



FORENSIC SERVICES
Consulting Scientists and Engineers

PETROLEUM TANKS

ACCIDENT INVESTIGATION

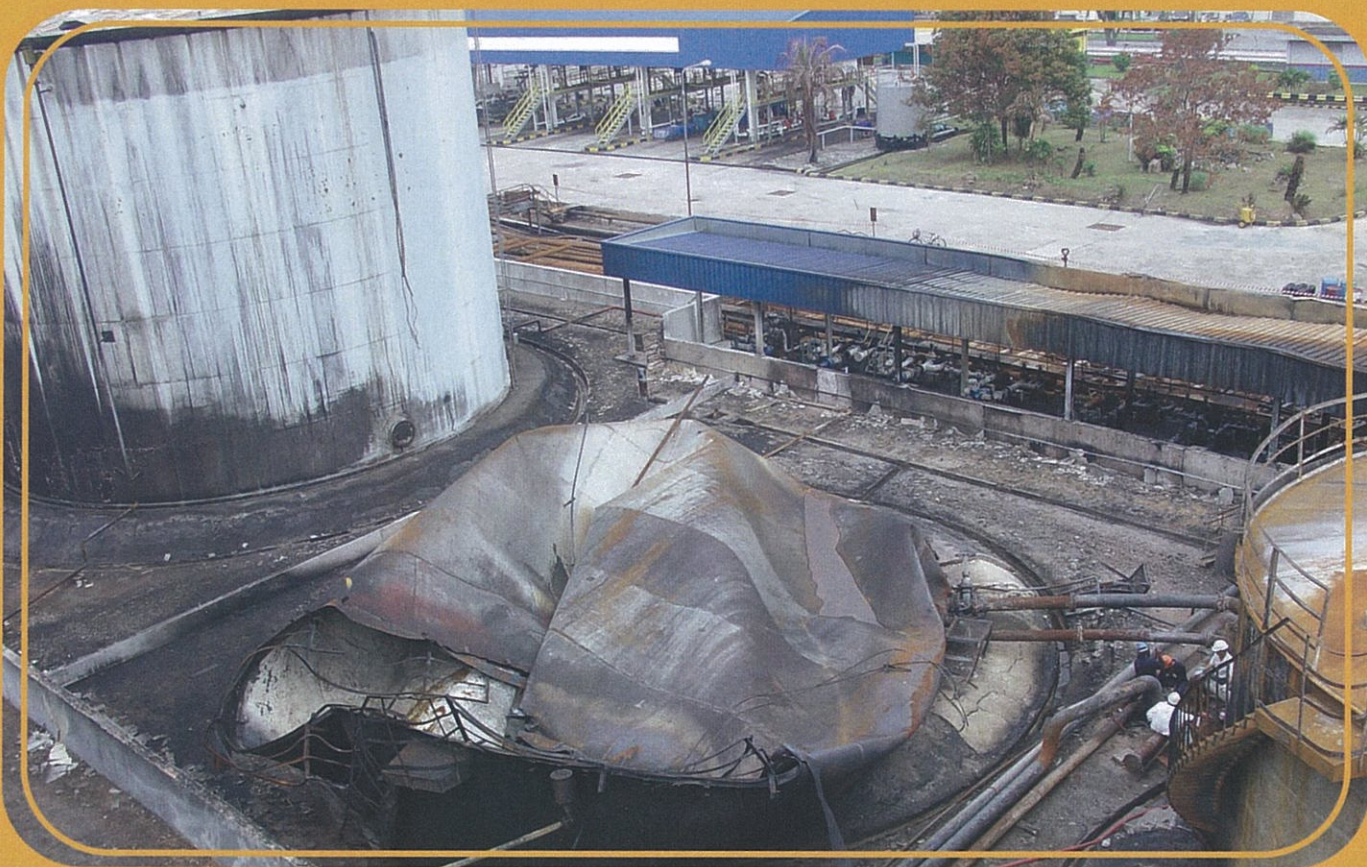




One of a number of newly constructed tanks that exploded. A review of construction records revealed a litany of problems with the internal floating roofs, that remained unresolved when the tanks went into service.

RELATED ACCIDENTS

Many accidents do not begin at the tanks themselves, but at the piping, pumps and other equipment used to transfer petroleum product from tank to tank or ship. The latter, whereby petroleum product is being conveyed to or from a tanker, is particularly prone to mistakes occurring and FSA has investigated such accidents in Malaysia, Indonesia and Thailand.



The remains of a tank that exploded when struck by lightning. The investigation revealed the roof was corroded and had not been repaired as recommended by the inspector.

PETROLEUM TANK ACCIDENT INVESTIGATION

TANKS AND ACCIDENTS

The total amount of oil stored in the world is difficult to estimate, because some countries do not report their stockpiles, but one estimate puts it at 8 billion barrels, or 1.3 billion cubic metres. With about 18% on the sea, this means about one billion m³ are in storage in steel tanks on land. The number of tanks is unknown, but one index tracks 20,000 tanks in 800 oil farms.

With so many tanks, it can be appreciated that even if the failure of an individual tank is statistically low, there will be accidents. What is surprising is the variety in the ways that tanks can fail. Poorly fitted floating roofs, lightning strikes and corrosion have featured in accidents we have investigated.

Forensic Services Asia has a multi-disciplined team of consultants carrying out investigations full time, with skills ranging from extensive field experience to metallurgical laboratory failure analysis.



A split at the joint between the floor (annular plate) and the shell of a tank, allowing most of the contents to escape. Physical examination revealed the split was a result of corrosion. A document review revealed the tank had not been inspected at the recommended interval.

SKILLS FOR INVESTIGATION

FSA's consultants practice a disciplined approach to accident investigation, based on long established and universally recognised methodologies.

Our consultants are skilled in assessing all the evidence, drawing logical conclusions, and preparing reports that can be used in litigation if necessary. They have appeared in courts as expert witnesses.

IN-HOUSE METALLURGICAL LABORATORY

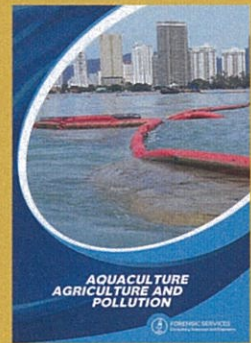
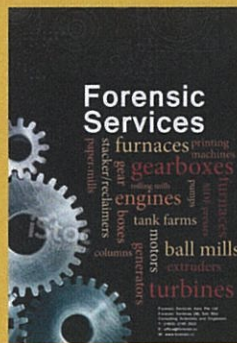
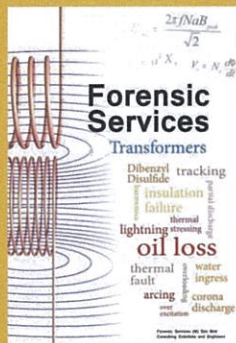
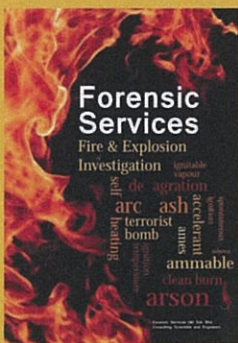
Our failure analysts examine a wide range of samples taken by our consultants during their investigations, and determine the failure mechanisms.

WIDE EXPERTISE

Forensic investigations have been carried out in each of the countries named in the map below



Forensic Services carries out a wide range of investigative services. Other brochures are shown beneath. Please contact us if you have any inquiries.



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