

UKOPA

United Kingdom Onshore Pipeline Operators' Association

UKOPA Report

2018 Infringement database report

UKOPA/RP/19/001 Edition 1

September 2019

REPORT ISSUED BY UKOPA:

This report has been prepared by the UKOPA Infringement Working Group and approved for publication by the UKOPA Board

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Revision and change control history

Planned revision: N/A

Edition	Date	No. of pages	Summary of changes
1.0	September 19	16	Approved for publication

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1. EXECUTIVE SUMMARY

In 2018, there was an increase of 157 in the overall number of infringements reported; 788 in 2018 compared with 631 in 2017. Despite the overall increase in reports, there was a decrease in the number of category 'B' infringements, i.e. those infringements that have serious potential to cause harm. In 2017 the total figure was 234 (37% of reports) whereas in 2018 this figure reduced to 200 (25.4% for reports). Category C infringements, those with limited potential to cause damage, accounted for 586 of the 788 reports or 74.4%. This is an increase from the 62% of C category infringements in 2017.

There were 2 A1 category (actual damage) infringements in 2018, out of 788 recorded events.

- A civil contractor damaged a high pressure dip pipe whilst re-profiling land for construction of a new building / car parking area. The operator was aware of the works and had requested the contractor contact them again prior to any construction taking place. However this did not happen prior to the incident taking place.
- A fencing contractor installed a 200mm wooden fence post directly onto a 200mm steel pipeline, with an operating pressure of 46 bar. The landowner was aware of the location of the pipeline but failed to inform the contractor, thus, no prior contact was made with the pipeline operator. The post was installed using a hydraulic ram and as a result of this work, the pipeline and wrapping was damaged. Once alerted, the pipeline operator imposed a temporary pressure restriction on the pipeline. The damage was assessed and following some minor repairs, normal pumping operations were resumed. The pipeline operator is pursuing the cost of the repairs directly with the landowner.

None of the 788 reports were recorded as A1 Malicious Damage. This is the first recording of zero incidents relating to national theft issues since the industry started recording incidents in 2015. This does not mean that no incidents of theft occurred in 2018, just that none were found during that year and vigilance is still required by all operator, contractors and the public.

The greatest number of infringements recorded continues to occur in farmland and this will remain the biggest focus area for the IWG. The UKOPA 'Landowner Guidance for Working Safely Near High Pressure Pipelines' was published in 2018 and is being rolled out by UKOPA members. During 2019, the IWG will be engaging further with the NFU and SNFU to establish links to further publicise this document. There are also plans to try and get a section on pipeline safety built into agricultural college course content.

Since 2017, there was a 2.5 % increase in the number of infringements assigned as 'caused by contractors' and an increase of 3% for infringements that have been recorded with an 'unknown' infringer. On a more positive note, the number infringements attributed to 'landowners' has reduced by 2.5%, 'local authorities/councils' reduced by 2% and 'utility' reduced by 1.2%.

From the list of top 10 infringers nationally, one organisation had 7 infringements recorded against them and 3 organisations each had 5 recorded infringements.

Following positive engagement with a number of national companies during 2018, with the aim of raising awareness of infringements, the IWG are going to continue this process during 2019.

2. 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. Whilst creating some difficulty in interpretation and analysis this has enabled 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 Infringement Working Group (IWG) manages the infringement process, and produces this report on behalf of the UKOPA members. More information on the IWG can be found in section 4.

3. CURRENT STATUS AND MANAGEMENT OF DATABASE

At the end of 2018, the following Operating companies provided a submission (including nil reports) for the UKOPA infringement database:

- BPA
- Cadent
- CATS
- CLH-PS
- Esso
- Essar
- Ineos
- Ineos FPS
- Mainline Pipelines Ltd
- National Grid
- Northern Gas Networks
- Perenco
- Petrolneos*
- SABIC UK Petrochemicals
- SGN
- Shell Expro
- Total
- Wales & West Utilities

Those Operating companies submitting “Nil Reports” are marked *.

