



United Kingdom Onshore Pipeline Operators' Association

UKOPA Report

2020 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 by UKOPA members in the UKOPA infringement database and provides some statistical analysis regarding, the type of infringement, where it occurred and how it happened.

In 2020 there were 822 infringements recorded, none of which were categorised malicious.

There were five A1 category (actual damage) infringements in 2020 0.6% of infringements recorded, up from 1 in 2019. An overview of those infringements is provided below:

- A tenant farmer damaged a high pressure multi product fuel pipeline when installing fencing. The pipeline was subject to damage from two posts being mechanically driven into the ground. The pipeline was dented with no release of product. The pipeline operator was not made aware of these works by the farmer and discovered the damage via the operator's in line inspection tools.
- New landowner was clearing trees and shrubs and to dispose of the waste, decided to dig a large hole in the middle of his field to bury it. In doing so the 600mm high-pressure pipeline was damaged. This damage has been classified as "Superficial Damage" and there was no release of product.
- A contractor carried out ditching works directly over a high-pressure pipeline and was completed prior to investigation. The pipeline had however been struck with its coating damaged, however there was no release of product. Coating damage was repaired through grit blasting and recoating.
- A contractor carried out extensive regrading of land on behalf of the landowner in proximity to a high-pressure pipeline. The pipeline was struck causing gouges and a dent, although no release of product, necessitating an epoxy repair shell.
- Contractor working on behalf of landowner carried out ditch clearing works over two High-Pressure pipelines and caused damage to the coating on one of the pipes, but no release of product. Works were completed before contractor contacted the pipeline operator. Coating on high pressure pipeline has been repaired.

For the first time in three years there has been a slight increase the number of B infringements recorded, (those that have serious potential for damage) to 148 (18% of the total reported) compared with 16.5% in 2019 and 25.4% in 2018, but still below the 2018 figure. Category C infringements (those with limited potential for damage) accounted for 81.4% (669) of reports.

The greatest number of infringements recorded continues to occur on "farmland" and this will remain the major focus area for the IWG. Additionally, the IWG aim is to re-establish links with the National Farmers Union (NFU) and the Scottish National Farmers Union (SNFU) to explore different ways of raising awareness. Completion of the UKOPA working safely presentation for agricultural colleges and subsequent roll out should assist with raising awareness of HP pipelines.

IWG action plan for 2021/2022

The specific actions for 2021/22 for the IWG from this report are:

- Action 1: The IWG should monitor this trend (infringements where pipeline operator was aware of the activity taking place) and if necessary identify initiatives to reduce the figure.
- Action 2: IWG aim to revise its strategy to help operators target a reduction in infringements in these key areas (Road/rail/utility works, Excavation works and Ditching).
- Action 3: IWG aim to investigate what members have been doing to decrease the number of fencing infringements and utilise these learnings in other key areas.
- Action 4: IWG will find ways of engaging with the forestry industry body to raise awareness with the aim of reducing this figure.
- Action 5: Awareness raising initiatives by IWG and UKOPA member companies will continue with the aim of reducing the number of infringements in Farmland, Private Land and in Road / Waterways.
- Action 6: IWG with UKOPA members will continue to work together to improve the categorisation of infringements to try and ensure that the number of 'unknown' reports are reduced.

The IWG will also:

- Complete the UKOPA 'Working Safely' video update, rollout via the UKOPA website including a PR campaign aimed at landowners and farmers.
- Complete the presentation for use in agricultural colleges to raise awareness of high pressure pipeline issues and engage colleges to get this on their curriculums
- Re-establish links with NFU and SNFU and explore ways of raising awareness of high pressure pipelines

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 2020 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’).

