Contaminated Land Inspection Strategy

2008
Executive Summary

The administrative Borough of Blackburn with Darwen is a diverse and attractive area set within Pennine Lancashire. The industrial heritage of the Borough has left areas of potentially contaminated brownfield land within the borough. Clean, safe and healthy local environments are seen as key factors for the regeneration of Blackburn with Darwen Borough. Local Authorities have two main tools for dealing with potentially contaminated land. The first is via planning applications received on or close to sites with an industrial history that suggests a risk of contaminated land. On such sites a Contaminated Land Condition is attached to the planning application. This requires the developers to employ qualified professionals to examine the land and deal with any contamination problems found. This is an effective mechanism for dealing with the risks presented by contaminated land on new developments. However, this does not allow Local Authorities to proactively assess the scale of contaminated land within a Borough and tackle those sites which may be presenting an immediate and serious risk to human health and the environment. To address this, Part IIA of the Environmental Protection Act 1990 (amended by Section 57 of the Environment Act 1995) came into force in April 2000. It introduced a new framework for the proactive identification and remediation of contaminated land. Each Local Authority is required to compile and implement a formal inspection strategy detailing how it intends to implement its new duties under Part IIA, taking into account specific local conditions.

Under Part IIA, not all land that contains pollution is defined as Contaminated Land. Land will only be defined as Contaminated where it is causing unacceptable harm to human health or other specific environmental receptors e.g. rivers or sites of particular ecological interest. There must be a significant source of pollution within the soil, there must be a relevant receptor which the pollutant is likely to significantly harm and there must be a pathway which means the receptor is exposed to the pollutant and is likely to cause significant harm. For example, a young child playing in the garden of a house built on an old gasworks site that had not been cleaned up, may ingest soil containing harmful pollutants. However, should the same gasworks be concreted over and used as a car park, it may not present a threat to any receptors and as such would not require further clean up. If the source of pollution is proven to be harming or has the potential to harm people, protected species, habitats or property then it is the Council’s responsibility to determine the site as Contaminated Land and implement solutions to the problem. If the pollution from land is entering controlled waters (e.g. rivers or reservoirs) then the Council will consult the Environment Agency who will offer specialist advice and expertise.

To date the Council has identified several thousand Sites of Potential Concern (SPCs) within the Borough, and is currently prioritising the sites based on risk. SPCs are simply sites with some form of industrial past and the majority will not present a risk to the humans or the environment and therefore will not be defined as Contaminated Land under Part IIA. By using historical records the Council is able to determine what source of pollution is likely to be present on a site. Current records will allow an assessment of what are the likely local receptors for the pollution and our Geological Information System will be used to assess what potential pathways exist to link the pollution source and receptors. Once key sites are identified, funding from central government is available which will allow detailed site investigations. If the site is determined as Contaminated Land it will be placed on the Contaminated Land Register and appropriate actions taken to reduce the risk of harm to humans and the environment. Part IIA operates under the Polluter Pays Principle, the Council will do everything possible to identify the appropriate person responsible for polluting a site and they will be required by law to pay for any work necessary to clean-up the site. In cases where the original polluter cannot be found, the current owner of the site may be determined as the appropriate person. In rare cases where an appropriate person cannot be found, financial costs to clean up the site may have to be covered by the Council.

This document sets out how Blackburn with Darwen Borough Council’s strategy for identifying, prioritising and ultimately dealing with Contaminated Land within the Borough.
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1.0 INTRODUCTION

This is a corporate strategy setting out how we intend to inspect the administrative Borough of Blackburn with Darwen for Contaminated Land, as required by law. Blackburn with Darwen is located in Pennine Lancashire between the moor land on the Metropolitan Borough boundaries of Bolton and Bury to the south and Ribble Valley to the north. The Pennine Moors form natural barriers to Chorley and Rossendale/Hyndburn to the west and east respectively (see Fig. 1).

![Location of Blackburn with Darwen Borough](image)

Figure 1. Location of Blackburn with Darwen Borough.

The current population of the Borough is approximately 140 000, with the majority of the population living in the towns of Darwen and Blackburn. The area has a strong industrial heritage, by the end of the nineteenth century Blackburn had become the cotton weaving capital of the world. The decline in the manufacturing base of the town and the change in the types of activities undertaken has resulted in the redevelopment of extensive areas of brownfield land, which were previously sites of industrial activity. Part IIA of the Environmental Protection Act 1990 provides local authorities with powers to deal mainly with severe problems of Contaminated Land. The Borough Council has taken this...
opportunity to strengthen its proactive role for dealing with land contamination wherever and whenever it arises.

This updated strategy sets the scene of policy and regulation within which the council must inspect the Borough for Contaminated Land, and outlines the careful consideration given to the Borough’s particular characteristics when developing a suitable approach. A staged programme of work has been devised with procedures for inspection, prioritisation and, where necessary, enforcement.

1.1 Legislation
The existence of contamination presents its own threats to sustainable development and in this context, the Government’s objectives with respect to contaminated land are:

a) to identify and remove unacceptable risks to human health and the environment;
b) to seek to bring damaged land back into beneficial use; and
c) to seek to ensure that the cost burdens faced by individuals, companies and society as a whole are proportionate, manageable and economically sustainable.

These three objectives underlie the “suitable for use” approach to the remediation of contaminated land, which the Government considers is the most appropriate approach to achieving sustainable development in this field.

Part IIA of the Environmental Protection Act 1990 has been inserted into Section 57 of the Environment Act 1995, which introduces specific provisions relating to contaminated land.

The main objective of Section 57 is to control threats to health and to the environment associated with land contamination; through a risk based ‘suitable for use’ approach to remediation, and applying the polluter pays principle to liability and apportionment.

This apportionment relates to the appropriate person or persons to bear responsibility for remediation and the person(s) will normally be those who caused or knowingly permitted the contamination. If, after suitable enquiry, the person(s) who knowingly caused or permitted the contamination cannot be found then the appropriate person is the person(s) who currently occupies or owns the land. It may occur in certain circumstances that the appropriate person, after reasonable enquiry, cannot be found and then the local authority may have to bear the cost of remediation.

The regime introduces key statutory duties on local authorities; these include:

- Inspection of its area to identify contaminated land
- Identification of contaminated land including special sites
- Identify who is liable i.e. appropriate person(s)
- Secure remediation, formally or informally
- Act in default if necessary
- Keep appropriate records including a register
- Liaise/consult with appropriate interested parties
- Act in accordance with Statutory Guidance
- Evaluate costs against benefits
These also include –

- The transfer of special sites to the Environment Agency
- Consultation with the Environment Agency on pollution of controlled waters. The regime also introduces duties and key responsibilities for the Environment Agency, namely;
- Providing information to the local authorities,
- Assisting LA’s in identifying contaminated land,
- To provide site specific guidance to the LA on contaminated land,
- To undertake inspections of special sites,
- To act as enforcing authority for any land designated as a special site,
- To publish annual reports on the “State of Contaminated Land”; and,
- To maintain a register of Special Sites remediation.

Special sites are those where land is of a description prescribed in Regulations 2 and 3, schedule 1; this basically includes;

a) certain controlled waters;
b) land contaminated with waste acid tars;
c) purification of petroleum or the manufacture of explosives;
d) land where an permitted process has been carried on;
e) land with a nuclear site;
f) land owned or occupied by military forces;
g) land used for manufacture of chemical or biological weapons;
h) other land designated in the Regulations.

1.2 Objectives

The written strategy will identify how Blackburn with Darwen Borough Council will address the following key issues:-

- The identification of key information sources,
- The adoption of a data recording and management system,
- The identification of key local issues,
- The identification of potentially contaminated sites,
- The risk assessment of these sites, their ongoing prioritisation, and their constant review,
- The adoption of methods to secure liaison and consultation both internally and externally,
- The identification of contaminated land, and,

This process will allow the Local Authority to make an informed decision on which sites will need to be subject to remediation and by whom. The document should provide the framework by which the council will ensure the adoption of a strategic risk based approach to contaminated land identification, assessment and remediation whilst ensuring that the action taken is proportional to the risk.

Implementation of the strategy will identify risks to receptors and these risks will be considered in consultation with internal departments and external organisations as appropriate. Liaison arrangements will be established with appropriate council departments and organisations, for example, the Environment Agency in respect of controlled waters. The extent and degree of consultation will vary throughout the implementation of the strategy; key organisations are highlighted in section 12. Consultation.
2 DEFINITION OF CONTAMINATED LAND UNDER PART IIA OF THE ENVIRONMENTAL PROTECTION ACT

The definition of contaminated land is contained within section 78A(2) of the Environment Act 1995 and defines it as;

“Any land which appears to the Local Authority in whose area it is situated to be in such a condition, by means of substances in, on, or under the land that;

a) Significant harm is being caused or there is a significant possibility of significant harm being caused; or

b) Pollution of controlled waters is being, or is likely to be caused.”

The underlying principle is that there must be a likelihood of ‘significant harm’ or the pollution of controlled waters. This principle necessitates the existence of the three elements of a pollutant linkage, i.e. the source (pollutant(s)), a pathway or pathways, and receptor(s). If any element of this linkage is missing then the land is not contaminated in accordance with the statutory definition.

2.1 Receptors

The potentially sensitive receptors are:

1. Human Beings

2. Ecological Systems – these are usually designated conservation areas e.g. Sites of Special Scientific Interest (SSSIs), Ramsar sites (Ramsar sites are wetlands of international importance designated under the Ramsar Convention), Special Areas of Conservation and Local Nature Reserves.

3. Controlled Waters – As defined by Water Resources Act 1991. See section 2.1.4 for further details.

4. Property - Principally buildings but can also include
   - Crops
   - Livestock
   - Wild animals subject to shooting or fishing rights.

2.1.2 Risk Assessment to Receptors

Calculating the relative risk of soil borne contaminants to specific receptors is an emerging scientific discipline which increasingly involves sites specific risk assessment models. The following paragraphs describe Blackburn with Darwen Borough Council’s intended approach to assessing risk for various receptors.

2.1.3 Human Health

Currently, as the most sensitive receptors, Human Beings are been given priority as the key receptors in Blackburn with Darwen Borough. The Contaminated Land Exposure Assessment
(CLEA) model is being developed in relation to 50 individual contaminants, starting with those considered most likely to impact upon human health. For each contaminant a report is being written on researched toxicology and a basis for risk assessment modelling enabling users to derive site-specific Soil Guideline Values (SGVs). Where CLEA cannot be applied to particular contaminants other human health risk assessment tools such as the SNIFTER model will be employed. Currently there are still many common soil contaminants for which Soil Guideline Values have not been released. To fill in this “SGV Gap”, the Chartered Institute of Environmental Health (CIEH) in partnership with Land Quality Management Ltd (LQM) produced Generic Assessment Criteria (GACs) for the missing contaminants of concern. This list of GACs for 31 contaminants was published in 2007 as Generic Assessment Criteria for Human Health Risk Assessment.

2.1.4 Controlled Waters

In the context of contaminated land controlled waters are defined as: Inland fresh waters (e.g. rivers, watercourses, lakes and ponds), Ground waters (e.g. aquifers supplying drinking water) or Coastal waters (Water Resources Act 1991). Advice on Risk Assessment will be sought from the Environment Agency if the pollutant linkages under consideration involve controlled waters. Reference will be made to any future guidance.

