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The State of Contaminated Land in Wales



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Executive summary

This report gives an overview of the contaminated land activity in Wales since Part 2A of the Environmental Protection Act (1990) was introduced on 1st July 2001 until the 31st December 2013. The report provides details of progress made in identifying and remediating *contaminated land* sites using information collected from 19 of 22 local authorities in Wales and Natural Resources Wales for *special sites* they regulate. The key findings for the local authorities which responded are as follows:

- Land contamination in Wales is mainly dealt with through the planning process (93% of the sites). Around 3% of contaminated sites are dealt with under Part 2A and a similar amount under voluntary action.
- All local authorities have produced and published their inspection strategy for *contaminated land*. Eleven local authorities published the most recent version of their strategy pre-2007 and eight published their strategy post 2007.
- The majority of the local authorities (58%) have not changed their priorities within their inspection strategy since it was first drafted. For those that changed their priorities, the main reason provided was the move towards a greater emphasis via the planning process.
- Eighteen local authorities (95%) have established a record of potentially contaminated sites
- By end of December 2013, almost half of the local authorities (47%) reported that they are behind target towards achieving the objectives of their inspection strategy.
- In total 10,130 potentially contaminated sites have been brought to the attention of the nineteen local authorities who responded.
- Between 1st July 2001 and 31st December 2013, 800 potentially contaminated sites have had a detailed inspection under the Part 2A regime. This represents 8% of the 10,130 potentially contaminated sites brought to the attention of local authorities and indicates that 9,330 sites are yet to undergo detailed inspection. The detailed inspections to date have been funded by central funding (90%) and local authority funding (10%) at a total cost of £3.87 million.
- No new determinations have been reported from December 2011 to the end of the survey period (31st December 2013).
- By the end of December 2013, 175 sites had been determined under Part 2A, including two designated *special sites*. Of the 175 contaminated land sites, 64 determinations were revoked in 2009. Local authorities reported that 97 sites out of 111 sites have been completely remediated.
- 95 sites have been fully remediated by the local authorities and the estimated cost is in the region of £3.7 million. Two further *special sites* have been fully remediated at a cost of around £1.2 million.
- Site remediation has been mainly paid for by the Welsh Government's Contaminated Land Capital Fund Scheme (71%) prior to its withdrawal in 2010/11 and also via Class A appropriate persons (22%).
- Site remediation has been mainly through excavation and off-site disposal of material and in-situ chemical treatment.



1. Introduction

Wales' environment is our most valuable asset. Cherished by the people of Wales and beyond for its wildlife, landscapes and seascapes, it is vital for the range of services it provides – food and water, energy, even the air that we breathe. Our environment is where we live, work and play: it is part of our culture and key to our economic prosperity and sense of community. We all have a responsibility to care for the Welsh environment, both now and for future generations.

Across Wales we have a strong industrial past which has left a substantial legacy of land contamination. This can be a blight on communities and may present unacceptable risks to human health and the environment. This is particularly associated with ex-industrial land and historic landfills. Natural Resources Wales is pleased to publish for the first time this report dealing with *contaminated land* in Wales.

The planning process is regarded as the main mechanism for providing the opportunity to remediate land contamination as part of the cycle of land redevelopment and regeneration, bringing land previously affected by contamination back into beneficial use. However, some potentially contaminated sites cannot be dealt with this way and may continue to pose a risk to health and/or the environment. These sites need to be dealt with by the local authority or Natural Resources Wales through Part 2A of the Environmental Protection Act 1990.

Aim of the report

The aim of this report is to present key facts and figures gathered from the local authorities and Natural Resources Wales across Wales on contaminated land sector activity. In particular it will present information on statutory duties carried out under Part 2A of the Environmental Protection Act 1990 (the *contaminated land* regime) since its introduction in Wales on 1st July 2001 until 31st December 2013.

On 11th October 2013, the Welsh Government Minister for Natural Resources and Food (now Minister for Natural Resources) requested Natural Resources Wales to prepare and publish a report on the state of *contaminated land* in accordance with section 78U of the Environmental Protection Act 1990. This report fulfils this duty and extends on a report published in 2009 by the Environment Agency covering England and Wales (Environment Agency, 2009). It forms the first Wales only report on *contaminated land* and aims to inform people and stakeholders how Part 2A has been used by regulatory authorities.

It is important to clarify at this stage that there may be instances where land is contaminated but does not meet the legal definition of Part 2A or is dealt with by other mechanisms such as the development planning process or voluntary action. Whilst the main focus of this report will be progress under Part 2A, it contains data on other relevant mechanisms/regimes dealing with land contamination.

Contaminated Land vs 'Land Contamination' or 'land affected by contamination'

Part 2A provides a legal definition of *contaminated land* for which certain criteria must be met in order to define land as *contaminated land*. Where all of these conditions are met, a local authority can then determine the site as *contaminated land* under Part 2A. However, there is a wide range of situations where land is contaminated in some way but does not meet the legal requirements. These sites are not subject to regulation under Part 2A. To make it clearer, when this report refers to contaminated land that is subject to the legal definition under Part 2A, it will be written in italics. For further information on the definition of *contaminated land* see Appendix 2.

1. Introduction

Who is the report for?

This report is primarily for anybody interested in the progress made via the Part 2A *contaminated land* regime in Wales. It also provides some information on broader land contamination issues i.e. those sites which have been brought back into beneficial use via the development planning process or those that were dealt with on a voluntary basis by landowners.

Further information on Part 2A, how it works and who is responsible for its implementation is provided in Appendix 2.

What the report covers

In 2009 the Environment Agency published a report entitled 'Dealing with contaminated land in England and Wales' (Environment Agency, 2009) which covered the period 2001 to 2007. This was the first report on Part 2A activity in Wales and collected information from local authorities in Wales and Environment Agency Wales.

This Natural Resources Wales report covers from 2001 until 31st of December 2013, thus again covering the period up until 2007 as reported in the Environment Agency (2009) report. This provides the benefit of providing a comprehensive report for Wales going back to 1st of July 2001 when Part 2A was brought into force in Wales.

How the data was collected

The information has been gathered via an online questionnaire survey which was sent to all 22 local authorities responsible for delivering Part 2A in Wales. The survey was open for a seven-week period (from Monday 27th January until Friday 14th March 2014). Overall the survey had an 86% response rate (19 responses). This was in contrast to the 2009 Environment Agency report which received responses from all 22 local authorities in Wales.

The local authorities were asked to provide data relating to site inspection, site determination and remediation as well as on the mechanisms used for remediation and who was liable to pay for remediation. Any site information relating to the period after 31st December 2013 has been excluded from this report. Natural Resources Wales also provided data in relation to the sites that we regulate.

Natural Resources Wales would like to thank local authorities that supplied information for this report and hope that readers find it a useful record of the activities and progress to date.

The data collection method is detailed further in Appendix 1.



1. Introduction

What is Part 2A?

Part 2A of the Environmental Protection Act 1990 is a piece of primary legislation introduced to deal with the historic legacy of *contaminated land*. It was inserted into the Environmental Protection Act (1990) by section 57 of the Environment Act (1995) and later came into force in Wales on the 1st of July 2001. It places a statutory duty, on local authorities (as principle regulators), to inspect their areas in order to identify *contaminated land*. This is done in accordance with the local authorities published inspection strategy.

Part 2A 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 controlled waters is being caused, or there is a significant possibility of such pollution being caused*

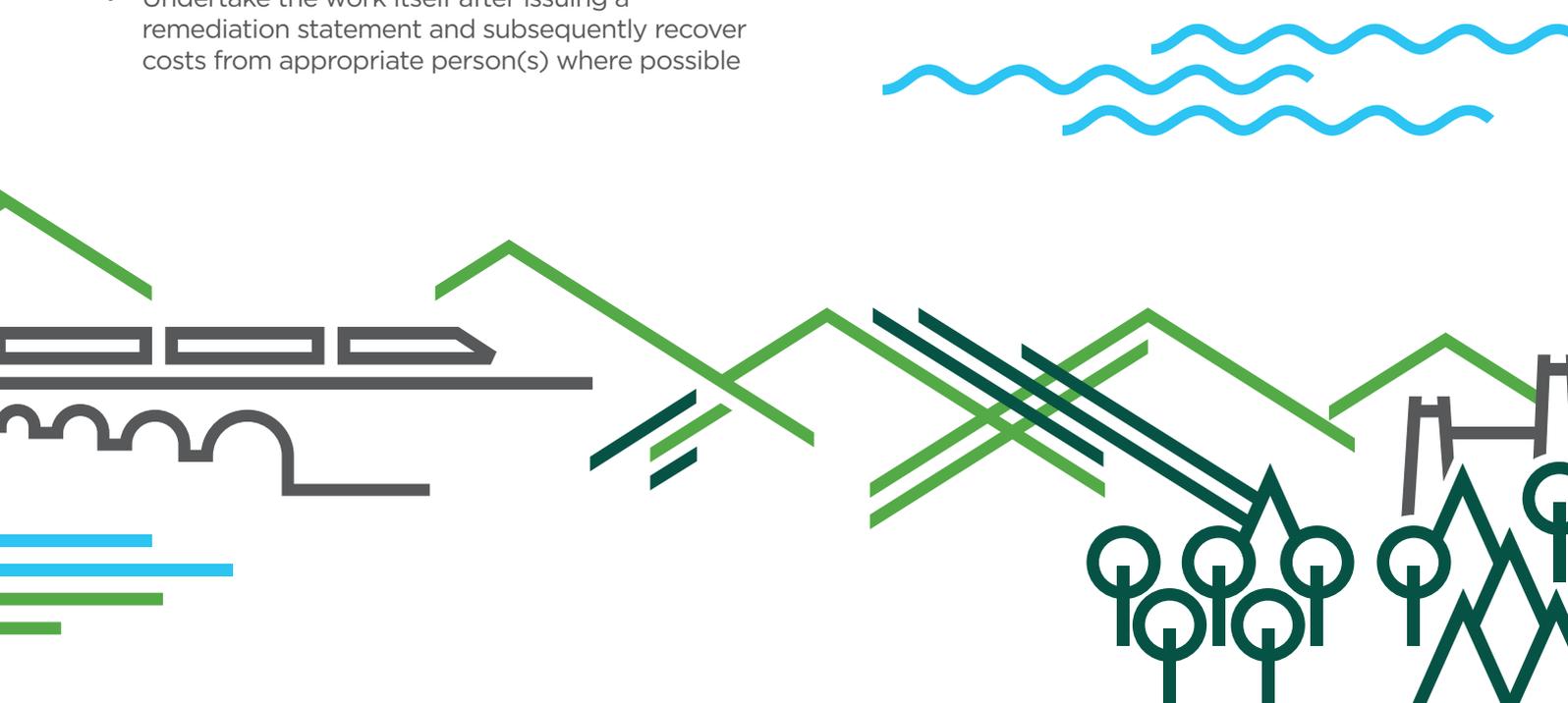
Where land is determined as *contaminated land*, local authorities will need to ensure it is remediated to an acceptable standard by the following mechanisms:

- Agreeing remediation with the appropriate person(s) who will issue a remediation statement
- Serve a remediation notice on the appropriate person(s) outlining what is required of them
- Undertake the work itself after issuing a remediation statement and subsequently recover costs from appropriate person(s) where possible

In situations where it is unreasonable to remediate contaminated land, a remediation declaration may be issued by the local authority. Details of the determination of *contaminated land* and subsequent remediation are recorded on a public register.

In certain circumstances contaminated land may be designated as a *special site*. In this situation the role and responsibility of the local authority as lead regulator for Part 2A is transferred to Natural Resources Wales.

More information on Part 2A and special sites can be found in Appendix 2.



1. Introduction

History of Land Contamination in Wales

Wales in the mid 18th century was still a predominately rural country with an economy largely based on agriculture. However, it was soon to undergo massive change. By the late 18th century, Wales had become at the forefront of the industrial revolution and a wide range of industries had developed including metal works, potteries and the mining of coal, lead and copper. Additionally factories began to replace domestic production in certain industries.

In the first half of the 19th Century, developments in the South East in particular became significant on a global scale. The ironworks of Merthyr Tydfil gave rise to Wales' first industrial town and by 1830 Monmouthshire and East Glamorgan were producing half the iron exported by Britain. The linking of all the main valleys of the southern coalfield to ports via canals had also been completed. This was later supplemented by the Taff Vale railway which linked Merthyr Tydfil to a new masonry dock at Cardiff in 1841 enabling Wales to become a major global exporter of coal as well as iron.

The surge in population which accompanied the increase in industrialisation in Wales also led to the expansion of towns and the associated services, such as town gasworks, which along with primary industries, gave rise to contamination.

Post-industrial revolution industry in Wales diversified further to include manufacturing, chemical works, steel works and refineries amongst others. All of which had the potential to give rise to contamination.

The issue of waste was also a common problem for all of the evolving industries and in an unregulated environment it was common practice to dispose of waste by tipping on land. This was not necessarily carried out on or close to the site of production. Materials, chemicals and fuels were historically poorly controlled and this led to spills to land. Additionally a lack of understanding as to what would now be considered environmentally sensitive in terms of location meant that industry and waste was located without consideration.

Prior to 2001 and the introduction of the contaminated land regime in Wales, there was no mechanism to deal with the historic land contamination at sites with low redevelopment potential. This report provides details of how Part 2A has been used to deal with our historical industrial legacy. Looking forward, today's modern environmental permitting requirements provide regulation of industry in order to reduce the creation of new land contamination.