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

The following Operating companies, registered via Linewatch, provided no return for 2018:

- Eon
- EP Langage (previously Centrica)
- Humbly Grove Energy
- Phillips66
- IGas
- Manchester Jetline
- Marchwood Power
- Uniper
- Wingas

4. IWG OBJECTIVES AND TARGETS

The IWG strategy sets out a number of objectives and these are reviewed regularly to ensure that they are still relevant.

Currently, these are to:

- Engage with companies identified as the “most frequent infringers” from annual Infringement review to improve pipeline safety awareness.
- Continue to collect 3rd party pipeline infringement data and publish an annual report.
- Raise the profile of the IWG 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.
- Work with all operators, particularly gas operators, to ensure standardisation of data submitted, utilising the selection criteria already developed.
- Identify ways of engaging with the landowner / farming community to reduce the number of infringements that occur on farming land.
- Good progress continues to be made against many of the objectives and the IWG will continue to develop on the work done to date.

In 2018, the IWG published the following documents – available on the UKOPA website www.ukopa.co.uk:

- Good Practice Guide for Local Authority Planners.
- Landowner Guidance for Working Near High Pressure Pipelines.

And in 2019, the IWG (and member companies) will be:

- Engaging with Local Authority Planners to make them aware of the 2018 published Good Practice Guide.
- Developing a contractor / utility guidance document for working near high pressure pipelines.
- Engaging with the NFU to raise awareness of infringement issues with the farming community.

4.1 Data Collection

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 continue to the focus for the group.

- Work to further improve the quality of the reported data.

Members will continue to work to improve the quality of the data submissions, with all members provided with a template of the information required for the UKOPA report.

As with any mass collation of data, data quality is an issue and there remains a wide variety in how third parties or, in the case of contractors, “who they are working for” are named, this is also true of the “unknown” records. The IWG continues to engage with members to ensure that fields are completed as fully as possible.

- Review the database content to ensure that only relevant data is collected.

The IWG will continue to consult with UKOPA members to ensure that the data fields within the database appropriately represent the findings from operator’s investigations of infringements. In doing so the challenge for the IWG is to ensure that there is due regard for the evolutionary nature of development of data collection by the large volume of gas contributors. These operators use large scale integrated databases which exist for purposes much wider than support of the infringement database, and so addition of new fields will be subjected to critical value and timing assessments.

- Ensure data is collected in a timely and efficient manner.

Pipeline operators are requested to provide data annually. Gas operator data is subject to a review in the first quarter of each year prior to submission for inclusion in the IWG infringement report. All data is then critically reviewed for apparent errors and to ensure that appropriate data field entries are consistent with agreed standards. The Linewatch members and other authorised operators utilise the Linewatch Infringement database (LIDB) for recording all events; records are submitted via this system on a daily basis. IWG is to liaise with Linewatch to try to ensure that those UKOPA members who are also members of Linewatch submit data. Even if no infringements have occurred, members should still return a ‘nil report’ submission.

- Greater use of statistical techniques to reveal trends.

As the infringement database continues to increase, so its statistical significance as a source of data for UK excavation safety will follow. The size of the dataset will enable the use of statistical analysis techniques to reveal trends and outputs. Critical to this will be to improve the quality of the report dataset to encourage greater consistency in terminology and reporting against all the UKOPA data fields.

5. MAIN FINDINGS

5.1 Infringements by Category

Figure 5-1 below presents the overall combined UKOPA data by infringement category. Analysis of the 2018 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').

