

CSIR's fire investigation expertise in demand offshore

The CSIR's fire investigation expertise extended beyond the borders of South Africa to Mauritius recently. Most people equate this island off the African coast in the southwest Indian Ocean with sun, sea and sand - not sugar cane, smoke and soot.

Yet, this is exactly what Anina Burger of the fire investigation team of CSIR Knowledge Services found when she arrived at the Mon Loisir sugar mill in Rivière du Rempart. The smoke had died down, but the damage left by an underground fire brought the mill's electricity production to a standstill. Burger has a BSc degree in chemistry and applied mathematics and conducts fire origin and cause investigations for the CSIR according to the scientific method.

Apart from processing sugar cane, Mon Loisir has used the waste product (bagasse) to produce electricity for the past 50 years. This it uses to power its own operations as well as supply the government with electricity on a tender basis. When the mill is unable to fulfil the tender requirements - as in the case of this fire - penalties are levied.



Destruction left by the underground fire



The CSIR's Anina Burger

Burger says the whole experience was one of learning and surprise at the sophistication of the sugar industry and equipment. The bagasse is used to fuel the boilers to produce steam at 470 °C, which in turn is used to power the turbine located in the power station. The turbine powers an alternator and subsequently produces electricity. Cables are routed underground from the switch gear rooms to four sections in the plant where these energise all the electricity-driven plant equipment.

"The fire originated in an underground cable way that extended from the basement of the power station where an amount of 6,6 kV electricity were carried through 1 MWatt cables. Fire fighters struggled to extinguish the fire as the basement could not be accessed due to the overwhelming smoke. The cable ways in the separating floor allowed the fire to spread from the transformer section in the basement to ground level and fire fighting was accordingly directed towards the switch gear rooms that were located above the transformer section," she explains.

The CSIR's services were procured by a loss adjuster based in East London assigned to the case and with previous dealings with the CSIR's fire investigation team. After extensive interviews with the production manager and electrical engineers, Burger braved the cable tunnel - an uncomfortably hot and dirty affair, she says.

Hundreds of photos later, she could report to the loss adjuster that the fire was accidental and that no foul play was suspected. She found the people "very helpful and very French" and concludes her only regret is not having had her feet on the famous Mauritian shore.