Contaminated Land Inspection Strategy May 2010

Fife COUNCIL

Environmental Services

Part IIA of the Environmental Protection Act 1990 was inserted by Section 57 of the Environment Act 1995 and is enforced in Scotland by the Contaminated Land (Scotland) Regulations 2005

EXECUTIVE SUMMARY

Following the insertion in 2000 of Part IIA into the Environmental Protection Act 1990, Local Authorities were given the primary regulatory role for the inspection of, and subsequent remedial action at, sites that have historically been affected by contamination.

Fife Council set out its approach to contaminated land in earlier versions of this Strategy, published in October 2001 and updated in 2003 and in 2006. This strategic approach has enabled the Council to inspect—in a rational, ordered and efficient manner—land that merits detailed investigation, identifying the most pressing and serious problems first and concentrating resources on the areas where contamination is most likely to be found.

In accordance with the statutory regime, Fife Council seeks:

1. To protect human health
2. To protect the water environment
3. To protect designated ecosystems
4. To prevent damage to property
5. To prevent further land contamination
6. To encourage voluntary remediation
7. To encourage the development of "brownfield" sites

In terms of working towards a Sustainable Fife, this Council supports parties wishing to undertake voluntary remediation and actively encourages the re-use of "brownfield" sites in preference to "greenfield" development. Fife Council is the lead regulatory authority under the Contaminated Land regime except where a 'special site' is determined because of pollution of the water environment in which case responsibility may pass to SEPA.

Any land designated as Contaminated Land under the legislative regime will be entered into a public register.

Progress to Date

The Service has been involved in, or has ongoing involvement with, the voluntary clean up and development of a large number of sites. This has made a significant dent in the legacy of blighted land in Fife, returning contamination-affected sites to use. Examples include:

- The Burntisland Alumina Plant Site
- A Landfill Site Seawall in Buckhaven
- The former RN Tank Farm in Rosyth
- The Newburgh Waterfront regeneration
- An Oil Rig Construction Yard in Methil
- Back Braes Football Pitches in Leslie

The Service was successful in bidding for additional funding made available by the Scottish Executive (now Scottish Government) in 2002 and 2004 and retained its strong position under the new funding arrangements in 2007.

The Future

With the maturing of the Strategy, an increasing level of funding may be necessary to undertake the ever-expanding programme of intrusive and remedial works if the current rate of advancement is to be maintained.

The co-operation of various Council Services—most notably Development Services—in reducing or remedying potentially contaminated land is acknowledged, along with the positive assistance of the Scottish Government and SEPA.

TABLE OF CONTENTS

CHAPTER 1 INTRODUCTION

This Strategy is intended not only to comply with the legislative requirement to inspect land for contamination but to complement and enhance Fife Council's approach to regeneration and sustainability.

1.1 Corporate Visions and Goals

Building on previous successes and commitment to make a difference to the people of Fife, we will provide the top performing public services that they deserve. By 2011, we will have:


Improved educational attainment and achievement for all


Made Fife the leading green Council in Scotland


Improved local conditions for economic development


Increased access to housing


Improved community safety


Targeted support to vulnerable people


Improved sport, leisure and cultural opportunities


Become a top performing Council

Tackling contaminated land for brownfield redevelopment supports one of the key aims of the Council's ambition to become the leading green Council in Scotland.

The Contaminated Land Inspection Strategy assimilates into the Council's Community, Corporate and other appropriate Plans. The objectives below are detailed in Fife Councils' Sustainability Policy:

- To prevent the loss of open land to urban development or infrastructure in areas of known conservation, cultural, scenic or amenity value, unless it can be shown to be the best practicable environmental option
- To discourage developments of sites on the edge of urban areas, unless they can be shown to be the best practicable environmental option
- To take all necessary steps to assist this process (*e.g.* by the appropriate rehabilitation of vacant and derelict land)
- To encourage a more compact development of urban areas
- To increase urban development densities where possible

One of Fife Council's core values is to promote openness and accountability. For this reason, an appropriate consultation period for relevant sections of the community, businesses, developers and professionals involved in contaminated land was allowed before producing this Strategy. Their comments were considered before the Strategy was finalised.

The first formal preparatory work for the Council's Contaminated Land Inspection Strategy pre-dates the coming into force of Section 5 of the Environmental Assessment (Scotland) Act 2005, and so it is not a qualifying plan or programme under the provisions of that Act.

1.2 Definition of Contaminated Land

A legal definition of contaminated land is provided in Section 78 (a) (2) of Part IIA of the Environmental Protection Act 1990 (as amended). This is defined as follows:

> *"Contaminated Land" is any land that 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 the land that:*
> *a) Significant harm is being caused or there is a significant possibility of such harm being caused*
> *b) Significant pollution of the water environment is being caused or there is a significant possibility of such pollution being caused.*

Section 78 (a) (5) requires that the regulatory authority act in accordance with guidance issued by the Scottish Government in determining the significance and likelihood.

Fife Council's Contaminated Land Strategy is confined to current site use in accordance with the statutory guidance. Once land has been identified as “contaminated land” (as defined within the above regime), then the approach for dealing with this is the same irrespective of the regulatory body. The four core stages to this approach are:

1. To establish the “appropriate person” who bears responsibility for remediation of the land
2. To decide what remediation is required and to ensure that this is carried out through the following options:
   - Reaching a voluntary agreement
   - Serving a Remediation Notice (if agreement cannot be reached)
   - The appropriate person(s) carrying out the actual work themselves
3. To determine who should bear what proportion of the liability for meeting the costs of any remediation
4. To record specific information about regulatory action within a Public Register, which will also contain details of Remediation Notices and Appeals against them

The definitions of "significant harm" and "significant risk"—and therefore the practical effect of the whole provision—are the subject of the relevant Statutory Guidance. The Guidance stipulates that the definition of "contaminated land" be interpreted in the following way:

(a) "Harm" may be regarded as significant only if it is of the following types:

- Death, disease or serious injury
- Irreversible adverse change on the functioning of an ecological system (or any species of special interest sustained by such a system), in a location protected under The Wildlife and Countryside Act 1981, European Site Protection under Regulation 10 of the Conservation Regulations 1994, sites afforded policy protection under Paragraph 13 of Planning Policy Guidance Note 9 on Nature Conservation, or in Nature Reserves established under The National Parks and Access to the Countryside Act 1949 (an "ecological system effect")
- Death, disease or other physical damage to livestock, crops, produce or domesticated or wild animals subject to hunting rights amounting to >20% of their value (an "animal or crop effect")
- Substantial damage to, or structural failure of buildings, or interference with the rights of occupation such that they can no longer be used for their intended purpose (a "building effect")

Local Authorities must confine their identification of targets to those likely to be present due to the current use of the site (Part 3, Paragraphs A.23–A.37 Tables A and B of Scottish Executive Circular 1/2000) or pollution of the water environment (Paragraphs A.38–A.46).

(b) In assessing risk from potential contaminants, Fife Council will assess the possibility of harm, and its significance, with reference to:

- The effects of the contamination
- The fundamental principles of risk assessment

1.3 The Risk Assessment Process

Risk assessment involves an actual determination of the extent of contamination in a piece of land. This considers the contaminants present and their concentration, their tendency to migrate, the geo-technical ground conditions in the locality (how might they contribute to the movement of the contaminant), the likely effects of an escape or migration and, in particular, how quickly harm may be suffered after exposure to the contaminant.

Pollutants, the routes by which they migrate, and the targets that they affect, are described in terms of source, pathway and receptor. Only when all three elements are present does a pollutant linkage exist (see Figure 1). If significant harm is likely to result, then a significant pollutant linkage is present. In general, the (a) more severe the harm, the (b) greater its degree, the (c) shorter the timescale for it to occur or the (d) greater the vulnerability of the receptor, the more significant is the risk.

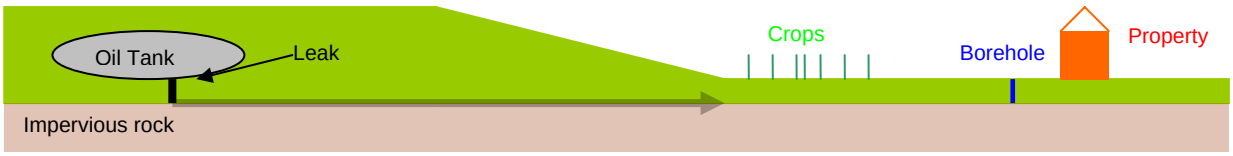


Figure 1: Example of a Source-Pathway-Receptor Linkage

Fife Council is undertaking—in accordance with the relevant guidance—a site-specific risk assessment approach in terms of identifying any significant pollutant linkages. When the three elements of a pollutant linkage are found to exist, an assessment of risk will be carried out to determine the likelihood of harm being caused and the potential extent of this harm. Land can only be designated "contaminated land" when significant risk has been demonstrated.

As well as "significant harm", the legal definition of contaminated land also includes the pollution of the water environment (*see* Glossary). In determining the risk of water pollution, the relevant guidance literature advises that Local Authorities consider whether a substance is continuing, or is likely, to enter the water environment.

Councils must decide what steps are necessary to cause the land to cease to be contaminated (*see s.78E of The Environmental Protection Act 1990*). The Contaminated Land (Scotland) Regulations 2005 and associated guidance are to be followed in the specification of the steps to be carried out, by whom and when. Fife Council will have to consider the costs and benefits of the work specified and consider the "practicability, durability and effectiveness" of such works. The details of such works will be specified in a Remediation Notice as defined by the aforementioned legislation.

1.4 Regulatory Role of Local Authorities under Part IIA

Following the insertion in 2000 of Part IIA into the Environmental Protection Act 1990, Local Authorities were given the primary regulatory role for the inspection and subsequent remediation of Contaminated Land.

The framework for this is set out in the Act itself, in statutory and other guidance from the Scottish Government, DEFRA and other Government bodies. There is complex and diverse environmental, chemical and legal literature surrounding the subject. The objectives are:

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

Part IIA of the Environmental Protection Act provides a regulatory regime for the identification and remediation of contaminated land.

In addition to the requirements contained in the primary legislation, operation of the regime is subject to regulations (*Scottish Executive Circular 1/2000*), statutory guidance (*Planning Advice Note 33*) and European directives (*Water Framework Directive*).

In accordance with the above legislation, Fife Council has produced this Strategy document, which details how potentially contaminated land (as defined by the above Act) is being inspected in the Fife area. SEPA also provides advice to local authorities, where appropriate, on a site-specific basis as well as periodically publishing its report on "Dealing with Land Contamination in Scotland".

The duties and powers of Enforcing Authorities under the contaminated land regime are summarised in the table below and detailed in Appendix 3 “Enforcement under Part IIA”.

Local Authority Duties

- Inspect their areas to identify contaminated land and designate special sites
- Ensure remediation of sites identified as contaminated land
- Maintain a register of identification and remedial action at contaminated land sites
- Consult SEPA on the pollution of the water environment

Local Authority Powers

- Recover costs for remediation undertaken itself

SEPA Duties

- Maintain remediation register of special sites and radioactive contaminated land
- Prepare a national report on the state of contaminated land
- Require remediation of special sites

SEPA Powers:

- Recover costs for remediation undertaken itself
- Provide site-specific advice to local authorities on contaminated land

Although the planning and contaminated land regimes are two distinct systems, there is a degree of interaction between them as noted in Planning Advice Note 33. The important distinction between the role of Environmental Services and Development Services in Fife is that the former aim to remediate land so that it is suitable for its current use, whereas the latter seek to ensure that land is made suitable for its proposed new use (or other uses allowed under the Use Classes Order).

1.5 Objectives of the Strategy Document

This document has taken into account all relevant sections of the Statutory Guidance (in particular Paragraphs B.10-17) and all relevant sections contained within the document "Contaminated Land Inspection Strategy – Advice for Scottish Local Authorities".

Other sources of information from relevant organisations, agencies and the public, together with relevant technical documents (including DEFRA Industrial Profiles), were taken into account in satisfying the criteria within Paragraph B.9 of the Statutory Guidance.

As discussed previously, one of the Council's core aims is to promote openness and accountability. For this reason, the production of this Strategy document involved extensive consultation with all relevant community groups and businesses. A list of these is provided in Appendix 1 "Consultees".

In order to satisfy its responsibilities, this Council adheres to the principles included in Paragraph B.9 of Part III of the Statutory Guidance. This states that the approach by the Local Authority to contaminated land should:

- Be rational, ordered and efficient
- Be proportionate to the seriousness of any actual or potential risks
- Seek to ensure that the more pressing and serious problems are located first
- Ensure that the resources are prioritised on investigating areas where the Authority is more likely to identify contaminated land
- Ensure that the Local Authority efficiently identifies requirements for the detailed inspection of particular areas of land

The overall approach follows the requirements set out in paragraph B10 of the Statutory Guidance and paragraph A1.2 of the Inspection Strategy Advice note. In continuing to develop its strategic approach, Fife Council will consider:

- Any available evidence that significant harm or pollution of the water environment is actually being caused
- The extent to which any receptor (as defined by the statutory guidance) is likely to be found in any of the different parts of Fife
- The extent to which any of those receptors is likely to be exposed to a contaminant (as defined in the statutory guidance) *e.g.* as a result of the use of the land or of the geological and hydrogeological features of Fife
- The extent to which information on land contamination is already available
- The history, scale and nature of industrial or other activities which may have contaminated the land in different parts of Fife
- The nature and timing of past redevelopment in different parts of Fife
- The extent to which remedial action has already been taken by the authority or others to deal with land contamination problems or is likely to be taken as part of an impending redevelopment
- The extent to which other regulatory authorities are likely to be considering the possibility of harm being caused to particular receptors or the likelihood of any pollution of the water environment being caused in particular parts of Fife

Copies of the Strategy document are made available to all interested parties via the council's website and paper copies can be provided on request. A contact telephone numbers for persons seeking to provide or obtain information on contaminated land within Fife is provided at Section 9.6. Fife Council will satisfy the Statutory Guidance in terms of providing SEPA with all relevant information required in order to assist SEPA in producing its national report on contaminated land.

