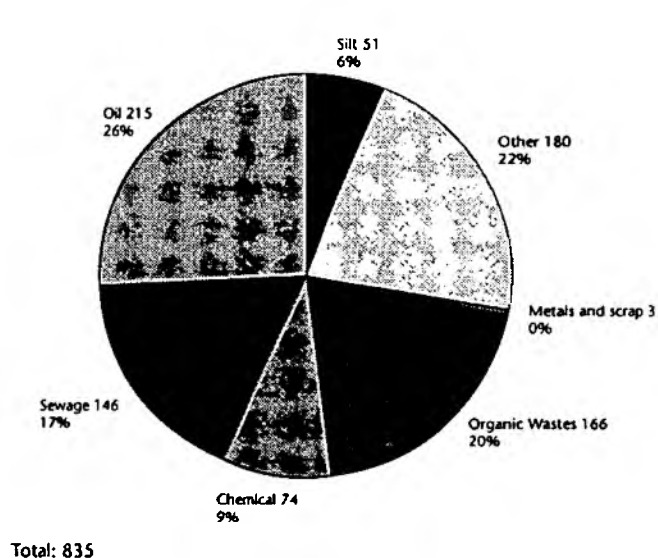


Figure E Category 1 and 2 land pollution incidents by type, 2000

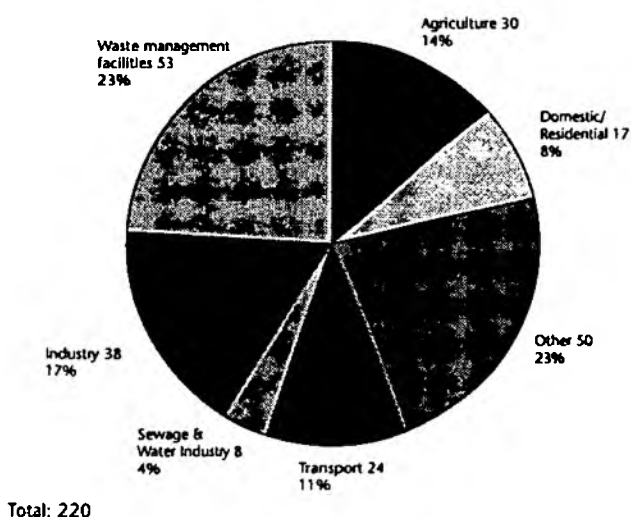
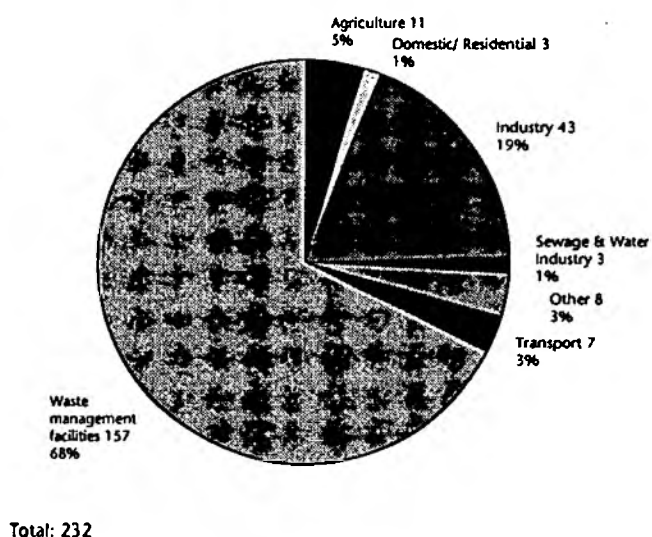


Figure F Category 1 and 2 air pollution incidents by type, 2000



1. Introduction

1.1 Background

This report is the latest in a series produced by the Agency and covers the calendar year 2000. Previous reports have related to water pollution incidents only. The Agency is committed to moving towards a fully integrated pollution incident report in the future, in order to more accurately reflect its work. This report represents the first step in that process and, whilst retaining a focus on water pollution, information is provided on all pollution incidents dealt with by the Agency in England and Wales, irrespective of the receiving medium. Details of court cases relating to the Agency's environmental regulation role heard in 2000 are included. The report also contains information on some of the more serious incidents from previous years, which could not be reported earlier because they had not come to court when the 1999 report was published. The layout of the report and the presentation of the data are based on those used in the earlier reports.

For the purpose of this report, incidents are reported on a river catchment basis. In the case of Environment Agency Wales this differs from the political boundary. Therefore all references to incidents in the Environment Agency Wales in this report are on a catchment basis.

1.2 Developments in 2000

1.2.1 Incident data recording systems

A temporary incident recording system was introduced throughout the Agency during 1999, replacing a number of regional systems. It is a multi-functional system that takes into account the Agency's full range of activities, recording data on air pollution incidents, fly tipping of wastes and water pollution incidents. A Common Incident Classification System (CICS), which separates environmental impact from a measure of the impact on the Agency's resources, was brought into use by the Agency on 1 January 1999. Appendix A gives details of the new system and Appendix B the previous scheme.

The system records incidents across all media, hence any incident will be categorised for its impact on air, land and water. The new CICS therefore introduced a fourth category for incidents, where there was no environmental impact for a particular medium. As a consequence there was an increase in the number of incidents between 1998 and 1999, as many incidents affecting air or land were recorded, in addition to previously recorded water incidents. However, incidents may not impact on all media, for example a fly-tipping incident could be recorded as a Category 2 for land quality and a Category 4 for both air and water. Unless otherwise indicated, data on Category 4 incidents are included in this report.

Changes in the data structure were necessary for the new system, affecting the recording of pollutant source and type. This has facilitated the introduction of a new source category – Waste Management Activities, and a new pollutant category – Scrap Metals. However, in some cases the new categories are not directly comparable with those used for the production of reports prior to 1999 and have been mapped as the sources and types of pollution now recorded as closely as possible into the categories used for previous reports. However, in some cases caution must be exercised in making a direct comparison between this report and those prior to 1999. Where this is the case, the data have been annotated in the text.

1.2.2 Current and future developments

The National Incident Recording System introduced in 1999 was an interim solution, introduced in order to ensure the system would continue to operate into the year 2000. A thorough review of the Agency's needs for incident recording and reporting has been undertaken and a new system, with significant enhancements, is being introduced in 2001.

1.3 Legislation

1.3.1 Oil Storage Regulations

The Department of Environment, Transport and the Regions, (now Department for Environment, Food and Rural Affairs) consulted on further regulatory powers including Oil Storage Regulations and Building Regulations during 2000. The Oil Storage Regulations ensure that all newly installed oil storage tanks on industrial, commercial and institutional premises are of an adequate standard and properly banded. Similar provisions are under discussion for inclusion in Building Regulations dealing with the installation of oil-fired equipment and associated oil storage, which are expected to be implemented in 2001. The need for these regulations is emphasised by the slow progress in reducing pollution involving oil, compared with other types of pollution.

These regulations were laid before Parliament on 29th August 2001 and will be effective from 1st March 2002.

1.3.2 Works Notices

Anti-pollution Works Notices, which can be served on a site owner or operator where there is a risk that water pollution may occur, or where it has already happened, were introduced in April 1999. An update on the use of these wide powers, which allow the Agency to act before pollution occurs, is given in Section 3.3.

1.3.3 COMAH - Control of Major Accident Hazards Regulations 1999

The year 2000 was the first full year in which the COMAH regulations were in effect. They came into force in April 1999, implementing the requirements of the Seveso II Directive 96/82/EC. The regulations apply to approximately 1200 establishments that have the potential to cause major accidents because they use or store significant quantities of dangerous substances, such as oil products, natural gas, chemicals or explosives. The regulations require that "Every Operator shall take all measures necessary to prevent major accidents and limit their consequences to persons and the environment".

Approximately 800 are lower tier establishments, which must prepare a Major Accident Prevention Policy (MAPP) and an on-site emergency plan. The remaining 430 establishments, with larger inventories of dangerous substances, are classified as top tier and are subject to additional requirements, including the submission of a safety report and the development of off-site emergency plans.

The COMAH regulations are unusual in that they are implemented by a Competent Authority which comprises the Health and Safety Executive (HSE) working jointly with the Environment Agency (and in Scotland, the HSE working with the Scottish Environment Protection Agency). This arrangement reflects the requirements to ensure the protection of both persons and the environment. The COMAH regulations superseded the Control of Industrial Major Accidents Hazard Regulations 1984 (CIMAH), which were implemented by HSE alone.

1.3.4 Groundwater Regulations

Under these Regulations, introduced in January 1999, Government may introduce statutory Codes of Practice to minimise the risk of pollution from activities that might otherwise be difficult to control. A sheep dipping code of practice has been developed by DEFRA (formerly MAFF) in close consultation with the Agency and is due for publication in 2001. Future Agency work on this will concentrate on publicising the code, and where required, using it as a regulatory tool.

A Code of Practice for underground fuel storage and dispensing has been commissioned by DEFRA (originally DETR) in consultation with the Agency. The Agency has commenced scoping a Code of Practice for use, storage and handling of solvents. Once complete, this will be proposed to DEFRA as a framework for a statutory Code of Practice under the Groundwater Regulations.

1.3.5 Pollution Prevention and Control Regulations 2000

These regulations were made under the Pollution Prevention and Control Act 1999 and will eventually replace Part I of the Environmental Protection Act (EPA) 1990. The Regulations implement the European Community (EC) Directive 96/61/EC on Integrated Pollution Prevention and Control ("the IPPC Directive"), in so far as it relates to installations in England and Wales. Separate systems will be introduced to apply the IPPC Directive to Scotland, Northern Ireland and the offshore oil and gas industries. Prior to the PPC regulations coming into force, many industrial sectors covered by the IPPC Directive were regulated under Part I of the EPA 1990. This introduced the systems of Integrated Pollution Control (IPC), which controlled releases to all environmental media, and Local Air Pollution Control (LAPC), which controlled releases to air only. Other industrial sectors new to integrated permitting, will be landfill, intensive farming and food and drink sectors. The PPC Regulations create a coherent new framework to prevent and control pollution, with two parallel systems similar to the old regimes of IPC and LAPC. Further information on these regulations can be obtained at the following web sites;

www.defra.gov.uk/environment/ppc/ippcguide/index

www.environment-agency.gov.uk/business/techguide/ippc

or at the other contact points detailed in this report.

1.3.5 Other selected legislation in 2000

- Air Quality (England) Regulations 928/2000
- Transport and Works (Assessment of Environmental Effects) Regulations 2000
- Climate Change Levy (Combined Heat & Power Stations) Exemption Certificate Regulations 486/2000
- Producer Responsibility Obligations (Packaging Waste) (Amendment) (England and Wales) Regulations 2000
- Harbour Works (Environmental Impact Assessment) (Amendment) Regulations 2391/2000
- Farm Waste Grant (Nitrate Vulnerable Zones) (England) (No.2) Scheme 2911/2000
- Environmental Protection (Waste Recycling Payments) (Amendments) (England) Regulations 831/2000
- Environmental Protection (Disposal of Polychlorinated Biphenyls and other Dangerous Substances) (England and Wales) Regulations
- Contaminated Land (England) Regulations 2000

2 Incident management

This section includes examples of the type of incidents dealt with by Agency officers. These demonstrate the actions needed to investigate an environmental incident and to control its impact. On average about 120 environmental incidents were reported each day in 2000 and although the majority were minor, they all required investigation. In some cases the source of pollution was easy to identify. However, in many cases the incident may have been for a short duration, or may occur only under certain conditions. In these cases lengthy investigations may be required.

Of the major and significant incidents we responded to in 2000, 835 affected water, 220 land and 232 air. In all cases Agency Environmental Protection staff assessed the incident and, where appropriate, endeavoured to arrive on site within the published target times of two hours during office hours and four hours at other times. Once an incident has been confirmed, the role of the Agency officers is to minimise the impact of the pollution, warn those who may be affected, such as downstream water users, trace the source and collect evidence for any resulting legal action. Photographs showing some of these incidents are on pages 23 to 26.

2.1 Major incidents

The COMAH regulations require that certain major accidents are reported to the European Commission (EC). The criteria for a COMAH EC Reportable Accident (ECRA) include the release of a specified quantity of a dangerous substance, specified harm to persons (e.g. 1 death) or specified harm to the environment (e.g. significant damage to more than 10 km of river).

In 2000 there were 5 ECRA's, a decrease on the 11 recorded in 1999. As in 1999 only one involved risk to the environment (in addition to the risk to people). This incident was the subject of a special report to the Deputy Prime Minister and is described below.

Waste treatment site - Midlands

During a severe storm early on 30 October 2000, a major fire started at a hazardous waste treatment facility and transfer station operated by Cleansing Service Group Ltd (CSG), at Sandhurst, near Gloucester. The site operated under a waste management licence issued by the Environment Agency and was also a notified lower tier establishment under the COMAH Regulations. It was unoccupied at the time and the fire service was unable to gain access because the fire blocked the only access road. Waste aerosol cans were exploding and a series of larger explosions occurred when the contents of drums of toxic and flammable chemicals were released. Approximately 60 people were evacuated from their homes and 13 people (mostly from the

emergency services) were taken to hospital as a precautionary measure, although none was admitted. The fire service eventually gained access across fields upwind of the site and were able to extinguish the fire late in the afternoon. Approximately 180 tonnes of mixed chemical wastes, including some pesticides and chlorinated hydrocarbon solvents were consumed in the fire.

Agency flood warnings indicated that the site, which is alongside the River Severn, would flood within days and actions had to be taken to make the site safe by moving hazardous material beyond the reach of floodwaters. When flooding did occur on 3 November, the local residents had to be evacuated for a second time. The site was surrounded by floodwater and could only be accessed by boat, which hampered the clean up and investigation. On some days, when boats were not used, the site was monitored using infrared cameras from helicopters. Serious flooding continued until 22 November and high flood water levels continued to threaten the site, which subsequently flooded again in December. Although the seat of the fire was identified, the cause of the incident has not been established.

In the weeks following the incident, the local Health Authority investigated a large number of reports of illness from local residents. None of the 17,500 tests carried out on over 500 environmental samples, by the Agency and Tewkesbury Borough Council, indicated any significant levels of contaminants off-site. Monitoring of the health of the local population is continuing.

In an effort to answer the concerns of the local residents about the operation of the site, and any possible off-site effects, the Agency established a local drop-in centre, daily question and answer briefings and media interviews. These gave local residents and their representatives, including Councillors and the Member of Parliament, the opportunity to air their concerns. Senior Agency staff met with residents the Wednesday after the incident and a public meeting was held the week after the fire, attended by the Agency, HSE and the emergency services.

The Agency issued a notice of suspension to the Waste Management Licence (WML) for the site the day after the incident. This prevented the site from receiving further waste materials until appropriate actions were taken. A COMAH prohibition notice and two improvement notices under the Health and Safety at Work Act were also served. In March 2001, the operators notified the Competent Authority that the amount of dangerous substances on the site in future would be kept below the COMAH thresholds. Investigations into possible breaches of the law are continuing and there may yet be a public enquiry.

2.2 Water pollution

The following details provide examples of some of the more serious pollution incidents dealt with by the Agency during the year.

2.2.1 Agricultural

Silage pollution – Midlands Region

Following reports of dead fish in the Black Brook, Oaks in Charnwood, Leicestershire on 4 August 2000, Agency officers found the brook to be polluted with silage liquor. This was traced to Upper Bawdon Farm, Copt Oak, approximately three hours after the initial report. The liquor had seeped through a concrete apron in front of the silage clamps and then via the site drainage system and a field ditch into the Black Brook. The growth of sewage fungus along the ditch system and along the brook bed was extensive, indicating that the leakage had occurred for some time. The downstream Black Brook water supply reservoir was taken off line as a precaution for 24 hours and local farmers alerted.

A survey of the damage the following day indicated that approximately 100 brown trout, thousands of bullheads and other 'minor' fish species and at least 2 native crayfish were killed due to the silage pollution. There was a significant impact upon the conservation status of the Black Brook, with the loss of local genetic stock of native brown trout and crayfish. Due to the specific genetic character of the local trout, restocking with commercial trout is not appropriate. Further fish surveys will have to be carried out to establish if local streams can provide the required replacement stock. The loss of native crayfish is also significant - they are a protected species under the Habitats Directive and the UN Biodiversity Action Plan due to the threats of disappearing habitat, disease and competition from non-native species such as the Signal Crayfish.

This incident highlights the highly polluting nature of silage liquor, emphasising the need for farmers to ensure that it is properly contained and managed. In this case, the farmer was subsequently found guilty of causing water pollution and fined £1,600 with costs of £2,195.

Slurry Pollution – Midland Region

Approximately 550,000 litres of cattle slurry were lost from an above ground 'Malgat' slurry storage system at Priest Weston, Shropshire on 14 March 2000. This was caused by the double valve system on the main store 'shearing off', as a result of movement between the bolts on the connecting plate. The whole valve structure should have been supported or bolted down. The outflow of slurry from the store was

under such pressure that it was difficult to prevent the flow. It was eventually stopped using an inflatable bung included as part of the emergency equipment provided to the Fire Service by the Environment Agency. A significant amount of slurry was retained in the store.

The discharge rapidly reached the nearby Coed Brook. Five local fire services were involved in damming the brook and pumping slurry from it, to protect the downstream rivers and abstractions, (including Shrewsbury drinking water intake on the River Severn). A local contractor and several farmers assisted, creating more dams and using vacuum-tankers to spread some of the contaminated water from the brook onto adjacent fields. Despite these efforts, the dams were eventually breached and the contaminated water passed into the River Camlad.

Over the following days, the Rivers Camlad and Severn were monitored to follow the plug of polluted water. However, as a result of the intensive efforts to deal with the spill in the Coed Brook, the high natural flows and Agency action to increase the discharge from the Clywedog Dam, the effect on the River Severn was minor and water abstractions were unaffected.

The impact of the slurry was noticeable in the Coed Brook for some time after the incident and there was a confirmed fish kill of minor species. The valve system has since been re-installed on the tank and bolted down. The Agency has highlighted the potential for similar incidents to its officers and farmers.

Liquid fertiliser spill – Anglian Region

In January 2000, a large fish kill occurred in the Head Dyke and Skerth Drain in Lincolnshire. Ammonia pollution affected a 16km stretch, killing the majority of life in the watercourse. The pollution was traced to a farm in Howell, where a liquid fertiliser tank had leaked all of its contents. The tank lost 50 tonnes (estimated to be 50,000 litres) of fertiliser into the ground which subsequently found its way into the watercourse. It took several months for the level of ammonia in the watercourse to return to normal. Following prosecution the farmer was given a conditional discharge.