Table 1: Examples of historical industry types and typical contaminants*

Industry	Typical contaminants associated
Gasworks	polycyclic aromatic hydrocarbons (PAHs) cyanides phenols
Metalworks	metals PAHs fuels and oils cyanides
Oil refining and bulk storage	hydrocarbons such as aviation, kerosene, diesel, petroleum etc. organo-lead compounds
Textile and dye works	metals chlorinated and non-chlorinated solvents pesticides

* This list of contaminants is not exhaustive.
Source - Department of the Environment (1995)

2. Local Authorities and Land Contamination

In order to gain an understanding of the level of resource and experience within local authorities in Wales, respondents were first asked a series of questions about themselves, their department and how they deal with land contamination issues.

In terms of resources, 12 local authorities (63%) reported having between 0 and 1 FTE (full time equivalent) officer available for land contamination advice. An additional three local authorities reported having between 1 and 2 FTE and three further local authorities had <2 FTE responsible for land contamination work. Across all 19 local authorities reporting, there is a total of 24.6 FTE officer resource directly responsible for land contamination work. Details on how this is split between full time/part-time/job share were not provided.

It was found that 68% of the 19 respondents had eight or more years of experience in their current local authority, suggesting a good degree of experience amongst contaminated land officers. Additionally this suggests that the majority of officers are likely to have developed a considerable amount of local area knowledge, having remained in their current role for a period of several years. It also suggests that the participants were sufficiently experienced to respond to the survey.

In terms of wider experience within local authorities, the survey identified that of the 55 local authority officers (with some responsibility for land contamination work) reported, 95% had more than one year's experience and 58% fell into the highest experience category of '>8 years'. Again, this indicates that there is a good level of experience with local authorities in Wales for dealing with land contamination.

Qualifications, professional body membership, networks and CPD

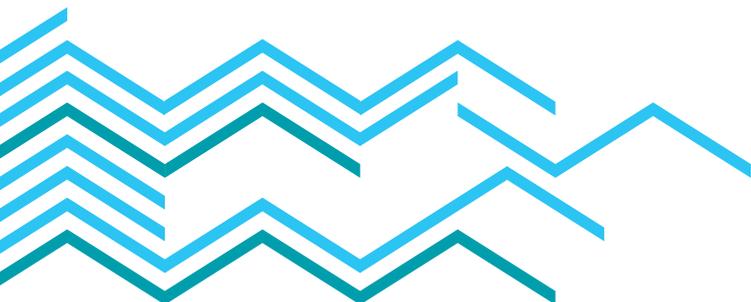
The level of qualifications across the land contamination community within local authorities is generally high. From 16 responding local authorities there were 24 Bachelors and 8 Masters degrees reported that were primarily Environmental Health or science based.

In terms of membership of professional bodies, data was reported for 29 officers with all 19 local authorities responding. The most common membership was with the Chartered Institute of Environmental Health (CIEH) which had 25 officers (96%) as confirmed members. There was also one officer reporting membership for each of the following:

- Institute of Environmental Management and Assessment (IEMA),
- Institute of Environmental Sciences (IES),
- Royal Society of Chemistry,
- Institution of Occupational Safety and Health (IOSH),
- Fellow of The Geological Society.

*note that the number of professional memberships is greater than the number of officers reported for, which indicates that some officers were members of more than one body.

Training represents an important part of developing experience within the profession. The respondents were asked, on average, how many CPD (Continuing Professional Development) training events officers within their local authority attended each year. The results as presented in table 2 show that broadly, professional development is well addressed in Wales with 77% of officers responsible for land contamination work attending at least one training event per year.



2. Local Authorities and Land Contamination

Networking between officers represent an important part of knowledge exchange and shared best practice.

The survey found that 40 officers (representing all 19 responding local authorities) attended a regional Contaminated Land Working Group. The most frequently cited groups were: 'South East

Wales Contaminated Land Working Group', 'South West Wales Regional Contaminated Land Group' and 'North Wales Contaminated Land/Pollution Working Group'. There was also reference to the use of online sources of information exchange such as 'Knowledge Hub - Wales Contaminated Land Group', and 'JISC Mail Contaminated Land Email List'.

Table 2: Number of CPD events attended

Average no. of CPD events per year	Total Officers attending CPD events	%
0 CPD events	12	23
1-2 CPD Events	30	58
3+ CPD Events	11	19
Total	52	100

In relation to resources for dealing with land contamination, the respondents were asked if their local authority had lost any staff resource since April 2007. In total 53% reported that they had lost officer resource whilst 47% had not (Table 3).

Of those who had lost resources, nine stated that they had lost between 0.2 and 1 FTE and one stated they had lost 3 FTE. A total of 8.35 FTE officer resources have been lost within Wales.

Table 3: Officer resource lost since April 2007

FTE lost for those LAs who have lost officer resources	Number of local authorities
0	9
0.1 - 1	9
1.1 - 2	0
2.1 - 3	1
3.1 - 4	0

2. Local Authorities and Land Contamination

Records keeping

Maintaining a good record of land contamination reports received by local authorities ensures that any subsequent issues can be dealt with efficiently.

Records keeping was found to be conservative across local authorities in Wales. The respondents

were asked how long their local authority retains land contamination reports it receives. Broadly all local authorities retain a copy of land contamination reports for over eight years. Only one local authority was found to retain reports for a shorter time period in relation to voluntary action.

Mechanisms for dealing with contamination

Where land contamination has occurred and has been identified, there are a number of ways in which it can be dealt with including:

- Voluntary: site owners, those responsible for the site or polluters voluntarily dealing with existing land contamination;
- Planning: using the planning process to remediate existing contamination by redeveloping contaminated sites
- Part 2A: regulatory action by a local authority or Natural Resources Wales

Voluntary action by those people responsible for contaminating the land is often seen as the preferential mechanism as it ensures that the polluter pays for remediation. Similarly, development of land through the planning process means that the cost of dealing with land contamination is born by those likely to benefit from the redevelopment. Taking regulatory action is usually a last resort and can mean that the taxpayer has to bear some of the cost.

Local authorities provided estimates of the proportion of sites that have been dealt with using either Part 2A, voluntary action or the planning process (Table 4). Overall, 93% of sites affected by contamination in Wales were reported to have been dealt with via the planning system

with voluntary action and Part 2A accounting for around 3% each. It is also worth noting that four sites were dealt with through other mechanisms including regeneration projects and the Environmental Damages Regulations 2009.

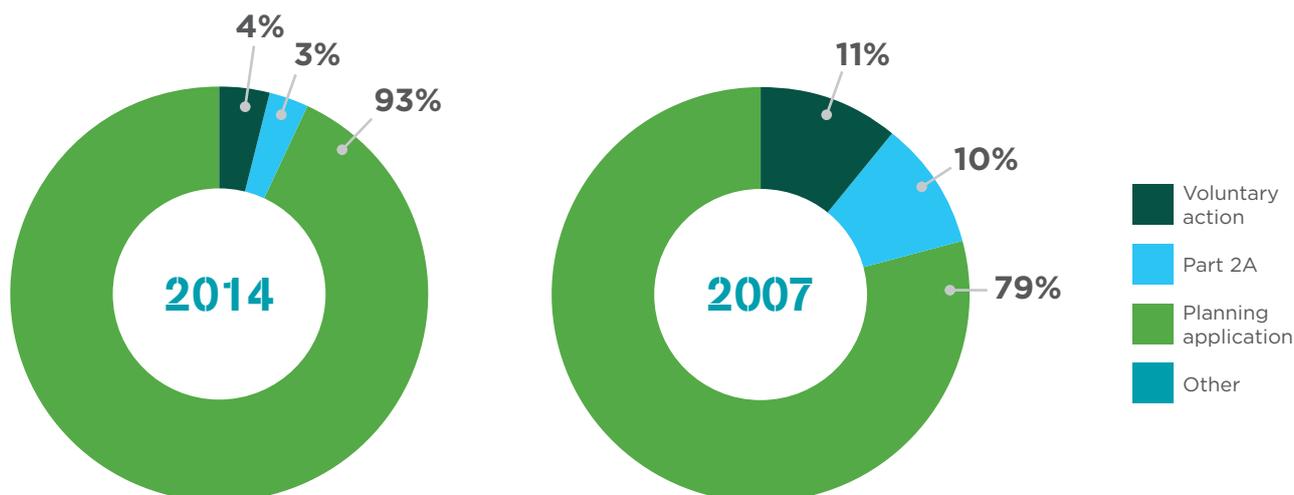
Table 4: Number of estimated sites dealt with through the following regimes between 1st July 2001 and 31st December 2013.

	Number of sites
Voluntary action	209
Part 2A	203
Planning application	5506
Other	4
Total	5922



2. Local Authorities and Land Contamination

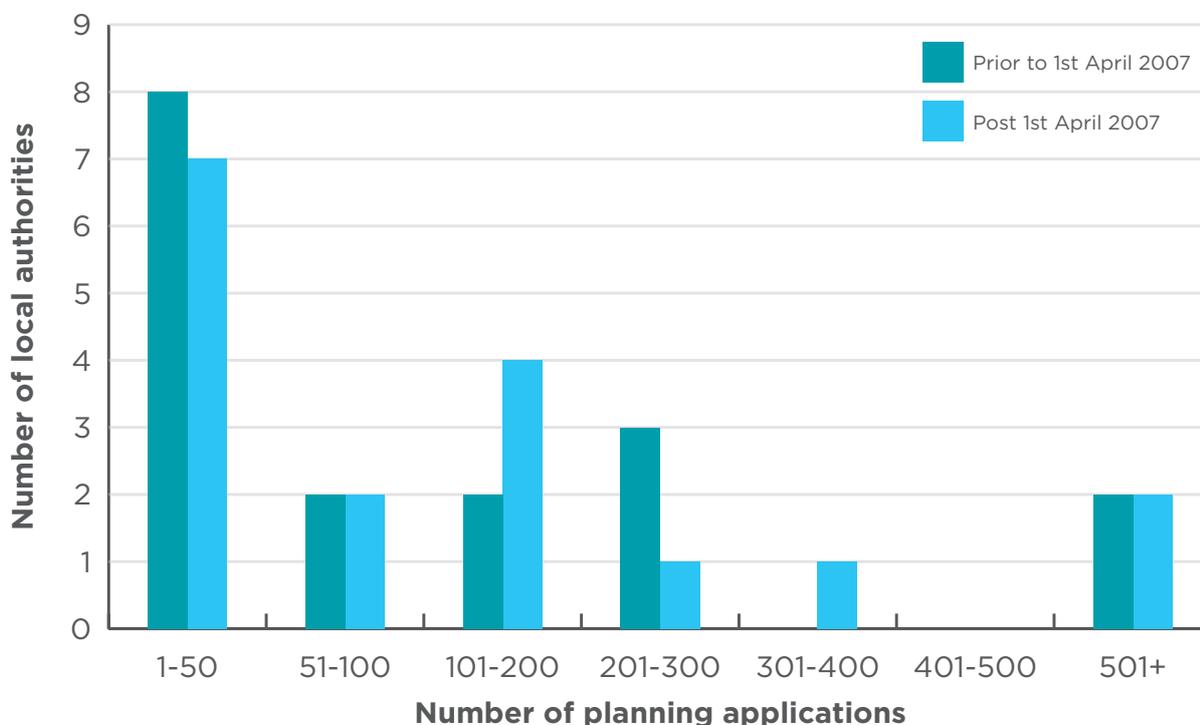
Figure 1: Estimated percentages (by year given) of identified sites as being affected by contamination that has been dealt with through different activities/mechanisms



As established in the earlier report published by the Environment Agency(2009), the planning process is the principal mechanism for dealing with land contamination in Wales. Since being asked to provide an estimate in 2007 (forming the basis for the 2009 report) the percentage given for sites dealt with via planning has increased by 14% (Figure 1).

In order to explore the planning process specifically, the local authorities were asked to provide an estimate of the amount planning applications they received (where land contamination was a potential issue) both prior to and post 1st of April 2007. The results are shown in Figure 2.

Figure 2: Typical number of planning applications per year where land contamination advice has been provided



The responses show that three local authorities reported an increase and one local authority reported a decrease in the number of planning applications received post April 2007. All other local authorities reported no change.

This suggests that a contributing factor to the changes seen in Figure 1 (between 2007 and 2014) is not just due to a marginal increase in planning, but also a reduction in the number of sites dealt via part 2A and voluntary action.

3. Part 2A Inspections

Under Part 2A local authorities have a duty to publish a contaminated land inspection strategy. The survey asked local authorities when their current strategy was published and it was found that 58% of local authorities published their strategy pre-2007 and 42% published post 2007. The most frequently recorded year of publication was 2002 and the most recent was 2013.

Respondents were also asked whether their local authority had changed the priorities within its inspection strategy since the initial publication. In total there were eleven local authorities (58%) who had not changed their priorities as opposed to eight local authorities (42%) who had. Those

that had changed their inspection strategy noted reasons such as funding restrictions and a move towards the planning process as a mechanism to deal with potentially contaminated land (Table 6 below).

