

# Pollution incidents

## 2014 evidence summary

July 2015

### 1. Introduction

Following an increase in the number of serious pollution incidents in 2013, the total number of serious pollution incidents decreased by 11% in 2014 (688 incidents in 2013 and 614 incidents in 2014). However the total number is still higher than those recorded in 2012 (503 incidents).

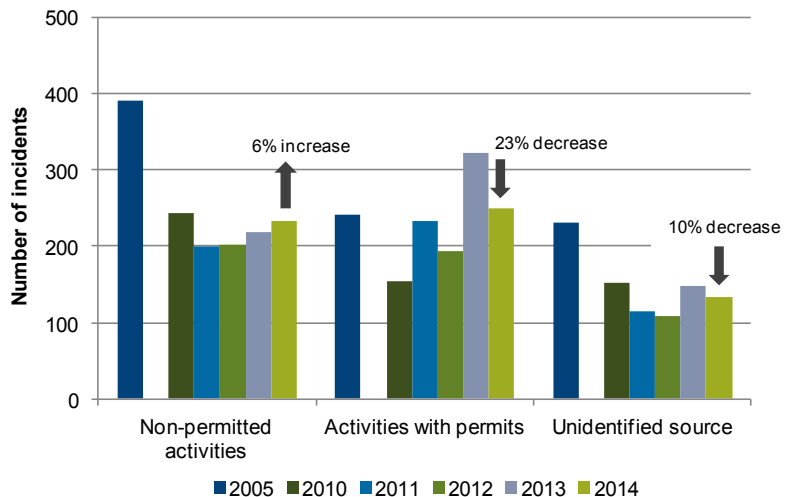
We classify pollution incidents according to their impact on the environment and people, from category 1 (the most serious) to category 4 (little or no impact). We investigate reported pollution incidents to limit their impact and, where appropriate, we take action against those responsible for the pollution.

This summary is about the most serious pollution incidents, categories 1 and 2.

In the summary, sites or activities that are referred to as 'permitted' are permitted by the Environment Agency under the Environmental Permitting Regulations (EPR).<sup>1</sup> The activities of some of the industries and businesses that we don't permit under EPR will be regulated under other legislation such as the Water Resources Act or the Silage, Slurry and Agricultural Fuel Oil regulations, or monitored for example through the Water Framework Directive.

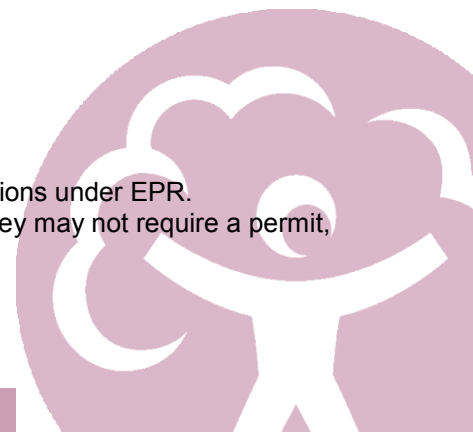
This year there has been a 23% decrease in incidents from sites with permits (from 323 incidents in 2013 to 249 incidents in 2014), but incidents from non-permitted<sup>2</sup> sites increased by 6% (from 218 incidents in 2013 to 232 incidents in 2014), continuing a rising trend in incidents from these sites.

**Serious pollution incidents (caused by activities with permits and those without permits) in England**



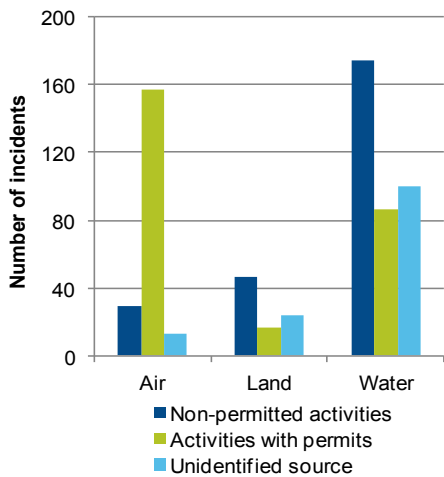
<sup>1</sup> Sites or activities referred to as 'permitted' include those that have registered exemptions under EPR.

<sup>2</sup> Non-permitted sites or activities are sites that do not require a permit under EPR – they may not require a permit, may be regulated by other legislation, or may be sites that are operating illegally.

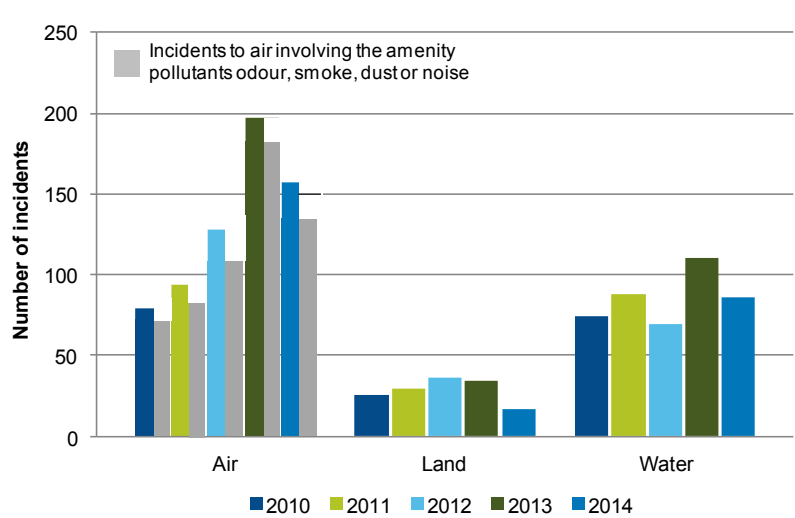


## 2. The impact of pollution incidents

**Serious pollution incidents to air land and water, in England, 2014**



**Serious pollution incidents to air, land and water caused by industrial activities with permits (all sectors)**



Serious pollution incidents can harm people and the environment as well as damage businesses. A major incident can have a significant financial impact on a business in clean-up and enforcement costs. The Environment Agency spends about £12 million a year in time and materials responding to pollution incidents. Pollution incidents can damage the reputation of businesses and can affect their ability to secure contracts.

