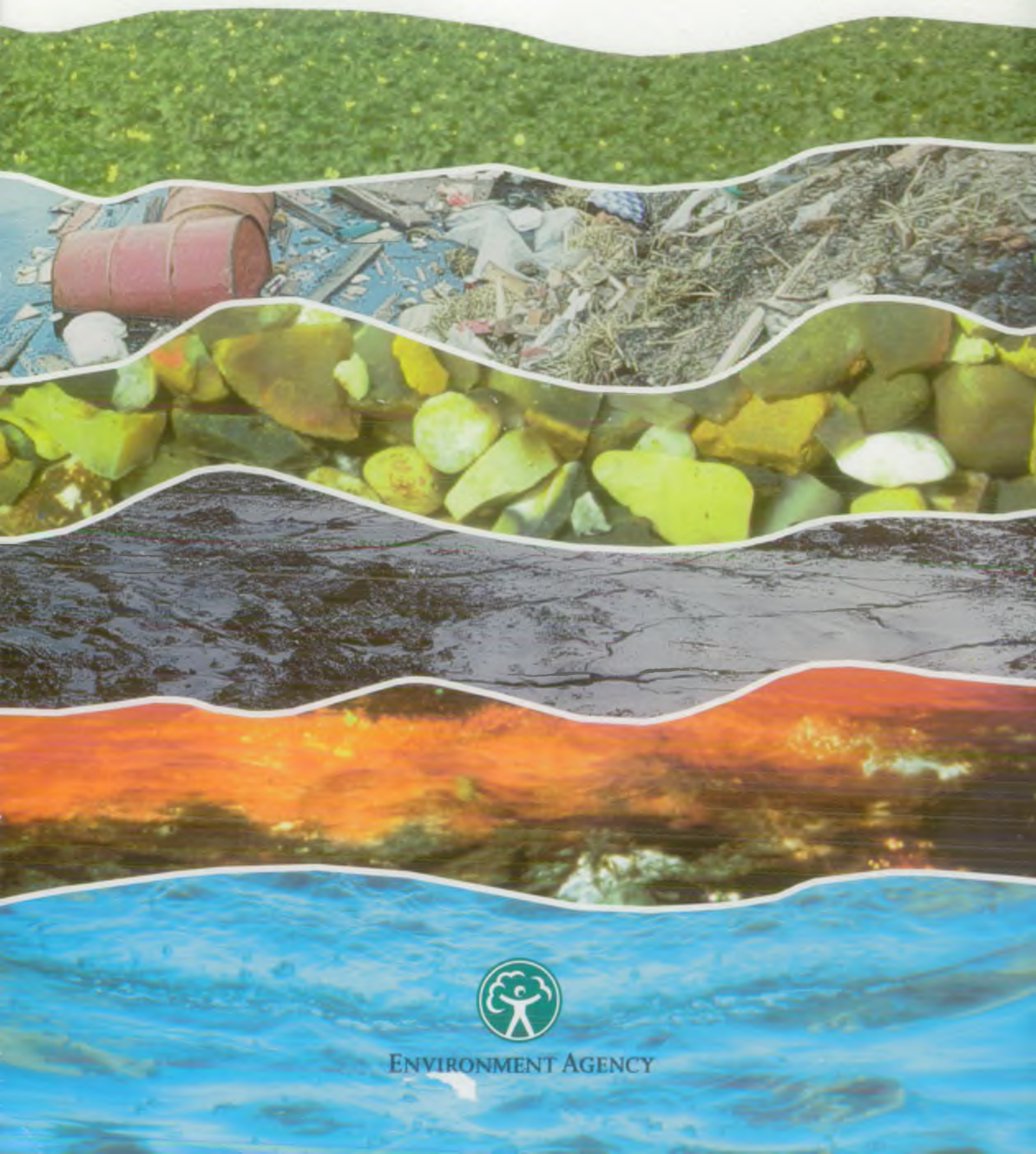


The National Groundwater and Contaminated Land Centre

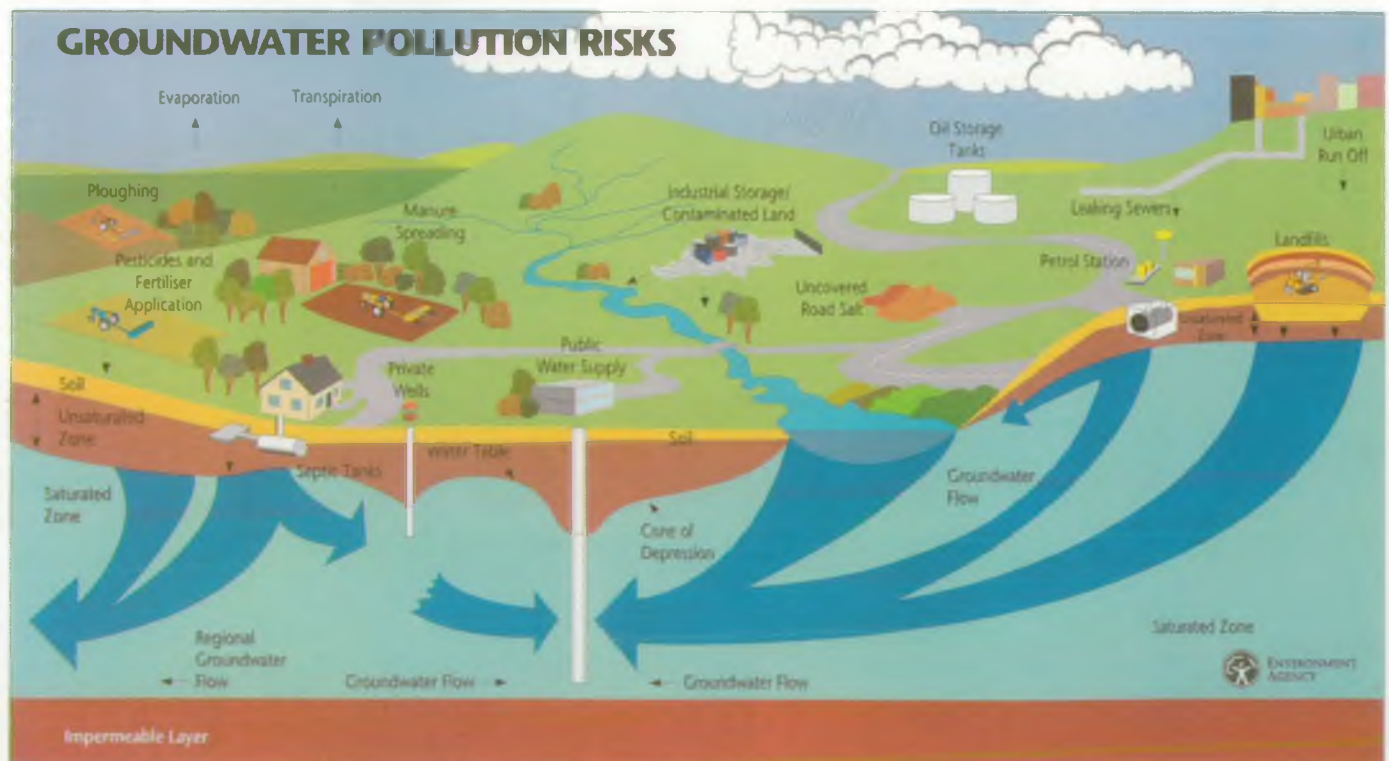


ENVIRONMENT AGENCY

Introduction

The National Groundwater and Contaminated Land Centre is the primary technical focus within the Environment Agency for groundwater resource management, the protection of groundwater, and the remediation of polluted groundwater and land contamination. The Centre thus has a broad remit, which spans at least four of the Agency's key Functions: Water Quality, Water Resources, Land Quality and Waste. Principle objectives for the Centre are:

- The provision of expert advice on groundwater resources in England and Wales both now and into the future. This includes estimation of the impact of external forces, e.g. global warming.
- The further development of the tools that facilitate groundwater protection, including the production of vulnerability maps to extend coverage to all of the country.
- The collation of groundwater data to generate a picture of the state of the subsurface water environment.
- The development of the Nitrate Vulnerable Zones scheme to identify all those areas in the country where diffuse pollution of groundwaters by nitrate is a significant concern.
- The development, assessment and validation of remediation methods.
- The gathering and dissemination of information on the extent and fate of land contamination.
- The provision of advice on technical best practice for dealing with specific contaminated sites.
- The identification of future research needs, in conjunction with other functional representatives, in all these areas, together with the management of relevant research and development projects.
- The dissemination of information and guidance to operational staff.



