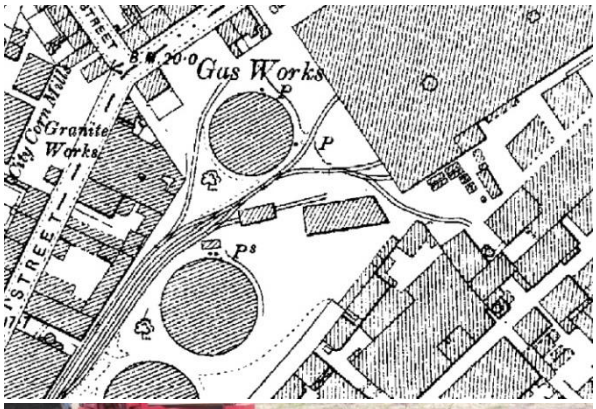
ABERDEEN
CITY COUNCIL

Dealing with the Legacy of Land Contamination



Aberdeen City Council
Contaminated Land Strategy
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Environmental Health
Communities, Housing and Infrastructure
Aberdeen City Council
Business Hub 15
3rd Floor (South) Marischal College
Broad Street, Aberdeen AB10 1AB
Tel: 01224 523800
Email: ContaminatedLand@aberdeencity.gov.uk
Web: http://www.aberdeencity.gov.uk/planning_environment/environmental/environmental_health/pol_ContamLand.asp

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This document represents Aberdeen City Council's strategy for implementing its statutory duties under Part IIA 'Contaminated Land' of the Environmental Protection Act 1990 and is an update from those produced in 2001 and 2005. It also sets out responsibilities and procedures for contaminated land as it applies to development management.

Introduction and Context

Aberdeen City, much like the rest of the UK, has a legacy of land contamination as a result of past industrial use, including historical waste disposal activities. Unfortunately, many former industrial sites were redeveloped for alternative more sensitive uses (e.g. residential) before the potential risks from land contamination were fully recognised. Where land has been contaminated it can present a risk to humans, ecosystems, water quality and property. It can also inhibit future redevelopment of land, potentially leading to long-term dereliction and increased pressure to develop 'greenfield'.

The Government's policy for addressing historical land contamination is set out in Part IIA of the Environmental Protection Act 1990. The act defines 'contaminated land' as:

> "any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that: (a) significant harm is being caused or there is a significant possibility of such harm being caused; or (b) significant pollution of the water environment is being caused or there is a significant possibility of such pollution being caused."

The act places a legal duty on Aberdeen City Council to inspect its area for 'contaminated land', and where such conditions exist, to secure appropriate remediation. The regime is based on a 'suitable for use' approach and the 'polluter pays' principle and has the following aims:

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

The planning process represents an important mechanism for addressing land contamination and bringing previously developed ('brownfield') land back into beneficial use. The Aberdeen Local Development Plan 2012 states that

“Regeneration of city centre sites and other brownfield sites throughout the existing built-up area for appropriate uses will be encouraged as an important part of the Plan’s strategy.” Planning Advice Note 33 provides guidance on the development of land affected by contamination and Environmental Health, as a statutory consultee, advises the Planning Authority in this regard.

In addition, vacant and derelict land (a good proportion of which is likely to be affected by contamination) is often located in areas of high social deprivation, many of which are priority regeneration areas. Indeed, studies have shown a link between the prevalence of vacant and derelict land and the health outcomes of local residents. “Regeneration of Scotland’s most disadvantaged areas and strengthening of local communities are key priorities for the Scottish Government” (Scottish Government, 2011). The Aberdeen Local Development Plan 2012 identifies seven priority areas for regeneration: Middlefield, Cummings Park, Northfield, Tillydrone, Woodside, Seaton and Torry.

Aberdeen – The Smarter City

This contaminated land strategy aligns with Aberdeen City Council’s vision for the City, as set out in Aberdeen – The Smarter City, in particular:

- We will embrace the distinctive pride the people of Aberdeen take in their city and work with them to enhance the sense of well-being here, building strong communities which look out for, and look after one another.
- We will challenge inequalities wherever they exist and bring our communities closer together.
- We will promote Aberdeen as a great place to live, bring up a family, do business and visit.