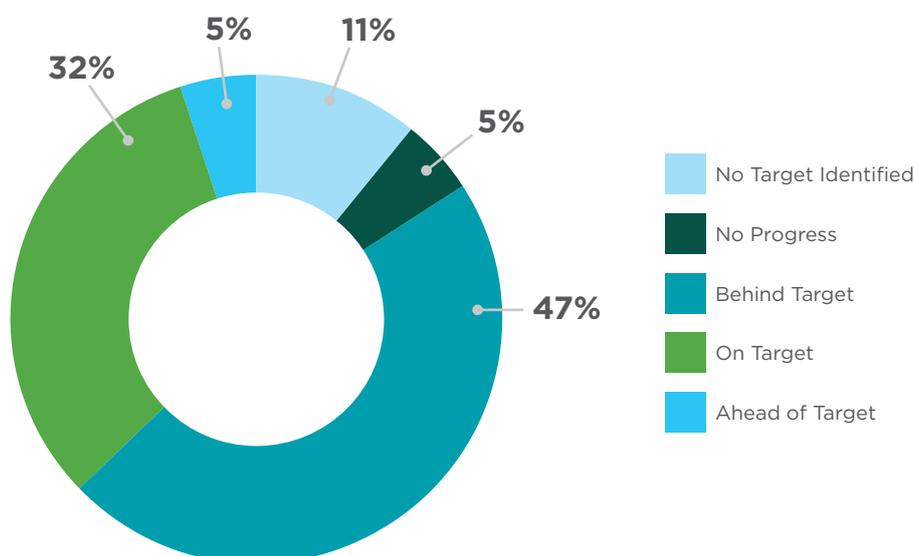
Table 6: Details on why inspection priorities have changed for eight local authorities who had changed their inspection strategy.

Reason for change of priorities	Number of times the issue was cited
Moved towards a greater emphasis on planning	4
Lack of funding	2
New risk analysis work was undertaken, either due to new software, errors in previous assessments, or new prioritisation methods	3
Occasional complaint	1

The progress made by local authorities towards achieving the objectives in their current strategy is shown in figure 3. The findings were that 5% were ahead of target (one local authority), 32% on target (six local authorities), and 47% are behind

targets (nine local authorities). One local authority reported that no progress was made (5%), and two local authorities have not identified any targets.

Figure 3: Progress towards achieving inspection strategy’s objectives



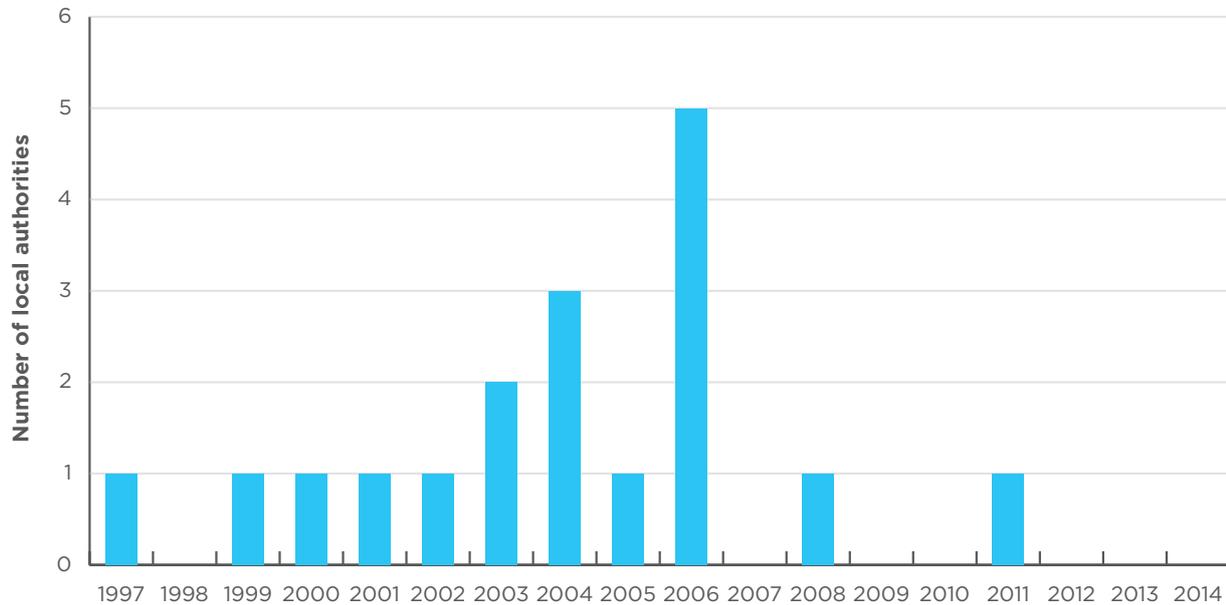
3. Part 2A Inspections

In terms of when they planned to review their inspection strategy, 69% of responding local authorities intended to revise their strategy within the next three years.

In order to implement their inspection strategies,

local authorities may prioritise areas of potentially contaminated land. The majority of respondents (95%) reported that they have established a record of potentially contaminated land. However, as seen in figure 4, the majority of these records are now over eight years old.

Figure 4: Number of local Authorities per year that established a record of potentially contaminated sites



For those local authorities who had produced a record, 44% reported an increase in the number of sites since its production. Conversely, 39% reported 'no change' and 17% had seen a decrease in the number of sites on their record.

Sites that are potentially *contaminated land* are brought to the attention of local authorities by a number of mechanisms. It was reported that 386 sites were brought to the attention of local authorities through environmental searches, and a further 9325 through the Part 2A inspection process. Furthermore, property owners have brought forward 155 sites and planning applications resulted in 218 sites. Finally, 46 sites were also reported by two local authorities but no

details of how they were identified were provided. This represents a total of 10,130 sites.

A total of 800 potential *contaminated land* sites were reported to have had a detailed inspection under Part 2A between 1st July 2001 and 31st December 2013. This represents 8% (800/10130) of the potential *contaminated land* sites brought to the attention of the local authorities. Table 7 outlines how many sites each local authority considers to still need detailed inspection or assessment. Based on the ranges provided, the 17 responding local authorities suggested that as a minimum there were 414 priority sites that still require detailed inspection.

Table 7: Number of potentially contaminated sites that still require detailed inspection

Number of potentially contaminated sites	Number of local authorities
1-10	4
10-50	6
50+	7
Total	17

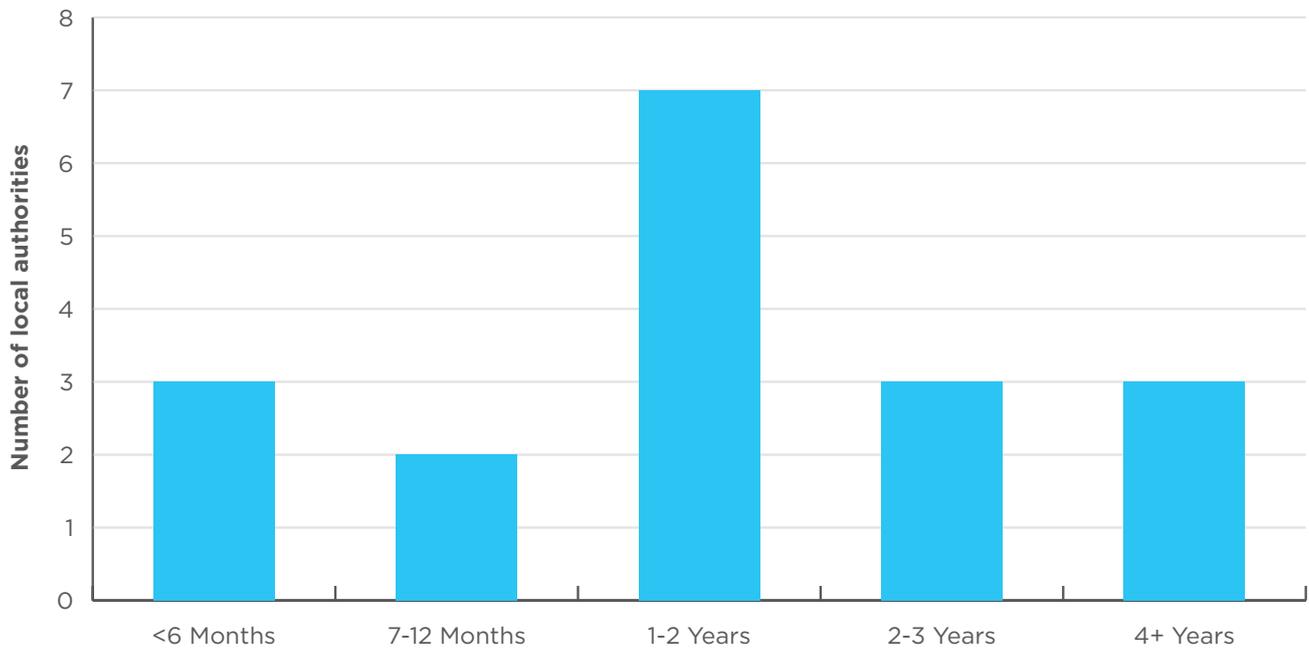
3. Part 2A Inspections

Timescales

In order to understand the timescales involved in inspecting a site, respondents were asked to state how long a typical inspection takes to be concluded at a potential *contaminated land* site under Part 2A. This was intended to reflect the time taken from first identifying a site as requiring detailed inspection through to the point at which no further information was required (whether

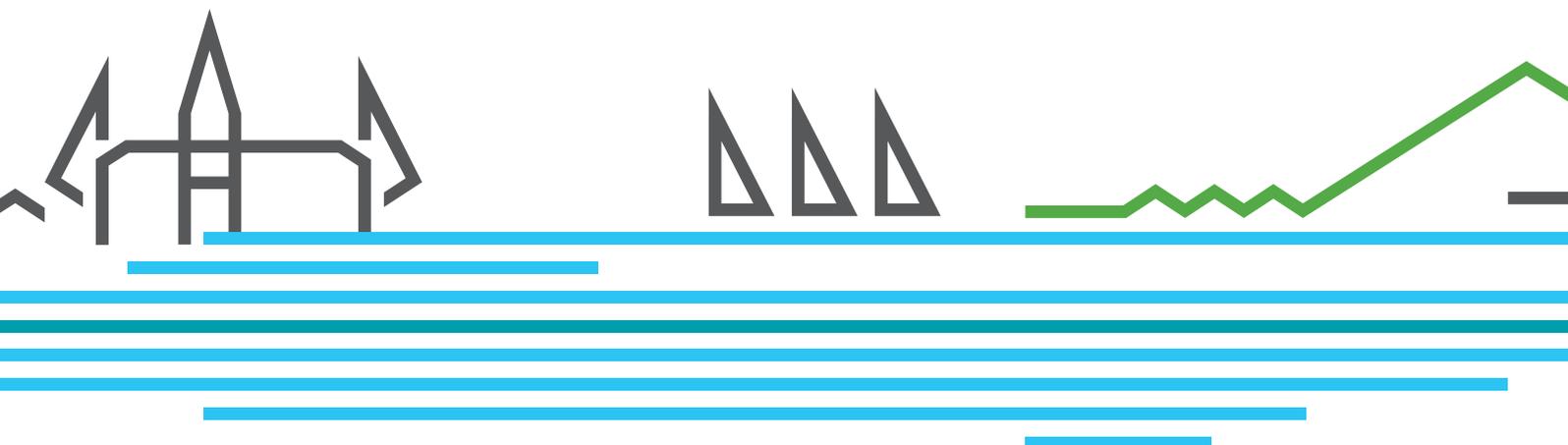
ultimately resulting in the site being determined as *contaminated land* or not). The time taken varied widely across local authorities; with the most common response being between 1-2 years (Figure 5). The variation observed reflects the complexities that can be involved in site inspection and may also indicate differences in resource availability.

Figure 5: Typical length of an inspection



Completing the inspection of all sites that have been identified for further inspection is a long term aim for the majority of local authorities. However, 89% of local authorities said that they did not know what the anticipated time period

was to complete this. Of the two (11%) that did offer a timescale, one respondent indicated that the process is largely complete and the other stated that “there is no specified time period due to lack of funding”.



