



United Kingdom Onshore Pipeline Operators' Association

UKOPA Report

2019 Infringement database report

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EXECUTIVE SUMMARY

The Infringement Working Group (IWG) is one of five working groups of UKOPA and it is responsible for collecting and collating incidents (accidental or malicious) where cross country pipelines have been damaged and near misses where there was a potential for damage (Infringements) have occurred. The IWG produces an annual report that identifies the number of Infringements recorded in the UKOPA infringement database and provides some statistical analysis regarding, the type of infringement, where it occurred and how it happened.

In 2019, 760 infringements were recorded, 2 of which were malicious damage an increase from 2018 when none were reported. The total number reported between 2015 and 2019 now totals 66, vigilance is still required by operators, contractors and the public.

The annual report concentrates on the accidental events and as such the total number of infringements considered throughout the report is 758.

There was one A1 category (actual damage) infringement in 2019 where a demolition contractor damaged a high-pressure gas pipe whilst removing foundations and utilities from an old steel mill site. The pipeline was subjected to a variety of damage across 9 areas, with one of them resulting in a pinhole leak. The gas escape alerted the contractor to stop work and contact the pipeline operator.

For the third year running there has been a reduction in the number of B infringements (those that have serious potential for damage) to 125 reports (16.5% of the total reported) compared with 25.4% in 2018 and 37% in 2017.

Category C infringements (those with limited potential for damage) accounted for 83.4% (632) of reports.

The greatest number of infringements recorded continues to occur on “farmland” and this will remain the major focus area for the IWG. In 2020 UKOPA will look to re-establish links with the National Farmers Union (NFU) and the Scottish National Farmers Union (SNFU) to explore different ways of raising awareness.

IWG action plan for 2020/1

- Improve database categorisation of work/activity that has been categorised as ‘other’ in activity type to see if there are any hidden sector / specific areas (e.g. forestry/tree planting) that require focus.
- Member companies to increase investigation of infringements with an aim to reduce the number of infringements recorded as ‘unknown’ in third party type.
- Extend the work areas of the IWG to open communications with “new” infringers with the aim to prevent these emerging issues escalating to a significant threat. (e.g. forestry).
- Local government/councils and utility/infrastructure companies have seen an almost 50% increase in the significance of infringements (based on weighted value) and remain a focus for IWG.

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 industrywide statistics in order that the Association can develop effective improvement plans as well as ensuring its UK wide experience is fully exploited to reduce the potential for damage to high hazard pipeline assets in order to protect people and property and to influence regulatory processes.

The Infringement Working Group (IWG) members share experiences and manage the infringement database to allow this report to be produced. More information on the IWG members and tasks can be found in appendix B and C.

2. MAIN FINDINGS

Appendix D provides the definition of infringements as agreed by UKOPA members. In summary infringements are categorised based on a Risk Index (A – pipeline damage or leak, B – serious potential for damage, or C – limited potential for damage) and a Location index (1 – within operators’ wayleave or easement or 2 – within operators’ notification zone).

2.1 Infringements by Category

Figure 3-1 below presents the overall combined UKOPA data by infringement category. Analysis of the 2019 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’).