2.2.3 Industrial

Quarry operation – South West Region

In the early morning of 5 April 2000, Imerys (formerly English China Clay) notified the Agency that the Kurnick Dam, at St Stephen, near St Austell, Cornwall, had given way and that they were unable to stem the flow. The dam is part of a settlement lagoon used in processing locally extracted china clay. The resulting discharge, containing high levels of suspended solids (china clay) was passing into the River Fal, turning it white. Agency staff arrived on site within 2 hours, but were unable to do more than collect evidence for a prosecution. Members of the public made a number of complaints to the Agency throughout the day.

Over the following days, Agency staff monitored the impact and provided advice on remedial measures, which involved an extensive operation to remove large volumes of china clay from the river. The company was fined £7,500 with costs of £255 when the case came before magistrates at Bodmin in October 2000.

Hydrochloric Acid discharge – North East Region

The loss of between 18 and 37 tonnes of hydrochloric acid from underground drains at the Tioxide Europe Ltd plant on Teeside, in February 1999, caused considerable damage to the nearby Greenabella Marsh Site of Special Scientific Interest (SSSI) at Seal Sands, Teeside. The plant, at Greatham, produces a range of titanium based products and generates an effluent containing hydrochloric acid. This effluent is transferred to the site effluent treatment plant in underground drains using pumps. In February 1999, as a result of problems with these pumps, they were taken out of use and the system operated by gravity alone. As a consequence, the drains flooded, causing the effluent to leak through cracks in the pipework into the surrounding ground. The acid then travelled with the groundwater flow into the adjacent marsh.

The acid had a considerable impact on the invertebrate life in the marsh, although fortunately the bird life did not appear to have been harmed. The incident highlighted the need for companies to undertake regular maintenance and inspection and to ensure that the systems they rely upon are operating properly. The company faced three charges under the Environmental Protection Act, 1990, when the case came to Teeside Crown Court in December 2000, and were fined a total of £150,000, as well as being ordered to pay Agency costs of £18,710.

At the time of the offence, the company was owned by ICI. It has since been sold to another company, which has announced significant capital investment at the site.

Vegetable processing factory pollution – Anglian Region

A serious pollution incident in July 2000 at North Thoresby, near Louth, Lincolnshire resulted in the deaths of around 3,000 fish in the Louth Canal. Invertebrate life was also killed in the Black Leg Drain. A member of the public first reported a large fish kill at Thorseby Bridge on the Louth Canal. On investigation, the canal appeared to be white and opaque and an area 1km upstream of the bridge had dead fish littering the sides of the waterway and other fish were seen in distress. The source of the pollution was traced to the premises of RVP Foods Ltd, a vegetable processing factory, where ineffective operation of the effluent treatment plant resulted in a poor quality effluent. The factory was processing peas at the time, which produce a strong organic effluent. The discharge of this partially treated, readily degradable effluent resulted in rapid de-oxygenation of the water. A major recovery operation was instigated, and hydrogen peroxide was successfully used to remediate the Louth Canal.

The company was prosecuted in May 2001, fined £50,000 and ordered to pay costs of £12,000. They also spent £200,000 upgrading the treatment plant and £150,000 on clean up procedures as a result of the pollution incident.

Oil Pollution – Midlands

After discovering oil pollution in the Tat Bank Brook at Oldbury, West Midlands, Environmental Protection Officers traced it through a highway drain to a point at which soluble oil was found to be emerging through the road surface. Further investigations identified a leaking underground collection tank at a nearby tubing company. The oil was seeping into the ground and a basement. When the accumulated oil was removed from the basement, a hole was found in a wall through which the oil was leaking. This was enlarged to allow the collection and removal of the oil and trial pits were also dug between the company's boundary wall and the road. These rapidly filled with soluble oil. The company responded to the possible use of a Works Notice by taking the tank out of use and installing a lined system. Investigations are ongoing into the extent of the pollution and the remediation measures required.

2.2.4 Sewage treatment and water

By the nature of their operations, water companies have the potential to cause serious pollution. It is therefore vital that they operate systems that fail-safe and respond appropriately when incidents do occur. Remote alarm systems and automation play a vital part in preventing pollution. However, as companies have increased their reliance on such equipment, its failure has become a common factor in water pollution incidents involving pumping station and sewer discharges. The consequences of such failures can be severe.

Sewage pumping station failure - Southern

In a high profile incident at Eastney, Portsmouth, the consequences of the failure of a major sewage pumping station became very apparent to local residents. Following unusually heavy rainfall on 15 September 2000, the diesel-powered pumps at Eastney foul sewage pumping station were overwhelmed. As a result of the flooding of the station that followed, the pumping equipment was damaged and could not be restarted. In order to prevent local homes being flooded with sewage, temporary pumping facilities were provided by Southern Water, with assistance from the Environment Agency and the fire service. Dilute, untreated sewage was discharged to Eastney Lake for a week before the pumping station was repaired.

As a result of the pollution, there was strong local pressure for the Agency to take legal action against Southern Water. However, legal advice was that, under such emergency circumstances, a successful prosecution was very unlikely because certain statutory defences applied.

If charged with causing polluting matter to enter controlled waters, the defendant would be able to claim that the pollution arose as the result of an extraordinary event, which could not have been foreseen.

In addition, if charged with failure to comply with the discharge consent on the pumping station, the company would have been able to claim a statutory defence, in that the discharge was made in an emergency in order to avoid danger to life and health and that it took reasonably practical steps to minimise the extent and effect of the discharge.

Similarly under the Environmental Protection Act 1990 it is an offence to dispose of a controlled waste in a manner likely to cause pollution to the environment or harm to human health. Once again, there is a statutory defence under emergency conditions.

Fortunately, due to the dilute nature of the discharge, the environmental impact was limited, and the area recovered rapidly once the pumping had stopped.

Sewage pumping failure - North East Region

A number of pollution incidents arising from failures at pumping stations do result in legal action, which can delay their inclusion in this report. In an example that came to court in May 2000, the Wapping Burn, near Peterlee, Co Durham was polluted with sewage and trade effluent. On 16 June 1999, English Nature reported that the burn, which runs into the Castle Eden Dene Nature Reserve was milky white. Agency officers traced the pollution to a discharge from an outfall near to Peterlee pumping station, operated

by Northumbrian Water. Staff from the company who attended confirmed that the discharge was from their site. In court, the company admitted that one of the pumps was blocked and the other not working. The alarms at the station did not operate, due to a wiring problem. The company were fined £2,500 and ordered to pay Agency costs of £1,556.

The Agency prosecuted a number of similar cases throughout its regions during the year.

Oil pollution - South West Region

On December 1, 1999, Wessex Water contacted the Agency to report the loss of 9,000 litres of diesel fuel from a storage tank at its Wimbourne sewage treatment works. The diesel had contaminated the ground and an excavation revealed that it had seeped down 1.8 metres to the water table. The excavation also exposed a feed pipe from the tank 30 centimetres below the ground, which had been cut and left unsealed. When questioned by Agency officers, the company said that they had lost 5,000 litres of oil a couple of weeks earlier. They had assumed it had been stolen, although this was not reported to the police. When a further 4,000 litres was lost, it was found that a connection to the cut pipe had been left open.

Had good engineering practice been employed, the feed pipe would have been isolated, drained and sealed. An adequate investigation into the initial loss of fuel could have prevented the loss of the additional 4,000 litres. The company was prosecuted for this incident, and fined £5,000 in July 2000. In addition, it has had to carry out extensive remedial work on site to recover the oil and protect the groundwater, costing in excess of £80,000 so far.

2.2.5 Other incidents

Flood impact - Southern region

The autumn flooding in 2000 had a major impact on the Environment Protection functions of the Agency, with many officers involved in work to prevent and clean up pollution. In Southern Region, hundreds of industrial sites were visited and staff provided pollution prevention advice and assessed the impact of floodwater on the environment and business activities. There were large numbers of reports of oil pollution and many sewerage systems became surcharged, with consequent premature operation of storm overflows and the discharge of sewage via manholes. Several major foul-sewage pumping stations were out of action and, in some cases, the Agency assisted sewerage undertakers by providing large pumps. There were many reports of dead animals in rivers. During November, springs that had been dormant for many years started to flow as groundwater

reached record levels. This caused problems with underground fuel tanks and sewerage systems, septic tanks and cesspools. Water Supply Companies were given early warning of any potential pollution problems that could affect their sources of supply.

There were 163 reported incidents in the Region attributed to flooding or abnormal weather conditions during the reporting period, of which 81 had an environmental impact, including one Category 1 water incident. This related to the release of waste oil from a garage at Lewes. In excess of 70,000 litres of waste oil/heating oil was recovered. There was extreme damage to over 50 industrial units with total loss of all stocks, products and machines. The majority of the incidents related to sewage discharges, with 56 arising from Water Company sewage systems or pumping stations.

2.3 Land/Waste Management

2.3.1 Flytipping

Flytipping causes damage to the local environment and is costly to clean up. Local authorities and the Agency incur significant costs every year dealing with illegally dumped waste. Such activity also undermines those waste operators who are conducting their businesses legally. Public concern about flytipping is reflected in the number of calls to the Agency hotline and the increase in successful prosecutions as a result. Three examples of such cases are given here.

Sandwell – Midlands

A member of the public alerted the emergency services that approximately thirty (45 gallon) drums had been flytipped on a roadway and pavement by some flats in Tividale, in Sandwell on 19 January 2000. Some of the drums contained acetone and a paint-like substance. The drums were removed by Onyx Total Waste on behalf of Sandwell MBC.

The following morning, a further 150 drums with similar substances, polyester resins and gel coat were discovered at three nearby locations. Although some localised spillage occurred, the impact was minimised by the use of absorbent materials and the blocking of drains to prevent any discharge reaching the watercourse.

A local company took these drums to their site, where Agency officers took samples of the waste. They also checked the batch numbers on some of the drums to try and identify who they had been sold to. The following day, Agency officers working with the local police force visited a company in West Bromwich and it was established that the drums had originated from this site. The producer of the

waste was subsequently fined a total of £1,500 with costs of £750. However, the actual flytippers were never traced.

Bideford – South West Region

On February 16 2000 a Bideford resident noticed a vehicle pull up and unload timber and paint pots at a small sewage treatment works. Concerned neighbours went to check the site and took details of the vehicle. An investigation by Torridge District Council and the Agency resulted in the vehicle being traced. The owner, from Barnstable, pleaded guilty to depositing controlled waste on unlicensed ground and to transporting waste without being registered and was fined a total of £350, with £250 costs in December 2000.

Maidenhead – Thames Region

On 27 October 2000, a passer-by who spotted a skip lorry reverse into a lane in White Waltham, Maidenhead with a loaded skip, and return empty shortly afterwards, noted down the vehicle registration and the mobile phone number on the cab. The number was found in an advertisement for skip hire in the local paper and an Agency officer rang the number and asked for a skip to be delivered. When the driver arrived, the officer and the local police were waiting to question him. The owner of the vehicle subsequently pleaded guilty to one charge of fly tipping and was fined £250 with £360 costs in December 2000.

2.3.2 Illegal waste disposal

Housing construction site – Anglian Region

All companies have a Duty of Care to ensure that waste is properly dealt with. Traditional practices of burning and burial on site resulted in fines and costs in excess of £24,000 for Barratt Homes at Lincoln Magistrates Court on 15 December 2000.

The company pleaded guilty to four charges involving the illegal disposal of waste at their housing development at Bracebridge Heath, near Lincoln between 1999 and 2000. Plastic, wood, carpet and metal were discovered in excavations carried out on the site, which is in an area from which groundwater is abstracted for public water supplies. The Agency was concerned about the potential for pollution of this groundwater by the unauthorised and unregulated deposit of mixed construction waste. During the visits to the site, Agency officers also found mixed waste being burned on site, contrary to waste management regulations.

The company accepted that the waste should not have been buried, and undertook measures to remove it for proper disposal, filling two large containers.

2.4 Air pollution

Air pollution incidents can arise from many sources. An example below relates to a major site regulated under Integrated Pollution Control (IPC).

Coke ovens release – Midlands Region

As a result of an incident at the Dawes Lane Coke Ovens of Corus UK Ltd's Iron and Steelworks, in Scunthorpe, approximately fifty four tonnes of raw coke oven gas was released from the site. A cloud of yellow gas rose from the ovens (see front cover) and was fortunately blown away from the town centre. There were no reports of any demonstrable impact.

Coke oven gas is produced from coal and is normally cleaned using a series of treatments before further use as a fuel on the site. In the event of an emergency, this gas can be vented to the atmosphere through "bleeders", which act as a safety mechanism. Under normal circumstances, such a discharge would only occur for a short duration. At 4.40 pm on 29 June 1999, all six bleeders on the plant opened, and were not finally closed down until 6.00 pm. A number of factors contributed to the incident, including unsatisfactory maintenance of both a pump status light in a control room, a liquid level indicator and inadequate written instructions for configuring the plant following some electrical work.

In the case brought before Scunthorpe Magistrates Court in November 2000, Corus UK Limited pleaded guilty to three counts of failing to comply with the conditions of the IPC Authorisation for the operation. The Agency withdrew a further three counts. The company was fined a total of £37,000 and the Agency's costs of £51,960 were awarded in full.

As a result of the initial investigation, the Agency issued an Enforcement Notice requiring five remedial measures to be completed and a Variation Notice, which set six improvement conditions. The Agency issued a further Enforcement Notice in November 1999 following receipt of correspondence from Corus indicating that they did not believe the incident required formal notification to the Agency. Corus appealed to the Secretary of State against the issue of these three Notices and a Local Inquiry was proposed. However, due to links with the then current investigation, this was delayed and Corus subsequently withdrew their appeals before they were heard.

3 Prevention and Minimisation

This chapter highlights the Agency's proactive pollution prevention and waste minimisation work, along with enforcement initiatives which are aimed at reducing pollution. The Agency is increasingly working with external partners in this area, and the partnership theme is apparent in many of these examples.

3.1 Diffuse water pollution

Over the last 50 years, the principal focus in controlling water pollution has been on "point source" discharges, such as municipal sewage and industrial effluent plants. The Rivers (Prevention of Pollution) Act, 1951, introduced a system of consents for such discharges and there have been dramatic improvements in the quality of these discharges, particularly in recent years. However, pollution of surface and coastal waters and groundwater resources remains a significant problem. The improved quality of point source discharges has revealed an underlying chronic problem from non-point source, or diffuse, pollution. Diffuse pollution comes from a wide range of sources, both rural and urban. In the rural environment, for example, pesticides and fertilizers can seep from soil into groundwater and soil erosion can have a dramatic impact on surface waters. In the urban environment, surface run-off from paved areas is contaminated with oil, silt, organic wastes and a wide range of small discharges from activities such as vehicle and wheelie-bin cleaning.

A two-year project to identify the impacts of diffuse pollution in the UK, reported in the Autumn of 2000. The report, "Diffuse pollution impacts – The environmental and economic impacts of diffuse pollution in the UK", was published by the Chartered Institution of Water and Environment Management and the International Water Association. The project was funded and supported by the Environment Agency, the Scottish Environment Protection Agency and the Scotland and Northern Ireland Forum for Environmental Research. The report is based around chapters on individual pollutants, such as oil and hydrocarbons, pesticides and suspended solids and endeavours to identify the sources of the pollution and to quantify the environmental and economic impacts of each. The financial costs of diffuse pollution can be significant. For example, treating pesticide contamination alone is estimated to be costing the water companies £500 million a year.

The report recognises that conventional regulatory action can not effectively control diffuse pollution. A wide range of approaches, from legislation through to education, will be required in order to tackle diffuse pollution at source. The report identifies the Water Framework Directive, agreed in June 2000, as the best opportunity for the regulatory

control of diffuse pollution. The Directive will require the setting of chemical and ecological objectives for water quality. In order to achieve these, a legally binding programme of measures set out in River Basin Management Plans will have to be developed. The Directive requires that diffuse water pollution is tackled by what are known as "Basic" and "Supplementary" measures. Basic Measures include such things as legislation, regulations and authorisations, but where these are not appropriate to address diffuse pollution, member states can consider the use of Supplementary Measures such as education, negotiated agreements, codes of practice and general binding rules to improve ecological status. It is likely that many forms of diffuse water pollution will be tackled by a combination of both types of measures. The Directive also requires that member states should have in place measures to reduce the number of incidents of water pollution.

3.2 National initiatives

3.2.1 Oil Care Campaign

Following a successful bid to the Hanson Environment Fund for landfill tax funding by the National Household Hazardous Waste Forum, a full time Oil Care Campaign co-ordinator was appointed in March 2000. The UK Petroleum Industry Association and British Lubricants Federation have provided funding and the Environment Agency provided 'in kind' support to the campaign. Significant progress followed the appointment, with a particular focus on waste engine oil from DIY car servicing. A new web based service (www.oilbankline.org.uk) providing information on the location of oil banks was established and a number of new oil banks were positioned in collaboration with local authorities and Halfords. A high profile launch of the campaign in October generated both publicity and support for the campaign, and subsequently the Hanson Environment Fund announced that they would support the campaign for a further year. A new leaflet, supported by Conoco, OFTEC and the Federation of Petroleum Suppliers was also published in October. This identifies the risks associated with the storage and delivery of central heating fuel at domestic premises and provides guidance on suitable pollution prevention measures. The campaign is managed through a steering group, which has representatives of the oil industry, regulators, local authorities and the retail sector.

3.2.2 The Construction Industry

The construction industry has, in recent years, topped the table of industrial water pollution incidents. It is also a major producer of waste, accounting for 30% of all UK waste. A wide range of leaflets, posters, guidance notes, case

studies, manuals and training resources, including videos, which aim to reduce the environmental impact of the industry have been produced in recent years. Although these have been adopted successfully by "leading edge" companies, many thousands of small to medium sized companies have yet to respond.

The construction industry is one of the largest industrial sectors in the UK. It employs 1.5 million people in 180,000 companies with a turnover accounting for about 10% of Gross Domestic Product. The sector is characterised by approximately 25 major companies (forming the Major Contractors Group - MCG), 200 medium sized companies and a large number of small companies. Many of these are linked to larger construction projects as contractors and specialist sub-contractors.

