

## **Contaminated Land: What's The Problem?**

### ***The implications of contaminated land issues for the small property buyer.***

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#### **Introduction.**

As part of my general commitment to the provision of low cost environmental research services to the public at large, I have put together a contaminated land search service, targeted at the small house or property buyer. The aim of this service is identify whether a site has in the past been put to a use which may have cause toxic contaminants to be left in the soil. Such sites can be found in the most unlikely of places, and many people today have unwittingly bought houses or land which may, in a few years time, be worth a fraction of its current value.

The increased level of 'environmental awareness' in the past decade has led to a greater concentration on health and pollution in these. Most concern has been expressed about nuclear power and the production/disposal of toxic wastes. The increased awareness of the public to such environmental problems has led to certain areas of the country being labelled in public opinion as 'toxic' - for example Sellafield, or the area around the Rechem facilities in Southampton and Pontypool.

Towards the end of the 1980's a new 'issue' began to crop up in the media - contaminated land. The problem of contamination of land by previous industrial uses had been known of for many years, but only since the early 1970's has any serious research work been done in the UK. As part of the revision of environmental regulations at the end of the 1980's, a section was appended to the Environmental Protection Bill to require action to be taken to identify potentially contaminated sites. At the time there was little notice taken of the proposed law because it was swamped by the wealth of other new proposals in the Environmental Protection Bill. When the section - Section 143 - had its draft regulations circulated in May 1991, the attention of the media, and in particular the attention of the construction industry, was drawn to the possible implications of identifying thousands of contaminated sites across the country.

The fear expressed by many property developers and construction industry chiefs was that large areas of land, especially in the inner cities in the Midlands and the North, would be 'blighted'. The land would be worthless because of the perceived risk in the mind of the public, and because of the large costs of decontamination before any new developments could be built.

It is this aspect of the problem - the collapse in the value of a property because of its potential contamination - which directly affects the individual property buyer. There are many people across the country today whose house or business could be located over a contaminated site, and unless they checked, they would be none the wiser. Also, this is not just in the industrial

cities of the Midlands and the North - many small town across the country will have a dozen or more 'potentially contaminated' sites related to local industries which were common in the Eighteenth and Nineteenth Century.

Without experience, there is little the individual can do to assess whether their existing property, or a property they are considering buying, is located on a contaminated site. All existing services offered by the larger research organisations are very expensive, and are aimed at corporate developers. The service I provide is a historical search of existing information sources, in the same manner as was proposed in the consultation papers published by the Department of the Environment.

### **The problem defined.**

Section 143 of the Environmental Protection Act, 1990, requires that local authorities set up public registers listing land which has, at some time in the past, been utilised for a purpose which may have caused its contamination with noxious substances. Following on from a consultation document in May 1991 <sup>[1]</sup> regulations were drafted for implementation in April 1992, but were abandoned shortly before this date due to pressure from property developers and the construction industry. The regulations have were redrafted, following a second consultation period<sup>[2]</sup>, and the reissued proposals covered only 15% of the land area that the original regulations would have covered. However, the Department of the Environment still received objections from the major developers, and so on 24th March, 1993, they abandoned all plans of implementing Section 143, and announced that it would begin a review of the powers of regulatory bodies to control the pollution of land.

It is unclear exactly what has prompted the Government to drop the regulations. It has been proposed that dropping the regulations at this stage will allow savings to be made in public expenditure. What results a review could bring are also doubtful. One proposal which was talked of in the weeks following the scrapping of regulations was the imposition of a tax on landfilling waste, the revenue from which could fund the cleanup of contaminated sites. This is similar to the 'Superfund' system in the USA. which has been running for some years.

The true extent and effects of contaminated land in the UK. has only become truly understood within the past decade, due in part to detailed studies undertaken in the USA. by the Environmental Protection Agency from the 1960's onwards, and also following on from the work of the Department of the Environments' Interdepartmental Committee on the Redevelopment of Contaminated Land (ICRCL).

