

EA-MIDLANDS BOX 5

Environmental Issues

in the Midlands
1995/96

Facing the challenge together



ENVIRONMENT
AGENCY

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The Agency's vision

"A better environment in England and Wales for present and future generations"

This report, prepared for the Midlands Regional Environment Protection Advisory Committee, identifies some of the key areas which the new Agency is addressing in the region.

The Drought

The Agency has developed plans to alleviate shortages of water in the region's rivers by a coordinated use of reservoir storage and groundwater resources. In addition, action plans are being developed with Severn Trent Water Ltd and other water companies to manage water resources to meet demand.

Air Pollution

The Government Strategy on Air Quality will require Local Authorities to undertake air quality reviews and designate management zones where necessary. The Agency will be involved in the production of pollution inventories that form the basis of the reviews. At the heart of the strategy new tighter air quality standards will come into force by 2005.

Waste

The development of waste minimisation initiatives in the region is well underway. In addition new databases and a survey of landfill capacity are proposed. These will prove valuable tools in the management of waste disposal resources.



Biodiversity

A survey of endangered water voles is being funded by the Environment Agency

Kevin Cook, Dorset Wildlife Trust

River water quality

The number of incidents causing serious pollution of watercourses is at a new low level. General improvements in river pollution levels are continuing. Consultation is underway on the implementation of a new system of river quality objectives.



The Environment Agency became operational on 1 April 1996 under the Environment Act 1995. It combined the work of three organisations: the National Rivers Authority, Her Majesty's Inspectorate of Pollution and Waste Regulatory Authorities and covers England and Wales, operating in eight regions.

The Agency's Midlands region, with a population of 8.6 million and significant concentrations of industrial and commercial activity, is split into four areas divided along Local Authority boundaries broadly following the region's principal rivers, the Severn and the Trent.

- Upper Trent Area has its main office in Lichfield
- Lower Trent Area has its main office in Nottingham
- Upper Severn Area has its main office in Shrewsbury
- Lower Severn Area has its main office in Tewkesbury
- The regional headquarters are in Solihull

The Environment Act 1995 also established a Regional Environment Protection Advisory Committee, formed of representatives from local government, industry, agriculture, environmental and conservation groups to advise the Agency on its work in the Midlands and represent the interests of the public and regulated organisations. The Committee, under the Chairmanship of Penny Perry of Burton-on-Trent, meets in public and receives reports on environmental protection issues in the Midlands. The Midlands region has two other statutory committees: the Regional Flood Defence Committee, whose chairman is John Dainty; and the Regional Fisheries Advisory Committee, whose Chairman is Fred Jennings. These groups also receive reports on matters relating to their functional interests.

This report to the Committee is prepared by Midlands region and identifies the major issues facing us in the vision of a better environment for present and future generations. In covering the region's pollution prevention and control, and the management of water resources, it forms the first public appraisal of the region's environmental quality. Supporting environmental quality facts and figures are set out in the Agency's report, "Midlands Environmental Reference Book".

The main environmental problems faced can only be effectively dealt with through partnership with other organisations and by raising awareness of their own impact on the environment. The Agency is actively developing partnerships and has committed itself to raising public awareness of major environmental issues.

The Envir

The Agency, with other organisations, is involved in measuring **Environmental Pollution** levels. It seeks to reduce the long and short term effects of pollution. This work will support the region's future response to the Department of the Environment's indicators of sustainable development⁽¹⁾.

The background pollution levels in land, air and water can be reduced by managing **long term releases** from domestic, commercial and industrial sources. This includes improving the technology of the cars we drive and establishing controls on industry. Consumption of primary materials can be reduced by reuse and better design of manufactured items. Government policy aims to alter the way in which society uses resources and manages the environment on a national scale. Local Authorities undertake much of that environmental management in their own areas, and following the

Rio Earth Summit in 1992 have encouraged local action plans to be developed. This has often involved local and other voluntary groups and will certainly require their input to succeed.

The Agency regulates air pollution from major industrial sites and watercourse pollution from all sources. We regulate the storage and disposal of waste, the use of radioactive materials and the disposal of radioactive wastes. We also impose operating conditions on the various regulated sites to prevent pollution and to minimise environmental impact.



Accidents and emergencies

When things go wrong and damaging materials pollute the environment, we work to control the effects. This



includes direct action to clean up pollution in rivers and supervising the safe disposal of illegally dumped waste. We operate a 24 hour emergency call-out service so that our staff can assess incidents and direct action as appropriate. Again we work closely with other organisations like the emergency services, the Health and Safety Executive and Local Authorities.