1.6 Public Access to Information

Local Authorities are required to maintain public registers detailing remediation activity at Part IIA contaminated sites. Details of these registers are posted on the Council's website www.fifedirect.org.uk/contaminatedland. SEPA also has a duty to compile a National Report on Contaminated Land. In time, these requirements are likely to provide additional sources of information on the distribution of contaminated land nationwide.

1.7 Consultation with other Public Authorities

Fife Council actively consults with the following external organisations in terms of its strategic approach to contaminated land:

- Scottish Environment Protection Agency
- Scottish Enterprise (Fife)
- Scottish Natural Heritage
- Historic Scotland
- Scottish Urban Archaeological Trust
- Forestry Management Services
- Fife Chamber of Commerce and Industry
- Health and Safety Executive
- Scottish Government
- Food Standards Agency
- British Telecom
- Scottish Power
- The Coal Authority
- Fife Health Board
- SCIEH
- National Grid Properties (Gasworks)
- Scottish Water
- Community Councils

This list is not exhaustive and other relevant organisations will be identified as and when required. Further details on the above organisations can be found in Appendix 1 “Consultees”.

CHAPTER 2 CHARACTERISTICS OF THE LOCAL AREA

The principal aim of this chapter is to describe the main characteristics of Fife's Environment. Both natural and artificial factors play an important role in shaping a strategic approach to inspection. Fife forms a large peninsula on the east coast of Scotland, bounded by the estuaries of the Tay to the north and the Forth to the south. Its area is 1357 km². Land boundaries are with Perth & Kinross Council in the northwest and Clackmannanshire Council in the southwest.

2.1 Geology, Hydrogeology, Topography

Fife lies in the Midland Valley of Scotland between the Highland Boundary and Southern Upland fault zones. The sedimentary rocks range from the Upper Devonian to the Upper Carboniferous. Igneous activity has persisted during and after deposition of the sedimentary rocks giving rise to some of the prominent topographic features of Fife.

Geology

The oldest strata in Fife are the Lower Devonian lavas that form the East Ochil Hills (see Figure 2). These extend along the southern bank of the Tay Estuary and a few kilometres inland. Pockets of Lower Devonian sandstones lie within the lava areas and extend eastwards beyond the East Ochil Hills to the coast. Upper Devonian strata underlie most of the Howe of Fife but the boundary between this and the Lower Carboniferous is not clearly defined.

Carboniferous strata underlie the southern half of Fife. They are split into three stratigraphic units: (in ascending order) *Dinantian, Namurian* and *Westphalian*. Whilst the structure is complicated by faulting, Fife can be thought of as being located on the eastern edge of the Central Coalfield Basin and on the northern edge of the Lothian Coalfield Basin.

Dinantian strata are split into the Calciferous Sandstone Measures and the Lower Limestone Group. These lie to the north and east of the Lothian Basin underlying the East Neuk and form the northern part of the ridge separating the Central and Lothian Basins. The outcrops of this ridge lie to the north of Burntisland, north of the strip from Inverkeithing to Charlestown and south west of Dunfermline. Coal and limestone have been worked from Lower Limestone Group strata, which have also yielded mudstones for brick making and sandstone for building.

Namurian strata, which are split into The Limestone Coal Group, the Upper Limestone Group and the Passage Group, form the northern rim of the Lothian Basin, part of the ridge between the two basins and part of the eastern flank of the Central Basin. The Limestone Coal Group contains a major economic coal deposit that lies at depth and outcrops on the rim of the Lothian basin. The Upper Limestone Group contains a few economic coals, including the Upper Hirst that was mined by Longannet Colliery. The Passage Group contains an unusually rich pocket of coal in the Westfield area, and silica-rich sandstones on the western flank of the Central basin where they were quarried to supply the glass making industry.

Westphalian strata, split into Lower, Middle and Upper Coal Measures, lie on the northern edge of the Lothian basin—extending some way inland from the coast between Dysart and Lower Largo—and on the edge of the Central Basin near Kincardine. The Lower and Middle Coal Measures contain coal of economic interest; the Upper Coal Measures tend to be sandstones.

Deep mining of coal has ceased in Fife with the closure of the Longannet Mine near Kincardine. Opencast activity is restricted to the Limestone Coal Group deposits in the narrow strip running west from Kirkcaldy to Comrie with northern extensions towards Kelty and Saline, the Passage Group deposits at Westfield and the Lower and Middle Coal Measures deposits west of Largo Bay.

Quaternary		Alluvium Aeolian sand Glacio-fluvial sand and gravel
Carboniferous	Westphalian	Upper Coal Measures Middle Coal Measures Lower Coal Measures
	Namurian	Passage Group Upper Limestone Coal Group Limestone Coal Group
	Dinantian	Lower Limestone Coal Group Calciferous Sandstone Measures
Devonian		Kinnesswood Formation Knox Pulpit Formation Dura Den, Glenvale and Burnside Formations
Igneous		Igneous Rocks (lavas and sills)

Figure 2: The Principal Geological Strata of Fife

Both intrusive and extrusive igneous rocks are quarried in Fife. Extrusive igneous deposits form the uplands to the north of Burntisland and intrusive deposits occur throughout the Carboniferous outcrop area. Superficial deposits include extensive areas of sand and gravel, many of which have been and are being exploited to the north and north east of Glenrothes and east of the Ochil Hills.

Hydrogeology

Fife's main rivers (The Eden, the Leven and the Teil, Lyne and Bluther Burns) and their many tributaries are monitored by SEPA to record their quality based on a range of measurements including chemistry and biology. Shellfish Growing Waters are designated along the East Neuk and these waters require protection to ensure the quality and productivity of shellfish. Bathing Water quality is monitored by SEPA at eleven beaches around Fife's coast. All of Fife north of a line that runs from roughly Thornton to Ballingry is classed as a Nitrate Vulnerable Zone on account of the levels of nitrates in the groundwater, mainly arising from the use of agricultural fertiliser.

Most of Fife's groundwater is classified as Good under SEPA's River Basin Management Plan. The exceptions are some Sand and Gravel water bodies in areas stretching from Loch Leven to Cupar, from Dunfermline to Leven and from the East Neuk to St Andrews.

Topography

The southwest to northeast trend of the regional-geology influences the topography of Fife. At the northern edge of Fife, the land rises to the top of an approximately southwest to northeast ridge that is an easterly extension of the Ochil Hills. This ends a few kilometres from the North Sea at Lucklaw Hill near Balmullo. South and east of this ridge, the land drops into the Howe of Fife where the River Eden rises, discharging to the sea in a wide estuary near St Andrews. South of St Andrews and Cupar, the land rises again to form higher ground incised with valleys that form the East Neuk of Fife. The coast is characterised by cliffs for much of its length. Further west, the land falls gently to the coast of Largo Bay. The most prominent feature is Largo Law.

Central Fife is dominated by the steeply rising Lomond Hills. The River Leven flows east through the mid-latitudes of Fife towards the sea at Leven. Benarty Hill rises dramatically to the south of the River Leven and the land further south forms a series of east west rolling valleys and hills. The ridge that separates Inverkeithing from Dalgety Bay extends northeast to the Cullaloe Hills, a feature not fitting the generally east west pattern of Fife's topography.

2.2 History, Population, Land Use

Exactly when humans first settled Fife is not known. There are indications that nomadic hunters visited the area some 8,000 years ago and by about 4,000 years ago, Fife had a settled resident population. 3,000 years ago, Celtic-speaking tribes had become sufficiently organised to construct hill forts for defensive purposes.

History

The Romans arrived in Scotland about 1,900 years ago but despite incursions into Fife and further north, they were effectively restricted to the south of the Forth. The Romans probably helped to weld the various native factions into the Pictish nation. After the Romans, the various smaller kingdoms that became established gradually merged to become the nation of Scotland. The early capital was Dunfermline in Fife although by about a thousand years ago Edinburgh had become the seat of power.

Fife's proximity to Edinburgh made it an area favoured by the Scottish monarchy because it provided rich farmland and hunting areas. This patronage was reflected in the grant of many Royal Charters for ecclesiastical buildings, the establishment of seats of learning and the promotion of locations for trade. In modern times, when castles could no longer fulfil a military function, Fife became a favoured location for great houses for the landed gentry and nobility.

Fife's natural resources meant that the industrial revolution did not pass it by. Agriculture, fishing, boat building and maritime trading expanded, and Fife became a major coal-mining area with other industries springing up such as linen manufacture, floor covering manufacturing, distilling, papermaking and heavy engineering and the First World War naval dockyard and base at Rosyth.

Changes have taken place since the Second World War. There was a sharp decline in the coal-mining industry, which has contracted to a small number of opencast coalmines. Heavy engineering and defence contract work has also declined. Agriculture and fishing activities have also suffered a reduction in activity. This has been compensated for by a rise in higher skill based jobs, especially those involving electronics and electronic equipment. The countryside, beaches, historic buildings and golf courses of Fife provide the basis of its successful tourist industry.

At one time Fife had an extensive rail network, providing passenger and freight services, but this was greatly reduced by the decline of the coal industry and the cuts made during the 1960s. Currently the active network is restricted to the main East Coast Line between North Queensferry and Wormit via Kirkcaldy, a branch line linking Ladybank to Perth via Newburgh, and the Fife Circle Line that passes through Dunfermline, Cowdenbeath and Cardenden. Freight lines link the main line to Rosyth, Westfield, Methil and Longannet Power Stations. Proposals exist for the reopening of lines to extend both the passenger and freight network services.

Population Distribution

Fife had an estimated population of 361,890 in 2008. The main clusters of population are:

- The Forth Bridgehead area, incorporating Dunfermline, Inverkeithing, Rosyth, and Dalgety Bay
- The Kirkcaldy area, which includes Dysart
- The Glenrothes area, including Glenrothes, Markinch, Leslie, Thornton and Coaltown of Balgonie
- The Levenmouth area, which includes Leven, Methil, Buckhaven, Windygates and Kennoway
- The former West Central Coal Field area of Cowdenbeath, Lochgelly, Kelty and Cardenden

The East Neuk and the Howe of Fife are characterised by small towns and villages, with a larger rural population living outwith settlements in the northern half of East Fife than in the southern part. Fife's population is predicted to grow at a faster rate than many parts of Scotland (see Figure 3).

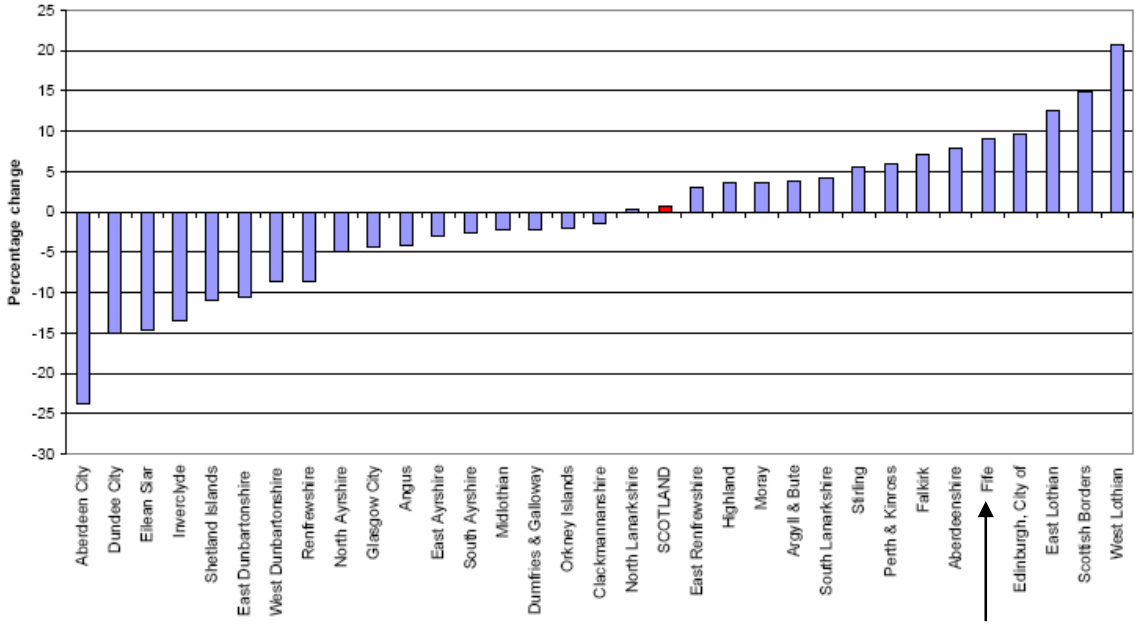


Figure 3: Projected Percentage Population Change 2004–2024 by Council Area

Land Use and Water Supply

Three-quarters of Fife is open countryside, most of which is used for agricultural purposes. Woodland and developed areas, such as towns and settlements, account for about one tenth each of the total area. The balance is wet ground or put to other uses. Whilst most of Fife sustains productive uses, there are areas of vacant and derelict land, which in 2008 extended to just over 830 hectares according to criteria set by the Scottish Government.

The great majority of the domestic water supply is served from reservoirs outwith Fife. A few smaller service reservoirs exist in the Lomond Hills and Scottish Water has four supply boreholes north of Loch Leven in the Kinnesswood area, four supply boreholes along the north side of the Lomond Hills and two further boreholes along the A92 at Kingskettle. There are approximately 340 private supplies to outlying farms and dwellings situated away from the main distribution system, and these are largely drawn from wells and streams. One or two industries that consume large volumes of water have their own private supplies drawn from bores.

2.3 Protected Areas

Fife includes a number of locations that—because of their natural habitat—enjoy protected status.