The ICRCL produced a number of documents in the early 1980's setting out the best practice for the redevelopment of contaminated land, taking specific types of contaminated site such as gasworks and sewage works. The eleventh report of the Royal Commission on Environmental Pollution<sup>[3]</sup> highlighted the topic of contaminated land. This led to research being commissioned, and eventually the DoE/Welsh Office produced a circular<sup>[4]</sup> explaining procedures and existing best practice in the redevelopment of contaminated land. The ICRCL then revised some of their previous notes. The requirement to put much of this work into a formal regulatory framework led to its addition to the Environmental Protection Bill.

Though some concern was expressed at the Committee Stage of the Environmental Protection Bill, the real public debate on Section 143 did not begin until May 1991 when the Department of the Environment issued a consultation paper on the proposed regulations. This led to a concerted campaign by property developers and the construction industry, especially in the derelict industrial areas of the Midlands and the North, because of the effect of 'blight' on land values. On March 10th 1991, three weeks before the regulations were to be enacted, the Department of the Environment dropped the proposed regulations and began a second consultation period. The same occurred on March 24th, 1993, when the second set of regulation were withdrawn following further representations to the Department of the Environment.

### **What is a contaminative use?**

The original regulations listed forty different industrial uses which were likely to lead to contamination of the building or soil where the operation took place. This was revised down to just eight groups during the second consultation period.

A *contaminative use* is defined by the Department of the Environment as, "any use of land which may cause it to become contaminated with noxious substances". Also, the definition of *land* includes any ground, soil or earth, the structure of the building, and any land or buildings used for ancillary processes to the contaminative use.

The list of land uses in the first set of regulations is too long to be listed here, but the land uses cited in the second consultative document as being likely to result in contamination are...

- \* The manufacture of gas, coke or bituminous materials from coal.
- \* The manufacture or refining of lead, steel, or an alloy of lead or steel.
- \* The manufacture of asbestos.
- \* The manufacture, refining or recovery of petroleum or its derivatives (other than extraction from petroleum bearing ground).
- \* The manufacture, refining or recovery of other chemicals, excluding minerals.
- \* The final deposit, in or on land, of household, commercial or industrial waste other than ash, slag, clinker, rock, wood, gypsum, railway ballast, peat, bricks, tiles, concrete, glass, other minerals or dredging spoil, or where waste is used as a fertiliser or to improve/condition land.
- \* The treatment at a fixed installation of household, commercial or industrial waste by chemical or thermal means.

\* The use of land as a scrap metal store.

As stated, it is not certain at this moment whether the above list will still be used as the basis of any regulations, or whether it will include a wider range of uses. It is certain that very few of the groups above could be dropped from the lists as the above represents the 'top class' of all types of contaminated sites.

Another guide is the British Standard governing the identification and decontamination of land. This is in use at the moment, and sets the standards to which much of the construction industry work to today. The draft DD 175, 'Practice for the identification of potentially contaminated land and its investigation'<sup>[5]</sup>, cites a more detailed list (see table 1 on next page).

The practical problems involved in the assessment of contaminated land have been highlighted in a number of recent media articles. The original consultation document stated that there may be around 100,000 contaminated sites in the UK. Thames TV's, "This Week", programme, commissioned a report from Halcrow and Partners which suggested, even on the limited set of land uses under the new proposed regulations, Government estimates of the number of sites may be underestimated by 40% - 60%. The programme (for which I conducted some research) also considered a number of specific sites around the country - including two gasworks in Oxfordshire.

As part of a study for National Friends of the Earth on the practical implementation of Section 143, I undertook a study<sup>[7]</sup> of one county - Oxfordshire - using one key land use - town gasworks.

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 Table 1: DD 175 Draft.