Enforcement

We are a regulatory body with powers to investigate and take action where our requirements are not met and where environmental damage takes place. This ranges from serving legally enforceable notices which require corrective action to be taken, prohibiting industry from operating, where serious pollution is taking place (or likely to take place), to major

prosecutions such as that taken against Coalite Chemicals at Bolsover in 1995 for its failure to operate a chemical incinerator correctly. The Agency must ensure that the various legislative duties imposed on any person that we regulate are met and enforced. This often involves detailed investigative work. The Agency endeavours to rectify minor matters through education and persuasion. However, where this fails or if the offence is of a serious nature, the Agency will use available powers, including legal action, to prevent or to rectify the situation. In order to ensure parity between different areas we are examining licensing issues and enforcement practices and procedures to ensure consistency of approach, common standards and policy, and best practice. The attainment of these goals is essential if the Agency is to regulate and manage the environment in an effective and credible way.

Environment Agency



Other organisations

Local Authorities are responsible for controlling environmental releases from numerous industrial and other types of premises and for enforcing the nuisance laws. The Health and Safety Executive is responsible for protecting the public from the consequences of industrial releases caused by major accidents, and for working with Local Authorities for general employee and public safety. We work with the emergency services and county emergency planning authorities to ensure that when things go wrong we are all able to make the most effective response possible. The Agency is developing a system of local management plans to include all its environmental activities as well as those of other authorities. These local plans will be developed in consultation with interested bodies as well as the authorities carrying out environmental improvements. This

planning is already under way for the River Soar in Leicestershire, and for the middle reaches of the River Severn in Shropshire.

Recent public concern about **BSE** led to the Agency's involvement in discussions with the Government about the proposed disposal options for infected cattle and those animals culled because they are more than 30 months old. The Agency ensures that whichever disposal route is followed, the infectious agent and other pollutants are not released into the environment. The Agency has reviewed proposed disposal options of waste from BSE cattle and the culling programme to remove "at risk" cattle from the human food chain. We also continue to inspect premises under our control where the waste products are processed or stored.

Integrated

Pollution Co



Integrated Pollution Control (IPC) was introduced under Part 1 of the Environmental Protection Act 1990. The Agency regulates all the environmental pollution for the more potentially polluting industries identified in regulations issued by the Government. Written authorisations are issued to industrial operators and include specific conditions designed to ensure that best environmental practice is used. This is known as Best Available Techniques Not Entailing Excessive Cost (BATNEEC). The Agency has published guidance laying down what is regarded as best practice⁽²⁾. The conditions also require that the Best Practicable Environmental Option (BPEO)⁽³⁾ is used to ensure that the industry's overall environmental impact is minimised.

A critical part of all authorisations issued for the 340 industrial processes in the region is an improvement programme for any existing equipment and procedures. This gives the owner of that factory a period of up to four years to improve it to the standard regarded by the Agency as best practice. Many of the processes now authorised are nearing the end of their improvement programmes and real environmental improvements are being demonstrated. The Agency reviews the conditions imposed upon each works every four years and if necessary reassesses the environmental impact against any new environmental standards.



ontrol

Tyseley Waste Incinerator



TWD Ltd

An incinerator has been operated at Tyseley by the Local Authority since the 1920s. In late 1992, the existing incinerator (built in the 1970s and capable of burning 150,000 tonnes of municipal waste every year) was authorised under IPC. An improvement programme was imposed upon Birmingham City Council to bring the existing incinerator up to new plant standards or replace the incinerator.

The Council decided to replace the existing incinerator with a much larger one capable of burning 350,000 tonnes of municipal waste per year. The new incinerator, to be operated by the independent Tyseley Waste Disposal Ltd, obtained planning permission and an IPC authorisation was granted by HM Inspectorate of Pollution (HMIP) one of the predecessors of the Agency. The existing incinerator must close by 1 December 1996 to satisfy the requirements of the European Union Directive on the incineration of municipal waste and the new incinerator is being commissioned to replace it by that time.

The new incinerator has the additional feature that it generates electrical power by raising steam from the heat produced from the incineration of municipal waste. Since the incinerator also reduces the amount of refuse that is landfilled, there is a double benefit to the environment. Whilst the new plant is more than twice as large as the existing one, the levels of pollution from the new works will be much lower than the previous incinerator. Additional pollution control measures are included within the design - lime and activated carbon injection remove heavy metals, acid gases and dioxins from the exhaust. Other municipal incinerators in the region are either being closed permanently or improved by fitting additional pollution control equipment. This refitting is costing over £60 million in addition to the £95 million required for the Tyseley project.

Radioactive

Substances



Radioactive substances are strictly controlled by the Agency to minimise their release into the environment. The storage of radioactive materials on site for use is controlled by the system of registration and inspections, whilst the production and disposal of radioactive waste is controlled by the system of authorisation and inspection. The type of site producing radioactive waste may of course include nuclear power stations and reprocessing facilities. However, in the Midlands, the sites producing radioactive waste are predominantly hospitals and research facilities.

Radioactive Substances in Hospitals

In the region's cities, the large hospitals use radioactive materials both to diagnose medical conditions and to treat them. Radioactive waste is produced as gases released into the air, solids disposed of for incineration and disposal of liquid wastes to the public sewers.

As part of the environmental impact assessment of the disposals, the operator is required to demonstrate, to the Agency's satisfaction, that the exposure of any member of the public to radioactivity from activities at their site falls within national and international guidelines⁽⁴⁾. The exposure levels are routinely a small fraction of the permissible limits for public safety.