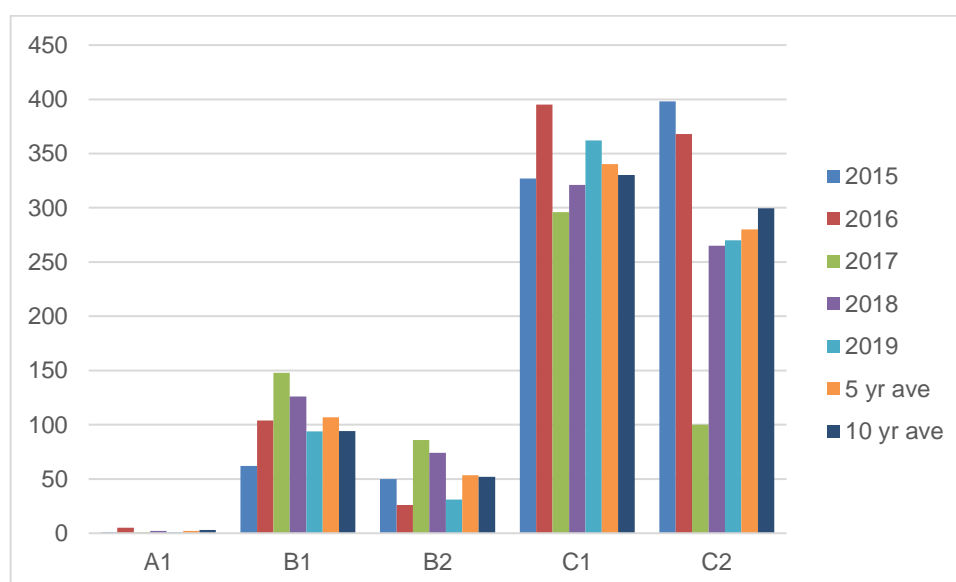


Figure 3-1 Infringements by category

	2015	2016	2017	2018	2019	5 year rolling average	10 year rolling average
A1	1	5	1	2	1	2.0	2.9
B1	62	104	148	126	94	106.8	94.2
B2	50	26	86	74	31	53.4	52.1
C1	327	395	296	321	362	340.2	330.1
C2	398	368	100	265	270	280.2	299.5
Total	838	898	631	788	758	782.6	778.8

Table 3-1 Rolling average by category

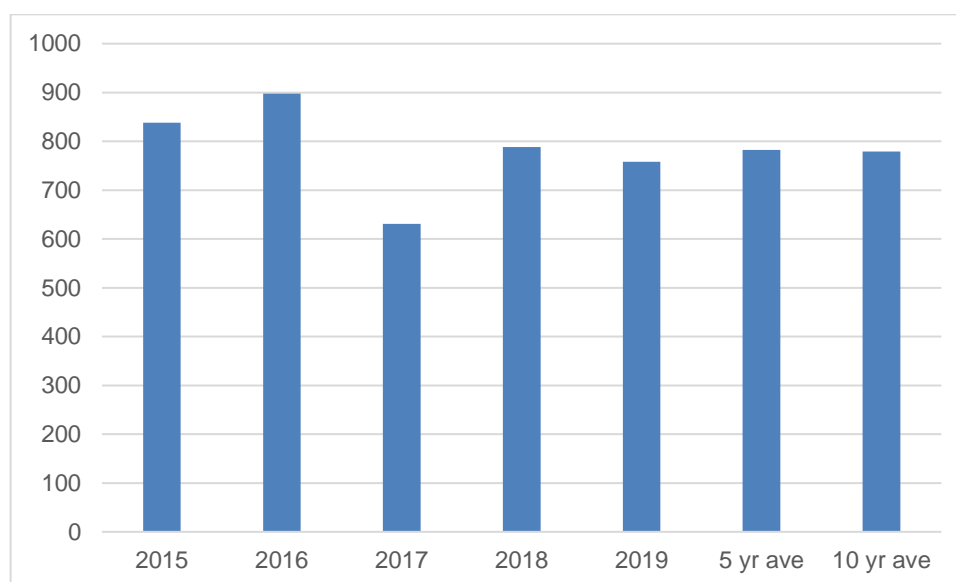


Figure 3-2 Annual Total Number of Infringements

In 2019, there we are total of 760 infringement reports recorded in the database. Of the 760 reports recorded, 2 were identified as A1 Malicious Damage, relating to national theft issues. These reports have not been included in any further analysis throughout this report and thus the number of infringement reports being considered is 758. Despite there being zero malicious damages reports in 2018, in the previous 3 years there were 64, thus the 5-year total is 66. Pipeline operators continue to work hard to reduce malicious damage, but vigilance is still required by all operators, contractors, and the public.

There was one A1 category (actual damage) infringement in 2019, out of 758 recorded events:

- A demolition contractor damaged a high-pressure gas pipe whilst removing foundations and utilities from an old steel mill site. The pipeline was subjected to a variety of damage across 9 areas, with one of them resulting in a pinhole leak. The gas escape alerted the contractor to stop work and contact the pipeline operator.

In 2019, there was a decrease of 30 in the overall number of infringements reported, compared with 2018; 758 in 2019 versus 788 in 2018. For the third year running, 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), in 2018 this figure reduced to 200 (25.4% for reports) whilst in 2019 the figure reduced still further to 125 reports (16.5% of reports). This is a considerable reduction and is viewed as a positive trend.

Category C infringements, those with limited potential to cause damage, accounted for 632 of the 758 reports or 83.4%. An increase from the 2018 figure of 74.4%. UKOPA members will continue to engage with C category infringers to ensure that they understand the potential risks associated with working near high pressure pipelines and hopefully avoid further infringements in the future.