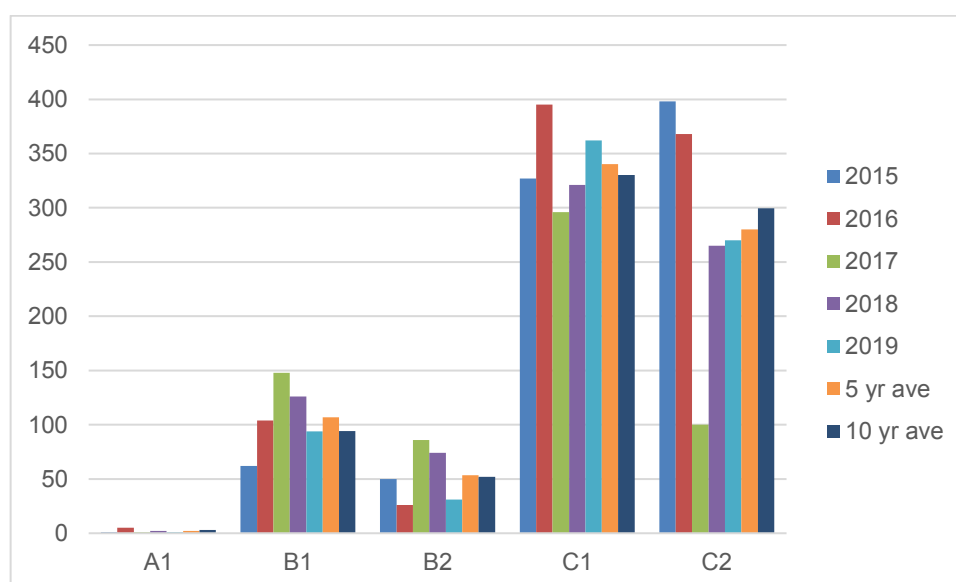


Figure 3-1 Infringements by category

	2016	2017	2018	2019	2020	5 year rolling average	10 year rolling average
A1	5	1	2	1	5	2.8	3.3
B1	104	148	126	94	86	111.6	95.9
B2	26	86	74	31	62	55.8	51.7
C1	395	296	321	362	377	350.2	342
C2	368	100	265	270	292	259.0	310.3
Total	898	631	788	758	822		

Table 3-1 Rolling average by category

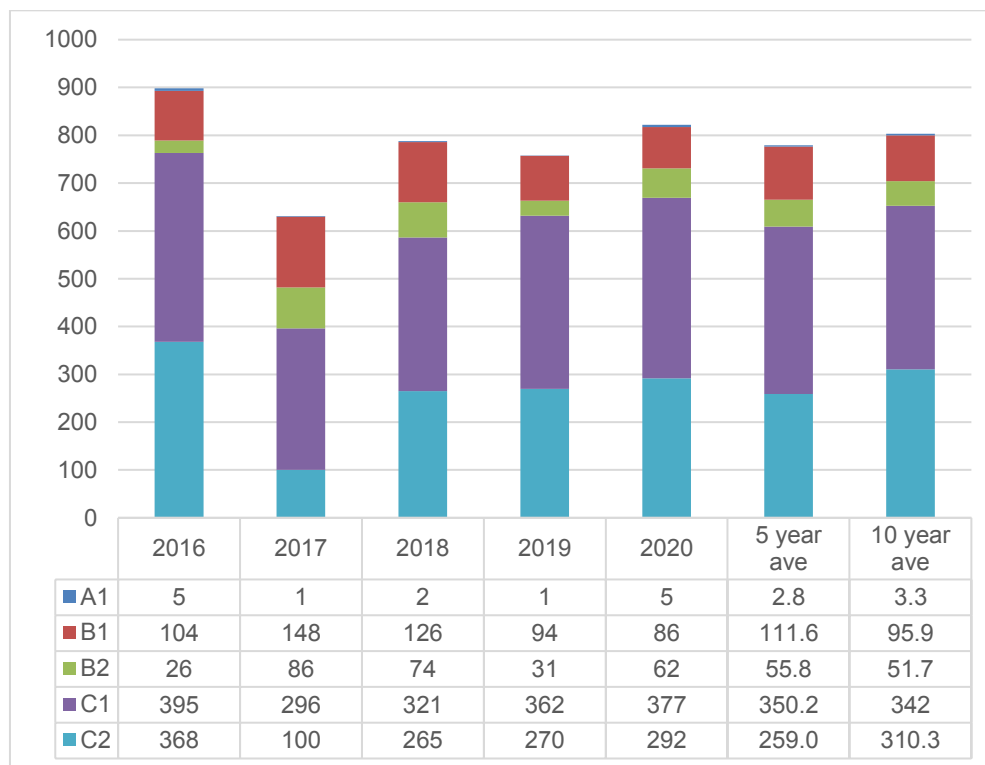


Figure 3-2 Annual Total Number of Infringements

In 2020, there were a total of 822 infringement reports recorded in the database. An increase of 64 from 2019, or 7.8%.