2.1.5 Other Receptors

For the remaining receptors such as ecosystems, buildings and crops and wild animals further technical guidance on the risk assessment is expected to be published in the future. Currently DEFRA have advised it may be impractical to evaluate harm to animals and plants on agricultural land by predicting contaminant uptake from soil, and that site specific advice from DEFRA may be required. The Food Standards Agency has offered to provide specialist advice to local authorities in relation to food crops as the need arises and on request. A preliminary review of Sites of Potential Concern in the Borough indicate that most are located in urban rather than agricultural areas (see Figure 4 later).

The Environment Agency and Defra are currently developing an Ecological Risk Assessment framework for use in land quality assessments. However, establishing whether measurable and significant harm is occurring to a protected ecosystem as a consequence of soil contamination is extremely difficult. Following several consultation meetings, several reports have been published. However, the specialist nature of the tests involved, together with the uncertainty in determining whether harm is occurring mean there is still much work to be done in this area before Local Authorities are confidently able to assess whether a site is classified as Contaminated Land under the Part IIA regime with respect to ecological receptors.

2.2 Significant Harm

Section 57 of the EPA is aimed at dealing with cases where there is the existence of a pollutant linkage, and there is justification for remedial action without waiting for any future development of the land. This regime is therefore complimentary to considerations under the planning system and development control where contaminated land is considered a material planning issue. It is envisaged that a greater percentage of potentially contaminated land sites will be dealt with via the planning process, with the regime dealing with those sites which are a more immediate risk to humans or the environment.

The definition ensures that only land where contamination is causing unacceptable risks to human health or other specified receptors is treated as Contaminated Land under Part IIA.
Section 78A(4) of the Environmental Protection Act defines harm as meaning “harm to the health of living organisms or other interference with the ecological systems of which they form part and, in the case of man, includes harm to his property” Table A1 (see Appendix) defines what is significant harm in this context and the relevant receptors. The harm is only relevant to receptors which are present given the current use of the land which might be affected. The current use means any use which is currently being made, or is likely to be made, of the land which is consistent with current planning permission. This can include informal recreational use of the land, whether authorised by the owners or occupiers or not e.g. trespassing children playing on the land. In the case of agricultural land, however, the current agricultural use should not be taken to extend beyond the growing or rearing of crops or animals which are not habitually grown or reared on the land.

2.3 Significant Possibility of Significant Harm (SPOSH)

The term “significant possibility of significant harm being caused” should be taken as referring to a measure of the probability, or frequency, of the occurrence of circumstances which would lead to significant harm being caused. The council should take into account the nature and degree of the harm, the susceptibility of receptors to which harm might be caused and the timescale within which the harm might occur. For a full definition of what the council should regard as significant possibility of significant harm see Table A2 in Appendix.

3. STRATEGIES OF RELEVANT EXTERNAL AGENCIES

In June 2002 the Environment Agency’s Central Area (North West Region) produced ‘Making It Happen: Our Local Contribution’ as a statement of the Agency’s vision and commitment, and to describe its plans for the period 2002-07. Local targets include:

- Proactively identifying potential Special Sites and working with local authorities towards their inspection under the Contaminated Land regime.
- Promoting the benefits of re-using brownfield sites.
- Participating in land remediation projects.
- Deployment of local enforcement resources in response to particular fly-tipping hotspots.
- Qualitatively characterising the pressures on groundwater resources.
- Developing prevention campaigns in relation to petrol and solvent pollution impacting on groundwater quality.
- Undertaking prevention campaigns in relation to pollution impacting on river water quality.
- Making progress on the implementation of Biodiversity Action Plans

The Borough Council has some overlapping responsibilities, in particular for inspection and enforcement (contaminated land), planning powers and economic development. The Borough Council will work with the Environment Agency where there are common responsibilities and to secure common objectives. This Strategy identifies the need for promotion of good practice
to minimise pollution incidents leading to sustained contamination, for example due to heating oils, vehicle fuels and solvents.

4. **BLACKBURN WITH DARWEN BOROUGH: ENVIRONMENT**

It is necessary to identify issues of local importance so that these can be taken into account in order to help in prioritisation of areas based on local circumstances. This section of the document aims to describe the Borough in terms of its main characteristics and to identify any priorities to be addressed during the implementation of the Inspection Strategy.

Blackburn with Darwen Borough is located within East Lancashire between the moorland on the Metropolitan Borough boundaries of Bolton and Bury in the south and the Mellor Ridge in the north. The West Pennine Moors to the west form a natural barrier to Chorley and to the east a barrier to Rossendale, Hyndburn and Bury.

Blackburn with Darwen Borough Council became a Unitary Authority on 1st April 1998 and is central within the Lancashire Authorities but no longer comes under the umbrella of Lancashire County Council for administrative purposes. The total population of Blackburn with Darwen is approximately 140,000 with the majority of the population contained in the two compact towns of Blackburn and Darwen and a number of small villages in the surrounding rural and moorland areas.

4.1 **The Historical Environment**

The Industrial Revolution brought momentous changes to Blackburn. In 1750 Blackburn was little more than a village, but by 1850 it had become a boom town with a tenfold increase in its population. Cotton from America became the raw material for textiles. By the end of the nineteenth century Blackburn had become the cotton weaving capital of the world.

The completion of the Leeds-Liverpool Canal in 1816 and the coming of the railway in 1846, cut transport costs dramatically and increased demand for cotton, and caused further expansion of both town and industry.

The 20th century has brought many changes to the town. The textile industry has declined and other industries such as engineering and electronics have grown up. The Borough is a popular place to live and work and there are demands for new development, both commercial and residential, in both brownfield and greenfield locations.

The industrial heritage of the town includes cotton mills, weaving, and the wallcovering industry. The main influences in terms of the legacy of potentially contaminated land are considered to be as follows:

i) Chemical works, metal production, coal mining and processing, paper making, textile trades, brick making and quarrying;

ii) Areas of landfilling, such as the infilling of areas of clay, rock and/or sand extraction, occurred both in areas near to the town centre and towards the periphery in more rural areas. Some of the infilling activities were undertaken prior to the introduction of Waste Management Legislation in the 1970’s, and as such were not subject to the level of regulation and control that would be expected today.

As with many other local authorities, many of the known areas of former landfilling are currently used as amenity grassland and are within the ownership of
the Borough Council. Some of these sites are within close proximity to residential and commercial development.

A review and prioritisation of potential landfill gas producing sites within the Borough was undertaken in 1990. Sites were prioritised based on available information and the results of monitoring. As a result of the review a number of priority sites were subject to landfill gas protection measures funded through Supplementary Credit Approval. An ongoing programme of monitoring is in place for selected sites, the frequency of monitoring based on the assessment of risk. This information will be utilised in the identification of contaminated land.

iii) The large Royal Ordnance Factory site with munitions manufacture. These activities were generally located in formerly sparsely populated areas and not limited to the town centre, contributing to the diverse and widespread industrial base within the town.

iv) Petroleum storage and distribution sites.

It is notable that as well as being diverse in terms of the range of activities undertaken, the spatial distribution of sites is also widespread across the Borough but predominantly within defined industrial estates.

The Property Services Section of the council currently maintain computer database and paper based records of historical and current land use which by the nature of former activities carried out on them, have the potential to be contaminated. In respect of the database, the definition of contaminated land relates to its broader sense and not to the statutory definition. Details of this information, along with supporting information from the Planning Policy section, and its relevance to the implementation of the strategy will be discussed further within the strategy document.

Land ownership within the Borough is dominated by Blackburn with Darwen Borough Council, United Utilities, British Waterways, Railtrack, the Diocese and private landlords and organisations.

The decline in the traditional manufacturing base of the town and the change in the types of activities undertaken has resulted in the redevelopment of extensive areas of land which have previously been subject to potentially contaminative industrial or commercial activity. A significant area of the existing Borough has been redeveloped. A proportion of the redevelopment took place prior to the consideration of contaminated land within the planning process. Since the late 1980's the majority of redevelopment schemes have been subject to an assessment for the potential impact of contamination within the development process. Such sites have been addressed by the imposition of contaminated land conditions and subsequent remedial works. Prior to this time, developments are unlikely to have been formally assessed for risks associated with potential contamination. The initial emphasis will therefore be directed to these sites via information from the Development Control section of the Planning Division. For this reason we have selected a cut-off date of 1990, with sites developed after this time assumed to have had contamination issues adequately addressed under the Planning and Development Control regimes. Provided the conditions of the Contaminated Land Condition have been adequately addressed, such sites will be considered as a lower priority and should have details included on the council’s Contaminated Land filing system. For sites developed during or before 1990, it will be assumed that issues relating to contaminated land were not adequately considered unless there is available information to the contrary. These sites will be considered as a higher priority as highlighted in the Methodology section.
There has been no one period of rapid growth within the Borough, more of a continuous, sustained expansion and redevelopment since the 1960’s with a surge of public sector house building in the 1930’s, 1970’s and 80’s. Much of this development would have occurred when the issue of contamination was not formally considered in the development process.

In general, it is thought that relatively few sites that appear to be potentially contaminated land have been redeveloped for residential purposes. There will be some exceptions, including some sites redeveloped prior to the formal consideration of contaminated land within the planning process. These areas will be considered as a priority within the implementation of the strategy. Others will have been developed for industrial or commercial purposes. Again these will be prioritised for inspection based on the methodology presented within this strategy document.

4.2 The Natural Environment

4.2.1 Natural Contamination

The presence of natural contamination is not currently a consideration when recording potentially contaminated sites or areas but some “contamination” may be due to naturally occurring high background levels of certain substances. Such information will need to be sourced from organisations such as the British Geological Survey (BGS), and the British Library; the Environment Agency has provided this information under the information exchange programme. The geology of the area means the Borough is unlikely to have high background levels of common naturally occurring contaminants.

With regard to risk associated with Radon, monitoring has been undertaken within the Borough by the National Radiological Protection Board as part of a national program. Results have shown that no Radon Affected Areas have been declared in any of the five kilometre squares of the Ordnance Survey grid which are wholly or partially within the jurisdiction of Blackburn with Darwen Borough Council. An Affected Area is one in which 1% or more of homes are estimated to have levels of Radon which exceed the Action Level.

4.2.2 Ecology and Biodiversity

The Lancashire Biodiversity Action Plan identifies the needs of the Borough for biodiversity protection. It is important to recognise that polluted or derelict land can be a source of rich and varied wildlife. As a result it is not unusual for such sites to be designated for special protection. Clearly site investigations and clean-up programmes for contaminated land could cause damage to sensitive environments. During early implementation of the Inspection Strategy, the council will seek to ensure (through information resources and established lines of communication) that appropriate consultation takes place in all cases of identifiable biodiversity protection needs.

Within the Borough three classifications of protected habitats are represented: Sites of Special Scientific Interest (SSSI's), County Heritage Sites and Local Nature Reserves. The distribution of Biological heritage sites, SSSIs and Local Nature Reserves are shown in Figure 2.
Sites of Special Scientific Interest are of national importance and are designated and administered by Natural England under the Wildlife & Countryside Act 1981. County Heritage Sites and Local Nature Reserves are of local importance and are designated and administered by a partnership of the Borough Council, Natural England, Lancashire Wildlife Trust and Lancashire County Council.