We monitor whether pollution incidents affect air, land or water. Of all the serious pollution incidents in 2014, 59% had an impact on water and 32% had an impact on air.<sup>3</sup> Serious pollution incidents caused by sites with permits mainly affected air. Serious pollution incidents caused by non-permitted sites and unidentified sources mainly affected water.

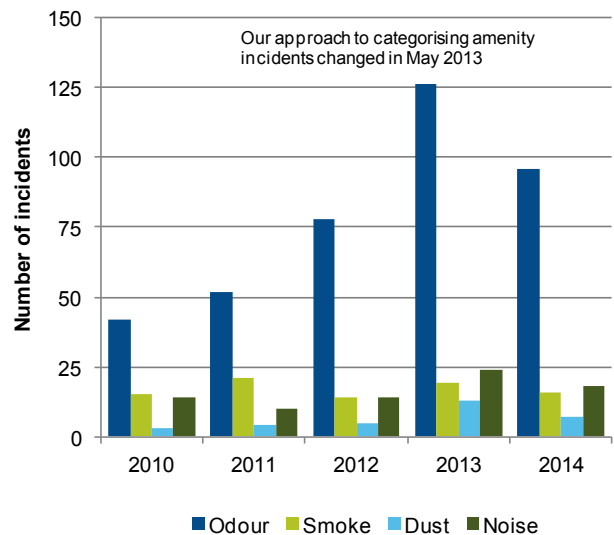
### Impact on air

The majority of incidents affecting air were caused by sites with permits (157 of 199, 79%). Of these 157 incidents, the majority (135) involved the amenity<sup>4</sup> pollutants odour, smoke, dust and noise.

Of these 135 amenity incidents<sup>5</sup>:

- 96 (71%) were odour-related, a decrease of 27% since 2013
- 18 were noise-related, a decrease of 25% since 2013
- 16 were smoke-related, a decrease of 16% since 2013
- 7 were dust-related, a decrease of 46% since 2013

**Serious pollution incidents to air, caused by industrial activities with permits, involving amenity pollutants, in England**



<sup>3</sup> A single incident may affect multiple environmental media (i.e. air, land, water).

<sup>4</sup> In this summary 'amenity' is used collectively and includes the pollutants odour, smoke, dust and noise.

<sup>5</sup> The individual totals do not add up to 135 (100%) because one incident may have more than one pollutant associated with it.

In 2014 there were also 5 incidents that were vermin related. All 5 incidents involved flies, and all were at permitted waste treatment sites.

The number of reported serious pollution incidents affecting air caused by activities with permits and involving the amenity pollutants odour, smoke, noise and dust increased substantially between 2010 and 2013. The sharpest increase was between 2012 and 2013, followed by a 25% decrease in the number of incidents in 2014.

Reasons for this may include changes in reporting. In May 2013 we changed our approach to classifying ongoing amenity incidents, which made it easier to substantiate incidents (particularly odour incidents) without attendance. This raised the impact level of some incidents to category 2 when they would have previously been reported as a number of category 3 events. In May 2014 a change in our guidance to operational staff meant that ongoing odour problems were no longer automatically recorded as category 2 incidents, which led to a small reduction in the numbers of category 2 odour incidents.

The waste industry is responsible for most amenity incidents. In recent years changing waste management practices has meant more waste has been re-used and recycled and less landfilled. This is reflected in an associated increase in above-ground storage of materials waiting processing.<sup>6</sup>

A total of 73 individual sites were responsible for the 135 amenity incidents to air, with 28 sites causing more than 1 incident (compared to 82 individual sites in 2013, and 26 sites causing more than 1 incident). Of the 73 sites, 59 were waste sites, 6 were food and drink sites, 5 were farming sites, 2 were metal (surface treatment) sites and 1 was an incineration with energy recovery site.

## Impact on water

The largest numbers of incidents affecting water were caused by non-permitted activities (174, 48%), or where a source could not be identified (100, 28%). The largest single cause of incidents seriously affecting water caused by non-permitted activities was containment and control failures at agricultural premises (61 incidents).

In 2014, 86 serious pollution incidents caused by sites with permits affected water, a decrease of 22% since 2013. Of these, most were caused by:

- water companies: 61 incidents, 82% of which were due to containment and control failures
- waste management activities: 10 incidents, of which 5 were caused by fires and 3 were caused by containment and control failures

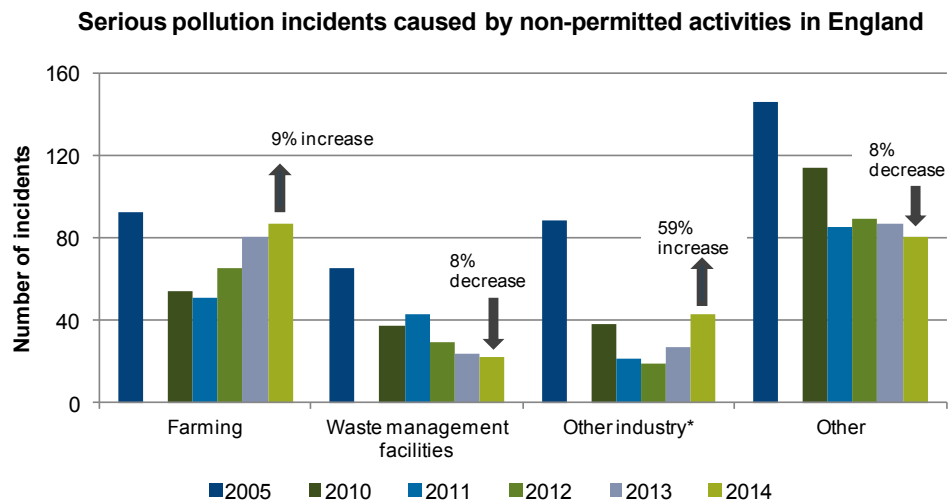
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<sup>6</sup> [Regulating the waste industry: 2013 evidence summary - Publications - GOV.UK](#)

### 3. Sources of serious pollution incidents<sup>7</sup>

#### Non-permitted activities

There was a 6% increase in serious pollution incidents caused by non-permitted activities between 2013 (218 incidents) and 2014 (232 incidents). Non-permitted activities caused 38% of all serious pollution incidents in 2014, compared to 32% in 2013.