Groundwater

The National Groundwater and Contaminated Land Centre provides technical advice to the Environment Agency and a focus for external groups. The Centre provides a lead in the development of policy and practice on groundwater protection. To date the work has included publication (in both paper and CD-ROM formats) of 53 groundwater vulnerability maps and the definition of over 1500 groundwater protection zones. These serve to underpin the Agency's Groundwater Protection Policy. Key aspect of Centre work

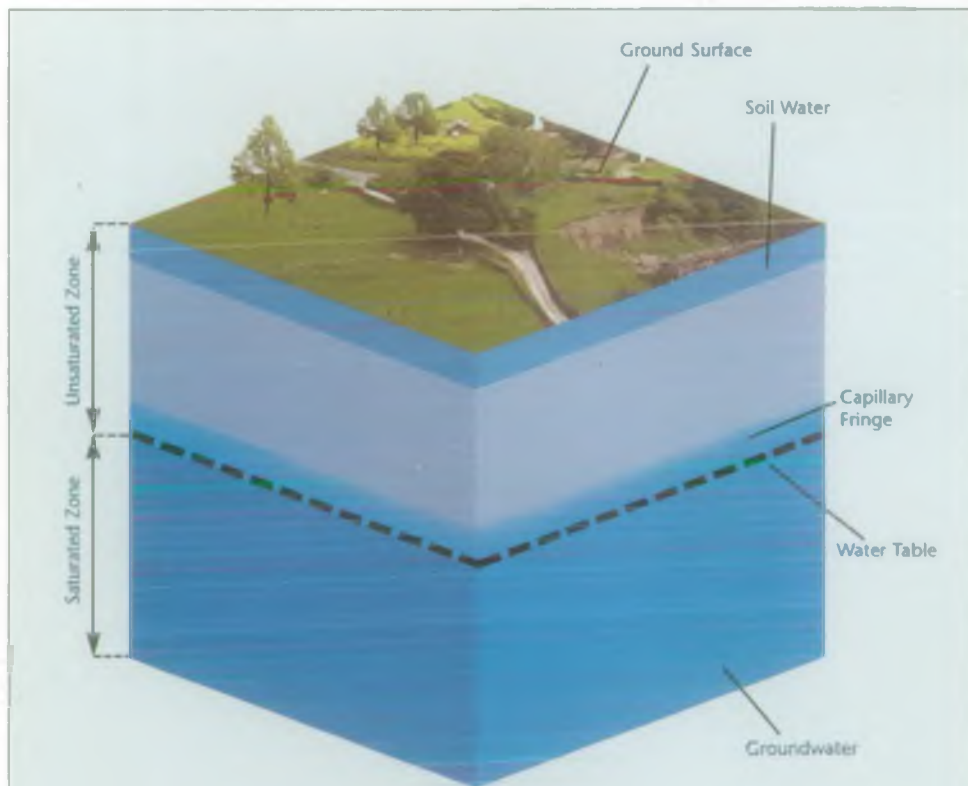
will be to allow the Agency to harmonise its approach to groundwater resources, to assist in the development of Agency Policy and in taking the R&D lead in groundwater resources and groundwater pollution.

The Centre co-ordinates the work for the Nitrate Vulnerable Zones initiative in relation to groundwater. This valuable work on diffuse pollution is an example of the role the Centre plays in providing assistance to government departments in the application and development of new legislation.