Of the 758 infringements, only 40 were recorded as the pipeline operator being aware of the activity taking place (5.3%). The conclusion to be drawn from this figure is that work is taking place in and around high pressure pipelines where the correct processes of engagement between those carrying out the work and the pipeline operator has not taken place. The IWG need to consider this statistic in its future work programme.

2.2 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 3-3 shows the distribution of infringements across reported activity types.

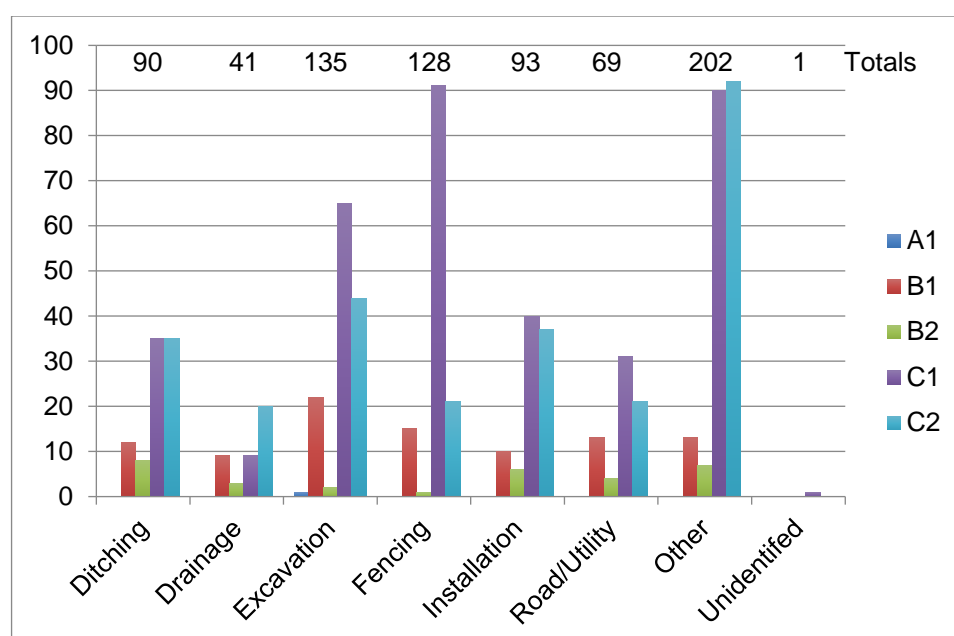


Figure 3-3 Infringements by activity type 2019

During 2019, there continues to be a trend of all activity type for infringements being recorded, with only 1 infringement recorded as an unidentified type.

Excavation works (including excavations for services, repairs, earthmoving, groundworks etc) recorded the greatest number of B1 infringements at 22. Road/Utility work recording 13 B1 infringements and Installation (including bore-holing, building works and installations) recorded 10. These 3 categories account for 45 of the 94 B1 infringements (47.8%) and much of this work is carried out by contractors and utility owners. Roll out of the UKOPA guidance document aimed at contractors and utilities working near high pressure pipelines, should increase engagement with these community workforces with the aim of reducing numbers in the coming years.

Fencing continues to provide the largest number of C category infringement, 112 in 2019 an increase of 14 from the 2018 figure. The IWG could consider working more closely with fencing contractors to increase awareness of high-pressure pipelines and the actions that should be put in place prior to them carrying out their work.

Those activities grouped together as “other” are made up of 16 activity types – Archaeology, Crossing by Heaving Vehicles, Flooding, Forestry, Council Work, Landscaping, Machinery Parked, Machines in Easement, Other, Quarry/ Mineral Extraction, Ground Movement /

Riverbank, Tree/Vegetation Clearing/Planting, Storage, Waste Burning/Fire, Waste Dumping and Waterway Repairs/Riverbank - 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.

The combined total of all the 'other' infringements is 202, of which 60 were unidentified. This is 26.6% of all recorded infringements, almost 10% more than in 2018. It is recommended that IWG carry out some further investigation work to identify the areas of largest increase from previous years in the 'Other' category and identify ways of trying to reduce this figure.

2.3 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.