The strategy for contaminated land also supports the Environmental Health Service vision “to improve and protect the health, safety and welfare of those who live, work or visit the City of Aberdeen.”

Environmental Setting

The Aberdeen landscape is dominated by the wide valleys of the rivers Dee and Don which flow in an easterly direction towards the North Sea. A heavily developed urban centre lies between these two valleys and is for the most part gently undulating with higher ground generally located inland towards the west.

The bedrock geology of Aberdeen is dominated by high grade metamorphic rocks (e.g. psammite and semipelite) and plutonic igneous rocks (granite) although sedimentary rocks (conglomerates, minor sandstones and shales) underlie the

eastern part of the City along the coast. The valley of the River Dee coincides with the line of a major NE-SW trending geological fault which limits the occurrence of these sedimentary rocks in the south where metamorphic rocks extend to the sea forming rugged cliffs up to thirty metres high along the coastline.

The superficial geology is largely a product of the local bedrock geology; the last glacial period removed the majority of the older deposits and eroded the underlying bedrock resulting in the emplacement of glacial till and the deposition of fluvially-transported sand and gravel.

The tills are generally described as “slightly clayey, silty, gravelly sand with cobbles” (British Geological Survey, 2003a) and 1.5 to 4 metres thick, although on lower ground along the coast they can exceed fifteen metres. The fluvioglacial deposits commonly overlay the till (interstratification may occur in some places) with the majority of these deposits found along the valleys of the Dee and Don and at the coast where they may exceed five metres in thickness. Alluvium (similar in composition to the fluvioglacial deposits) can be found along the margins of watercourses with the most extensive deposits along the rivers Dee and Don. At the coast, beach deposits (mostly sand but also containing gravel and cobbles) are present and wind blown sand has formed a significant dune system.

With the exception of the rivers Dee and Don (the foremost of which is a Special Area of Conservation), many of the other watercourses in the City are not particularly sensitive to contamination (although still require some degree of protection) as they are in or partially in culvert and accept drainage from the road network. The watercourses of greater sensitivity and a higher priority for protection are the three EU Water Framework Directive waterbodies: Bucks Burn, Den Burn and Burn of Mundurno.

The low permeability metamorphic and igneous rock and extensive glacial tills (also low permeability) mean that the groundwater aquifers within the City are generally of low productivity and are rarely exploited for use (the fluvioglacial deposits and alluvium around the coast and along river valleys are more productive). The urban character of the area also inhibits the resource potential of the City’s groundwater aquifers, although they do provide the base-flow for local watercourses and to this end require protection from contamination. Despite the generally low productive nature of the groundwater aquifers, a number of private water supplies (domestic) are located in more rural areas to the north and west of the City and these supplies require protection also.

Land Use and Industrial History

Aberdeen is located on the North East Coast of Scotland between two major rivers – the River Don to the north and the River Dee to the south. The character of Aberdeen has been strongly influenced by its connection with the sea and its two rivers, with the River Dee estuary having developed into a thriving port and harbour. With its excellent trade links, Aberdeen has experienced significant industrial development over the years and is Scotland's third largest city.

Aberdeen's inhabitants have historically exploited the rich natural resources of the sea with the majority of industry situated around the harbour area – fishing and fish processing and ship building and ship repair were key industries. The harbour also provided access to markets for the region's agricultural and farming sector. Also located close to the harbour was the first local gasworks (erected at Poynernook in 1824) which provided lighting for the City. A chemical works was located nearby utilising waste products from the gasworks to produce ammonium sulphate fertiliser.

Rich mineral resources have also influenced the development of Aberdeen. The abundance of high quality granite beds in the area resulted in the establishment of many granite quarries during the mid 19th – 20th centuries, and made Aberdeen, at one time, the centre of the British granite industry. Indeed most of the City was constructed from granite and granite works were commonplace. Sand and gravel extraction also took place with the resultant voids, including the granite quarries, often used for landfill. Following the World Wars there was a decline in demand for granite and by the 1960s the industry had largely been lost.

Other industries which have been responsible for the growth of Aberdeen include the textile and paper industries which developed largely due to the proximity of the rivers Dee and Don with communities (e.g. Stoneywood and Peterculter) developing near to the mills to service the industry. The number of engineering works expanded in the 19th and 20th centuries to service other growing industries and a developing rail network. Most of these industries were located near the harbour and included iron and steel works, smaller brass, nickel and copper works and marine and motor engineering works.