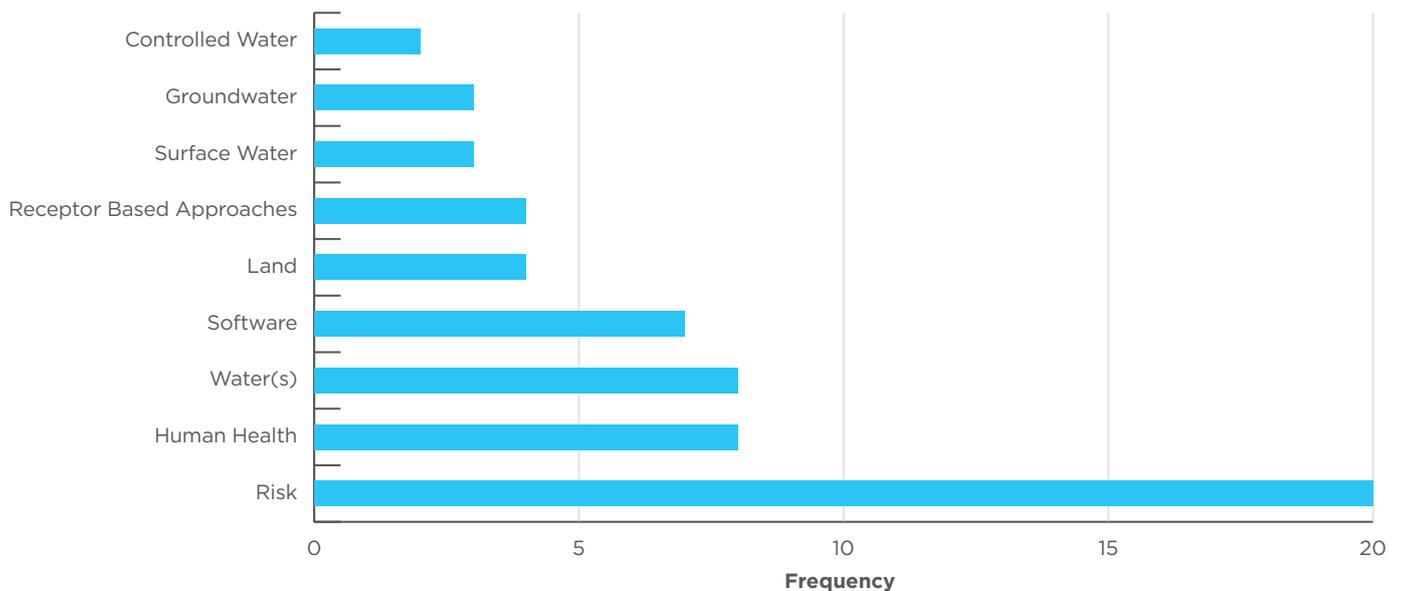
3. Part 2A Inspections

Prioritisation

Within a contaminated land inspection strategy the prioritisation of sites for further inspection follows a methodology designed by each individual local authority. In order to further understand how local authorities undertake this process they were asked to detail what drivers/tools they utilise. A word frequency analysis

(Figure 6) highlights the most used words were “risk”, “human health” and “water(s)”. It is also worth noting that “software” was mentioned four times (specifically “geoenvironmental software” in three instances), suggesting that some local authorities have invested in decision support systems that they utilise to support their analysis.

Figure 6: Prioritisation of sites



The survey also found that 74% of local authorities had prioritised the remaining (as yet not dealt with) potential *contaminated land* sites for further inspection.



3. Part 2A Inspections

Cost of inspection

Details were provided on the costs incurred by local authorities in carrying out detailed inspections. The total figure across the 19 local

authorities who responded was just under £3.87 million (Table 8)

Table 8: Total cost of the detailed inspections (excluding officer costs).

Cost (£k)	Number of local authorities	Total cost
0-100	6	
101-200	1	
201-300	2	
301-400	0	£3,866,549
401-500	1	
500+	3	
Don't Know	6	-
Total	19	-

In terms of funding this work, by far the most common mechanism was that of central funding with only a minority of detailed inspections being funded by local authorities themselves (Table

9). One local authority indicated that detailed inspection had been fully paid by third party funding but no cost estimate was provided.

Table 9: Source of funding used for detailed inspection

Mechanism used	%	Cost
LA funding	10	£380,956
Central funding	90	£3,485,593
Third party funding*	<1	-
Total		£3,866,549

* no cost details provided

Whilst data was not provided on a year by year basis, it should be noted that the Welsh Government's Contaminated Land Capital Fund

was withdrawn on 1st April 2011, which effectively meant that central funding was not available after that date.

4. Determining Contaminated Land

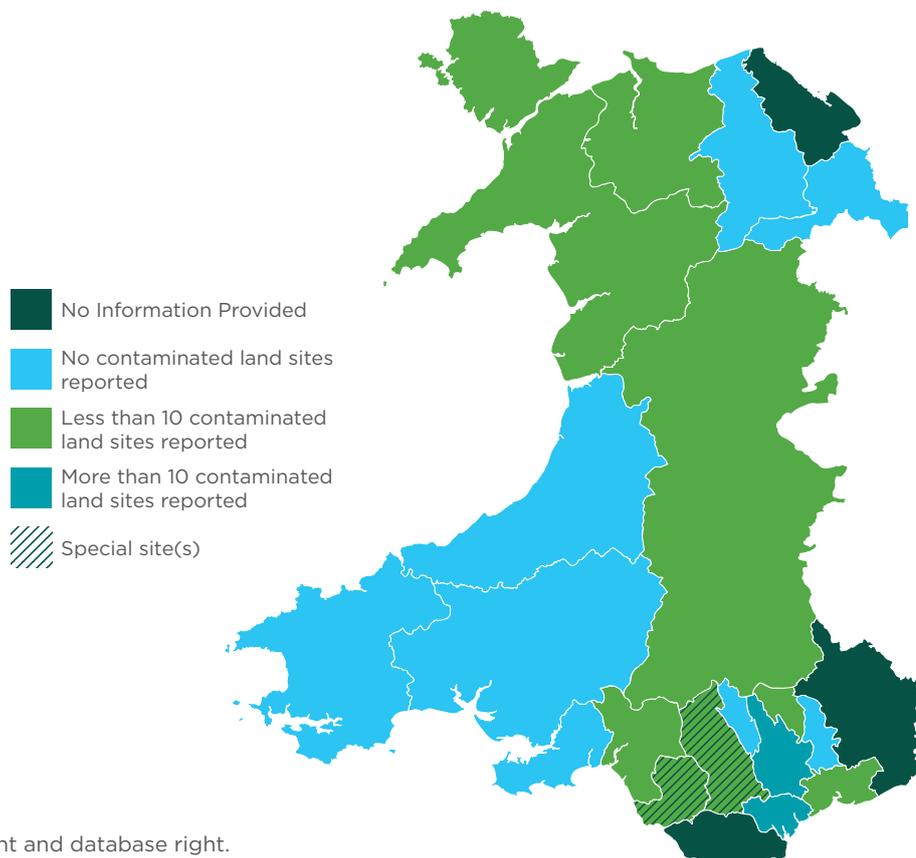
Whilst the legislation that underpins the Part 2A *contaminated land* regime has not changed since its introduction, a revised statutory guidance document published by Welsh Government (2012) has amended aspects of the process of determining *contaminated land*. As well as being shorter and simpler to understand than the earlier document [Welsh Government, 2006] the new statutory guidance includes:

- a four category test to assist decisions on when land is and is not *contaminated land*;
- clarification of the status of screening levels and how to use them;
- clarification that 'normal' background levels of contamination would not be *contaminated land*;
- a requirement that there must be significant pollution of controlled waters or significant possibility of significant pollution of controlled waters in order for land to constitute *contaminated land*; and
- a requirement for a risk summary (understandable to the non-expert) to be produced as part of the determination process.

The responses from the 19 local authorities across Wales show that since 2001 a total of 175 sites were reported by 11 local authorities as *contaminated land* determined under Part 2A, of which two sites have been designated as *special sites*. The designation of *special sites* was based on risk to controlled waters for one site and risk to human health for the other. Therefore, local authorities were the enforcing authority

for a total of 173 determined sites with Natural Resources Wales regulating the two *special sites*. One local authority further mentioned that 64 determinations have now been revoked (during January 2009) as a result of the publication of subsequent guidance and through further site specific risk assessment. Therefore, the total remaining number of determined sites is 111.

Figure 7: Part 2A determinations reported by local authority



4. Determining Contaminated Land

Overall no new determinations have been reported after 2011. A yearly breakdown of these figures can be found in table 10 and table 11. It should be noted again that the data only

represents 19 local authorities and as a result the site numbers reported for Wales in the Environment Agency (2009) report may differ.

Table 10: Number of Contaminated sites determined, contaminative land used involved, properties affected and *special sites* designated on an annual basis since 2001

Year	How many sites were determined?	How many contaminative land uses were involved?	How many individual properties were affected?	How many were further designated as <i>special sites</i> ?
2001	0	0	0	0
2002	0	0	0	0
2003	6	4	8	0
2004	5	3	17	1
2005	112	3	121	1
2006	1	1	2	0
2007	1	1	0	0
2008	24	6	24	0
2009	14	2	14	0
2010	9	4	10	0
2011	3	2	3	0
2012	0	0	0	0
2013	0	0	0	0
Total	175	26	199	2



4. Determining Contaminated Land

Table 11: Number of sites determined per local authority on annual basis

Year	Local authority reporting sites	Number of sites
2003	Isle of Anglesey County Council	1
	Bridgend County Borough Council	1
	Neath Port Talbot County Borough Council	1
	Cardiff Council	3
2004	Bridgend County Borough Council	1
	Cardiff Council	1
	Conwy County Borough Council	3
2005	Cardiff Council	110
	Neath Port Talbot County Borough Council	1
	Rhondda Cynon Taf County Borough Council	1
2006	Gwynedd Council	1
2007	Conwy County Borough Council	1
2008	Blaenau Gwent County Borough Council	1
	Caerphilly County Borough Council	20
	Cardiff Council	3
2009	Blaenau Gwent County Borough Council	1
	Cardiff Council	13
2010	Blaenau Gwent County Borough Council	1
	Caerphilly County Borough Council	7
	Isle of Anglesey County Council	1
2011	Newport City Council	2
	Powys County Council	1

* 64 determinations revoked in January 2009. Therefore the total of remaining determined sites is 111

The vast majority of sites were determined based on risk to 'human health' with 172 of the determined sites falling into this category. In addition, three sites were determined based on 'controlled waters' risk. No Part 2A determinations have been made based on risk to either 'property' or 'ecological systems'.



4. Determining Contaminated Land

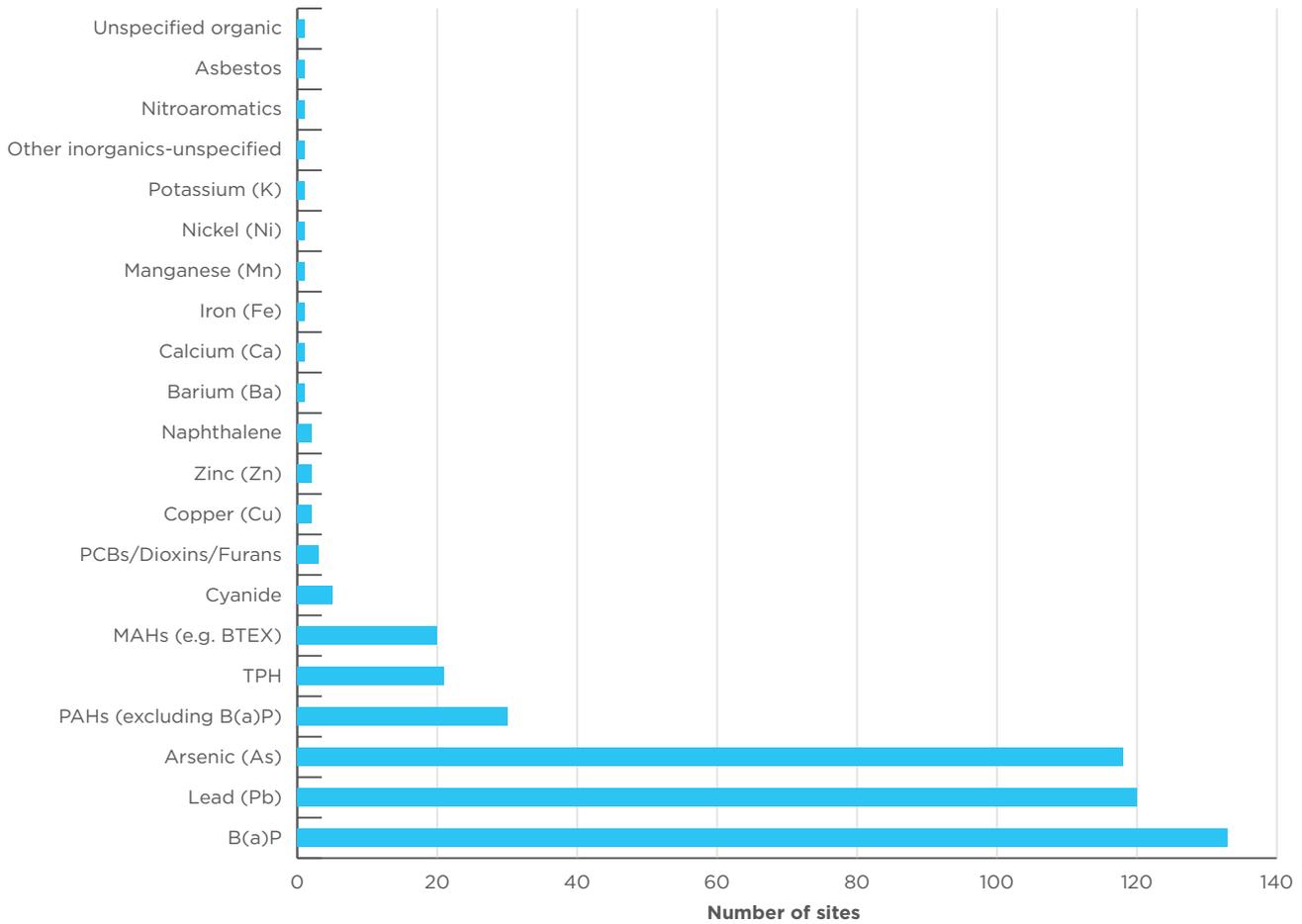
Contaminants

The local authorities who had determined *contaminated land* sites were asked which contaminants had been identified as part of a significant contaminant linkage. It is important to note that this does not mean all types of contaminants that may have been present at a site, but specifically those which have the

potential to cause harm to human health or the wider environment.

The most common contaminants were Benzo(a)pyrene, lead and arsenic, all of which were identified at over 60% of determined *contaminated land* sites (figure 8).

