

UKOPA

United Kingdom Onshore Pipeline Operators' Association

Good Practice Guide

Managing Pipeline Infringements

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The guidance in this document identifies what is considered by UKOPA to represent current UK pipeline industry good practice within the defined scope of the document. All requirements should be considered guidance and should not be considered obligatory against the judgement of the Pipeline Owner/Operator. Where new and better techniques are developed and proved, they should be adopted without waiting for modifications to the guidance in this document.

Comments, questions and enquiries about this publication should be directed to:

UK Onshore Pipeline Operators' Association
Pipeline Maintenance Centre
Ripley Road
Ambergate
Derbyshire
DE56 2FZ

E-mail: enquiries@ukopa.co.uk

Website: www.UKOPA.co.uk

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1. EXECUTIVE SUMMARY

This Good Practice Guide has been produced by UKOPA for its members with the aim of effectively minimising the risk of third part damage. It provides practical steps that could be taken for a pipeline operator to meet some of their legal duties under the Pipeline Safety Regulations 1996, whilst identifying service levels that are identified as good practice across the industry.

2. INTRODUCTION

2.1 Background

Third party damage (TPD) is a significant threat to the integrity of pipelines. A particularly serious TPD incident occurred at Ghislenghien in Belgium in 2004 when a high-pressure gas transmission pipeline failed after having been weakened by TPD during construction work. The resulting explosion and fire were devastating and led to 24 deaths and over 100 injuries.

In Great Britain, the control of risks arising from third party damage to pipelines is addressed by Regulations 15 and 16 of the Pipeline Safety Regulations 1996 (PSR). PSR Regulation 15 states: 'No person shall cause such damage to a pipeline as may give rise to a danger to persons'.

Actions that may be necessary to comply with PSR Regulation 15 include:

- Checks done during the planning of a job to establish whether any pipelines are located in the vicinity;
- If a pipeline is present, making contact with the pipeline operator and obtaining plans;
- Carrying out site surveys;
- Utilising appropriate safe digging techniques;
- Reassessing the risks if the scope of the work changes;
- Stopping work if there are any unexpected findings on site.

PSR Regulation 16 places complementary duties on pipeline operators and states the following: 'For the purpose of ensuring that no damage is caused to a pipeline, the operator shall take such steps to inform persons of its existence and whereabouts as are reasonable'.

A range of measures can be utilised to secure compliance with PSR Regulation 16 arising from TPD.

2.2 Scope

The aim of this Good Practice Guide (GPG) is to assist pipeline operators by identifying practical steps that they should take in order to both meet their legal duties and effectively manage the risks to their assets

Activities associated with working in the vicinity of pipelines that may:

- Have an impact on the safety of the general public, pipeline operators staff and contractors, staff and contractors of those organisations working in vicinity of the pipelines;
- Affect the integrity of the pipeline;
- Have an impact on the environment;

- Have the potential to cause the interruption of supplies to a large number of consumers, for a considerable length of time (and the consequential cost of that loss of supply).

The guidance in this document is applicable to the operators of buried pipelines to facilitate effective management of the risk to their assets from third party damage.

2.3 Application

For the purposes of this GPG an infringement is third party activity in the vicinity of a pipeline which has caused, or has the potential to cause damage, where the pipeline operator has either not been consulted, or the guidance that had been given by an operator has not been followed.

Within this document:

Shall: indicates a mandatory requirement.

Should: indicates good practice and is the preferred option.

3. PROVISION OF PLANT INFORMATION

In order to reduce the risk of damage to their pipelines, operators should make available information on the location of their pipelines to enquirers. Advice on working in the vicinity of pipelines should also be provided along with information on what other services can be provided by the pipeline operator.

3.1 What information should be provided?

3.1.1 [Local Authority planning departments](#)

Local Authority (LA) planning departments should be provided with suitably scaled maps, strip maps or electronic maps showing the location of all relevant pipelines within their boundaries. They should also be provided with the same information for any new pipelines and modifications to existing pipeline routes in a timely fashion.

3.1.2 [Developers](#)

Planning applications – If a developer has been advised to contact a pipeline operator due to land use planning zones, the pipeline operator should provide the developer with any additional pipeline information to supplement that provided by the LA (based on the pipeline operator's PSR notification data). This could be but is not be limited to: wall thickness; pipeline protection; depth of cover; material strength or other factors that may affect the risk from pipeline failure.

