

Successfully limiting product theft from European oil pipelines



Oil pipelines typically run over long distances across farmland and open countryside. They are therefore vulnerable to both accidental and malicious interference by third parties.

For many years, illegal interference with oil pipelines with a view to stealing the product has been a peripheral issue in Europe with just a few cases each year, most of which have occurred in South Eastern Europe. Since 2010 however, theft attempts, often successful, have been recorded in many different countries across the continent with significantly increasing frequency. From just a few cases in 2010, the number of reported theft attempts rose to nearly 150 in 2015. Although not all theft attempts have been successful, many have caused significant damage to the pipeline, with more than half of the recorded cases resulting in loss of containment and product spillage.

Beyond the financial cost associated with product loss and disruption of operations, this represents a serious threat for pipeline operators in terms of safety (to the operators' own personnel and to the public) and potential environmental damage. The criminals involved display a wide range of technical knowledge and skills in the way they attack the pipelines. As mentioned above, pipeline leaks are becoming increasingly common, and can result from a failed tapping or from ancillary equipment such as hoses, connections, containers, etc. When faced with a large leak, perpetrators commonly flee the scene, leaving the pipeline in a condition that could potentially lead to a major spill and/or fire/explosion.

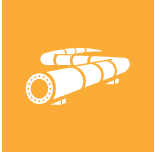
Recognising the widespread nature of the phenomenon, EU pipeline operators decided to use Concawe's Oil Pipelines Management Group (OPMG) as a conduit to share experiences, information on perpetrators' modus operandi, and deterrence, detection and remediation techniques.

In 2015 the OPMG conducted a survey of EU operators to assess the true scale and geographic spread of the problem, confirming the somewhat alarming rate of increase in the number of reported cases. This was followed in the Spring of 2016 by a seminar dedicated to pipeline product theft, which brought together EU pipeline operators with guests representing law enforcement authorities. This was an opportunity to bring participants up to date with recent relevant experience.

Concawe's Oil Pipelines Management Group continues to play an important role in helping to reduce the number of theft-related incidents from European oil pipelines.



Left: an illegal tapping commonly includes a valve welded to the pipeline wall, and a length of flexible hose leading to a collection point which may include temporary storage facilities.



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Subsequent to the seminar, the OPMG took the decision to develop a guidance document for operators, addressing all relevant facts, techniques and recommendations to tackle product theft. An ad hoc working group was established for this purpose. The final guidance document was completed at the end of 2017 and disseminated among the OPMG membership. Recognising the sensitivity of some of the information (e.g. on detection techniques and capabilities) in terms of their value to potential criminals, the document is not publicly available, although it is available to other EU pipeline operators on request. The document addresses all aspects of the issue, including:

- the modus operandi of perpetrators, and the types of illegal tappings and collection systems;
- prevention and detection systems;
- identification and discovery of illegal tappings; and
- remediation.

This information highlights the range of techniques used by perpetrators to breach the pipeline and extract and store product, as well as their implied understanding of pipeline operations.

Through these actions, pipeline operators across the EU, including those in areas or countries thus far not targeted, have been made aware of the potential threat. This has encouraged them to take action to enhance prevention and detection, and be prepared for what to expect if and when they discover an illegal tapping.

Being aware of a problem is the first step towards resolving it. In the short period between 2015 (when product theft from pipelines became recognised as a major issue) and today, operators have developed various strategies to deal with this problem:

- Personnel have been made aware of the potential for interferences, and are now systematically checking for tell-tale signs, both in the control room during monitoring operations and in the field when 'walking the line'.
- More sensitive leak detection systems have been installed, which are capable of detecting very small 'leaks' as well as pinpointing the location of the leak.
- In cases of suspected but hitherto undetected tappings, in-line inspection devices have been used to locate them.

As a result of these actions, many operators have been successful in detecting illegal activities within a very short period of time (days and sometimes hours), and in shutting down and removing tappings soon after they have been installed. This has proved to be a powerful deterrent as it makes such practices uneconomic for the perpetrators.

Law enforcement authorities have also been involved, and in some countries, the legislator has been lobbied to increase the penalties faced by perpetrators when caught. In parallel with this, operators have also developed fit-for-purpose temporary and permanent repair techniques to enable safe resumption of normal operations with the minimum delay.