Figure 8: Number of sites (out of 175 reported sites) where significant linkages were formed on the basis of various contaminants.

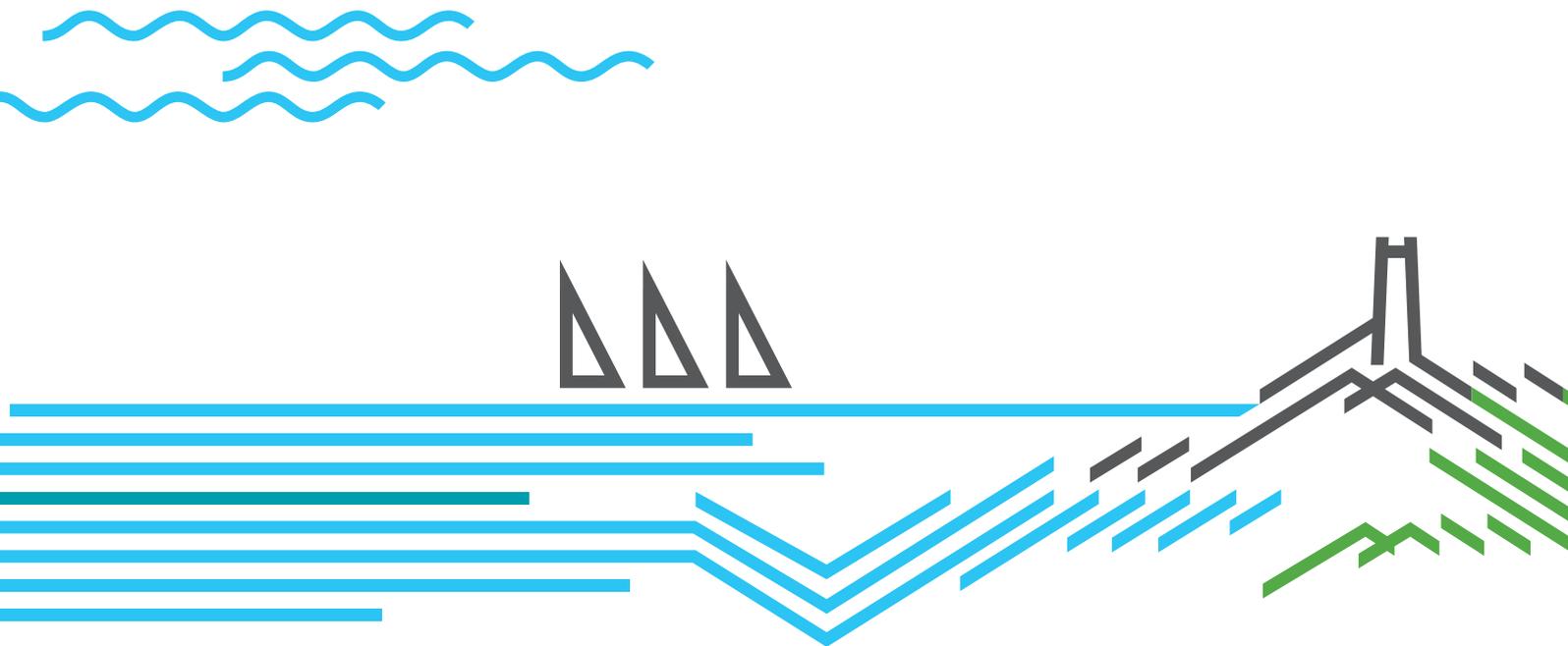
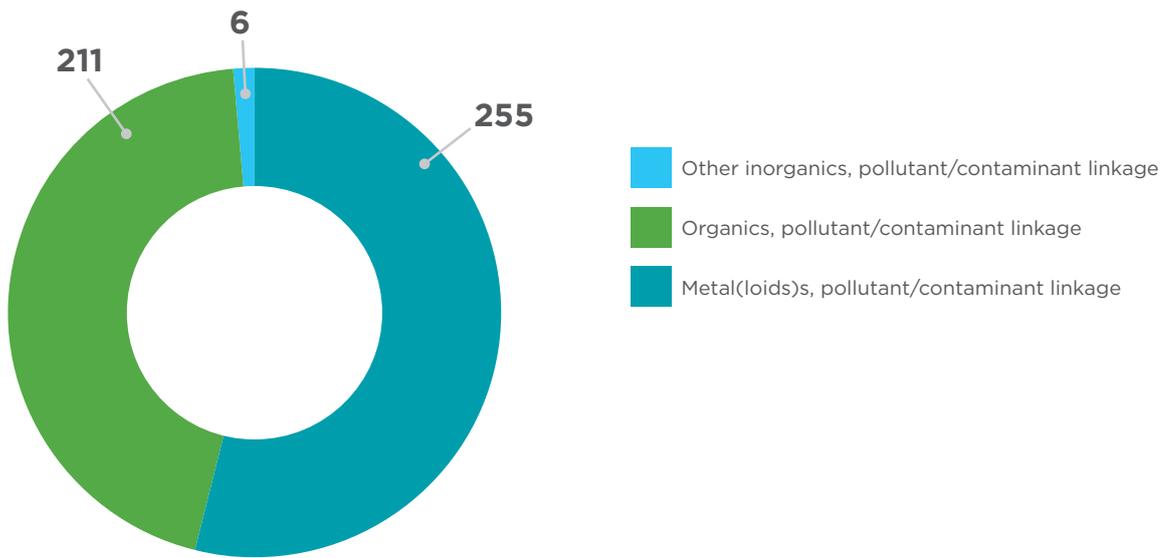


4. Determining Contaminated Land

In terms of contaminant grouping, it was found that 'metals and metalloids' were the most common category (Figure 9) with lead and arsenic making up the majority. Amongst the 'organic contaminants' category, petroleum derived products including monoaromatic hydrocarbons (MAHs), total petroleum hydrocarbons (TPH) and polycyclic aromatic

hydrocarbons (PAHs) were the most commonly reported as part of a significant contaminant linkage. Benzo(a)pyrene alone accounts for 76% of the sites on which the determination of contaminated land was based. Finally, 'other inorganics' included cyanide (five determinations) and asbestos (one determination).

Figure 9: Breakdown of proportion of significant contaminant linkages formed on the basis of contaminant categories



5. Remediation of Contaminated Land

In order to achieve the remediation of a determined *contaminated land* site, the significant contaminant linkage(s) must be broken, so that no unacceptable risks remain. Therefore, remediation will involve one or more of the following:

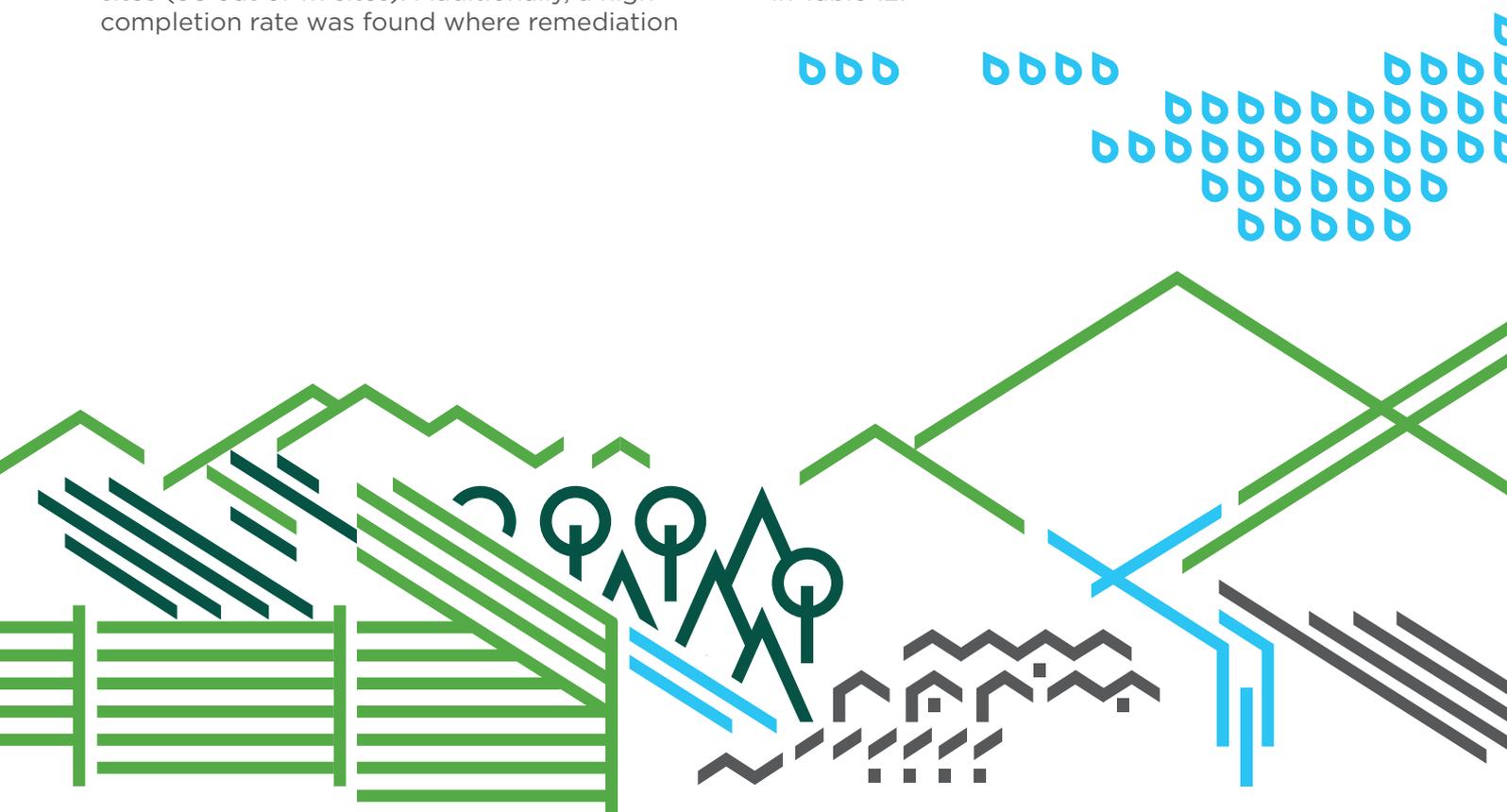
- removing or reducing the source of contamination
- removing the pathway between the contamination and the receptor
- reducing exposure to the contamination
- removing the receptor altogether.

Resultantly, under Part 2A, remediating a site does not necessarily mean the source of contamination has to be removed. For more information on Part 2A see Appendix 2.

Taking into account the 64 determinations that were revoked by one local authority, there are a total number of 111 determined *contaminated land* sites that were reported via the survey.

By the end of 2013, remediation work had commenced for the majority of determined sites (98 out of 111 sites). Additionally, a high completion rate was found where remediation

had commenced (97 out of 98 sites). The thirteen remaining sites where remediation has not yet commenced were reported by just two local authorities. Further to this, remediation of the two designated *special sites* has also been completed. The yearly breakdown of sites where remediation had commenced and been completed is provided in Table 12.

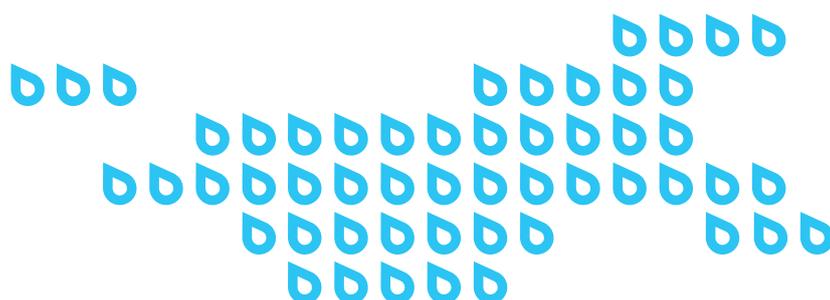


5. Remediation of Contaminated Land

Table 12: Yearly breakdown of number of sites where remediation commenced/was completed.

Year	Number of sites where remediation commenced this year	Number of sites where remediation was completed this year	Number of <i>special sites</i> where remediation commenced	Number of <i>special sites</i> where remediation was completed
2000	0	0	0	0
2001	0	0	0	0
2002	0	0	0	0
2003	2	1	0	0
2004	4	1	0	0
2005	0	3	0	0
2006	0	1	1	1
2007	1	1	0	0
2008	1	1	0	0
2009	63	0	0	0
2010	24	19	0	0
2011	3	70	1	0
2012	0	0	0	1
2013	0	0	0	0
Total	98	97	2	2

Of the 97 sites that have been remediated under Part 2A between 2001 and 2013, 93% of the remediation work was carried out by the local authority or Natural Resources Wales.



