

# 2017 Infringement Data

As recorded by Linewatch members

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# 2017 Linewatch Infringement Data

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# 2017 Linewatch Infringement Data

## Executive Summary

Linewatch encourages its members to promptly report any infringement or near-miss into the database (LIDB) to identify any trends that will assist in reducing the number of serious incidents. This analysis is based upon data input by 14 Linewatch members for the calendar year 2017. Although not all the members recorded infringement data, 5 have submitted “nil infringements”. No response was recorded from EP Langage (ex-Centrica), Conoco-Phillips, IGas, MJL, Marchwood and National Grid.

There was a 10% decrease in overall numbers of infringements reported to a total of 281 events in 2017 (315 in 2016). This included 3 malicious damage incidents of unauthorised “hot-taps” which have previously proved the major factor in the repeated increase in “High” category records during the year.

Data evaluation confirms that “Landowners” remain the main source of risk to pipeline integrity in terms of numbers of infringements. This is also of concern when the methods used for what is termed “normal agricultural practice” have changed considerably over the past few years. Sub-soiling, mole ploughing and fencing are among those practices.

The equivalent numbers of events involving other infringers, including utilities, shows a general and continued easing. This may, in part, be due to the success of targeting some of the worst offenders in previous years. These will form the direction of proactive Linewatch Safety Awareness Briefings and presentations for the forthcoming year.

Key elements for 2018 include;

- To encourage use of the revised Infringement Database (LIDB)
- To encourage the shift in cultural change and report Near Miss events
- To improve the quality of investigation and reporting details
- Proactive achievable identification of target audiences of infringers
- To encourage other operators to become members of Linewatch

# 2017 Linewatch Infringement Data

## Preamble

Linewatch encourages its members to report any infringement or near-miss to identify any trends that will inform the target of reducing the number of incidents. This analysis is based upon data by the 20 (14 operators provided input) Linewatch members for the calendar year 2016.

The Linewatch categories are computed from 2 elements as determined from the following matrix:

Consequence				
HIGH	LOW	HIGH	HIGH	
MEDIUM	LOW	MEDIUM	HIGH	
LOW	LOW	LOW	MEDIUM	
	LOW	MEDIUM	HIGH	Likelihood

Where:

Consequence HIGH = Densely populated residential areas, sensitive development (schools etc.), major infrastructure (airports etc.) and hazardous areas

MEDIUM = Light industrial, low population, water courses/environmentally sensitive, major roads and railways

LOW = Agricultural or other land

Likelihood HIGH = Works had potential to cause serious damage (e.g. Deep excavations, unaware of pipeline, dangerous practices)

MEDIUM = Works could possibly have caused minor damage under different circumstances (e.g. Service trenches, excavations at shallower depth than pipe invert)

LOW = Works within easement/wayleave but no potential for damage (e.g. pipeline protected, hand excavation)

The additional category of Near Miss expands the depth of reporting. Whereas the judgement of whether, or not, to report a Near Miss can be somewhat subjective, these records provide insight to preventing future encroachments. In general terms, a Near Miss will be an event that was identified as occurring outside of the easement but would have been an infringement if it had occurred within the easement.