3.1.3 [Developers / Contractors / Utilities](#)

Each enquiry should be individually responded to and should make the enquirer aware of the location of the pipeline, safety requirements, the name and telephone number of the pipeline operator's responsible contact and details of working practices to be adopted when working within the pipeline easement / zone of interest. The response should clearly state that work should not go ahead within the easement / zone of interest without the written agreement of the pipeline operator's responsible person (and whether legal consents are required to cross the easement), which may include the requirement for a representative of the pipeline operator supervising the work on site. A copy of the pipeline operator's advice on working in the vicinity of pipelines should be provided to the enquirer at an early stage following the initial enquiry.

3.1.4 [Agricultural work enquiries](#)

Normal agricultural work (less than 300mm depth) should not have any impact on the integrity of a pipeline, unless specific constraints have been communicated by the pipeline operator. However, each enquiry should be individually responded to and relevant advice provided. It should be made clear that, for all other work taking place in the pipeline easement / zone of interest or works that could have an impact on the pipeline easement / zone of interest, work should not go ahead without the written agreement of the pipeline operator's responsible person, or a representative of the pipeline operator supervising the proposed work on site. A copy of the pipeline operator's advice on working in the vicinity of pipelines should be provided to the enquirer at an early stage following the initial enquiry.

3.1.5 Enquiries relating to the development of wind turbines, solar farms and related apparatus

If the enquiry relates to the siting of a wind turbine or a solar farm then the developer should be provided with a copy of the UKOPA/GPG/013 Requirements for the siting and installation of wind turbine installations in the vicinity of buried pipelines or UKOPA/GPG/014 Requirements for the siting and installation of solar photovoltaic (PV) installations in the vicinity of buried pipelines, along with a copy of the pipeline operator's guidance document for working in the vicinity of their pipelines. It should be stressed that the any wind turbine should be sited no closer than 1.5 times the proposed height of the turbine mast away from the nearest edge of the pipeline. It should also be noted that the electrical infrastructure (particularly the running of electrical cables to and from the turbine or solar panel) can cause interference with pipeline cathodic protection systems and as such early discussions with the pipeline operator should take place. Information on cable crossings and earthing arrangements should be requested by the pipeline operator from the developer.

3.2 **How the information will be provided?**

Information should be made available in the most appropriate manner for the pipeline operator and the third party and a record should be kept of all enquiries and the responses provided. Where it is found that work proceeds without the enquirer complying with the requirements of the pipeline operator, an investigation should be carried out and the infringer may be asked to re-excavate under supervision at their cost to check for potential damage, apparatus installed too close may require moving.

3.3 **What are the service levels for providing the information?**

Pipeline operators should clearly identify the timescales that they will work to in order to provide information to enquirers. These timescales should be risk based and take account of such things as the size of the pipeline operator's pipeline network, the scale and knowledge of the organisation conducting the work, the method to be used to carry out the work, etc.

An initial response should normally be provided within fourteen days of the enquirer's request, provided adequate information has been given by the requester on the location and nature of their proposed works.

4. PIPELINE LOCATING

Pipeline operators should locate and mark out their pipeline routes prior to any work commencing in the vicinity of their pipeline assets and during the progress of the development as required.

4.1 What service will be provided?

Following a request from a third party, and prior to work commencing on site, pipeline operators will locate and mark out their pipeline route in the vicinity of the work area to ensure that third parties are aware of the location. The pipeline should be pegged out at appropriate intervals, including at the apex of every bend (including field bends). There should be no changes of direction between pegs.

The third party should be provided with the pipeline operator's contact names and emergency telephone numbers along with copies of any working instructions that they are expected to comply with (if these have not already been issued).

In some cases, it may be necessary for the pipeline operator, to request that trial holes be dug to confirm the location and depth of the pipeline. This will be determined by the pipeline operator's responsible person, based on some or all of the following: pipeline records; site conditions; recorded depth of cover; work to be carried out; method statement for the proposed work; and competence of the persons conducting the work. Trial holes should be dug by hand, normally by the third party or their contractor and will always be supervised by the pipeline operator's responsible person.

4.2 Is there a charge for this service?

Pipeline locating should be provided by pipeline operator free of charge. Where more extensive work is required, which may include trial excavations and supervision, the pipeline operator's may charge. Charging policy and information should be published by the pipeline operator.