Designated Sites

There are five sites of international importance in Fife:

- Cameron Reservoir is both a Ramsar Site and Special Protection Area (SPA)
- The Isle of May is a Special Area of Conservation (SAC) for grey seals and underwater reefs, and part of the Forth Islands SPA
- The Tay and Eden Estuaries are a SPA, a Ramsar Site, a SSSI and a SAC for seals and estuarine habitat
- The Firth of Forth is a SPA, a Ramsar Site and a SSSI
- Turflundie Woods is a SAC for great crested newts

Fife's 54 Sites of Special Scientific Interest (SSSI) are of national importance and have been designated for a variety of reasons (see Figure 4). Tentsmuir and the Isle of May are National Nature Reserves, whilst Fife Council has designated seven Local Nature Reserves.

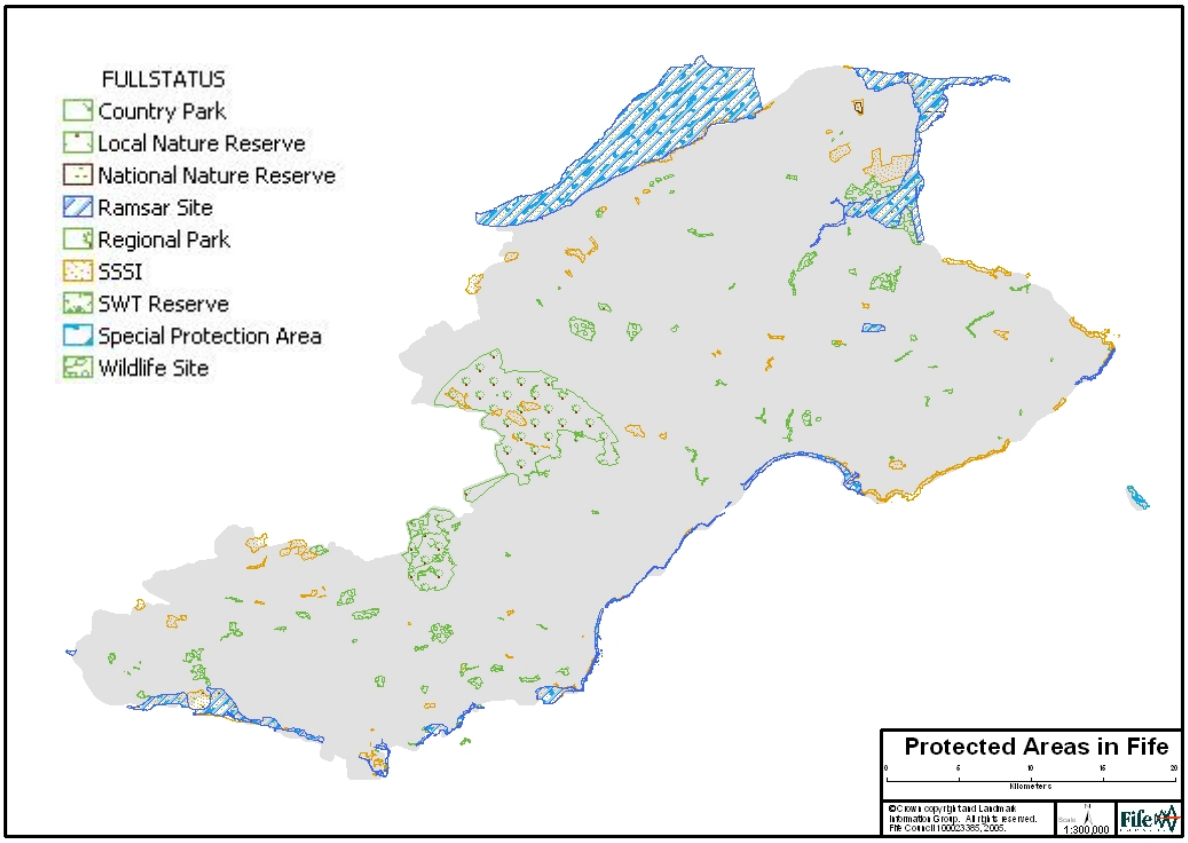


Figure 4: Map of Protected Areas in Fife

Fife has a number of additional sites that are recognised to be of regional or local importance. Sites in this category have the designation Site of Importance to Nature Conservation (SINC), which relates to a biological / botanical interest, or Regionally Important Geological Sites (RIGS) for locally important geological / geomorphological sites. The situation with regard to natural heritage is not static and new sites can be added to the list of those under statutory protection.

A Glossary is provided to explain the above designations in more detail and a full list is available online at www.fifedirect.org.uk under "Natural Heritage Designations in Fife".

Failure of a protected area to meet its objectives can result in action being taken under the Water Framework Directive 2000/60/EC.

Key Property Types

Fife has a rich and distinctive built heritage. Fife has about 4700 Listed Buildings of all categories, 24 Archaeological Areas of Regional Importance and 46 Conservation Areas of which 24 are designated Outstanding. Archaeological features are being unearthed on a regular basis and may be added to the various registers depending on their importance. Details are maintained by Historic Scotland and the Royal Commission on the Ancient and Historic Monuments of Scotland and can be found via an online GIS at www.pastmap.org.uk.

Council Ownership

Fife Council's Support Services (Estates) holds records for all Council-owned properties.

2.4 Fife's Industrial Heritage

Fife's industrial past has included a large number of potentially contaminative industries. Some common contaminants of concern associated with former industrial land uses are listed below (see Figure 5).

Sector	Contaminant Type	Example
Gas Works	Coal tar Phenols Cyanide Sulphur	Creosote Phenol Free/complex Sulphide/sulphate
Iron and Steel Works	Metals Acids Mineral Oils Coking works residues	Copper, Nickel, Lead Sulphuric, hydrochloric *as for gasworks*
Metal Finishing	Metals Acids Plating salts Aromatic hydrocarbons Chlorinated hydrocarbons	Cadmium, chromium, copper, nickel, zinc Sulphuric, hydrochloric Cyanide Benzene Trichloroethylene
Non ferrous metal processing	Metals Impurity metals Other wastes	Copper, cadmium, lead, zinc Antimony, arsenic Battery cases, acids
Paint and Dye Manufacture	Metals Alcohols Filters, extenders	Lead, cadmium, barium Toluol, xylol Silica, titanium dioxide, talc
Petrol Stations and Garages	Metals Aromatic hydrocarbons Octane boosters Mineral oil Chlorinated hydrocarbons Paint, plastic residues	Copper, cadmium, lead, nickel, zinc Benzene Lead, Methyl-tertiary-butyl-ether Trichloroethylene Barium, cadmium, lead
The Electronics Industry	Metals Metalloids Acids Chlorinated hydrocarbons Alcohols Aromatic hydrocarbons	Copper, nickel, cadmium Arsenic, antimony, zinc Nitric, hydrofluoric Trichloroethylene Methanol Xylene, toluene
Tanneries	Acids Metals Salts Solvents Cyanide Degreasers Dyestuff residues	Hydrochloric Trivalent chromium Chlorides, sulphides Kerosene, white spirit Methyl isocyanate Trichloroethylene Cadmium, benzidrine
Textiles including Linoleum	Metals Acids, alkalines Salts Chlorinated hydrocarbons Aromatic hydrocarbons Pesticides Dyestuff residues	Aluminium, tin, titanium, zinc Sulphuric, caustic soda Sodium hypochlorite Perchloroethylene Phenol Dieldrin, aldrin, endrine Cadmium, benzidrine
Wood processing	Coal tar Chlorinated hydrocarbons Metalloids/metals	Creosote Pentachlorophenol Arsenic, copper, chromium

Figure 5: Potential Contaminants Associated with the Main Industrial Sectors

This list is not exhaustive and sites may have been used for more than one purpose in the past.

CHAPTER 3 OVERALL AIMS AND OBJECTIVES

3.1 Aims of the Strategy

The aims of Fife Council's Contaminated Land Strategy reflect the principles of sustainability encapsulated within the Fife Community Plan and Fife Council's Corporate Strategy Visions and Goals as introduced in Chapter 1 "Introduction". Furthermore, the foregoing shall meet the requirements laid out in Paragraph B.9 of the Scottish Executive Statutory Guidance reproduced in Box A1.1 of Inspection Strategies Advice Note. In particular, the approach to inspection of contaminated land will be:

Rational: Established empirical methods of identification, investigation, assessment, remediation, review and audit will be utilised in Fife Council's inspection of contaminated land in its area

Efficient: Commensurate with this parameter, the Contaminated Land Team uses appropriate technology to assist them in the identification and assessment of contaminated land

Ordered: This Strategy Document adopts the organised framework laid out in Part C of the Scottish Executive Environment Group Inspection Strategies Advice Note (July 2001)

The specific aims of the Contaminated Land Strategy are as follows:

(a) To comply with all relevant statutory obligations and associated guidance with regard to the Part IIA Contaminated Land regime
(b) To ensure that all contaminated land in Fife is suitably investigated and remedied where appropriate
(c) To perform site-specific risk assessment
(d) To ensure effective communication and liaison between relevant services and agencies

3.2 Objectives of the Strategy

In terms of achieving the above aims, the following key objectives have been set by Fife Council:

(i) To prioritise the inspection of potentially Part IIA contaminated land and ensure that those sites identified as representing an unacceptable risk to human health are given first priority, whilst nonetheless taking into account unacceptable risks to all other statutory receptors *e.g.* the water environment, protected areas *etc*. The ranking and associated prioritisation process is based on the latest information derived from DEFRA Industry Profiles, the Council's responsibilities under the Water Framework Directive and a combined phased quantitative and qualitative risk assessment approach to site investigations.
(ii) To ensure the effective and planned redevelopment/remediation of contaminated land in Fife
(iii) To ensure that Fife Council's policy of openness and accountability is implemented in terms of the provision of information to the public, developer, property surveyors etc. (a charge is levied for the preparation of this information
(iv) To promote and encourage market-confidence in the redevelopment of 'Brownfield' sites and thereby preserve Fife's Greenfield land where no development is proposed
(v) To establish any liabilities with regard to Fife Council's existing land ownership and property holdings and to prevent any new liabilities being incurred as a consequence of acquiring such land

The Contaminated Land Team also responds to enquiries from the public, other agencies and consultants.

In terms of types of risk-assessment referred to above, human health is given first priority. Other potential receptors are assessed on a site-specific basis using relevant risk assessment methodologies. Part IIA receptors and their potential locations are presented in Box 4.3 of the "Scottish Environment Group Advice Note on Inspection Strategies" (reproduced in Figure 6).

RECEPTOR LAND USE TYPES
Human Beings Allotments; Residential with gardens; Residential without gardens; Schools or nurseries; Recreational/Parks; Playing Fields; Open Space; Commercial/Industrial
Ecological systems or living organisms forming part of a system within protected locations SSSI; National nature reserves; Marine nature reserves; Areas of special protection for birds; European sites (SAC, SPA); Candidate SAC and SPA; Ramsar Sites; Nature Reserves; National Parks
Property in the form of buildings Ancient Monuments; Buildings
Property in other forms (crops, livestock, home-grown produce, owned or domesticated animals, wild animals subject to shooting or fishing rights) Agricultural land (arable, grazing); Allotments and gardens; Forestry Areas; Other open spaces, rivers, lakes, etc.
Water Environment Surface Waters, Abstractions (public and private water supplies, irrigation, industrial, etc.); Groundwater; Use of Waters *e.g.* Fisheries

Figure 6: Potentially Sensitive Receptors

Other aims and objectives include ensuring that all internal and external services/agencies involved in the contaminated land programme are contacted as appropriate and effective liaison arrangements are instituted between these bodies.

3.3 Prioritisation

Fife Council has adopted a three-tiered approach to prioritisation. The first stage involved creating a list of around 7000 potentially contaminated sites in Fife, based on former industrial land use. These sites were prioritised by former land use—according to the relevant statutory and published guidance—and put forward for Phase-One investigation. Phase One prioritisation was carried out using a combination of the Landmark Information Group's Historic Land Use Dataset (HLUD) and existing knowledge within the Council relating to former industrial land use, including lists of former landfill sites, gasworks and other known industries obtained from the relevant organisations.

The outcome of the Phase-One preliminary risk assessment was used to derive priorities at the second stage of prioritisation. Phase-Ones were initially carried out by Environmental Consultants who provided a risk rating (high, medium, low or near-zero) and a priority (high, medium, low or near-zero) for each site investigated. The same approach has been adopted for in-house Phase-One reports that were commenced in 2004.

Sites that are given high priority at Phase-One are considered for a more detailed Phase-Two investigation, which involves drilling boreholes and collecting samples for chemical analysis. The number of sites assessed at Phase-One has now reached the stage that further prioritisation is required within those considered to be high priority. To address this, Fife Council has adopted the methodology utilised in Dundee City Council's DREAM algorithm (details are available on the internet at www.dundeecity.gov.uk under "Dream") albeit in a slightly modified format to ensure compatibility with Fife Council's existing data sets.

The outcome from the DREAM algorithm—together with any evidence for acute risk and/or Council ownership—is considered when choosing sites to progress to Phase-Two investigation. Other influences on the decision to investigate a site include whether the site is owned by the Council. The final decision is made using many lines of evidence. This methodology is currently being tested for suitability and may be subject to change in the future.

CHAPTER 4 PRIORITY ACTIONS AND TIMESCALES

Priority actions and time-scales are determined by the background aims and objectives outlined in Chapters 2 and 3 of this document and defined in Part C of the Scottish Executive publication "Contaminated Land Inspection Strategy – Advice for Scottish Local Authorities".

4.1 Priority Actions

The Council is expected to provide services that enhance the environment, economy and social wellbeing of its area. Sites that have had a former industrial land use are ranked in order of their possible effect on defined receptors, as detailed in Statutory Guidance. Identified effects on human health are being given the highest priority. Receptors are considered on a site-specific basis according to their sensitivity and vulnerability to the effects of possible contamination.