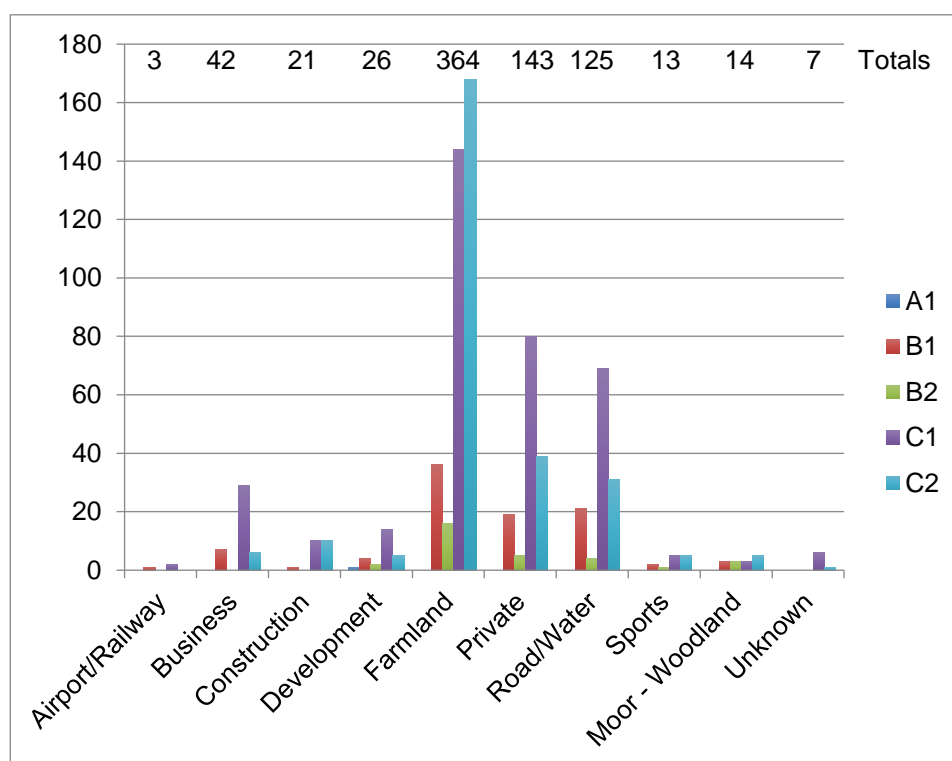


Figure 3-4 Infringements by location type 2019

Incidents in 'farmland' continues to provide the largest number of records in the database. In 2019 these accounted for 364 infringements (or 48% of all records), whereas in 2018 this figure was 384 (48.7% of all records). It is noted however that for B infringements the number reduced significantly in 2019 to 52 (or 14.2%) of farmland infringement compared with 108 (or 28.1%) in 2018. Engagement by the IWG with the NFU, has not yet proved to be particularly beneficial and further work is required. IWG does however have another project in place to

take a presentation into agricultural colleges, thus focusing on the next generation of those who will be working on farmland. The basis for that presentation will be the information contained in the industry awareness document 'Landowners Guidance for Working Safely Near High Pressure Pipelines' that was published at the end of 2018. Landowner liaison by pipeline operators, however, remains crucial for engaging with landowners and raising awareness.

Work in farmland, private land and roads / waterways continue to provide the greatest number of incident reports recorded, accounting for almost 83%. This figure has been almost static (between 84 and 83%) since 2016. These areas therefore should continue to remain the focus of awareness raising initiative by IWG and UKOPA member companies.

2.4 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?