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Air Quality



CRE Group Ltd

Estimated annual mean sulphur dioxide concentration, 1994 (ppb)



Estimated annual mean nitrogen dioxide concentration, 1994 (ppb)



NETCEN

As well as establishing the Agency, the Environment Act 1995 introduced the National Air Quality Strategy and Local Authority air quality management. The Agency regulates some of the largest discrete sources of air pollution in the region, and as part of the national air quality strategy, the Agency will be liaising with Local Authorities to advise them of the types of pollutants released and the impact upon the local environment of those authorised processes. The Agency has had discussions with local government representatives to talk about its role with the Local Authorities in ensuring effective local air quality management. A cornerstone of the National Air Quality Strategy is the introduction of new air quality standards. These replace and add to the existing standards imposed by European Directives and significantly reduce the levels of acceptable exposure of the public to air pollutants.

The maps here show estimated concentrations of nitrogen dioxide and sulphur dioxide in the region's air.

A recent report on airborne particulate matter⁽⁵⁾ by one of the Department of the Environment's advisory groups estimated that a two thirds reduction in traffic related particulate would be required during winter to meet new target levels.

As part of our contribution to Local Authorities' Air Quality Management Plans, the Agency will help to develop inventories of the releases of pollutants into the Plan area. This may include releases from sources in adjacent Local Authority areas or from sources further afield.

Waste



The region produces 28 million tonnes of waste each year, 400,000 tonnes of which is categorised as hazardous or "special waste". Industry and commerce account for around 17 million tonnes (60%) of this total. Waste from household sources amounts to some 3.7 million tonnes of waste annually and construction and demolition activities generate at least a further 7 million tonnes of waste each year. The region has approximately 1500 waste disposal facilities regulated and monitored by Agency Waste Regulation staff.

In common with other areas of the United Kingdom, the majority of

waste arising within the region is disposed of at landfill sites. Some household and commercial waste is, however, incinerated at plants within the region. Large scale treatment of hazardous and non-hazardous industrial wastes takes place in the West Midlands metropolitan area, which accepts wastes from many areas of the United Kingdom.

Wastes are transported significant distances within the region. This is particularly the case for industrial waste, with significant quantities moving from the cities to surrounding areas for disposal by landfilling.



Waste Regulation

The Agency controls the storage, transport, exchange and disposal of wastes. This includes licensing and inspecting waste management facilities for compliance with the Agency's requirements. We also undertake environmental monitoring on and around waste disposal facilities, and produce and maintain public registers containing details of all licensed facilities. This is designed to ensure that licensed waste management facilities do not cause pollution of the environment, harm to human health, or serious detriment to the locality. Where there is a breach of licence or other illegal activity, the Agency will take enforcement action which could include prosecution where appropriate.

As well as those activities requiring a licence, there is another large group which is exempt. We still, however, register and monitor these facilities along with those of waste carriers and brokers.

In the area of waste transport, we implement, monitor and enforce special waste and transfrontier shipment of waste regulations and monitor the activity of waste carriers. We always seek to prevent pollution problems before they occur and offer advice to companies on how best to manage their waste in order to reduce potential environmental problems and reduce costs. The Agency aims to reduce future pollution problems from waste by promoting waste minimisation. We have an input on waste matters in Local Authority planning,

acting as a consultee for developments within 250 metres of current or former landfill sites.

Clearly our activities in the waste field involve collaboration with a variety of other bodies. Perhaps the most important of these are local councils who may be both planning authorities and waste disposal authorities. Their functions can include: collecting household waste, arranging and paying for the disposal of household waste, providing landfill and household waste sites and recycling facilities, issuing planning permission for waste management facilities, inspecting waste disposal sites to ensure compliance with planning permission and preparing development plan policies and development plan proposals for waste.

Waste Licensing Initiatives

The objectives and targets set out in the Government White Paper "Making Waste Work"⁽⁷⁾ stress the need to achieve significant reduction in the quantities of waste produced and better use of waste materials. The Agency is, therefore, developing a number of initiatives to promote waste minimisation and reuse of waste materials. These are designed to promote the principle of "best practice" and concepts of waste reduction, and target areas where initiatives can realise the greatest benefits.

Licensing of Waste Facilities and Carriers

Under the Environmental Protection Act 1990, waste disposal and treatment facilities need a valid waste management licence. The Agency

issues these licences which control operations on the site and specifies the wastes which may be accepted there, together with any necessary environmental protection measures. Any person transporting controlled waste⁽⁸⁾ either for profit or otherwise in the course of business has to be registered with the Agency as a carrier⁽⁹⁾. We check the suitability of applicants for registration and can refuse the registration where the applicant has an unspent conviction for a relevant offence.

The Environmental Protection Act 1990 imposes a **Duty of Care** on all persons, other than householders in respect of their own wastes, who produce, import, store, treat, process, transport, recycle, "broker", or dispose of controlled waste. This duty requires the person to take reasonable steps to ensure that the waste is correctly handled so as not to cause pollution.