Sites of Special Scientific Interest, 3 in total, are located at Longworth Clough (SD698 148), Oak Field (SD696 153) and Gale Clough and Shooterslee Wood (part in Bolton MBC; SD702 141).

There are 99 Biological/Geological Heritage Sites within the Borough. 85 are entirely within the boundary and the rest straddle the borders.

There are 4 Local Nature Reserves in the Borough namely, River Darwen Parway, Sunnyhurst Woods, Pleasington Old Hall and the Arran Trail. Higher Croft Woods is a candidate for designation.

A preliminary review of the above protected habitats has indicated that there is a reasonably low degree of coincidence between these areas and sites identified on the database of potentially contaminated land.

Consultation will be undertaken with organisations such as Natural England, Lancashire Wildlife Trust the Forward Planning and Transport Policy Group of Blackburn with Darwen Borough Council, and other local/national conservation bodies in order to identify any specific concerns.
Within the implementation of the strategy our primary focus will relate to the assessment of risks to human health, we will however, in consultation with relevant organisations identify and prioritise risks to all receptor groups.

Sites of previous land use are often left largely undisturbed and natural vegetation establishment leads to a habitat succession from tall herb, to rank grassland and finally to scrub woodland. Each of these ‘Urban Common' habitats has nature conservation value and the low levels of human disturbance can benefit wildlife.

It is also recognised that any necessary investigation and/or remedial works should, where possible, take account of the nature conservation value of the site. Appropriate
advice will therefore be sought, for example works on SSSIs will require prior Natural England approval and they would be concerned about any activity that would affect the overall nature conservation value of the site. The council is aware that sites of past land use may support legally protected species such as Great Crested newts and water voles. The council will therefore liaise closely with all interested parties when dealing with such sites.

It should be noted that a number of sites are likely to have been assessed previously. The information obtained during these assessments will be reviewed at an early stage during the course of the implementation of the inspection strategy.

4.2.3 Geology

The Solid and Drift Geology of the Borough is described in the British Geological Survey maps of Preston (Sheet 75) and Rochdale (Sheet 76)\(^{11}\). The solid geology of the Borough is characterised by the Upper Carboniferous era with Lower Coal Measures over Millstone Grit Series. The drift geology is characterised by Recent, Glacial and Carboniferous deposits. Figure 3 shows a map of both the Drift and Solid geology for Blackburn with Darwen Borough.

4.2.3.1 Solid Geology

The solid geology of the Borough varies from east to west and no one geological feature is prominent as an outcropping series. In general therefore the Borough has Lower Coal Measures of varying thickness with numerous named coal seams. These are underlain with Millstone Grit Series with progressive depths of Haslingden Flags, Middle Grits, Kinderscout Grits, Sabden Shales, Pendle Grits and Bowland Shales with the pattern interrupted by major structural features, including faults, which will have an influence on the way the aquifer behaves.

The main outcropping features are Lower Coal Measures, Rough Rock and varying Haslingden Flags and Middle Grit Series. There are also minor areas of Carboniferous Millstone Grit dotted around the Borough.

4.2.3.2 Drift Geology

The drift geology of the Borough is largely characterised by Glacial Boulder Clay with major areas of Recent Peat. Areas of Glacial Sand and Gravel are seen in connection with major surface water features (such as the Blakewater and River Darwen), as are smaller pockets of Recent Alluvium.

4.2.4 Groundwater Vulnerability

Blackburn With Darwen Borough is underlain by Minor Aquifers (Variably Permeable), all of which contain groundwater in exploitable quantities.

The presence of glacial drift material has essentially served to protect the groundwater from contamination, however, where drift is absent there is significant potential for contamination to impact on groundwater quality. It is possible for these drift deposits
to also be minor aquifers in their own right, which will need considering when sites are being assessed.

The greatest potential for groundwater contamination, due to the lack of drift cover and concentration of industrial development, exists within the urban and commercial areas of the Borough. Groundwater quality is however poor in these areas and not used for public supply except for some limited industrial abstraction.

The general Groundwater Vulnerability of the Borough has been assessed with reference to the Environment Agency Groundwater Vulnerability, 1:100,000 scale, Sheet 10 (Central Lancashire) and through preliminary discussions with the Environment Agency. The Ground Water Vulnerability Map is available for inspection with the Environmental Health Service at the council offices.

Within the Borough the following broad Groundwater Vulnerability classes/situations exist:

i) areas classified as minor aquifer with soils classified as having a high leaching potential; of the sub-classes for high leaching potential soils, all three are encountered in the Borough, namely;

- **H1** Soils which readily transmit liquid discharges because they are either shallow, or susceptible to rapid flow directly to rock, gravel or groundwater;
- **H2** Deep, permeable, coarse textured soils which readily transmit a wide range of pollutants because of their rapid drainage and low attenuation potential; and
- **H3** Coarse textured or moderately shallow soils which readily transmit non-absorbed pollutants and liquid discharges but which have some ability to attenuate adsorbed pollutants because of their clay or organic matter contents.

ii) areas classified as minor aquifer with soils classified as having a low leaching potential.

A high percentage of the Borough has low permeability drift deposits occurring at the surface, and overlying Minor Aquifers are head (clayey), peat, marine and estuarine alluvium, lacustrine and glaciolacustrine silt and clay and till.

It should be noted that for the majority of the area of central Blackburn and Darwen soils have been classified as high leaching potential (HU). This classification has been determined because soil information for urban areas is less reliable and based on fewer observations than in rural areas, the worst case is therefore assumed and as such land is classified as high leaching potential until proved otherwise.

In general terms, the distribution of sites of potential land contamination is favourable with respect to geology and groundwater quality and utilisation. The industrial areas have tended to be located in areas either where drift deposits protect the groundwater and/or where groundwater is of poor quality and not used for abstraction other than on a limited basis by industry.
Whilst it is accepted that some of the groundwater within the Borough is of a poor quality, further pollution of the aquifer and ground water will not be acceptable. It may be possible for this to be used as a resource at another time, so will still require protection from contamination.

Whilst no specific concerns were raised within our preliminary discussions with the Agency with respect to groundwater vulnerability, it was noted that certain types of industrial activity are likely to have had an effect. Activities of particular concern to the Agency are those involving the storage of fuels. In addition, any activity near to a potable abstraction point is viewed with concern. Although the implementation of the Strategy, will focus on the assessment of risks to human health, we will in consultation with the Agency, prioritise risks to groundwater in accordance with any concerns identified.
Figure 3 Solid (left) and Drift (right) geology for Blackburn with Darwen Borough
4.2.5 Surface Water

The main surface water features within the Borough, based on information provided by the Ordnance Survey, and the Environment Agency, can be found in the Ordnance Survey 1:25000 Pathfinder Series maps of the Borough held by the Environmental Health and Trading Standards Service.

Currently the majority of information available to us with regard to water quality relates to the major water features of the Borough, including rivers and streams, canals and water storage features. The main water courses comprise the Rivers Blakewater, Roddlesworth and Darwen with associated smaller tributaries. It also includes the catchments of Knuzden Brook, Bradshaw Brook, Waterside Brook, Moss Brook, Duckshaw Brook, Sheep Bridge Brook, Trout Brook, Broadhead Brook, Horden or Wards Brook, Holdens Brook and Hazelhurst Brook. It is understood that the Environment Agency also includes the Leeds-Liverpool canal within their routine monitoring programme.

In addition to these water courses there are a number of reservoirs contained within the rural and urban environment and include Jumbles, Wayoh, Turton & Entwistle, Delph, Springs, Dingle, Belmont, Sunnyhurst Hey, Earnsdale, Roddlesworth, Guide and Fishmoor Reservoirs.

Within Blackburn and Darwen, most of the main water courses and some of their tributaries identified above flow through areas which have historically been subject to a variety of potentially contaminative activities including chemical works, power stations, gas works, tanning, brewing and military establishments. There are also a number of closed landfill sites which pre-date, and are excluded from, the waste site licensing regime practices.

Within the Local Environment Agency Plan, (LEAP) for the Ribble, Consultation Draft June 1999, contaminated land is not the single greatest cause of degraded water quality in the Central Area where direct discharges to surface waters are causing some degree of pollution.

Preliminary discussions with Environment Agency Officers have, however, indicated that they are not aware of any high priority sites with respect to impacts on water quality within the Borough. They do however caution that it is possible that leachate outbreaks may be occurring which have not been detected. Sites will be reviewed in accordance with the Strategy Methodology or on a site specific basis and potential impacts identified on a priority basis in discussion with the Environment Agency.

In terms of existing and future water quality, two classification systems are employed. The “General Quality Assessment” (GQA) is used to report on current quality and compare with historical data and national trends in water quality. The GQA classification ranges from A (very good) to E (poor) principally based on levels of biochemical oxygen demand (BOD), total ammonia and dissolved oxygen. The “River Ecosystem” (RE) classification uses a wider range of indicators of the chemical state of the watercourse to assess compliance with river quality objectives (RQO’s). These RQO’s are non-statutory water quality targets that are considered to
be appropriate for the uses to which the river is put and the aquatic life it supports. RQO’s are used as a driver for planning water quality improvement needs.

To provide a general indication of water quality, information contained within the LEAP for the Ribble demonstrates the breakdown of the General Quality Assessment Classification for 1999 and the River Ecosystem Classification 1999, (RE1 = very good, RE5 = poor). The information is principally for the River Darwen with additional inputs from its tributaries.

As an overview it can be said that river quality goes from GQA(B) and RE2 in the South of the Borough through degradations to GQA(E) and RE5 in the North. As it travels through urban and commercial/industrial areas water quality worsens, however this appears to be from diffuse sources as opposed to site specific ones through contamination issues, (information provided by the Environment Agency). As well as the non-statutory RQO’s the Agency must ensure that the statutory objectives of relevant EC Directives are met.

A large number of sites, which appear on the database of potential land contamination, are situated close to major water courses within the Borough and there is some degree of coincidence between water courses and such sites. As noted above, preliminary discussions with Environment Agency Officers have indicated that they are not aware of any high priority sites with respect to impacts on water quality within the Borough. Sites will be reviewed in accordance with the Strategy Methodology on a site specific basis and potential impacts identified on a priority basis in discussion with the Environment Agency.

5. DATA MANAGEMENT

5.1 Introduction

The new contaminated land regime demands a high level of information management and recording. There was, therefore, a need to review our existing information sources, and the way in which information was held. The need for, and suitability of any additional information was examined, and any decisions justified and recorded.

This necessitated the establishment of a system, which could cope, with the level of information generated by the review. It also had to be robust enough to withstand legal scrutiny and challenge and identify information sources and the key organisations involved. issues. The decision making process must be transparent with a clear audit trail.
5.2 The Landmark System

The council purchased, via the Landmark Information Group Ltd and the council’s Service Level Agreement with Ordnance Survey, a historical mapping and data-set system.

