

**Title:**  
**2012 Report for the UKOPA**  
**Infringement Database**

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**Author:**  
**Infringement Working Group**

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## UKOPA Disclaimer

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## 1. Introduction

Since 2002 UKOPA members have shared information following investigation of 'near miss' and damage incidents ('infringements') on their buried pipeline assets to ensure that:

- any information, analysis and learning from near miss incidents benefits all member companies
- the Association exploits its collective experience to establish a national data set and trends
- the pipelines industry is co-ordinated and has national coherence

The UKOPA infringement database provides a framework for recording infringements without requiring companies to adopt technically identical definitions. With a range of pipeline systems and operators, this latter point has been the key to enable the collection of data on a national pipeline industry basis. This approach has allowed the Association to develop effective improvement plans as well as ensuring its experience is fully exploited to influence and support regulatory processes.

The structure and content of the infringement database is described in the 'Guidance for Members preparing records for the UKOPA Database' which is available via the Members Centre of the UKOPA Website. A more general introduction to the database is available via [www.ukopa.co.uk/excavation-safety/Introduction-to-the-UKOPA-Infringement-Database.pdf](http://www.ukopa.co.uk/excavation-safety/Introduction-to-the-UKOPA-Infringement-Database.pdf)

## 2. Current Status and Management of Database

At the end of 2012, the following companies provided records for the UKOPA infringement database:

- |                          |                           |
|--------------------------|---------------------------|
| • BP                     | • Marchwood Power         |
| • BPA                    | • National Grid           |
| • Centrica               | • Northern Gas Networks   |
| • ConocoPhillips         | • OPA                     |
| • E-On                   | • SABIC UK Petrochemicals |
| • Essar                  | • Scotia Gas Networks     |
| • Esso Petroleum         | • Star Energy             |
| • Greystar (MJL)         | • Total (UK)              |
| • Ineos                  | • Wales & West Utilities  |
| • Mainline Pipelines Ltd | • Wingas                  |

A number of these members provided their data via a single route, by means of their participation in Linewatch.

From 2002 – 2004 contributions to the database were derived from chemical and oil sector pipeline operators only, but since 2005 has included records from the UK natural gas distribution system.

Although it has proved difficult to formally confirm the total number of oil, petrochemical and gas pipeline operators in the UK, UKOPA membership (and hence database representation) is considered to exceed 95% of operators by underground pipeline length. As a result, it provides an authoritative view on the third party threat to hazardous pipelines in the UK.

The database is managed using the Linewatch on-line reporting database, members contributions are provided in a uniform format to allow efficient import of new records.

Activities relating to the operation of the database and development of excavation safety strategy are managed by UKOPA's Infringement Working Group (IWG), whose membership during 2012 was constituted as follows:

Nikki Barker	PIE (secretary)
Helen Berry	HSE
Tony Gillard	Essar
Geoff Glover	SABIC
Neil Hampshire	Northern Gas Networks
Phil Hirst	Fisher German
Barry MacKay	Scotia Gas Networks
Paul Masson	Esso Petroleum
Grant Rogers	Wales & West Utilities (IWG Chair)
Ken W Smith	BP FPS
Robert Stockley	National Grid Gas
Philip Taylor	British Pipeline Agency
Niki Wileman	National Grid Gas

### 3. IWG Plans for 2013

The IWG have set out a number of objectives for 2013 and these are to:

- Engage with companies identified as the “most frequent offenders” from the 2012 Infringement report to improve pipeline safety awareness
- Continue to collect 3<sup>rd</sup> party pipeline infringement data and publish an annual report
- Raise the profile of the Infringement Working Group in the general contractor community
- Raise awareness of working safely within cross-country pipeline easements in the general contractor community
- Improve awareness of working safely within cross-country pipeline easements with landowners and tenants.