There were five A1 category (actual damage) infringement in 2020, out of 822 recorded events, compared with one A1 report for 2019.

An overview of each of the 2020 A1 infringements is given below:

- A tenant farmer damaged a high pressure multi product fuel pipeline when installing fencing. The pipeline was subject to damage from two posts being mechanically driven into the ground. The pipeline was dented with no release of product. The pipeline operator was not made aware of these works by the farmer and discovered the damage via the operator's in line inspection tools.
- New landowner was clearing trees and shrubs and to dispose of the waste, decided to dig a large hole in the middle of his field to bury it. In doing so the 600mm high-pressure pipeline was damaged. This damage has been classified as "Superficial Damage" and there was no release of product.
- A contractor carried out ditching works directly over a high-pressure pipeline and was completed prior to investigation. The pipeline had however been struck with its coating damaged, however there was no release of product. Coating damage was repaired through grit blasting and recoating.
- A contractor carried out extensive regrading of land on behalf of the landowner in proximity to a high-pressure pipeline. The pipeline was struck causing gouges and a dent, although no release of product, necessitating an epoxy repair shell.

- Contractor working on behalf of landowner carried out ditch clearing works over two High-Pressure pipelines and caused damage to the coating on one of the pipes, but no release of product. Works were completed before contractor contacted the pipeline operator. Coating on high pressure pipeline has been repaired.

In 2020, there was an increase in the overall number of infringements reported of 64 to 822, compared with 758 in 2019 and 788 in 2018. Although there was a decrease in the number of B1 infringements recorded (86 in 2020 compared with 94 in 2019) there was an increase of 1.5% in the overall number of category 'B' Infringements (B1+ B2), i.e. those infringements with a serious potential to cause harm. In 2019, 16.5% of the infringements were categorised a 'B' compared with 18% in 2020. This figure is still below the 2018 (24.5%) and 2017 (37%) percentages.

Category C infringements, those with limited potential to cause damage, accounted for 669 of the 822 reports or 81.4%. A decrease from the 2019 figure of 83.4%, and correlates to the increase in A and B infringements.

Of the 822 infringements, only 66 were recorded as the pipeline operator being aware of the activity taking place (8%), this figure is slight increase from the 5.3% from 2019. Thus, the pipeline operator has been notified that work is to take place and either work has commenced prior to the pipeline operator providing information regarding the pipeline route and ways of working, or the person/s carrying out the work have ignored / misunderstood the information provided.

Action 1: The IWG should monitor this trend (infringements where pipeline operator was aware of the activity taking place) and if necessary identify initiatives to reduce the figure.

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.