This allowed the accelerated systematic analysis of the 1:10,000 and 1:10,560 scale mapping in order to identify previous industrial uses of a potentially contaminative nature and key historical land use. The historical data was purchased for different time periods, referred to as epochs. These epochs roughly equate to the first County Series survey and subsequent revisions, and the first National Grid resurvey. The epochs purchased were as follows:

Epoch 1 refers to first County Series survey published dates 1843 to 1893 (1892 to 1894)

Epoch 2 refers to first revision County Series survey published 1891 to 1912 (1908 to 1912)

Epoch 3 refers to second revision County Series survey published dates 1904 to 1939 (1929 to 1932)

Epoch 4 refers to third revision County Series survey published dates 1919 to 1943 (1937 to 1938)

Epoch 5 refers to first National Grid resurvey published dates from 1945 (1954 to 1976)


In addition, the Historical Land Use Data Landmark – derived from the systematic analysis of 1:10,650 County Series mapping and 1:10,000 scale National Grid mapping. Landmark have carried out a systematic analysis of the mapping series in order to identify previous industrial/commercial uses of potentially contaminative nature and key historical land use. Within the six epoch layers and one land-use layer; into the six contaminative use layers, based on each time period or epoch, potentially contaminative uses were categorised and digitised.

5.3 Database of Sites of Potential Concern

In 1997 a new Geographic Information System (GIS) was obtained by Blackburn with Darwen Borough Council. In 2001 the GIS system was first used to manage the anticipated large amount of information involved in mapping and identifying potentially contaminated sites within the Blackburn with Darwen Borough. In accordance with our obligations under Part IIA of the Environmental Protection Act, we commissioned the Greater Manchester Geological Unit (GMGU) to update our list of potentially contaminated land sites within the Borough. Using a combination of
the 100 sites we had already identified under the planning control process, historical maps and aerial photos (see section 5.3.1 for further details) Sites of Potential Concern (SPCs) were identified and mapped for the entire Blackburn with Darwen Borough. These sites were added as a “layer” to the GIS system. Each site boundary was delineated according to the information in the historic maps and drawn onto the SPC layer as a “polygon”. Information contained within the GIS layer for each site includes site area, past land use, and any other relevant information. A total of 2697 SPCs have been identified so far, delineated and added to the GIS as a layer (see Figure 4). It is important to note that these sites are not defined as Contaminated Land under Part IIA of the Environmental Protection Act (see Section 2 for definition of contaminated land), but are Sites of Potential Concern that may warrant further investigation.

Figure 4. Blackburn with Darwen Borough. Distribution of Sites of Potential Concern (yellow lines).

5.3.1 Methodology

The GMGU was provided with the historical landuse data set purchased from Landmark. This was digitised at 1:10,000 scale and there were concerns that this did not provide enough information. The GMGU assessed this data and found that it also had missed many potential sites and had amalgamated many into a single polygon. It was agreed that the GMGU would go through each epoch at 1:2500 scale adding to
the Landmark layers, digitising potential sites that have been missed and that the Landmark polygons would be reassessed later on in the prioritisation phase.

The pre-war epochs were straightforward to assess as each epoch had a reciprocal land use layer. The post war epochs were more complicated as map editions had been grouped to compensate for areas of the borough which had not been mapped. This meant that there were overlapping epochs which made it quite difficult to assign to landmark contamination layers. As many areas were found not to be mapped at the 1:2500 scale after the war, the 1:1250 maps were also assessed.

In addition the Landmark Layer Cont L which showed potential areas of infill was added to, but it was only possible to review the pre war maps.

Once this review was completed all layers were viewed at the same time to produce a prioritisation layer.

5.3.2 Polygons

The GMGU digitised sites which are noted to be contaminative industries in line with the DoE industrial profile. Additional features such as electricity substations, changes in river course were also noted.

Metadata was included for all layers produced (additional information, see below). Additional fields were added to the Landmark contaminative layers to show clearly what polygons the GMGU had added and the reasons behind them. These layers were viewed as draft layers, to be used as a backup during the prioritisation process.

The prioritisation layer had the following metadata recorded:

- ID. This is a unique reference for each polygon, beginning with PS and then the number.
- FLARE ref. This has been left blank so that the dataset can be used in conjunction with the FLARE database (see section 5.5 for more details).
- Description. A brief description of the type of works/contaminative use noted.
- General Comments. This was included to note any observations with the polygons.
- Dates Present. This lists the dates that the site was present and was gained from the date of the maps digitised on the contamination layers.
- Council Owned Land. The layer of council owned and former council owned land was assessed to provide this information for later stages of prioritisation.
- Current Land Use. The polygons were assessed against the current land line data and if possible the current land use was noted.
- Confidence. An assessment in the confidence in the boundary of the polygon was given. If the polygon was based on Landmark data which the GMGU had not validated the confidence was always no confidence.
- Reason. The reason for the confidence assessment.
- Historical Landuse Digitiser. This noted who had digitised the original polygons.
- Planning Reference. The GIS layer of recent planning applications was included to aid the prioritisation process.
• EA Landfill Class. The polygons were cross referenced with the EA dataset for landfill sites.
• X Coordinates
• Y Coordinates

Three different kinds of features were created; Point Features, Linear Features and Area Features. Point features are those covering an area less than 100 metres, linear features are those following line features eg; canals and railways, and area features were digitised as polygons around the boundary of each feature greater than 100 metres on the ground.

5.4 Determining Potentially Contaminated Sites

In reviewing historical maps for potentially contaminated land a certain degree of individual interpretation is required. This includes site boundary determinations, discussed below, and what land use, structure or map symbol may indicate a potential contaminant source. Below is a list of land uses, potential sources and other areas where assumptions had to be made. Please note that when any degree of uncertainty was encountered all concerns have been noted in the comments section in the linked info table associated with each polygon.

• Field Ponds. Field ponds have only been included on the final prioritisation layer if they were viewed to be a significant size.

• Railway Sidings. Within the railway land classification sidings, stations and engine sheds were all digitised. Where a railway line ran i.e. a continuous line the area was not digitised. Railway sidings, stations and associated buildings were digitised with the boundary determined from were it was clear a siding or buildings existed. Where a railway line was seen to run to a dead end or buffer this was clearly an area where railway vehicles either paused for loading / unloading or where stored for varying amounts of time. It is these locations, which represent the greatest potential for contamination to have occurred or be present.

• Site Boundaries. Site boundaries are difficult to accurately determine and judgement was based solely on information visible or legible on the relevant historical maps. Where no boundary line was shown a decision was made based on the land use e.g. for a railway sidings a boundary would be drawn a standard distance from the railway line shown, and the location and layout of the site and surrounding buildings. In cases where boundaries were especially difficult to determine or the boundary between two neighbouring different land uses was indefinite this was noted in the comments section. If the site boundaries are to be used in taking enforcement action, designating a site, designing site investigations or any further investigations additional information should be consulted where possible.

• Clay pits, brick works, gravel pits, sand pits and quarries. The site boundary was usually taken from the furthest extent of excavations or associated embankments indicated. It should be noted these are taken as shown on individual maps and their real extents may indeed be smaller or larger than the
actual area digitised. If associated buildings are evident these were included in the site boundary.

- Final Prioritisation Layer. The polygons digitised were the greatest extent of the site.

Information is also contained in the GIS system as part of the Environment Agency and Local Government Association Memorandum of Understanding exchange of information. Included in this is information on:

- Operational and closed land-fill sites
- Water abstractions
- Surface water features
- Data on surface and groundwater quality
- Aquifer locations and characteristics
- Groundwater vulnerability and source protection zones

This will be added to, to include details of Private Water Supply abstractions within the Borough.

5.5 Database – GIS link

The completed list of SPCs were stored on the council AUTHORITY database as a list of 2697 sites on the Premises database within AUTHORITY. Each SPC has been allocated a unique reference number in addition to it’s standard Premises reference (Figure 5). A link has been set up between the database and our GIS system. When an SPC file is opened in Premises it displays a “GIS” button.

![Figure 5. Premises (PRU) database with GIS link to Site of Potential Concern (SPC)](image)
Clicking on this GIS button automatically opens the MapInfo GIS system together with a map of Blackburn with Darwen Borough and the prioritization layer containing the polygons for all SPCs. The link takes the user directly to the polygon associated with the SPC on the GIS system. The PGO1 (see Appendix) associated with the SPC can also be accessed through the Premises database, this allows the user to see the prioritization score for that SPC and how it was arrived at.

5.6 Groundwater Vulnerability and Surface Water

We have access to certain information on groundwater vulnerability and surface water locations for the initial screening.

We will, however, require input and advice from the Environment Agency on a number of issues, and procedures/agreements will need to be put in place with the Lutra House based Contaminated Land Team for the prioritisation and assessment of sites with regard to groundwater and surface water issues.

Environment Agency priorities or concerns will need to be highlighted and taken into account. Information will also be needed on surface water catchment areas, licensed abstractions, and any consented discharges to controlled waters. This will necessitate the need for a close working relationship with the Agency. Information has already been sent as part of the information exchange.

Currently the Lancashire Contaminated Land Officer Group (CLOG) and the Manchester Area Pollution Advisory Control (MAPAC) meet with the Agency to ensure that such issues can be addressed. Information will also be needed on any exempted potable abstractions from within the council i.e.; as mentioned previously, private water supplies. Again, it is also recognised that by their very nature the locations of private water supplies within the Borough are in rural locations and therefore are very low risk sites with regard to contamination issues for the strategy.

The Agency has a substantial information base, which has been gathered through their reactive work involving the investigation of complaints and from planning applications. The majority of this information is held on site-specific files. This may represent an information accessibility problem. The Agency is, how ever working to integrate their records relating to groundwater and surface water issues. Liaison between the Agency and the council will secure this information in the most suitable format.

5.7 Geological Information

The geology of the area is presented on the following geological maps published by the British Geological Survey.

1: 50,000 Sheet 75 Preston (Solid Edition)
1.:50,000 Sheet 76 Rochdale (Solid Edition)
1: 50,000 Sheet 75 Preston (Drift Edition)
1: 50,000 Sheet 76 Rochdale (Drift Edition)
5.8 Groundwater Vulnerability Information

Currently, information on groundwater vulnerability is held in paper form on the Environment Agency Policy and Practice for the Protection of Groundwater, Groundwater Vulnerability 1:100,000 Map Series of Central Lancashire Sheet 10.

Whilst this information is available in digital format it is not thought necessary to purchase this system as the Borough has a relative simplicity with regards to Groundwater Vulnerability, with only minor aquifers, easily identifiable for geographical and site specific areas. This will allow for the rapid screening of sites with respect to sensitivity to groundwater.

Information is also available, from the Agency, on the location of any protection zones and specific catchment and abstraction areas. This information has been provided by the Agency via the Memorandum of Understanding.

The Agency has developed a Point Source Database. This system records information on any known sources of groundwater contamination. Whilst the information recorded includes broader considerations than just contaminated land, the system is codified such that issues relating to contaminated land could be extracted. There are a number of issues relating to confidentiality, data transfer and compatibility which would have to be addressed before the information could be made available to the Borough Council. This potentially valuable information source will be further explored.

5.9 Surface Water Information

Information on the location of surface water receptors will be obtained from the Ordnance survey Landline maps held within the GIS mapping system, GGP, and Ordnance Survey 1:25,000 Pathfinder paper map series. These can be rapidly identified as features on the map, such as rivers, brooks and ponds etc. This will again allow sites to be rapidly prioritised.