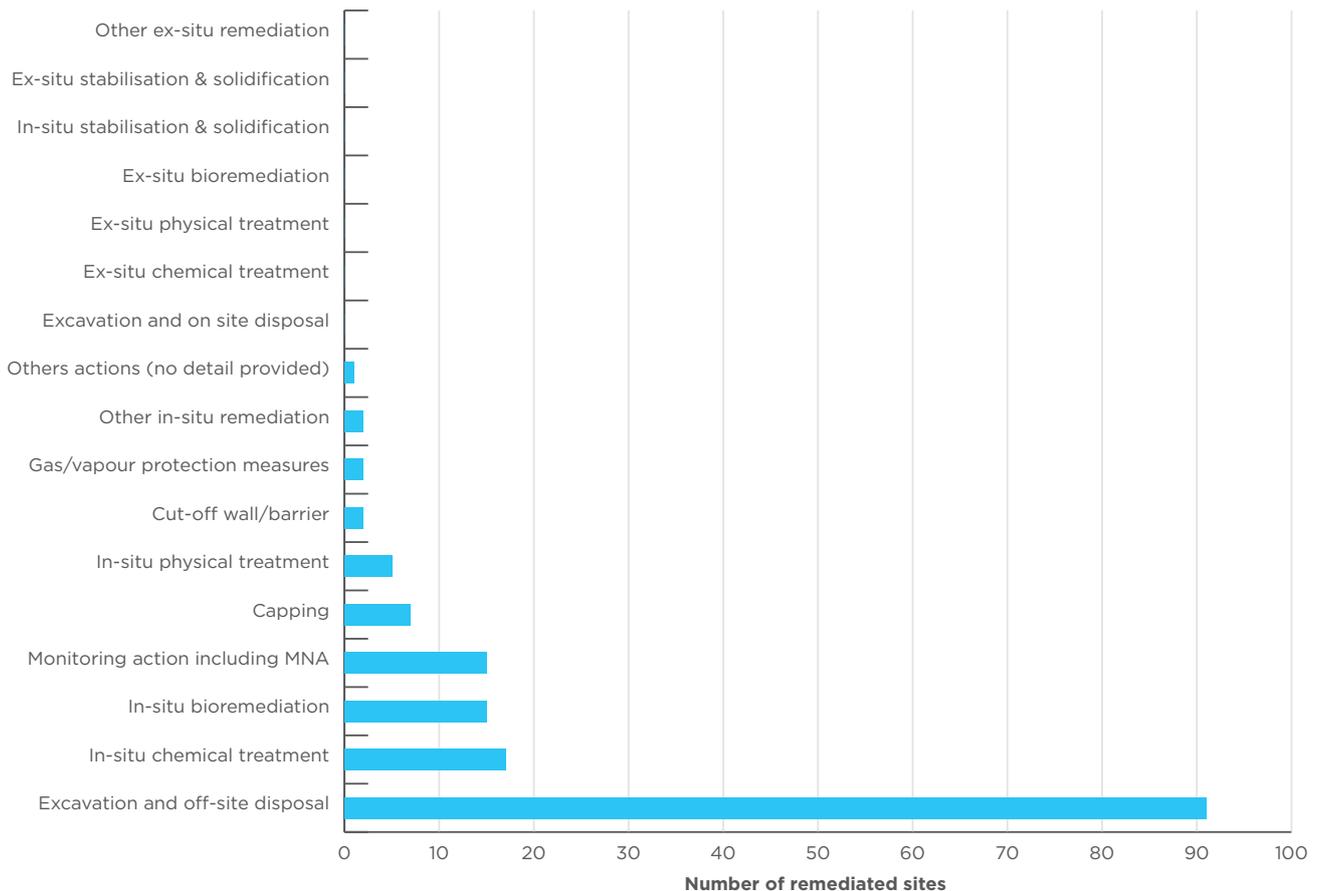
5. Remediation of Contaminated Land

Remediation approaches and techniques

Where sites have been remediated, the most commonly utilised remediation technique was excavation and off-site disposal of material (94%). Following that, 'in-situ chemical treatment' was the next most utilised technique (18%).

Both in-situ bioremediation and monitoring action (including monitored natural attenuation) were the next most often used for remediation (figure 10). Note that some sites used a combination of remedial techniques.

Figure 10: Remediation treatment methods used per number of contaminated land sites including special sites (MNA: monitored natural attenuation)



Remediation notices, statements and declarations

Since 2001, four remediation notices, twenty remediation statements (including two for *special sites*) and two remediation declarations have been issued. A yearly breakdown of the numbers is provided in Table 13. For further information on remediation notices see Appendix 2.

Furthermore it was confirmed that no appeals have been made against any remediation notices (served by the local authority) and correspondingly no prosecution for failing to comply with a remediation notice have been taken forward.

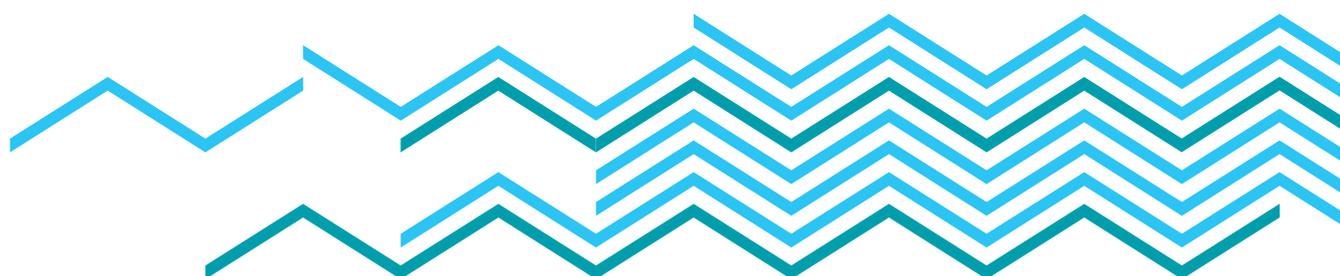


5. Remediation of Contaminated Land

Table 13: Number of remediation notices, remediation statements and remediation declarations issued by 11 local authorities across Wales

Year	Remediation notices		Remediation statements		Remediation declarations	
	<i>contaminated land sites</i>	<i>special sites</i>	<i>contaminated land sites</i>	<i>special sites</i>	<i>contaminated land sites</i>	<i>special sites</i>
2001	0	0	0	0	0	0
2002	0	0	0	0	0	0
2003	0	0	0	0	1	0
2004	1	0	0	0	0	0
2005	0	0	1	2	0	0
2006	0	0	1	0	0	0
2007	2	0	3	0	0	0
2008	0	0	1	0	0	0
2009	0	0	2	0	0	0
2010	1	0	5	0	1	0
2011	0	0	3	0	0	0
2012	0	0	2	0	0	0
2013	0	0	0	0	0	0
Total	4	0	18	2	2	0

For sites where remediation has now been completed, respondents were asked to provide an indication of the time required to complete remediation. It was found that assessment and remedial treatment actions are generally completed in less than four years while monitoring action may continue beyond five years.



5. Remediation of Contaminated Land

Cost of remediation

The total cost of the remediation for determined sites was around £4.94 million and a breakdown of these figures can be found in Table 14.

It is worthwhile noting that only 98 sites were initially reported by 11 local authorities as having remediation commenced or completed (Table

12). However, the total number of sites given by local authorities in Table 14 is 111. It is possible that remediation went on for more than one year and therefore local authorities double counted the total number of sites or there has been some confusion between sites and properties explaining the discrepancy in the data.

Table 14: Total costs of remediation per year

Year	Number of remediated sites	Total Cost (£)	Number of special sites	Total cost (£)
2000	0	-	0	-
2001	0	-	0	-
2002	0	-	0	-
2003	0	-	0	-
2004	0	-	0	-
2005	1	0	0	-
2006	0	-	1	30,200
2007	2	100,000	0	-
2008	1	100,000	0	-
2009	1	20,000	0	-
2010	32	1,398,417	0	-
2011	47	1,251,892	0	-
2012	25	491,540	1	1,200,000
2013	2	345,560	0	-
Total	111	3,707,409	2	1,230,200

6. Liability and Cost Recovery

Under Part 2A, liability for the remediation of *contaminated land* broadly follows the ‘polluter pays’ principle. Therefore, those responsible for the polluting activity will be expected to pay for remediation where possible. For more information on liability and appropriate persons see Appendix 2.

For sites that the local authorities remediated (including *special sites* remediated by Natural Resources Wales) details on the circumstances under which they were remediated are provided in Table 15.

The data shows that the local authority was the original polluter (Class A appropriate person) in 46 cases and as a Class B appropriate person in a further four cases. At 22 *contaminated land* sites the local authority also carried out the remediation following a cost recovery decision regarding hardship (in relation to the appropriate person). Remediation was undertaken on an urgent basis for only one site and there were two orphan sites where no appropriate persons

were identified or the section 78J (Environmental Protection Act, 1990) water pollution exclusion applied. With regards to the two *special sites*, a written agreement existed between the appropriate person(s) and Natural Resources Wales for one site and the second was a voluntary remediation scheme completed by the original polluter.

In relation to recovering costs from appropriate persons, local authorities were asked if they had published a cost recovery policy. It was found that 29% (5) of those who responded to this question stated they did and 65% (10) said they did not. The remaining 6% (1) answered “don’t know”.

Table 15: Number of determined sites where the following circumstances apply

Circumstance	Number of <i>contaminated land</i> sites	Number of <i>special sites</i>
Remediation undertaken on an urgent basis	1	0
A written agreement existed between the appropriate person and the Local Authority or Natural Resources Wales for <i>special sites</i>	0	1
Local Authority as polluter (Class A)	46	0
Local Authority as landowner (Class B)	4	
Local Authority following cost recovery decision regarding hardship	22	0
Local Authority as an orphan site where no appropriate persons have been identified or section 78J water pollution exclusion applies	2	0
Other	0	1

6. Liability and Cost Recovery

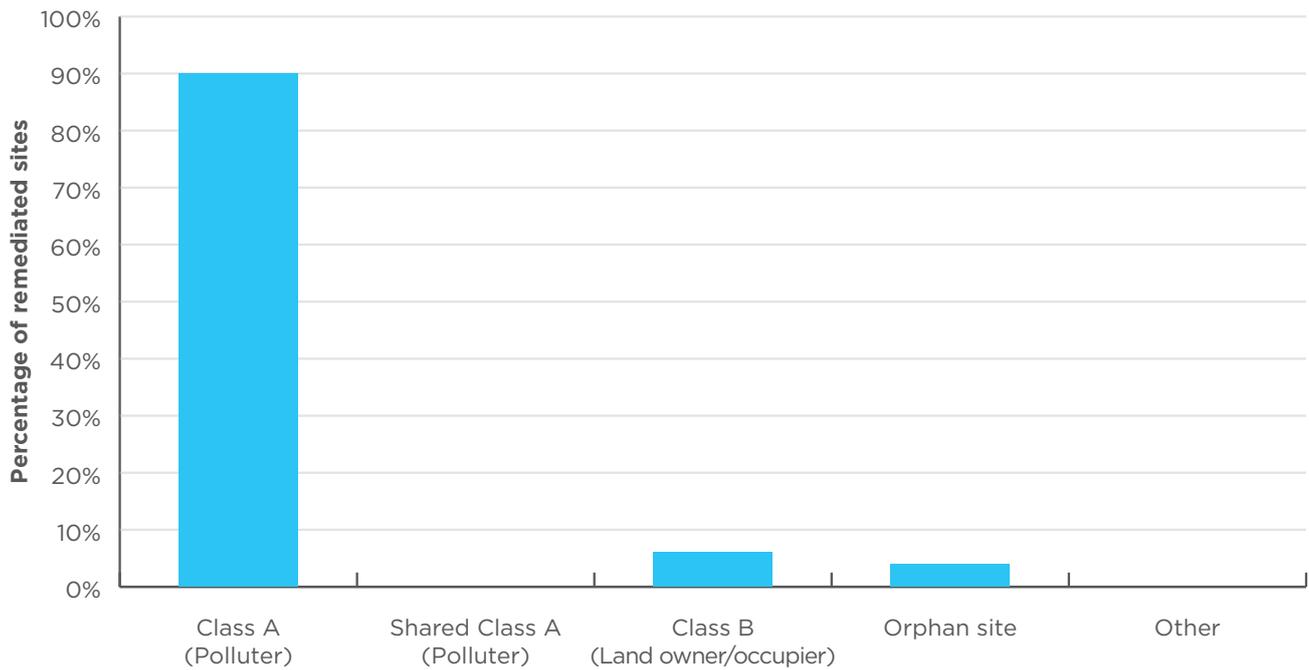
Liability groups

Data was received from eight local authorities in relation to 53 remediated sites that detailed which groups were being, or have been pursued to bear the costs of remediation. The findings clearly indicate that a significant majority of remediated Part 2A sites in Wales had an existing Class A appropriate person to pursue (Figure 11).

More information on liability groups can be found in Appendix 2

As shown in table 15 a high proportion of these were the local authority themselves.

Figure 11: Percentage of remediated sites where liability groups are being /have been pursued to bear the costs of remediation.



6. Liability and Cost Recovery

Of all *contaminated land* sites remediated (or ongoing) under Part 2A, 71% of remediation projects were paid for with central funding from the Welsh Government Contaminated Land Capital Fund. In terms of liability involving the original polluter, the Class A appropriate person(s) have paid for remediation at 22% of sites whereas Class B appropriate persons have paid at just 1% of the sites (Table 16).

Separate from this, one *special site* was paid for by direct funding from Welsh Government (provided to Natural Resources Wales) and one by a Class A appropriate person.

These figures highlight that direct funding from Welsh Government has played an important role within the *contaminated land* regime in Wales.