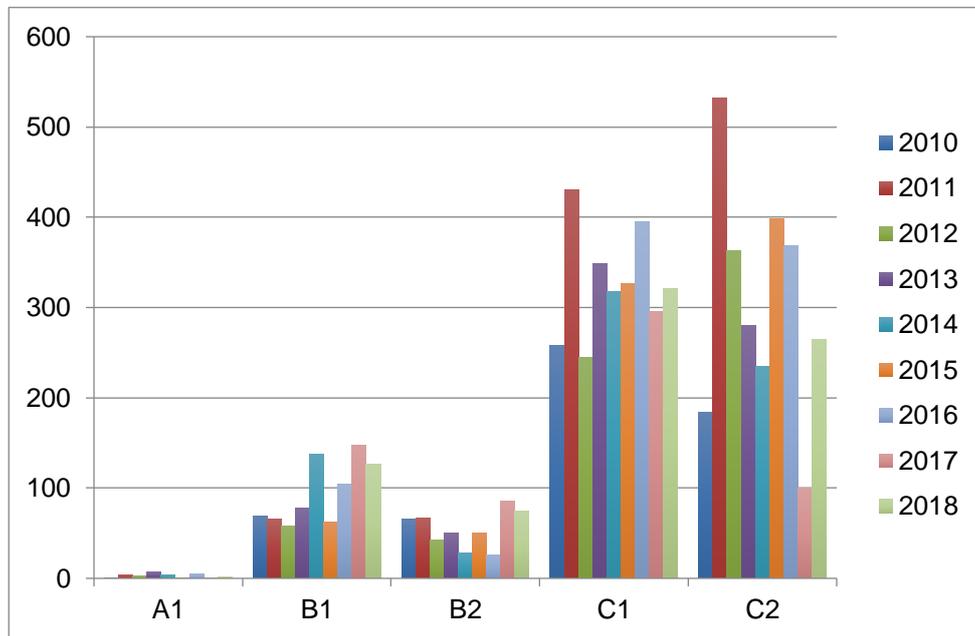


Figure 5-1 Infringements by category,

	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average
A1	1	4	3	7	4	1	5	1	2	3.1
B1	69	66	58	78	137	62	104	148	126	94.3
B2	66	67	43	50	28	50	26	86	74	54.4
C1	258	430	245	349	318	327	395	296	321	326.6
C2	184	532	363	280	235	398	368	100	265	302.8
Total	578	1099	712	764	722	838	898	631	788	781.1

Table 5-1 Rolling average by category,

There were two A1 category (actual damage) infringements in 2018, out of 788 recorded events.

- A civil contractor damaged a high pressure dip pipe whilst re-profiling land for construction of a new building / car parking area. The operator was aware of the works and had requested the contractor contact them again prior to any construction taking place. However this did not happen prior to the incident taking place.
- A fencing contractor installed a 200mm wooden fence post directly onto a 200mm steel pipeline, with an operating pressure of 46 bar. The landowner was aware of the location of the pipeline but failed to inform the contractor, thus, no prior contact was made with the pipeline operator. The post was installed using a hydraulic ram and as a result of this work, the pipeline and wrapping was damaged. Once alerted, the pipeline operator imposed a temporary pressure restriction on the pipeline. The damage was assessed and following some minor repairs, normal pumping operations were resumed. The pipeline operator is pursuing the cost of the repairs directly with the landowner.

None of the 788 reports were recorded as A1 Malicious Damage. This is the first recording of zero incidents relating to national theft issues since the industry started recording incidents in 2015. This does not mean that no incidents of theft occurred in 2018, just that none were found during that year and vigilance is still required by all operator, contractors and the public.

Despite an overall rise (25%) in reports from 631 in 2017 to 788 in 2018, there was actually a reduction in the number of category 'B' infringements recorded; i.e. those infringements that have serious potential to cause harm, from 234 to 200.

The majority, 74.3%, of the reported infringements occurred in the 'C' category, i.e. those infringements that have limited potential to cause harm' with a total of 586 of the 788 reports being in either C1 or C2. UKOPA members will continue to engage with C infringers to ensure that they understand the potential risks and hopefully avoid further infringements in the future.

Of the 788 infringements, 145 were recorded as the pipeline operator being aware of the activity taking place or 18.4%. This is an increase of over 10% from 2017, when only 8% of infringements were reported as the operator being aware of the activity taking place; this is still much lower than the 39% recorded in 2016.