Public Health

Protection of the Public Health from any possible harmful effects of Part IIA Contaminated Land in Fife is the overriding priority of this Strategy. Prioritisation and categorisation of statutorily defined contaminated sites is carried out utilising established scientific principles outlined within the relevant Technical Guidance and Research Literature. Particular use is being made of the documents entitled, "Prioritisation and Categorisation Procedures for Sites which may be Contaminated" (CLR6) and "Guidance for the Safe Development of Housing on Land Affected by Contamination" (R&D66).

Water Quality

Consideration is given to cases where there is, or many be, deterioration in the status of a water body, or failure to meet good status objectives. Such cases are given consideration as specified in the Water Framework Directive 2000/60/EC.

Protected Areas

The Water Framework Directive also guards against the failure of a protected area to meet its objectives so the effect of any potentially contaminated land on protected areas is considered as described at Section 2.3 above.

Ownership Issues

Whenever possible, priority is given to the remediation of Council-owned Part IIA Contaminated Land. As the regulatory body responsible for enforcing the Part IIA regime, Fife Council has to show it can "keep its own house in order".

Development Issues

The first priority for the Scottish Government's policy on land contamination is to prevent the creation of new contamination using a range of regimes including pollution prevention controls and waste management licensing. It is intended that historical contamination should be addressed—where possible—through the redevelopment of brownfield sites and in these cases priority over decision-making will fall within the remit of Development Services. Priority is afforded to ensuring the re-use of "brownfield" in preference to "greenfield" sites in accordance with Fife Council's Sustainability Policy.

Exceptions

The contaminated land regime is not generally applicable to activities that are controlled under the following regulatory procedures:

- IPC/IPPC Authorisations
- Waste Management and Licensing
- Discharge Consents

Activities falling under the above legislation should be enforced via mechanisms other than the service of a Part IIA Remediation Notice.

4.2 Milestones

All of the tasks prioritised in earlier versions of this Strategy Document either have now been completed or are incorporated into the day-to-day activities of the Contaminated Land Team (see Figure 7). The relevant stages are as follows:

Computer Software

In relation to the above, Fife Council has set up a Geographical Information System using Arc/GIS software populated with the necessary maps, databases and other information from a wide variety of sources. The Landmark Historic Land Use Data is being used in conjunction with historic maps, aerial photographs, digitised council records and anecdotal information to identify potentially contaminated land sites. Details may be found in Section 5.4 "Information Collection".

Consultation

Draft copies of this Strategy and its predecessors were distributed to relevant parties (internal and external) so that opportunity was afforded for a wide input to the final versions.

Inspection Programme

The Inspection Programme commenced at the beginning of April 2001. Prioritisation of the estimated 7000 potentially contaminate sites was based on the Landmark generic risk ratings in terms of former industries' potential for contamination (DETR 1999) and Council owned land with contaminated land concerns. The programme of inspection is added to on a regular basis as information becomes available.

Immediate Attention

In the course of inspection, sites are found that are causing or having the potential to cause significant harm to human beings. These sites are investigated immediately. To this end, Fife Council has engaged environmental consultants to investigate sites identified as such from an initial prioritisation exercise. This also applies to ad-hoc notifications relating to the above be they from the public or from relevant organisations.

Council Property

A digital map of all Council-owned land was obtained from Fife Council Support Services (Estates) and loaded into the GIS. As the owner of any identified Part IIA Contaminated Land, Fife Council would be legally obliged to remediate any such land. Fife Council will seek whenever possible to remediate as a matter of urgency any Part IIA Contaminated Land under its ownership. Environmental consultants have been contracted to investigate Council owned land with contaminated land concerns identified in the initial prioritisation process.

⇐Time

Fife Council	S.E.P.A.	Appropriate Person(s)
Develop and publish a strategic approach to the identification of potentially contaminated land.	Hold discussions with, and provide information to, Fife Council. Receive a copy of the Strategy Document.	
Inspect and assess individual sites.	Advise on the wholesome-ness of drinking water, water classification criteria and key highly permeable aquifers as well as radioactive contaminated land.	Provide information to Fife Council.
Identify the owner of contaminated land, the occupier and/or the appropriate persons.	Provide site-specific information to Fife Council.	Provide information to Fife Council.
Identify the land as contaminated under Part IIA of the Environmental Protection Act (as amended).	Receive notification.	Receive notification.
Consider the possibility that the site may constitute a 'special site'.	Hold discussions with Fife Council and provide advice.	
Identify the land as a 'special site'.	Receive notification that the site constitutes a 'special site'	Receive notification.
Place the identification notice on a public register.	Decide whether to agree with Fife Council's decision.	
	In the event of disagreement over a 'special site', Fife Council and SEPA may seek the decision of Scottish ministers.	

Figure 7: Fife Council's General Approach to Inspection

Ongoing Inspection

In relation to prioritising sites, full use is being made of the latest guidance research and technology as it pertains to contaminated land. Fife Council has contracted the services of Environmental Consultants to carry out the relevant investigations and assessments of high priority sites in the Fife Area.

4.3 Progress to Date

In seeking to fulfil its obligations under Part IIA, Fife Council has to date:

- Employed a team of **4** full-time staff to implement this Strategy
- Obtained and analysed a database of approximately **7000** potentially contaminated sites in Fife
- Completed a total of **1223** desk studies that include conceptual site models for prioritisation
- Carried out intrusive investigations with chemical analysis at **111** high- and medium-priority sites
- Completed, instigated or overseen the voluntary remediation of **9** contaminated sites under this strategy
- Assessed the voluntary remediation of a further **532** sites through the planning regime

Fife Council has carried out remediation at several sites, without recourse to formal designation. There are currently no entries on Fife Council's Contaminated Land Register. Should any entries be made, they will be posted at www.fifedirect.org.uk/contaminatedland.

4.4 Remediation Projects

Fife Council has been successful in obtaining funding from the Scottish Executive End-of-Year Flexibility Funding scheme for the remediation of three sites where there was considered to be an urgent public health risk. Here is a collection of before, during and after photographs...



Fife Council's first remediation project, completed in May 2004, was the removal and safe disposal of an estimated 100,000 used tyres that presented a potential risk to the surrounding area in case of fire. Some of the larger tyres went on to be fenders for ships, whilst around 15% were chipped to produce soft surfaces for equestrian tracks. The rest were used as fuel for cement manufacture where high-temperature burning and effective flue scrubbing ensured minimal environmental damage.



Phase Two investigations at a former landfill site that lies in close proximity to residential accommodation gave rise to concern over the possible migration of methane and carbon dioxide gases. The existing vent trench was not considered sufficient to ensure safety, so an application was made for funding to upgrade the trench and extend it where necessary. Work commenced in 2005 and was complete in time for grass seeding in the spring of 2006.



Environmental Services was involved in mitigating a public health risk arising from a disused solvent recovery works. Phase Two investigations showed that the only effective means of remediation was demolition followed by either removal or encapsulation of the rubble. In partnership with the Council's Development Services, the remaining drums that had been left on site were safely removed. With a grant from the Scottish Executive, the building was demolished in March 2006 and the more cost-effective method of en-capsulation was adopted at this site.



The most ambitious project so far undertaken by Fife Council's Contaminated Land team was to prevent construction waste from a former coastal landfill site becoming exposed along a beach. A large engineering project costing in excess of £1.5m funded by the Scottish Government saw the protection of approximately 250 metres of coastline with 3.5–5.5 tonne armour stone.



Safeguarding human health is the first priority of the Contaminated Land team. Where industrial heritage has left a legacy of contamination, risks to human health, ecological systems and surface and groundwater can occur. In some cases, excavation of the contaminated soil and disposal at a landfill site licensed to accept hazardous waste is the only option.

4.5 Programme and Timescale

As the Council's Contaminated Land Strategy matures, the emphasis continues to move towards more intrusive site investigations and subsequent remedial projects. Both are potentially very costly, which will rapidly consume available resources, potentially restricting the scope and speed with which sites can be made safe and useful. Fife Council sets targets for annual progress. A history of these achievements is given below together with an anticipated timescale for future developments (see Figure 8).

What	Who	When
Published first Inspection Strategy	Environmental Services Planning Building Control & Project Team	November 2000 – October 2001
Reviewed existing contaminated land information	Project Team	November 2000 – July 2002
Installed contaminated land software	IT Services & Project Team	November 2000 – Mar 2002
Trained staff for investigation and inspection roles	Public Analyst & Project Team	October 2000 – Ongoing
Prioritised and categorised sites for inspection	Project Team	March 2002 – Ongoing
Set out Year 1 inspection programme	Project Team	March 2002
Set out Year 2 inspection programme	Contaminated Land Team	March 2003
Completed first Inspection Strategy review	Contaminated Land Team	December 2003
Set out Year 3 inspection programme	Contaminated Land Team	March 2004
Commenced intrusive inspection programme	Environmental Services, Planning, Public Analyst, Consultants	March 2003 – Ongoing
Set out Year 4 inspection programme	Contaminated Land Team	March 2005
Created 'Dalmatian' site management database	Contaminated Land Team	August 2005
Set out Year 5 inspection programme	Contaminated Land Team	March 2006
Completed second Inspection Strategy review	Contaminated Land Team	May 2006
Set out Year 6 inspection programme	Contaminated Land Team	March 2007
Set out Year 7 inspection programme	Contaminated Land Team	March 2008
Set out Year 8 inspection programme	Contaminated Land Team	March 2009
Completed third Inspection Strategy review [*this ed.*]	Contaminated Land Team	March 2010
Set out Year 9 inspection programme	*Contaminated Land Team*	*March 2010*
Replace Dalmatian with proprietary software	*IT Services / Procurement & Supplies*	*June 2010*
Set out Year 10 inspection programme	*Contaminated Land Team*	*March 2011*
Set out Year 11 inspection programme	*Contaminated Land Team*	*March 2012*

Figure 8: Fife Council's Contaminated Land Timescale

CHAPTER 5 PROCEDURES AND OTHER ARRANGEMENTS

The following section details the arrangements and procedures of how Fife Council deals with contaminated land in its own area. Paragraphs B 15 (c) and (d) of the Statutory Guidance have been considered in designing this Strategy.

5.1 Internal Management Arrangements

Environmental Services and Development Services have the lead responsibility for implementation of the Part IIA Contaminated Land Regime. Within the Environmental Services infrastructure, a Team Leader is responsible for the day-to-day running of the Strategy. The Team Leader reports to the Environmental Sustainability Manager who in turn reports to the Head of Environmental Services.

The Team Leader has responsibility for serving Remediation Notices. This involves consultation with both the Environmental Services Manager and the Law and Administration Service. Environmental Services deals only with contaminated land as it applies to its current use. Development Services take lead responsibility for contaminated land as it applies to any proposed use that requires a formal grant of planning permission.

In terms of ascertaining Council ownership of land, specific liaison arrangements have been established with Support Services (Estates).

5.2 Interaction with Other Regulatory Regimes

In terms of regulatory actions, there will be overlaps between Environmental Services, Development Services, SEPA and SNH.

Development Services

Development Services retain the principal mechanism in dealing with contaminated land issues. The Part IIA Regime will produce additional site problems that require addressing. Any remediation through a planning condition (PAN33) will be dealt with under planning controls and not under Part IIA to ensure it is fit for its intended use. Dealing with contaminated land during redevelopment of brownfield sites and associated planning controls will remain the responsibility of Development Services with advice being provided by the Contaminated Land Team.

Scottish Environment Protection Agency (SEPA)

Under the Contaminated Land (Scotland) Regulations 2003, SEPA is considered to be the responsible authority where it has been determined there is pollution of the water environment in three particular scenarios relating to wholesomeness of drinking water, surface water classification criteria and key highly permeable aquifers. In these cases, the responsibility to secure remediation lies with SEPA.

The Radioactive Contaminated Land statutory guidance states that responsibility to prioritise the inspection of land that it has reasonable grounds to believe may be Radioactive Contaminated Land.

Outwith these specific scenarios, responsibility for securing remediation of sites causing pollution of the water environment will remain with Fife Council. Fife Council Environmental Services will consult with SEPA before designating any land as either a "special site" or a contaminated site because of unacceptable risks to the water environment or because of radioactivity. Fife Council Environmental Services will also take into account any comments made by SEPA with respect to remediation of contaminated land.

Fife Council, in determining that land is contaminated land on the basis that pollution of the water environment is being or is likely to be caused, will adhere to the instructions provided in Para B.50 to B.52 contained within the Scottish Executive Statutory Guidance. It will also take account of the relevant SEPA guidance including the recent publication "WAT-PS-10-01 Assigning Groundwater Assessment Criteria for Pollutant Inputs". In addition, reference will be made to all relevant guidance produced by SEPA including:

- Framework for Local Authority - SEPA Liaison under Part IIA of the Environmental Protection Act 1990 (Contaminated Land) (2000)
- SEPA's approach to Considering Pollution of Controlled Waters Arising from Contaminated Land (2000)
- Considerations when Prioritising Inspection of Land in Relation to Pollution of Controlled Waters (SEPA) (2001)
- Water Pollution Arising from Land Containing Chemical Contaminants (2001)

If SEPA identifies a particular risk to the water environment from contaminated land, the Council will be notified in order to enable designation of the land and remedial action will be consequently taken under the Part IIA Contaminated Land Regime.

Scottish Natural Heritage (SNH)

If remedial works were likely to have a significant effect on, for example, a Special Protection Area or a Special Area of Conservation, then Fife Council would be obliged to carry out an appropriate Habitats Regulations appraisal to decide if it can be ascertained that the proposal will not adversely affect the integrity of the site.

5.3 Local Authority Interests

Land that is owned or leased by Fife Council is given priority in the ranking of sites referred to in Chapters 3 and 4 of this Strategy document. Given that Fife Council has a regulatory role in relation to the contaminated land regime, it is essential that its own properties are either improved or maintained to standards commensurate with the relevant legislation. The approach to the inspection and assessment of local authority owned and leased land will be unbiased and objective, these principles being applied equally to other owners or developers of properties.