### 4. Main Findings

#### 4.1. Infringements by Category

The UKOPA database categorises infringements on the basis of risk and location indices as follows:

Risk index can be one of three levels:

Risk Index	Infringement Type	Infringement Description
A	Pipeline Damage or Leak	Includes damage to wrap or protective sleeve
B	Serious Potential for Damage	Methods or equipment used could have resulted in significant damage had excavation taken place at pipeline
C	Limited Potential for Damage	Methods or equipment would not have resulted in serious damage

Table 1 Risk Index

Location index can be in two forms:

Location Index	Location Description
1	Within the pipeline wayleave or easement. Typically, this is the zone within which the pipeline operator has legal rights, including a requirement by the landowner to notify planned work (although may be different for non-Pipelines Act lines laid by Statutory Undertakers).
2	Within the pipeline operators zone of interest, but outside the pipeline wayleave or easement. It is the area within which the operator would have reasonably expected a competent third party to have given notification in the prevailing circumstances.

Table 2 Location Index

So that infringement categories can be summarised as follows:

	Actual Damage	Serious Potential for Damage	Limited Potential for Damage
Within Wayleave or Easement	A1	B1	C1
Within Operators Notification Zone	-	B2	C2

Table 3 Infringement Categories

The 2012 report includes data imported from several sources of aerial surveillance databases. The gas network data has been subject to an extensive filtering exercise to retain only those events which are relevant for the infringement report. Details of the filtering process are published in the guidance to UKOPA members on the population of the infringement data by IWG. Linewatch member data is imported directly from the new LIDB electronic database.

Figure 1 below presents the overall combined UKOPA data by infringement category. Analysis of infringements by category shows the distribution of infringements is generally consistent with a proportional relationship between learning events, near-misses and more serious incidents (the so-called 'Heinrich's triangle').

### Infringements by Category

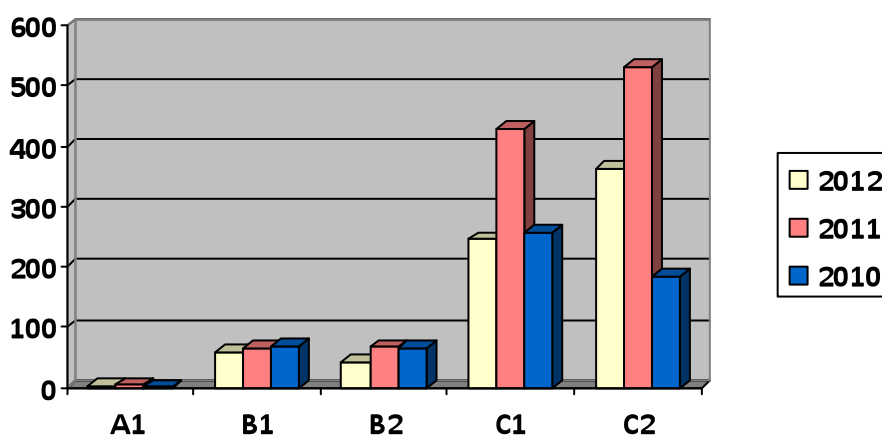


Figure 1. Infringements by Category

There were two A1 category infringements in 2012, out of 712 recorded events, summary details as below:

- i. Damage to an oil and refined products pipeline near Compton Abdale due to malicious acts.
- ii. Damage to wrapping by rubbish tipping and burial of waste within the easement by a Private Landowner or agent.

These events were found via internal inspection reports and ground patrol.

The relatively high potential, B1 infringements (within the easement), numbered 58 or 8% of the total number of infringements and are probably the most significant. Although similar in total to 2011, the percentage of the combined overall reported events is higher for 2012.

Infringements outside of the easement numbered 406 (57%), of which 43 (6%) represented a significant B2 threat to the pipeline.

The C1 category infringements numbered 245, these are of low potential but are still considered worthy of investigation to determine the root cause.

The C2 category, those with limited potential to cause damage and outside the easement (effectively near miss) numbered 363. The total for C2 in 2012 which is around 70% of that reported in 2011, mainly due to a reduction in the gas pipeline related data, it is however difficult to draw any conclusion from this difference from one year to the next.

#### 4.1.1. Infringements by Activity Type

Understanding the types of activity contributing to infringement statistics provides important information for:

- Targeting awareness training and communication
- Relating to infringement location and vulnerable areas

Figure 2 shows the distribution of infringements across reported activity types.