5.2 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 5-2 shows the distribution of infringements across reported activity types.

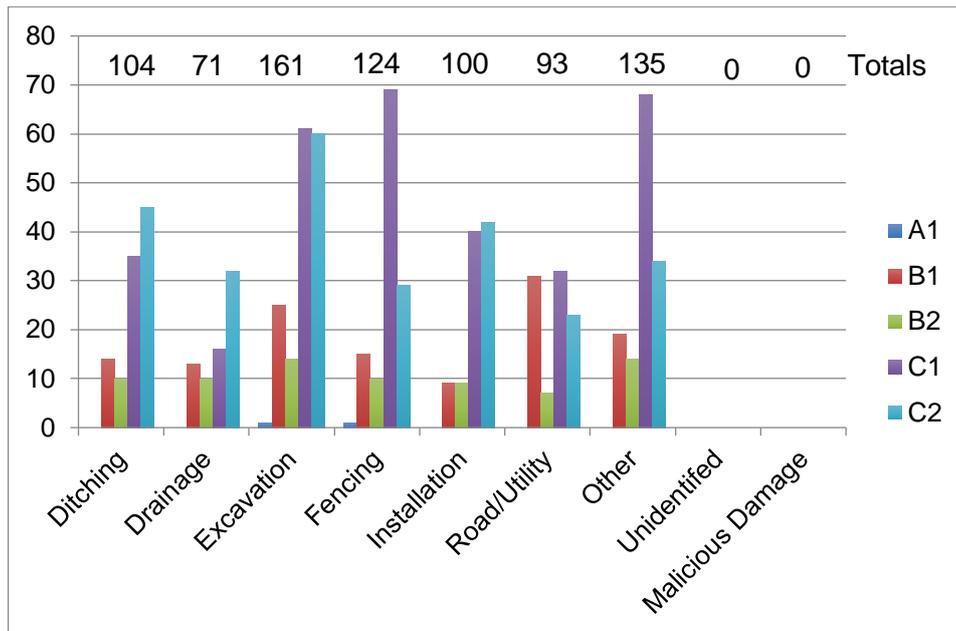


Figure 5-2 Infringements by activity type 2018.

During 2018, there continues to be a trend of all activity type for infringements being recorded. Thus, for the second year running, there were no unidentified activities. There were also no malicious damages recorded.

Work (Road / Utility) by contractors and utility owners has produced the highest number of B1 with 31 infringements in 2018. This is closely followed by excavation works, which includes excavations for services, repairs and earth moving with 25 infringements. These 2 categories thus account for 44% of all B1 infringements. Work during 2019 on the guidance for contractors and utilities working near High Pressure (HP) Pipelines and further engagement with the contracting community is aiming to reduce this number in the coming years.

Those activities grouped together as “other” are made up of 15 activity types – Archaeology, Crossing by Heaving Vehicles, Flooding, Forestry, Site Compound, Landscaping, Machinery Parked, Machines in Easement, Other, Quarry/ Mineral Extraction, Ground Movement / Riverbank, Tree / Vegetation Clearing, Storage (on top of pipeline / easement), Waste Burning and Waste Dumping - which individually are low in the number of events.

However, there is also a specific activity type in the infringement database entitled ‘other’ which is what is recorded if an infringement is anything other than the categories in the drop-down menu of the database. This year the overall number of infringements recorded specifically as ‘other’ is 37. The combined total of all the ‘other’ infringements is 135. This is 17% of all infringements recorded, 1% less than in 2017.

5.3 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.

