

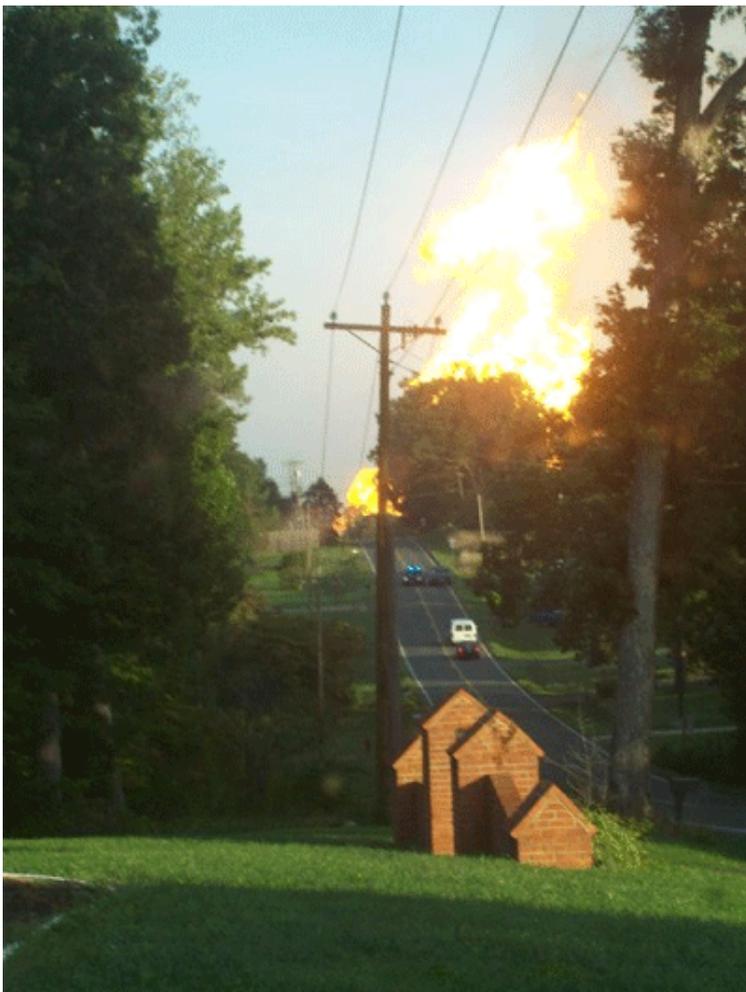
UKOPA SAFETY ALERT

Cause of Appomattox Natural Gas Pipeline Failure

1 Summary

A 30" (762mm) diameter natural gas pipeline operating at 800 psi (55 bar) ruptured at Appomattox, Virginia, on 14th September 2008. The pipeline was one of three pipelines transporting gas from the Appomattox compressor station. The resulting fireball injured 5 people, destroyed 2 homes and damaged 6 others.

The pipeline, operated by the Williams Gas Company, was in-line inspected earlier in the year. The inspection results showed indications of external corrosion, but these were not identified for immediate investigation.





2 Cause of Failure

The cause of the failure has been confirmed as external corrosion, which reduced the local wall thickness by 50 – 75%. Corrosive soil conditions, warm gas temperature and failing asphalt coating contributed to the failure. In addition, rock in the backfill shielded the pipe from the applied corrosion protection current.

There was a history of corrosion control problems at the location.

3 Inspection Results

The in-line inspection results indicated a smooth profile of metal loss of between 50% and 75% wall thickness. The indication was not identified as possible corrosion due to the signature of the recorded inspection data.

The Williams Gas Company is working with the manufacturers of the inspection tool, General Electric, to design a tool which is better able to detect this type of anomaly. The company is sharing its experience with other pipeline companies. Previous inspections of other pipelines have been reviewed and investigations carried out to identify any other possible corrosion indications which have been missed.

4 Learning Points

All metal loss indications greater than $\geq 50\%$ wall thickness detected by in-line inspection tools should be investigated in areas of reduced corrosion protection or shielding from corrosion protection (e.g. due to disbonded coating, rocks in the backfill etc) regardless of the signature assigned to the recorded inspection data.