**BS Draft for Development DD 175.**

<b><u>Industry.</u></b>	<b><u>Examples.</u></b>	<b><u>Likely contaminants.</u></b>
<b>Chemicals.</b>	<i>Acid/alkali works.</i> <i>Dyeworks.</i> <i>Fertiliser/ other organic pesticides works</i> <i>Pharmaceutical wks..</i> <i>Paint works.</i> <i>Wood treatment plants.</i>	Acids, bases, metals, solvents, phenols and other organic compounds.
<b>Petrochemicals.</b>	<i>Oil refineries.</i> <i>Tank farms.</i> <i>Fuel storage sites.</i> <i>Tar distilleries.</i>	Hydrocarbons, phenols, acids, bases and asbestos.
<b>Metals.</b>	<i>Iron/steelworks.</i> <i>Foundries/smelters.</i> <i>Electroplating, anodising and galvanising wks..</i> <i>Engineering works.</i> <i>Shipbuilding/breaking.</i> <i>Scrap reduction plants.</i>	Heavy metals, especially iron, copper, nickel, chromium, zinc, cadmium, lead and asbestos.
<b>Energy.</b>	<i>Gasworks.</i> <i>Power stations.</i>	Combustibles (coal/coke) phenols, cyanides, sulphur compounds and asbestos.
<b>Transport.</b>	<i>Garages.</i> <i>Vehicle builders.</i> <i>Railway depots.</i>	Combustible substances, hydrocarbons and asbestos.
<b>Mineral extraction/land reclamation.</b>	<i>Mines/spoil heaps.</i> <i>Quarries.</i> <i>Filled sites.</i>	Heavy metals, gases and leachates.
<b>Water supply/treatment.</b>	<i>Waterworks.</i> <i>Sewage works.</i>	Metals (in sludges), micro-organisms.
<b>Others.</b>	<i>Docks, wharfs and quays.</i> <i>Tanneries.</i>	Heavy metals, organic compounds, methane and other gases, toxic,

*Rubber works.* flammable or explosive  
*Military lands.* substances, micro-organisms  
and asbestos.

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The research was undertaken during the Summer of 1991, and produced a list of 25 sites. This study complemented a similar study of gasworks in London<sup>[8]</sup> conducted from Friends of the Earth's office in Underwood St., and was added to shortly after by a study of York.

The main things that these studies highlighted were....

- \* There are many sites of which local authorities - and even British Gas - were unaware of. The situation is further complicated by the fact that most sites have now been redeveloped, and it is impossible to tell the effects redevelopment had upon the mobility and distribution of potential contaminants on the site.
- \* Where redevelopment has taken place, because of the lack of awareness of the problems contaminated land presents, there has been no standard redevelopment of the ground. At some sites, the ground had been excavated, at others it had been capped, whilst some still retained the original ground level.
- \* Though the registers will give as much information as is possible, some sites will escape detection because of the lack of historical information - this mainly applies in rural areas where development was less well documented during the industrial revolution.

### **What are the risks?**

Contaminated land poses a direct risk to the public through contact with, or ingestion of, the soil. Contamination can also cause underground fires or explosions, undermine building foundations and pollute ground and surface water sources (including drinking water).

Despite numerous examples of problems posed by contaminated land, there is little public information on the location or particular problems posed by specific sites. Environmental consultants have suggested that it will cost £10-30 billion<sup>[6]</sup> to clean up the estimated 100,000 contaminated land sites in the UK.

In the ensuing public debate, a number of sites have come to light. For example....

#### **\* Church Milton Estate, Sittingborne, Kent**

Unknown to residents, the Church Milton Housing Estate was built on an old landfill site. The soil of the gardens was contaminated with a variety of toxic metals including lead. The local council admitted that "young children during play may swallow enough soil to raise their blood lead levels above normal" and advised that these children undergo blood tests. The council also advised residents to "cover open soil areas with plastic sheeting".

The Water Research Council estimated that there are 6,000 closed landfill sites in the UK.

### **\* Old Gas Works Site, Lewisham, London SE6**

The Bell Green Gas Works Site is riddled with dangerous contaminants, such as coal tar, that have leaked into the River Pool which runs through the site. Warning signs have been erected along the river bank by the Council since a children's playground borders the river. A report by independent environmental consultants in 1987 concluded that "the river bed and banks will remain a public hazard whilst coal tar continues to gain access to the culvert". The site has yet to be cleaned up.

A Government commissioned report stated that there may be as many as 5000 old gas work sites in the UK.