The oil industry first developed in the late 1960s with the discovery of oilfields in the North Sea and has been the major single influence on the City in the second half of the 20th century. Indeed, oil-related jobs have replaced many of the traditional occupations with a resultant decline in other industries. The port and harbour has developed as the principal centre for marine support for the oil industry and has increasingly led to other industries being priced out of the area. The growth of the oil and gas sector and other related manufacturing industries after the Second World

War has seen the development of purpose built industrial estates: to the south of the City at Tullos/Altens, to the north at Bridge of Don and around the airport at Dyce.

Functions and Duties

Part IIA, Environmental Protection Act 1990

The Council has a legal duty under Part IIA of the Environmental Protection Act 1990 to inspect its area for land where historical contamination is causing unacceptable risks to human health or the wider environment, and where such conditions exist, to secure appropriate remediation. The Contaminated Land (Scotland) Regulations 2005 provides guidance on the interpretation and implementation of the legislation, including the identification of contaminated land, the remediation of contaminated land and the apportionment of liability.

Strategy and Procedures

The Council will carry out its Part IIA duties in accordance with The Contaminated Land (Scotland) Regulations 2005. To prevent unnecessary works and maximise the use of Council resources a phased approach to investigation will be employed. Desk Studies (Phase I Investigations) will be carried out in-house by Council staff. The scope of works for any intrusive site investigations will be decided by Council Officers with drilling contractors commissioned to undertake the physical works. Risk assessment and compilation of the associated interpretative report will also be undertaken in-house. Where necessary, specialist consultants will be employed to undertake complex detailed quantitative risk assessments e.g. modelling gas fracture flow within solid bedrock. A procurement process in-line with Council procedures will be used when commissioning external services.

Once sufficient information has been obtained to facilitate a robust assessment of the risks associated with the contamination, a decision will be taken as to whether the land meets the statutory definition of ‘contaminated land’. Where land is considered to be ‘contaminated land’, a report will be submitted to the relevant Council Committee making the case for its inclusion on the public register.

Progress and Future Priorities

Following the introduction of the Part IIA regime, initial work involved reviewing historical map extracts and other anecdotal information to identify land that has been the subject of potentially contaminative operations. Modelling software was then used to prioritise sites on the basis of risk taking account of a range of factors, including the contaminative potential of the former use(s) and the sensitivity of the current use.

While this work progressed, a number of historical landfill sites that were considered high risk were brought forward for investigation (the prioritisation list once complete confirmed the high risk status of these sites). Many of these sites were granite quarries or sand and gravel pits where the resultant voids had been filled with waste. The ‘dilute and disperse’ nature of these landfills resulted in multifaceted water pollution issues and complex systems of gas fracture flow within the granite bedrock.

Two of these former landfill sites (both municipal landfills operated by the Aberdeen City and District Council) were shown to represent a significant risk and remediation was undertaken: a gas trench was installed between Tarbothill Farm Landfill and some nearby residential properties to prevent gas migration; residential properties in proximity to Mill of Dyce Landfill were connected to mains water due to fears over the potential for contamination of their private supply.

Two former gasworks were also identified as a high priority and were subsequently investigated. Contamination within the surface soils on one of the former gasworks (now occupied by a caravan park) was considered to present a risk to residents so remedial works (contaminated soils were removed and replaced with ‘clean’ material) were undertaken.

While continuing to investigate historical landfills, the Contaminated Land team has, in recent years, also investigated a number of housing developments that were built on former industrial sites prior to the introduction of Part IIA to ensure that the standards that were employed at the time are suitably protective.

Future priorities for assessment include the remaining landfill sites (including infilled quarries and gravel/sand pits) that have not yet been investigated as well as further housing developments built on former industrial sites, particularly those sites where the previous industrial use is considered high risk.

In addition, groundwater monitoring is to be undertaken within Aberdeen’s industrial estates to assess the impact these activities are having on water quality. A monitoring network has already been established in Kirkhill Industrial Estate. The Contaminated Land team has been informed of a number of pollution incidents/issues in these estates over the years and has worked with some operators to secure voluntary remediation. However, we suspect that there are many more issues out there that are yet to be discovered or where operators have chosen not to take action to address the problem.