With regard to point source pollution, the Centre has published "Groundwater Pollution - evaluation of the Extent and Character of Groundwater Pollution from point sources in England and Wales". This document brings together information from discussions with field officers and Regional centres, plus data from external groups such as Water Companies. As such, the report represents a first indication of the type, extent and potential impact of point sources of pollution in England and Wales. The Centre will build on this together with other information sources in developing technical guidance and policy that address real-world needs.

The remediation of polluted groundwater will be increasingly required as sources of contamination are identified. The Centre is developing guidance and methodologies for the setting of site-specific remedial standards and is reviewing techniques for cleaning up groundwaters.

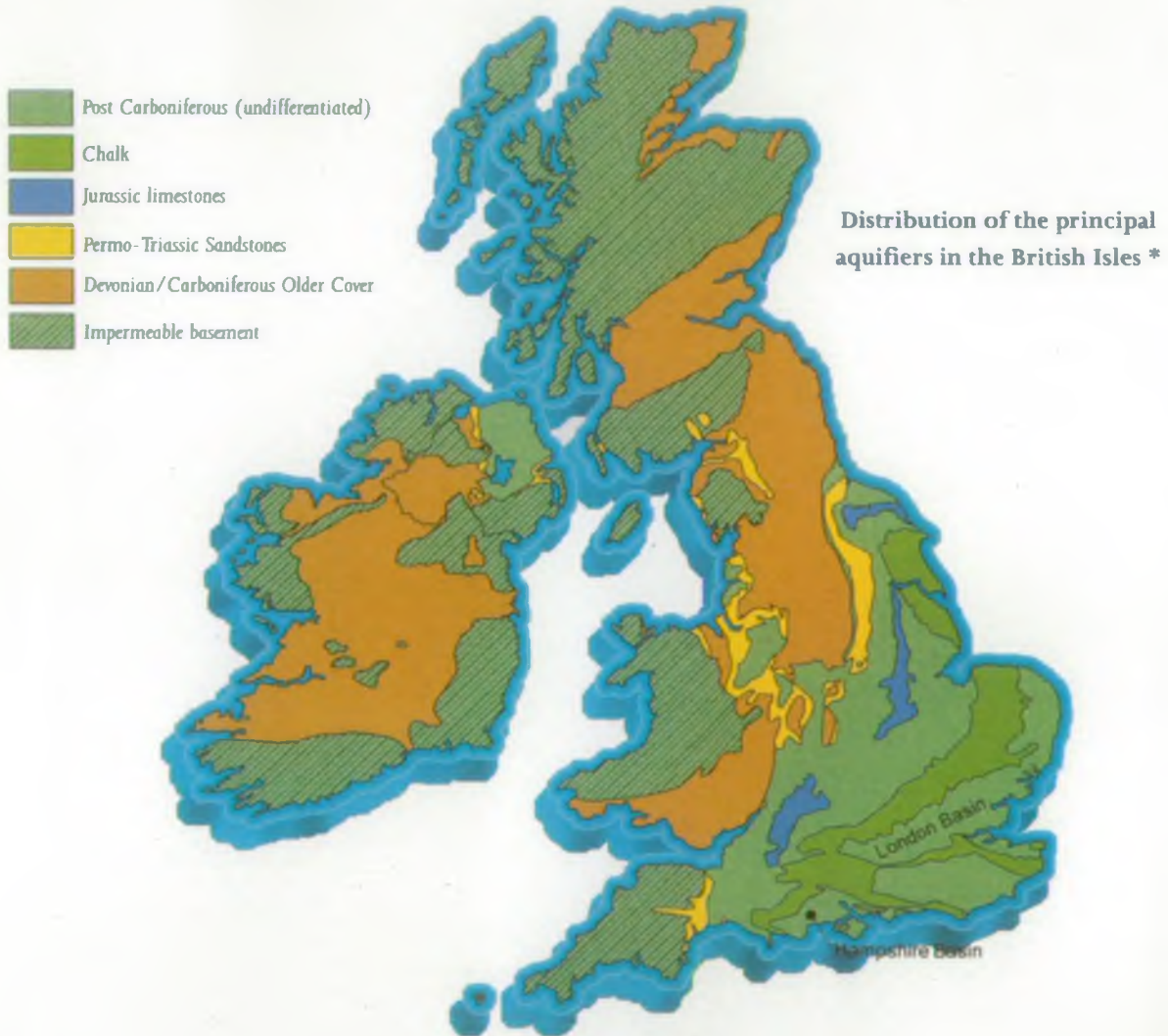


Profile of the subsurface water *

The thickness of the soil layer is up to about 1 metre. Below hills the unsaturated zone can be tens of metres thick. The grain size of the rocks controls the thickness of the capillary fringe. In fine-grained rocks it can be over 10 metres while in coarse sand-stones no more than several centimetres. The saturated zone can be hundreds of metres thick although most groundwater flows in the upper 200 to 300 metres.



The bringing together of groundwater and land contamination issues within the same Centre reflects the importance of polluted soil as a source of contamination that may enter groundwater. It also recognises the similarities in technical skills needed for understanding processes occurring in the subsurface environment. The establishment of the Centre anticipates the introduction of legislation providing new powers and responsibilities for local authorities and the Agency (Section 161A, Water Resources Act 1991 and Section 57, The Environment Act 1995).



* Diagram courtesy of 'Groundwater - our hidden asset' published by the British Geological Survey - An Earthwise™ Publication.

Land Contamination

In relation to land contamination, the National Groundwater and Contaminated Land Centre has the prime aim of providing a centre of technical expertise and specific aims of keeping abreast of technical developments and providing a technical focus for external bodies. This includes leading the Land Quality R&D Topic on Remedial Techniques and undertaking a key role in the management and delivery of projects.