# 2017 Linewatch Infringement Data

## Presentation of 2017 reports by Date

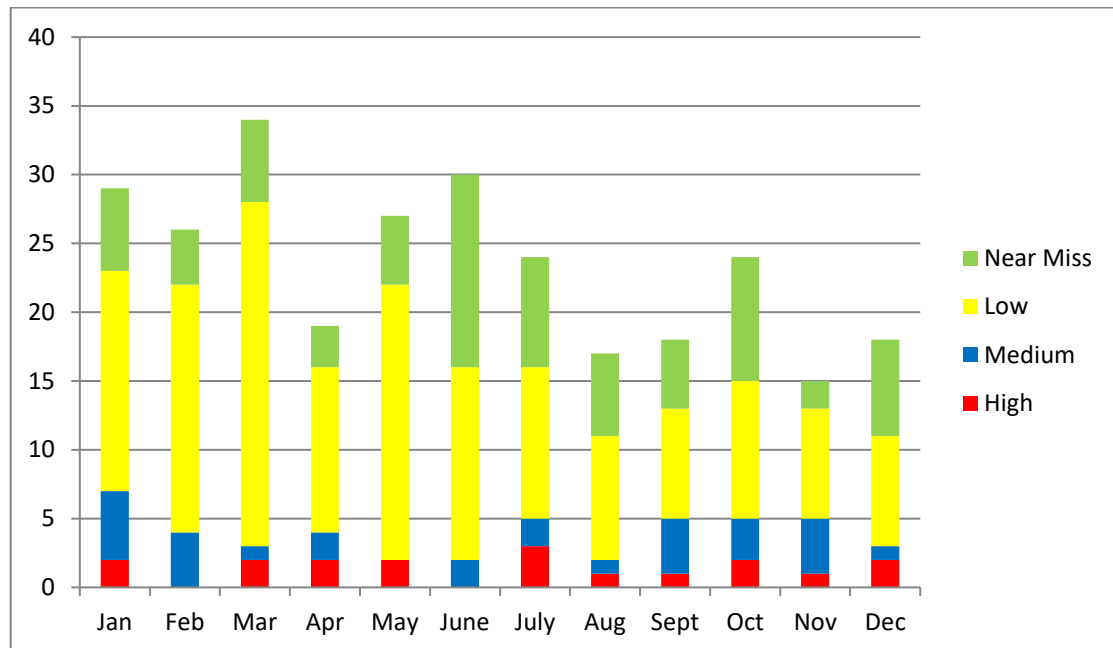


Figure 1: Infringements by Date (subdivided into Linewatch risk)

2017	High	Medium	Low	Near Miss	Total
Jan	2	5	16	6	29
Feb	0	4	18	4	26
Mar	2	1	25	6	34
Apr	2	2	12	3	19
May	2	0	20	5	27
Jun	0	2	14	14	30
Jul	3	2	11	8	24
Aug	1	1	9	6	17
Sep	1	4	8	5	18
Oct	2	3	10	9	24
Nov	1	4	8	2	15
Dec	2	1	8	7	18

Overall total = 281.

## 2017 Linewatch Infringement Data

Discounting the 3 records of “malicious damage” where the pipelines were tapped by 3<sup>rd</sup> Party unknown persons, the 18 remaining High category infringements cover a variety of activities and are detailed as follows;

3 <sup>rd</sup> Party	Working for	Location	Pre-notified	Damage prevented	Location type	Notified /found by	Activity type
Contractor	Utility	Sedgeley	No	Yes	Road Verge	Ground Patrol	Excavation for Service
Landowner	Landowner	Roxwell	No	No	Farmland	Road Patrol	Fencing
Contractor	Developer	Haddenham	No	No	Farmland	Aerial Patrol	Crossing by Heavy/Tracked Vehicle
Landowner	Landowner	Gloucester	No	No	Private Land	Ground Patrol	Ditching
Contractor	Landowner	Bewdley	No	No	Farmland	Ground Patrol	Fencing
Contractor	Utility	Seal Sands	Yes	No	Business Land	Ground Patrol	Excavation
Unknown	Unknown	Bank of River Weaver	No	No	Pathway	Road Patrol	Excavation
Landowner	Landowner	Ellesmere Port	No	No	Business Land	Aerial Patrol	Installation of Structure
Church	Landowner	Staffordshire Showground	No	No	Private Land	Road Patrol	Installation of Ground Anchors
Landowner	Landowner	Winforton	No	No	Farmland	Ground Patrol	Drainage
Landowner	Landowner	Llanigon	No	No	Farmland	Ground Patrol	Fencing
Landowner	Landowner	Burleydam	No	No	Farmland	Aerial Patrol	Waterway Repairs
Landowner	Landowner	Ellesmere Port	Yes	No	Private Land	Aerial Patrol	Excavation
Utility	Landowner	A57 – Westmoor	No	No	Private Land	Road Patrol	Installation of Structure
Landowner	Unknown	Staunton Ind. Est.	No	No	Farmland	Aerial Patrol	Excavation for Service