4.3 How the service will be managed?

Pipeline operators should identify the lead-time required from third parties to request that a pipeline is marked out for planned works, this will normally be no more than fourteen days. With agreement from the pipeline operator, these times may be reduced. In emergency situations, these times will not apply, although contact with the pipeline operator should always be made in order to allow the operator to accurately establish the location of the pipeline.

5. SUPERVISION OF 3RD PARTY ACTIVITIES

With the exception of normal agricultural activities, which are considered by the pipeline operator not to affect the integrity of the pipeline, no work should be undertaken in the vicinity of a pipeline without the written consent of the pipeline operator.

5.1 What service will be provided?

Depending on the work being undertaken, the pipeline operator may require that one of its responsible representatives is present on site whilst work is carried out by the third party. This requirement should be identified in the written consent.

Cases where on site pipeline operator presence is required may include, but is not limited to:

- Excavation in the pipeline easement or highway;
- Construction activities in close proximity to the pipeline;
- Clearing of farm ditches and inland streams;
- Crossing over or under a pipeline;
- Back filling of an excavation;
- Piling, demolition, rock blasting, pressure testing, seismic surveys or hot work.

The pipeline operator will determine whether a responsible representative is required depending on some, or all of the following:

- The type of work being carried out;
- The method statement for the proposed work;
- The competence of the persons conducting the work;
- The working relationship between themselves and the third party.

5.2 Is there a charge for this service?

In many cases, site supervision is carried out free of charge by the pipeline operator. However, where charges are applied, the pipeline operator should identify and agree costs with the third party in advance of any work taking place.

5.3 How the service will be managed?

The pipeline operator will identify the lead times required for notification of any planned work being carried out by a third party requiring on site supervision. With agreement of the pipeline operator, these times may sometimes be reduced. In emergency situations, these times will not apply.

6. PROACTIVE ACTIVITIES TO PREVENT 3RD PARTY DAMAGE

In order to prevent damage to their pipeline assets, pipeline operators should carry out proactive activities along their pipeline routes to identify unusual occurrences and irregularities and respond accordingly.

6.1 What service will be provided?

Pipeline surveillance should be carried by the pipeline operator. This GPG identifies the minimum requirements, however, in areas that are identified to be of a higher risk, the frequency of the surveillance activities should be increased.

The pipeline operator should have a process for recording and evaluating the findings of all surveillance activities. If any further actions are required following the evaluation of the finding, the process should record these also.

6.1.1 Aerial surveillance

Where aerial surveillance can be carried out, this will normally be conducted at least once in every two week period. Consideration should be given to changing the day and / or start time of the flight route, to maximize the benefit from this activity. The pipeline operator should have clear guidance in place for the observer, identifying the information to be captured and the classification of response. All observations should be recorded and be reviewed by the pipeline operator. If, for any reason, a scheduled aerial surveillance flight cannot take place on two consecutive scheduled occasions (e.g. severe weather), an alternative method of ground-based surveillance should be undertaken.

6.1.2 Vantage point surveillance

Vantage point surveillance should be conducted for sections of the pipeline route that cannot be surveyed as part of an aerial patrol, or where two consecutive flights have been missed. The pipeline operator should have clear guidance in place for the surveyor, identifying the information to be captured and the classification of response. All observations should be recorded, and those records be reviewed by a pipeline operator's responsible person.

6.1.3 Ground patrols

Pipeline operators should identify vulnerable sections of their pipeline network, such as quarries, areas of known ground instability, etc., and where appropriate have a process for monitoring these sections. The frequency of this monitoring will be determined using historical data and a risk-based approach.

6.1.4 Route walking

Pipeline operators should periodically undertake a walking survey of the whole pipeline route to identify any risks or features which may have been missed by other methods, this also provides an opportunity to ensure adequate access is being maintained to the easement strip and may be an appropriate time to undertake liaison with landowners and tenants. The frequency of this monitoring will be determined using a risk-based approach, in the absence of this IGEM/TD/1 recommends a frequency of four years.

6.1.5 [Route and easement management](#)

In accordance with PSR Regulation 16, pipeline operators should mark and maintain the route of their pipelines. Pipeline markers should be used to identify the pipeline route and should normally be placed at each field boundary, road, rail or river / canal / stream crossing and where there is a change of direction of the pipeline. Markers should be easily identifiable and contain current contact information of the operating company. Pipeline operators should have clear guidance in place for pipeline marking, including location of marker posts, design, what company information they will provide, etc.

Pipeline easements and markers should be maintained in order that surveillance activities can be carried out and to ensure that pipeline routes can be easily identified. Pipeline operators should have clear guidance in place documenting their requirements for maintaining the pipeline easement.