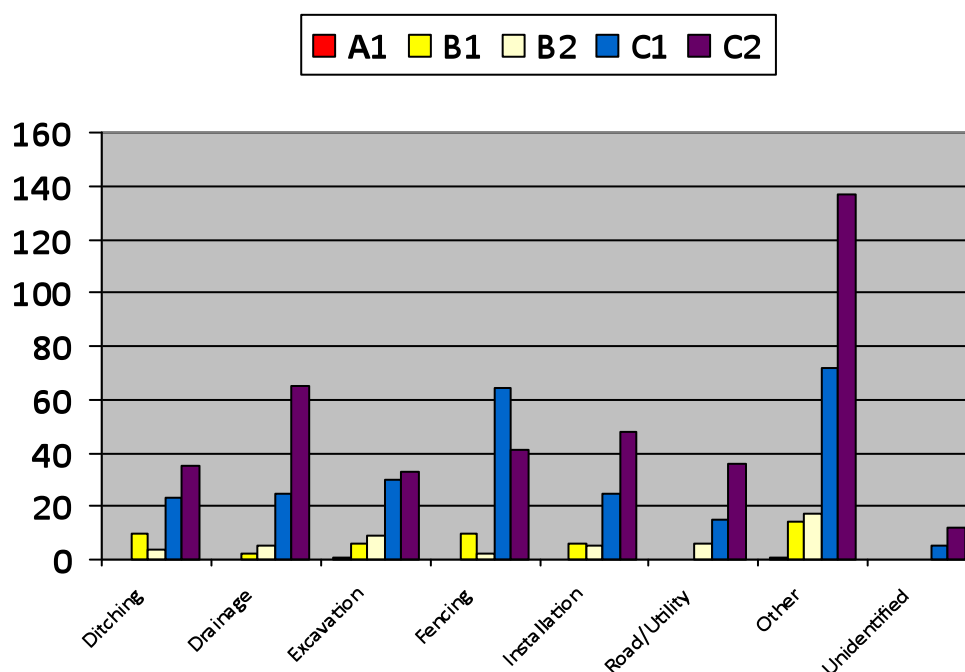


Figure 2: Infringements by Activity Type 2012

Although 'activity unknown/not specified' is still significant, the number of reports with this as the activity type has greatly reduced. The category "other" includes normal agricultural activities such as ploughing etc., however more modern agricultural activities, such as mole plough works, are often included within the "drainage" category.

Those activities grouped together as “other” include landscaping, crossing by heavy machinery, building or river works etc. which individually are low in the number of events.

#### 4.1.2. Infringements by Location

Locations where infringements take place may provide key information for:

- the main areas of pipeline vulnerability
- areas where marking is critical
- areas where excavator vigilance is particularly important

Due to the high total (311) associated with “farmland” figure 3 is presented without that location type being charted. This is a limitation of the charting scale only.

Farmland Data (not included in figure 3 below)

Farmland	Actual Damage	Serious Potential for Damage	Limited Potential for Damage
Within Wayleave or Easement	A1 = 0	B1 = 27	C1 = 114
Within Operators Notification Zone	-	B2 = 17	C2 = 153

Table 3 Farmland Data (not included in Figure 3 below)