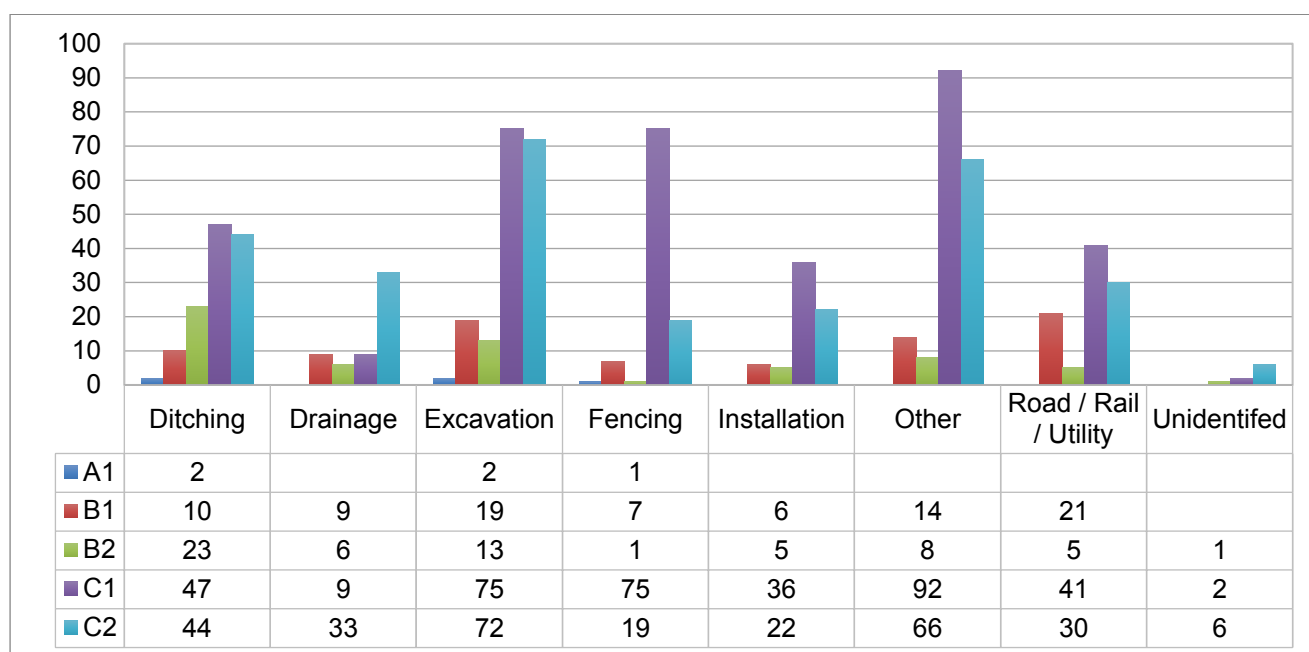


Figure 3-3 Infringements by activity type 2020

During 2020, there was just 9 infringements being recorded as the activity type being unidentified, with all of these being within the zone of interest (1XB2 and 6xC2) but outside of the operators' easement / wayleave. Malicious damage has previously been used to identify theft from pipelines, thus indicated by an actual damage (A) infringement.

The A infringements have been categories as 2 x Ditching, 2 x Excavation and 1 x Fencing.

Road/Rail/Utility works (including pipelaying and surveying, roadworks, utility works, railway maintenance) recorded the greatest number of B1 infringements at 21, closely followed by Excavation works (including excavations for services, repairs, earthmoving, groundworks etc) with 19 infringements and Ditching with 10 infringements. These 3 categories account for 50 of the 86 B1 infringements (58.13%), this is an increase of over 10% from the previous year of 47.8% of B1 infringements. Much of this work that falls into these three categories is carried out by landowners/tenants, contractors or utility owners/contractors and despite UKOPA having produced guidance documents in the last couple of years for both farmers / landowners and contractors/utilities regarding working safely in the vicinity of HP pipelines this number is increasing.

Action 2: IWG aim to revise its strategy to help operators target a reduction in infringements in these key areas (Road/rail/utility works, Excavation works and Ditching.

In 2020, excavation work has recorded the greatest number C category infringements at 147 of the 669 recorded. This is followed by Fencing and Ditching at 94 and 91 respectively. After an increase from 98 to 112 in 2019, the fencing figure has reduced by 16% to 94 in 2020.

Action 3: IWG aim to investigate what members have been doing to decrease the funder of fencing infringements and utilise these learnings in other key areas.

Those activities grouped together as "other" are made up of 13 activity types – Controlled Explosion (1), Crossing by Heaving Vehicles/machinery (12), Flooding (10), Fly Tipping (3),

Forestry (37 (up from 27 in 2019)), Landscaping (2), Machinery Parked (33), Other (47 (down from 60 in 2019)), Ground Movement / Riverbank Erosion (2), Storage (12), Tree/Vegetation Clearing/Planting (10), Waste Burning/Fire (7) and Waste Dumping (3) - which individually are low in the number of events. There is however, also a specific activity type in the infringement database entitled 'other' which is what an infringement is recorded as if it doesn't fit into one of the specified categories in the data base.

The combined total of all the 'other' infringements is 181 (down from 202 in 2019), of which 47 were unidentified. This is 22% of all recorded infringements, but down from 26.6% in 2019. This figure continues to skew the combined 'other' reports.

In 2020, there has been an increase in forestry related infringements of nearly 37% (27 up to 37).

Action 4: IWG will find ways of engaging with the forestry industry body to raise awareness with the aim of reducing 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.