Where ownership of a site designated as contaminated cannot be ascertained (*i.e.* "orphan" sites), Fife Council will take responsibility for ensuring suitable remedial action.

Fife Council Elected Members will be advised of any intentions to:

- Designate land owned by the Council as contaminated under the Part IIA regime
- Deal with land where the Council is designated the "appropriate person" and consequently may be liable for remediation costs

5.4 Information Collection

Information on potentially contaminated land and the pathways by which contaminants could move in the environment is available from a very large range of sources (see Figure 9).

Source of information	Comments
Landmark Information Group	Landmark provides digital historical maps from 1840 onwards, land use data and a wide range of geospatial environmental, planning and points of interest data.
Ordnance Survey	Ordnance Survey provides digital mapping data used in geographical information systems (GIS) making it easier to analyse data and make better decisions.
The XYZ Digital Map Company	XYZ provides full colour aerial photography from 2000 and 2006, the first ever fully digital air photograph of Scotland.
The GeoInformation Group	Geo-information provides historic aerial imagery sourced from several archives of RAF, Luftwaffe and USAF aerial photography flown during 1939 to 1952.
National Library of Scotland	The National Library provides detailed town plans of Dunfermline, Burntisland, Kirkcaldy, Cupar and St Andrews dating from the 1820s, 1850s and 1890s.
Royal Commission on the Ancient and Historic Monuments of Scotland	The Royal Commission provides searchable, map-based information combining details and images of archaeological, architectural, maritime and industrial sites.
British Geological Survey	The Geological Survey provides the digital geological map showing geological areas attributed with their composition, rock type or lithology.
Environmental Services	Environmental Services keeps a record of all service requests, complaints and investigations into pollution problems in Fife.
Development Services	Planning guides the way Fife's natural and built environments develop including giving planning permission for safe new buildings.
Trading Standards	Trading Standards laws regulate the quantity, quality and safety of goods including petroleum spirit such as petrol, benzene, toluene, hexane
Law and Administration Service	Legal Services is responsible for providing advice to the Council and its officers undertaking legal work on conveyance, leases and the preparation of contracts.
Archivists and Archaeologists	The Archaeological Unit offers information and advice on the historic sites and monuments of Fife whilst the Archivists ensure the preservation of records.
Support Services (Estates)	Corporate Asset Management is responsible for property strategy, planning, programming and delivery functions within Fife Council.
Housing Services	The Housing Service develops local housing strategies informed by an assessment of the range of housing needs and affordability issues.
Neighbouring Local Authorities	The East Of Scotland Pollution Liaison Contaminated Land Sub-Group meets regularly and Fife Council consults with them in relation to cross-boundary sites.
Scottish Executive	The Scottish Government is committed to assisting local authorities in tackle the legacy of land contamination and associated dereliction.
Scottish Environment Protection Agency	SEPA's aim is to protect, maintain and restore Scotland's land quality by providing expert guidance on good practice of land use and through regulation.
Scottish Natural Heritage	SNH's work is about caring for the natural heritage, enabling people to enjoy it, helping people to understand appreciate and manage it.
The Coal Authority	The Coal Authority provides emergency response to surface hazards, estates and property legal services and access to historic mining records.
Scottish Water	Scottish Water is the regulatory authority for Scotland's water and wastewater industry including complaints procedures
Other Utility Companies	These provide information on buried and other services owned by British Telecom, Scottish Power and National Grid Transco among others.
National Grid	National Grid provides strategic advice on property issues, in particular tackling the historic legacy associated with the manufacture of town gas from coal.
Historic Scotland	HS and the Scottish Urban Archaeological Trust keep records of historic and statutorily protected buildings and archaeological sites.
Health & Safety Executive	This organisation can provide information on records of accidents and incidents, e.g. chemical spillages, gas explosions or oxygen depletion in domestic premises
National Health Service Fife	The Public Health Department in Fife Health Board should be able to provide any significant information on the potentially harmful effects on human beings.
Health Protection Scotland	HPS provide advice to stakeholders on a site-specific basis in relation to the toxicological impact of pollutants on public health and risk communication.
Food Standards Agency	The FSA can be consulted on matters concerning the possible effect of contaminated land on crops and livestock.
Argus Gamma Radiation Monitoring Network	Environmental radiation is monitored at several sites including Anstruther and Dunfermline. Radiation in inter-tidal sediments and seaweeds is also monitored.
Anecdotal Observations	This invaluable source of local information includes interviews with staff, locals, previous owners, Chamber of Commerce, Community Councils and neighbours.
Trade and Local Directories	These provide information to assist in identifying possible contaminative industries, especially in urban areas. Another useful source is valuation rolls.

Figure 9: Sources of Information on Contaminated Land in Fife

5.5 Information Evaluation

Fife Council is in the process of co-ordinating the storage of geographical information across all the services. Historically, services have been free to adopt whichever spatial data management tool was considered most suitable. The Contaminated Land team adopted Arc/View software and this will continue to be supported centrally by the Council. In addition, the Council is moving towards centralisation and co-ordination of GIS resources including the provision of a central repository for information that can be maintained by the relevant service. The central server can be accessed directly in Arc/GIS or via a web browser allowing an easy access to information. In addition, almost all of the historical information collected by the team (*see Section 5.4 "Information Collection"*) has been imported directly into Arc/GIS making preliminary site investigation quick and easy. This also allows enquiries from the public or other bodies to be dealt with quickly and efficiently.

To co-ordinate efforts on Contaminated Land inspection, Fife Council uses its GIS capability to the full with a custom-built geo-database called Dalmatian that contains comprehensive details about investigated sites and hot-links directly to site investigation reports, which can be viewed electronically. More details can be found in Section 9.2 "Storing Site-Specific Information".

5.6 Complaints and Anecdotal Evidence

The contaminated land inspection programme is flexible enough to incorporate complaints regarding contaminated land from members of the public, businesses or community groups as long as these can be verified using established methods of investigation. Complaints will normally be received though our Public Protection Team.

The list of documented complaint procedures is as follows:

- All complaints will be logged on a computerised database
- Any complaint will be investigated within two working days by an Environmental Health Officer
- The complainant will be informed by telephone, where possible, of progress towards resolving the issue, and this will be confirmed by letter

It is hoped all complaints can be dealt with expeditiously and efficiently. However, given the restrictive definition of Part IIA contaminated land this may prove difficult. The following conditions will apply:

- Source Pathway Receptor relationships will have to be established in complaints pertaining to contaminated land investigated by Environmental Services. This may involve detailed investigations that may take some time.
- There will have to be consultation with all interested parties involved prior to designation of Part IIA contaminated land. The legislation allows for a three-month consultation period between the Council and interested parties following designation of the land as being contaminated.
- Identifying the original polluter of land (Class A) may also be a lengthy process.

The tests used for determining liability are complex and hence may hinder complaint resolution. The second condition (above) can be waived in extreme circumstances; however, this does not apply to the first and third conditions.

Complainants will be asked for name, address and—if appropriate—the address giving rise to the complaint. The staff member taking the complaint shall reinforce the fact that all personal information given will remain confidential. The only circumstance in which information could be made public would be in the case of a Remediation Notice being appealed in a court of law where an adverse effect on the complainant's health was a critical reason for the original contaminated land designation.

When members of the public supply information on contaminated land that affects neither their own health nor the health of their families or their property then this will not be treated using official complaint procedures. The information will be recorded and acted upon in order to ascertain its validity. The person or organisation supplying this information will be informed of any relevant action taken to reinforce Fife Councils' values of openness and accountability.

With regard to anonymously supplied information, the Council will follow standardised procedures in terms of ascertaining whether the complaint can be validated.

In all cases of information received, an Environmental Health Officer will make a decision as to what further investigation is required following either a complaint or provision of information pertaining to contaminated land.

5.7 Determination of Contaminated Land

Where a formal determination of contaminated land is required then the following procedures will be undertaken:

1. Advise by letter owners and/or occupiers and/or appropriate persons of the designated Part IIA Contaminated Land at least five working days before determination of that land. The letter will explain the Council's intention and summarise the reason(s) for the determination.

2. Advise by letter owners and/or occupiers and/or appropriate persons explaining that the land has been formally designated as contaminated land and that, initially, the Council is seeking appropriate remediation without the service of a formal notice.

In conjunction with the above steps, Fife Council will notify SEPA of the formal determination of contaminated land as per the SEPA - LA liaison framework document. If requested by one of the stakeholders, (e.g. owner/occupier, appropriate person etc.) a copy of the formal determination document will be despatched within five working days of receipt of the request. An illustration of the processes involved in the identification of appropriate persons is provided in Appendix 4 "Liability under Part IIA".

If voluntary remediation cannot be achieved then a Remediation Notice will be served on the owners/occupiers and/or appropriate persons, as required, specifying the action(s) required. An illustration of the determination process is given in Appendix 5 "Identification Procedure".

Under Section 108(6) in Schedule 18 of The Environment Act 1995, the Council has been granted powers of entry to carry out investigation. At least seven days notice will be given of proposed entry onto any premises, unless there is an immediate risk of serious pollution of the environment or serious harm to health or circumstances exist that are likely to endanger life or health. Where the site involved is likely to be a special site then the Council will consider liaising with SEPA in terms of ascertaining where regulatory responsibilities lie (as per the SEPA–LA Liaison Framework Document).

CHAPTER 6 LIAISON AND COMMUNICATION

Fife Council—in the implementation of its Contaminated Land Inspection Programme—liaises with and responds to a large number of external groups. Partnership with other statutory and voluntary organisations, local communities and individuals is considered an essential part of Fife Council's Inspection Strategy.

6.1 Public Bodies

Fife Council has already established contacts with other statutory bodies as described in Section 1.7 "Consultation with other Public Authorities". Those identified as being closely involved with the consultation process are:

- Scottish Environment Protection Agency
- Scottish Natural Heritage
- Scottish Executive
- Historic Scotland
- Scottish Enterprise Fife
- Food Standards Agency

Each of the above was invited to comment on the Draft Inspection Strategy.

6.2 Owners, Occupiers and Other Interested Parties

Fife Council is committed to working in ways that are open and allow the public to scrutinise and comment on what we do. As part of this promise, we make every effort to liaise and communicate directly with owners, occupiers and other interested parties during the implementation of our Strategy.

6.3 Community Groups

Fife Council takes every opportunity to encourage voluntary organisations, local communities and individuals to participate and contribute in our Strategy. Detailed local knowledge and historical information that members of the community can provide are beneficial in improving our inspection programme. Fife's 82 Community Council's are regularly kept informed of progress with the Contaminated Land Inspection Strategy and are invited to supply any information their membership and contacts may have on former contaminative industries in their area.

An up-to-date list of Community Council Secretaries and Chairs is available online at www.fife.gov.uk under "Community Councils".

A number of non-statutory organisations have also been consulted (*see Appendix 1 "Consultees" for a full list*).

CHAPTER 7 PROGRAMME FOR INSPECTION

In accordance with Chapters 3 and 4 of this Strategy, Fife Council has adopted a methodology using both qualitative and quantitative risk assessment principles in its inspection programme. The programme does not focus exclusively on heavily populated areas, as it is felt such an approach would not provide a comprehensive description of the extent of potentially contaminated Land in Fife. Instead, possible contaminative effects from former industrial land uses are being considered and subsequently risk-assessed on a site-specific basis.

7.1 Key Factors

The inspection programme takes into account specific local issues that may have a significant effect. Fife Council's Contaminated Land inspection programme deals first of all with those local issues considered most pressing, serious or in need of urgent attention. As previously detailed, this involves extensive consultation with relevant internal and external bodies involved.

Sites identified as already having an adverse effect on established receptors are considered first. Where sites of similar historic use are found, they are inspected consecutively to ensure maximum efficiency and value be derived from research and associated contacts. The activities of the Contaminated Land team comply with the arrangements and procedures listed in B.15 (d) contained within the Statutory Guidance. In particular, the methodology applied to inspecting particular areas of land satisfies the following criteria:

- Compliance with Paragraph B.19–25 of the Statutory Guidance
- Specific liaison with owners or "appropriate persons"

Consequently, the Contaminated Land team will ensure that owners, occupiers and other interested parties are informed at appropriate stages of an investigation irrespective of whether or not there was a formal designation of contaminated land. The approach of Fife Council with respect to regulatory duties will be to seek voluntary action and view any enforcement action only in default.

It is generally recognised by most individuals involved in contaminated land issues that effective remediation is more often achieved by informal agreement rather than by formal enforcement procedures.

7.2 Inspection Design

In terms of site investigations, the main objectives are to confirm suspected hazard sources, examine suspected pollutant linkages and provide the data required for subsequent risk-assessment (*see Appendix 2 "*Inspection Methodology"). In the first instance, the information is gleaned from anecdotal, desktop and/or site walkover investigations. Intrusive site investigation can then be targeted on areas of potential contamination and places where there are sensitive receptors. The geographical coincidence of these two in turn leads to examination for potential pathways.

The methodology underlying site investigation uses the conceptual site model approach referred to in the relevant contaminated land literature. In brief, a conceptual site model is a representation of the nature of the contamination problem for which a solution is being sought. It shows, in either tabular or pictorial format, the potential pollutant linkages identified for the site.

There are three distinct phases of investigation.