This campaign, announced by Chris Hampson, the Agency's Deputy Chairman during Construction Week in April 2000, aims to work in partnership with the leading edge companies and the industry confederations to cascade "environmental best practice" through the supply chain to their sub-contractors.

3.2.3 Waste Tyres

Dealing with 40 million scrap tyres each year is a major environmental issue for England and Wales. In 1998, the Agency published a report titled 'Tyres in the Environment'. The report described the current situation relating to tyres and the environmental impact of scrap tyres. It recommended that action be taken to find a more sustainable solution to the problem of scrap tyres.

Over a period of approximately 18 months, the Agency has had over 1,000 reports concerning tyres and as many as 400 have involved fires, with the consequential risk to land, air and water. The problem is particularly acute in the Midlands, the North East and North West regions. Several Agency operational teams had instigated local campaigns to address the proliferation of illegally disposed tyres. However, the need for a co-ordinated approach, through a national campaign was clear. The Agency has, therefore, appointed a Tyres Campaign manager, who will develop a national strategy for dealing with scrap tyres and a campaign to tackle illegal tyre disposal. The Agency is actively seeking resources from potential partners and hopes to launch the campaign in the autumn 2001.

3.2.4 Farming Best Practice

As a direct output from the national research and development programme, the Environment Agency has produced a booklet entitled "Best Farming Practices: Profiting from a Good Environment". The booklet provides

an integrated approach to dealing with water pollution, flooding, water resources and impacts on fisheries and biodiversity. The booklet was written with the help and encouragement of farmers and focuses on the benefits of good agricultural practice to farmers. The principal finding of the research and development is that good environmental practice is the same as good agricultural practice and that both farmers and the environment have a lot to gain.

As part of the research the booklet was sent out to consultation to farmers and the feedback has highlighted that farmers prefer to work with regulators in partnership and they are concerned that we do not understand their husbandry problems. Similarly farmers are largely unaware of our concerns and we need to work with them to raise awareness and bring about good practice.

We are still developing plans to get Best Farming Practices adopted by the farming community, but the aim is to work with farmers and to train our own staff to raise awareness of the all the issues. Initially, during 2001, this work is likely to involve local campaigns and partnerships with the farming community, the Agency and other farming and environmental advisers. We will also be publishing the information through the Agency website.

3.2.5 Groundwater Hydrocarbons Campaign

As part of the statutory pollution prevention work funded by Government under the Groundwater Regulations, the Agency has focused on hydrocarbons, in particular in relation to petrol filling stations.

Working through the Oil and Water Liaison group, chaired by the Institute of Petroleum, the oil industry was consulted on the proposed campaign. As a result, some oil companies worked with the Agency, organising seminars for Agency staff to familiarise them with the operation of petrol stations. The Petrol Retail Association (PRA), which represents the independent operators, organised a series of member meetings, offering the Agency the chance to explain to independent operators the pollution potential from petrol stations.

Site visits have been targeted using simple risk ranking in order to make the best use of the available resource. Sites in Groundwater Protection Zones have been targeted and a GIS-based risk ranking tool was developed to further refine site targeting. This takes into account environmental vulnerability and site details such as age and number of tanks on site. Petrol filling stations are already regulated by the Petroleum Licensing Authority for health & safety and trading standards purposes and a number of Local Authorities assisted with the provision of data for this exercise.

Agency staff have engaged with local Petroleum Licensing Officers in order to minimise duplication of effort and to minimise the impact of the site visits on operators. In NW Region, an Operating Agreement has been developed between the Agency and the local Petroleum Licensing Authorities. This aims to share relevant information, to ensure a speedy response to incidents, to target resources at sites which pose a significant hazard, and to avoid over regulation at sites which pose less of a risk. If successful in the Region, it is hoped that a similar agreement can be adopted throughout England and Wales.

3.2.6 Low Hazard Marking scheme

As a result of a number of major water pollution incidents caused by spillages of substances such as foodstuffs and organic wastes, the Environment Agency sought support for a voluntary marking scheme to cover the bulk transport of such non-hazardous products with a high pollution potential. Although considered to pose little or no hazard to humans, substances such as milk, water-based paint and liquid sugar can cause serious pollution if they enter a watercourse.

The emergency services, manufacturers and the haulage industry supported the idea, and representatives from these groups and the Agency formed a Steering Group to develop the scheme. This Group agreed to base it on the widely used 'Black and White' marking scheme, originally developed by the Chemical Industries Association, to cover the bulk transport of Low Hazard Chemicals. This had the advantage of simplifying the scheme's introduction and avoiding confusion, although to take account of the different requirements of the industry sectors covered, such as the food industry, some small alterations were made.

The Group finalised the details of the scheme early in 2000 and a Guidance Booklet, entitled "New Black and White Scheme for non-Hazardous Substances" was produced. Following a successful trial by Express Dairies, the scheme and the booklet were launched at the Commercial Vehicles Show at the NEC on 20 March 2001.

Although the scheme is voluntary, we hope that it will be widely adopted, as it's implementation will allow the emergency services to respond more quickly and effectively to spillages of low/non hazardous products. This will assist them in preventing or minimising pollution and will also benefit haulier and manufacturers in reduced costs associated with clean up operations.

3.2.7 Netregs

Small and Medium-sized Enterprises (SMEs) are a significant source of pollution incidents accounting for over

50% of all incidents. A number of surveys have shown that most SMEs are unaware of their environmental responsibilities and apprehensive about contacting regulators for advice. SMEs are defined as those businesses with less than 250 employees and often have great difficulty in obtaining advice on the environmental regulations that apply to their operations. Working with SEPA and the Northern Ireland Environment and Heritage Service, the Agency has developed a new resource called NetRegs (www.environment-agency.gov.uk/netregs), to provide environmental information through the Internet for SMEs. Following discussions with trade associations, businesses and environmental-help organisations it became clear businesses want to be told what to do in a clear, user-friendly way. NetRegs has therefore been designed to give practical, sector-specific advice on how to comply with environmental legislation from the perspective of a small-business owner, in plain, common sense, practical language.

NetRegs is an interactive service, inviting visitors to leave their e-mail address. Each time NetRegs is updated, these businesses receive an automated message, informing them of updates and new features. Businesses are also asked to complete a feedback form on the quality and relevance of information—and the use of the Internet as a communication tool in order to develop and improve the service.

As this service develops the Agency is looking to achieve a reduction in the number of pollution incident from SMEs.

3.3 Other initiatives

3.3.1 Targeted enforcement in Wales

An increase in illegal waste disposal and fly tipping in recent years has raised concern in Wales. Illegal waste management activities have caused damage to areas of conservation value, risks to water quality and in some cases long term blight to land. The Landfill tax has significantly increased the costs of waste disposal at licensed sites and the profits from illegal waste disposal have increased accordingly. Experience in Wales has indicated that some individuals involved in other forms of criminal activity are now exploiting such opportunities.

In response to the concerns of community groups and the waste management industry, Environment Agency Wales supplemented its regulatory effort with staff in 3 Area based teams dedicated to dealing with the problem. These teams have collected information on some of the most serious activities, using a range of methods including aerial and covert surveillance work. By working with other

enforcement agencies, such as the Police and Customs and Excise, the Agency has identified a number of unlicensed waste operators and further damage has been prevented. The campaign, started in November 1999, has doubled the number of waste prosecutions in Wales (from 24 prosecutions in 1999 to 48 in 2000). Notable penalties imposed by the courts include substantial fines (for example a £48,000 fine for a waste operator and his son in December 2000) and suspended custodial sentences. The Agency has also obtained injunctions to prevent ongoing criminal activity.

In recognition of the importance of this work, the National Assembly for Wales has agreed to provide an additional £200,000 to Environment Agency Wales for 2001/02. This will enable the Agency to maintain the current level of activity and will help to prevent further degradation of landscape and environmental quality. This is particularly so in the areas where substantial investment is being made to reverse the impact of earlier, historical environmental damage and where further inward investment may be deterred. It is in these recovering areas, where there are existing unemployment and other difficulties, that the problem appears to be most acute. In addition to environmental benefits, it is important to reduce the cost of clean-ups, currently paid for by local authorities, the Agency and private landowners. These are estimated to be well in excess of £1 million per year in Wales.

3.3.2 Sustainable Drainage Systems

One of the major contributory factors to the problem of diffuse pollution in the urban environment is the way that conventional drainage systems operate. Most existing surface water drainage systems are designed to capture rainfall and remove it as rapidly as possible from impermeable surfaces, such as roofs, car parks and roads. As a consequence, there is an increased risk of flooding, poor water quality, impoverished flora and fauna, reduced recharge to underground aquifers and impaired amenity for local residents. There are a range of alternative techniques, referred to as Sustainable Drainage Systems (SuDS), which can reduce or eliminate these adverse impacts. These are described in outline in a booklet entitled "Sustainable Urban Drainage – an introduction", published by the UK environmental regulators. The lack of a design manual has been a significant barrier to the widespread adoption of SuDS. The publication of "Sustainable Urban Drainage – design manual for England and Wales" by CIRIA in 2000, is a major step forward. This was produced as part of a major project on the subject in which the Agency has played an important part. A CIRIA best practice guide is planned for autumn 2001.

The Agency has also worked with SEPA, the Institution of Civil Engineers and the Urban Design Alliance to produce a video on SuDS. "Designs that hold water" runs for 2.5 minutes and is intended for use with developers and local authority planners. It explains the need for change in drainage practices, the operation of SuDS and their benefits. Copies of the video are available, free of charge, through the Agency Video Line, 08457 337700.

In order to improve understanding of SuDS within the Environment Agency and to ensure that staff would be in a position to promote their use, a training programme was implemented in the Autumn of 2000. The Agency is also developing a formal policy position statement on SuDS.

3.3.3 Liaison with the fire services

The Agency's partnership with the Fire Service has continued to make a real difference, with significant and measurable environment protection benefits. The speed of Fire Service response, coupled with the use of Agency supplied 'Grab Packs' of environment protection equipment (now carried on most fire appliances) and appropriate training of fire crews, has resulted in the prompt containment of many potentially serious incidents and the prevention or minimisation of environmental damage.

Following the signing of the Protocol between the Local Government Association and the Environment Agency on Fire Service issues, the Agency has begun to develop local working arrangements with each brigade. These arrangements will ensure that Protocol agreements are in place and that Agency Environment Protection Officers and Fire Service Incident Commanders continue to work together effectively at the scene of an incident. A greater appreciation of issues, roles, responsibilities and capabilities of both parties has made the Fire Service an invaluable partner in environmental protection.

Agency officers have continued to support and develop the Hazardous Materials and Environment Protection (HMEP) courses run at the Fire Service College, Moreton-in-Marsh. The number of officers being sent by brigades to obtain the HMEP qualification is a further reflection of the importance given to environmental protection by the Fire Service and their continuing commitment to the partnership. London Fire Brigade worked with the Agency to train over 50 specialist senior London fire officers in environment protection, partly in preparation for the introduction of over 185 grab packs by the brigade. Protecting London's environment will become an increasing priority at incidents attended by the brigade.

3.3.4 Industrial Estate Good Environmental Practice Guide

"A Guide to Good Environmental Practice for Trading Estates and Business Parks" has been produced to provide a framework under which tenants and landlords can work together to increase business efficiency and understand and protect the environment. Developed by the Agency in partnership with Staffordshire University and Business in the Environment, the guide identifies the benefits of companies working together on trading estates and business parks. It then provides practical guidance on how partnerships can be developed and maintained and gives information on sources of further help (see Appendix C for details).

3.3.5 Plastic recycling scheme

Following the success of a scheme set up by South Lakeland District Council in a partnership with the Agency to collect waste plastic material from local farms, a Cumbria wide scheme has been established. The Cumbria Farm Plastics Scheme collects silage wrap, sheets and other farm plastic for recycling. The scheme was established by a broad partnership, involving the National Farmers Union, Farming and Wildlife Advisory Group, local councils, the Environment Agency and Cumbria Waste Management Environment Trust. Collections are organised from auction marts around the county, although collections direct from farms can be arranged where there is enough material. The plastic is used to produce a range of products, such as benches, bollards and decking suitable for marine and freshwater use. In the first 12 months, nearly 800 tonnes of plastic was recovered. In some cases, farmers had accumulated plastic for as much as ten years. Without the option to recycle the plastic, it may be buried, burned or otherwise disposed of, possibly illegally and can cause long term environmental harm.

3.3.6 Publications

The three environmental regulators in the UK, the Environment Agency, Scottish Environment Protection Agency (SEPA) and the Northern Ireland Environment and Heritage Service work closely on pollution prevention issues. The series of pollution prevention guidance notes (PPGs) published by the Agencies was expanded in March 2000 with the addition of three new titles, which deal with pollution incident planning (PPG21), stables, kennels and catteries (PPG24) and hospitals and healthcare establishments (PPG25). Consultation on a further new guidance note on the storage and use of drums and intermediate bulk storage containers was undertaken in 2000. All the Pollution Prevention Guidance notes may be found on the Agency's web site (www.environment-agency.gov.uk) under guidance for industry.

Bilingual Welsh/English versions will be found on www.asiantaeth-amgylchedd.cymru.gov.uk or on www.environment-agency.wales.gov.uk.

The Agency published a new leaflet outlining the operation of its powers under the Anti-Pollution Works Regulations 1999 in March 2000. The Agency republished its leaflet on the problem of wrong connections in drainage systems, "Making the right connection", jointly with SEPA. The Agency supplemented its range of waste minimisation resources with a booklet called "Waste Minimisation – getting staff involved", providing guidance on involving staff at all levels with site waste minimisation initiatives and a range of useful supporting posters. The posters may also be downloaded from the Agency's web site. A full list of pollution prevention and waste minimisation publications, along with details of how they may be obtained, appears in Appendix C.

3.3.8 Fluid fertilisers – Anglian Region

In recent years, Anglian Region has suffered from a series of serious pollution incidents attributed to spillages and losses of fluid fertiliser, a material that is very toxic to aquatic life, including fish. The Region has worked with the Fertiliser Manufacturers Association (FMA) to develop best practice guidance for farmers on storage and use of fluid fertilisers to avoid pollution. However, in 2000 there were 6 incidents in the Region, several of which were attributed to serious corrosion of pipework associated with storage tanks. As a result, the Region is targeting the risk through the development of a formal inspection and maintenance regime for tanks and pipework, in order to detect corrosion problems before they become critical. This will be developed with the FMA in conjunction with tank manufacturers, suppliers and the fertiliser industry. The need for more 'user friendly' guidance was identified, so a simple leaflet and supporting tank sticker are being produced.

4 Analysis of incidents

4.1 Introduction

Members of the public report the majority of incidents through the Agency's 24 hour a day pollution hotline, 0800 80 70 60. A significant proportion of calls are also received from the fire services, notifying the Agency of incidents such as major fires and road traffic accidents that may require advice and assistance from Agency staff. In some cases, site operators or contractors contact the Agency, following accidents as a result of their activities. Such self-notification provides the Agency with an opportunity to provide advice and assistance at the earliest possible stage of an incident, which in some cases can reduce or even prevent any environmental impact.

As members of the public report the majority of incidents, the types of pollution reported are predominantly those with the greatest visual impact, such as fly tipping, dark or odorous atmospheric emissions or the pollution of water by oil, silt and dyes. If a pollutant is not visible, or produces no visible impact, such as a fish kill, it is unlikely to be reported. For example, pollution from sheep dip is often only identified as a result of biological surveys, because it cannot be seen and rarely kills fish immediately.

One further factor that will affect the number of reports is awareness of who is responsible for dealing with pollution. Someone who sees pollution needs to know who to contact, and although a great deal of effort has been made to publicise the pollution hotline, it is inevitable that some people will not know what to do if they see pollution and will not report it. As a result of the above factors, the extent of episodic pollution in England and Wales is probably underestimated in this report.

The assessment of the cause and severity of an incident is not always straightforward, due to the great diversity in polluting materials and the diffuse nature of many pollution incidents. Delays in incident reporting by the public, or finding that the polluting discharge or emission has stopped before the arrival of Agency staff, often make it difficult or impossible to substantiate an incident. It is important that the Agency is notified as promptly as possible in order that appropriate measures to minimise the effect of the incident and to catch the polluter are taken.

Although this report contains details of the types and sources of pollution, it does not evaluate the causes of pollution. In many cases it is not possible to trace the source or identify the cause, often due to delayed reporting. Where such information is available, there are usually a number of contributing factors, without any one of which pollution would not have occurred.

4.2 All reported incidents

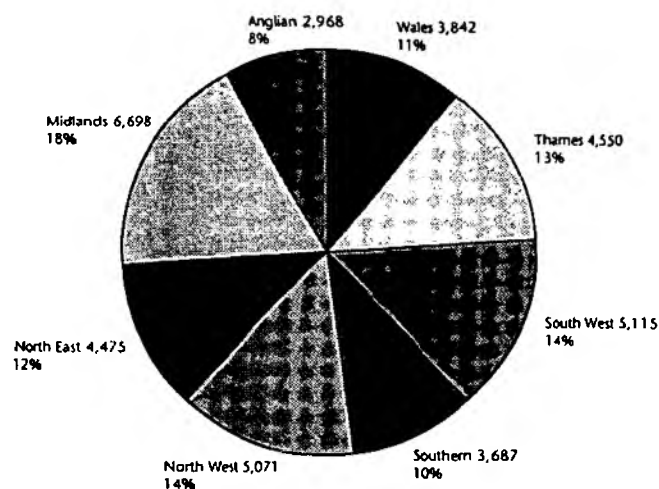
In the following analysis, percentages have been rounded up or down to the nearest whole number.

During 2000, 47,840 environmental incidents were reported to the Environment Agency. Each report was investigated and every effort made to substantiate and identify the cause and nature of the incident. 36,406 of these incidents (76% of those reported) were substantiated, that is, there was evidence that an incident had occurred. There were 77 Category 1 incidents affecting water, 8 affecting land and 14 air. For the definition of incident categories, see Appendix A.

4.3 Regional distribution

Climate, topography, population and local economic activity have a strong influence on the number and type of incidents in each region. The regional distribution of incidents for 2000 are shown in Table 1, which is divided into sections for water, land and air and includes Categories 1-4. Data on unsubstantiated incidents are also shown. Midlands Region had the highest proportion of incidents (18%) following a 39% increase since 1999. North East Region recorded a 78% increase, Thames 52% and Southern Region 22%. Anglian (-6%), South West (-4%) and North West (-12%) all had less incidents than in 1999. In 1999 the proportion of incidents in Midlands has shown a sharp decline and in North West and Southern a noticeable increase. If Category 1-3 water incidents are considered, the number appears to have increased by 2%, from 14,374 in 1999 to 14,662. This follows a 20% decrease from 17,863 in 1998.

