

Incident Learning: What happened?

- Sulphuric acid was released from a pinhole of a pipeline in the pipe rack. Rain water accumulated in the culvert that aggravate the corrosion rate to other pipelines.
- The product corroded other pipelines in the vicinity that resulted in a loss of containment of other material (fuel oil, high organic waste, utility water, pumped condensate return, phenolic pitch, crude phenols and caustic soda) from the pipelines.
- Root cause:
 - Maintenance strategy inadequate as the flange neck was not inspected based on historical results.
 - The accelerated, localised corrosion on the weld could not be detected or prevented by the current maintenance strategy.
 - Corrective, preventative action or closure of corrective action not yet implemented.

What are the learnings for implementation?

- Lack of flow rate monitoring or control with regard to the use of the sulphuric acid system. Sulphuric acid system was designed and installed with limited measuring devices like flow meters to measure and control transfer rates.
- Higher rundown temperatures resulting in accelerated internal corrosion rates after the Wet Sulphuric Acid (WSA) plant was incorporated into the existing sulphuric acid system.
- Not all the hazards, risks and controls associated with accelerated, localised corrosion in the pipeline were identified and understood (.i.e. presence of protruding weld roots).
- Replace the carbon steel piping with PTFE lined piping has already commenced.

Photos of damage piping