Phase I – Desk Study

This is a preliminary qualitative risk assessment and encompasses the desk study methodology referred to in the relevant technical guidance including Appendix 1 of Scottish Enterprise (1998) "How to Approach Contaminated Land". At this stage, the following factors are considered:

- Former potentially-contaminative activities on and surrounding the site
- The environmental setting including geology, hydrogeology, hydrology and ecology
- Consultation of records from Development Services, SEPA, SNH, Historic Scotland, RCAHMS, etc.
- Any potential liabilities relating to the site in terms of Council Ownership
- An economic assessment of the site
- Possible development opportunities

Phase II – Site Investigation

Phase II intrusive investigation involves an assessment on the contamination present. Trial pits and / or boreholes (rotary or percussive) are installed to create a three-dimensional picture of the foundations of the site. The investigation will include gas testing for at least methane, carbon dioxide and other volatile and potentially explosive organic compounds. There will also be a full hydrological assessment, and geophysical exploration may be used on larger sites to determine the outline of underground structures. The report at Phase II includes the following:

- An updated Conceptual Site Model (*see Glossary*)
- An updated Qualitative Risk Assessment
- Supplementary Site Investigations (where applicable)
- Quantitative Risk Assessment and / or Numerical Analysis
- Identification of Unacceptable Risks

Phase II incorporates a quantitative risk assessment based on the findings of the intrusive investigation. This considers contamination hazards, migration pathways and human and environmental receptors. Among the factors that have to be considered in risk assessment are:

- Underlying Geology, drift deposits and made ground
- Surface and Groundwater (perched waters, drift system, bedrock aquifers)
- Distribution of Contaminants (diffuse or point sources, DNAPL or LNAPL, *see Glossary*)
- Geotechnical situation (particle size, permeability to water and gas, strength, deformability)
- Chemical Properties (behaviour of contaminants, acidity/alkalinity (pH), red-ox potential (eH), organics)
- Biological Properties including indigenous microbial populations
- Mining History (gas emissions, ferruginous and acidic discharges)

The sampling design for site investigations is in accordance with the guidance contained within the DEFRA publication "Sampling Strategies for Contaminated Sites". Sampling methods ensure that sampling techniques are appropriate to the media investigated. They should be divided by visual/olfactory evidence, use procedures to prevent cross contamination and be sufficient to delineate the extent of contamination.

Sampling patterns can be either targeted (found/identified) or non-targeted (systematic grid *e.g.* "herringbone" pattern). Selection of the appropriate sampling pattern is site dependent and addresses the need to locate potential "hot spots" of contamination.

The guidance on chemical analysis includes the following requirements:

- Appropriate laboratory methods
- The importance of detection limits
- The importance of laboratory QA/QC
- Tailored to previous and current site uses
- Consideration of adjacent land uses
- Evidence for modifying mechanisms
- Identification of microbial species or bio-toxins
- Interpretation of results

This ensures that the interpretation of results is both reliable and valid. The results should also confirm main pollutant linkages and contain distribution and behaviour characteristics of any particular contaminants. They should represent accurately the concentrations of any contaminants of concern as defined. Any available dilution or attenuation factors should be evaluated.

Interpretation of the relevant results should eventually lead to selection of the most effective remedial solution (if applicable). Selection of the relevant options is based on the following factors:

- Economics
- Sustainability
- Technical Feasibility / Liability
- Permanence (residual risk/liability)
- Long term management/liability

Phase III – Remedial Options

The criteria against which the assessment takes place are drawn from the risk assessment and the required physical and chemical site conditions defined previously. Published information concerning each option, such as technical reviews, statements of capability and the relative cost implications are used as required to complete the assessment. Considerations at Phase III include:

- The identification of Final Options
- Detailed Remediation Design
- Constraints to Future Use
- The desired End Condition

7.3 Site-Specific Consultation

The major external agencies have provided either an online resource or data in digital format showing the areas of Fife in which they have an interest, and these resources are used extensively during the desk study phase of investigation. Any significant results from detailed inspection carried out by Fife Council are relayed to the relevant consultees. Communication links between the agencies such as SEPA, SNH and Historic Scotland ensure effective operation of the Part IIA regime. Particular attention has been paid to the provision of information as it applies to the water environment and “Special Sites”.

7.4 Risk Communication

Risk assessment is defined as the study of the probability or frequency of a hazard occurring combined with the magnitude of the consequences of that hazard occurring. Relevant guidance can be found in "Prioritisation and Categorisation Procedures for Sites which may be Contaminated" (CLR6) and "Guidance for the Safe Development of Housing on Land Affected by Contamination" (R&D66).

Fife Council Environmental Services took the decision at an early stage to employ the services of firms of professional environmental consultants. These consultants are equipped to apply the latest statutory and other guidance to the risk assessment process and advise Fife Council accordingly.

Advice is sought from SEPA in cases where the risk assessment identifies that the water environment is at risk as a receptor. The risk assessment and subsequent remediation will be carried out in accordance with the Environment Agency guidance as laid out in such documents as "Methodology for Assessment of Remedial Targets for Soil and Groundwater to Protect Water Resources" and other relevant guidance such as the CONSIM model (www.consim.co.uk).

It must be noted however that the legislation as it applies to private water supplies will still be enforced by Local Authorities and therefore it is the duty of Fife Council to assess and if necessary require the remediation of any private water supplies found to be contaminated as defined by the Part IIA Regime. In terms of evaluating all information contained on contaminated land, Environmental Services consider the source-pathway-receptor relationships in all cases and do not exclude any of these three criteria for Part IIA contaminated land from the data evaluation process.

In terms of any concerns raised by interested parties or members of the public with regard to contaminated land issues, it is essential that effective methods of risk communication be produced. There is often a conflict as to what the public considers contaminated land and the actual statutory Part IIA definition.

The Scotland and Northern Ireland Forum for Environmental Research (SNIFFER) document entitled “Communicating and Understanding of Contaminated Land Risk” outlines four steps of communicating and understanding of risk:

- When to communicate
- With whom to communicate (identifying stakeholders)
- What to communicate
- How to communicate

It is important in communicating risk that unnecessary alarm should not be conveyed to residents and property owners, which could be detrimental to property values. There are many instances of land that could be affected to some extent by contamination without meeting the Part IIA Definition of contaminated land. It would cause disappointment when further action under the regime cannot be pursued.

7.5 Health & Safety

Under the Part IIA regime, it is the responsibility of Environmental Services to carry out detailed investigations of potentially contaminated land. It is felt the knowledge accrued by Environmental Services will be sufficient to allow site investigations to be carried out by the relevant Council staff members rather than routinely engaging the services of external consultants. Exceptions may arise from sites with especially challenging characteristics

Fife Council staff involved in the Investigation of Contaminated Sites must comply with the relevant responsibilities under the Health & Safety legislation and with any site-specific Health & Safety procedures that may be applicable, for example those set out by the site owner or operator.

Fife Council will provide personal protective equipment (PPE) which must be worn whenever members of staff are on site. The Council will prepare a risk assessment to identify site-specific hazards (Health & Safety plan) and provide appropriate measures for site safety during any investigations.

The key reference document for the above is the HSE publication "Protection of Workers and the General Public during the Development of Contaminated Land".

CHAPTER 8 REVIEW MECHANISMS

Fife Council has developed procedures for the periodic review of any assumptions made and any information previously used to assess potential problems in different areas, and for managing new information, taking into account local circumstances. Fife Council also concurs with the legal requirements to review its Inspection Strategy on a regular basis. The criteria for achieving these objectives are discussed in detail below:

8.1 Triggers for Non-Routine Site Inspections

The Contaminated Land team's first responsibility is the implementation of the Contaminated Land Inspection Programme. However, its other roles include the provision of environmental information and advice to other Council departments and external consultees. From time to time, the team will be required to respond to unforeseen eventualities and modify its inspection programme accordingly. Examples of such circumstances include:

- Proposed changes in the use of land surrounding an investigated site
- Unplanned changes in the use of the land (*e.g.* persistent, unauthorised use of the land)
- Localised flooding, landslides; accidents, fires, spillages etc. where the consequences cannot be addressed through other relevant Environmental Protective Legislation
- Identification of localised pollution and/or health affects which appear to relate to the former use of land
- Verifiable reports of unusual or abnormal site conditions received from members of the public or voluntary organisations
- Responding to information from other statutory bodies (*e.g.* SEPA)
- Responding to information of owners or occupiers of land or other relevant interested parties
- Supporting voluntary remediation (*e.g.* remediation in advance of any action by the Council)
- Change of use introducing new receptors (new developments)
- Planning applications or regeneration initiatives
- Other information becoming available

Notwithstanding the above events, Fife Council will endeavour to meet its targets set for the investigation of potentially contaminated land as outlined in this Inspection Strategy.

8.2 Triggers for Strategy Review

The Inspection Strategy will be reviewed in any of the following cases

- Significant changes in the legislation
- Establishment of significant exposure levels / limits or other revisions of guideline values for exposure assessment
- Establishment of significant case law or other precedent
- Previous remediation schemes considered insufficient

The first Strategy Document was submitted following appropriate consultation in October 2001. Before this, the site assessment programme had started in April 2001. The Strategy was reviewed in December 2003 and again in 2006. This document represents the third review of the Strategy. Its findings will be reported to Fife Council's Community Safety Committee. If significant changes are deemed necessary then the review process will be brought forward appropriately.

Regular audit of information, evaluation, assessment and inspection procedures is carried out on an annual basis. As soon as any updates of new information pertaining to these variables are produced, they are incorporated into the Inspection Programme to ensure its continuing efficiency.

CHAPTER 9 INFORMATION MANAGEMENT

The Contaminated Land team has a responsibility to oversee the management of various sources of information. These sources fall into several categories:

- Historical information—records and maps—purchased or obtained for research purposes
- Modern Ordnance Survey maps and recent aerial photography for ready reference
- Site-specific information including commissioned site investigation reports
- Information required to be made available on the public register

Whilst the first two categories are in the public domain, information in the third category must be treated as extremely sensitive, while the decision to include any site in a public register must be made with due regard for the statutory guidance.

9.1 Information in the Public Domain

The Council's first action in assessing the potential extent of Contaminated Land in the Fife area was to purchase the historic maps and associated contaminated land database from the Landmark Information Group. Seven sets of Historic Ordnance Survey maps at various scales dating from 1856 to 1989 were supplied in raster format for use in ArcGIS. Accompanying the historic maps was a database of sites identified with former industrial land use, which was used to derive a list of approximately 7000 potentially contaminated sites in Fife, ranked by former industry type.

The Landmark maps have recently been augmented by the purchase of highly detailed Town Plans by John Wood (1820), Ordnance Survey (1856) and Bartholomew (1912) obtained from the National Library of Scotland. In addition, historic aerial photography has been commissioned using RAF, USAF and Luftwaffe photography from the 1940s and this is providing invaluable information omitted from the contemporary maps. The Council's GIS Co-ordinator provides modern mapping (Ordnance Survey MasterMap™) and aerial photography (XYZ Digital Mapping GetMapping™) to the Contaminated Land team, and these are updated regularly from the Ordnance Survey.

Other datasets that were mentioned in Section 5.4 "Information Collection" include the Scottish Environment Protection Agency, Scottish Natural Heritage, British Geological Survey and other Council Services such as Development Services and Support Services (Estates).

9.2 Storing Site-Specific Information

As described in Section 5.5 "Information Evaluation", Fife Council has created a bespoke database called Dalmatian for the management and analysis of contaminated land data and reports relating to potentially contaminated sites in Fife. This takes the form of a single database that can be accessed simultaneously in both ArcGIS 9.0 and Microsoft Access by up to eight users. The database is stored on a secure volume hosted up by IT Services and is regularly backed up to CD.

The Dalmatian Database contains polygons showing the outlines of sites and carries the following attributes for each (see Figure 10).

- A unique site reference number; local name; principal former industrial land use; nearest town
- Site area (m^2); co-ordinates of the centre of the site; date of commencement of investigation
- Current status of the investigation (Phase 1, Phase 2, Phase 3, PAN33, Special site, Identified Part IIA)
- Current priority of the site (currently High, Medium, Low or Suitable for current use)
- Hyperlinks to all reports commissioned or obtained in relation to the site

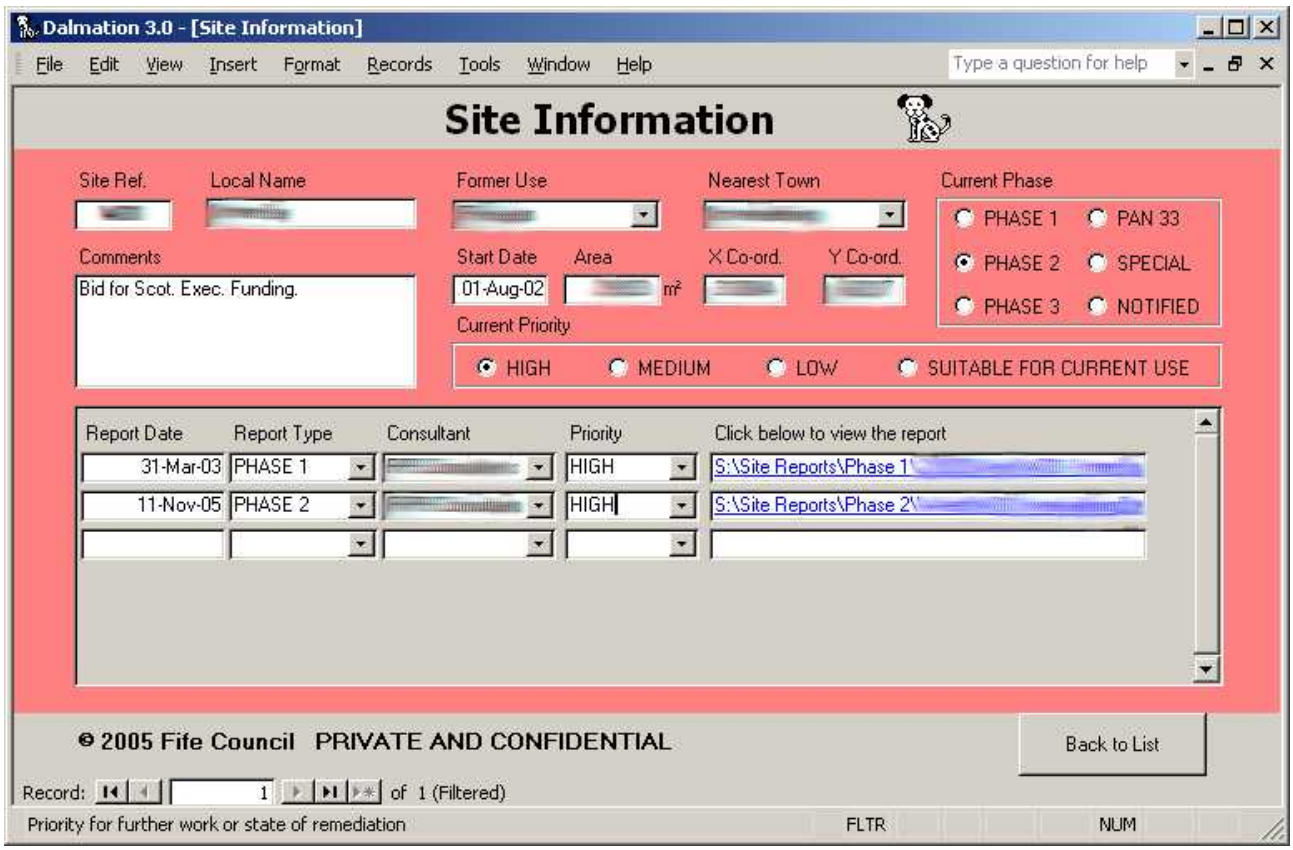


Figure 10: Example of the Site Information Interface of Fife's Dalmatian database

Fife Council Area Law & Administration Service was consulted to ensure confidential information is handled correctly. The Council seeks to comply with all the relevant legislation as it pertains to confidentiality issues. IT Services also has significant input in terms of ensuring that its data storage systems provide the relevant security and virus protection.