\* Other industry includes Manufacturing, Construction and demolition, Power generation and supply and the Retail sector.

The non-permitted activities that caused the most pollution incidents were:

- farming: 87 incidents, an increase of 9% since 2013. Within this group, dairy (36 incidents) and arable (30 incidents) were the most numerous
- other sources, such as transport, domestic and residential, private waste water disposal and the service sector: 80 incidents, a decrease of 8% since 2013. Within this group incidents from domestic and residential sources (21 incidents) were the most numerous
- other industry: 43 incidents, an increase of 59% since 2013. Manufacturing industries caused 24 of these incidents, an increase of 41% since 2013

The most common causes of incidents from non-permitted activities were containment and control failures (123 of 232 incidents, 53%) and unauthorised activities (55 of 232 incidents, 24%).<sup>8</sup>

#### Unidentified sources

There was a 10% decrease in serious pollution incidents caused by unidentified sources between 2013 (147 incidents) and 2014 (133 incidents). Unidentified sources caused 22% of all serious pollution incidents in 2014, compared to 21% in 2013.

In some cases, although we cannot identify the specific premises that caused pollution (for example metaldehyde pollution from the use of slug pellets could be from any of several farms), we can sometimes ascertain the underlying cause of the incident. Where a cause was identified, 27 incidents were due to unauthorised activity (10 of which were due to fly-tipping and 7 were due to unauthorised waste management activities) and 25 were due to natural causes, of which 9 were due to algal activity. No cause was identified for 64 (48%) of these incidents in 2014.

<sup>7</sup> Charts in this summary combine sectors contributing less than 5% of the total into one group.

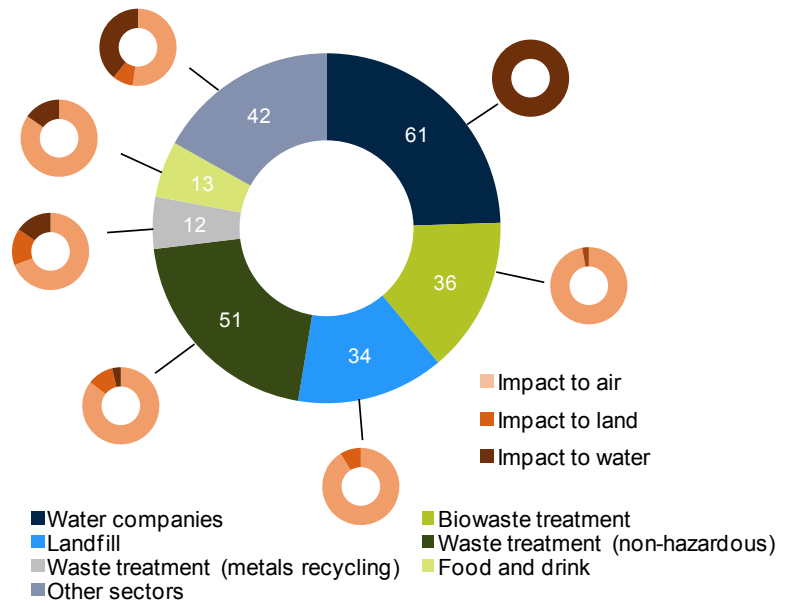
<sup>8</sup> Containment and control failures include incidents such as abnormal process operations, pipe failures, spillages, plant failures, control system/measure failures, sewer failures or overflow and storage tank failures. Examples of unauthorised activities include unauthorised discharge or disposal, fly-tipping, illegal waste site activity and vandalism.

## Permitted activities

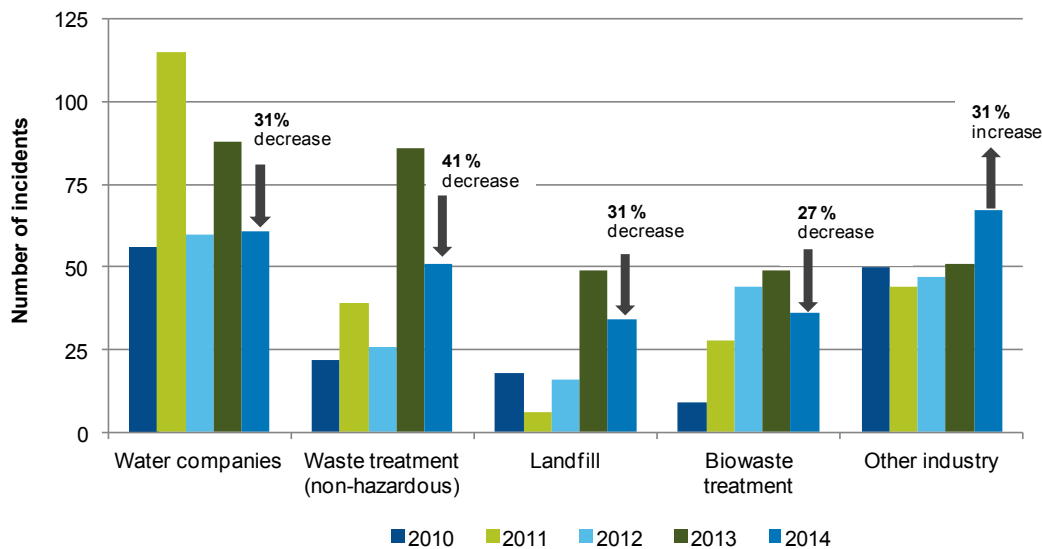
Serious pollution incidents caused by activities with permits decreased by 23% between 2013 and 2014, from 323 incidents in 2013 to 249 in 2014.

Of the 249 incidents caused by activities with permits, most were caused by waste management activities<sup>9</sup> (148 incidents, 59%) and water companies (61 incidents, 24%). Within the waste sector, non-hazardous waste treatment caused the most incidents (51 incidents, 20% of all incidents caused by activities with permits), followed by biowaste treatment (36 incidents) and landfill (34 incidents<sup>10</sup>). However these sectors all also had fewer serious pollution incidents in 2014 than in 2013.

**Serious pollution incidents caused by industrial activities with permits, by sector, in England, 2014**



**Serious pollution incidents caused by industrial activities with permits in England**



Other industry includes: Intensive farming, Biowaste use, Chemicals, Combustion (power), Metals, Food and drink, Waste treatment (hazardous, inert, metals recycling) and permitted sites that are not assigned to a specific sector.