Figure 1 Total number of Category 1-4 pollution incidents by Agency region, 2000



All incidents total: 36,406

Table 1 Total number of pollution incidents in 2000 by receiving medium and incident category

| Region | Anglian | Midlands | N East | N West | Southern | S West | Thames | Wales | Totals |
|------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|
| Water | | | | | | | | | |
| Cat 1 | 9 | 14 | 10 | 9 | 5 | 7 | 16 | 7 | 77 |
| Cat 2 | 62 | 105 | 98 | 86 | 89 | 91 | 117 | 110 | 758 |
| Cat 3 | 1,298 | 2,987 | 1,714 | 1,662 | 1,446 | 2,196 | 1,246 | 1,278 | 13,827 |
| Total 1-3 | 1,369 | 3,106 | 1,822 | 1,757 | 1,540 | 2,294 | 1,379 | 1,395 | 14,662 |
| Cat 4 | 1,599 | 3,592 | 2,653 | 3,314 | 2,147 | 2,821 | 3,171 | 2,447 | 21,744 |
| Land | | | | | | | | | |
| Cat 1 | 2 | 2 | 0 | 2 | 0 | 0 | 2 | 0 | 8 |
| Cat 2 | 22 | 28 | 31 | 45 | 21 | 16 | 22 | 27 | 212 |
| Cat 3 | 540 | 1,677 | 1,244 | 1,242 | 902 | 997 | 746 | 692 | 8,040 |
| Total 1-3 | 564 | 1,707 | 1,275 | 1,289 | 923 | 1,013 | 770 | 719 | 8,260 |
| Cat 4 | 2,404 | 4,991 | 3,200 | 3,782 | 2,764 | 4,102 | 3,780 | 3,123 | 28,146 |
| Air | | | | | | | | | |
| Cat 1 | 0 | 1 | 3 | 6 | 2 | 0 | 0 | 2 | 14 |
| Cat 2 | 6 | 14 | 8 | 130 | 8 | 11 | 14 | 27 | 218 |
| Cat 3 | 171 | 822 | 392 | 523 | 477 | 328 | 203 | 728 | 3,644 |
| Total 1-3 | 177 | 837 | 403 | 659 | 487 | 339 | 217 | 757 | 3,876 |
| Cat 4 | 2,791 | 5,861 | 4,072 | 4,412 | 3,200 | 4,776 | 4,333 | 3,085 | 32,530 |
| Total | 2,968 | 6,698 | 4,475 | 5,071 | 3,687 | 5,115 | 4,550 | 3,842 | 36,406 |
| Unsubstantiated | 805 | 2,502 | 1,751 | 1,389 | 837 | 1,341 | 1,363 | 1,446 | 11,434 |

4.4. Distribution by source of pollution

Where possible, both the source of any pollution and the type of pollutant are identified and recorded. The source of pollution is reported in seven categories: agriculture, industrial, sewage and water industry, transport, waste management facilities, domestic and residential and "other". "Other" sources include hospitals, crown-exempt sites, and incidents where the source was not traced. Waste management facilities is a new category, included under "industry" in previous reports.

Figure 2 Distribution of Category 1-4 pollution incidents by source, 2000

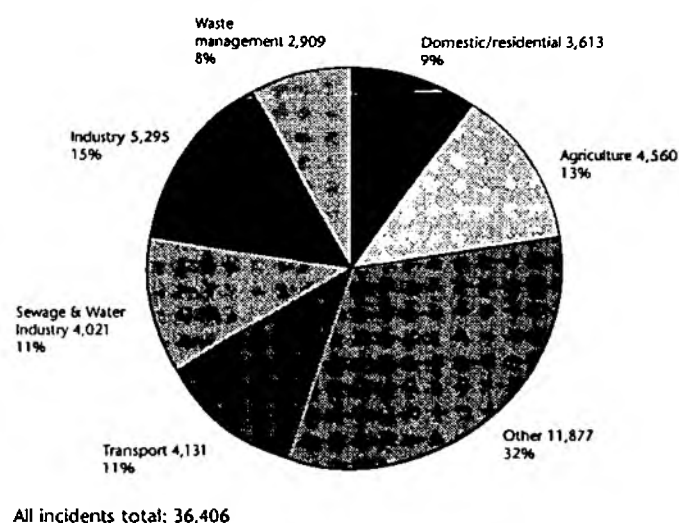


Table 2 Substantiated (Category 1-4) incidents by source, 2000

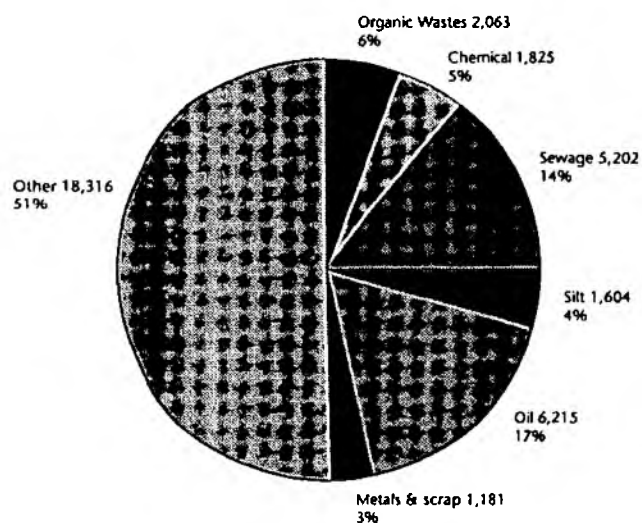
| Region | Agricultural | Industrial | Sewage & water | Transport | Waste management facilities | Domestic/residential | Other source | Total | Percentage of total incidents |
|-------------------|--------------|--------------|----------------|--------------|-----------------------------|----------------------|---------------|---------------|-------------------------------|
| Anglian | 372 | 360 | 322 | 294 | 140 | 414 | 1,066 | 2,968 | 8% |
| Midlands | 688 | 1,022 | 759 | 1,047 | 641 | 429 | 2,112 | 6,698 | 18% |
| North East | 423 | 617 | 701 | 399 | 329 | 362 | 1,644 | 4,475 | 12% |
| North West | 769 | 972 | 333 | 477 | 508 | 279 | 1,733 | 5,071 | 14% |
| Southern | 427 | 628 | 520 | 388 | 220 | 631 | 873 | 3,687 | 10% |
| South West | 1,059 | 610 | 638 | 560 | 249 | 628 | 1,371 | 5,115 | 14% |
| Thames | 242 | 379 | 388 | 726 | 321 | 608 | 1,886 | 4,550 | 13% |
| Wales | 580 | 707 | 360 | 240 | 501 | 262 | 1,192 | 3,842 | 11% |
| TOTAL | 4,560 | 5,295 | 4,021 | 4,131 | 2,909 | 3,613 | 11,877 | 36,406 | |
| Percentage | 12.5% | 14.5% | 11% | 11% | 8% | 10% | 33% | | |

4.5 Distribution by type of pollutant

For the purposes of this report, pollutant types were also split into seven categories: fuels and oils, sewage, chemicals, organic wastes, scrap metals, silt and "other" types. "Other" types include pollutants that do not fit into the other categories, for example vehicle washings, natural causes, litter and incidents where the pollutant was not identified. Scrap metal is a new category, included in the "other" category in previous reports.

The largest number of pollution incidents identified by type were fuels and oils (17%), followed by sewage (14%). The "other" type category accounted for 50% of incidents. The regional breakdown of pollutant types is shown in Table 3.

Figure 3 Distribution of substantiated pollution incidents by type, 2000



All incidents total: 36,406

Table 3 Substantiated (Category 1-4) incidents in 2000 by type of pollutant

| Region | Organic wastes | Fuels and oils | Sewage | Metals and scrap | Chemicals | Silt | Other types | Total | Percentage of total incidents |
|-------------------|----------------|----------------|--------------|------------------|--------------|--------------|---------------|---------------|-------------------------------|
| Anglian | 120 | 684 | 490 | 77 | 174 | 70 | 1,353 | 2,968 | 8% |
| Midlands | 414 | 1,528 | 848 | 279 | 440 | 133 | 3,056 | 6,698 | 18% |
| North East | 194 | 605 | 727 | 266 | 237 | 194 | 2,252 | 4,475 | 12% |
| North West | 275 | 640 | 460 | 87 | 186 | 262 | 3,161 | 5,071 | 14% |
| Southern | 119 | 631 | 724 | 86 | 119 | 141 | 1,867 | 3,687 | 10% |
| South West | 607 | 882 | 883 | 144 | 176 | 393 | 2,030 | 5,115 | 14% |
| Thames | 78 | 850 | 604 | 110 | 209 | 181 | 2,518 | 4,550 | 13% |
| Wales | 256 | 395 | 466 | 132 | 284 | 230 | 2,079 | 3,842 | 11% |
| TOTAL | 2,063 | 6,215 | 5,202 | 1,181 | 1,825 | 1,604 | 18,316 | 36,406 | |
| Percentage | 6% | 17% | 14% | 3% | 5% | 4% | 50% | | |

4.6 Water Pollution

Prior to and including 1990, only data for reported incidents were available. To maintain continuity, Figure 4 shows reported incidents from 1990 to 2000 in England and Wales, with the proportion due to unsubstantiated and Category 4 incidents identified.

The trend in pollution incidents by source since 1994 is shown in Figure 5. It shows a reduction in the number of substantiated incidents until 1999, when there were sharp increases due to the inclusion of Category 4. Data for 2000 show increases in incidents from all sources. Data for domestic and residential sources were not collected separately prior to 1995.

The trend in pollution incidents by type since 1994 is shown in Figure 6. The overall increase in the number of substantiated incidents over time is reflected in each type category. The number of incidents recorded as "other" type increased sharply in 1999, largely as a result of the introduction of the temporary incident recording system.

Figure 5 Trends in the number of pollution incidents by source, 1994-2000

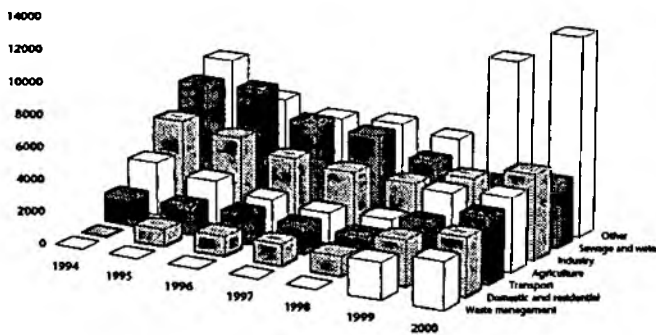
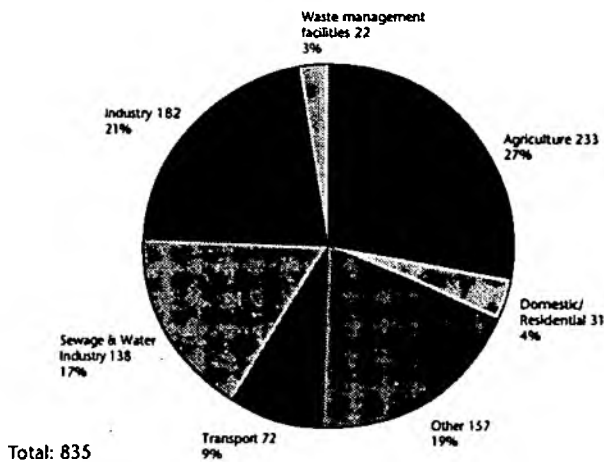


Figure 7 Category 1 and 2 water pollution incidents by source, 2000



Of the total of 36,406 substantiated incidents in 2000, 77 were classified as Category 1 (Major), the lowest number recorded. This compares to 90 in 1999 and 128 in 1998 and continues the trend of reduction in Category 1 incidents.

Figure 4 Water pollution incidents in England and Wales, 1990-2000

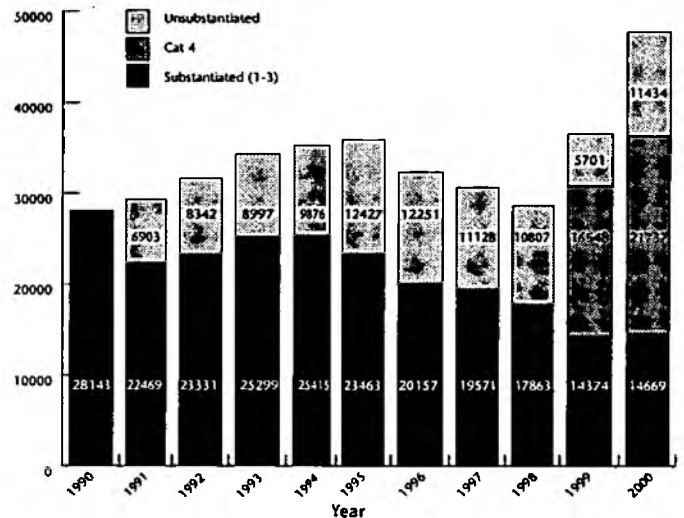


Figure 6 Trends in the number of pollution incidents by type, 1994-2000

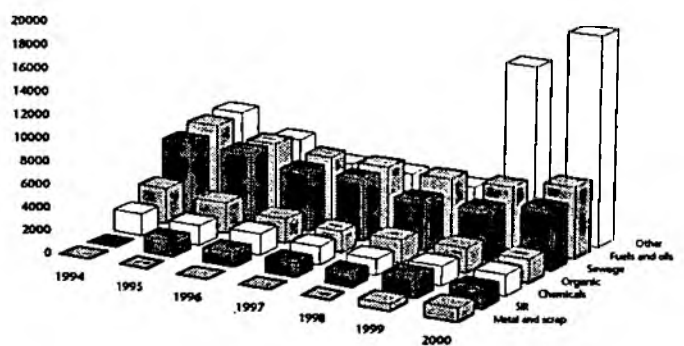
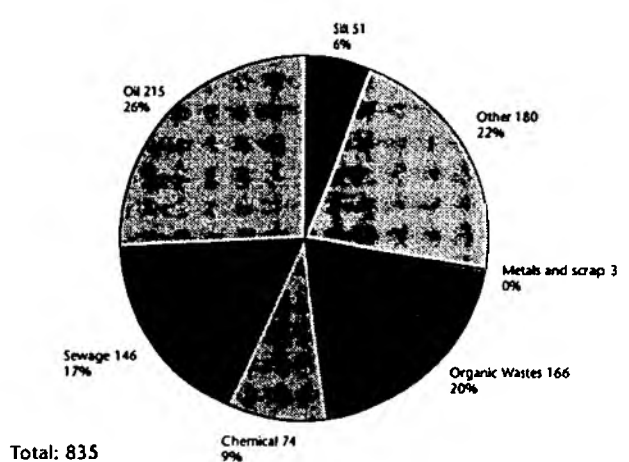


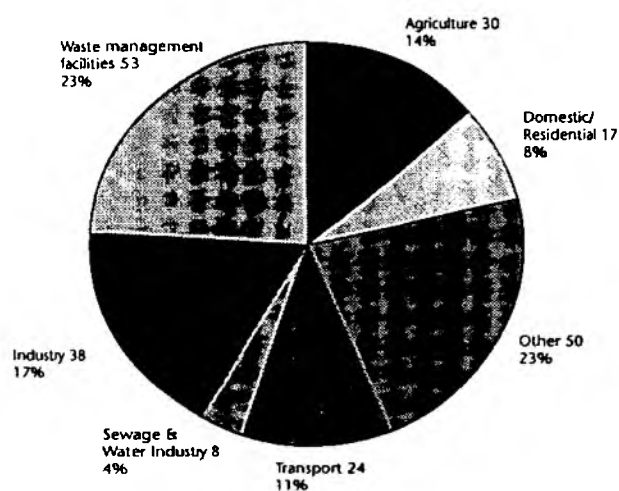
Figure 8 Category 1 and 2 water pollution incidents by type, 2000



Land Pollution

Land pollution has not been reported in previous reports. There were 8,260 Category 1-3 land pollution incidents, with 8 Category 1 and 212 Category 2 (see Figure 9).

Figure 9 Category 1 and 2 land pollution incidents by type, 2000

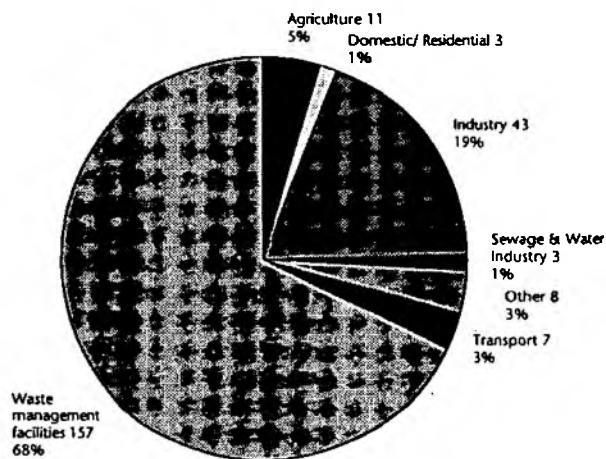


Total: 220

Air Pollution

Air pollution incidents have not been recorded in previous reports. There were 3,876 Category 1-3 air pollution incidents, with 14 Category 1 and 218 Category 2 (see Figure 10).

Figure 10 Category 1 and 2 air pollution incidents by type, 2000



Total: 232

5 Analysis of incidents by source

In this chapter, data on pollution incidents are presented in relation to the economic sector from which they arise. The structure is based on previous reports, with the addition of a separate section for waste management activities (included in the "Industrial" heading in earlier reports), but now covers all receiving media. Each section provides a table showing data for the last seven years and a bar chart indicating the number of incidents by sub-sector and receiving medium. In each case, the table shows Category 1-3 water only pollution incidents up to and including 1998. Data for 1999 and 2000 is for Category 1-4 incidents and therefore also includes data for incidents affecting land and air. Because of the lack of historic data, comments on the trends in incidents relate only to water pollution.

5.1 Agricultural pollution incidents

In 2000 a total of 4,560 substantiated (Category 1-4) pollution incidents arose from agricultural sources, accounting for 12.5% of all incidents (14% in 1999). Of these, 2,104 Category 1-3 incidents affected water, 1,156 land and 293 air.