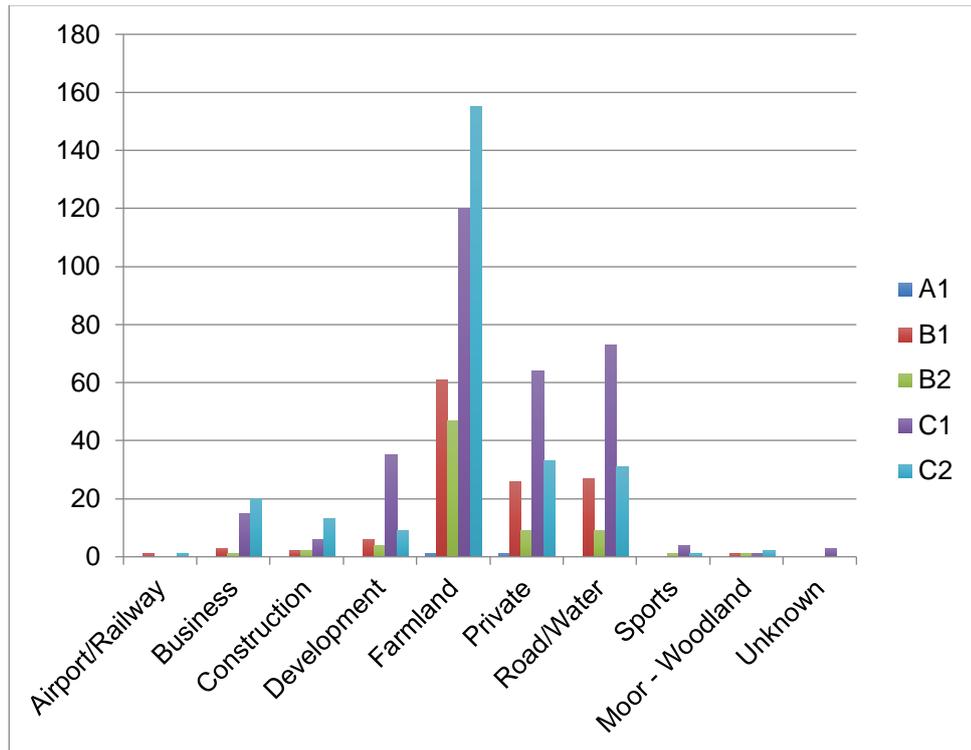


Figure 5-3 Infringements by location type 2018.

Incidents in ‘farmland’ continues to provide the largest number of records in the database. The IWG has continued to try to engage with organisations associated with farmers – such as the National Farmers Union (NFU), in particular with the Farm Safety Partnership, and HSEs agricultural sector – to further raise awareness of the dangers of working near pipelines and the precautions required.

The industry awareness document ‘Landowners Guidance for Working Safely Near High Pressure Pipelines’ was published at the end of 2018. This document is currently being rolled out across the landowner populations and it is hoped that these initiatives will lead to the same type of improvement and reduction in incidents recorded, as those associated with work carried out in roads and by utilities and contractors, that occurred following targeted action by IWG in this area in previous years.

Work in farmland, private land and roads / waterways continue to provide the greatest number of incident reports recorded, accounting for almost 83.3%. This figure is almost the same as in 2017 with a figure of 84% and 2016 with a figure of 83%. These areas therefore should continue to remain the focus of awareness raising initiative by IWG and UKOPA member companies.

5.4 Infringements by Third Party Type

UKOPA is 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?