The sectors in 'Other industry' together caused 67 incidents in 2014, compared with 51 incidents in 2013. Within this group, the biggest increases were in:

- food and drink, 13 incidents in 2014 compared to 3 in 2013
- waste treatment (hazardous), 6 incidents in 2014 compared to 0 in 2013

<sup>9</sup> 'Waste management' includes waste treatment (all sub sectors), landfill, biowaste (treatment and use) and incineration with energy recovery.

<sup>10</sup> Within landfill, the subsector 'deposit of materials to land for recovery' caused one serious incident.

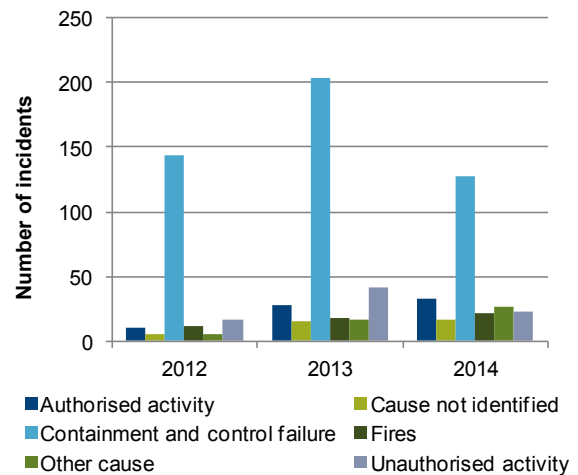
The single biggest cause of incidents at sites with permits was containment and control failures (127 of 249 incidents, 51%).

Containment and control failures include incidents such as abnormal process operations, pipe failures, spillages, plant failures, control system/measure failures, sewer failures or overflow and storage tank failures. Examples of unauthorised activities include unauthorised discharge or disposal (including misconnections), operating in breach of a permit, fly-tipping, illegal activity and vandalism. Authorised activities include for instance incidents caused by sites through normal site activities, mobile plant, and emergency discharges.<sup>11</sup>

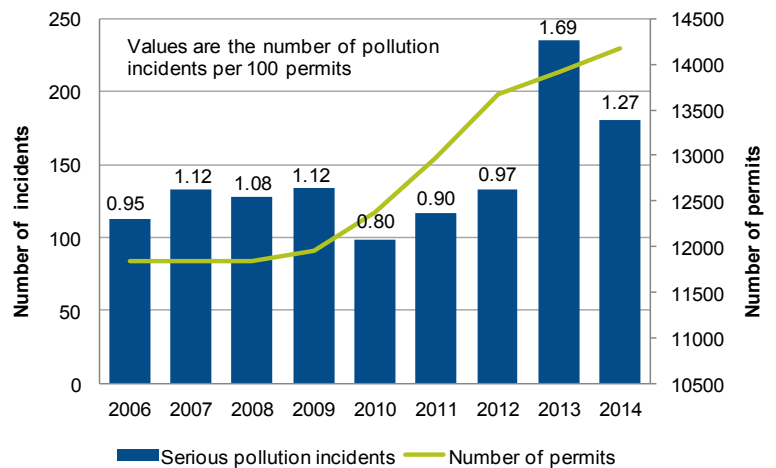
As well as the actual number of serious pollution incidents caused, the number of incidents per 100 permits shows whether industrial activities with permits are causing greater or fewer incidents compared to the growth in numbers of industrial activities overall.

The number of incidents per 100 permits for individual sectors shows the sectors that proportionately cause the most incidents compared with their overall size.<sup>12</sup>

**Causes of serious pollution incidents from industrial activities with permits in England**

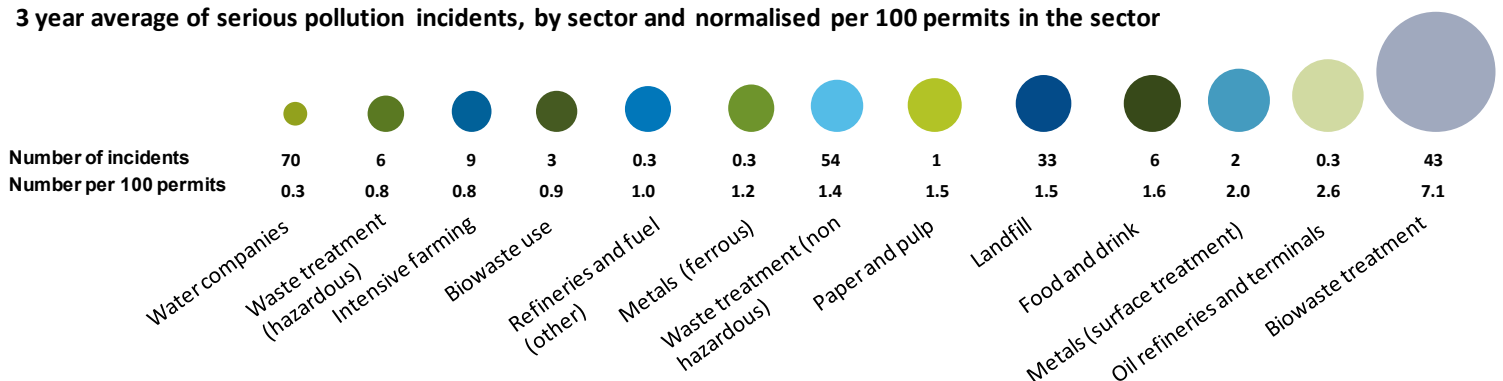


**Serious pollution incidents caused by industrial activities with permits against total number of permits held by industry in England (excluding water companies\*)**



\* Water companies are excluded from this assessment because they have a disproportionate number of permits compared with other sectors, but their permit numbers are relatively stable over time.

**3 year average of serious pollution incidents, by sector and normalised per 100 permits in the sector**



<sup>11</sup> Sites that are compliant with their permits (Opra rated A, B or C) may still cause pollution incidents. The impact on the permit compliance rating of a site causing a pollution incident will be in the subsequent year to the event, and will include other factors relating to permit breaches apart from pollution incidents.