The distribution of agricultural incidents by source is shown in Figure 11. This shows separate bars for water, land and air pollution for each source. The dairy sector once again had the largest number of incidents, the majority affecting water. The numbers for the fish and shellfish sector have been increased due to the inclusion of incidents at fishing lakes and fish farms that may have been due to natural pressures, such as low levels of dissolved oxygen. These would have been recorded under "Natural" in reports prior to 1999.

Note: Issues relating to the outbreak of Foot and Mouth will be reported in the 2001 Incident Report. The latest information on this can be found at www.environment-agency.gov.uk/vourenv/footandmouth.

Table 4 shows the number of pollution incidents in each region from 1994 to 2000. The large increase in the number agricultural incidents in 1999, from 2,050 in 1998 to 4,254, is due to the inclusion of Category 4 incidents. The underlying trend for water pollution incidents may be obtained by considering only Category 1-3 incidents. These were up by 4% in 1999 (to 2,152), but decreased slightly in 2000 (by 2% to 2,113). The year 2000 was exceptionally wet, which would be expected to cause difficulties for farmers, due to increased volumes of water in dirty water and slurry systems combined with land being inaccessible for slurry spreading. In addition, there were a large number of incidents involving soil erosion and the run-off of silt. However, the impact of any discharges may have been minimised by the large dilution available. The number of Category 1 water incidents is the lowest ever recorded for the sector. However, agricultural pollution now accounts for

Figure 11 Substantiated agricultural pollution incidents by source, where classified, 2000

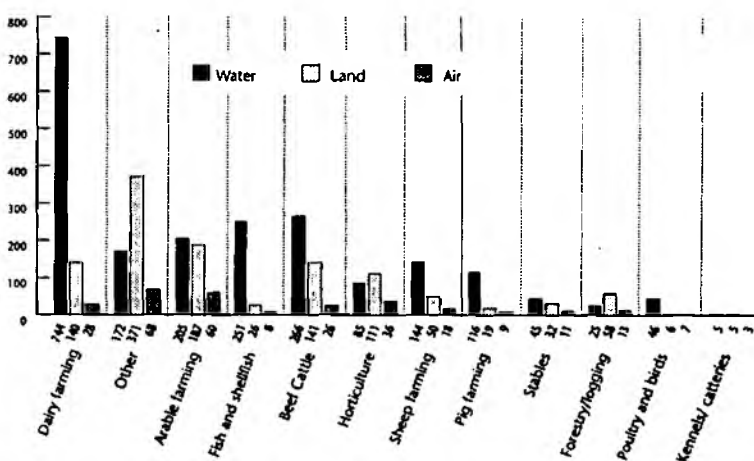


Table 4 Total agricultural pollution incidents by region, 1994-2000

| | 1994 | | 1995 | | 1996 | | 1997 | | 1998 | | 1999 | | 2000 | |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | Sub | Cat 1 | Sub | Cat 1 | Sub | Cat 1 | Sub | Cat 1 | Sub | Cat 1 | Sub | Cat 1 | Sub | Cat 1 |
| Anglian | 326 | 1 | 212 | 1 | 200 | 2 | 193 | 1 | 189 | 0 | 340 | 1 | 372 | 2 |
| Midlands | 409 | 8 | 371 | 2 | 410 | 7 | 407 | 6 | 418 | 2 | 601 | 4 | 688 | 4 |
| North East | 396 | 5 | 220 | 7 | 166 | 0 | 170 | 4 | 190 | 5 | 247 | 2 | 423 | 5 |
| North West | 403 | 8 | 312 | 6 | 275 | 8 | 255 | 12 | 321 | 4 | 756 | 6 | 769 | 2 |
| Southern | 126 | 2 | 123 | 3 | 95 | 2 | 101 | 3 | 115 | 2 | 430 | 1 | 427 | 0 |
| South West | 1,025 | 9 | 975 | 6 | 583 | 6 | 407 | 6 | 483 | 4 | 1,167 | 6 | 1,059 | 4 |
| Thames | 100 | 1 | 115 | 0 | 93 | 1 | 89 | 1 | 70 | 2 | 167 | 3 | 242 | 1 |
| Wales | 544 | 2 | 392 | 7 | 289 | 2 | 262 | 2 | 264 | 3 | 546 | 6 | 580 | 3 |
| Total | 3,329 | 36 | 2,720 | 32 | 2,111 | 28 | 1,884 | 35 | 2,050 | 22 | 4,254 | 29 | 4,560 | 21 |

Sub = Substantiated (Includes Category 4 for 1999 and 2000)

more Category 1 and 2 incidents than any other source (27%).

A breakdown is shown in Figure 12. There were 30 Category 1 & 2 incidents affecting land and 11 air.

5.2 Industrial pollution incidents

The number of incidents in this category has been reduced by the separation out of incidents involving waste management facilities, which are recorded separately for the first time in this report. A total of 5,295 pollution incidents from industrial sources were substantiated in 2000, 14.5% of the total (the same percentage as in 2000 if waste management incidents are discounted).

Figure 13 shows the main sources of industrial pollution incidents in 2000. The

construction industry had 483 Category 1-3 incidents, a 21% decrease when compared with 1999. However, the industry still accounts for more water and land incidents than any other. The construction products industry is presented separately for the first time in this report and is notable for having more air pollution incidents than any other sector.

Figure 13 Category 1-3 industrial pollution incidents by source, where classified, during the year 2000

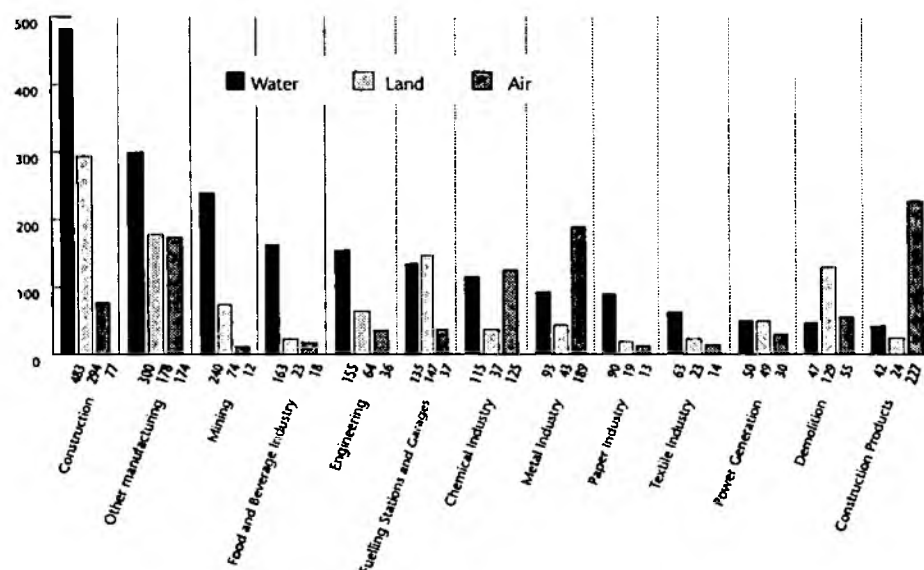


Table 5 Total industrial pollution incidents by region, 1994-2000

| Region | 1994 | 1995 | 1996 | 1997 | 1998 | 1999* | 2000 |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Anglian | 635 | 399 | 405 | 383 | 371 | 369 | 360 |
| Midlands | 769 | 749 | 833 | 814 | 807 | 870 | 1,022 |
| North East | 745 | 539 | 424 | 465 | 398 | 371 | 617 |
| North West | 821 | 948 | 648 | 506 | 533 | 984 | 972 |
| Southern | 262 | 239 | 212 | 138 | 199 | 409 | 628 |
| South West | 663 | 711 | 504 | 501 | 459 | 707 | 610 |
| Thames | 388 | 330 | 372 | 324 | 369 | 285 | 379 |
| Wales | 1,026 | 848 | 627 | 592 | 464 | 478 | 707 |
| TOTAL | 5,309 | 4,763 | 4,025 | 3,723 | 3,600 | 4,473 | 5,295 |

* Adjusted to remove waste management facilities

Of the 835 most significant (Category 1 and 2) water incidents, 182 (22%) arose from industrial sources. Industry accounted for 17%(38) of land incidents and 18.5%(43) of air incidents. A breakdown of Category 1 and 2 industrial water pollution incidents is shown in Figure 14. There were 38 Category 1 & 2 incidents affecting land and 43 affecting air.

5.3 Sewage and water industry related pollution incidents

There were 4,021 substantiated sewage and water industry related pollution incidents (including Category 4) in 2000, an increase of 13.5% compared with 1999. The industry accounted for 11% of the total in 1999 and 2000, down from 24% in 1998. Table 6 gives the figures for the regional distribution of sewage and water related pollution incidents from 1994 to 2000.

Figure 15 shows the sources of sewage and water industry related incidents in 2000. As in previous years, the biggest source of pollution was discharges from the foul sewer from Water Service Company (28%). Combined sewer outfalls (CSOs), which are a key target for the WSC's asset management plan, caused 20% of incidents.

Of incidents affecting water (Category 1-3), 3,053 related to the sewage and water sector, an increase of 9%. 138 were classified as Category 1 and 2, accounting for 17% of all Category 1 and 2 incidents (the same proportion but less incidents than in 1999). Most of these occurred in North East (25) and Thames (27) and Southern Regions (24). The sources of Category 1 and 2 sewage and water related incidents affecting water are shown in Figure 16. There were 8 affecting land and 3 air.

Figure 14 Substantiated Category 1 and 2 industrial water pollution incidents, 2000

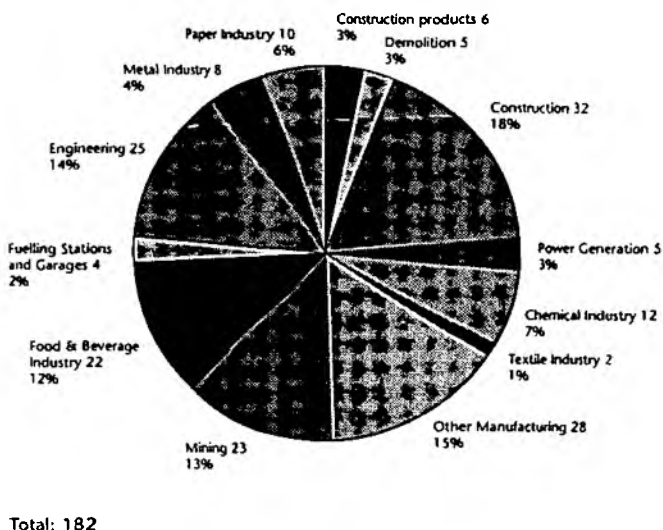


Figure 15 Substantiated sewage and water industry related pollution incidents by source, where classified, during the year 2000

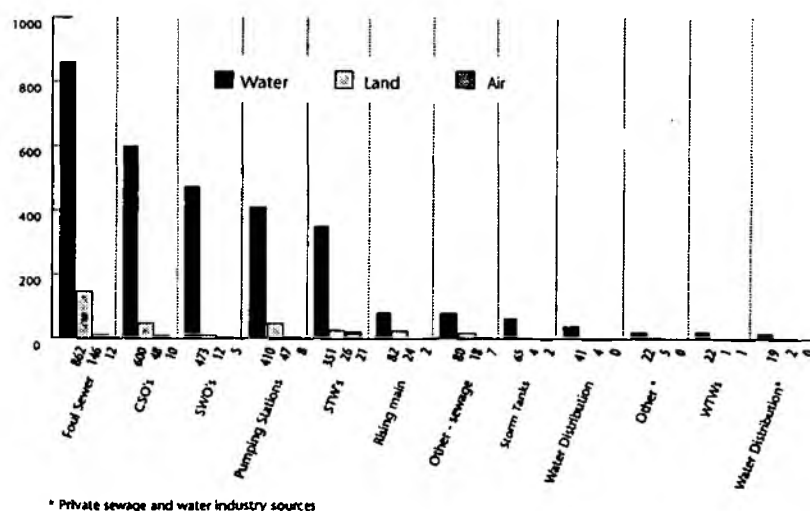
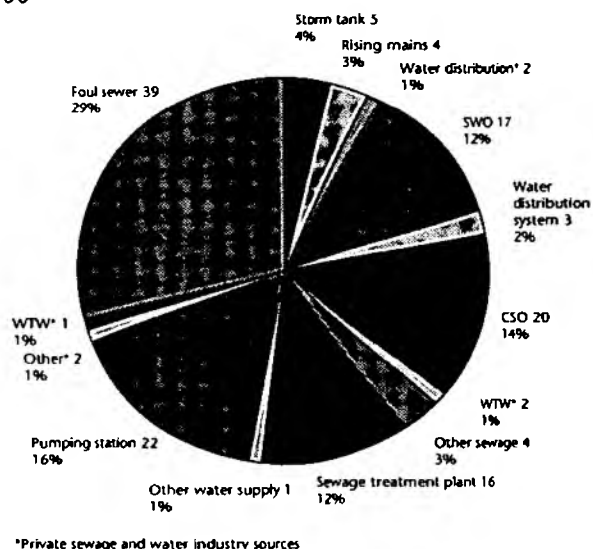


Table 6 Category 1-4 sewage and water industry related incidents by region 1994-2000

| Region | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|------------|-------|-------|-------|-------|-------|-------|-------|
| Anglian | 714 | 557 | 461 | 555 | 473 | 371 | 322 |
| Midlands | 1,337 | 1,175 | 1,219 | 1,229 | 986 | 651 | 759 |
| North East | 1,032 | 1,013 | 722 | 876 | 645 | 653 | 701 |
| North West | 1,028 | 1,223 | 801 | 482 | 342 | 356 | 333 |
| Southern | 393 | 328 | 298 | 294 | 244 | 269 | 520 |
| South West | 1,209 | 1,469 | 889 | 789 | 628 | 603 | 638 |
| Thames | 414 | 487 | 471 | 436 | 437 | 325 | 388 |
| Wales | 892 | 905 | 738 | 704 | 498 | 302 | 360 |
| TOTAL | 7,019 | 7,157 | 5,599 | 5,365 | 4,253 | 3,530 | 4,021 |

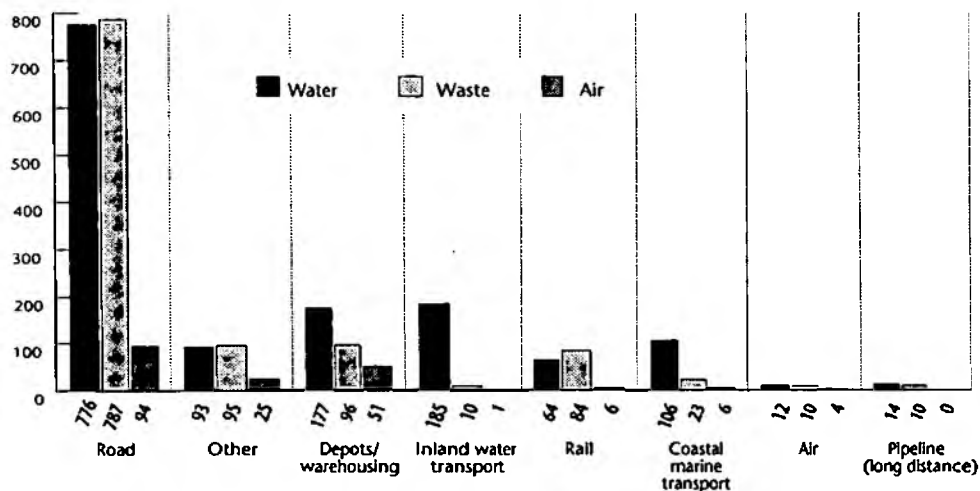
Figure 16 Category 1 and 2 sewage and water related incidents, 2000

Total: 138

5.4 Transport pollution incidents

In 2000, transport related incidents (4,131) represented 11% of the total number of substantiated incidents (marginal increase from 10% in 1998 and 1999). The changing number of transport incidents from 1994 to 2000 is shown in Table 7. A significant proportion of these incidents are reported as a result of close liaison with the fire services. Coastal and inland waterway transport were separated and depots and warehouses were differentiated for the first time in 1999. As in previous years, the highest number of transport incidents was recorded in the Midlands (25%). The distribution of transport incidents by source is shown in Figure 17. The overwhelming majority originated from roads, mainly as a result of road traffic accidents.

72 transport incidents affecting water were classified in Categories 1 and 2 in 2000 (6% of the total for water). Of these, 24 were from road transport, with depots and warehouses accounting for 19 and inland water transport 8. There were 24 Category 1 and 2 incidents affecting land and 7 air.

Figure 17 Substantiated transport related pollution incidents by source, 2000**Table 7** Total substantiated transport pollution incidents by region, 1994-2000

| Region | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Anglian | 394 | 216 | 361 | 323 | 305 | 389 | 294 |
| Midlands | 214 | 283 | 450 | 508 | 507 | 659 | 1,047 |
| North East | 166 | 129 | 167 | 169 | 161 | 213 | 399 |
| North West | 122 | 221 | 158 | 107 | 141 | 561 | 477 |
| Southern | 120 | 174 | 152 | 145 | 150 | 390 | 388 |
| South West | 355 | 337 | 253 | 230 | 199 | 512 | 560 |
| Thames | 195 | 217 | 201 | 164 | 164 | 273 | 726 |
| Wales | 217 | 211 | 173 | 120 | 100 | 143 | 240 |
| TOTAL | 1,783 | 1,788 | 1,915 | 1,766 | 1,727 | 3,140 | 4,131 |

5.5. Waste management facilities

This is a new category, reflecting the need to move towards a more integrated format for the report. Therefore, it is not possible to draw on historic data to enable any identification of trends. Figure 18 provides a breakdown of the types of facilities involved.

There were 22 Category 1 and 2 incidents affecting water, 53 land and 157 air.

5.6 Domestic and residential pollution incidents

Domestic and residential pollution incidents were reported as a separate source for the first time in the 1998 report. In 2000, domestic and residential pollution related incidents (3,613) accounted for 10% (9% in 1999, 7% in 1998) of all incidents (see Figure 19).

The numbers of incidents from 1995 to 2000 are presented in Table 8. Separate records are not available prior to 1995. There were 31 Category 1 and 2 incidents affecting water, 17 land and 3 air.