The Environment Agency monitor most of the main water courses in the Borough, for example, the Rivers Darwen and Blakewater, Knuzden Brook and other smaller watercourses. Monitoring is undertaken on long-term programmes or on an ad hoc basis to determine the impact of particular discharges or when a problem is suspected. The data generated is held on a database and is available either as raw data or in the form of statistical reports. Two classification systems are operational, River Quality Objectives (RQO's) for the short and long term and General Quality Assessments (GQA's). The Local Environment Agency Action Plan (LEAP) for the Blackburn/Darwen area, which includes details of monitoring and performance against the above classifications and standards, will be utilised as an important information source.

Any site specific issues will be referred to the Environment Agency for comment, as they have the facility to quickly check for the presence of sensitive receptors through their database system.
5.10. **Information on Landuse**

The strategy is intended to concentrate on the risk posed to human receptors as a priority. Information is, therefore, needed on the presence of any sensitive land uses in terms of the presence of human receptors, these can be sub divided as follows:

5.10.1 **Residential Development**

Information is held within the Forward Planning and Transport Policy Group on areas of residential development, both current and planned. Existing areas can be readily identified using the plan sheets system. Information on when the site was developed is not as easily accessible, due to the delay between the granting of planning permission and the commencement of the development. An informed judgement may, therefore, need to be made on when the development took place based upon when the planning permission was granted. Some additional information may be available from other information sources such as Building Control and the Development Control Group.

National Planning Policy contains a presumption in favour of development on “brownfield” or previously developed land. There is a greater likelihood of these sites (as opposed to undeveloped “greenfield” sites) being contaminated and it is therefore important to know where these sites are, the degree of contamination and the remediation necessary.

Another difficulty may be in identifying whether the property has a garden area, which may increase the risk of exposure. This issue will be addressed by using the council’s GIS system which is detailed enough and recent to show plans of garden or yard areas.

Planning Authorities maintain a database of housing land availability. Records of completions of houses on sites developed for five houses or more are recorded. The database is updated on an annual basis to show the position in April of each year. This will be accessed via the Development Control Group and the GIS system.

5.10.2 **Schools/Nurseries**

Establishments within the control of the council will have to be sourced from the Children’s Services Department, private nurseries are, however, excluded. Social Services will be approached as a potential information source, but other sources may need to be identified; again information may be held within the Property Management Section.
5.10.3 Allotments and Garden Sites

Allotments within the control of the council are held by Property Management at Capita Symonds. A layer exists on our GIS system which shows the allotments within Blackburn with Darwen Borough and this will be used during the prioritisation of sites of potential concern. Similarly Sites of Potential Concern will be assessed for the presence of community gardens.

5.10.4 Commercial/Industrial

Information on sites suitable for commercial and industrial development are identified in the council's Local Plan. The Forward Planning and Transport Policy Group, Economic Development/Regeneration Department and the Property Management Department of the council will also be approached as potential information sources.

5.10.5 Agricultural Land

Information has been obtained from DEFRA on the Agricultural Land Classification (ALC) system. This system classifies land into 5 grades with grade 3 land being subdivided into sub grades 3a and 3b. Full details of the classification system are set out in the MAFF publication Agricultural Land Classification of England and Wales - Revised Guidelines and Criteria for Grading the Quality of Agricultural Land.

Provisional Agricultural Land Classification (ALC) maps for England and Wales were first published by MAFF at a scale of 1:63,360 and were designed to give strategic advice on the distribution of land quality to planning authorities. It is understood that these maps are not accurate enough for assessment of individual sites. These maps have been replaced by ALC Regional Maps at 1:250,000 which are available for general guidance.

However, the 1:63,360 scale maps have been examined and it is noted that land classification Grades 1 and 2 do not occur. Whilst some Grade 3 land does occur, it is only a small area of the West of the Borough where the land is farming land with a very low risk of any previous contaminative uses. The rest of the Borough is graded either 4 or in the moorland areas 5 which are of relatively poor agricultural land.

Useful information in respect of contamination and associated risks is contained within a series of codes of Good Agricultural Practice produced by DEFRA covering air, water, soil and uses of pesticides on farms. The code of Good Practice for the Protection of Soil (DEFRA, 2003) gives details of the impact of inorganic contaminants of soil in England and Wales. The list includes zinc, copper, lead, cadmium, arsenic, fluoride, nickel, chromium, mercury, selenium, molybdenum, sodium and chloride.

The above sources of information will be utilised both within the initial and more detailed assessments. In addition, both internal Departments and external organisations, for example, the Environmental Protection Division of DEFRA will be
consulted at various stages in the implementation of the Inspection Strategy and on any site specific issues.

The issue regarding the exact classification of 'green belt' and agricultural areas will also need to be addressed.

5.10.6 Amenity Land (Parks and Playgrounds)

The Community, Leisure and Cultural Services Department will hold information, but again the precise format of this information will need to be identified.

5.10.7 Protected Habitats

Protected habitat information (Sites of Special Scientific Interest, County Heritage Sites and Sites of Importance for Nature Conservation) is available from the councils Planning Department. This information will form the basis of a rapid screening exercise for any coincidence of potential sources of contamination and protected habitats.

5.10.8 Historic Environment

Detailed information and advice is likely to be required from organisations such as English Heritage, the Forward Planning Department and other local and national conservation bodies on a site specific basis. The County’s Historic Environment Record (HER) and Sites and Monuments Record will also be consulted as valuable sources of information on the historic environment. Liaison arrangements have been secured for the availability, form and accessibility of any additional information and to assist in the interpretation and assessment of the sensitivity of such sites with respect to contamination.

5.10.9 Services Providers and the Coal Authority

Service providers will be consulted for information on routes of services (telecommunications, gas, electricity, water), drains, adits, culverts, pipelines and filled ground. The Coal Authority will be consulted for information on pathways relating to Coal mining.

6 PUBLIC REGISTER AND INFORMATION REQUESTS

Where land has been identified as contaminated land, details relating to the condition of the land and the remediation actions undertaken will be detailed within the Public Register, specifically;

   a) Remediation Notices
   b) Appeals against remediation notices
   c) Remediation declarations
   d) Remediation statements
   e) Appeals against charging notices
   f) Designation of special sites
g) Notification of claimed remediation  
h) Convictions for offences  
i) Guidance issued  
j) Other environmental control

(A full description is contained within the Register held at the Environmental Health and Trading Standards Service)

This information will be available for public inspection subject to any exclusions, for example, on the grounds of national security or commercial confidentiality. Appropriate legislation and guidance from the Department of Transport, Environment and the Regions and for DEFRA will be followed in respect of the details included on the Remediation Register and access provisions.

It is envisaged that requests will be made for access to information relating to the review process, for example, information on whether land has been inspected and details of any site investigation reports prepared. It is our intention that the release of information will be carefully controlled until the review process is complete, as risk factors may change as we proceed through the process. The early release of information may also lead to a level of incomplete information being released to third parties. Legal opinion will be sought to avoid any breach of the Environmental Information Regulations 1992 and the Freedom of Information Act 2000.

A system/policy to deal with the release of information will be developed and publicised, this is likely to take the form of a Code of Practice.

A specific question relating to the Public Register and Remediation Notices is now included on the Enquiries of Local Authority Local Search Form CON.29. from the Legal Services Department. Enquiries and responses are made electronically from a member of the Pollution Control team.
Within the implementation of the Strategy the emphasis will be placed on addressing any risk to human health or a controlled water as a priority. The assessment processes will, therefore, be initially biased towards the potential risk to these receptors. The site assessments will accordingly be undertaken based upon the local priority issues identified within the initial scoping review and the information held within our existing knowledge of potentially contaminated land.

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**Fig 6 Outline of the prioritisation, investigation and determination of potential Part IIA contaminated sites.**
Within the implementation of the Strategy the emphasis will be placed on addressing any risk to human health or a controlled water as a priority. The assessment processes will, therefore, be initially biased towards the potential risk to these receptors. The site assessments will accordingly be undertaken based upon the local priority issues identified within the initial scoping review and the information held within our existing knowledge of potentially contaminated land.

Any priority areas identified will be ‘fast-tracked' through the system, followed by the other sites held within our existing database. A review of the database will be undertaken, at the same time, in order to minimise the possibility of missing any sites. If any additional sites are identified then these sites will be fed into the system. This methodology has been chosen as we are reasonably confident that the existing database includes all the significant sites, but by verifying the database we can further improve our confidence levels in the information held.

This methodology will dictate the need for a 'live' assessment procedure, which will allow for sites to be assessed over varying timeframes based upon their initial status. Sites will, therefore, proceed through the different stages (which are to be identified by the MAPAC prioritization procedure) at different times. Such a system will require accurate record keeping: the key areas are identified. It should be noted that the procedure (based upon CLR6) will reflect the overall inspection strategy.

7.1 Detailed Inspection of Sites

To ensure compliance with good practice for the investigation of sites, all inspections will follow BS 10175:2001 Investigation of potentially contaminated site – Code of Practice; and BS 5930:1999 Code of Practice for site investigations. Any subsequent works or investigations will be carried out with due regard to any current standards or Codes of Practice.

Where further detailed inspection of land is required to prove a pollutant linkage exists this may include any or all of the following:

   a) the collation and assessment of documentary information, or other information as provided by other bodies;
   b) visiting the area for a visual inspection and possible limited sampling; or
   c) actual intrusive investigation of the land. Where necessary, external contractors/consultants will be appointed as required.

Where this investigation has to be carried out under Section 108 of the Environment Act 1995 as an “inspection using statutory powers”; this will be in full consultation with the council’s Legal Department and again the Agency Area Contact.

At all stages of any Borough wide or site specific investigation, the council’s Contaminated Land Officer will remain in close consultation with the Area Team based at Lutra House, Preston. This will enable the council to have due regard to any site-specific advice on the type of remediation to be undertaken, the standard of remediation, the ‘reasonableness’ of remediation, identification of appropriate person, apportionment of liability and recovery of costs.
7.2 Prioritisation of Sites of Potential Concern

The primary regulatory role under Part IIA rests with local authorities. In order to fulfil this role in an orderly and logical manner the council will adopt a risk prioritization system that identifies high risk sites for early investigation. The risk prioritization system currently being employed at the council for the purposes of Part IIA complies with national statutory guidance, and was developed for use by the Manchester Area Pollution Advisory (MAPAC) Land and Water Group, of which Blackburn with Darwen Council is an associate member. The system is known as the PGO1 Risk Prioritisation Methodology (see Table A.3 Appendix).

Since full population of all the fields of the PGO1 spreadsheet would be extremely time consuming, it was decided to use a partial PGO1 spreadsheet to do an initial ranking of Sites of Potential Concern. After discussion with members of staff at the GMGU, it was decided to populate 2 fields. These were predominant land use and present day land occupation type.