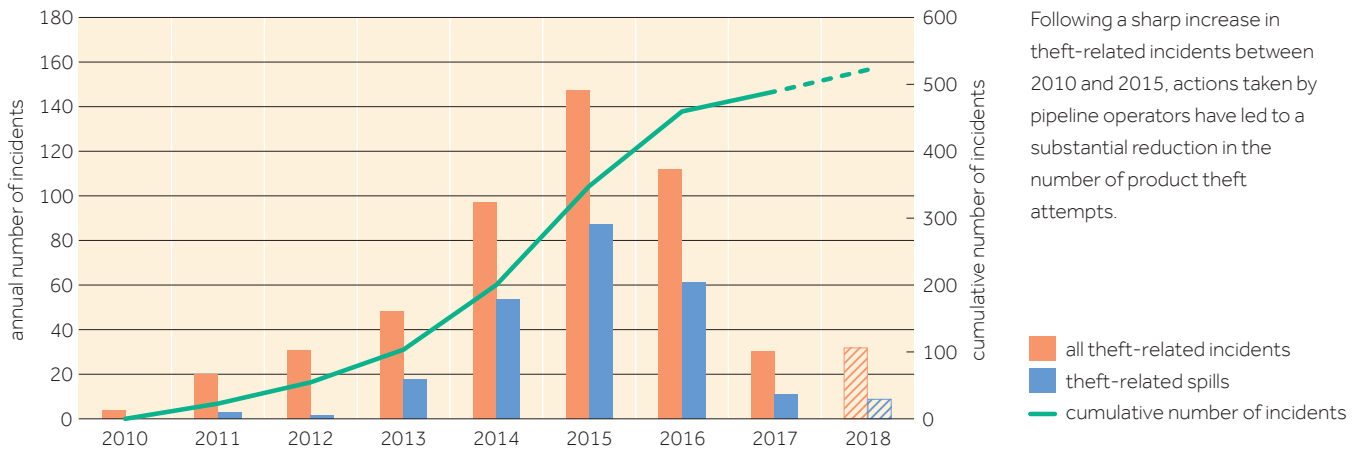
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The results of all these actions have been very encouraging. Figure 1 shows the evolution of the annual number of theft attempts reported since 2010. Since the peak in 2015, numbers have dramatically decreased, with only 30 events recorded in 2017. Although it is still early days, the partial 2018 data currently available suggest stabilisation at this level.

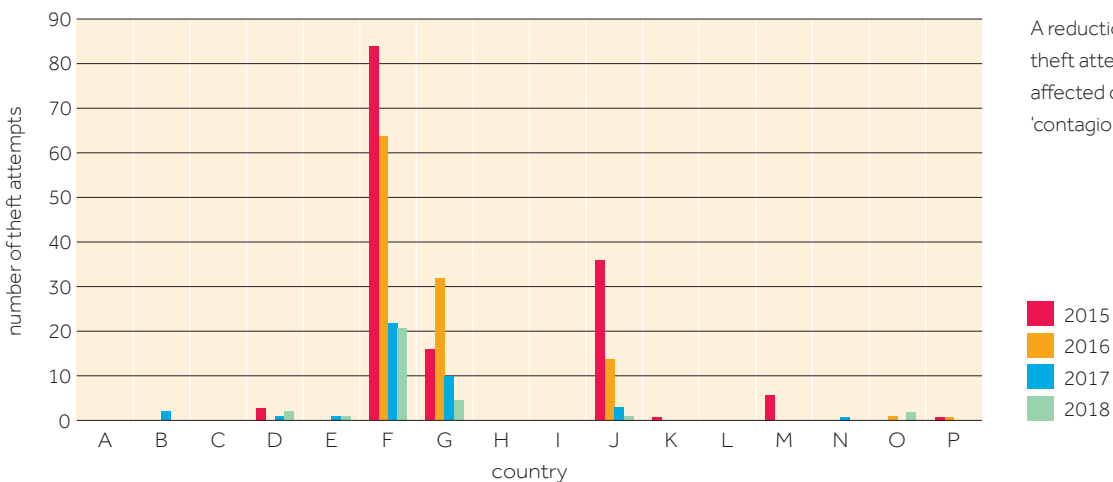
It is also worth mentioning that the reduction has been witnessed in all affected countries (Figure 2) while 'contagion', which was a concern a few years back, has not happened, and most countries have seen only a handful of cases.

Figure 1: Evolution of the number of theft-related incidents since 2010



Following a sharp increase in theft-related incidents between 2010 and 2015, actions taken by pipeline operators have led to a substantial reduction in the number of product theft attempts.

Figure 2: Theft attempts in affected countries, 2015–2018



A reduction in the number of theft attempts has occurred in all affected countries, while 'contagion' has not taken place.

The foregoing is a testimony to the effectiveness of experience-sharing and decisive action in the face of a serious threat. The figures show that the issue of product theft from EU pipelines is under control but has not disappeared. Continued attention by operators will be required to keep criminals at bay, and Concawe's OPMG can assist by providing a forum for sharing experiences and learning lessons.