# 2017 Linewatch Infringement Data

## Presentation of 2017 data back through to 2012

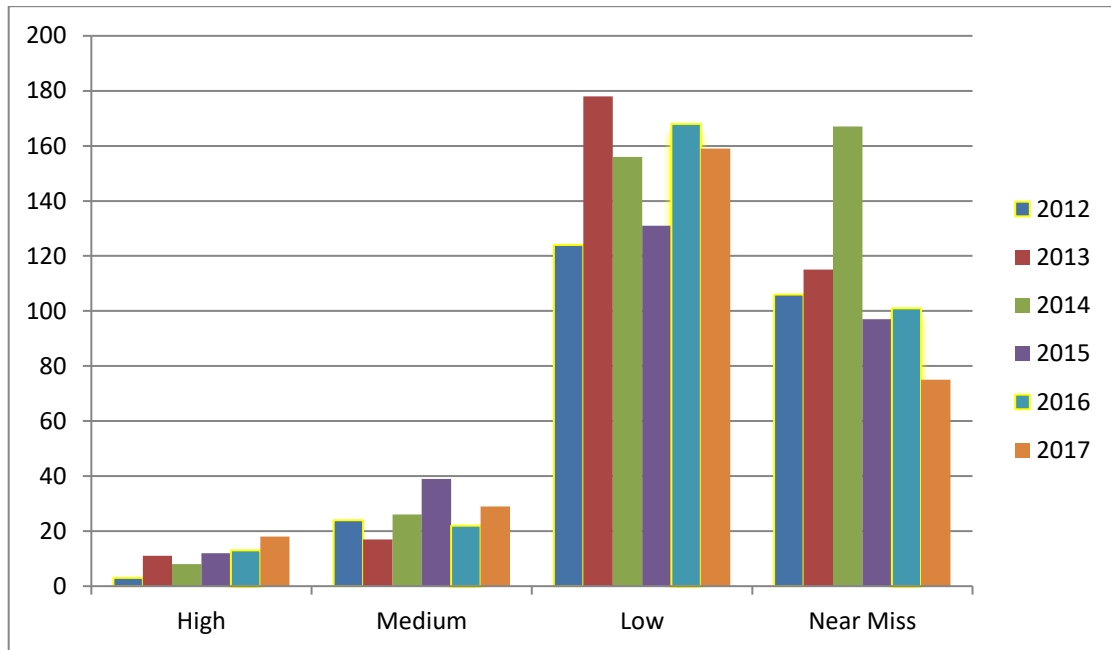


Figure 2: 5-year comparison to 2017

An unexpected decrease in the reporting of Near Miss encroachments has been noted.

	High	Medium	Low	Near Miss
2017	18	29	159	75
2016	13	22	168	101
2015	12	39	131	97
2014	8	26	156	167
2013	11	17	178	115
2012	3	24	124	106

The changes in the category reports are discussed in greater detail within the analysis.

# 2017 Linewatch Infringement Data

## Presentation of 2017 reports by “how found”

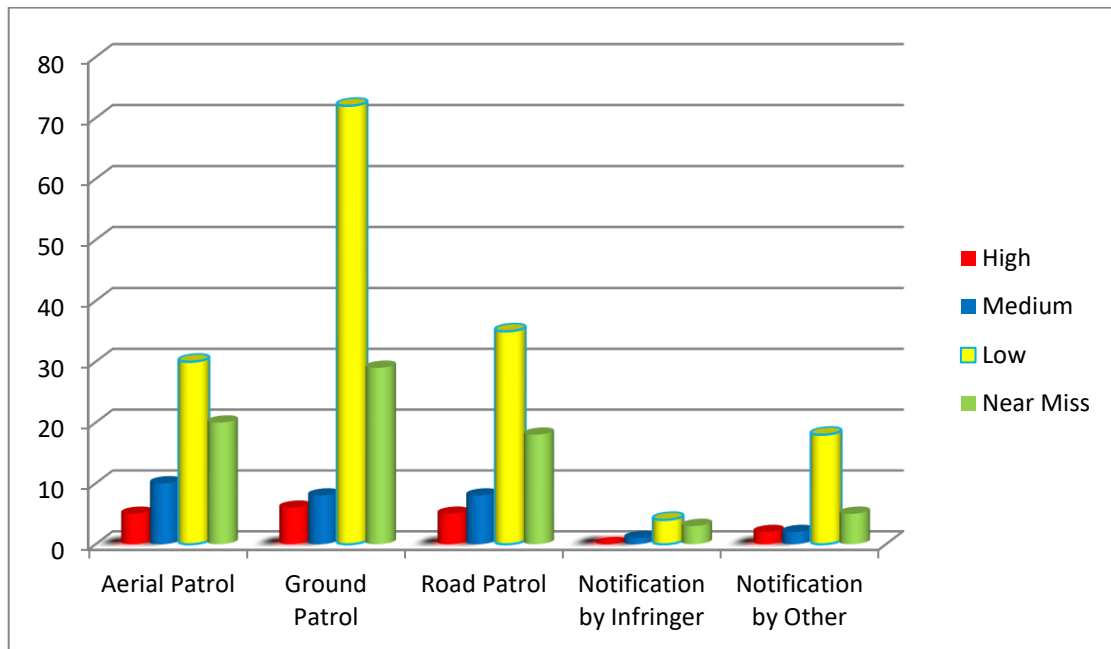


Figure 3: How found

The results for 2017 present a distribution that echoes the 2015 records which were weighed by the high volume of ground patrols which were increased following the “hot-tap” events.