The Environment Agency may be involved in dealing with sites affected by land contamination through a number of different statutory duties and powers, including those associated with the planning process, waste management, protection of water quality and integrated pollution control. In addition, the Agency is also entitled to apply for funding for site works in connection with the remediation of contamination through the Capital Projects process administered by the Department of the Environment, Transport and the Regions (DETR). This is intended to deal with sites where no other source of funding is available and



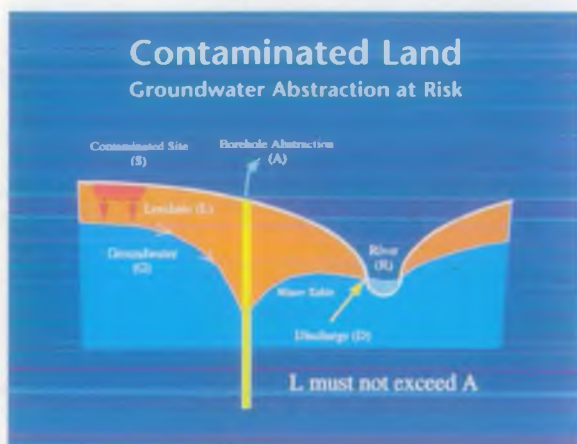
where remediation is a priority. The Centre staff provide input both to the Agency bids for funding and advice on the activities associated with carrying out the works.

The establishment of the Centre and its expertise in the remediation of land contamination also anticipate the introduction of new legislation. Section 57 of The Environment Act, 1995 provides specific new powers and responsibilities for local authorities and the Agency regarding the identification and remediation of contaminated land.

The Centre staff are contributing to the development of internal guidance to assist staff in carrying out their regulatory duties, and will be providing technical support to Area and Regional staff once the legislation is implemented.

Traditionally, remediation of land contamination has relied heavily on removal of soil to landfill and importation of clean fill, however, both short (e.g. increasing transport costs) and longer term (e.g. growing public environmental awareness) pressures are leading land-owners to try more innovative treatment methods. The Centre aims to promote the greater use of these where appropriate, and in particular to encourage the use of those methods which can better contribute to the sustainable development of contaminated land.

The Centre has staff experienced in the assessment and use of various treatment technologies such as bioremediation, soil washing, chemical stabilisation, barrier walls and natural attenuation.



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.

Head Office is responsible for overall policy and relationships with national bodies including Government.

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For general enquiries please call your local Environment Agency office. If you are unsure who to contact, or which is your local office, please call our general enquiry line.

The 24-hour emergency hotline number for reporting all environmental incidents relating to air, land and water.

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