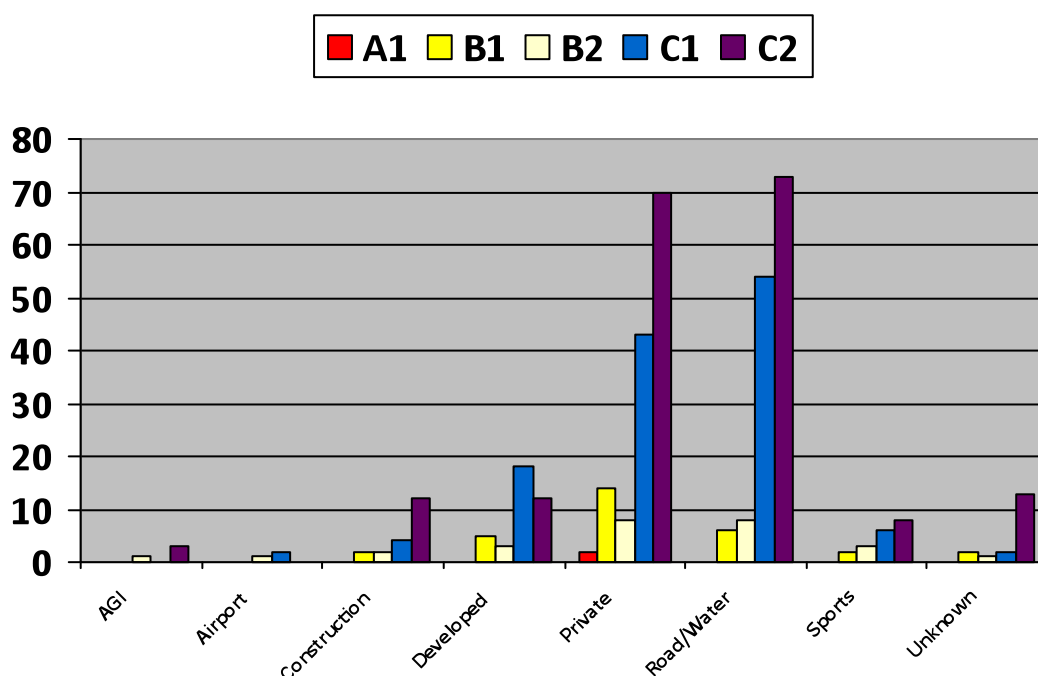


Figure 3: Infringements by Location Type 2012

### 4.1.3. Infringements by Third Party Type

UKOPA are interested in which types of third parties are infringing:

- Are there any patterns?
- What does it tell us about potential weaknesses in the sub-contracting 'chain'?
- Who is responsible for checks and searches in each case?
- What does it tell us about the 'pipeline awareness' of those actually doing the digging?

Figure 4 describes the current position, the presence of Landowners as the largest single infringing group is consistent when the figure for Contractor is acknowledged to include for both rural (landowner) and urban activities. It should be noted, however, that the distinction between 'Contractor' and 'Utility' can be seen as a very fine one and is masked by the significant level of contractor-delivered utility services in the UK.

The totals recorded against Unknown suggest a lack of ability to follow-up on the original report but will inherently include parties who left the site between the sighting report and a site visit.

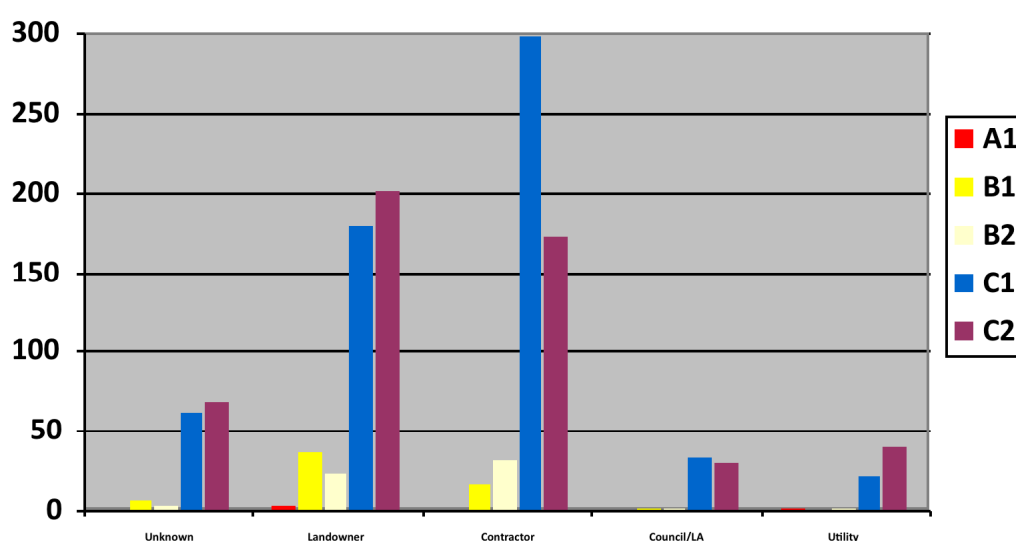


Figure 4 Infringements by Infringer Type 2012

### 4.2. Infringements by Third Party Name

UKOPA are interested in identifying and working with anyone who has, or has the potential to infringe. Those third parties who, via the database, are identified as having made multiple infringements are a particular concern. A summary of the three main activity groups are presented at the top of the Table 4 to give a flavour of the overall numbers of infringers and as an indicator of how much improvement there has been in reducing potential risk or consequence.