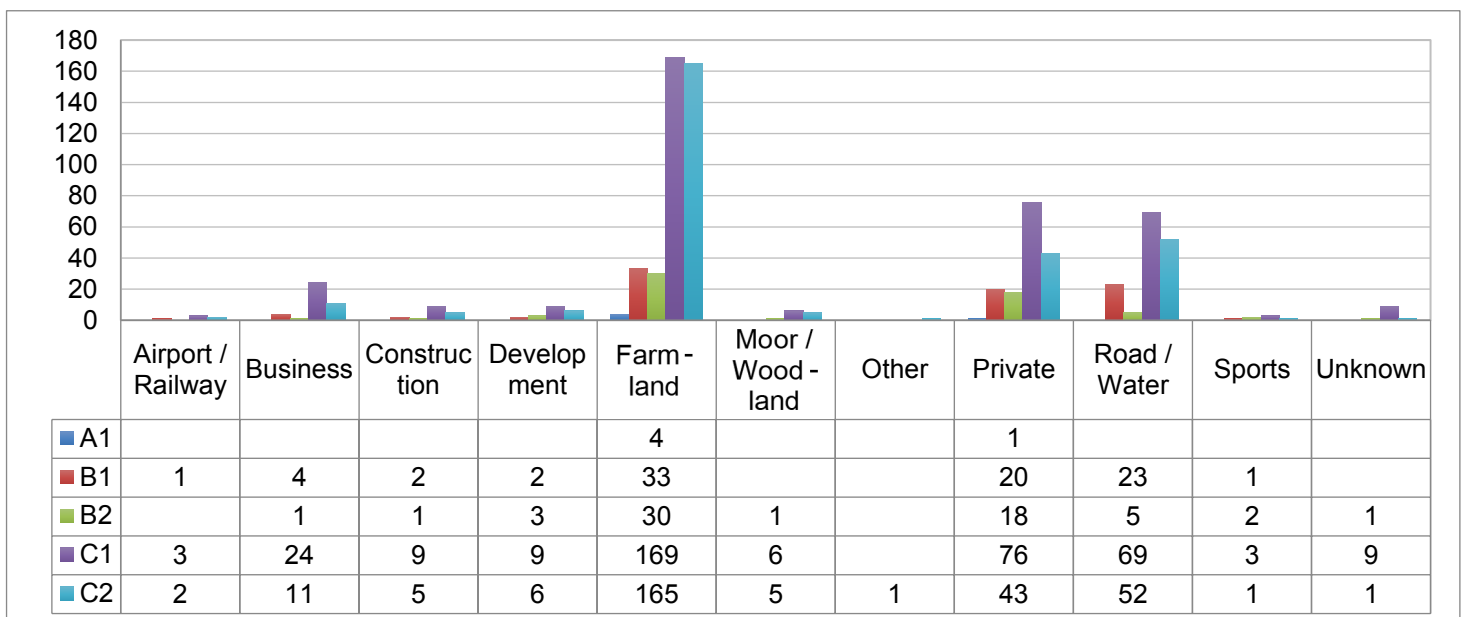


Figure 3-4 Infringements by location type 2020

Incidents in 'farmland' continues to provide the largest number of records in the database. In 2020 these accounted for 401 infringements or 48.8% of all records. This is similar to the percentages for both 2019 and 2018 (48% and 48.7% respectively). B infringements (63 in

total) however continue to decrease with just 8% of all records. It should be noted that there is possibly an overlap between those records reported as being in Farmland and Private land (another 158 of the 822 records), but the reports themselves do not go into enough detail to investigate further.

Development of the course for agricultural colleges took place during 2020. Work has now started to engaged colleges across the UK with the aim of rolling this course out and raising awareness of the next generation of individuals working on farmland.

Work in farmland (401), private land (158) and roads / waterways (149) continues to provide the greatest number of incident reports recorded, accounting for almost 86.1%. This figure has increased slightly in 2020 whereas it had been almost static (between 84 and 83%) for the 5 years previously.

Action 5: Awareness raising initiatives by IWG and UKOPA member companies will continue with the aim of reducing the number of infringements in Farmland, Private Land and in Road / Waterways.

UKOPA members do need to consider how infringements are recorded since it is difficult to understand how an infringement could be recorded where the location type is unknown.

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?