This was the potentially contaminative history of the site which led to it originally being classified as a SPC. Each land use was assigned a score according to the perceived risk. The scores ranged from a very high risk (50) to a medium/low risk score (20). Table 1 lists all predominant land use classifications and the associated scores.
<table>
<thead>
<tr>
<th>Predominant Land Use Classification</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asbestos manufacture, abrasives and related products.</td>
<td>50</td>
</tr>
<tr>
<td>Chemical works (organic &amp; inorganic)</td>
<td>50</td>
</tr>
<tr>
<td>Radioactive materials processing and disposal.</td>
<td>50</td>
</tr>
<tr>
<td>Gas Works, coke works, coal carbonisation and similar sites.</td>
<td>50</td>
</tr>
<tr>
<td>Refuse and waste disposal sites</td>
<td>50</td>
</tr>
<tr>
<td>Oil refining and bulk storage bulk storage of oil and petrol.</td>
<td>50</td>
</tr>
<tr>
<td>Civilian manufacture &amp; storage of weapons etc</td>
<td>50</td>
</tr>
<tr>
<td>Landfill sites known to be actively producing gas</td>
<td>50</td>
</tr>
<tr>
<td>Abattoirs and animal slaughtering.</td>
<td>40</td>
</tr>
<tr>
<td>Engineering (heavy, mechanical, electrical and general).</td>
<td>40</td>
</tr>
<tr>
<td>Metal smelting and refining.</td>
<td>40</td>
</tr>
<tr>
<td>Recycling of metal waste scrap yards and car breakers.</td>
<td>40</td>
</tr>
<tr>
<td>Natural and synthetic rubber products</td>
<td>40</td>
</tr>
<tr>
<td>Manufacture of pulp, paper and cardboard.</td>
<td>40</td>
</tr>
<tr>
<td>Textile and dye works.</td>
<td>40</td>
</tr>
<tr>
<td>Timber treatment works</td>
<td>40</td>
</tr>
<tr>
<td>Underground storage tanks on site</td>
<td>40</td>
</tr>
<tr>
<td>Landfill site strongly suspected to be producing gas</td>
<td>40</td>
</tr>
<tr>
<td>Airports and similar (air and space transport)</td>
<td>30</td>
</tr>
<tr>
<td>Concrete, ceramics, asphalt, cement and plaster works.</td>
<td>30</td>
</tr>
<tr>
<td>Dry-cleaning &amp; laundries (larger scale, not usually 'High Street').</td>
<td>30</td>
</tr>
<tr>
<td>Glass and glass products manufacture</td>
<td>30</td>
</tr>
<tr>
<td>Photographic processing</td>
<td>30</td>
</tr>
<tr>
<td>Coal storage/depot including associated surface activities and coal mine shafts.</td>
<td>30</td>
</tr>
<tr>
<td>Extractive industries</td>
<td>30</td>
</tr>
<tr>
<td>Electrical generation and distribution (excluding nuclear power station)</td>
<td>30</td>
</tr>
<tr>
<td>Printing of newspapers.</td>
<td>30</td>
</tr>
<tr>
<td>Railway land including yards, sidings and track.</td>
<td>30</td>
</tr>
<tr>
<td>Sale of automotive fuel, depots, and repair and sale of vehicles</td>
<td>30</td>
</tr>
<tr>
<td>Sewage treatment works and sewage farms.</td>
<td>30</td>
</tr>
<tr>
<td>Timber products manufacture (excludes timber treatment)</td>
<td>30</td>
</tr>
<tr>
<td>Waste transfer stations</td>
<td>30</td>
</tr>
<tr>
<td>Unspecified works, factory or mill. Unspecified industry where there is no label or information.</td>
<td>30</td>
</tr>
<tr>
<td>Landfill site, gas production is likely</td>
<td>30</td>
</tr>
<tr>
<td>Manufacture of plastics products (moulding and extrusion), building products, fibre glass and fire glass resins.</td>
<td>20</td>
</tr>
<tr>
<td>Dockyards and wharves.</td>
<td>20</td>
</tr>
<tr>
<td>Food and drink processing including large scale dairies and corn/flour mills.</td>
<td>20</td>
</tr>
<tr>
<td>Brewing and malting.</td>
<td>20</td>
</tr>
<tr>
<td>Cemetery, modern burial ground and grave yard.</td>
<td>20</td>
</tr>
<tr>
<td>All hospitals including sanatoriums but not lunatic asylums.</td>
<td>20</td>
</tr>
<tr>
<td>Unspecified warehouse.</td>
<td>20</td>
</tr>
<tr>
<td>Infilled features including ponds, reservoirs, canals, mill races.</td>
<td>20</td>
</tr>
<tr>
<td>Historical surface water features including marshes.</td>
<td>20</td>
</tr>
<tr>
<td>Suspected disturbed ground where changes in landform features could indicate filling.</td>
<td>20</td>
</tr>
<tr>
<td>Landfill site gas production is likely</td>
<td>20</td>
</tr>
<tr>
<td>Derelict Site, low risk</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 1. *Predominant land use* classification and associated risk score.
7.2.2 Present Day Land Occupation Type.

This is based on the present day site usage and, like predominant land use is a risk based score with those uses deemed to be the highest risk given the highest score of 70 (e.g. Residential with gardens) and lower risk contemporary uses such as industrial/commercial premises given the lowest score of 30. Table 2 shows the range of scores and associated present day occupation type.

<table>
<thead>
<tr>
<th>Current Land Use</th>
<th>Risk Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor industry or commercial yards</td>
<td>30</td>
</tr>
<tr>
<td>Industrial or factory buildings (including electricity substations)</td>
<td>40</td>
</tr>
<tr>
<td>Commercial, office or retail buildings</td>
<td>50</td>
</tr>
<tr>
<td>Leisure buildings</td>
<td>50</td>
</tr>
<tr>
<td>Public open space (recreational)</td>
<td>50</td>
</tr>
<tr>
<td>Agricultural land and buildings</td>
<td>50</td>
</tr>
<tr>
<td>Schools</td>
<td>60</td>
</tr>
<tr>
<td>Nurseries</td>
<td>60</td>
</tr>
<tr>
<td>Children's facilities</td>
<td>60</td>
</tr>
<tr>
<td>Hospitals</td>
<td>60</td>
</tr>
<tr>
<td>Institutional buildings</td>
<td>60</td>
</tr>
<tr>
<td>Managed houses with gardens</td>
<td>60</td>
</tr>
<tr>
<td>Managed houses no gardens</td>
<td>60</td>
</tr>
<tr>
<td>Residential with gardens and landscaped areas</td>
<td>70</td>
</tr>
<tr>
<td>Residential without gardens and landscaped areas</td>
<td>70</td>
</tr>
<tr>
<td>Allotments</td>
<td>70</td>
</tr>
</tbody>
</table>

Table 2. Present day land occupation type with associated risk scores.

7.2.3 Risk Score Calculation

Once the predominant land use classification and present day land occupation type are entered into the PGO1 spread sheet an initial Risk Score can be calculated by simply multiplying the two risk scores together. For example, an old landfill site that was now being used a commercial breakers yard would be calculated as follows:

\[
\text{Risk Score} = 30 \times 20 = 600
\]

This is the lowest possible score and is clearly a low priority site for further investigation.
However, an old chemical works now occupied by residential housing would score as follows:

<table>
<thead>
<tr>
<th>Predominant Land Use Classification</th>
<th>Present Day Occupation of Site</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>70</td>
</tr>
</tbody>
</table>

Risk Score = 50 * 70 = **3500**

This is the highest possible score and the site would appear to be high priority for further investigation.

Using historical and contemporary maps of Blackburn with Darwen, together with planning records the GMGU calculated risk scores for all 2697 Sites of Potential Concern. The breakdown of scores is shown in the pie chart below:

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Number of sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>3000-3500</td>
<td>11</td>
</tr>
<tr>
<td>2500-3000</td>
<td>98</td>
</tr>
<tr>
<td>2000-2500</td>
<td>297</td>
</tr>
<tr>
<td>1500-2000</td>
<td>266</td>
</tr>
<tr>
<td>1000-1500</td>
<td>1256</td>
</tr>
<tr>
<td>500-1000</td>
<td>345</td>
</tr>
<tr>
<td>0-500</td>
<td>424</td>
</tr>
</tbody>
</table>

Figure 7  Risk scores for Sites of Potential Concern within Blackburn with Darwen Borough. (Pie chart on the right shows the proportion of sites in each risk band. The table on the left shows the actual number of sites within each risk band)

The breakdown of risk scores revealed only a relatively small number of highest priority sites. However, it should be remembered that this is an initial screening of all Sites of Potential Concern within Blackburn with Darwen Borough council and as such represents a starting point for further investigation.
7.3 Further Investigation of Sites of Potential Concern

At the time of writing the initial prioritisation stages of the Sites of Potential Concern had been completed. The use of past and current land use was a useful tool to provide an initial prioritisation of all Sites of Potential Concern within the Borough. Although this system does provide a useful starting point, more details are required to establish whether there is a potential source-pathway-receptor linkage on site. The next stage of the prioritisation procedure will be the complete population of the PGO1 spreadsheet for the sites that scored >3000 in the initial prioritisation described above. Figure 6 describes the proposed stages of prioritisation and eventual Determination as Contaminated Land under Part IIA for those sites considered to fit the criteria.

The sites will then be further prioritised based upon whether they have been recently developed. This will again ensure that the initial emphasis is placed upon the human receptor. If the land has been developed then information will be obtained from the Building Control and Planning Departments on the development date. Any sites that have been developed after 1990 will be assumed to have been addressed under the planning and development control regimes, providing we can ascertain whether the remedial work was completed as required under the Contaminated Land Condition attached to the Planning Application. This date has been chosen as we can derive a high level of confidence in the remediation methods undertaken after this time, and the level of records kept on them. The date chosen reflects a precautionary approach.

Sites developed after 1990 will drop out of the process at this stage to be assessed later under the review mechanism. Due to the lack of information on sites developed before this time, any such sites will proceed to the further more detailed assessment, along with the undeveloped sites.

8. DETERMINATION OF CONTAMINATED LAND UNDER PART IIA

8.1 Informal Consultation

The council is obliged to act once it is satisfied that any land should be determined as Contaminated Land and Part IIA does not require any prior consultation in such instances. However, a ‘Determination’ is likely to reduce property value and may prevent access to any subsidies available for remediation. In appropriate cases, persons who are potentially liable to attract responsibilities for Contaminated Land may be offered the opportunity for informal consultation before or during inspections.

However informal consultation may bring about beneficial progress since it may facilitate availability of additional information relevant to the inspection of the land (and any subsequent decision) and a beneficial opportunity may be identified for persons to undertake voluntary work, for example by carrying out site investigations.

8.2 Determination

There are a number of circumstances under which the council would determine whether any particular land is Contaminated Land:

1. Significant harm is being caused;
2. There is a significant possibility of such harm being caused;
3. Pollution of controlled waters is being caused; or
4. Pollution of controlled waters is likely to be caused.

Section 2 in the Introduction discusses these definitions in further detail. To ensure a consistent and informed approach and under local arrangements the council will normally consult with the Environment Agency and (in appropriate cases) Natural England before making each determination. These organisations will therefore have an additional opportunity to contribute information at their disposal and make their views known - it will be important to assess whether a site might potentially be a special site. Similarly other bodies charged with conservation duties may be consulted informally. Assessments by the council will be appropriate to each site and the issues it raises, and will be based on sound scientific and technical knowledge taking into account all available evidence including information and advice received from other regulatory bodies. Particular reference will be made to authoritative and scientifically derived guideline values.