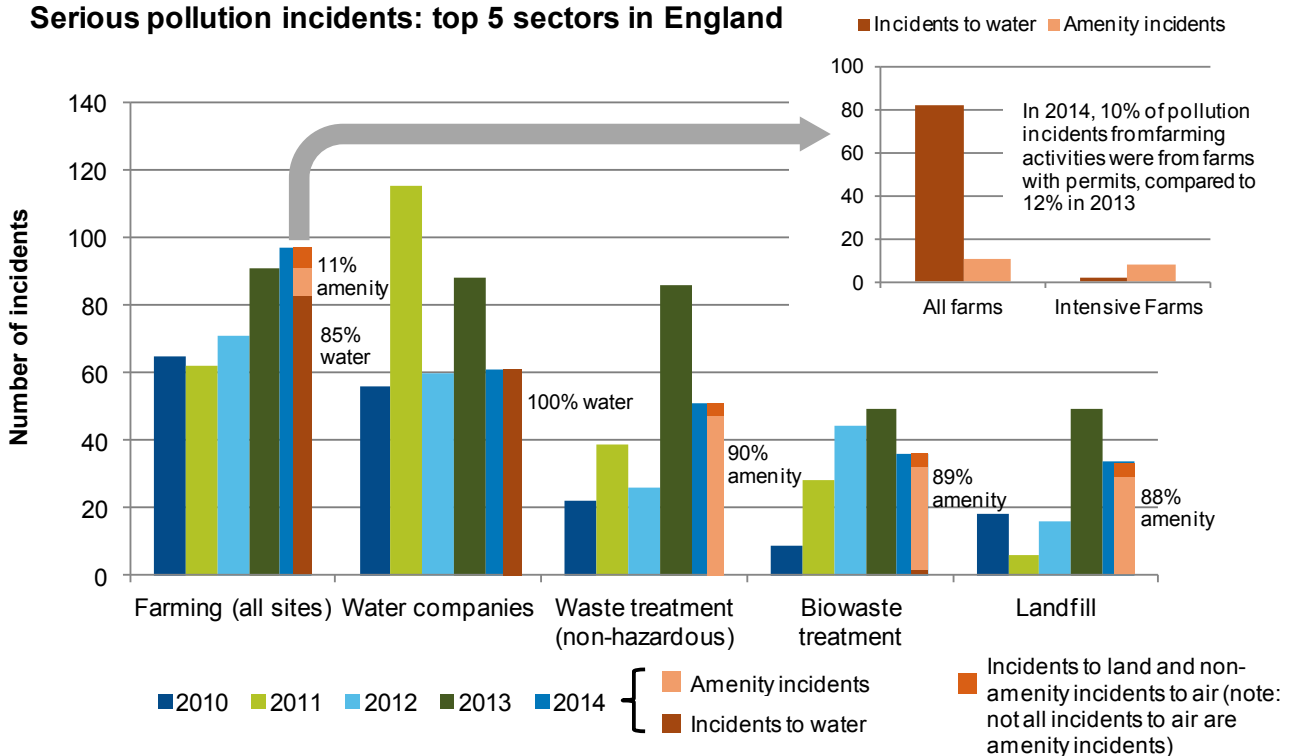
<sup>12</sup> In this assessment, the number of permits held by a sector is used to give an approximation of its size. The chart shows an average of 3 years (2012 to 2014), because in any single year a sector with a small number of facilities, just one of which causes a pollution incident will appear disproportionate. The number of landfill permits used for this assessment includes both open and closed landfill sites and sites which are within the new subsector 'deposit of waste for recovery'.

#### 4. Serious pollution incidents: the top 5 sectors

Taking into account the incidents caused by permitted and non-permitted activities, the sectors causing the most serious pollution incidents in 2014 were:

1. farming: 97 incidents (87 caused by non-permitted farms; 10 by intensive farms with permits), 16% of the total number of serious pollution incidents
2. water companies: 61 incidents, 10% of the total
3. non-hazardous waste treatment facilities with permits: 51 incidents, 8% of the total
4. biowaste treatment facilities with permits: 36 incidents, 6% of the total
5. landfill facilities with permits: 34 incidents, 6% of the total

#### Serious pollution incidents: top 5 sectors in England



These top 5 sectors in 2014 were the same as in 2013. However, in 2014 each of these sectors except farming caused fewer serious pollution incidents than in 2013. In 2014, there was a

- 41% decrease in incidents caused by the waste treatment (non-hazardous) sector
- 31% decrease in incidents caused by water companies
- 31% decrease in incidents caused by the landfill sector
- 27% decrease in incidents caused by the biowaste treatment sector
- 7% increase in incidents caused by the farming sector

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03708 506 506

incident hotline  
0800 80 70 60

floodline  
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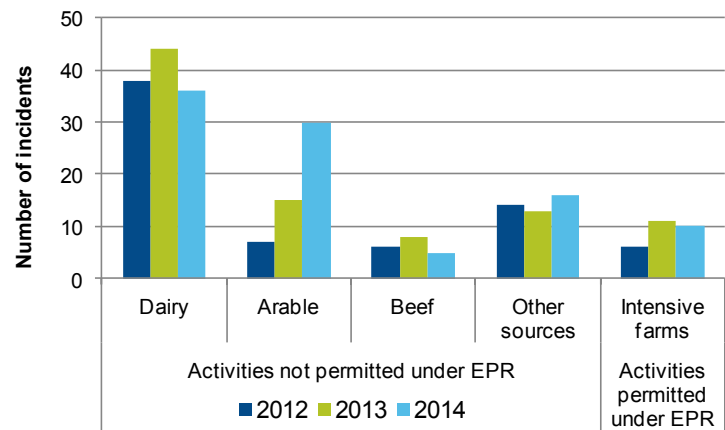
[www.gov.uk/environment-agency](http://www.gov.uk/environment-agency)

## Sector 1: Farming

The farming sector caused 97 serious incidents in 2014; 10 incidents (10%) were caused by activities with permits (intensive pig and poultry farms, which comprise less than 1% of farm businesses overall) and 87 (90%) by non-permitted farming activities.

Farming-related pollution incidents mainly affected water (85% of the 97 farming incidents), although the majority of incidents caused by permitted intensive farming were odour-related incidents affecting air.