In practice, whenever controlled waste is passed between operators it has to be accompanied by documentation and only passed to an authorised person, such as a registered waste carrier. The work of the Agency under Duty of Care is undertaken in partnership with Local Authority staff and is concerned with ensuring that these procedures are adhered to and, where appropriate, involves the investigation of alleged offences and subsequent enforcement action.

Waste

Special Waste

Some of the most hazardous wastes are known as special waste, which, because of its nature, requires special handling. The movement of special wastes must be accompanied by consignment notes. In this way the Agency monitors the movement of special waste and can ensure that the waste is received at suitably licensed sites. In addition, the Agency regulates the movement of controlled wastes into or out of England and Wales from Europe and further overseas⁽¹⁰⁾



We are undertaking a major **Landfill Capacity Monitoring Survey** to assess the availability and utilisation of landfill. Waste monitoring surveys are an essential precursor to the development of waste strategy, for without such information sensible targets cannot be developed for the minimisation of waste, or progress monitored. It is anticipated that the survey will be undertaken late 1996 with findings published in 1997.

Strategic Planning

We are actively supporting strategic planning authorities in their preparation of various waste plans. In particular we are supporting initiatives taken by regional planning groups which address self-sufficiency in waste management. The region will develop waste surveys and information systems to this end.

Clinical Wastes

Midlands region is developing and promoting best practice in the management of clinical waste which is generated both by healthcare and veterinary services and in the wider community. We have started a wide-ranging review of clinical waste management practices within our region which involves the producers of clinical waste and contractors disposing of it. The results of this study are expected to be available late in 1996.

Advice to industry

The Agency will be undertaking a major programme of industry visits beginning late in 1996 to collect data on waste arisings. Agency staff will use these opportunities to provide advice on waste minimisation and waste management best practice.



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The Waste Hierarchy



National Waste Strategy

The Agency has a statutory duty to develop a strategy for the management of wastes. This will be developed from surveys and investigations carried out within each of the regions. Each will undertake surveys of waste production and compile data relating to the quantities of waste being treated, disposed of, or recycled at waste management facilities, and the movements of waste within and outside the region.

The Agency will consider planning for waste management in its widest sense: using data on waste production and waste movements, the environmental impact and industry's needs. We will also take into account the needs of Local Authorities and others for strategic and meaningful information on waste management. In developing the waste strategy, the Agency will place emphasis on the minimisation of waste production to reduce its environmental impact.

"Making Waste Work"⁽⁷⁾ assigns a high priority to the reduction in the quantity of waste being generated and to moving the management of waste from its dependence on landfill to more sustainable forms of waste management. The objectives set out in the white paper are to:

- reduce the amount of waste society produces.
- make best use of the waste that society produces.
- minimise the risks of immediate and future environmental pollution and harm to human health.
- increase the proportion of waste managed by options towards the top of the waste hierarchy.

The primary targets in relation to these objectives are to:

- reduce the proportion of controlled waste going to landfill from 70% to 60% by 2005.
- recover value from 40% of municipal waste by 2005.

- set a target for overall waste reduction by the end of 1998.

In addition, a range of secondary targets has been identified relating to individual waste streams.

The Agency will assist the development of a National Strategy for wastes by developing strategies for the management of waste within each of its regions. We will build upon Waste Management Plans prepared by the former Waste Regulation Authorities, and will seek to develop consistent and improved estimates of the types and quantities of waste generated and disposed of within the region and associated patterns of waste movement. The region is actively participating in the development of the National Waste Database and the National Waste Classification System, both of which will improve the capability of the Agency to develop an information base which supports and monitors waste strategy at national, regional, and area levels.

Waste Minimisation



The Agency has a strong involvement in several waste minimisation projects in the region which we inherited from our predecessors. The development of these and other similar initiatives to promote waste minimisation and environmental best practice is one of our priorities.



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Waste Minimisation Initiatives

Leicestershire

This pioneering project began its demonstration phase in 1994 with ten participating companies. Early achievements include a 10% reduction in water use and effluent discharges and 50% reductions in both air emissions and waste to landfill. The initiative identified the true cost of waste as equivalent to 4.5% of company turnover with potential, achievable savings in the region of 1% turnover.

Following the successful demonstration phase a full report⁽¹⁾ was published and dissemination workshops were held around the East Midlands.

West Midlands

The project was launched in 1995 with support from a number of bodies including the Agency, the BOC Foundation for the Environment, Severn Trent Water Ltd and the Department of Trade and Industry. The project has led to significant financial and resource savings for member companies averaging 0.5% of company turnover. Substantial reductions in environmental emissions have also been achieved.

After an initial subsidy from project sponsors, consultants' fees are met by the participating companies on a payment-by-results basis. This also allows for the generation of a snowball fund which assists with activities such as workshops around the region.