As an invited member of UKOPA, the Health & Safety Executive (HSE) has access to the list of 'repeat infringers'. The database output in the form shown in Table 4 has been used by HSE to inform their operational strategy. There is no doubt that to date, this is the area where the database has had its greatest impact. For

companies that operate on a region-by-region basis, there is some evidence to suggest that through UKOPA's database activities, they have become aware of their overall infringement behaviour for the first time. HSE's feedback is that this data has received serious attention at senior levels within each company.

UKOPA remains very aware that the infringement performance of particular companies or agencies is a very sensitive issue. Data is provided by individual operators for use in the database on the understanding that individual records are, in the first instance, confidential. Hence names of the companies (identified as company A, company B, etc) in Table 4 are not published and is confidential to UKOPA members and should not be shared with third parties.

<b>Identifier/Category</b>	<b>A1</b>	<b>Weight X10</b>	<b>B1</b>	<b>Weight X5</b>	<b>B2</b>	<b>Weight X2</b>	<b>C1</b>	<b>Weight X2</b>	<b>C2</b>	<b>Total weighted score</b>
<i>Unknown</i>	0	0	2	10	3	6	13	26	58	100
<i>Land/Farm</i>	2	20	29	145	9	18	122	244	131	558
<i>Contractor total</i>	0	0	23	115	23	146	77	154	132	447
Company A	0	0	2	10	2	4	1	2	4	20
Company B	0	0	1	5	2	4	3	6	5	20
Company C	0	0	1	5	2	4	1	2	3	14
Company D	0	0	2	10	0	0	0	0	1	11
Company E	0	0	0	0	0	0	8	16	0	16
Company F	0	0	0	0	0	0	2	4	4	8
Company G	0	0	0	0	0	0	4	8	0	8
Company H	0	0	0	0	2	4	2	4	0	8
Company I	0	0	1	5	0	0	0	0	0	5
Company J	0	0	0	0	1	2	1	2	1	5

Table 4: Top Ten Infringer Data 2012

A further point to note regarding this data is that it currently makes no attempt to analyse numbers of infringements per third party with their national excavation activity rate. Such a measure, if it were to be developed in future, may provide an alternative expression of each third party's effectiveness in managing activities adjacent to hazardous pipelines.

It should be noted that a large number of utility contractors enter into joint ventures with other companies; hence companies can carry out works in their own right or as a joint venture.

In an effort to rank repeat infringers, more "weight" is given to the raw count of infringements based on the seriousness of the infringement by applying a multiplier to each risk category. This included in the table as an adjacent column. The multiplier "risk" values are based upon the model developed in consultation with the IWG, Fisher German and PIE, as below in Table 5.

A1	10
B1	5
B2	2
C1	2
C2	1

Table 5 - Risk Multiplier Matrix

In pure numbers and weighting terms the totals for 2012 show a marked improvement on previous years. Whilst this may be in some way related to the reduction in reported infringements overall it should also be recognised this is more likely to an efficient targeting of infringers at the investigation and follow-up stages.

As in previous years the identities of the individual infringers is held by the IWG in order to provide some anonymity.

## 5. Future Plans

IWG is committed to the continued improvements of data and working to reduce the number of infringements that take place on an annual basis. To this aim, the following areas are going to be concentrated on

- Work to further improve the quality of the reported data
- Review the database content to ensure that only relevant data is collected
- Ensure data is collected in a timely and efficient manner
- Greater use of statistical techniques to reveal trends

## 6. Acknowledgements

The development and current success of the infringement database would not have been possible without the support of UKOPA members. Their trust in providing the infringement records and the resources necessary to make the input to UKOPA should not be underestimated.

It is also important to recognise the important role played by HSE's Energy Division - Gas & Pipelines. They have shown faith in UKOPA's excavation safety activities, providing a valuable member of the IWG, who in turn has worked very effectively with UKOPA colleagues in pursuit of improved awareness of excavation safety in the vicinity of hazardous pipelines.