Planning

Land contamination is a material consideration under the planning process and the Environmental Health section, as a statutory consultee, provides advice to the Planning Authority in this respect.

Planning Advice Note (PAN) 33 provides good practice advice on the development of contaminated land. It acknowledges that “the planning system has a key part to play in addressing the problem of historical contamination” and endorses a “suitable for use” approach to ensure that the principles of sustainability are adhered to and the costs associated with bringing land back into beneficial use are commensurate with the level of risk. Although responsibility for a safe development rests with the developer, Contaminated Land staff work with developers and their advisors to help them fulfil their obligations and to provide reassurance to future stakeholders (e.g. site owners, users and neighbours) that there is no significant risk to their health or to the wider environment. Following redevelopment, a site should not be capable of being determined as ‘contaminated land’ and therefore should not require to be reassessed under the Council’s Part IIA inspection strategy, thereby reducing pressure on Council resources.

The Contaminated Land teams procedure for assessing planning applications is detailed separately but our general approach to planning consultations is set-out below. Contaminated Land staff will endeavour to assess planning submissions in a timely manner to help the Planning Authority meet their statutory obligations (timescales) for processing applications. In the vast majority of cases, contaminated land issues are addressed by means of a suspensive condition, although where the likelihood of contamination being present is less clear and/or the development is not particularly sensitive, an informative note will be recommended, requiring the applicant to contact the Council in the event that they discover unexpected contamination in the course of development. Contaminated Land staff are happy to engage with the Planning Authority, developers and their advisors at all stages of the planning process to ensure that submissions meet our requirements and delays are avoided.

Advising Other Council Services and Community Groups

The Contaminated Land team receives requests for advice from other Council services. The Environmental Planning and Sustainable Development teams have sought advice on pollution/contamination issues associated with environmental improvement projects e.g. the East Tullos Burn Environment Improvements Project (Finalist in the Collaboration Category at the Star Awards). Equally, Asset Management may approach us for advice in relation to a sale, purchase or lease. This is not an exhaustive list and other teams/groups also approach us for

information and advice where land contamination has the potential to impact upon their project, including community groups. For instance, the Contaminated Land team provided information and support (including organising and attending meetings with regulatory colleagues at the SEPA) to help the Culter Youth Football Club develop a football pitch on the former Culter Paper Tip. The Contaminated Land team will always aim to be as informative and helpful as possible when dealing with requests for advice.

Information Requests

The Council receives information requests with respect to land contamination and other associated environmental issues (private water supplies, pollution issues and nuisance complaints). These requests generally relate to property transactions (due diligence) or redevelopment proposals. In the majority of cases these requests are sent directly to Contaminated Land staff, although information requests are also received under the Environmental Information Regulations (EIR) from the Council's Freedom of Information (FOI) team on occasion.

The Environmental Information (Scotland) Regulations 2004 place a duty on the Council to hold and maintain up-to-date environmental information relevant to its functions and to make this information available on request, subject to a number of restrictions e.g. commercial confidentiality and intellectual property rights. The Contaminated Land team is committed to being open and transparent with the environmental information that it holds, whilst also recognising the sensitivity of such information. Compliance with the EIR will be maintained at all times. The Contaminated Land teams procedure for dealing with information requests is detailed separately.

Complaints and Notifications

The Council has a duty under Part IIA of the Environmental Protection Act 1990 to investigate pollution/contamination complaints relating to the soil and/or Water Environment. Complaints/notifications of this nature are received by Environmental Health from a variety of sources, both internal and external.

First, an assessment is made as to whether Part IIA is the most appropriate regulatory regime to address the complaint. A site visit may or may not be required in making such a judgement. Where other legislation is deemed more appropriate, the complaint will be passed to the relevant department/organisation and the complainant informed. For example, fly-tipping and invasive species notifications will be passed to the Council's Environmental Services team while the Scottish Environment Protection Agency will be informed of any reports relating to the illegal deposition of waste. In the interests of cooperative working and bringing together

different knowledge and skills, consideration will also be given to carrying out joint investigations where appropriate. The Contaminated Land team will endeavour to be as helpful and informative as possible even when we are not the lead authority.
Where the Contaminated Land team has a duty to investigate, we will review our in-house records for any pertinent information (including potential contamination sources) prior to undertaking a site visit to gather further information and conduct a visual/olfactory assessment. Where it is likely to assist the investigation a soil/water sample will be collected for analysis by the Aberdeen Scientific Services Laboratory. Where necessary, further action will be taken in accordance with the Council's 'Contaminated Land Part IIA Inspection Strategy'.