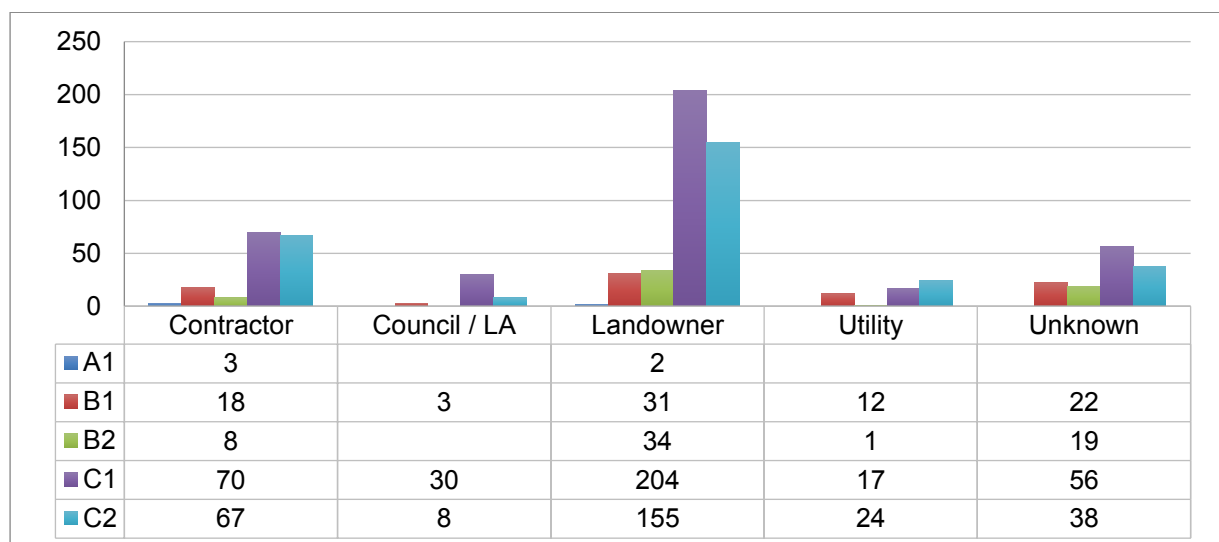


Figure 3-5 Infringements by infringer type 2020

Figure 3-5 describes the current position of infringements by infringer type. Landowners continue to be the largest single infringing group with 51.8% if all infringements being in this category. This figure is 1% higher than in 2019.

Contractor infringer type accounts for 20.2%, slightly more than the 19.3% recorded in 2019. UKOPA guidance for contractors has now been shared, however ongoing work is required from members to keep that engagement.

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.

The upward trend in the number of infringements recorded as 'unknown' in 2019 has steadied somewhat in 2020 with 16.4% (135) compared with 16.7% in 2019. This figure could suggest a lack of ability to follow-up on the original report or a lack of guidance for those completing the reports in the first place. This figure will though inherently include infringements where parties have left the site between the sighting being reported and a site visit taking place.

Action 6: IWG with UKOPA members will continue to work together to improve the categorisation of infringements 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 2020 this weighted score has increased to 298 (increased from 269 in 2019 and 210 in 2018) compared with an average of 210 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 secretariat.

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		0	0	22	110	19	38	56	112	38	298
Land/Farm		2	20	31	155	34	68	204	408	155	806
Contractor total		3	30	18	90	8	16	70	140	67	343
Council/LA/ Government		0	0	3	15	0	0	30	60	8	83
Utility/Infrastructure		0	0	12	60	1	2	17	34	24	120
Utility A	6	0	-	1	5	0	-	1	2	4	11
Government A	4	0	-	0	-	0	-	4	8	0	8
Company B	3	0	-	1	5	0	-	0	-	2	7
Company C	4	0	-	0	-	0	-	3	6	1	7
Company D	4	0	-	0	-	1	2	1	2	2	6
Local Authority A	3	0	-	0	-	0	-	3	6	0	6
Local Authority B	2	0	-	0	-	0	-	2	4	0	4
Local Authority C	2	0	-	0	-	0	-	2	4	0	4
Local Authority D	2	0	-	0	-	0	-	2	4	0	4

Table 3-3 Significant Infringers 2020

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 six years, the records for 2020 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. This year there was no significant issues noted with housing developers.

Following a reduction in the contractor weighted average score in 2019, down to 297, there was an increase of 15.8% to 343. **Contractor infringements in the forestry area has added to this increase (as noted in section 2.2) and will be a focus for IWG (as per Action 4).**

Given the such low incident of overall number (and weighted averages) of infringements by any one organisation, then no individual company, contractor or local authority needs to be a focus of the IWG for 2021, instead specific industries (such as forestry) should be the target.