The physical extent of land to be determined as Contaminated Land will be considered carefully and in accordance with Statutory Guidance. Any determination will clearly identify the area of Contaminated Land and all three elements of the significant pollutant linkage.

Any determination that land is contaminated will be documented to include:

- the basis on which the decision was made
- information on the specific significant pollutant linkage(s) identified
- confirmation that the assessment satisfies the requirements of Statutory Guidance

Each determination will be reviewed as and when new information is received. In relation to pollution of controlled waters the guidance published by the Environment Agency will be observed.

8.3 Notification

Part IIA requires that all appropriate persons and the owner and/or occupier be notified once the council makes a determination that land is Contaminated Land. The council will establish as far as is reasonably practicable the identities of the relevant landowner(s) and occupier(s), also any appropriate person to bear responsibility for any remediation action that might be necessary. The council will then notify these persons that the land has been determined as Contaminated Land, identifying the capacity in which each person is being notified.

When notifying a person about determination of Contaminated Land the council will include:

- A copy of the written record of determination that the land appears to be Contaminated Land.
- Information about availability and access to site investigation reports.
- The reasons why particular persons appear to the council to be appropriate persons.
• The names and addresses of the other persons notified at the same time or previously, indicating the capacity in which each person was notified
• Information on the tests for exclusion and apportionment set out in the Statutory Guidance.
• Copies of all notifications will be sent to the Environment Agency, who will also be provided (upon specific request) with any further information the council holds or can reasonably obtain. Special arrangements will apply where the land may be a special site.

Where the council has determined land as Contaminated Land, notified all relevant persons and the land has not been designated as a special site, the council will be the enforcing authority for taking any formal action.

8.4 Remediation
Where land is Contaminated Land remediation may be necessary having regard to a cost-benefit analysis. The council will ensure that remediation follows the best practicable techniques, but will only request remediation that it considers to be reasonable. The council does not wish to cause unnecessary expenditure and advises persons liable for remediation that cost minimisation will best be achieved by (1) entering voluntary agreements for remediation, (2) developing a clear and unambiguous understanding of the council’s expectations, (3) keeping to agreed sequences of remediation actions, and (4) maintaining an effective dialogue during remediation.

The council must identify the appropriate remediation scheme to ensure the relevant land and/or waters are remediated to the necessary standard. Advice will be requested from the Environment Agency where it has particular expertise and in particular where there are concerns over pollution of controlled waters. The Environment Agency is entitled under Part IIA to provide site-specific guidance and the council is obliged to have regard to such guidance.

After notifying persons about a determination of Contaminated Land, and in particular where voluntary remediation has not yet been proposed, the council will make reasonable endeavours to consult and provide information on the remediation work required and timescale for completion. Any other interested parties may also be consulted. Consultation is intended to facilitate dialogue – this may result in additional information becoming available and/or an alternative method of remediation being identified. Agreement to undertake voluntary remediation may provide significant benefits and is to be encouraged. The council will serve formal remediation notices if no satisfactory voluntary agreement can be reached or where voluntary remediation is not being carried out satisfactorily.

8.4.1 Formal Remediation
Before serving a remediation notice the council will satisfy itself that the required remediation actions are unlikely to be carried out otherwise, and will ensure that the council is not itself an appropriate person. Every remediation notice will include a description of the circumstances constituting Contaminated Land, the remediation requirements, a list of the appropriate persons and the rights of appeal against the notice. A remediation notice specifying the actions required and timescales for
completion will generally be served not less than three months after the appropriate persons were notified. Copies of all remediation notices will be included in the Public Register. It is an offence for any person to fail without reasonable excuse to comply with a remediation notice. Enforcement action will conform to the council’s relevant enforcement policy. If a failure by one person is preventing others from proceeding with remediation then the council will consider carrying out the remediation action, whilst instigating enforcement proceedings, and will normally seek to recover any associated costs from the responsible person.

8.4.2 Urgent remediation
In cases of imminent danger of serious harm or serious pollution of controlled waters the council will seek to disapply the standard requirements (prior consultation and waiting time), carry out remediation without delay and recover the costs from the appropriate person(s). If this power is exercised the council will prepare and publish a remediation statement describing the action taken, and will place it on the register.

8.4.3 Voluntary remediation
Voluntary remediation may also be proposed before or during consultation on remediation requirements, often as part of a redevelopment proposal requiring planning permission or to take advantage of financial incentives. Where an acceptable remediation scheme is proposed, the council will not serve a formal remediation notice as long as the remediation scheme proceeds in a satisfactory and timely manner. The person responsible will normally have to prepare and publish a remediation statement. If the council is not satisfied by the manner or timescale of voluntary remediation it will have a duty to serve a formal remediation notice.

In certain circumstances the council itself may consider carrying out remediation where:
- no appropriate person can be found
- genuine financial hardship* is a barrier to remediation
- on behalf of appropriate persons (for example residents who unwittingly become liable) in some instances

*HARDSHIP – a factor underlying any cost recovery decision made by an enforcing authority under section 78P(2) of Part IIA, EPA 1990. (See Statutory Guidance Paragraphs 10.8 to 10.10 for interpretation and discussion of this term).

8.4.3.1 Benefits of Voluntary Remediation
The council is obliged to act to ensure that Contaminated Land is remediated. However, if a Remediation Notice has to be served, then persons responsible for Contaminated Land may lose out in a number of ways:
- the value of the land is likely to be affected
- the Remediation Notice will remain on the council’s register permanently once served (because Part IIA does not provide any mechanism for removal)
- any subsidies available for remediation works will generally dis-apply
- a wider choice of remediation works may be available

8.4.4 Varying Remediation Requirements
Whilst remediation actions are being carried out on any land, if relevant new information arises the council will require preparation and publication of a new
remediation statement (if there is suitable voluntary agreement) or will serve a new remediation notice (where suitable voluntary agreement cannot be secured).

8.4.5 Confirming that remediation has been completed
Where land has been determined as Contaminated Land, its potential future uses and its value will benefit from remediation actions. Whilst the council will enter details of remediation into the register as soon as reasonably practicable, Part IIA does not provide a ‘signing-off’ procedure. The council will instead confirm its view as to whether there are any grounds for requiring any further remediation or taking any enforcement action. Taken together with the detailed assessment of the land established during inspection and remediation, this confirmation should enable commercial decisions to be made about the land with greater certainty.

8.4.6 Remediation Declarations
There are certain circumstances where land may be contaminated but no remediation action is required. This is most likely to arise where any remediation would prove unreasonable, for example where water pollution is being caused and the costs of remediation would be very high when compared with the seriousness of the water pollution. In such cases the council will prepare and publish remediation declarations containing the reasons it would have specified remediation action in remediation notices, and the grounds for considering that to do so would be unreasonable. Details of remediation declarations will be entered on the register.

8.5 Exclusion from, and Apportionment of, Liability for remediation
Deciding who is liable for remediating any Contaminated Land may prove complex and contentious. The intention behind Part IIA is that the polluter (Class A Liability Group\textsuperscript{12}) pays for the costs of remediating land determined as Contaminated Land. However even relatively recent polluters may be difficult to track down, and the District has been subject to potentially contaminative land uses (for example industry) for many decades. Owners and occupiers of land may therefore become liable if those who caused or knowingly permitted the land to be contaminated cannot be found (Class B liability group\textsuperscript{12}). The council will do everything reasonably practicable to identify all potentially liable persons. It will exercise fairness and diligence to apportion liabilities strictly in accordance with the legislation and Statutory Guidance. Once liabilities are established they will be communicated clearly and sensitively.

The council is compelled by law to have regard to the Statutory Guidance and will determine liabilities following the procedures set out in Chapter D, Annex 3, Part 3\textsuperscript{13}. Often there will be more than one appropriate person. Apportioning liability for the costs of particular remediation actions will be achieved by agreement wherever possible. Where the council itself carries out remediation on behalf or in default of any appropriate person’s liability, all costs reasonably incurred will become the appropriate person’s liability.

8.6 Cost Recovery
The council is entitled to recover all costs reasonably incurred in carrying out remediation, except where it did so with the written agreement of the appropriate person (when reimbursement would be covered in that agreement). When considering whether to recover costs, and how much, the council is obliged to consider any hardship that cost recovery might cause, and the requirements of Statutory Guidance.
Chapter E\textsuperscript{13} Where appropriate a charging notice will normally be served in accordance with legislation and Statutory Guidance in order to safeguard the council’s rights to recover costs.

9 THE EXTENSION OF PART IIA TO COVER RADIOACTIVITY

On the 4\textsuperscript{th} of August 2006 the part IIA regime was extended to cover radioactivity\textsuperscript{13}. The guidance was modified to include radioactivity within the definition of contaminated land. Radioactive substances are covered only insofar as human health is concerned. Other receptors such as ecological systems or controlled waters are not covered with respect to radioactivity. If radioactive contaminated land is designated by a Local Authority as Contaminated Land under the Part IIA regime it will be classified as a “special site”.

Water will only be treated as a pathway and not as a receptor. The Water Act 2003 includes a provision, not yet commenced, to amend the current Part IIA definition of pollution of controlled waters to introduce a “significance” test. Consequential amendments to the statutory guidance for non-radioactive contamination will be necessary. Rather than define now what would constitute “significant pollution” for radioactivity, the Government believes it more appropriate to return to the issue at a later date when a significance test for radioactive and non-radioactive contamination can be considered together.

It applies only to radioactivity arising from the after-effects of a radiological emergency and substances which have been processed as part of a past practice or past work activity. This includes substances containing artificial radionuclides or processed natural radionuclides. It is not applicable to current practices and natural background radiation is excluded. It does not apply to radioactive contamination where the operator of a nuclear installation is liable under the Nuclear Installations Act 1965.

Historical contamination of land by radionuclides from anthropogenic activity has in many cases occurred due to a lack of understanding of the hazards posed by radioactive materials at the time. Radioactive substances have been used for a wide variety of purposes since the start of the twentieth century, but most have only been subject to regulation since 1963, the year in which the 1960 Radioactive Substances Act came into force. For radioactivity water will only be considered a pathway and not a receptor.

Section 78A(2) (as modified) defines contaminated land as “any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under land, that –

\begin{itemize}
  \item[](i) Harm is being caused, or
  \item[](ii) There is a significant possibility of harm being caused.
\end{itemize}

(i) In the context of radioactivity “harm” is defined as “lasting exposure to any person resulting from the after-effects of a radiological emergency, past practise or past work activity”. The local authority should regard harm as being caused where lasting exposure gives rise to doses that exceed one or more of the following:
a) an effective dose of 3 millisieverts per annum;  
b) an equivalent dose to the lens of the eye of 15 millisieverts per annum; or  
c) an equivalent dose to the skin of 50 millisieverts per annum.

The local authority should disregard any human receptors which are not likely to be present, given the “current use” of the land or any other land which might be affected.

(ii) The term “possibility of harm” should be taken as referring to a measure of the probability, or frequency, of the occurrence of circumstances which would lead to lasting exposure being caused.

Full definitions of harm and possibility of harm are described in Defra circular 01/2006, Annex 3, Part 5.