Table 16: Number of remediated sites paid for via the following mechanisms

Response	Number of remediated <i>contaminated land</i> sites	%	Number of <i>special sites</i>	%
None identified	0	0	0	0
Class A appropriate	22	22.4	1	50
Class B appropriate	1	1	0	0
Direct funding from Welsh Government (i.e. Contaminated Land Capital Fund)	70	71.4	1	50
Other public funding (e.g. Internal Local Authority funding) because no liable party was found	5	5.1	0	0
Don't know	0	0	0	0
Total	98	100	2	100



7. Concluding Comments

Since its introduction in 2001, the Part 2A regime has identified 10,130 potentially contaminated sites* in Wales. Subsequently, 800 of the highest priority sites have been subject to a detailed inspection with 175 (including two *special sites*) being formally determined as *contaminated land*. Of these, 64 determinations were later revoked. This suggests that there are still 9,330 potentially contaminated sites yet to undergo detailed inspection by local authorities in Wales with at least 414 of these sites considered to be a priority.

In terms of remediation, 97 of 111 remaining determined sites (175 minus 64 revoked determinations) have now been remediated including the *special sites*.

Costs associated with Part 2A have totalled around £8.8 million* with the cost of detailed inspections forming 44% and the cost of remediation (including *special sites*) forming 56% of that total. The majority of these costs have been paid for by public funds.

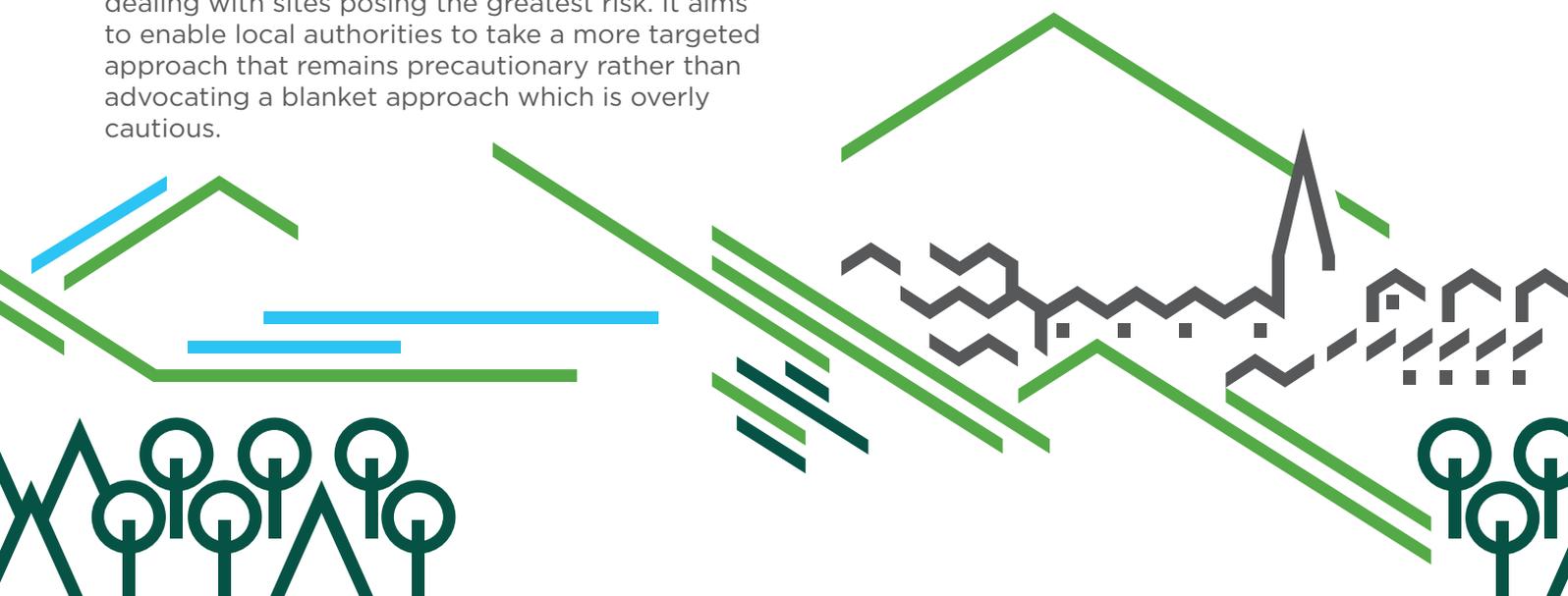
Whilst it plays an important role, Part 2A is not the dominant regime for dealing with historic land contamination in Wales. Based on estimates provided, Part 2A is thought to account for around 3% of sites potentially affected by contamination that are dealt with by local authorities. The planning process represents the principal mechanism used with an estimated 93% of sites dealt with via that route.

Going forward, the publication of the revised statutory guidance (Welsh Government, 2012) is anticipated to provide more clarity to the regulator as to how to decide when land is or is not *contaminated land*. It is shorter, simpler and more focussed in terms of risk based approach, dealing with sites posing the greatest risk. It aims to enable local authorities to take a more targeted approach that remains precautionary rather than advocating a blanket approach which is overly cautious.

Furthermore, the new statutory guidance and its introduction of a four category test have provided the catalyst for the development of additional tools such as the 'Category 4 Screening Levels' project (Welsh Government, 2014). Other developments include the development of 'Normal Background Concentrations' which can assist in providing clarification that "normal" background levels of contamination would not be *contaminated land*.

It is intended that the revised statutory guidance and additional tools will provide benefit to Part 2A progress in Wales by making the process more efficient in the future. It is worth noting that whilst no Part 2A determinations were reported after December 2011, Natural Resources Wales is aware that a number of sites have been determined as *contaminated land* following the period covered by this report.

*based on data received from 19 responding local authorities in Wales



Appendix 1 – Information Gathering

The findings of this report is based on information collected from local authorities via an online questionnaire. The researchers responsible for designing the questionnaire and collating the data were made up of a project team involving Cranfield University, the organisation CL:AIRE (Contaminated Land: Applications in real environments) and a number of independent consultants. Both Natural Resources Wales and Welsh Government were represented on the project steering group.

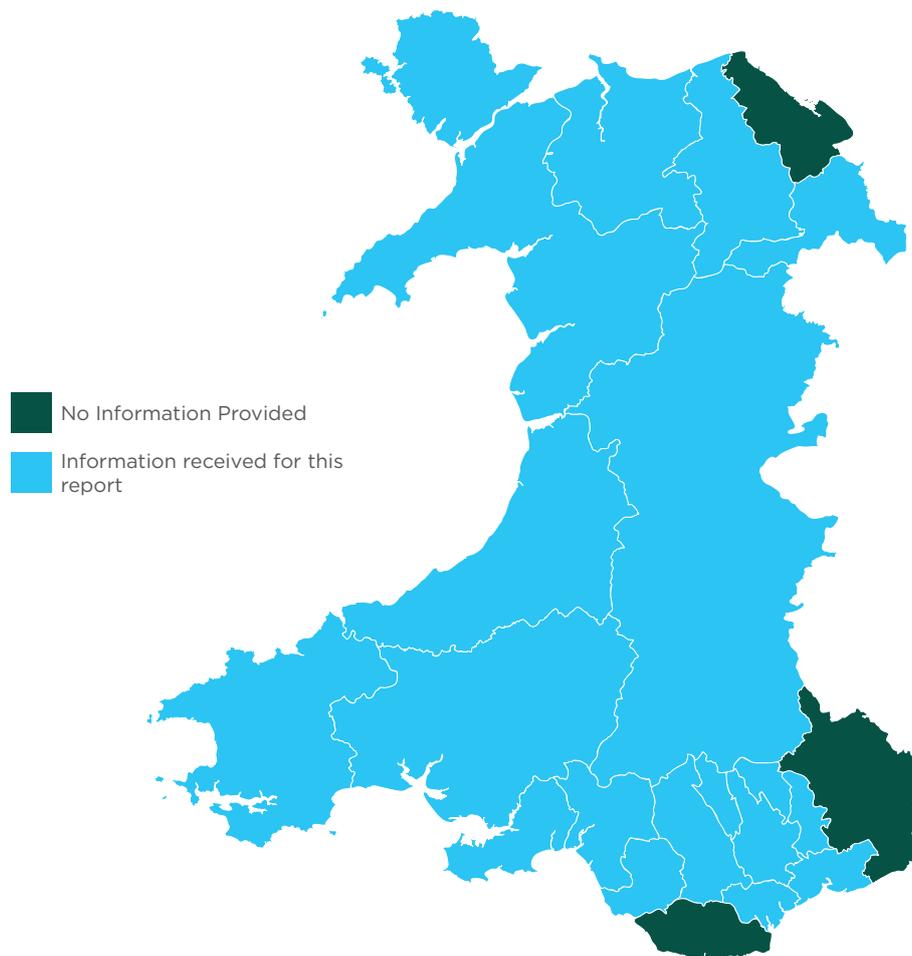
All 22 local authorities in Wales were contacted in relation to the questionnaire and it was open for a seven week period from the 27th of January until the 14th of March 2014. The questionnaire was distributed using Qualtrics survey software which allowed each local authority to be sent a unique link to complete their survey.

A number of local authorities were affected by severe flooding during the survey period and were unable to respond by the deadline date.

A small number of extensions were granted in these exceptional circumstances. Overall we had an 86% response rate for local authorities in Wales.

Information relating to *special sites* was collecting from Natural Resources Wales records.

Figure 12: Responses received from local authorities



Appendix 2 – Background to Part 2A

This appendix provides an overview of Part 2A of the Environmental Protection Act 1990. It is not intended to be a fully comprehensive. Full details can be obtained from Environmental protection Act 1990 itself, The Contaminated Land (Wales) Regulations 2006, The Contaminated Land (Wales) (Amendment) Regulations 2012, Contaminated Land Statutory Guidance for Wales 2012 (Welsh Government, 2012) and the Defra Circular 01/2006 (Defra 2006).

What is Part 2A?

Part 2A of the Environmental Protection Act 1990 is a piece of primary legislation which was introduced to provide a better way to identify and remediate contaminated land. It was inserted into the Environmental Protection Act (1990) by section 57 of the Environment Act (1995), and came into force on the 1st of July 2001 in Wales. It was introduced to identify and regulate the remediation of land where contamination has resulted in significant harm to human health or the environment or where there is a significant possibility of this happening. It also applies where significant pollution of controlled waters has, or could be likely to occur.

Welsh Government has produced statutory guidance to support the regime which has been revised on occasion since its introduction. The most recent revision was published in April 2012 (Welsh Government, 2012)

What is *contaminated land*?

Part 2A provides a legal definition of *contaminated land* and the statutory guidance provides information on the significant pollutant linkage(s) that must be present in order for land to be defined as *contaminated land*. Where all of these conditions are met and at least one significant contaminant linkage is present then a local authority can then determine the site as *contaminated land* under Part 2A.

Under section 78A (2) of Part 2A of the Environmental Protection Act (1990), *contaminated land* is defined 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 controlled waters is being caused, or there is a significant possibility of such pollution being caused;”

What are significant contaminant linkages

A contaminant linkage comprises:

- a contaminant;
- a pathway (capable of exposing a receptor to a contaminant);
- a receptor:

All these elements need to be present to identify a contaminant linkage. However, in order for the land to be described as *contaminated land*, the contaminant linkage needs to be shown to be ‘significant’. This means that:

- significant harm is being caused; or
- significant pollution of controlled waters is occurring.

A significant contaminant linkage also applies if there is a significant possibility of significant harm or it is likely that significant pollution of controlled waters will occur.

Harm and receptors

The statutory guidance for Part 2A describes the meaning of harm and significant harm in the context of *contaminated land* and also specifies the types of receptor that that Part 2A sets out to protect. If a significant contaminant linkage involves a receptor that is not listed, then the land cannot be formally determined as *contaminated land* under Part 2A.



Appendix 2 – Background to Part 2A

There are four possible grounds for the determination of land as contaminated land:

- (a) Significant harm is being caused to a human, or relevant non-human, receptor.
- (b) There is a significant possibility of significant harm being caused to a human, or relevant non-human, receptor.
- (c) Significant pollution of controlled waters is being caused.
- (d) There is a significant possibility of significant pollution of controlled waters being caused.

In relation to the ‘significant possibility of significant harm to human health’ and ‘significant possibility of significant pollution of controlled waters’ a category system has been introduced in order to aid decision making. Categories 1 and 2 represent cases where there is a significant possibility of such harm and categories 3 and 4 represent cases where there is not. Resultantly the category 3/4 boundary represents the line between the ability to determine a site as *contaminated land* or not.

Local Authority inspection strategies

Under Part 2A local authorities are required to set out and publish their written strategy for inspecting their areas for *contaminated land*. Inspections involve local authorities looking at land in their areas to find previous uses and activities that may have caused contamination and assessing the potential risks from these to human health and the environment. The purpose of the written inspection strategies is to identify how local authorities plan to approach the inspection of their areas.

Identifying *contaminated land*

Local authorities use available information to consider whether a site meets the definition of *contaminated land* under Part 2A. Some local authorities may have already gathered information on a number of sites so they can make decisions about them. Alternatively, other sites may need a detailed inspection to gather the information needed to in order to make a decision on whether to determine a site as *contaminated land*. Detailed inspection may include of the collation of documentary evidence, visual inspection, intrusive investigation or a combination of these.