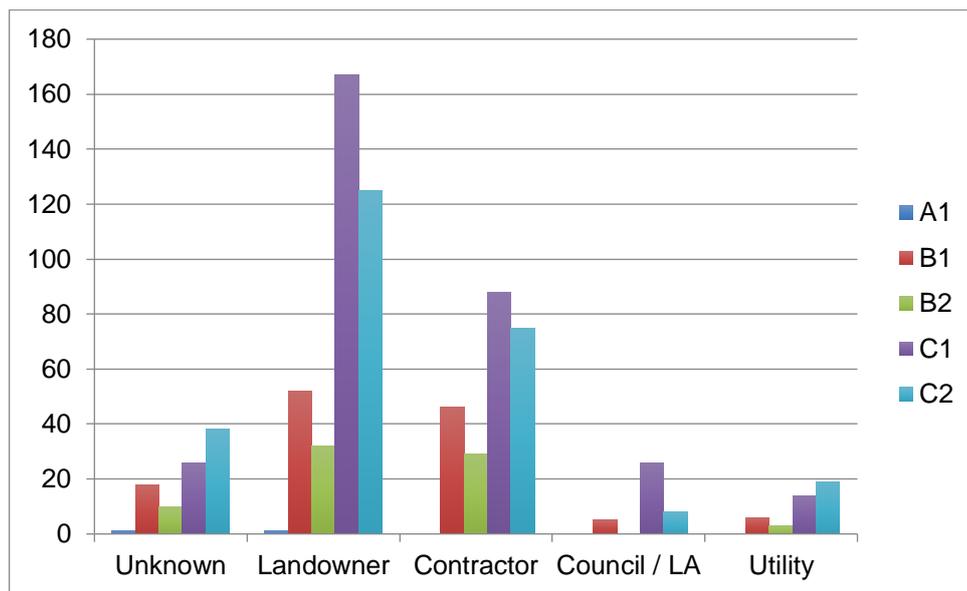


Figure 5-4 Infringements by infringer type 2018.

Figure 5-4 describes the current position by infringer type. Landowners continue to be the largest single infringing group with 47.8% if all infringements being in this category. However, it should be noted that this is almost 2.5% lower than in 2017. It is also acknowledged that the Contractor figure is will include both rural 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.

In 2018, Contractor infringer type once again increased to 30.2% of all infringers. This increase follows an upward trend, 27.7% in 2017, 25.7% in 2016, 16.6% in 2015 and 9.3% in 2014. In 2019, work will start at producing a guidance document aimed at contractors and utilities working in the vicinity of HP pipelines Last year’s recommendation for the IWG to look to develop an awareness campaign for UKOPA and its members to share with the contractor community to again raise awareness of the risks of working near pipelines, and this will be followed by an active roll-out campaign

The totals recorded against “unknown” has increased to 93 in 2018 (11.8% compared with 9.3% in 2017, 10.5% in 2016 and 17% in 2015). This may still 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.

5.5 Third Party Infringement Performance

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, but also give a focus to where member awareness raising could be targeted.

A summary of the main activity groups is presented at the top of the Table 5-3 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 can be seen work still needs to be done on reducing the number of ‘unknown’ category reports, particularly as in 2018 this weighted score has increased to 210 compared with an average of 183 in the previous 4 years.

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, included in Table 5-3 as an adjacent column. The multiplier “risk” values are based upon the model developed in consultation between the IWG, Linewatch and UKOPA, as below in Table 5-2.

A1	10
B1	5
B2	2
C1	2
C2	1

Table 5-2 Risk Multiplier Matrix

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 work promoters (identified as company A, company B, etc.) in Table 5-3 are not published and remain confidential to UKOPA.

However, 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 5-3 has been previously 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 activities, they have become aware of their overall infringement behaviour. HSE’s feedback is that this data has received serious attention at senior levels within each company where brought to their attention.

Identifier/Category	Total	A1	Weight X10	B1	Weight X5	B2	Weight X2	C1	Weight X2	C2	Total weighted score
<i>Unknown</i>		0	0	18	90	10	20	26	52	38	200
<i>Land/Farm</i>		1	10	52	260	32	64	167	334	125	793
<i>Contractor total</i>		1	10	46	230	29	58	88	176	75	549
<i>Council / LA</i>		0	0	5	25	0	0	26	54	8	87
<i>Utility/Infrastructure</i>		0	0	6	30	3	6	14	28	19	83
Company A	7	0	-	1	5	0	-	5	10	1	16
Utility A	5	0	-	1	5	3	6	1	2	0	13
Company B	4	0	-	2	10	1	2	0	-	1	13
Company C	4	0	-	2	10	0	-	1	2	1	13
Company D	5	0	-	0	-	0	-	5	10	0	10
Company E	4	0	-	1	5	0	-	2	4	1	10
Local Authority A	5	0	-	0	-	0	-	5	10	0	10
Company F	4	0	-	1	5	1	2	0	-	2	9
Voluntary Trust A	4	0	-	0	-	0	-	4	8	0	8
Company G	4	0	-	0	-	0	-	3	6	1	7

Table 5-3 Significant Infringers 2018

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.