6.1.6 [Responses to reports](#)

Pipeline operators should have systems and processes in place for recording and managing reports of work being carried out in pipeline easements that does not come via the usual surveillance activities. All infringement reports should be acted upon.

6.2 **Liaison and awareness raising**

Having an in-depth knowledge of the geography of the pipeline route, maintaining good relationships with both landowners and tenants, as well as those work promoters and contractors operating along the pipeline network are all ways pipeline operators can help to prevent damage, or potential damage, to their assets.

6.2.1 [Landowner and tenants](#)

Pipeline operators should maintain a record of landowners and tenants along the route of their pipelines, including up to date contact details, and should make regular contact with each one. As a minimum, contact should be made at least once a year.

- Annual mailshot;

On an annual basis landowners and tenants should be provided with written communication from the pipeline operator. This should include a reminder about the presence of the pipeline, who to contact if they wanted to carry out work in the locality of the pipeline and what to do in the case of an emergency. It should also provide information on how to inform the operator of any unusual, irregular or suspicious activities taking place in the vicinity of the pipeline.

- Face to face contact;

Pipeline operators should have a process in place meeting the landowners and tenants along their pipeline routes.

Pipeline operators should give particular consideration to relationships with landowners and tenants on land where infringements have occurred in the past.

6.2.2 Other work promoters

Pipeline operators should identify and build relationships with all significant works promoters and contractors working in their geographical area, typically utilities, local authorities, developers and their contractors. Information regarding working in the vicinity of the pipelines, how to make contact and timescales expected by the pipeline operator should be well publicised. As an example, issuing company calendars may be a useful method of raising awareness with contractors who work in the pipeline operator's area of interest on a regular basis.

Information, particularly with regard to the different notification systems for different parts of the UK, should be provided if works promoters are working across boundaries. Advice should also be provided to works promoters who may be working in the vicinity of pipelines operating at differing pressure regimes, and thus under different legislation.

6.2.3 Communications

Pipeline operators should consider other methods of communication, such as providing information through their company website, through related publications or industry journals, as well as engaging the services of third party organisations where appropriate.

UKOPA material is available to member companies to assist with consistent communications for managing pipeline infringements:

- DVD from UKOPA
- People and Pipelines Working Together (*Farmers and Landowners*)
https://www.youtube.com/watch?v=cv_9og0nvt8
- People and Pipelines Working Together (*Utilities and Contractors*)
<https://www.youtube.com/watch?v=itacNeMqEXU>

Pipeline operators are encouraged to include references to their membership of UKOPA in their communications.

In order to prevent damage to their pipeline assets, pipeline operators should carry out proactive activities along their pipeline routes to identify unusual occurrences and irregularities and respond accordingly.

7. DATA COLLECTION AND ANALYSIS

Pipeline operators should provide data on infringements to UKOPA in order to share information, identify trends and inform processes, in order to reduce the potential for further infringements moving forward. Data should be collected as per the agreed infringement categories identified below:

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

Table 7-1 UKOPA Infringement Categories

7.1 Data collection

All pipeline operators should collect data on infringements and near misses. This information should be uploaded into the UKOPA Infringement database. On an annual basis, this data will be collated into a UKOPA report and shared with members.

7.2 Analysing data

Pipeline operators should carry out analysis of all its infringement data to identify trends and / or those third parties having multiple infringements. The pipeline operator should then work with these third parties to increase their understanding of the potential to impact upon the integrity of the pipeline assets and thus reduce the occurrence of them infringing further.

7.3 Root cause analysis

Investigations should be conducted by pipeline operators to identify the root cause/s of any A1, B1 or B2 infringement. The findings of these investigations should be shared with the UKOPA membership.

8. AUDIT

8.1 Assurance of competence

Pipeline operators should ensure that the competence of their staff and contractors. A record should be maintained of training, knowledge and experience.

8.2 Assurance of compliance

The encroachment procedure (along with email trail and telephone log) should be used to assure compliance with the audit procedure.

8.3 Data quality

Pipeline operators should review the data recorded about infringements for quality purposes. Operators should ensure that their staff and contractors recorded as much information as possible with regards to infringements, with particular emphasis given to identifying the activity type and the third-party type – both fields in the infringement recording database.

9. REFERENCES

1. A Guide to the Pipelines Safety Regulations 1996, HSE Document L82