	High	Medium	Low	Near Miss	Total
Aerial Patrol	5	10	30	20	65
Ground Patrol	6	8	72	29	115
Road Patrol	5	8	35	18	66
Notification by Infringer	0	1	4	3	8
Notification by Other	2	2	18	5	27



# 2017 Linewatch Infringement Data

## Presentation of reports by Location type 2017

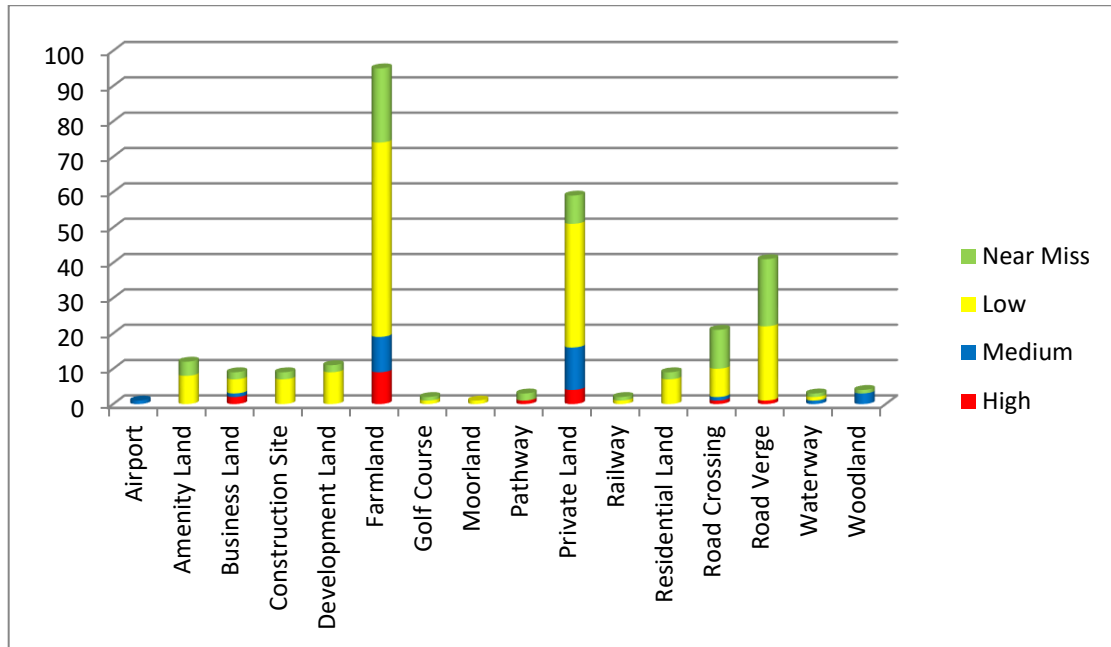


Figure 4: Location Type

	High	Medium	Low	Near Miss	Total
Airport		1			1
Amenity Land			8	4	12
Business Land	2	1	4	2	9
Construction Site			7	2	9
Development land			9	2	11
Farmland	9	10	55	21	95
Golf Course				1	1
Moorland			1		1
Pathway	1			2	3
Private land	4	12	35	8	59
Railway			1	1	2
Residential Property			7	2	9
Road Crossing	1	1	8	11	21
Road Verge	1		21	19	41
Waterway		1	1	1	3
Woodland		3		1	4

# 2017 Linewatch Infringement Data

## Presentation of reports by Infringer type 2017

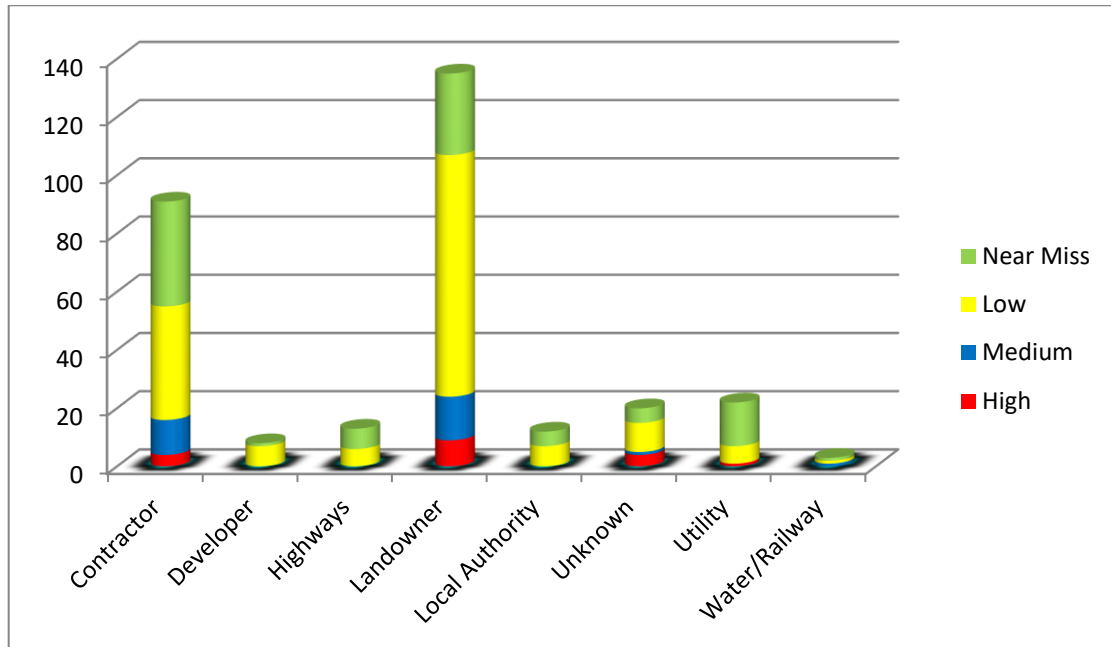


Figure 5: Infringer Type

	High	Medium	Low	Near Miss	
Contractor	4	12	39	13	68
Developer			7	1	8
Highways			6	7	13
Landowner	9	15	83	28	135
Local Authority			7	5	12
Unknown	4	1	10	5	20
Utility	1		6	15	22
Water/Railway		1	1	1	3