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

3. CONCLUSIONS AND RECOMMENDATIONS

In 2020 there was an 8.5% increase in the number of infringements reported from 758 to 822

There were 5 infringements that caused actual damage, category A, which accounts for 0.6% of all infringements reported. In 2019, this figure was just 0.1% of the infringements recorded.

Those infringements that have serious potential to cause damage, i.e. B category (B1 and B2) total 148 of the 822 reports (18%) compared with total 125 of the 758 reports (16.5%) in 2019. Category C infringements, those with limited potential to cause damage, accounted for 669 of the 822 reports (81.4%) compared with 632 of the 758 reports (83.4%) in 2019.

In 2020, the number of B1 and C1 findings (within the pipeline easement) was 463 or 56.3% of the total number of infringements. In 2019, there was a total of 456 of the 758 reports of 60.2%, thus a reduction of 6.5% (back to a similar figure of 56.7% from 2018). This therefore means that the number of B2 and C2 (within the pipeline operator's zone of interest) accounted for 43.1% of reports, compared with 39.7% in 2019. Operator companies do, however, investigate all types of infringements and are encouraged to share the findings across the UKOPA membership.

IWG members will prepare 'Safety Alerts' from infringement investigations and share them with UKOPA members. This has now been added as an agenda item to the IWG with the aim of improving the dissemination of learning.

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. It is hoped that agricultural college working safely presentation will be incorporated into college curriculums during 2021/22 and that this might start to have an effect causing a downward trend in infringements in farmland.

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 needs to continue to be developed.

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

3.1 Specific actions regarding infringements for IWG

The specific actions for 2021/22 for the IWG from this report are:

- Action 1: The IWG should monitor this trend (infringements where pipeline operator was aware of the activity taking place) and if necessary identify initiatives to reduce the figure.
- Action 2: IWG aim to revise its strategy to help operators target a reduction in infringements in these key areas (Road/rail/utility works, Excavation works and Ditching).
- Action 3: IWG aim to investigate what members have been doing to decrease the number of fencing infringements and utilise these learnings in other key areas.
- Action 4: IWG will find ways of engaging with the forestry industry body to raise awareness with the aim of reducing this figure.

- Action 5: Awareness raising initiatives by IWG and UKOPA member companies will continue with the aim of reducing the number of infringements in Farmland, Private Land and in Road / Waterways.
- Action 6: IWG with UKOPA members will continue to work together to improve the categorisation of infringements to try and ensure that the number of 'unknown' reports are reduced.

The IWG will also:

- Complete the UKOPA 'Working Safely' video update, rollout via the UKOPA website including a PR campaign aimed at landowners and farmers.
- Complete the presentation for use in agricultural colleges to raise awareness of high pressure pipeline issues and engage colleges to get this on their curriculums
- Re-establish links with NFU and SNFU and explore ways of raising awareness of high pressure pipelines

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 2020, the following Operating companies provided a submission (including nil reports) for the UKOPA infringement database:

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

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, there were however no companies who did not report in 2020.

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.

IWG achievements from 2020:

- The contractor / utility guidance document for working near high pressure pipelines document was rolled out across the contractor community
- Work commenced on an update to the UKOPA ‘Working Safely’ video, with some filming taking place before the pandemic prevented any further work
- Drafted a presentation for engagement with agricultural colleges to raise awareness of high pressure pipeline issues and started discussions to get this onto college curriculums.

And in 2021, the IWG (and member companies) will:

- Complete the UKOPA ‘Working Safely’ video update and rollout via the UKOPA website
- Produce the online course for use in agricultural colleges to raise awareness of high pressure pipeline issues and engage colleges to get this on their curriculums
- Close out the actions from the 2020 infringement report (see section 3.1).

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 2020

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 2020 was constituted as follows:

- IWG Secretary
- BPA (IWG Chair)
- GNI
- Cadent
- CATS
- CLH-PS (now Exolum)
- Essar
- Esso Petroleum
- HSE (invited member)
- Ineos
- Ineos FPS
- National Grid Gas Transmission
- NGN
- Perenco
- Petrolneos
- SABIC
- SGN
- Shell
- Wales & West Utilities

The 2020 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