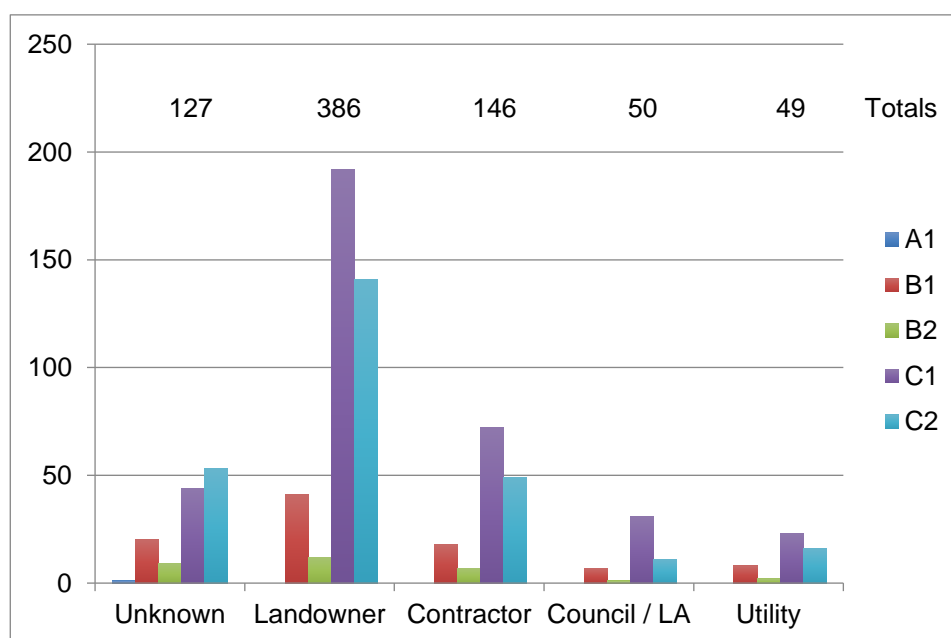


Figure 3-5 Infringements by infringer type 2019

Figure 3-5 describes the current position by infringer type. Landowners continue to be the largest single infringing group with 50.9% if all infringements being in this category. This figure is 3% higher than in 2018.

Contractor infringer type decreased from 30.2% in 2018 to 19.3% in 2019. This large decrease is the first reduction from an upward trend for the previous 5 years. The work started in 2019 to produce a guidance document aimed at contractors and utilities working in the vicinity of

high pressure pipelines has almost concluded and the published document will be rolled out to the contracting community during 2020. The positive engagement by UKOPA members with contractors prior to this campaign could account for this initial reduction.

It is acknowledged that the Contractor figure will include both rural (for example agricultural activities) and urban activities (for example on development land). 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.

There continues to be an upward trend in the number of infringements recorded as 'unknown' at 16.7% (127). This continues to suggest a lack of ability to follow-up on the original report. The figures will though inherently include infringements where parties have left the site between the sighting report and a site visit taking place. IWG is working with members to try and ensure that the number of 'unknown' reports are reduced.

2.5 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 3-3 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 2019 this weighted score has increased to 269 (increased from 210 in 2018) compared with an average of 188 in the previous 5 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 3-3 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 3-2.

A1	10
B1	5
B2	2
C1	2
C2	1

Table 3-2 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 3-3 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 3-3 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	Number of infringements	A1	Weight X10	B1	Weight X5	B2	Weight X2	C1	Weight X2	C2	Total weighted score
Unknown		1	10	20	100	9	18	44	88	53	269
Land/Farm		0	0	41	205	12	24	192	384	141	754
Contractor total		0	0	18	92	7	14	72	144	49	297
Council/LA/ Government		0	0	7	35	1	2	31	62	11	110
Utility/Infrastructure		0	0	8	40	2	4	23	46	16	106
Company A	2	0	-	2	10	0	-	0	-	0	10
Utility A	4	0	-	1	5	0	-	1	2	2	9
Company B	3	0	-	1	5	0	-	2	4	0	9
Company C	2	0	-	1	5	0	-	1	2	0	7
Company D	2	0	-	1	5	0	-	1	2	0	7
Company E	2	0	-	1	5	0	-	0	0	1	6
Local Authority A	5	0	-	0	-	0	-	5	10	0	10
Company F	5	0	-	0	-	0	-	4	8	1	9
Company G	5	0	-	0	-	0	-	4	8	1	9
Utility B	5	0	-	0	-	0	-	4	6	1	9

Table 3-3 Significant Infringers 2019

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 five years, the records for 2019 show no infringer with more than 10 infringements recorded against them. Many of the contractor companies in table 3.3 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 for innovative ways to engage with these companies to raise awareness of these issues.

On a positive note, the contractor weighted average score has reduced from 549 in 2018 to 297 in 2019, a reduction of 46%. There have however been infringers identified for the first time in work areas that have not been noted before, such as forestry. UKOPA members should therefore be focusing on targeting companies working in industries.

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.

3. CONCLUSIONS AND RECOMMENDATIONS

In 2019, there was a 3.8% decrease in the number of infringements reported, from 788 to 758.

Those infringements that have serious potential to cause damage, i.e. B category (B1 and B2) total 125 of the 758 reports (16.5%) compared with 200 of the 788 reports (25.4%) in 2018. Category C infringements, those with limited potential to cause damage, accounted for 632 of the 758 reports (83.4%) compared with 586 of the 788 reports (74.4%) in 2018.