### **\* Leaking Underground Storage Tank, Braintree, Essex**

In the mid-1980's a petrol leak was discovered at a small independent garage in Braintree. It is believed that over 35,000 gallons had leaked out over a period of many years. It was reported that the petrol had contaminated soil, groundwater, nearby wells and was moving towards the nearby River Blackwater. It was also reported that the contamination of the soil led to petrol vapours rising through the floors of dozens of nearby houses.

There are 20,000 petrol stations in the UK each with an average of four tanks, suggesting that there are 80,000 tanks in total.

The House of Commons Environment Committees considered the effects of blight on the construction industry, and on the redevelopment of derelict land, late in 1991. Their report into Contaminated Land, published in January 1992, stated.....

"the UK has never actively sought to identify contaminated land sites and assess the amount of contaminated land comprehensively ..... we are disappointed by the lack of information about contaminated land"

### **The future.**

Contaminated land does present a serious risk to public health. One day, something will have to be done to solve the problem, but for the moment, money and political expediency have stopped any hope of work going ahead. Registers are the first essential phase in the system - without them it will not be possible to plan the clean up of sites which present a risk to health.

One possible course of action, already proposed by some Government officials, will be to make a contaminated land search part of the planning process. Whenever a large planning application is made, it would be the responsibility of the applicant to identify any possible risk from land contamination. The shortcomings of this proposal are easy to see; if you were a developer face with a £500,000+ cost to clean up a site before you built on it, would you own up?

The experience in the US. is that once the initial psychological hurdles have been passed, contaminated land registers are an essential tool in the state's powers to encourage environmental improvement.

However, in the immediate future, there are many people, mostly private house or property owners, who will be buying land which may have been contaminated by past industrial usage. Irrespective of the hazard which may *only potentially* be there, any purchaser of land could be buying something which may be difficult to sell, or even worthless, when a system of site identification is finally drawn up by the Department of the Environment.

### **What does a search entail?**

A search can be carried out fairly well using existing public documents, but where buildings are over 75 years old, access to deeds or leases can add additional information to the search.

The cost of the search can vary depending upon the location of a site and the depth of detail the person commissioning the search demands - also searches outside the boundary of Oxfordshire, or in the Vale of the White Horse District, will cost more because it requires the searching of archives in more than one location. As a guide, for rural locations, the cost of a search would be between £50 and £70, and could be done in a few days. For sites with a long history of development, £45 to £60 would give an overview of the history of the site, but it may be necessary to investigate further if the initial search flags up problems. This may cost an additional £20 to £40, depending upon the detail required.

The search covers a wide range of maps and printed materials held by the county archives and local authority. The information produced by the search is then put into a report consisting of...

- \* A written report detailing all documents searched and any references to the site.
- \* Copies of maps/plans within the limits allowed under copyright.
- \* Where evidence of contaminative use exists, a guide as to the potential problems associated with that particular industrial activity.

If a problem is highlighted, it will be up to the person commissioning the search to decide how to deal with it - all information produced by the search is treated as confidential. If required, references of companies who conduct pollution sampling can be given.

If you have any queries about contaminated land, the issues raised in this document, or you would like to commission a search, please get in touch with me at the address below....

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**Sources.**

[1] "Public registers of land which may be contaminated: a consultation paper", DoE/Welsh Office, May 1991.

[2] "Environmental Protection Act 1990, Section 143 registers", DoE circular letter, 31st July 1992.

[3] "Managing Wastes: The Duty of Care", eleventh report of the Royal Commission on Environmental Pollution, 1985.

[4] "Development of Contaminated Land", DoE circular 21/87 (Welsh office 22/87), 1987.

[5] "Practice for the identification of potentially contaminated land and its investigation", Draft for Development DD 175, British Standards Institute 1988.

[6] "£10-30 billion and rising - UK's contaminated clean-up bill", Environmental Data Services, Report 201, p 4-5, October 1990.

[7] "The Town Gas Works of Oxfordshire", Paul Mobbs, Oxfordshire Friends of the Earth, August 1991.

[8] "Gas Works Sites in London: and investigation into contaminated land", Sean Humber, Friends of the Earth, June 1991.

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