Hereford & Worcester

The group was launched in February 1996 to provide hands-on training and practical assistance to a wide range of small and medium-sized enterprises (SMEs). With support from Hereford & Worcester Business Link, the County Council Waste Regulation Authority, Beacon Waste & Welsh Water Industrial Services, the group has been very successful with over 40 companies taking part. A particular feature of the Group is the integration of environmental themes such as water and effluent, recycling, packaging and energy into the training programme, with contributions from leading specialists. The Group hopes to foster an ongoing company network which will enable members to keep in touch with environmental matters and to share ideas and improve their own environmental performance.

The first step in any waste minimisation programme is to identify through a comprehensive audit the full cost of waste, both in financial and environmental impact terms. Many companies are now realising the significant savings and business opportunities which can be achieved by waste minimisation. Benefits include reduced materials handling and disposal costs, improved operating efficiency, reduced risk of spills and accidents and improved company image. Not least, waste minimisation leads to a reduction in resource consumption and reduced emissions to air, land and water.

The Agency will use its many contacts with industry to disseminate information, case studies and guidance materials on waste minimisation and environmental best practice.



Water Quality



The Agency looks after the quality of more than 6000km of Midlands rivers, canals and estuaries, many of which are used for drinking water and are inhabited by fish and other wildlife. We monitor these watercourses as part of a national programme to assess water quality using a classification scheme called the General Quality Assessment (GQA). We also monitor for toxic substances such as mercury and pesticides which are subject to control under European Union Directives⁽¹²⁾.

Water quality is maintained or improved by controlling discharges to watercourses with legal documents called consents, which are issued by the Agency. We monitor the performance of discharges and, if necessary, take legal action where standards are not being met.

Historically the Midlands region has reported the largest number of pollution incidents annually. Numbers of serious pollution incidents have continued to decline - a measure of the Agency's successful pollution prevention work⁽¹³⁾.

An important pollution prevention initiative is the liaison between the Fire Service and the Agency. The Fire Service deals with a significant number of incidents which carry a high risk of pollution, such as road traffic accidents. Through training and equipment provision, this partnership has already prevented pollution at several major incidents.



Improvements in Water Quality

The GQA scheme measures ammonia, oxygen, oxygen demand and nutrients. In addition, the numbers and types of invertebrates living in rivers are measured and give an indication of pollution. The aesthetic quality of rivers has also been measured in a recent trial by examining litter and other visible pollutants.

Over the five years since 1990, more than a quarter of our rivers have improved chemically and more than a third biologically. This is a result of expenditure by Severn Trent Water Ltd, farmers and industrialists to improve effluents. Many of the Water Company's sewage treatment works perform better than is required by their consent conditions.

The table above shows the chemical and biological quality of the region's rivers. The figures show percentages of total lengths of rivers and canals in each quality grade.

Control of Eutrophication

In 1991, European legislation on sewage treatment came into force⁽¹⁴⁾. Its main purpose was to make sure that towns were served by sewers and sewage treatment works. An important aspect is the reduction of pollution of rivers and estuaries by phosphorus and nitrogen where they cause excessive growth of water plants. Fish may be affected and the ecology of the river disturbed. This problem is called eutrophication.

In 1993, several rivers were investigated where it was thought that eutrophication was a problem. As a result more than £50 million will be spent by Severn Trent Water Ltd on extra treatment at seven large sewage treatment works to reduce phosphorus by the end of 1998 in three rivers, including the Warwickshire Avon.

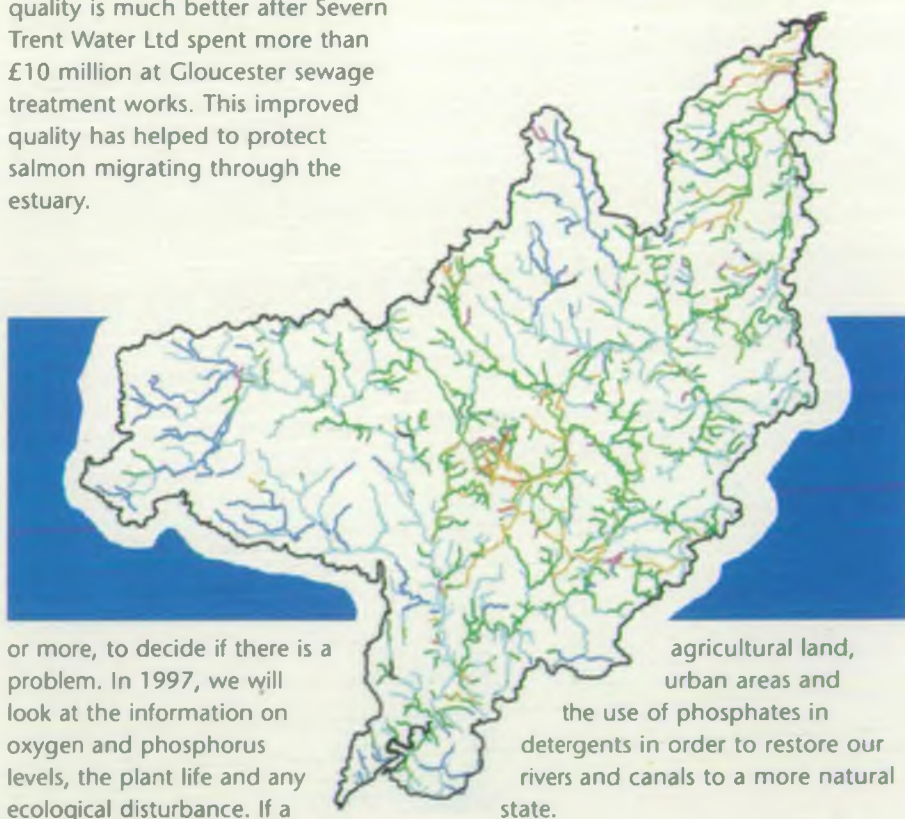
Monitoring has been carried out since 1994 on 11 more sections of rivers or canals where there are sewage works serving the equivalent of 10,000 people