Figure 18 Category 1-3 waste management facilities related pollution incidents by source, 2000

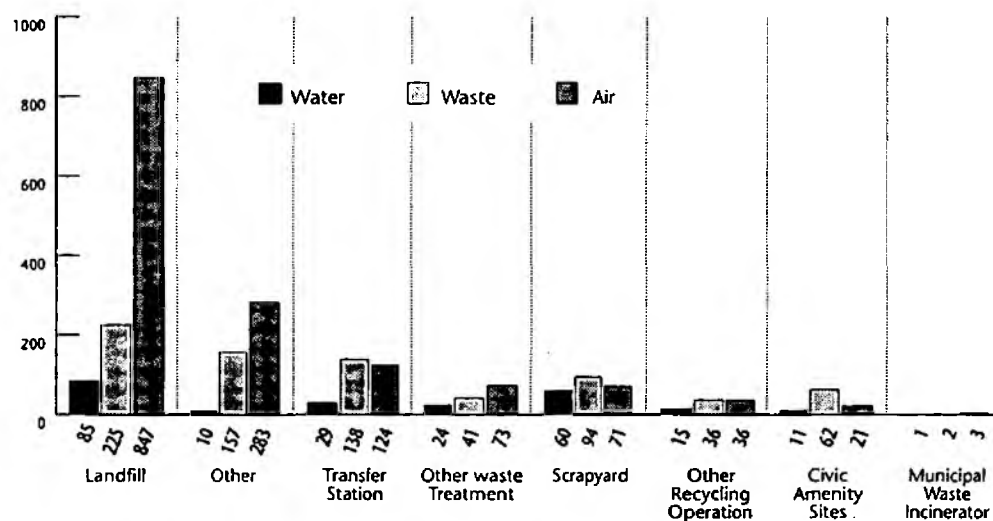


Table 8 Substantiated domestic and residential pollution incidents by region, 1995-2000

| Region | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Anglian | 186 | 267 | 294 | 255 | 397 | 414 |
| Midlands | 120 | 140 | 151 | 151 | 336 | 429 |
| North East | 89 | 142 | 138 | 115 | 148 | 362 |
| North West | 168 | 129 | 156 | 170 | 322 | 279 |
| Southern | 144 | 173 | 220 | 190 | 524 | 631 |
| South West | 159 | 180 | 222 | 199 | 616 | 628 |
| Thames | 223 | 207 | 198 | 176 | 285 | 608 |
| Wales* | 0 | 18 | 0 | 0 | 227 | 262 |
| TOTAL | 1,089 | 1,258 | 1,379 | 1,256 | 2,855 | 3,613 |

*Environment Agency Wales recorded incidents in "other/not known" category before 1999

5.7 "Other" sources of pollution

A total of 11,877 Category 1-4 incidents from "other" sources were substantiated in 2000, 33% of the total. This category includes incidents where the source did not fall into one of the six main categories and those where the source was not found. Premises could not be identified in 2,543 water incidents (57%), 1,148 affecting land (43%)

and 176 (28%) affecting air. Those where the source was traced but not classified represented the largest proportion of "other" sources (746 water, 582 land and 157 air). Further details are shown in Figure 19.

Of the 11,877 "other" source pollution incidents, 157 affecting water were classified as Categories 1 and 2, 50 land and 8 air.

Figure 19 Category 1-3 Domestic and residential and "other" sources of pollution incidents, where classified, for the year 2000

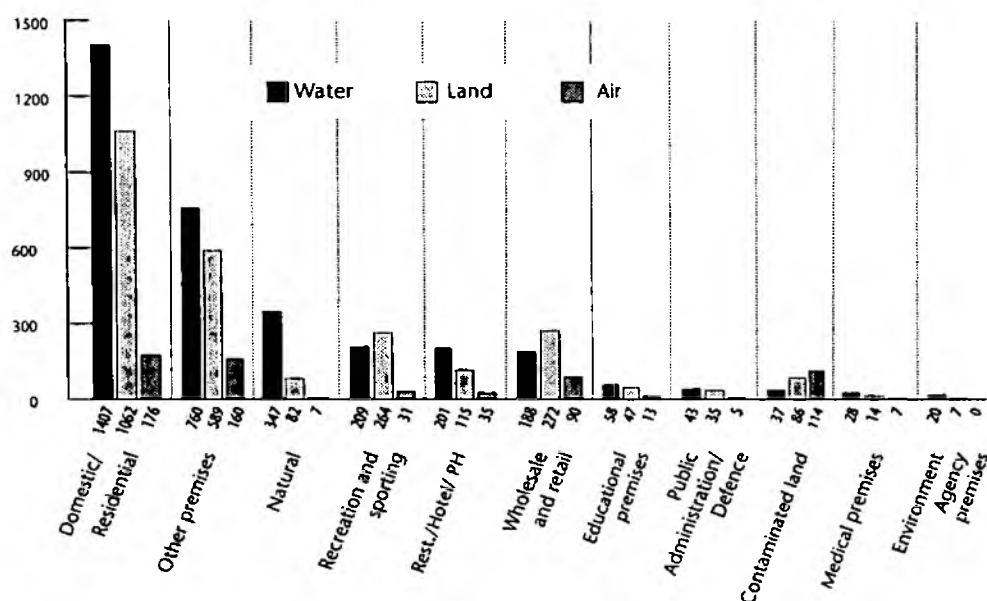


Table 9 Substantiated "other" sources of pollution, by region, 1994 - 2000

| Region | 1994 | 1995 | 1996 | 1997 | 1998 | 1999*** | 2000 |
|--------------|----------------|--------------|--------------|--------------|--------------|---------------|---------------|
| Anglian | 750 | 586 | 723 | 663 | 570 | 1,182 | 1,066 |
| Midlands | 2,166 | 1,561 | 1,253 | 1,302 | 1,192 | 1,419 | 2,112 |
| North East | 904 | 586 | 522 | 586 | 484 | 836 | 1,644 |
| North West | 1,158 | 845 | 807 | 654 | 694 | 2,258 | 1,733 |
| Southern | 415 | 227 | 257 | 276 | 240 | 798 | 873 |
| South West | 1,088 | 907 | 633 | 698 | 635 | 1,403 | 1,371 |
| Thames | 909 | 600 | 615 | 706 | 603 | 1,488 | 1,886 |
| Wales | 585 | 634 | 458 | 569 | 559 | 1,032 | 1,192 |
| TOTAL | 7,975** | 5,946 | 6,508 | 5,454 | 4,977 | 10,416 | 11,877 |

* Environment Agency Wales recorded domestic/residential incidents in "other/not known".

** Includes incidents from domestic and residential source

*** Recalculated to exclude metal recycling facilities

6 Analysis of incidents by type

In this chapter, data on pollution incidents are presented based on the type of pollutant involved. The structure is based on previous reports, with the addition of a separate section on metals and scrap, which reports on impacts on water, land and air. The remaining sections are based on Category 1-3 incidents affecting water only. Each section provides a table showing data for the last seven years and a bar chart that provides detailed information on the types of pollutant. The tables show Category 1-3 water pollution incidents up to and including 1998. Data for 1999 and 2000 is for Categories 1-4 incidents and therefore includes data for incidents affecting water, land and air.

6.1 Organic wastes

There were 2,063 substantiated pollution incidents attributed to organic wastes in 2000, 6% of the total (7% in 1999). Table 10 shows the regional numbers of organic waste incidents in the years 1994 to 2000

The distribution of types of organic waste pollution incidents is shown in Figure 16. The most significant were yard washings (including dirty water and dilute slurry) with 29%, and farm slurry (22%).

Of the 2,063 organic waste incidents, 166 (8%) were classified as Category 1 or 2. This represents 20% of all Category 1 and 2 water incidents compared with 18% in 1999.

Figure 20 Substantiated organic waste pollution incidents by type, 2000

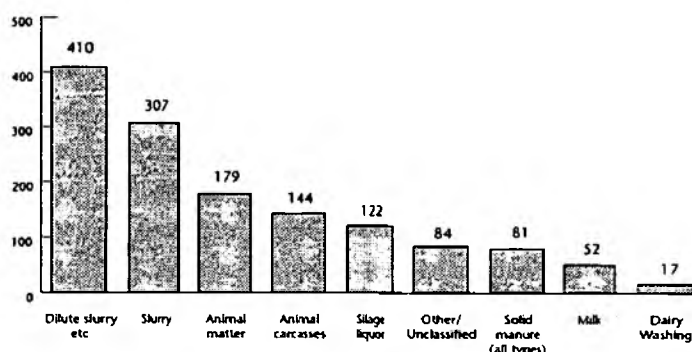


Figure 21 Category 1 and 2 water pollution incidents involving organic wastes, by type, 2000

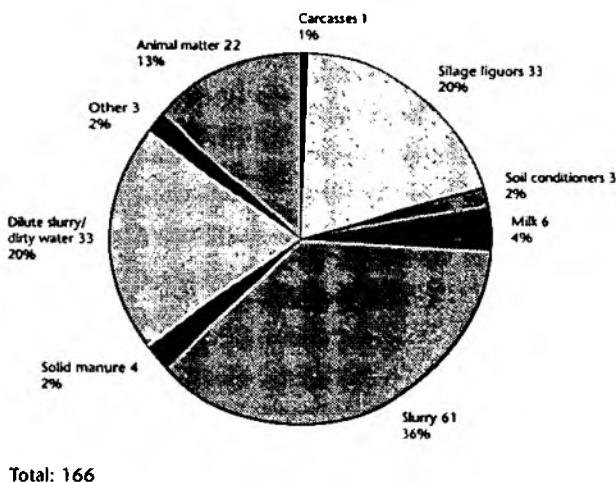


Table 10 Total substantiated organic waste pollution incidents by region 1994-2000

| Region | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Anglian | 311 | 201 | 189 | 193 | 184 | 127 | 120 |
| Midlands | 368 | 419 | 436 | 445 | 453 | 462 | 414 |
| North East | 291 | 183 | 150 | 155 | 170 | 138 | 194 |
| North West | 479 | 408 | 341 | 241 | 289 | 275 | 275 |
| Southern | 102 | 84 | 66 | 51 | 85 | 133 | 119 |
| South West | 938 | 899 | 549 | 425 | 484 | 685 | 607 |
| Thames | 92 | 75 | 86 | 71 | 65 | 77 | 78 |
| Wales | 584 | 430 | 312 | 276 | 294 | 264 | 256 |
| TOTAL | 3,165 | 2,699 | 2,129 | 1,857 | 2,024 | 2,161 | 2,063 |

6.2 Fuels and oils

There were 6,215 substantiated fuel and oil pollution incidents in 2000 (including 2,212 Category 4 incidents), representing 17% of the total. Table 11 shows the numbers of fuel and oil pollution incidents between 1993 and 1999. There was a 15% increase in substantiated oil incidents and a 6% increase in the number of category 1-3 incidents.

Figure 22 shows the distribution of Category 1-3 fuel and oil water pollution incidents by oil type. Where the oil could be identified, diesel (DERV) was again the most common pollutant type, responsible for 29% of incidents, with similar numbers of domestic fuel oil (7%), industrial fuel oil (6%) and red gas oil (6%) incidents.

Of the 6,215 fuel and oil incidents, those in Category 1 and 2 accounted for 215 (3%), or 26% of all Category 1 & 2 water pollution incidents. The largest number of these incidents occurred in the Thames and Midlands Regions (both 44 incidents). Details of Category 1 and 2 incidents are shown in Figure 23.

Figure 21 Substantiated fuel and oil pollution incidents by type, 2000

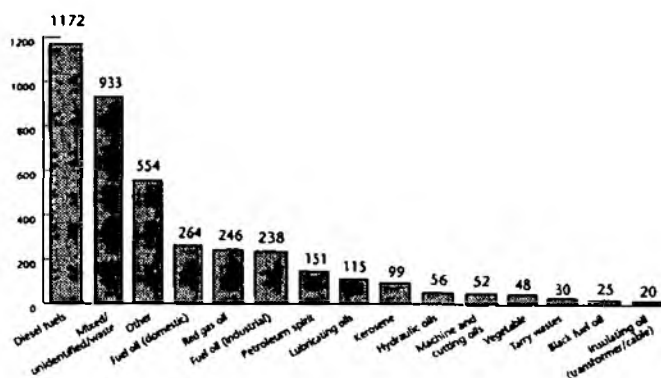
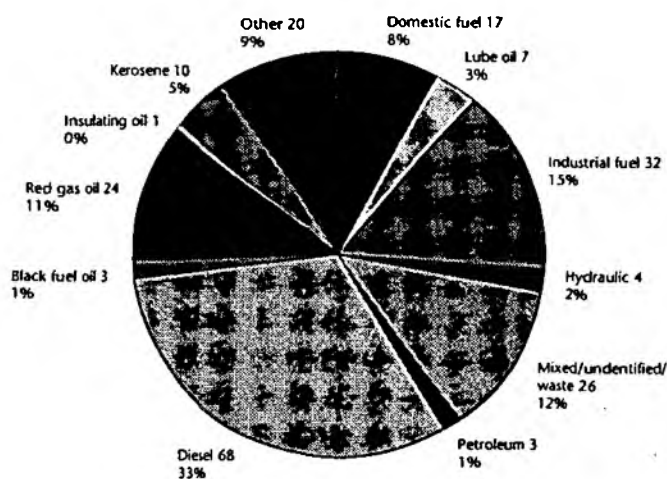


Figure 23 Substantiated Category 1 and 2 water pollution incidents involving fuel and oil, by type, 2000



Total: 215

Table 11 Total fuel and oil pollution incidents by region, 1994-2000

| Region | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Anglian | 1,023 | 734 | 763 | 761 | 716 | 696 | 684 |
| Midlands | 1,519 | 1,197 | 1,258 | 1,337 | 1,291 | 1,180 | 1,528 |
| North East | 705 | 668 | 562 | 579 | 516 | 505 | 605 |
| North West | 895 | 828 | 588 | 564 | 614 | 632 | 640 |
| Southern | 488 | 470 | 443 | 424 | 443 | 610 | 631 |
| South West | 865 | 909 | 768 | 739 | 692 | 839 | 882 |
| Thames | 896 | 780 | 817 | 715 | 668 | 606 | 850 |
| Wales | 517 | 439 | 388 | 423 | 368 | 313 | 395 |
| TOTAL | 6,908 | 6,025 | 5,587 | 5,542 | 5,308 | 5,381 | 6,215 |

6.3 Chemicals

Table 12 shows the regional distribution of chemical incidents from 1994 to 2000. In 2000 there were 831 Category 1-3 chemical pollution incidents affecting water, representing 6% of all such incidents.

The distribution of chemical pollutants affecting water by type is shown in Figure 24. 28% involved dyes and paints, 17% unclassified inorganic chemicals and 16% unclassified organic chemicals.

73 of the water pollution incidents involving chemicals were classified as Category 1 and 2 (see Figure 25), representing 9% of all such incidents.

Figure 24 Substantiated chemical pollution incidents by type, 2000

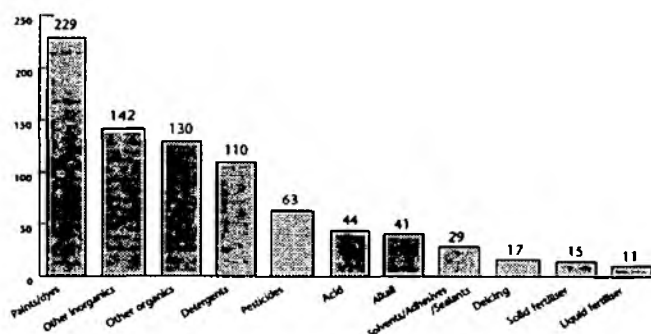
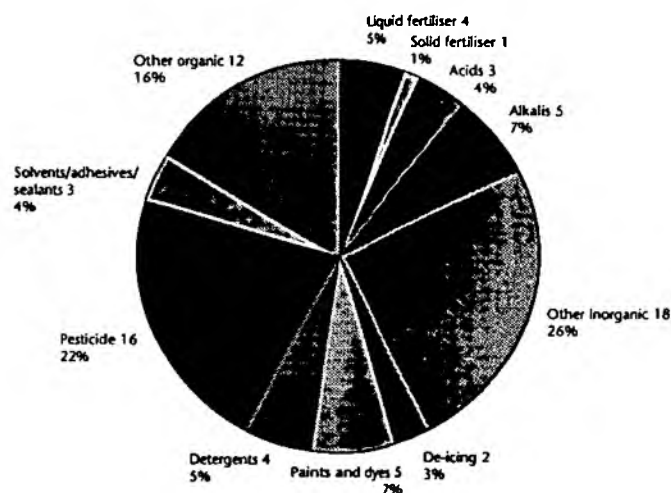


Figure 25 Substantiated Category 1 and 2 water pollution incidents involving chemicals, by type, 2000



Total: 73

Table 12 Total substantiated chemical pollution incidents by region, 1994 - 2000

| Region | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|------------|-------|-------|-------|-------|-------|-------|-------|
| Anglian | 301 | 201 | 239 | 183 | 196 | 218 | 174 |
| Midland | 299 | 317 | 446 | 430 | 408 | 237 | 440 |
| North East | 251 | 140 | 199 | 234 | 181 | 200 | 237 |
| North West | 383 | 359 | 308 | 228 | 185 | 296 | 186 |
| Southern | 129 | 108 | 102 | 89 | 79 | 154 | 119 |
| South West | 209 | 302 | 193 | 175 | 162 | 207 | 176 |
| Thames | 178 | 174 | 153 | 144 | 113 | 200 | 209 |
| Wales | 134 | 124 | 197 | 97 | 81 | 159 | 284 |
| TOTAL | 1,884 | 1,725 | 1,837 | 1,580 | 1,405 | 1,671 | 1,825 |

6.4 Sewage

In 2000 there was a 20% increase in substantiated sewage incidents (see Table 13), and a 17% increase in the number affecting water (3,929 Category 1-3). However, this total is still below the comparable figure of 4,347 in 1998. Midlands (698) and South West (616) regions had the largest numbers of Category 1-3 incidents, whilst Thames and North East Regions had the most category 1 and 2 incidents (34 and 26 respectively).

Figure 26 shows the distribution of Category 1-3 sewage pollution incidents affecting water in 2000. As in previous years, crude sewage was the most common type of sewage found, accounting for 50% of incidents. The most significant other types were storm sewage (13%) and septic tank effluent (12%).

There were 165 Category 1 and 2 incidents of sewage polluting water in 2000 (reduced from 178 in 1999), representing 20% of all such incidents. See Figure 27 for further details.

