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What happened?

- When a gas installation was opened-up, pyrophoric dust inside ignited
- The combusting dust was extinguished with water and no damage occurred

Findings and key learning points

- Dust can accumulate in gas installations such as filters and pipelines
- Some dusts may be pyrophoric in nature - they will spontaneously oxidise when exposed to air and release heat
- In gas pipelines, pyrophoric dust is likely to be iron sulphide – a result of the reaction between rust (from iron pipelines) and hydrogen sulphide
- Whilst in an enclosed gas installation, there is insufficient oxygen to allow combustion to take place but when containment is broken, the oxygen levels rise leading to oxidation
- Spontaneous oxidation of pyrophoric dust can result in the ignition of flammable substances such as natural gas
- When breaking containment if smouldering, smoke or burning embers are noted, the dust should be moved to a safe area (if safe to do so) and dampened down with water

Recommendation

- Operators should be alerted to the possibility that pyrophoric dust can be present in gas systems and that it can ignite in the presence of oxygen