As in the previous four years, the records for 2018 show no infringer with multiple events (more than 10) recorded against them. Many of the contractor companies in table 5.3 were working on behalf by a variety of Utilities/Infrastructure agencies and Local Authorities and generally indicate those operating at a national level and across a number of work sectors. The other companies on the list are national housing and infrastructure development organisations and UKOPA should look to engage with these companies to raise awareness of these issues.

Following the engagement with utility companies who appeared in the repeat offenders list, in 2017, the number of utility companies appearing on the repeat offenders list has reduced. However, more work is required within the contracting and house building community.

The identities of the individual infringer companies / organisations are held confidentially by the UKOPA Secretariat.

6. CONCLUSIONS AND RECOMMENDATIONS

In 2018, there was a 32.5% increase in the number of infringements reported. 788 in total, compared with 631 in 2017 and 898 in 2016.

Those infringements that have serious potential to cause damage, i.e. B category (B1 and B2) total 200 of the 788 reports, or 25.4%. In 2017, B category reports accounted for 37% of the 631 reports. Category C infringements, those with limited potential to cause damage, accounted for 586 of the 788 reports or 74.4%. This is an increase from the 62% of C category infringements in 2017.

In 2018, the number of B1 and C1 findings (within the pipeline easement) was 447 or 56.7% of the total number of infringements. In 2017 however, there was a total of 444 B1 and C1 reports 70.4%. However, the number of B2 and C2 findings (within the pipeline operator's zone of interest) accounted for 43% of reports, compared with 29.5%. Operator companies do, however, investigate all types of infringements and are encouraged to share the findings across the UKOPA membership. Over half of the 'Safety Alerts' shared by UKOPA with members in 2018, were based on recorded infringements and learnings from them.

UKOPA members, and in particular the IWG, will continue to raise awareness of working safely within pipeline easements, particularly with contractors, utilities, landowners and tenants. An emphasis on Operator companies being made aware of all planned works by landowners and/or contractors within their zone of interest should continue to be encouraged. Particular emphasis during 2019 should be focused on the contractor community, with the IWG contacting those organisations that appear on the 'top 10' infringers list and whilst investigating other ways to engage further.

Members of IWG will continue to ensure that data is collected in a timely manner and engage with their members to encourage completion of all fields within the infringement database. Consistency of reporting terminology and structured approaches to reporting will continue to be developed. An issue that needs to be addressed is those UKOPA members who report via Linewatch that have not submitted any data, or nil-report, in 2018. The IWG chairman and Linewatch chairman (who is also a member of IWG) will work to address this.

The IWG will continue engage with the HSE to discuss ways of raising awareness of pipeline infringement with the farming and landowner community.

7. 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 HID 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.

APPENDIX A. IWG MEMBERSHIP 2018

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 on behalf of UKOPA incorporating input from the Linewatch Infringement reporting database where authorised member contributions are provided in a uniform format.

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 2018 was constituted as follows:

- Nikki Barker IWG Secretary
- Robert Bood National Grid Transmission
- Alan Meyer HSE (invited member)
- Jim Brohan GNI
- David Brown Essar
- Kenneth Burn CATS
- Martin Davey SGN
- Brian Downes Shell
- Walter Gaffney SGN
- Geoff Glover SABIC
- Ian Hageman CLH-PS
- Daniel Ingham Cadent
- Jim Jarvie Ineos
- Chris Johnson Ineos FPS
- Kam Liddar National Grid Transmission
- Mick Mills Esso Petroleum
- Grant Rogers Wales & West Utilities
- Philip Taylor BPA (IWG Chair)
- David Turner Northern Gas Networks

The 2018 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 Linewatch database.

APPENDIX B. GUIDANCE ON INFRINGEMENT CATEGORIES

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 B-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 B-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 B-3 Infringement categories