Figure 26 Substantiated sewage pollution incidents by type, 2000

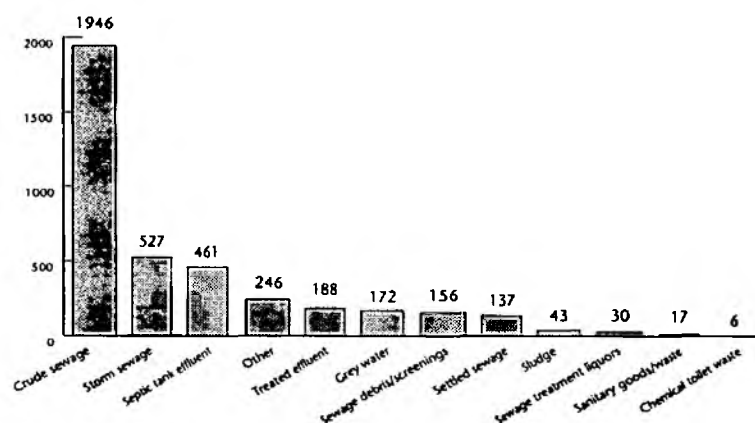


Figure 27 Category 1 & 2 water pollution incidents involving sewage, by type, 2000

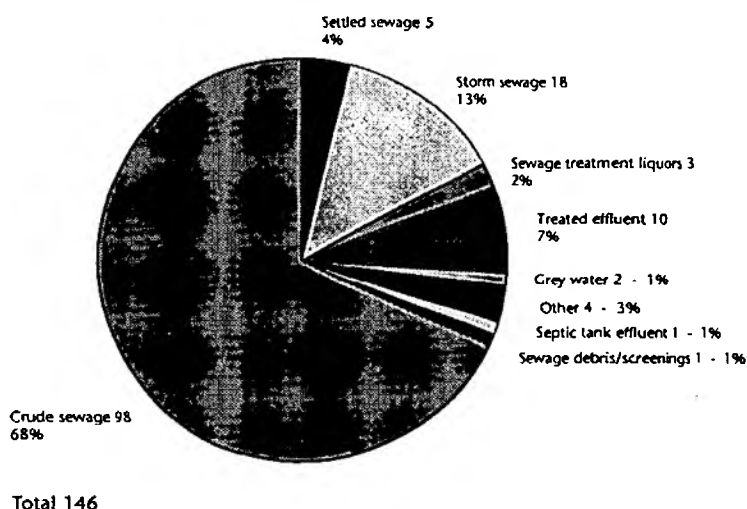


Table 13 Total substantiated sewage pollution incidents by region, 1994-2000

| Region | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Anglian | 596 | 547 | 555 | 689 | 565 | 550 | 490 |
| Midlands | 1,320 | 935 | 991 | 999 | 830 | 569 | 848 |
| North East | 992 | 825 | 761 | 907 | 673 | 661 | 727 |
| North West | 894 | 1,103 | 843 | 594 | 451 | 500 | 460 |
| Southern | 322 | 351 | 346 | 378 | 295 | 466 | 724 |
| South West | 930 | 988 | 666 | 685 | 610 | 827 | 883 |
| Thames | 403 | 507 | 428 | 470 | 427 | 414 | 604 |
| Wales | 830 | 872 | 688 | 662 | 496 | 338 | 466 |
| TOTAL | 6,287 | 6,128 | 5,278 | 5,384 | 4,347 | 4,325 | 5,202 |

6.5 Metals and scrap

This category of pollutant is reported separately for the first time this year. There is therefore no historic comparison. There were 1,181 incidents involving metals and scrap, accounting for 3% of all incidents (see Figure 28). Of the Category 1-3 incidents, 165 affected water, 649 land and 67 air. 3 Category 1 and 2 incidents affected water, 16 land and 5 air.

Figure 28 Substantiated metal and scrap pollution incidents by type, 2000

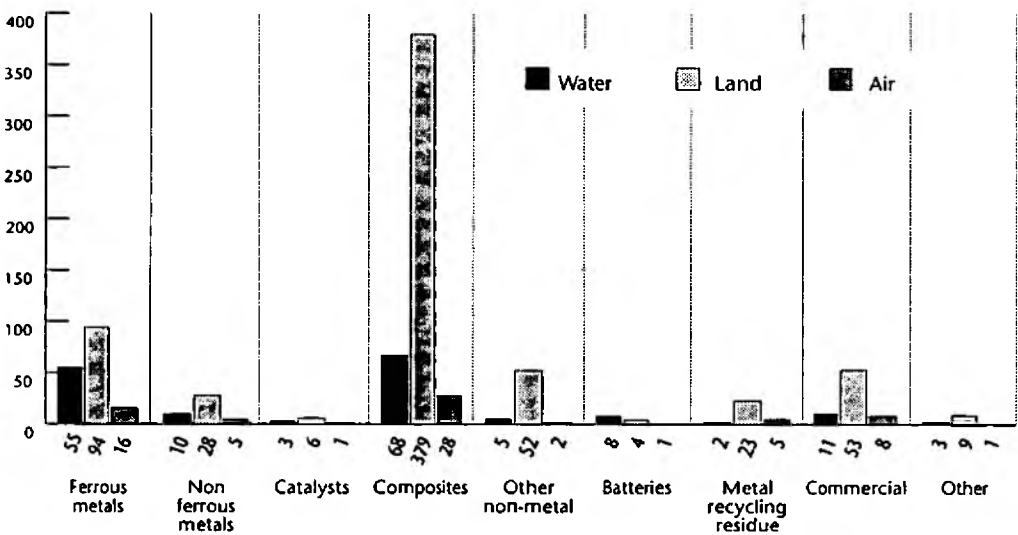


Table 14 Substantiated silt pollution incidents by region, 1995-2000

| Region | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|------------|-------|-------|-------|-------|-------|-------|
| Anglian | 61 | 72 | 49 | 64 | 113 | 70 |
| Midlands | 322 | 254 | 248 | 247 | 337 | 133 |
| North East | 63 | 113 | 106 | 106 | 113 | 194 |
| North West | 320 | 216 | 160 | 206 | 323 | 262 |
| Southern | 91 | 81 | 42 | 47 | 112 | 141 |
| South West | 98 | 84 | 252 | 231 | 317 | 393 |
| Thames | 152 | 139 | 132 | 126 | 430 | 181 |
| Wales | 299 | 305 | 255 | 150 | 197 | 230 |
| TOTAL | 1,406 | 1,264 | 1,224 | 1,177 | 1,942 | 1,604 |

6.6 Silt

In 2000 there were 1,604 substantiated pollution incidents due to silt, representing 4% of the total (see Figure 29). This shows a decrease from 6% in 1999 and 7% in 1998. The number of Category 1-3 water pollution incidents involving silt was 798, with 51 in Categories 1 and 2.

6.7 "Other" types of pollutants

There were 18,316 substantiated incidents involving pollutants categorised as "other" in 2000, 50% of the total (as in 1999). The "other" types category contains incidents that do not fit into any of the previously described pollution types. These include natural causes, rubble and litter, firewater and incidents where the pollutant was not identified.

There were 3,360 Category 3 water pollution incidents where the pollutant was recorded as "other" and 180 Category 1 and 2.

Figure 29 Substantiated silt and "other" pollution incidents by type, where classified, 2000

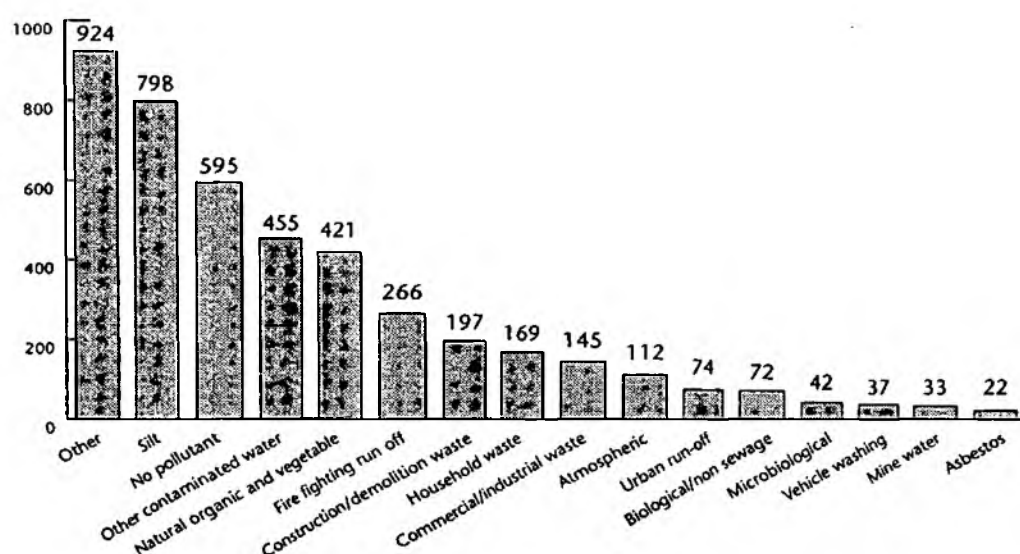


Table 15 Substantiated "other" pollution incidents by region, 1994-2000

| Region | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|--------------|---------------|--------------|--------------|--------------|--------------|---------------|---------------|
| Anglian | 588 | 412 | 599 | 536 | 438 | 1,452 | 1,353 |
| Midlands | 1,389 | 1,069 | 920 | 952 | 832 | 2,151 | 3,056 |
| North East | 1,004 | 697 | 358 | 423 | 345 | 903 | 2,252 |
| North West | 881 | 699 | 522 | 373 | 456 | 3,754 | 3,161 |
| Southern | 275 | 131 | 151 | 190 | 189 | 1,550 | 1,867 |
| South West | 1,398 | 1,362 | 782 | 571 | 424 | 2,427 | 2,030 |
| Thames | 410 | 284 | 336 | 385 | 420 | 1,270 | 2,518 |
| Wales | 1,199 | 826 | 395 | 534 | 496 | 2,041 | 2,079 |
| TOTAL | 7,171* | 5,480 | 4,063 | 3,984 | 3,600 | 15,549 | 18,316 |

* Include incidents caused by silt

7 Legal action

7.1 Introduction

This section reports on the legal action relating to environmental pollution undertaken by the Environment Agency in 2000, under water, waste and air legislation. Although the main emphasis is on cases involving water pollution, data on prosecutions relating to waste and Integrated Pollution Control (IPC) are provided. Due to the length of time taken to bring a case to court, a large number of cases are outstanding at the end of each year. In order to sensibly reflect this, data in tables 16-18 relates to cases brought in 2000 irrespective of the year in which the incident occurred. This is a change from the practice in previous reports, which reported only on incidents prosecuted in the same year. In section 7.6, we report on examples of interesting prosecutions occurring in 2000.

7.2 Enforcement and prosecution policy

The Agency adopted an integrated enforcement and prosecution policy in November 1998, following a period of consultation. This replaced the policies adopted by each of the Agency's predecessor organisations. There are five key principles:

- firm but fair regulation;
- proportionality: enforcement proportionate to the risks to the environment and the seriousness of any breach of the law;
- consistency: this is important, but many factors will be taken into account, such as environmental impact and offending history;

- transparency: it should be clear why enforcement action has been taken;
- targeting: regulatory effort should be targeted at areas presenting the greatest risk to the environment.

Subject to the availability of evidence, the Agency will normally prosecute where incidents or breaches have a significant effect on the environment. In practice, this means that Category 1 incidents will result in prosecution whenever there is adequate evidence to support the case. In considering Category 2 incidents, the circumstances surrounding the case are examined in detail, and formal cautions or warning letters are used where appropriate.

Enforcement action is not always possible, either because the source cannot always be traced, because the incident was due to natural causes, or because it was the result of the actions of unknown persons.

At the time the policy was adopted, it was recognised that there would be a need to undertake an early review of its operation, in order to identify any areas requiring further guidance. This review was started early in 2000 and is due to be completed by December 2001.

7.3 Court cases

The regional distribution of prosecutions taken and convictions obtained for offences occurring in 2000 are shown in Table 16.

Table 16 Regional distribution of prosecutions and convictions for environmental incidents by Agency region, 2000

| Water Resources Act, 1991 | | | | Waste | | | PIR | |
|---------------------------|------------------|-------------|-----------------|------------------|-------------|-----------------|------------------|-----------------|
| Region prosecuted | Cases prosecuted | Convictions | Cautions issued | Cases prosecuted | Convictions | Cautions issued | Cases prosecuted | Cautions issued |
| Anglian | 25 | 23 | 24 | 37 | 37 | 27 | 0 | 0 |
| Midlands | 31 | 26 | 8 | 55 | 53 | 31 | 2 | 0 |
| North East | 20 | 20 | 18 | 80 | 79 | 48 | 3 | 2 |
| North West | 19 | 19 | 32 | 79 | 72 | 45 | 4 | 9 |
| Southern | 29 | 29 | 14 | 53 | 50 | 11 | 0 | 0 |
| South West | 37 | 37 | 41 | 18 | 18 | 33 | 0 | 2 |
| Thames | 25* | 25 | 10 | 46* | 46 | 2 | 0 | 0 |
| Wales | 49 | 45 | 70 | 47 | 45 | 20 | 2 | 0 |
| TOTAL | 235 | 224 | 217 | 415 | 400 | 217 | 11 | 13 |

* see section 7.6.2

7.4 Cautions

In addition to instigating court action against polluters, the Agency can also issue formal cautions. The purpose of a caution is to deal quickly with less severe incidents, while reducing the chances of further pollution. There is no penalty attached to a caution, but it can be produced in court in the event of a further offence. There must be evidence of the polluter's guilt, the polluter must admit the offence and must give informed consent to being cautioned before a caution can be administered. Should the polluter refuse to sign the caution, normal prosecution proceedings are instigated. The regional distribution of cautions issued in 2000 is also given in Table 16.

7.5 Penalties

Detailed information on fines for environmental offences is shown in Table 17. In determining the penalty, the court takes into account both the severity of the offence and the defendant's ability to pay. The magistrates may decide that the case should be heard in the Crown Court, where there is no limit to the level of fine. This course is usually reserved for the most serious cases, although the defendant may have the right to elect to be heard before a jury at a Crown Court.

Imprisonment remains rare for environmental offences. However, four custodial sentences were imposed in 2000 for waste related offences, one in Thames, one in Midlands and two in North West.

Table 17 Fines and costs awarded on conviction for environmental offences occurring in 2000

| Region | Water Quality | | Waste | | PIR | |
|-------------|------------------|------------------|------------------|------------------|------------------|------------------|
| | Range of fines £ | Range of costs £ | Range of fines £ | Range of costs £ | Range of fines £ | Range of costs £ |
| Anglian | 0 - 125,000 | 500 - 12,617 | 0 - 22,000 | 30 - 9,514 | - | - |
| Midlands | 0 - 40,000 | 320 - 23,788 | 0 - 87,000 | 0 - 50,000 | 10,000 - 37,000 | 4,000 - 51,962 |
| North East | 0 - 8,000 | 0 - 3,702 | 0 - 10,000 | 0 - 20,000 | 6,000 - 150,000 | 2,114 - 18,710 |
| North West | 0 - 12,000 | 303 - 5,000 | 0 - 50,000 | 0 - 11,000 | 5,000 - 45,000 | 3,417 - 74,600 |
| Southern | 0 - 10,000 | 387 - 2,557 | 0 - 9,000 | 50 - 5,000 | - | - |
| South West | 0 - 12,000 | 0 - 2,000 | 0 - 30,000 | 0 - 7,313 | - | - |
| Thames | 50 - 15,000 | 50 - 4,412 | 0 - 250,000* | 0 - 12,876 | - | - |
| Wales | 0 - 16,000 | 0 - 20,497 | 0 - 20,000 | 30 - 11,365 | 1,000 - 1,500 | 2,541 - 9,715 |
| All regions | 0 - 125,000 | 0 - 23,788 | 0 - 250,000 | 0 - 50,000 | 1,000 - 150,000 | 2,114 - 74,600 |

* see section 7.6.2

7.6 Agency prosecutions in 2000

7.6.1 Introduction

This section highlights a number of incidents where legal action was taken in 2000. The cases illustrate both the types of incident that the Agency deals with, and the operation of the legal process.

7.6.2 Combined waste and water prosecution for sewage and trade effluent discharge

Environment Agency v Thames Water

In February 2000, Thames Water Utilities were fined a total of £250,000 following an incident in Erith, Kent in November 1998. The case was unusual, in that the company faced two charges. The first was under the Water Resources Act 1991, Section 85(1), for polluting controlled water. The second related to disposing of controlled waste in a manner likely to cause harm to human health, under the Environmental Protection Act, 1990, Section 33(1)(c).

A series of errors and an illegal pump connection at the Fraser Road Foul Pumping Station resulted in the surface water pumping station at Sandcliff Road becoming contaminated with raw sewage and industrial effluent. This caused an estimated 22.5 million litres of effluent to be pumped into the River Thames. Following the failure of the pumps at Sandcliff Road, the effluent overflowed into the street and flooded nearby houses. The affected properties remained unfit for the families to return to, and Thames Water Utilities subsequently purchased most of the ten affected. Due to the toxicity of the chemicals involved, the medical symptoms of the affected families were monitored by the local health authority and the Chemical Incident Response Unit of Guy's Hospital. Some were found to be suffering from acute short-term effects of exposure to the chemicals.

This was the first case under the Environmental Protection Act relating to the disposal of sewage and trade effluent as a controlled waste. The company pleaded guilty at Bexley Magistrates Court on 14 January 2000. However, due to the serious nature of the offences, the magistrates decided that their sentencing powers were insufficient, and committed the matter to Croydon Crown Court for sentencing. Fines of £50,000 for the Water Resources Act offence and £200,000 for the Environmental Protection Act offence were imposed, as well as costs of £12,847.

7.6.3 Record waste fine in Wales

Environment Agency v W Samuel and M Samuel

As a result of the targeted enforcement initiative undertaken by Environment Agency Wales, record fines were imposed on two men from Kidwelly, in south Wales, in relation to the illegal deposit of controlled wastes. Winston Samuel, who runs a waste disposal firm known as T&L Plant, Tool and Skip Hire and his son, Michael Samuel, a manager of the firm's waste transfer station near Llanelli, pleaded guilty to a total of 15 charges. These followed aerial and covert surveillance of a site near Pontyates where waste was illegally deposited and burned. The defendants were fined a total of £48,000 and were also ordered to pay £6,000 in costs at Llanelli Magistrates Court on 21 December 2000. The prosecution was one of a number of cases arising from an Agency enforcement campaign targeted at illegal waste activities in Wales (see section 3.3.1).