**Serious pollution incidents caused by farming activities in England**



Between 2013 and 2014, incidents caused by the whole farming sector (permitted and non-permitted activities) increased by 7% (from 91 incidents to 97). Incidents caused by:

- non-permitted farming activities increased by 9% (80 incidents to 87)
  - incidents caused by arable farming increased by 100% (15 incidents to 30, with a sharp rise from 7 incidents in 2012)
  - incidents caused by dairy farms decreased by 18% (44 incidents to 36)
- permitted intensive farming activities decreased from 11 incidents in 2013 to 10 in 2014

The most common reasons for pollution incidents were containment and control failures (72% of all farming incidents) and unauthorised activity (12%). 83% of incidents caused by dairy farming activities and 67% of incidents caused by arable farming activities were containment and control failures.

## Sector 2: Water companies

In 2014, water company activities were responsible for 61 (24%) of the total serious pollution incidents caused by activities with permits. All 61 affected water.

The water companies' record of pollution incidents is variable and increased from 60 in 2012 to 88 in 2013, before decreasing to 61 in 2014.

The majority (44 of 61, 72%) of serious pollution incidents caused by water companies in 2014 were on the sewer network.<sup>13</sup> This is a 17% decrease from the 53 incidents on the sewer network in 2013. Within the group of incidents on the sewer network:

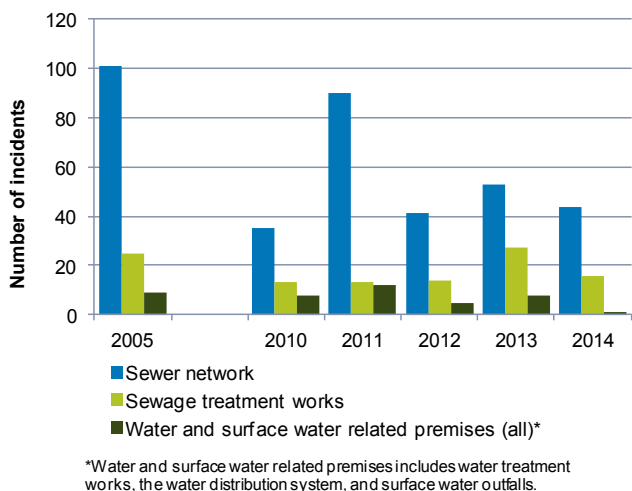
- the largest decrease was incidents caused by foul sewers; 25 in 2013 and 14 incidents in 2014
- the number of pollution incidents caused by pumping stations increased from 12 in 2013 to 15 in 2014
- most of the serious pollution incidents (38 of 44 incidents) on the sewer network in 2014 were due to containment and control failures

<sup>13</sup> The sewer network consists of foul sewers, rising mains and combined sewer overflows, storm tanks and pumping stations.

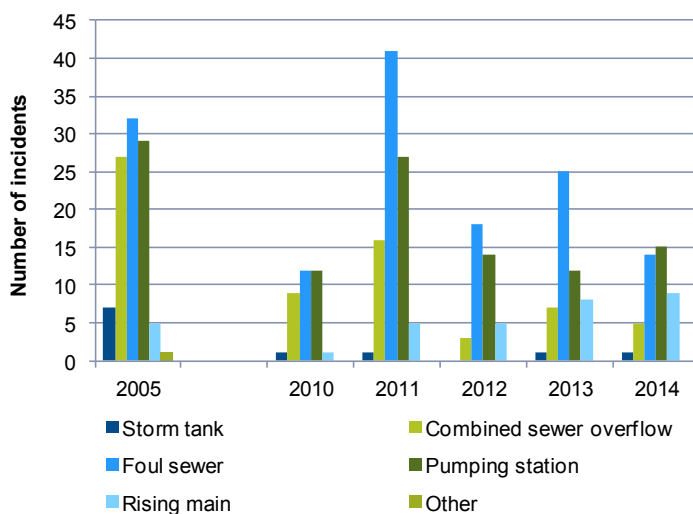


Serious pollution incidents at sewage treatment works decreased substantially in 2014, from 27 in 2013 to 16 in 2014.

**Serious pollution incidents caused by water company activities in England**



**Causes of serious pollution incidents on the sewer network**



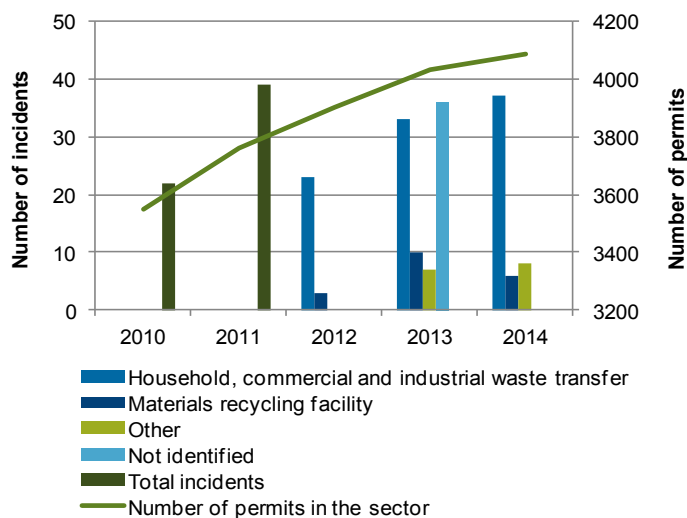
**Sectors 3 to 5: Non-hazardous waste treatment, biowaste treatment and landfill sector**

The number of serious pollution incidents from each of these 3 waste sectors was lower in 2014 than in 2013. Serious pollution incidents caused by biowaste treatment sites are the lowest recorded since 2011, but incidents caused by non-hazardous waste treatment and landfill sites are still higher than in 2012.