The contractor breakdown is further demonstrated by the following pie chart, figure <sup>6</sup>, through developing the analysis into the sponsor or the entity who had engaged the contractor.

# 2017 Linewatch Infringement Data

## Contractor Working for

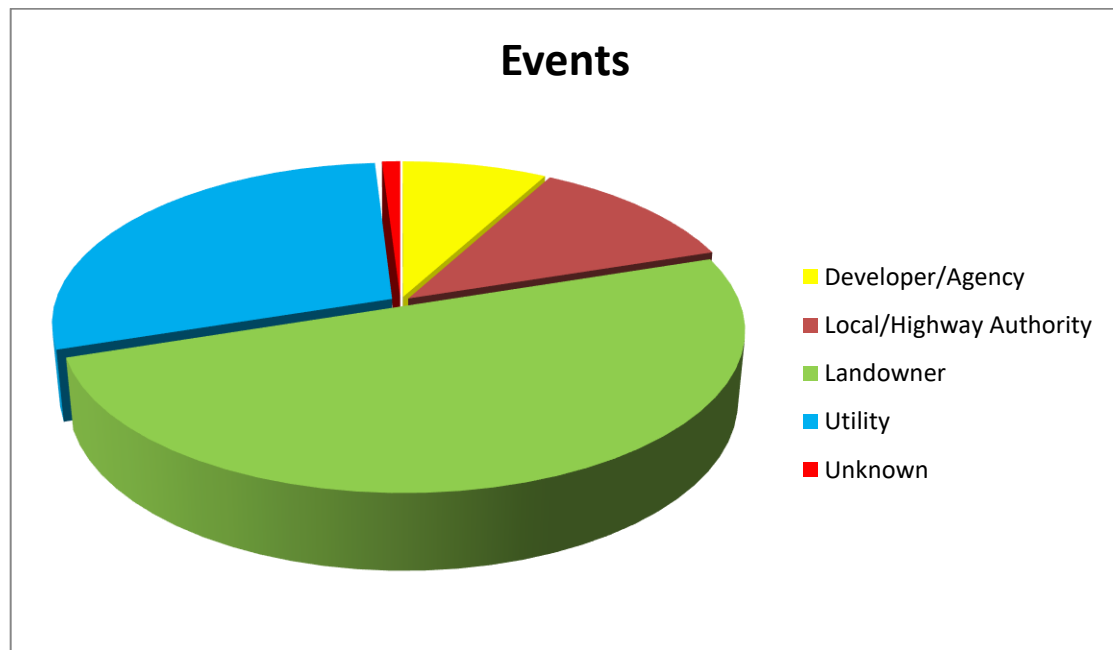


Figure 6: Contractor split

Developer/Agency	6	8%
Local/Highway Authority	8	13%
Landowner	34	50%
Utility	20	29%
Unknown	1	1%
	68	100%

Whilst there is some distortion of the recorded numbers from a varying interpretation of who was the actual sponsor, the duty of care responsibility spreads evenly across the survey set. There is an easing of the Local Authority/Highway and Utilities reports but an increase in those contractors working for Landowners. The Landowner figure is similar to that from 2016 although the overall “Contractor” total is a marked decrease on 2016. This makes the percentage swing of 30% up to 50% for 2017 for Landowner related events.

It is noted that, although the records of “unknown” are small, the quality could be improved still further by more rigorous investigation and by updating the records database by corrected reporting.