9.3 Contents of the Public Register

Under the Part IIA legislative regime, Fife Council is required to maintain a Public Contaminated Land Register, which is available to internal and external departments & agencies and to members of the public through the Fife Council Website www.fifedirect.org.uk/contaminatedland, at Local Offices and in Public Libraries.

The contents of the register are outlined in the Contaminated Land (Scotland) Regulations 2005. They include details of the following:

- Identification Notices
- Remediation notices
- Details of site reports obtained by the Authority relating to Remediation Notices
- Remediation declarations, remediation statements and notifications of claimed remediation
- Designation of sites as “Special Sites”
- Appeals lodged against Remediation and Charging Notices
- Convictions

It is worth noting that the Public Registers do not include details of all historic land uses nor of reports used in the investigation of potentially contaminated land. These are to be treated as incomplete or ongoing research documents until a site is formally designated as Part IIA Contaminated Land and made public.

9.4 Dealing with Requests for Information

If information is sought by a property surveyor, business or other individual as to whether a piece of land is contaminated or not, they are charged a standard fee for any relevant information held by Environmental Services. The Contaminated Land team also offer assistance and advice to Development Services in respect of any planned developments on sites where former contamination could be an issue.

The Contaminated Land team has investigated its liability under the Freedom of Information Act. It appears that—where necessary to protect private interests—it is possible to apply either of two exclusions relating to the information held in its database. The first applies where investigations are incomplete (Scottish Executive: "Access to Environmental Information", Clause 72), and the second relates to the potential damage to the value of property if information were released (Clause 77), until the decision is made to include the site in a public register.

9.5 Provision of Information to SEPA

The Scottish Executive Performance Indicators were discontinued in 2007. In their place, SEPA conducted a one-off survey to collect data for a State of Contaminated Land report. This provided the opportunity for an internal audit of the data held in the Dalmatian database (more information is given in Section 9.2 "Storing Site-Specific Information") and gave a concise overview of progress to date on potentially contaminated sites in Fife. The SEPA report includes:

- A summary of Local Authority Inspection Strategies (including progress with its Strategy)
- The amount of contaminated land identified and the nature of the contamination determined
- Measures taken to remediate land

As local authorities are the lead regulators on contaminated land (with SEPA regulating only certain categories of site), the National Survey is clearly reliant on information provided by Local Authorities. Fife Council ensures that SEPA is kept fully up to date in terms of providing all relevant information as it pertains to Part IIA of Contaminated Land, including:

- Sites designated as Contaminated Land
- Sites designated by Fife Council as a Special Site and therefore under the jurisdiction of SEPA
- Remediation Notices, Statements or Declarations pertaining to contaminated land

9.6 Contact Points in the Authority

The Contaminated Land team comprises:

Douglas Mayne, Team Leader
Kenny Bisset, Lead Officer
Eloise Griffin, Technical Officer
Jim Robb, Technical Officer
Donald Payne, Technical Officer
Blair Falconer, Technical Officer

Environmental Services
Second Floor
Kingdom House
GLENROTHES
Fife
KY7 5LY

Telephone: 01592 583141

www.fifedirect.org.uk/contaminatedland

APPENDIX 1 CONSULTEES

Scottish Environment Protection Agency
Erskine Court
Castle Business Park
STIRLING
FK9 4TR
www.sepa.org.uk

Scottish Natural Heritage
46 Crossgate
CUPAR
KY15 5HS
www.snh.gov.uk

The Scottish Government
Environment and Services
Victoria Quay
EDINBURGH
EH6 6QQ
www.scotland.gov.uk

Historic Scotland
Longmore House
Salisbury Place
EDINBURGH
EH9 1SH
www.historic-scotland.gov.uk

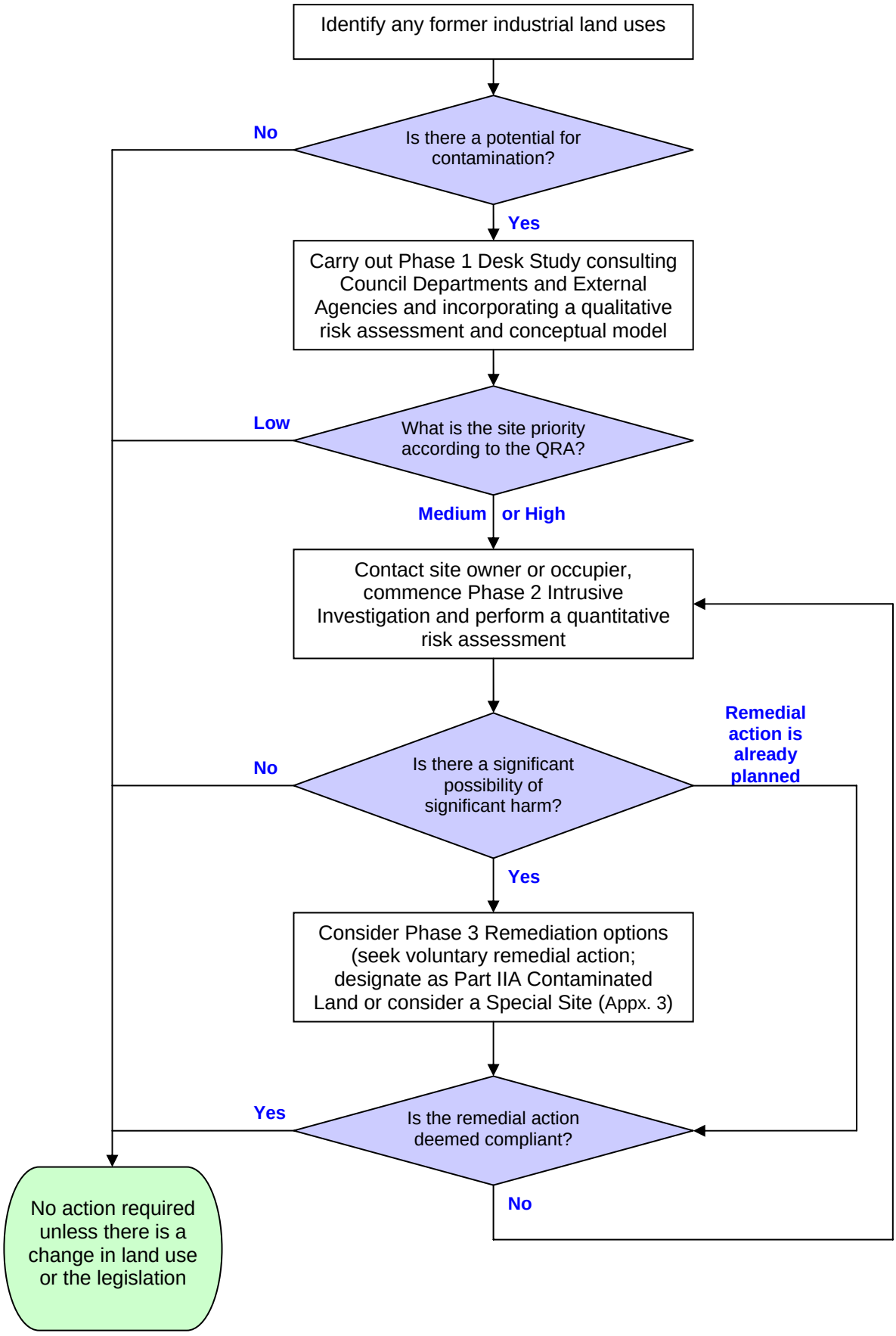
Scottish Enterprise Fife
Kingdom House
Saltire Centre
GLENROTHES
KY6 2AQ
www.scottish-enterprise.com

Food Standards Agency Scotland
6th Floor St Magnus House
25 Guild Street
ABERDEEN
AB11 6NJ
www.food.gov.uk/scotland

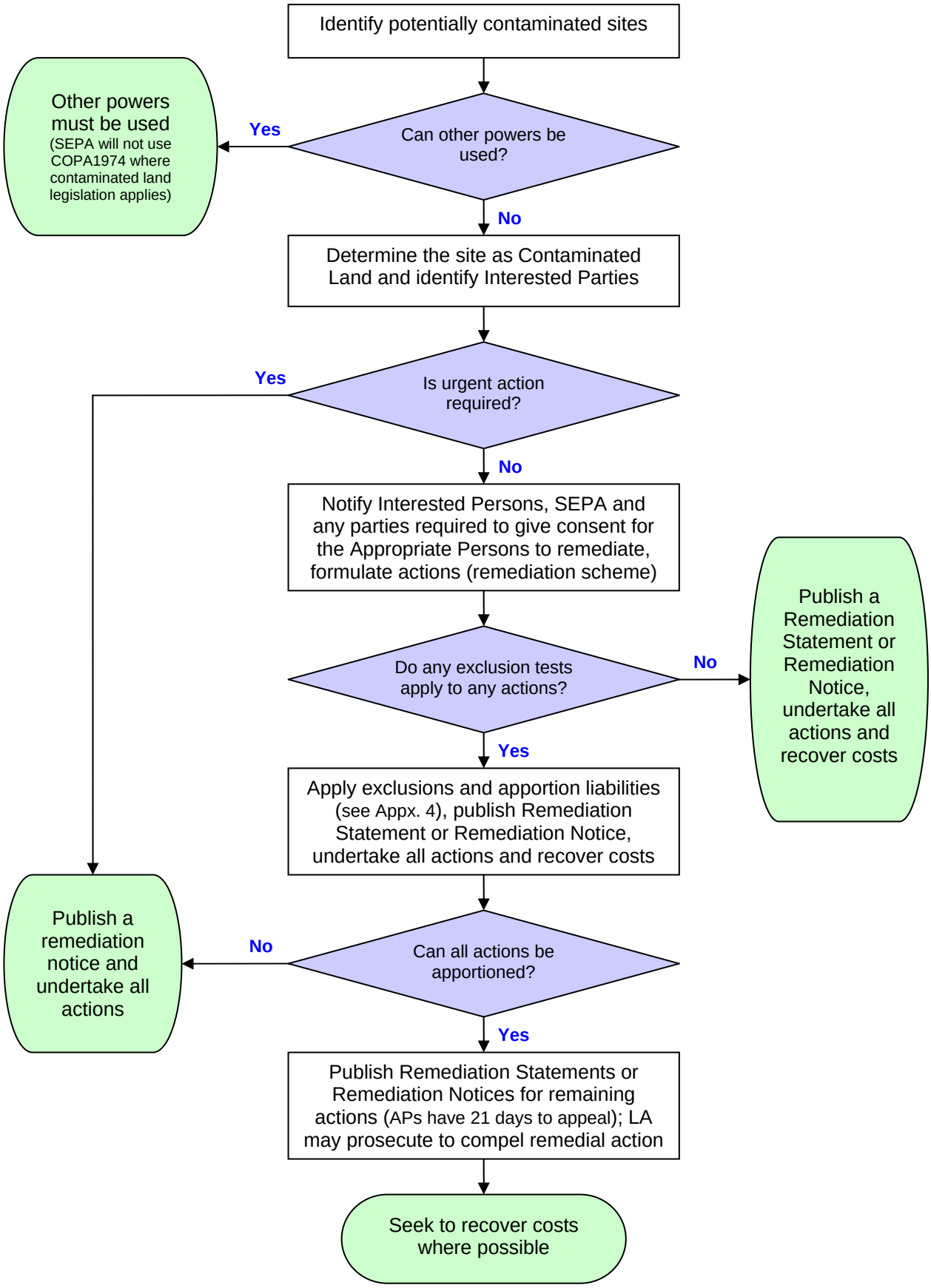
Health Protection Scotland
Clifton House
Clifton Place
GLASGOW
G3 7LN
www.hps.scot.nhs.uk