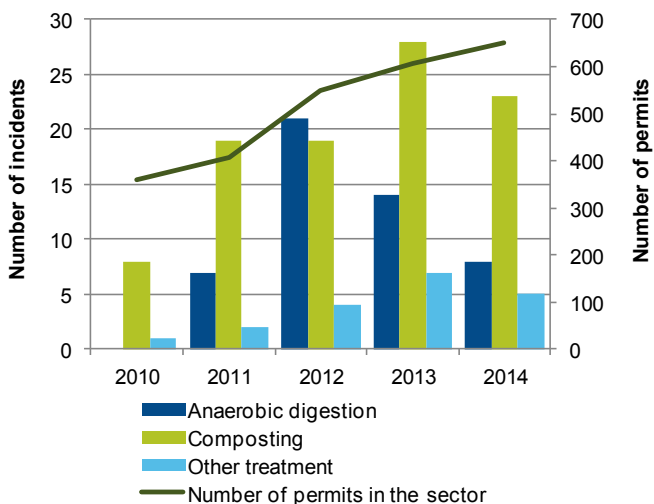
The numbers of activities with permits in the waste treatment (non hazardous) and biowaste treatment sectors have been increasing, reflecting the growth in these sectors. The number of serious pollution incidents caused by these sectors was also increasing, until 2014.

The number of activities with permits in the landfill sector decreased steadily between 2010 and 2013, with a sharp rise in 2014 due to an increase in the number of permits for activities relating to the deposit of materials on land for recovery.

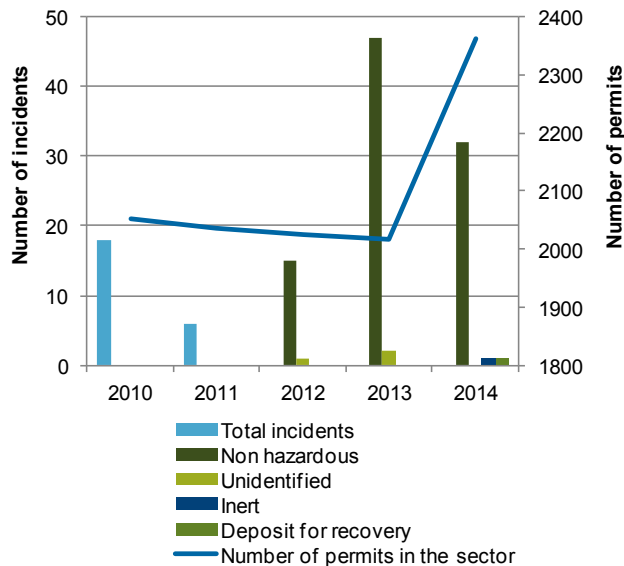
**Serious pollution incidents caused by the waste treatment (non-hazardous) sector (to all media) in England**



### Serious pollution incidents caused by the biowaste treatment sector (to all media) in England

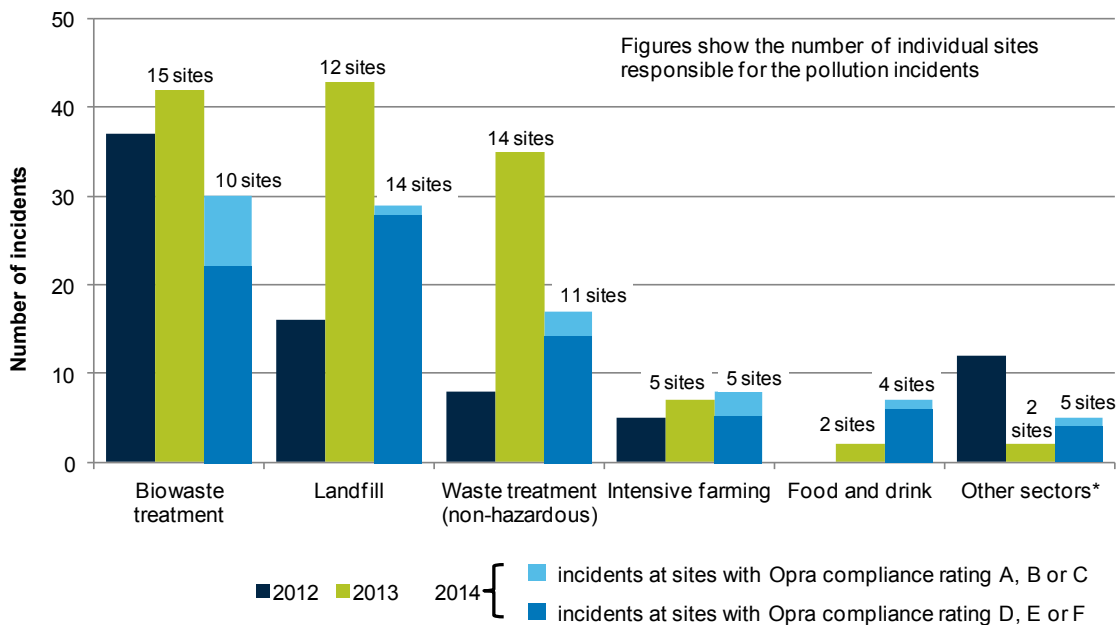


### Serious pollution incidents caused by the landfill sector (to all media) in England



Together, the biowaste treatment, landfill and non-hazardous waste treatment sectors caused over three quarters of all odour incidents in 2014 (76 of 96 odour-related incidents). However, since 2013 there has been a decrease in the number of odour incidents caused by each of the 3 sectors.

### Number of serious pollution incidents caused by industrial activities with permits where odour was recorded as a pollutant, in England



\*Other sectors includes: Metals (surface treatment), Waste treatment (hazardous), Waste treatment (inert) and Biowaste use.

In 2014:

- in the non-hazardous waste treatment sector there were:
  - a total of 51 incidents, for which 33 individual sites were responsible
  - 41 amenity incidents, of which 17 involved odour

- 11 sites that caused multiple incidents, together accounting for 29 of the 51 incidents
- 42 incidents (of the 51) at Operator performance risk appraisal (Opra) rated D, E or F sites (ie non-compliant with permit conditions)
- in the biowaste treatment sector there were:
  - a total of 36 incidents, for which 11 individual sites were responsible
  - 32 amenity incidents, of which 30 involved odour
  - 6 sites that caused multiple incidents, together accounting for 31 of the 36 incidents
  - 27 incidents (of the 36) at Opra rated D, E or F sites
- in the landfill sector there were:
  - a total of 34 incidents, for which 18 individual sites were responsible
  - 30 amenity incidents, of which 29 involved odour
  - 7 sites that caused multiple incidents, together accounting for 23 of the 34 incidents
  - 31 incidents (of the 34) at Opra rated D, E or F sites

Factors contributing to pollution incidents at waste sites are:

- poor management, including ignoring regulatory advice
- excessive amounts of waste or poor storage arrangements

## 5. Tackling pollution incidents

We provide advice and guidance on pollution prevention to farmers and businesses to help them reduce the risk of causing environmental pollution and the costs of clean up. We work with others to help prevent and mitigate incidents when they happen. We provide £200,000 of essential pollution incident response equipment to the Fire and Rescue Services every year so they can protect the environment as part of their blue light incident response. This protects aquatic wildlife, drinking water supplies, bathing waters and the wider amenity value of our rivers. Through our partnerships with Highways England, Network Rail, the Oil Care Campaign, the British Safety Industry Federation and BASIS we endeavour to help businesses to profit without damaging our environment.