GQA grade	Good		Fair		Poor	Bad
	A	B	C	D	E	F
	% river in grade					
1988/90 Biology	9.8	21.3	29.6	21.1	12.7	5.5
1993/95 Biology	18.8	24.9	32.5	16.5	5.6	1.7
1988/90 Chemistry	7.9	26.4	28.3	17.4	17.7	2.3
1993/95 Chemistry	10.2	33.2	33.8	13.5	8.3	1.0

Following the building of a new sewage works at Cannock, 40km of the Saredon Brook and rivers Penk and Sow in Staffordshire, which had been poor or bad quality for many years, are now mostly good quality with varied fish and animal life. In the Severn Estuary near Gloucester, quality is much better after Severn Trent Water Ltd spent more than £10 million at Gloucester sewage treatment works. This improved quality has helped to protect salmon migrating through the estuary.

River Classification 1995/96

- GRADE A
- GRADE B
- GRADE C
- GRADE D
- GRADE E
- GRADE F
- NOT GRADED



or more, to decide if there is a problem. In 1997, we will look at the information on oxygen and phosphorus levels, the plant life and any ecological disturbance. If a problem is found, the Agency will report to the Department of the Environment who may designate part or all of the rivers as Sensitive Areas. Extra treatment will then be required at the sewage treatment works discharging to those waters.

Reduction of phosphorus and in special cases nitrogen at large sewage treatment works will help to combat eutrophication, but there is a need to look more widely at the sources of plant nutrients which enter rivers from

Monitoring litter and sewage on riverbanks and water shows there are serious problems in some urban rivers or where sewers overflow. Cleaner streams can also become discoloured, reducing amenity value.

Improvement in the rivers Tame, Erewash, Chelt and Stour is planned over the next five years. Work will continue to minimise pollution and identify rivers where the water use requires improved quality.

Rural Sewerage

Many rural areas do not have adequate sewage treatment facilities or are not on mains sewerage. This can have a significant local impact on river quality and aesthetic appearance. The Environment Act 1995 requires water companies to provide sewerage facilities where certain technical and economic criteria are met. Owners and occupiers of premises wanting to be connected to a public sewer will have to make an application to their local water company. Technical and

economic criteria set out in guidance from the Department of the Environment are used by the water companies in carrying out feasibility studies. These include the impact the present disposal facilities have on the environment, as well as the costs of upgrading the present facilities or providing a public sewer. A decision is taken based on the costs and benefits of the various options. If unsuccessful, applicants can appeal to the Agency, who will consider cases and decide whether a public sewer should be provided.



Water Quality Objectives

Public consultation is under way on new quality targets, known as Statutory Water Quality Objectives, for 182km of the River Stour, Smestow Brook and the Staffordshire and Worcester Canal. A scheme called the River Ecosystem Classification, reflecting the general health of the river and whether fish can live there, will be used.

The Agency looks at the costs and benefits of improvement works when making proposals for objectives. Proposed objectives will maintain present quality for most of the river or require improvements in stretches of the Stour that have suffered from serious pollution for many years. Severn Trent Water Ltd will spend more than £40 million by the year 2000 on unsatisfactory sewage

treatment works and sewers serving Stourbridge, Dudley, Halesowen, Kidderminster and Wolverhampton. Other work will be undertaken to improve industrial discharges and contaminated land sites.

It is important that people living in the Stour catchment take part in the process of setting quality targets. Comments made on the proposed objectives by the public and other organisations will affect the proposals made to the Government who will actually set the legally binding Statutory Water Quality Objectives. This will probably be next year, and the Agency will start work on proposals for all other rivers and canals in the region after that stage. Improvements in water quality will bring benefits to more than a third of the length of rivers and canals in the Stour catchment. There will remain some sections of river that will only

be improved when Government restrictions on water company capital spending for environmental projects allow. The benefits include the development of good coarse fisheries, a better environment for recreation and more water available for industrial or drinking water use, benefits which will be enjoyed by the large population in the West Midlands as well as further afield.

In pursuance of the Government's commitment to biodiversity conservation, the Agency will be developing targets for species and habitats of conservation concern. These will relate to the targets for key wetland species and habitats as identified by the UK Biodiversity Action Plan, emphasising the contribution that Midlands region can make to the national targets.