Communication

Although the Council is the primary regulator in relation to land contamination issues, the Scottish Environment Protection Agency (SEPA) also has a role to play. The SEPA is the lead regulator for radioactive land contamination and is the enforcing authority for Part IIA 'Contaminated Land' which is designated as a 'Special Site'. The SEPA also performs an advisory role providing site-specific guidance to Local Authorities in relation to pollution of the Water Environment.

In seeking access to land to undertake an investigation we will look to work with owners/occupiers to obtain voluntary agreement. However, where agreement is not forthcoming we may look to use the 'Powers of Entry' provisions of the Environment Act 1995.

In performing its Part IIA duties, the Contaminated Land team engages with a range of people: landowners, tenants, homeowners, community groups and others. Part IIA investigations/assessments can cause anxiety to stakeholders and members of the public as the presence of contamination has the potential to affect people's health, livelihoods and financial situation. Effective communication is important in managing any concerns and expectations. The Contaminated Land team will look to tailor our communication methods (face-to-face meetings, letter drops, poster campaigns and workshops) to suit the individual circumstances of each site. Written correspondence will always include contact details for those seeking further information.

When dealing with planning applications the Contaminated Land team are committed to working constructively with developers and their environmental advisors to agree pragmatic solutions that comply with the principles of sustainability and are commensurate with the level of risk. We will endeavour to respond timeously to any information that is submitted, providing clear and concise advice and guidance. Equally, we are happy to meet with stakeholders to explain our views and listen to their points of view.

Information Management

The Council uses a Geographical Information System (GIS) and an associated database to record contaminated land information. A GIS layer of 'potentially contaminated sites' has been developed based on historical land use. An Excel based risk prioritisation tool is linked to this geographical database with the input parameters generated from automated spatial queries programmed in ArcGIS. The Excel tool provides an estimate of the level of risk based on the contaminative potential of any former uses, the sensitivity of the current use and the environmental setting and offers a basic framework for the prioritisation of Part IIA site inspections.

The Contaminated Land team also maintains a geographical database of 'potentially contaminated sites' that have been re-developed through planning. This database facilitates the monitoring of sites as they pass through the planning process and provides a long-term auditable record of any actions taken. A geographical record of sites that have been the subject of an information request is also maintained.

Resources and Commitments

In 2016/2017 Aberdeen City Council allocated a budget of £50K for contaminated land work under Part IIA of the Environmental Protection Act 1990. The funding is used to employ drilling contractors to undertake site investigation works, to pay for laboratory analysis of soil and water samples and to commission consultants to carry out specialist risk assessments.

In terms of staff resources, the Council has two contaminated land officers (a Scientific Officer and an Authorised Officer) whose duties include:

- Provide advice to Development Management in relation to the development of potentially contaminated land
- Project manage contaminated land assessments from desk-based research and initial site investigation design through to the determination of risk and the delivery of remedial actions –
  - Research and compile Phase I Desk Studies
  - Produce a scope of works for site investigations
  - Procure drilling contractors and provide onsite supervision of site investigations
  - Carry out sampling/monitoring and schedule samples for analysis
  - Undertake qualitative and quantitative risk assessments (including modelling) and compile Phase II Site Investigation Reports
  - Procure specialist consultants to undertake complex detailed quantitative risk assessments
  - Undertake remedial options appraisals and deliver remedial actions

- Provide advice to other Council services and community groups in relation to contamination/pollution issues
- Respond to information requests and pollution complaints
- Maintain contaminated land database and management systems

References

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Aberdeen City Council, 2012b ‘Aberdeen Local Development Plan 2012’

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Scottish Government, 2000 ‘Planning Advice Note 33 – Development of Contaminated Land’

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Scottish Government, 2011 ‘Achieving a Sustainable Future – Regeneration Strategy’