

Failure Analysis Specialists

For over 30 years, Gilmore Engineers Pty Ltd has been a leader in the investigation and analysis of accidents and failures. We are one of only a few consultancy groups in the world that has a speciality in failure analysis. Services are provided to many corporations, insurers, individuals, and their counsel. Typical failures include machinery and system-of-work failures leading to property loss and personal injury. Specific services include analysis of component failure and redesign, experimental testing, design auditing, Finite Element Analysis (FEA), Computational Fluid Dynamics (CFD) material testing, corrosion analysis, fire investigation and auditing of safety standards.

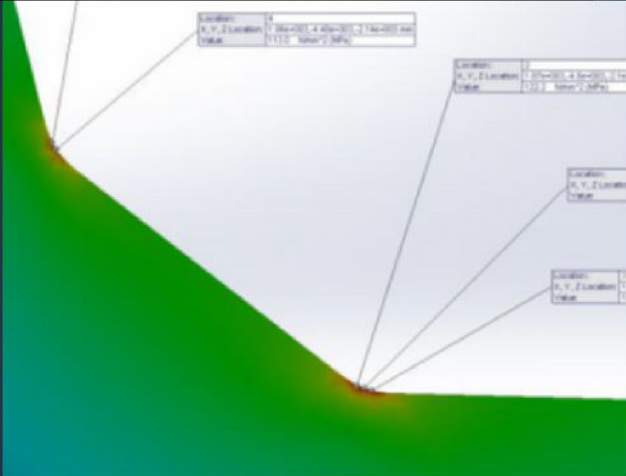
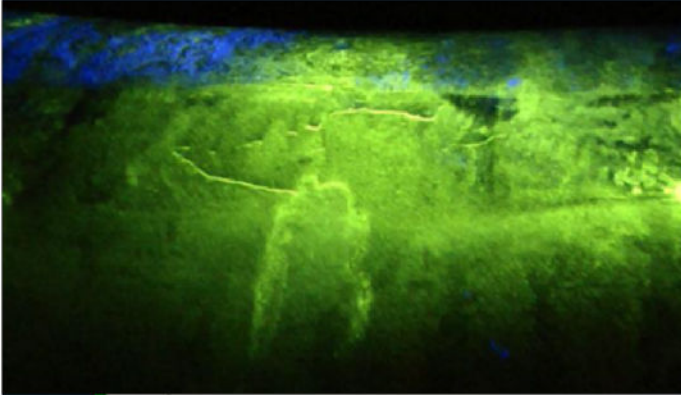
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Semi-Trailer Rollover Carrying Live Load

A prime mover and semi-trailer combination carrying livestock rolled over while negotiating a curve on a NSW highway. Gilmore Engineers investigated the incident, including the design of the road, road surface condition and signage, and provided an expert engineering report for the court explaining the contributing factors to the incident.



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Drill Rig Continual Maintenance

4 drill rigs were reviewed after a history of failures. Gilmore Engineers were tasked with determining whether the failures were caused by poor design, manufacture or operator error. Issues involving the pneumatic system, compressor shaft, cooling system and overheating were identified and detailed.

Failure Analysis of a SAG Mill

A 34ft diameter SAG mill developed cracks in the corner weld near the end of its service life. Gilmore Engineers inspected the Mill and conducted Finite Element analysis on the mill to determine the reduction in stress intensity at the repaired site and provided recommendations for continuing use and the potential replacement. Gilmore Engineers also performed a design review of the replacement Mill, including independent Finite Element analysis and independent quality assurance during the manufacture of the new SAG Mill components in Turkey and China.



Modelling of a building fire

A CFD study was undertaken on a critical building fire within an accommodation complex which resulted in loss of life. Results from the study were integrated into the police investigation enabling determination of cause and qualification of the overall building hazard. The same simulation technology has since been successfully validated by Gilmore Engineers against experimental data in a full-scale mock building burn.



Failure Analysis of a Girth Gear

KCGM contracted Gilmore Engineers to review a mill girth gear failure and the numerous reports that had been produced regarding the excavation. Gilmore Engineers produced a management-level report analysing the failure and providing a recommendation for the potential remaining life of the gear.

Truck Differential Yoke Failure

An underground mine concrete truck impacted a wall on a relatively steep decline. Concern about whether the truck's brakes or driveline had failed or whether operator error was responsible was investigated. Gilmore Engineers determined the driveline had failed during the impact and that the brakes were in serviceable condition at the time of the incident.