The duty of a local authority to inspect it’s area will be restricted to circumstances where there are reasonable grounds for believing land may be contaminated by virtue of radioactivity.

Any land determined as contaminated land by virtue of radioactivity will be a special site with the Environment Agency acting as the enforcing authority rather than the relevant local authority. Where there is a mixture of radioactive and non-radioactive contamination on a particular site, the Environment Agency will act as enforcing authority for all pollutant linkages.

When considering what remediation is reasonable for a radiologically contaminated site, the enforcing authority must consider the cost (including social cost) and harm of any intervention. In particular it must be decided whether the benefit of intervention justifies the adverse effects caused by the intervention.

10 REVIEW

This is first major review of the original Contaminated Land Strategy for Blackburn with Darwen Council since the original document was published in 2001. There are key areas of review, but in reality the review process is likely to be such a fundamental part of the strategy, that it will be considered at all stages. It is, however, recognised that there are likely to be some specific circumstances, which will prompt the review process. Such circumstances are likely to include the following:

- Proposed changes in the use of the land itself or surrounding land.
- Unplanned changes in the use of the land, particularly where this increases the risk to human receptors.
- Unplanned events, which cannot be addressed through other relevant environmental legislation.
• Reports of localised health effects, which appear to relate to a particular area of land.

• Reports from other organizations, including members of public.

• Changes in knowledge or guidance in relation to a particular contaminant, pathway or receptor.

11 RESOURCE IMPLICATIONS

The costs of progressing the prioritisation, determination and remedial work on contaminated land are difficult to estimate. Whilst it may be possible to carry out some of the desk studies in house, the cost of site investigations, soil sampling, gas monitoring etc can be very expensive. Local authorities can submit bids to DEFRA for funding through the Supplementary Credit Approval (SCA) program. Guidance on the eligibility is available on the DEFRA web site (www.defra.co.uk).

If remedial works are required the costs may be extremely high. Any person or company determined as the appropriate person for the costs of remediation could face a large financial burden and may try to avoid their responsibility. The area of law governing contaminated land is relatively new and still being tested in the courts, case law is still being developed. It is possible that legal action taken by the council to force the remediation of contaminated land will be fought through the courts. Significant legal costs for the authority are possible. At the moment authorities are tending to work with land owners to arrange the remediation of land informally where possible. This may be one reason why, on a national scale, relatively low numbers of sites have been determined under Part IIA of the EPA as contaminated land.

Existing Information Technology systems will also need to be kept up to date and possibly expanded to manage the high volume of information generated by the review process. The pursuit of information will include the assessment of certain specific areas of land for contamination, which may necessitate the involvement of specialist consultants. Although the aim of the regime is that the costs will be borne by the person responsible for the land, the Local Authority may have to carry out intrusive investigative work, under-take works in default, or even bear the full cost if no responsible person can be found eg orphan sites.

The council as a landowner may also have to undertake, and identify the means to pay for, more detailed intrusive investigations and possible remediation. Although, currently, the number of council owned high priority SPCs is relatively low. Local authorities can submit bids to DEFRA for funding through the Supplementary Credit Approval (SCA) program. Guidance on the eligibility is available on the DEFRA web site (www.defra.co.uk).
12 CONSULTATION

In line with the Statutory Guidance document the following statutory consultees will be asked to comment on the draft strategy and the results of this consultation considered for the final document:

- Environment Agency
- Health Protection Agency
- Lancashire County Council
- Natural England
- English Heritage and
- DEFRA
- Food Standards Agency
- Neighbouring local authorities.

The strategy will also be appraised by the council’s elected Members as the document will be adopted by Blackburn with Darwen Borough Council as a strategy document.

Where a contaminated land site is adjoining or adjacent to another Authority’s area consultation will take place with the relevant Authority. Contact details have been put in place via the CLOG and MAPAC groups.

13 PUBLICATION

Following the consultation period and subsequent alteration of the strategy the final document will be made available for examination by interested parties on the Environment and Waste pages of the Council’s website. http://www.blackburn.gov.uk/
REFERENCES

CITED


11. British Geological Survey Maps, Sheets 75 and 76


GENERAL

Agricultural Land Classification of England and Wales - Revised Guidelines and Criteria for Grading the Quality of Agricultural Land. MAFF 1988

Blackburn with Darwen Borough Local Plan


Ferguson, Nathanail, McCaffery, Earl, Foster, Gillet & Ogden. Method for Deriving Site-Specific Human Health Assessment Criteria for Contaminants in Soil (SNIFFER). April 2003

Groundwater Vulnerability Map, Sheet 10, Central Lancashire

Industrial Heritage : A Guide to the Industrial Archaeology of Blackburn Mike Rothwell Published by Hyndburn Local History Society 1986


<table>
<thead>
<tr>
<th>Type of receptor</th>
<th>Description of harm to that type of receptor that is to be regarded as significant harm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human beings</td>
<td>Death, disease, serious injury, genetic mutation, birth defects or the impairment of reproductive functions. For these purposes, disease is to be taken to mean an unhealthy condition of the body or a part of it and can include, for example, cancer, liver dysfunction or extensive skin ailments. Mental dysfunction is included only insofar as it is attributable to the effects of a pollutant on the body of the person concerned. In this Chapter, this description of significant harm is referred to as a “human health effect”.</td>
</tr>
</tbody>
</table>
| Any ecological system, or living organism forming part of such a system, within a location which is: | For any protected location:  
- harm which results in an irreversible adverse change, or in some other substantial adverse change, in the functioning of the ecological system within any substantial part of that location; or  
- harm which affects any species of special interest within that location and which endangers the long-term maintenance of the population of that species at that location.  
In addition, in the case of a protected location which is a European Site (or a candidate Special Area of Conservation or a potential Special Protection Area), harm which is incompatible with the favourable conservation status of natural habitats at that location or species typically found there.  
In determining what constitutes such harm, the local authority should have regard to the advice of Natural England and to the requirements of the Conservation (Natural Habitats etc) Regulations 1994.  
In this Chapter, this description of significant harm is referred to as an “ecological system effect” |
| Property in the form of: | For crops, a substantial diminution in yield or other substantial loss in their value resulting from death, disease or other physical damage. For domestic pets, death, serious disease or serious physical damage. For other property in this category, a substantial loss in its value resulting from death, disease or other serious physical damage. The local authority should regard a substantial loss in value as occurring only when a substantial proportion of the animals or crops are dead or otherwise no longer fit for their intended purpose. Food should be regarded as being no longer fit for purpose when it fails to comply with the provisions of the Food Safety Act 1990. Where a diminution in yield or loss in value is caused by a pollutant linkage, a 20% diminution or loss should be regarded as a benchmark for what constitutes a substantial diminution or loss. In this Chapter, this description of significant harm is referred to as an “animal or crop effect” |
| Property in the form of buildings. For this purpose, “building” means any structure or erection, and any part of a building including any part below ground level, but does not include plant or machinery comprised in a building. | Structural failure, substantial damage or substantial interference with any right of occupation. For this purpose, the local authority should regard substantial damage or substantial interference as occurring when any part of the building ceases to be capable of being used for the purpose for which it is or was intended. Additionally, in the case of a scheduled Ancient Monument, substantial damage should be regarded as occurring when the damage significantly impairs the historic, architectural, traditional, artistic or archaeological interest by reason of which the monument was scheduled. In this Chapter, this description of significant harm is referred to as a “building effect”. |

<table>
<thead>
<tr>
<th>Descriptions Of Significant Harm</th>
<th>Conditions For There Being A Significant Possibility Of Significant Harm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human health effects arising from • the intake of a contaminant, or • other direct bodily contact with a contaminant</td>
<td>If the amount of the pollutant in the pollutant linkage in question: • which a human receptor in that linkage might take in, or • to which such a human might otherwise be exposed, as a result of the pathway in that linkage, would represent an unacceptable intake or direct bodily contact, assessed on the basis of relevant information on the toxicological properties of that pollutant. Such an assessment should take into account: • the likely total intake of, or exposure to, the substance or substances which form the pollutant, from all sources including that from the pollutant linkage in question; • the relative contribution of the pollutant linkage in question to the likely aggregate intake of, or exposure to, the relevant substance or substances; and • the duration of intake or exposure resulting from the pollutant linkage in question. The question of whether an intake or exposure is unacceptable is independent of the number of people who might experience or be affected by that intake or exposure. Toxicological properties should be taken to include carcinogenic, mutagenic, teratogenic, pathogenic, endocrine-disrupting and other similar properties.</td>
</tr>
<tr>
<td>All other human health effects (particularly by way of explosion or fire).</td>
<td>If the probability, or frequency, of occurrence of significant harm of that description is unacceptable, assessed on the basis of relevant information concerning: • that type of pollutant linkage, or • that type of significant harm arising from other causes. In making such an assessment, the local authority should take into account the levels of risk which have been judged unacceptable in other similar contexts and should give particular weight to cases where the pollutant linkage might cause significant harm which: • would be irreversible or incapable of being treated; • would affect a substantial number of people; • would result from a single incident such as a fire or an explosion; or • would be likely to result from a short-term (that is, less than 24-hour) exposure to the pollutant.</td>
</tr>
<tr>
<td>All ecological system effects.</td>
<td>If either: • significant harm of that description is more likely than not to result from the pollutant linkage in question; or • there is a reasonable possibility of significant harm of that description being caused, and if that harm were to occur, it would result in such a degree of damage to features of special interest at the location in question that they would be beyond any practicable possibility of restoration. Any assessment made for these purposes should take into account relevant information for that type of pollutant linkage, particularly in relation to the ecotoxicological effects of the pollutant.</td>
</tr>
<tr>
<td>All animal and crop effects.</td>
<td>If significant harm of that description is more likely than not to result from the pollutant linkage in question, taking into account relevant information for that type of pollutant linkage, particularly in relation to the ecotoxicological effects of the pollutant.</td>
</tr>
<tr>
<td>All building effects</td>
<td>If significant harm of that description is more likely than not to result from the pollutant linkage in question during the expected economic life of the building (or, in the case of a scheduled Ancient Monument, the foreseeable future), taking into account relevant information for that type of pollutant linkage.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOURCES</th>
<th>PREDOMINANT LAND USE CLASSIFICATION</th>
<th>Help</th>
<th>26 Electrical generation and distribution (excluding nuclear power station)</th>
<th>30</th>
<th>Electricity substation on site in 1956 and 1975</th>
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<tbody>
<tr>
<td>SOURCES</td>
<td>RISK EVIDENCE</td>
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<td>MINES DRAINS SERVICES</td>
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<td>ACCESSIBILITY TO SITE SURFACE</td>
<td>Help</td>
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<tr>
<td>RECEPTORS</td>
<td>LAND OCCUPATION TYPE PEOPLE</td>
<td>Help</td>
<td>03 Industrial or Factory buildings (including electricity substations)</td>
<td>40</td>
<td>Still an electricity substation. Labelled on OS MasterMap layers</td>
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<tr>
<td>RECEPTORS</td>
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<td>SURFACE WATER</td>
<td>Help</td>
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<tr>
<td>RECEPTORS</td>
<td>GROUND WATER</td>
<td>Help</td>
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Table A.3 Initial prioritisation of Sites of Potential Concern with partially populated PGO1 spreadsheet.