In 2019, the number of B1 and C1 findings (within the pipeline easement) was 456 or 60.2% of the total number of infringements. In 2018 however, there was a total of 447 or 56.7%, thus a 3.5% increase. Therefore, the number of B2 and C2 findings (within the pipeline operator's zone of interest) accounted for 39.7% of reports, compared with 38% in 2018. Operator companies do, however, investigate all types of infringements and are encouraged to share the findings across the UKOPA membership. IWG members continue to prepare 'Safety Alerts' from infringement investigations and share them with UKOPA members. There is still the ability to improve on this though.

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. Roll out of the contractor and utility working safely near high pressure pipelines document should increase engagement, as will the production of the agricultural college presentation.

Members of IWG should continue to ensure that data is collected and submitted in a timely manner and engage with their companies to encourage completion of all fields within the infringement database. Consistency of reporting terminology and structured approaches to reporting will continue to be developed. Work has been done by Linewatch during 2019 to encourage those members of that organisation who have not submitted data to do so, even if this was a nil-report (i.e. no infringements). For the first time, all members have reported.

The IWG will continue engage with the HSE to discuss ways of raising awareness of pipeline infringements across all sectors.

3.1 Specific actions for IWG

- Improve database categorisation of work/activity that has been categorised as 'other' in activity type to see if there are any hidden sector / specific areas (e.g. forestry/tree planting) that require focus.
- Member companies to increase investigation of infringements with an aim to reduce the number of infringements recorded as 'unknown' in third party type.
- Extend the work areas of the IWG to open communications with "new" infringers with the aim to prevent these emerging issues escalating to a significant threat. (e.g. forestry).
- Local government/councils and utility/infrastructure companies have seen an almost 50% increase in the significance of infringements (based on weighted value) and remain a focus for IWG.

4. 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: CURRENT STATUS AND MANAGEMENT OF DATABASE

At the end of 2019, the following Operating companies provided a submission (including nil reports) for the UKOPA infringement database:

- | | |
|-------------------------------------|--------------------------|
| • BPA | • Cadent |
| • CATS | • CLH-PS |
| • Conoco Philips* | • Eon |
| • EP Langage (previously Centrica)* | • Esso |
| • Essar | • Humbly Grove Energy* |
| • iGas* | • Ineos |
| • Ineos FPS | • Mainline Pipelines Ltd |
| • Manchester Jetline* | • Marchwood Power* |
| • National Grid | • Northern Gas Networks |
| • Perenco | • Petrolneos |
| • SABIC UK Petrochemicals | • SGN |
| • Shell | • Total |
| • Wales & West Utilities | • Uniper |

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

Those companies indicated with * provided a response indicating they had zero infringements during the year.

APPENDIX B: 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 UKOPA and the management of pipeline safety 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 2019, the IWG

- Published UKOPA/GPG/029 Local Authority Planners information regarding On Shore Pipelines and Associated Installations (available on the [UKOPA website](#)).
- Prepared a presentation for use by members to roll out UKOPA/GPG/029 Local Authority Planners information regarding On Shore Pipelines and Associated Installations.
- Developed a draft of the contractors / utility guidance document for working near high pressure pipelines.

And in 2020, the IWG (and member companies) aim to:

- Publish the contractor / utility guidance document for working near high pressure pipelines document and roll out across the contractor community
- Update the UKOPA ‘Working Safely’ video for rollout in 2021 via the UKOPA website
- Develop a presentation for use in agricultural colleges to raise awareness of high pressure pipeline issues

B.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, although encourage to report throughout the year. 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.

APPENDIX C: IWG MEMBERSHIP 2019

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 2019 was constituted as follows:

- Nikki Barker IWG Secretary
- Jim Brohan GNI
- Kenneth Burn CATS
- Neil Casey HSE (invited member)
- Paul Connolly National Grid Gas Transmission
- Clark Findlay Ineos FPS
- Martin Davey SGN
- Walter Gaffney SGN
- Donald Gilbank Northern Gas Networks
- Geoff Glover SABIC
- Ian Hageman CLH-PS
- Daniel Ingham Cadent
- Jim Jarvie Ineos
- Kam Liddar National Grid Gas Transmission
- Forbes Masterston Shell
- Mick Mills Esso Petroleum
- Ron Murray Petrolneos
- Paul Potts Essar
- Grant Rogers Wales & West Utilities
- Carl Sadler CLH-PS
- Phillip Taylor BPA (IWG Chair)

The 2019 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 D: 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 D-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 D-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 D-3 Infringement categories