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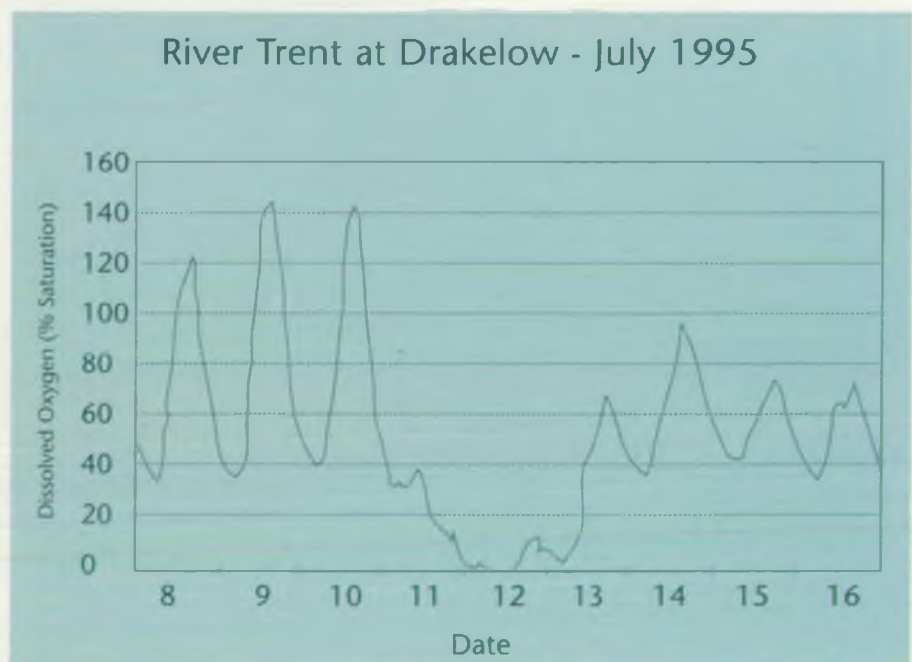


Putting oxygen back into a polluted river

River Tame Pollution Incident

In July 1995, severe thunderstorms occurred over Birmingham after six weeks of dry weather. The heavy rainfall washed silt, debris and standing water from the conurbation's extensive drainage systems into the River Tame and its tributaries. This influx of polluting material caused dissolved oxygen levels in the river to plummet, killing thousands of fish. The body of deoxygenated water moved downstream and into the River Trent, where there were further fish deaths.

Pollution Control staff responded by injecting oxygen into the River Trent in order to protect the remaining fish. This lasted for three days and involved three power stations on the River Trent re-aerating the river water in their cooling towers.



Oxygen levels plummet in river after storm

Ground

18



The Agency monitors the quality of groundwater at 250 boreholes across the Midlands region. Over half of these are public drinking water abstraction sites and the remainder are for private industrial, agricultural and other uses. Whilst we have previously concentrated on main drinking water sites, where the water discharges or flows into watercourses, we are now undertaking a major review of the network to ensure adequate coverage. This review will be completed during autumn 1996 and implemented before March 1997.



Groundwater contamination

There are a number of places in the region where there is groundwater pollution arising from current or former activities, ranging from redundant waste disposal areas to chemical factories. Increasing numbers of petrol station owners are discovering hydrocarbon contamination of the underlying water from leaking tanks or associated pipework. Some major towns and cities, such as Birmingham and Coventry, have widespread industrial-related contamination not attributable to any one site or activity.

Investigations will define the extent and nature of water pollution and implement or design remediation works at a number of major sites. This includes monitoring work and assessment of the impact of the contamination on nearby water abstraction points and water resources. The sites are usually investigated by the owners and their consultants, with the Agency being closely involved at every stage.

Many such sites are now regulated by the Agency to prevent future pollution and minimise the type of pollution that has caused contaminated land and water in the past.

water

Groundwater Modelling

Major digital models, such as the Nottinghamshire Sandstone aquifer, have been designed to describe the groundwater flow system of a heavily used resource, and provide predictions of the effects of pumping on future water levels. They will prove a useful tool in determining the effects of proposed abstractions and are instrumental in licensing policy determinations within the region.

There is a further programme for the modelling of source protection zones around existing major groundwater abstraction sites. So far 100 zones have been defined.

One hundred Nitrate Vulnerable Zones have been designated nationally under the European Union laws⁽¹⁵⁾. Under this Directive the Government was obliged to identify those parts of the country where nitrate levels exceed or could exceed 50 mg/l, and introduce "action plans" for farmers to follow to reduce the risk of nitrate loss from their land.



Borehole catchments used for public drinking water supplies which exceed 50 mg/l nitrate on any occasion during the previous three years or which were on a trend to exceed 50 mg/l by 2010, or surface water catchments which failed to comply with the standard for 95% of samples were chosen. These zones were finally designated by Parliament on 22 March 1996.