7.6.4 Prison sentence in waste and flood defence case

Environment Agency v P Podger

Following the illegal deposit of waste consisting of soil and hardcore in the floodplain of the River Wey, near Elstead, Surrey, Percy Podger of Ponds Farm, Godalming, was sentenced to 2 months imprisonment on each of 3 charges contrary to Section 33 of the Environmental Protection Act 1990 (a total of six months) on 11 September, 2000. This was effectively reduced on appeal to 2 months on each of 2 charges (a total of 4 months), as the Crown Court Judge took the view that the third charge reflected the same facts and allowed that 2 month penalty to run concurrently.

Mr Podger had entered pleas to a total of 9 charges at Guildford Magistrates on 22 August 2000 but as a number of these related to the Thames Water Authority Land Drainage By-laws 1981, which do not carry imprisonment, no separate penalty was imposed for these. Between February and October 1999, sufficient waste was dumped in the floodplain to raise the land by up to two metres, greatly reducing the flood storage capacity and increasing the risk of flooding. In addition, the waste was contaminated with Japanese Knotweed, an invasive and prohibited species, which spread through the original top soil.

The time from the start of the investigation to the sentencing of Mr Podger was 20 months and Agency staff from five different departments spent a total of 800 hours on the case. A High Court injunction was sought to prevent further tipping and obtain the removal of the waste. At these proceedings, Mr Podger gave an undertaking to remove the waste by 31 August 1999, which he failed to meet. It was

eventually necessary for the Agency to remove the waste at its own expense, since Mr. Podger is an undischarged bankrupt and even this was made more expensive and difficult by Mr. Podger objecting to the validity of a warrant of entry obtained from Guildford Magistrates' Court for the purpose and asking the High Court to intervene. His application was refused but the delay placed an additional burden of over £20,000 on the Agency's costs, which came to almost £200,000 and will probably never be recovered.

7.6.4 Water company and contractor prosecuted for pollution

Environment Agency v Yorkshire Water Services and Earth Tech Engineering

In a case which highlighted the need for both client and contractor to ensure that their operations do not cause pollution, the Agency prosecuted Yorkshire Water Services Ltd and their contractor, Earth Tech Engineering. As a result of a major pollution incident in 1998, the Agency estimated that between 7.5 and 10.5 million litres of raw sewage caused gross pollution of the River Colne in Huddersfield. A power failure had caused a control software fault, which closed an inlet valve at Deighton sewage treatment works. As

a result, the raw sewage discharged to the river for approximately 7 hours. A number of fish were killed in the Colne between the works and its confluence with the River Calder. The plant operator, Yorkshire Water Services Ltd, had a contract relating to the works with an engineering company, Earth Tech Engineering, who had failed to install relevant alarms. Both companies were prosecuted in relation to this incident under section 85(3) of the Water Resources Act, 1991, following a lengthy and complex investigation.

The cases came to court separately in 2000, with Earth Tech Engineering being fined £5,000 and Yorkshire Water £3,500, with costs of £2,178 awarded to the Agency.

7.7 Recovery of costs

Under the "Polluter Pays Principle", the Agency seeks where possible to recover its costs of dealing with water pollution incidents directly from polluters. Investigation and clean-up costs are recovered directly whenever the polluter is identified and more than one hour is spent on an incident, irrespective of any legal action as a result of the pollution. Table 18 illustrates the costs recovered in 2000.

Table 18 Costs recovered by each Agency region, 2000

| Region | Number of recoveries | Total amount billed | Range of costs billed |
|-------------|----------------------|---------------------|-----------------------|
| Anglian | 186 | £106,000 | £25 - £16,000 |
| Midlands | 334 | £184,218 | £5 - £19,299 |
| North East | 336 | £96,901 | £46 - £4,777 |
| North West | 522 | £122,244 | £15 - £19,603 |
| Southern | 419 | £397,421 | £15 - £174,219 |
| South West | 617 | £189,684 | £25 - £9,777 |
| Thames | 178 | £91,015 | £30 - £12,550 |
| Wales | 136 | £127,968 | £20 - £52,135 |
| All regions | 2,728 | £1,315,451 | £5 - £174,219 |

8 Conclusions

This report builds on those of previous years to provide information on pollution incidents occurring in England and Wales in 2000. Previous reports considered only incidents occurring in the water media, whereas this report makes progress towards reporting incidents to all media.

Some care is therefore needed when comparing data in this report to previous years. However some clear points are apparent overall.

8.1 Increase in water pollution incidents

The number of substantiated water incidents in Categories 1-3 has risen slightly for the first time in six years. This follows a significant fall in 1999 (20%) and may in part reflect the impact on data recording of a change in recording systems used by the Agency in 1999. Large increases occurred in North East Region (78%), Thames (52%), Midlands (39%) and Southern (22%) and Wales (16%). Decreases occurred in North West (-16%), Anglian (-6%) and South West (-4%). However, the downward trend in the occurrence of the most damaging incidents has continued, with a decrease in Category 1 incidents (from 90 in 1999 to 77) and in Category 2 (from 863 to 758). The year 2000 was notable for being very wet, with major floods affecting a large part of the country, and it is not clear how this has affected incident data. Some high profile incidents were a result of heavy rain or floods, but many incidents may have gone undetected or have had a reduced impact as a result. Data for 2001 will be affected by the introduction of an improved data recording system throughout the Agency which will result in more comprehensive recording of incidents.

8.2 Diffuse pollution

The CIWEM/IWA report, (published in 2000), highlighted the issue of diffuse water pollution and endeavoured to identify its cost. It is becoming increasingly apparent that many watercourses that fail to achieve their water quality objectives are affected by diffuse sources of pollution. These watercourses can not be improved through the conventional regulatory approach, as there are no discrete discharges that can be permitted. Overall, it is estimated that only about 5% of companies are controlled through the permitting regime. As the agriculture sector endeavours to compete in increasingly difficult conditions, industry becomes more dispersed with a growing proportion being SME's and greater pressure is placed on urban areas to provide more homes and related infrastructure, the impact of diffuse pollution will increase.

The implementation of the Water Framework Directive is likely to have a significant impact with respect to water, and may require significant changes to the current approach. In particular, action plans may be developed on a catchment basis to tackle the problem. Sustainable urban drainage, codes of practice, general binding rules and improved soil management on farms are all likely to feature, as will a greater need to engage with the public and commerce to educate and inform in order to change behaviours.

To tackle diffuse pollution, the traditional regulatory approach will need to be supplemented by other mechanisms such as voluntary agreements and fiscal incentives, in order to ensure environmental protection and improvement. Funding for this area of work, which is not covered by traditional charging schemes, will be required if significant progress is to be achieved.

8.3 Pollution prevention

The Agency has endeavoured to be proactive in the prevention of pollution, through a wide range of initiatives. There has been a particular focus on oil pollution, the construction industry and soil conservation in recent years. However, a decision was taken in 1999 to focus efforts on ensuring compliance in those areas where the Agency has a statutory duty as a response to the increase in such responsibilities. The Agency's resources are limited and it has to prioritise its activities. The level of resource available for waste minimisation and pollution prevention activities not directly linked to permitting activities has therefore been reduced. Whilst it is desirable, if not essential, to increase its proactive work, especially given the challenge of diffuse pollution where prevention techniques are particularly effective, the resources to do so are not currently available. The Agency has sought to increase participation in suitable proactive partnerships and has had some successes, working with a wide range of local and national organisations, business support groups and industry. The Oil Care Campaign and Tyres Campaign are examples, involving the voluntary sector, local authorities, industry, retailers and regulators in working together with funding support from the Hanson Trust (Oil Care) and the RMC Environment Fund (tyres) Landfill Tax Schemes.

8.4 Oil storage regulations

A final round of consultation on regulations that will set minimum standards for the storage of oil at industrial, commercial and institutional premises was undertaken in 2000. A large amount of preparatory work has been undertaken for these regulations, which should bring about a major reduction in the impact of oil pollution as they are phased in over the four years following their introduction in September 2001.

8.5 Flytipping

Flytipping is illegal, unsightly and costly. Local authorities, the Agency and society as a whole incur significant costs every year in dealing with illegally dumped waste. In some cases the materials dumped are harmful to health and the environment. The number of calls received by the Agency concerning flytipping has increased, and there have been successful prosecutions as a result. Investigations of such incidents can require a significant resource and may mean working with other enforcement agencies, as other criminal activities may well be associated with the flytipping.

8.6 Water company pollution

Although there has been a large improvement in the quality of discharges from sewage treatment works and significant investment in reducing storm overflows, there has been an increase in the number of incidents involving water companies. Many of these involve the failure of alarm and telemetry systems or a lack of familiarity with the drainage system on the part of those responsible for its operation. It is vital that accurate records of drainage systems and pumping stations are kept, that essential systems are maintained in good working order and that companies respond to alarms in a timely manner. Failure to do so will result in pollution and prosecution.

8.7 Fines

The level of fines that the courts imposed increased during 2000, but fines still do not reflect the impact that business has had on the environment and human health. The average level of fine has increased from £3,500 in 1999 to £4,431 and the number of companies facing fines in excess of £10,000 has increased. The average fine for prosecuted businesses was £8,532 compared to £6,800 in 1999. A number of individuals have received prison sentences for waste related offences, and there has been an increase in the use of Community Service Orders.

However, despite these small increases in penalties, in a large number of cases it is often cheaper for the business or individual to commit an environmental crime than comply with the law. Fines and sentences should instead encourage businesses to take the right environmental option.

8.8 Tyres in the environment

Problems relating to the illegal deposit and burning of tyres are escalating. This is particularly noticeable in the Midlands and the North, where unlicensed carriers collect tyres, either flytipping them or storing them illegally. These stores are often abandoned and in some cases these subsequently catch fire, resulting in serious pollution risks to land, air and water. Incident response and tyre removal is costing local authorities over £2M per annum. The Agency intends to address this issue specifically in future years.

Conclusion

The first report on pollution incidents occurring to the water environment covered 1990 and was published by the NRA. This report is the latest of a series of annual reports from that date, maintaining the original structure, but now containing data on all incidents to which the Agency responds. In addition to damaging the environment, pollution incidents place a burden of cost on industry and society as a whole. This cost increases if the incident is not dealt with quickly and effectively. A prime objective of the Agency is to prevent the occurrence of the accident, either through the development and dissemination of good practice advice, (as Appendix C), or through use of legal powers. Where an incident does occur, then swift action can mitigate the effect. The Agency relies on many others to report pollution incidents whenever and wherever they occur.

If you see a pollution incident, please report this to the Agency Hotline on 0800 80 70 60. By reporting the incident as soon as possible, you are helping limit the damage and protect the environment.

9 References

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Appendices

Appendix A CIC Incident Categorisation Scheme

This appendix provides a summary version of the Common Incident Classification Methodology document adapted for water pollution incidents only.

Impact on Agency

The criteria for classifying an incident according to its impact on the Agency are listed below. The level of Agency response assigned to the incident will correspond to the level in which the highest selected criterion is found.

Level A

- Major deployment of Agency resources
- Potential for Category 1 Environmental Impact
- Extensive media coverage and/or public interest
- Opening of Area Incident Room

Level B

- Significant deployment of Agency resources
- Potential for a Category 2 Environmental Impact
- Considerable media and/or public interest

Level C

- Limited deployment of Agency resources
- Potential for a Category 3 Environmental Impact
- Generates limited media and/or public interest

Level D

- No attendance or deployment of Agency Resources

Substantiated

- If No, the incident is recorded as Unsubstantiated (U) and no Environmental Impact Category is assigned.
- If Yes, then an Environmental Impact Category needs to be assigned.

Environmental Protection Incidents – Environmental Impact

Where an incident falls within the responsibilities of the Environmental Protection function the impact across all three environmental media, Air, Land and Water is recorded. This involves assigning a Category to each of the media, with the highest selected criterion determining the level of impact for each medium. Where no impact has occurred for a particular media, then the Impact level is recorded as a Category 4.

Water

Category 1

- Persistent and/or extensive effects on water quality
- Major damage to aquatic ecosystem
- Closure of a potable abstraction point
- Major impact on amenity value
- Major damage to agriculture/commerce
- Serious impact on Man

Category 2

- Significant effect on water quality
- Significant damage to aquatic ecosystem
- Non -routine notification of abstractors
- Reduction in amenity value
- Significant damage to agriculture/commerce
- Impact on Man

Category 3

- Minimal effect on water quality
- Minor damage to local ecosystems
- Amenity value only marginally affected
- Minimal impact on agriculture/commerce

Land

Category 1

- Persistent and extensive contamination of land
- Major damage to terrestrial ecosystem
- Major impact on property
- Major effects on amenity value
- Major damage to agriculture/commerce
- Serious impact on man

Category 2

- Significant contamination of land
- Significant damage to terrestrial ecosystem
- Significant impact on property
- Reduction in amenity value
- Significant damage to agriculture/commerce
- Impact on Man

Category 3

- Minimal contamination of land
- Minor damage to local ecosystems
- Amenity value only marginally affected
- Minimal impact to agriculture/commerce

Air

Category 1

- Persistent and extensive effects on air quality
- Major damage to ecosystem
- Major effects on amenity value
- Major damage to agriculture/commerce
- Serious impact on Man

Category 2

- Significant effect on air quality
- Significant damage to ecosystem
- Reduction in amenity value
- Significant damage to agriculture/commerce
- Serious impact on Man

Category 3

- Minimal effect on air quality
- Minor damage to local ecosystems
- Minor effect on amenity value
- Minimal impact to agriculture/commerce

Appendix B

Definition of pollution incident categories – System used from 1995 - 1998

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) instigation of extensive remedial measures;
- (f) significant adverse effect on amenity value;
- (g) significant adverse effect on site of conservation importance.

Category 2

A significant incident involving one or more of the following:

- (a) notification of abstractors necessary;
- (b) significant fish kill;
- (c) readily observable effect on invertebrate life;
- (d) water unfit for stock watering;
- (e) bed of watercourse contaminated;
- (f) amenity value to downstream users reduced by odour or appearance.

Category 3

A minor incident resulting in localised environmental impact only. Some of the following may apply:

- (a) notification of abstractors not necessary;
- (b) fish kill of less than 10 fish (species of no particular importance to the affected water);
- (c) no readily observable effect on invertebrate life;
- (d) water not unfit for stock watering;
- (e) bed of watercourse only locally contaminated;
- (f) minimal environmental impact and amenity value only marginally affected.

Category 4 (unsubstantiated)

A reported pollution incident that upon investigation proves to be unsubstantiated, that is, no evidence can be found of a pollution incident having occurred.

Appendix C Pollution prevention materials

The following pollution prevention publications are available from the agency:

- ☐ PPG1 - General guide to the prevention of pollution of controlled waters
- ☐ PPG2 - Above ground oil storage tanks
- ☐ PPG3 - The use and design of oil separators in surface water drainage systems
- ☐ PPG4 - Disposal of sewage where no mains drainage is available
- ☐ PPG5 - Works in, near or liable to affect watercourses
- ☐ PPG6 - Working at demolition & construction sites
- ☐ PPG7 - Fuelling stations: construction & operation
- ☐ PPG8 - Safe storage & disposal of used oils
- ☐ PPG9 - Pesticides
- ☐ PPG10 - Highway depots
- ☐ PPG11 - Industrial sites
- ☐ PPG12 - Sheep dip
- ☐ PPG13 - The use of high-pressure water & steam cleaners
- ☐ PPG14 - Boats and marinas
- ☐ PPG15 - Retail premises
- ☐ PPG16 - Schools and other educational establishments
- ☐ PPG17 - Dairies and other milk-handling operations
- ☐ PPG18 - Control of spillages and fire fighting run-off
- ☐ PPG19 - Garages and vehicle service centres
- ☐ PPG20 - Dewatering underground ducts and chambers
- ☐ PPG21 - Pollution Incident Response Planning
- ☐ PPG22 - Dealing with spillages on highways
- ☐ PPG23 - Maintenance of structures over water
- ☐ PPG24 - Stables, kennels and catteries
- ☐ PPG25 - Hospitals and health-care establishments
- ☐ PPG26 - Storage and handling of drums & intermediate bulk containers
- ☐ Masonry bunds for oil storage tanks
- ☐ Concrete bunds for oil storage tanks
- ☐ The use of air cooled blast-furnace slag as an unbound aggregate in the construction industry
- ☐ River pollution and how to avoid it
- ☐ Follow the Oil Care Code
- ☐ Oil Care at Home
- ☐ Oil Care at Work
- ☐ Oil Care on Your Boat
- ☐ Domestic oil storage

- ☐ Use Your Brain sticker
- ☐ Domestic Oil Tank sticker
- ☐ Industrial Oil Tank sticker
- ☐ Farm pollution and how to avoid it
- ☐ Silage pollution and how to avoid it
- ☐ Farm waste management plans
- ☐ Understanding buffer strips
- ☐ Farm Waste Regulations 1991
- ☐ Managing maize
- ☐ Chemical pollution and how to avoid it
- ☐ Pollution from your home and how to avoid it
- ☐ Solvent pollution and how to avoid it
- ☐ Silt pollution and how to avoid it
- ☐ Works notices regulations
- ☐ Wrong connections
- ☐ Pollution incident card

To receive any of the above publications, enter the number required in the appropriate box and return this form to us by fax on 0151 604 1222

To receive the resources below please call 08457 337700.

- ☐ Pollution Prevention Pays (leaflet, poster and video free)
- ☐ Money for nothing, waste tips for free - waste minimisation (booklet and video free)
- ☐ Designs that hold water - Sustainable drainage systems explained (free video)
- ☐ Building a Cleaner Future (booklet, poster and video £50 then £10 for further copies)
- ☐ Waste minimisation good practice guide - booklet
- ☐ Waste minimisation - getting staff involved - booklet
- ☐ Good practice guide for the management of trading estates and business parks - booklet

Name: _____

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**ENVIRONMENT
AGENCY**

This report covers the calendar year 2000 and records the pollution incidents occurring in England and Wales. It provides an analysis of substantiated pollution incidents by both source and type of pollutant, and gives an indication of their environmental impact. The report also gives details of legal action taken in respect of these incidents, comments on how the Environment Agency manages pollution incidents, and describes pollution prevention initiatives.