NHS Fife
Hayfield House
Hayfield Road
KIRKCALDY
KY2 5AH
www.nhsfife.scot.nhs.uk

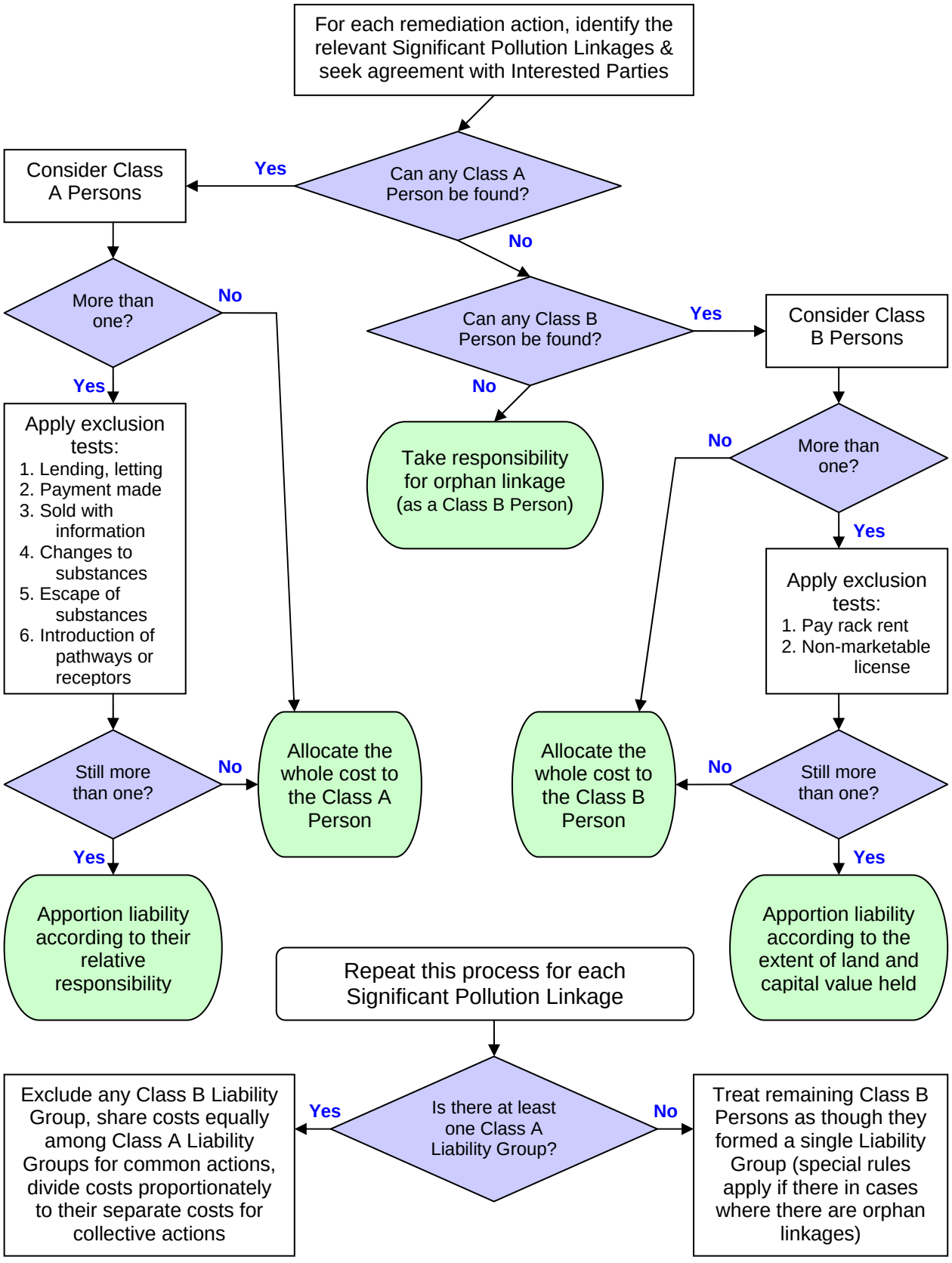
APPENDIX 2 INSPECTION METHODOLOGY



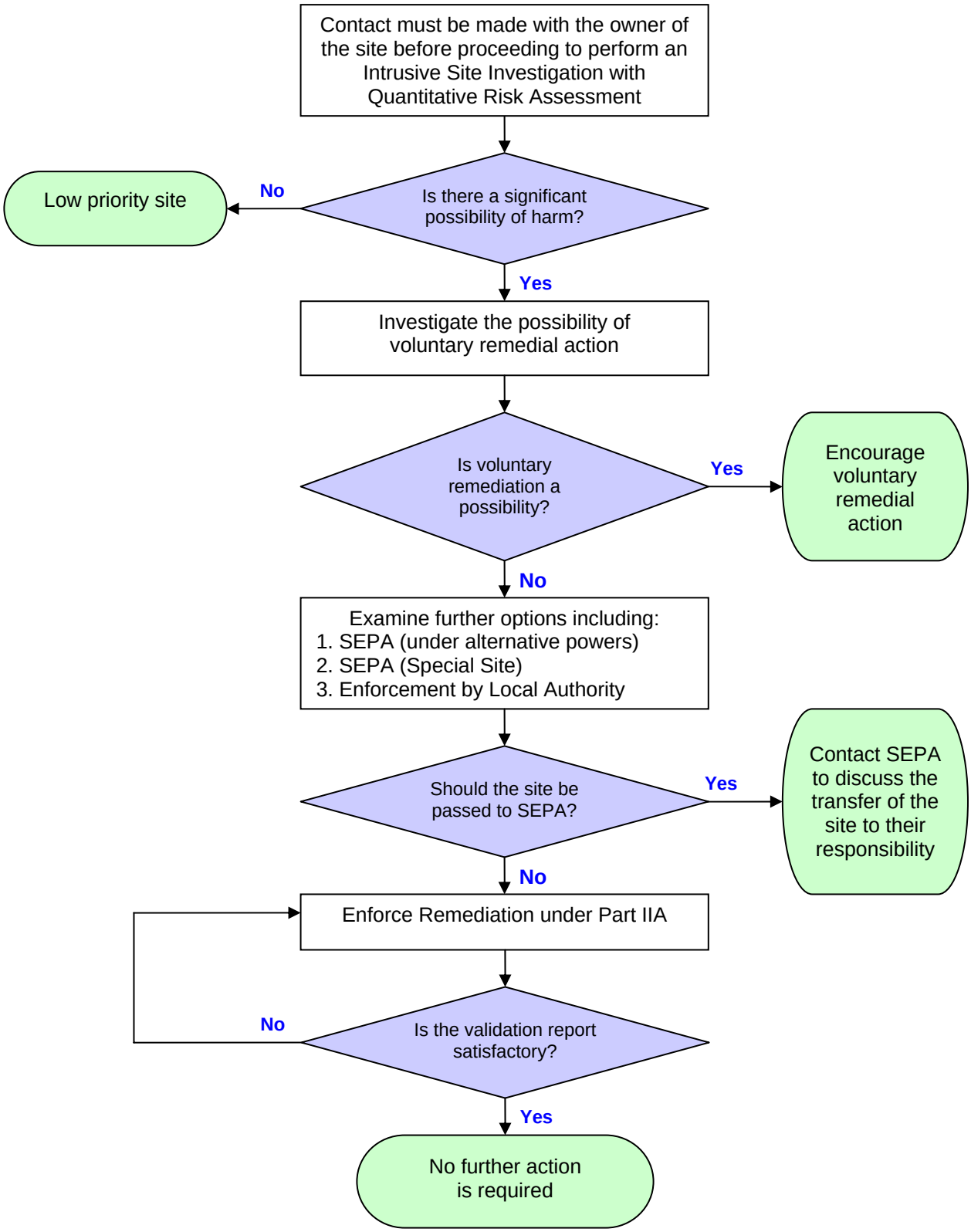
APPENDIX 3 ENFORCEMENT UNDER PART IIA



APPENDIX 4 LIABILITY UNDER PART IIA



APPENDIX 5 IDENTIFICATION PROCEDURE



These charts are provided for guidance only and are not intended to be legally comprehensive.

APPENDIX 6 GLOSSARY OF TERMS

Term	Definition
Brownfield Site	These are abandoned, idle or under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination. Given the restrictive definition of Part IIA contaminated land, it is anticipated that a small proportion of brownfield sites will meet the legal definition of contaminated land.
Conceptual Site Model (CSM)	The Conceptual Site Model is a representation of the environmental system showing the biological, physical and chemical processes that determine the transport of contaminants from sources through various pathways to receptors.
Contaminated Land Exposure Assessment (CLEA)	The Contaminated Land Exposure Assessment is a methodology for carrying out risk assessment and is used to derive guideline values for contaminants.
Contaminated Land: Part IIA	This is defined as "any land that 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 the land, that: (a) significant harm is being caused or there is a significant possibility of such harm being caused; or (b) pollution of controlled waters is being, or is likely to be caused."
The Water Environment	Defined in WEWS Act 2003, this includes rivers, streams, canals, lakes reservoirs and underground streams, groundwater, coastal waters and territorial waters (three miles out to sea).
Ecosystem	This is a system of interacting organisms and their physical environment.
Geographical Information System (GIS)	Geographical Information Systems are a combination of spatial data (a map or co-ordinates) and a database containing relevant information about the sites listed. Fife Council's Dalmatian database is an example of a true GIS, with data being accessible in both map and table format.
Groundwater	Any water contained in underground strata, wells or boreholes.
Pathway	A pathway is one or more route(s) by which a human or natural receptor can be exposed to a contaminant source.
Pollutant Linkage	This is the proven relationship between a contaminant source, a pathway and a sensitive human or natural receptor.
Qualitative Risk Assessment	This approach is a systematic assessment of site-specific critical factors using professional judgement and expertise in addition to guidelines and standards focused on detailed source-pathway-receptor analysis.
Quantitative Risk Assessment	This approach uses chemical data and migration models, considering site-specific data along with toxicological criteria relating to the possibility of harm occurring to evaluate the risk.
Ramsar Site	A site protected under Convention on Wetlands of International Importance especially as Waterfowl Habitat. The Convention was named after a city in Iran where the meeting was held in 1971.
Receptor	Sometimes referred to as "targets", receptors refer to human health, water, ecology, crops or property that could be affected by contamination.
Remediation	Remediation is the carrying out of works to either prevent or minimise the effects of contamination. The Part IIA Regime encompasses both assessment and subsequent monitoring of the condition of land.
Source	A source is defined as a substance in, or under the ground, which has the ability to cause harm.
Special Site	Special Sites are potentially contaminated sites to be regulated by SEPA. In general, it refers to any contaminated land designated due to the presence of one or more of the following contaminants: waste acid; tar lagoons; oil refining, explosives; integrated pollution control sites; nuclear sites.

SELECTED REFERENCES

- British Standards Institute 2001 "Investigation of Potentially Contaminated Land" (BS 10175:2001)
- Environment Agency 2004 "Model Procedures for the Management of Land Contamination" (CLR 11)
- Environment Agency 2005 "Guidance on Requirements for Land Contamination Reports" (R&D 66)
- Her Majesty's Stationery Office 1990 "The Environmental Protection Act 1990" (as amended)
- Her Majesty's Stationery Office 1995 "The Environment Act 1995" (see Section 57)
- Her Majesty's Stationery Office 2003 "Water Environment and Water Services (Scotland) Act 2003"
- Her Majesty's Stationery Office 2005 "Environmental Assessment (Scotland) Act 2005"
- Her Majesty's Stationery Office 2005 "The Contaminated Land (Scotland) Regulations 2005"
- Her Majesty's Stationery Office 2007 "The Radioactive Contaminated Land (Scotland) Regulations 2005"
- Scottish Environment Protection Agency 2001 "Contaminated Land Provisions"
- Scottish Environment Protection Agency 2002 "The Future for Scotland's Waters"
- Scottish Environment Protection Agency 2009 "Water Pollution From Chemical Contaminants"
- Scottish Environment Protection Agency 2009 "Dealing With Land Contamination In Scotland"
- The Scottish Office 2000 "Planning Advice Note 33 Development of Contaminated Land" (PAN 33)
- Scottish Executive 2001 "Contaminated Land Inspection Strategies"
- Scottish Executive 2005 "Contaminated Land Statutory Guidance Ed. 2" (replaces Circular 1/2000)
- Scottish Executive 2006 "Planning Advice Note 51 Planning, Environmental Protection & Regulation" (PAN 51)
- Scottish Government 2008 "Scottish Planning Policy 3 Planning for Homes" (SPP 3)
- Scottish Government 2009 "The Scottish Soils Framework"

দূষিত জমি নিয়ে বাংলা ভাষায় কথা বলতে 08451 555599 এ নাম্বারে টেলিফোন করুন (ইউকে ল্যান্ডলাইন থেকে কলের জন্য ২থেকে ৭পি খরচ হবে, মোবাইল রেইট ভিন্ন হতে পারে)

如欲用廣東話向快富市議會提出有關土地污染問題，請打電話號碼 08451 555588（以英國電訊固定座機打電話收費每分鐘 2 至7便士，以手機打收費不等）。

Kontakt z władzami lokalnymi Fife w sprawie zanieczyszczonych terenów w języku polskim: tel. 08451 555544 (koszt połączenia 2-7p za min z brytyjskich telefonów stacjonarnych, koszty połączeń z telefonów komórkowych mogą być różne).

للتحدث الى مجلس فايف عن الأراضي الملوثة بالعربية إتصل على 08451 555577 (تكلفة المكالمات 2 إلى 7 بينس للدقيقة الواحدة من خط أرضي في المملكة المتحدة ، وأسعار المحمول قد تختلف)

فائف کونسل کے ساتھ آلودہ زمین سے متعلق اردو میں بات کرنے کے لیے 08451 555566 پر فون کریں (یو کے لینڈ لائن سے کال کے نرخ 2تا7 پینی ہیں، موبائل کے نرخ مختلف ہو سکتے ہیں۔

Information on contaminated land is available in large print, Braille, audio CD / tape and British Sign Language interpretation, on request, by calling: 08451 555500 (calls cost 2–7p per minute from a UK landline, mobile rates may vary)