The Agency's role in defining Nitrate Vulnerable Zones is as provider of technical advice to the Government. The Agency assisted through a

number of working groups in drawing up the criteria for the designation of Vulnerable Zones and determined the hydrogeological boundaries of the zones according to these set criteria.

As well as Nitrate Vulnerable Zones, where compliance with the improvement measures will be compulsory and uncompensated, there are Nitrate Sensitive Areas where farmers can receive payments in return for agreeing to more restrictive farming practise. This scheme is funded by the European Union. Nationally 22 new areas, covering 28 separate groundwater sources, have joined the ten pilot schemes implemented in 1990.

Water resources



1995 Drought

As elsewhere in the country, the region experienced a drought in 1995. Despite media interest and dramatic activities to alleviate shortages of water in other parts of England and Wales, the drought in the region was of only moderate severity in water supply terms. The drier than average weather began in March. Regional rainfall totals were consistently below average from March to August, with rainfall in August only 11% of average. Summer rainfall totals were only 37% of average, and were generally lower than comparable totals in the drought of 1975/76. September's rain brought some relief, but the drier weather returned again for much of the winter period, resulting in an annual rainfall total of just 67% of average. In the Trent catchment, this low annual figure was the lowest for a century, whilst in the headwaters of the Severn it was the lowest for 60 years. This, together with high temperatures, caused widespread dry soils which in turn led to considerable environmental stress on plantlife.

The prolonged low flows in the region's rivers meant that reservoirs could not be refilled, and also hindered direct abstractions from rivers for public water supply and agricultural irrigation. The unusually long duration of the low flows caused the greatest problems. However, there were no major public water supply interruptions and the most severe action was the introduction of a company-wide hosepipe ban by Severn Trent Water Ltd to conserve resources. To support flows in the River Severn, the Agency deployed resources from Clywedog reservoir and activated the Shropshire Groundwater scheme. This ensured water was available to abstractors while safeguarding river flows.

Drought Orders were however required to assist in the refilling of reservoirs during the winter and to safeguard 1996 supplies for both the Midlands region and the neighbouring North West. The Agency negotiated the terms of the Orders to minimise the environmental impact. The environmental consequences of the

orders were also subject to detailed Agency monitoring, including the effect of any deterioration in water quality on vulnerable abstractors. As the drier weather continued during the winter of 1995/96, the major water companies developed action plans in consultation with the Agency to ensure that they could meet their future water supply needs. As well as initiatives to reduce demand, such as reducing leakage, the plans looked at additional resources. The Agency has been closely involved in the implementation of a range of schemes which include the potential use of the River Trent as a source of drinking water. This has only recently become possible due to the continuing improvement in water quality in this major river.

The Agency is now reviewing the lessons from the 1995 experience about water use and future demands and, particularly, the Agency's role in influencing trends in water use.

References

1. Indicators of Sustainable Development for the United Kingdom, Department of the Environment, ISBN 0 11 753174 X, HMSO
2. IPC Guidance Notes are published in relation to industry sector groups. Specific titles are listed in the most recent at time of going to press. "Processes Subject to Integrated Pollution Control: Recovery of Organic Solvents and Oil by Distillation" S2 5.04 ISBN 0 11 310116 3, HMSO
3. Best Practicable Environmental Option Assessments for IPC: A Summary Guidance for Operators of IPC Processes (Also HMIP Environmental, Economic and Best Practicable Environmental Option Assessments for Integrated Pollution Control. Technical Guidance Note E1 (Environmental) HMSO)
4. International Committee on Radiation Protection, Publication 60 (1990)
5. "Airborne Particulate Matter in the United Kingdom" Third Report of the Quality of Urban Air Review Group (May 1996) ISBN 0 9520771 3 2, HMSO
6. The Special Waste Regulations (SI 972 as amended of 1996)
7. "Making Waste Work: A strategy for sustainable waste management in England and Wales" Cm 3040 White paper ISBN 0 10 130402 1, HMSO
8. Waste Management Licensing Regulations (SI 1056 of 1994)
9. Control of Pollution (Amendment) Act 1989 and The Controlled Waste (Registration of Carriers and Seizure of Vehicles) (SI 1624 of 1991)
10. The Transfrontier Shipment of Waste Regulations (SI 1137 of 1994)
11. Leicestershire Waste Minimisation Initiative Project Report (March 1995), available from the Environment Agency (the Agency will publish a review report in winter/spring 1996/97)
12. European Union Discharge of Dangerous Substances Directive (76/464), European Union Quality of Surface Waters intended for Abstraction Directive (75/440)
13. "Water Pollution Incidents in England and Wales 1995" Environment Agency ISBN 0 11 310106 6, HMSO
14. European Union Urban Wastewater Treatment Directive (91/271)
15. European Union Use of Nitrates in Agriculture Directive (91/676)

MANAGEMENT AND CONTACTS:

The Environment Agency delivers a service to its customers, with the emphasis on authority and accountability at the most local level possible. It aims to be cost-effective and efficient and to offer the best service and value for money.

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