# 2017 Linewatch Infringement Data

## Presentation of reports by Activity Type 2017

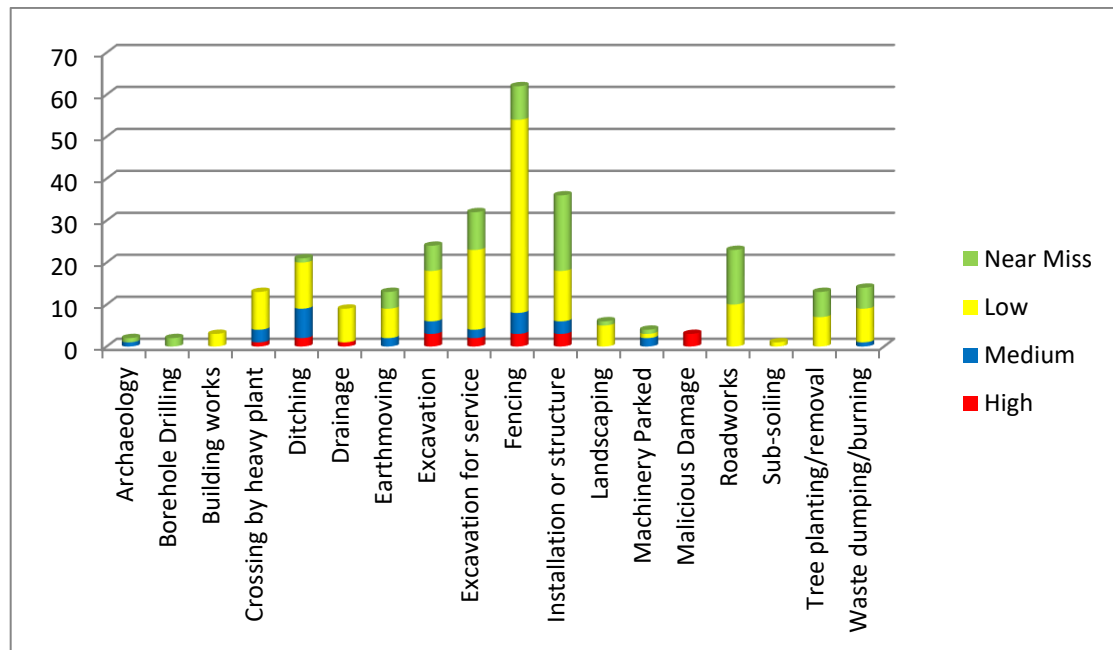


Figure 7

	High	Medium	Low	Near Miss
Archaeology		1		1
Borehole Drilling				2
Building works			3	
Crossing by heavy plant	1	3	9	
Ditching	2	7	11	1
Drainage	1		8	
Earthmoving		2	7	4
Excavation	3	3	12	6
Excavation for service	2	2	19	9
Fencing	3	5	46	8
Installation or structure	3	3	12	18
Landscaping			5	1
Machinery Parked		2	1	1
Malicious Damage	3			
Roadworks			10	13
Sub-soiling			1	
Tree/Veg planting/removal			7	6
Waste dumping/burning		1	8	5

Critical analysis shows 55 fencing events were directly attributed to Landowners or their contractor out of a total of 62.

# 2017 Linewatch Infringement Data

## Analysis and Discussion

A total of 281 (was 315 in 2016) infringements and near-misses were recorded by members in 2017, figure <sup>1</sup>. The 10% reduction in overall reported events is largely due to the lower numbers within the Low risk and Near Miss categories although Line-walking and Road Patrols, as inspection activities, did identify an increase in Landowner related activities. These include fencing, installation of structure and ditching which are known to be difficult to observe and interpret by aerial patrol alone. The increase in “High” risk events does correlate to the general increase in Landowner/Developer works throughout the UK and indicates that a greater emphasis on monitoring planned works could possibly be of benefit. It should also be noted that only 2 of the “High” risk events had been pre-notified and both involved works within an existing installation site.

The date or chronological distribution through the year remains relatively even and associated largely with the number of working days per month. A more detailed review of the records showed a lower number of “Low” risk and Near Miss records. These were an expected distribution of farming and utility activities although it is unclear why a 25% decrease, on 2016, in Near Miss events has been recorded. It is possible that the recording of Near Miss events has suffered due to the increased effort in investigating the greater number of High Risk events.

The rationale for the rise in High Risk events though is not clear, with 11 out of 15 events being directly associated with Landowner sponsored activities. Only one of the Utility related events involved an uncontrolled excavation within a road verge, the other being within an installation site boundary on works that were pre-notified.

As in the previous reporting years, analysis of the data clearly shows “Landowner” and “Contractor” as being the two largest and increasing infringer categories, figure <sup>5</sup>. The other element common with previous years is the high number of infringements assigned to “Contractor” that also relate to working for a Landowner, approximately 66% of the total events. The remaining categories are equally and sparsely distributed especially when the allocation is of 78 records across only 5 Third party types (20 events of which are recorded as Unknown). The increase in recorded “unknown” infringers suggests a focus in the “root cause” investigations could be improved. The 3 events of “unknown” resulting from “malicious damage” or unauthorised hot-tap connections are noted but not discussed in any detail within this report.

There remains a general reluctance for land users, tenant or others, to suitably plan, contact and consistently agree works in a fully safe mode with the operators. The most common method of Landowner/Farmer contacting the operators remains by telephone which could be reinforced by a greater emphasis on Landowner liaison and other regular communications.

