

TestSafe Specialist Team assists WorkCover's Country South Team after an Ethanol Fire & Explosion



Fire fighting operations at Port Kembla

A team of experts from Londonderry, have been assisting Country South Inspectors to investigate an enormous explosion and fire that occurred in a Port Kembla fuel storage tank.

The incident involved a large explosion and fireball, which launched the roof of the tank some distance into the air. It came to rest about 20m away. Unfortunately as the roof landed, it damaged part of the site used for the control of fire fighting and protection systems.



Port Kembla specialist investigation team L to R, David Fraser, Electrical Engineer, Ben Cabot, Forensic Scientist and David Pearson, Fire & Explosion Specialist

Heroic efforts by officers of the NSW Fire Brigades averted the spread of fire to adjacent storage tanks. "Elvis" the large fire-fighting helicopter was deployed. However, the fire resisted attempts to extinguish it, and burned for three days.



"Elvis" dumping foam onto the tank.

There was a great deal of media attention. It is most fortunate that no one was killed or seriously injured.

Ethanol fires are particularly difficult to extinguish because they can destroy the foam forming properties of some fire extinguishing foams. However, the main problem seemed to be that the very large size of this fire meant that a much larger rate of foam application was required than could be supplied.

Fuel storage tanks are designed with relatively weak roofs and strong walls. The intention of this is that if an explosion occurs, the roof rapidly fails, leaving the fuel still contained without spillage. In this fire, this design of tank effectively contained the burning ethanol even though temperatures were sufficiently high so as to cause the steel walls to droop (see Photos).

Investigations are continuing into the circumstances surrounding the ignition, and as such it would not be appropriate to comment on this aspect of the incident. Look out for future article which will explain some basic technical aspects of fuel ignition inside storage tanks.