



Damage and failure of a propylene pipeline offsite caused by a 3rd party

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Chemicals

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What happened?

On the 2nd December 2009 a pipeline used for the transportation of propylene from a jetty to a storage site, routed through privately owned land, was cut through by a 3rd party contractor using a petrol driven disc cutter (see photograph below). The work being undertaken was site clearance involving extensive excavations and the removal of redundant underground pipes and cables within a former tank farm site owned by a 3rd party. At the time of the incident the line contained propylene at approximately 9 bar pressure. There was a release of an amount of propylene but no one was hurt, nor was there any fire. The only damage was to the pipeline. The contractor recognised what had occurred and notified the operator and the pipeline was isolated immediately and made safe. A few months before this incident the contractor had inadvertently cut through the water supply line and the 415 V and telecoms connections to the jetty on two separate occasions.

Why did it happen?

- The contractor failed to employ an adequate risk management process to ensure the pipeline was not damaged. The Risk Assessment had not been communicated to the workforce and there was no hot work permit in place.
- The original developer (who had engaged the contractor) had been provided with drawings of the pipeline and was aware that it was planned to divert this pipeline to allow the final development to proceed. The contractor, though aware of the pipelines, had no site drawings available on site indicating the underground pipelines or cables.
- The contractor had not formally advised the pipeline operator of any work that they were planning to do in proximity to the pipelines where the incident took place.
- The route of the propylene line had been



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identified and physically marked above ground before any land clearance had started. However the markers were short wooden pegs painted yellow at the top with no signs attached. An exclusion zone around the pipeline had not been definitively established.

Lessons learned:

- It is very important that the site contractor is aware of the emergency procedures to be followed in the case of an incident - this prevented escalation of this incident.
- There were additional barriers that could have been put in place by the pipeline owner/operator, which might have prevented the incident.
- The knowledge and awareness of hazardous pipelines should be checked and rechecked with construction staff on development sites.

Recommendations:

- Raise the contractors awareness of the risks of underground pipelines. The following web link provides a useful awareness DVD 'Utilities and Contractors' produced by the UK onshore pipeline association.
<http://www.ukopa.co.uk/pipeline-safety-excavation.html#G>
- Maintain a single register of all pipeline records handed over to site developers or contractors working in proximity to underground pipelines.
- Visit the pipeline route within any development site and verify awareness in the contractors organisation of the pipelines and the potential risks.
- In the area of live pipelines on a development site establish a fenced off area within which additional levels of risk control are employed
- All temporary marker pegs or fencing indicating the location of buried pipelines in the vicinity of any new construction works should have a specific pipeline warning notice attached to them. Be aware of any redundant markers on a site, which are no longer applicable and request their removal.



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