## 2017 Linewatch Infringement Data

Taking the data from the extended “Contractor” pie-chart, figure 6, it is notable how those contractors sponsored by Landowners remain predominant. As with previous years, though, this indicates a trend towards a more even split between LA/Highways, Landowner and Utility.

It should also be noted that only 17 (was 12 in 2016) of the infringements occurred following some planned notification. Further detail shows these included a large proportion of Landowner/Private Land and rural locations although they are recorded against some Water and Gas Utilities. Housing developers accounted for 4 of the 17 events and could be targeted for more frequent monitoring of the agreed work-scope.

By analysing the numbers of infringements and the correlation of how these were firstly identified, figure 3, there is a consolidation of a greater proportion being recorded by Ground patrols.

From 2013 there is a marked increase in those infringements recorded by Ground or walked Patrol. This does tend to suggest that a great many additional Low Category and Near Miss events would have been recorded during the line-walking, as expected. It may also be expected since the increase in ground patrols as part of the “hot-tap” investigations would have put more local inspection on the ground.

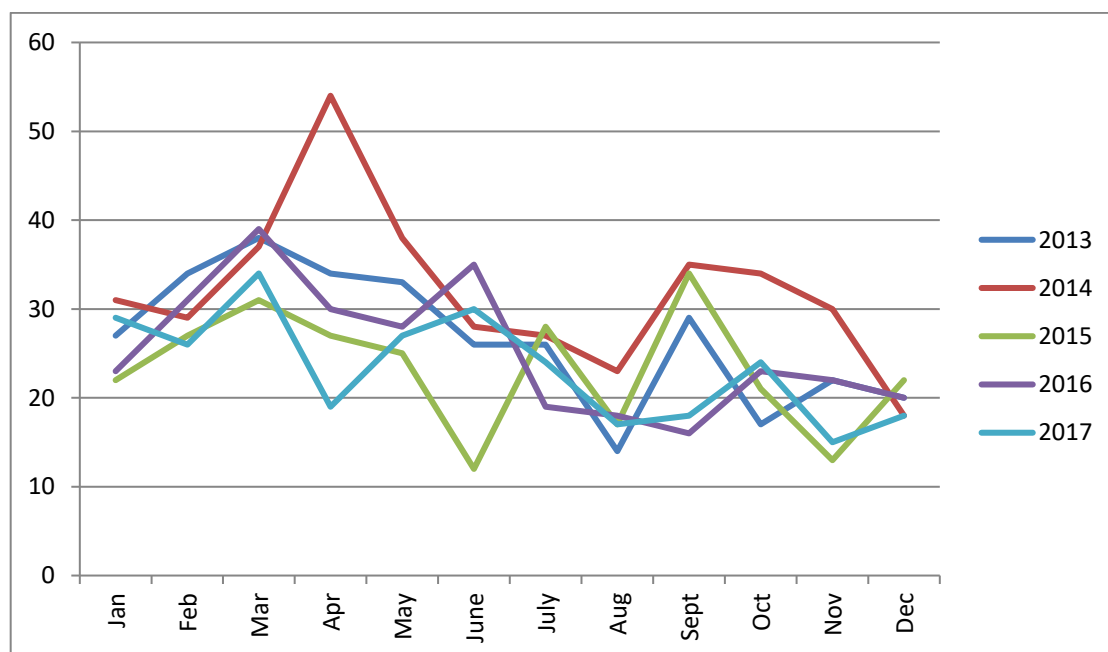


Figure 8: 5 Year trend by month

## 2017 Linewatch Infringement Data

In the presentation pages the data for comparing year on year infringements by risk has been extended to allow a five-year view. Figure <sup>8</sup> above, is that five year focussed view produced within the Linewatch database displayed in a trend line format.

On balance, the overall numbers do mirror those for previous with defining Medium or Low being an academic exercise of interpretation by the reporting Operator. There is also little correlation with the number of LSBUD enquiries either as a “lagged” event or during the same month.

It is likely that this is due to an increased level in awareness of the personnel undertaking the surveillance patrols coupled with a greater appreciation of the infringer to look for marker posts etc. In both cases it is a trend to be encouraged even if this does result in a greater number of phoned-in enquiries.

There is, though, a clear cultural step change throughout the Linewatch members to report the “Near Miss” events. For those who contribute there is now a strong basis for identifying areas for focus of preventing occurrence rather than reacting to an infringement. It has been acknowledged that, statistically, records of Near Miss (and/or Low Risk events) should be much higher than those for High Risk records. Previously, a great many Low Risk or Near Miss events have remained unreported and handled locally as being resolved before the activity became an issue. This includes engaging with Councils and Highways authorities to assist in pre-alerting the Linewatch members of proposed works even though these may be “allowable” under any easement rights.