Formal determination usually requires a risk assessment to be carried out in a structured way to find out whether there are unacceptable risks at a site that will require remediation. Additional good practice guidance, such as the Model Procedures for the Management of Land Contamination (Environment Agency, 2004) can be used to make sure that adequate assessments are carried out

Responsibility for determination on *contaminated land*

Local authorities have sole responsibility for determining land that meets the definition of *contaminated land* under Part 2A. They make decisions to determine sites based on appropriate, scientific and technical assessments of the land using all relevant and available evidence. Local authorities keep records of determinations, including the exact area of land determined, the significant contaminant linkages on which the determination is based, and a summary of evidence and assessments used to make determinations. They identify interested persons, including Natural Resources Wales, and notify them that the site has been determined as *contaminated land*. Interested persons include the owner of the land, anyone who occupies all, or part, of the land and anyone who appears to be the ‘appropriate person’ who may be responsible for remediating the site. It may not, however, be possible for a local authority to identify appropriate persons when determining a site.

Special sites

While only local authorities are responsible for formally identifying *contaminated land*, in some specific circumstances, Natural Resources Wales will become responsible for making sure sites are remediated. These are known as *special sites*, defined as *contaminated land* determined under Part 2A that also meet one or more conditions set out in The Contaminated Land (Wales) Regulations 2006. *Contaminated land* within certain land use categories or resulting in certain types of pollution to controlled waters can be designated as a *special site*. Whilst these are listed in full The Contaminated Land (Wales) Regulations 2006, examples include water pollution sites where drinking water supplies are affected, petroleum refineries and land owned/occupied by the Ministry of Defence.

Natural Resources Wales becomes the regulator for *special sites* once they are designated by a local authority. Additionally, local authorities can ask Natural Resources Wales to take part in the inspection of a potential *special site*. This could involve supplying information about the site, through to carrying out an intrusive investigation into the specific significant contaminant linkage(s) of concern.

Radioactive contaminated land

In December 2006, the contaminated land regime was extended to cover radioactivity by 'The Radioactive Contaminated Land (Wales) Regulations (2006)'. This extension introduced a system for identifying and remediating contamination that is exposing people to radiation in the long term. While broadly similar to conventional Part 2A, there are a number of specific differences for radioactivity. To date, no site in Wales has been determined as contaminated land due to radioactivity.

Who is an 'appropriate person'

An appropriate person is someone who may be liable for carrying out the remediation of one or more significant contaminant linkages at a determined *contaminated land* site. At some sites there may be more than one appropriate person for the significant contaminant linkage(s) present. If this is the case then a number of individual or group of appropriate persons may share the liability.

There are two classes of appropriate person:

Class A: those persons who caused or knowingly permitted the contaminant in the significant contaminant linkage to be in, on or under land.

Class B: a site owner or occupier. These would only be liable if a Class A person cannot be found. Additionally, they would not be liable for significant contaminant linkages relating to controlled waters.

Funding of inspection and remediation

The provisions regarding liability under Part 2A were set up to ensure that, where feasible, the clean up of *contaminated land* is paid for by the appropriate person(s) responsible for contaminating it. This is aimed to be in line with the 'polluter pays' principle.

However, it is not always possible to find an appropriate person who may be liable for sites and, in these cases, the taxpayer may ultimately pay for remediating them. Recovery of remediation costs by the enforcing authority is an option under certain circumstances, but the regime does not allow the costs of an inspection to be recovered from an appropriate person. At present, the taxpayer has to pay the costs unless an appropriate person or interested party elects to inspect a site on a voluntary basis.

Within local authorities, dealing with *contaminated land* is in part funded by their

internal budgets as allocated by Welsh Government. Additionally, local authorities and Natural Resources Wales were historically able to bid for funding from the Welsh Government's Contaminated Land Capital Fund scheme. However, this funding was withdrawn at the end of the 2010/11 financial year.

Remediation

Contaminated land may be considered to have been successfully remediated when the significant contaminant linkage(s) on which the determination is based have been broken. There are a number of ways to achieve this including removing/reducing the source, severing or blocking the pathway between source and receptor, protecting/removing the receptor or a combination of these.

When a site has been determined as *contaminated land* under Part 2A a document is prepared and published outlining the way in which the land has been or will be remediated. These can be issued either for a phase of remediation or for the complete remediation scheme. The type of document that is prepared falls into 3 categories:

Remediation notice: a notice served by the enforcing authority (the local authority or Natural Resources Wales for *special sites*) on the appropriate person(s) responsible for remediating the site. The enforcing authority will specify what the appropriate person(s) has to do to remediate the land and by when. The appropriate person(s) is required by law to do each of the things specified in the notice.

Remediation statement: this is usually prepared and published by the person(s) responsible for the remediation of the land, or in some cases the regulator. It forms a statement detailing the remediation actions which have been or are expected to be done to secure the remediation of the *contaminated land*.

Remediation declaration: a declaration prepared and published by the enforcing authority that records the remediation actions that would have been specified in a remediation notice should one have been served. A remediation declaration is published when the remediation actions required are not considered reasonable on the grounds of cost or the seriousness of harm or pollution of controlled waters.

Any combination of these documents can be issued for a particular site.



Appendix 2 – Background to Part 2A

Remediation notices, statements or declarations will include details of what is required in the form of a 'remediation action'. There are 3 broad categories of remediation action:

Assessment action: an action that assesses the condition of the *contaminated land* or any water or land affected by it. Assessment actions can be used to gather information to choose or design the most effective remedial treatment action.

Remedial treatment action: an action that will manage the significant harm or significant pollution of controlled waters caused by the *contaminated land*. Remedial treatment actions provide the solutions to prevent, minimise, remedy or mitigate the risks from contamination on the land.

Monitoring action: an action where the condition of land or water is monitored. Monitoring actions can be used to provide evidence that a remedial treatment action has been successful or is working.

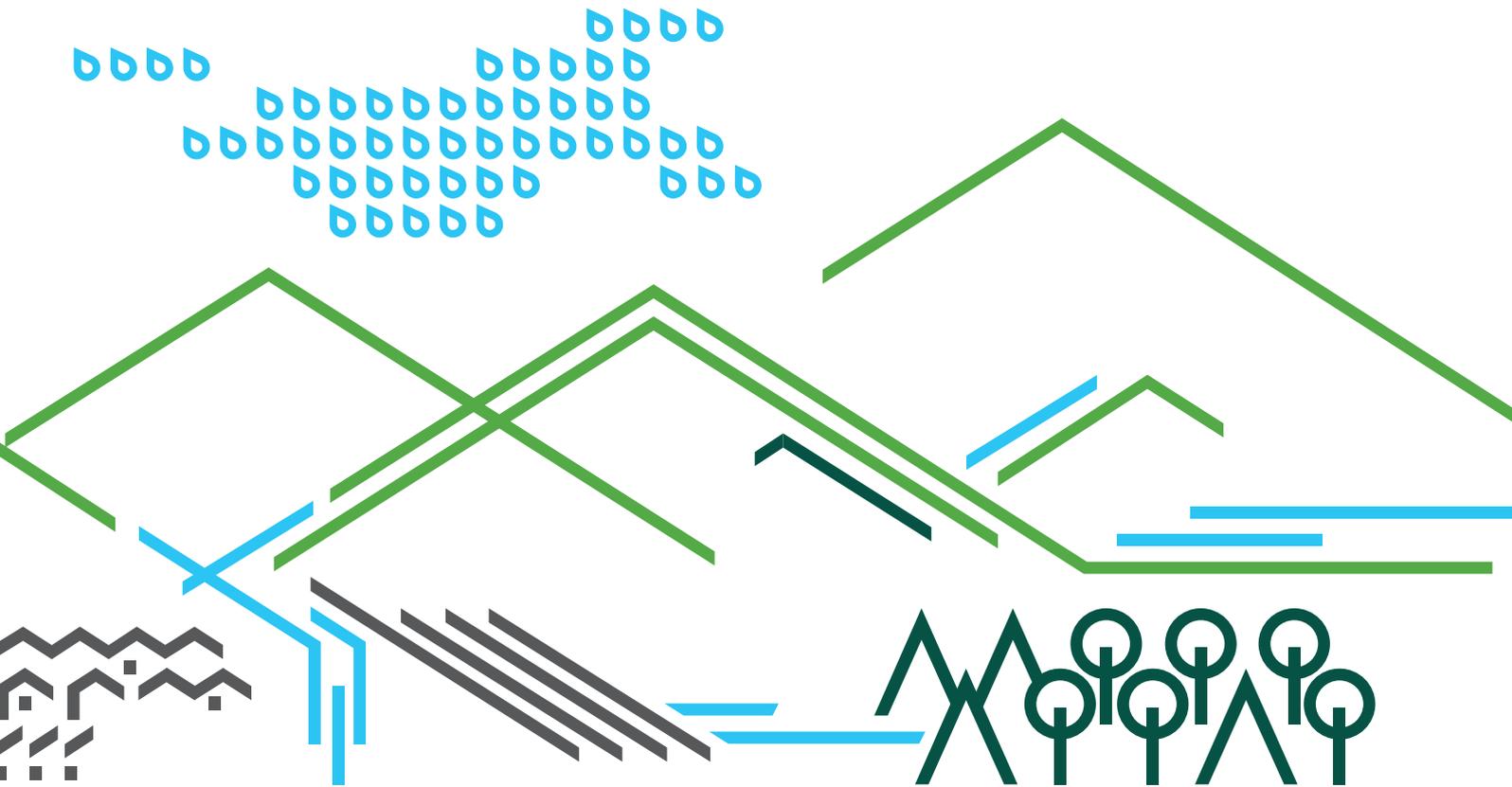
The public register

Enforcing authorities have a duty to maintain a register under 78R of Part 2A. This register acts as a record of all regulatory action taken by the enforcing authority regarding the remediation of *contaminated land*.

The register includes details of:

- remediation notices served
- appeals against remediation notices
- remediation statements and declarations
- designation of *special sites*
- any convictions on appropriate persons failing to comply with a remediation notice
- notifications by others regarding what they claim to have done concerning remediation.

Information can be excluded from the public register on the grounds of national security or commercial confidentiality.



Glossary

Apportionment

Any division of the costs of carrying out remediation between two or more appropriate persons.

Appropriate person

Someone who is responsible for carrying out the remediation of one or more of the significant contaminant linkages at a determined *contaminated land* site. There are two classes of appropriate person:

- Class A – those persons who caused or knowingly permitted the pollutant in the significant contaminant linkage to be in, on or under the land.
- Class B – a site owner or occupier – but would only be liable if a Class A appropriate person cannot be found for a particular significant contaminant linkage.

Conceptual site model

A representation of the characteristics of the site in diagrammatic or written form that shows the possible relationships between contaminants, pathways and receptors.

Contaminant

A substance that is in, on or under the land and that has the potential to cause harm to human health or the environment or to cause pollution of controlled waters.

Contaminated land

Defined for non-radioactively *contaminated land* in section 78A(2) of the Environmental Protection Act 1990 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 controlled waters is being caused, or there is a significant possibility of such pollution being caused”

Contaminant linkage

The relationship between a contaminant, a pathway and a receptor. This can be ‘significant’ if it forms the basis for concluding that a piece of land is *contaminated land*.

Controlled waters

Defined by the Water Resources Act 1991, Part III, section 104, which includes all surface waters such as ditches, streams, rivers, ponds, lakes, groundwater contained in underground strata, wells or boreholes, estuaries and coastal waters. Updated by Section 86 of the Water Act 2003 to exclude groundwater in underground strata above the saturation zone.

Desk study

A desk based collection of information including site records, historic maps, pollution incident records, site sensitivity etc. It also incorporates the development of an initial conceptual site model and a qualitative risk assessment.

Intrusive investigation

An investigation of land (for example by exploratory excavations) that involves actions going beyond simple visual inspection of the land, limited sampling or assessment of documentary information.

Pathway

Routes or means by which a receptor may be exposed to and potentially harmed by a contaminant.

Pollutant

A contaminant which forms part of a pollutant linkage.

Receptor

Somebody or something that may be harmed by exposure to a contaminant. For the purposes of Part 2A, types of receptors detailed within the statutory guidance (Welsh Government, 2012).

Remediation

A broad range of actions which can be used to reduce risk from *contaminated land*.

Remediation statement

A statement is usually prepared and published by the person(s) responsible for the remediation of the land, or in some cases the regulator. The statement details the remediation actions which have been, are being, or are expected to be done, as well as the periods within which these things are being done.

Remediation notice

A notice served by the enforcing authority (the local authority or Natural Resources Wales for *special sites*) on the person(s) responsible for remediating the site. The notice specifies what an appropriate person must do regarding remediation and the periods within which they must do each of the things specified.

Remediation declaration

A remediation declaration is published when one or more remediation actions that are otherwise required are not considered reasonable. It is a document prepared and published by the enforcing authority recording remediation actions which it would have specified in a remediation notice.

Remediation strategy

A plan that involves one or more remediation options to reduce or control the risks from all the relevant contaminant linkages associated with the site.

Risk assessment

The formal process of identifying, assessing and evaluating the health and environmental risks that may be associated with a hazard.

Special sites

Contaminated land sites for which the Natural Resources Wales, rather than the local authority, becomes the enforcing authority. These categories of land are set out in the Contaminated Land (Wales) Regulations 2012.

Statutory guidance

Guidance issued by the Welsh Government on the regulation of the Contaminated Land Regime.

Verification

The process of demonstrating that the risk has been reduced to meet remediation criteria and objectives.

Verification report

Provides a complete record of all remediation activities on site and the data collected in order to demonstrate that the agreed remediation objectives/criteria have been met.



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