We designate certain facilities as sites of high public interest (SHPI) to ensure adequate focus is given to address the concerns of local communities. We focus regulatory action on sectors and individual sites causing multiple pollution incidents or where we see persistent non-compliance.

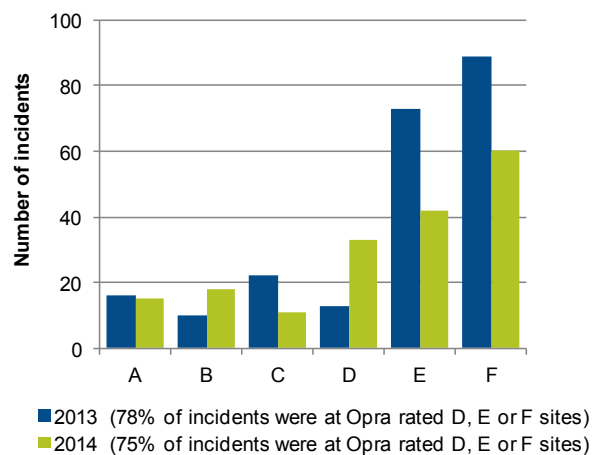
In 2014<sup>14</sup> there were 20 serious pollution incidents caused by 10 individual sites designated as SHPI:

- these 10 sites were all in the ‘top 5 sectors’ (4 in the non-hazardous waste treatment sector, 3 in the landfill sector and 3 in the biowaste treatment sector)
- of these 10 sites, 9 were in Opra compliance bands D, E or F

There were 25 sites with permits in the ‘top 5 sectors’ that caused multiple pollution incidents (4 of these were also SHPI, and 22 were in Opra compliance bands D, E or F).

The majority of serious pollution incidents caused by activities with permits (75%) were at sites with an Opra compliance band of D, E or F.

**Serious pollution incidents by Opra compliance band of permitted activity**



### Enforcement activity

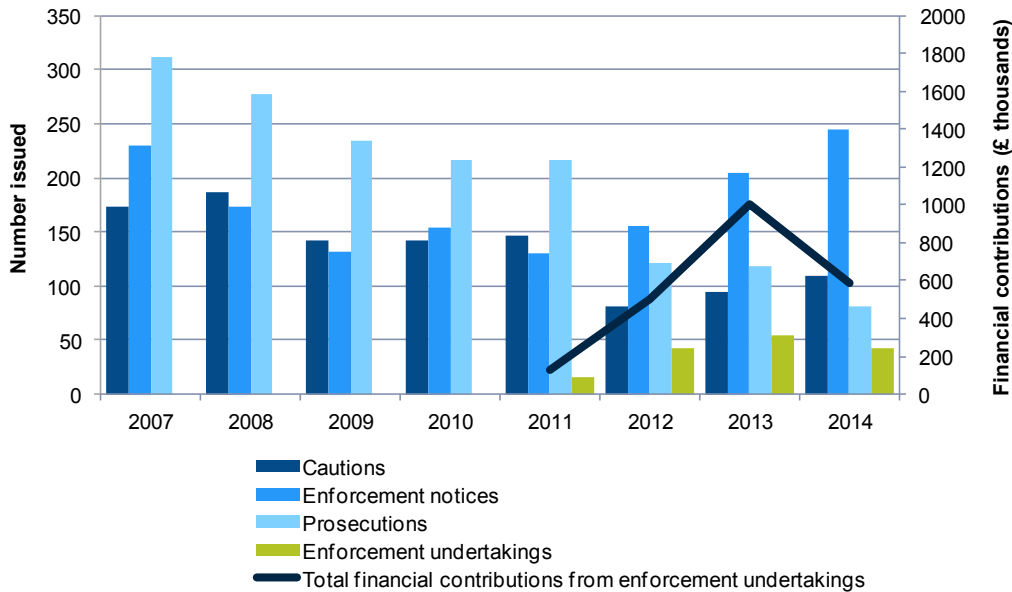
To cause or allow pollution is against the law.<sup>15</sup> We will prosecute serious or persistent offenders, but there are other enforcement actions we may take if a pollution incident does happen. These include:

- cautions: intended to deter offenders, and suitable for cases where, although we could prosecute, there are other factors that we take into account
- enforcement notices: used to bring sites we permit back into compliance and put right any damage caused to the environment
- civil sanctions: most commonly Enforcement undertakings, seeking to change behaviour by offenders paying to clean up the damage caused and improve the environment, rather than paying fines

<sup>14</sup> This analysis excludes water companies because they aren’t rated under Opra.

<sup>15</sup> Pollution prevention pays in England and Wales, Environment Agency, January 2013.

**Enforcement actions used for environmental offences\* by registered companies (all sectors) in England, 2007 to 2014**



\*environmental offences for the purpose of this analysis are waste, water quality and emissions monitoring offences

Prosecution includes seeking orders under the Proceeds of Crime Act 2002 (PoCA), which allows for the confiscation and payment to the State of benefits identified as proceeds of crime. The Environment Agency applies for confiscation orders post conviction and has had considerable success in recovering unlawful profits from illegal operators and low cost/poor quality concerns which undercut legitimate business. For example, £1.4 million was confiscated from 25 defendants in 2014.

Guidelines on how to approach the sentencing of environmental offences were issued to criminal courts in 2014 by the Sentencing Council. For the first time, a tariff has been provided to indicate the right level of penalties dependent upon the seriousness of the offence and the turnover and profit of the organisation involved. This has led to a significant increase in the size of fines imposed upon larger organisations. For example, in 2014 Southern Water Services Ltd was fined £500,000 and Thames Water Utilities Ltd fined £250,000, both for water pollution offences.

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