There are still some Linewatch members who do not appear to use the LIDB to record any infringements but are known to have experienced reportable events. The reporting of all infringements should be one of the prime KPI targets for each Operator and that by that reporting we can develop systems and plans that proactively prevent rather than reactively handle. Whilst there may be still room for improvement in the quality of the “Near Miss” reporting the trend to collate and share this information should be encouraged. All “High” risk events are discussed and details shared within the quarterly Linewatch meetings.

These records also indicate that the number of “unknowns”, either for the identity of the Third-Party Type or Sponsor has been generally reducing. The inference is that a greater effort is being made by the patrols and thus providing a more thorough investigation processes. This should be encouraged and each member may consider that all events should be identified against a specific name or location and not just remain as an “unknown”.

## 2017 Linewatch Infringement Data

As in previous years, analysis of the “by activity” data shows a wide range of activity types, figure 7. The two categories that are predominant are “Installation” together with the consistent high event “Fencing”. The majority of sponsors relate directly to Landowners or their contractor. Excavation, as a category, is shown to have further reduced for service investigations which are generally associated with utilities or leakage repairs.

Fencing works were recorded as the most common activity and most incidents. This can be shown to be affected by the fact that landowners were the major infringer type. However, in general, fencing works are seen to be of a low risk due to the, relatively, shallow penetration of the works. In 2017, however, there were 3 High Risk events recorded as fencing. It is clear though, that the techniques and equipment employed for modern fencing do involve the use of more mechanised methods thus could be tending towards an increased risk of damage. Operators should remain vigilant for fencing operations and the associated movement of vehicles/equipment in that vicinity.

Given the high level of activity in the highway, the number of incidents attributed to “Roadworks” reflects the fact that pipeline chainage is relatively low in the highway. An estimate of less than 10% “in the highway” chainage has often been referred to.

The number of infringements in the highway, however, is again shown at zero for 2016. There were 2 “High” risk and 5 “Medium” risk events recorded as “Road Verge/crossing” which is a 50% reduction on the 2015 records.

Significant awareness presentations have been directed at Highways related organisations during 2016/2017 including County/Local Councils and their main contractors. This suggests also that the involvement in trade shows and HAUC conferences does provide forums with good feedback being received.

With the large increase in numbers of “Near Miss” and even “Low Risk” reports there is a benefit to be gained from using an agreed form of weighting when applying the statistical analysis to the whole Infringement data set. A variety of options were reviewed but none were seen as fully statistically appropriate. The simple structure below is adopted as consistent with the previous three years.

Risk Category	Weighting x
High	10
Medium	5
Low	2
Near Miss	1

Application of this amended weighting proved, as expected, a heavy focus on Landowners. Note: a similar weighting scheme was applied within the UKOPA report for the Contractors and Sponsors only.



## 2017 Linewatch Infringement Data

<b>Infringer code for 2016</b>	<b>Number of "H" records and (total events)</b>	<b>Weighted Total</b>
Landowners	11(138)	300+
Unknown	4(20)	40*
Contractors	4(77)	200+
Landowner A	2(2)	20
Contractor A	1(2)	15
Utility A	1(2)	15
Utility B	0(6)	13
Contractor B	1(1)	11

Several contractors and utilities were identified as recording a single Medium Risk event (weighted 5) but are not listed separately.

The identity of the coded infringer is held securely by the Linewatch Manager.

\*does not include the weighting for "malicious damage" events

# 2017 Linewatch Infringement Data

## Summary

There was a 10% decrease in overall numbers of infringements reported to a total of 281 events in 2017. This included 3 malicious damage incidents of “hot-taps”. The “High Risk” events associated with these unauthorised hot-taps or malicious damage are not discussed in any detail within this report, merely recorded as fact of damage.

“Landowners” remain the main risk to pipeline integrity in terms of overall numbers of infringements. This is also of concern when the methods used for what is termed “normal agricultural practice” have changed considerably over the past few years. This is of additional concern when few “Landowners” use the formal LSBUD notification system although more regular direct contact does indicate an increase of “phoned in” notifications for planned works.

The equivalent numbers of events involving other infringers shows a general and continued easing. This may, in part, be due to the success of targeting some of the worst offenders in previous years. The number of incidents either involving or initiated by Highways Authorities and Water utilities appear to be decreasing on the previous high in 2011.

There is a suggestion that only some of the Linewatch members are robustly reporting all infringements, largely Near Miss reports, and that cultural improvements may possibly be made. The range of number of infringements per 100km varies between 0 and 15. The average for those operators who have reported remains at 7 events/100km.

It would be expected that even those operators with relatively short pipeline lengths or have largely remote sections would have identified some infringements.

Encouragement is given to report “Near-miss” situations as well as actual infringements and recording the “Pre-aware” category correctly.

Whereas this report gives some comfort from the fact that the quality of infringement reports has increased, the group should continue to encourage all the members to contribute even the Near-Miss events.