

Application Article 219

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GasCheck 3000is Monitors Hydrogen Leaks from Hydrogen Cooled Turbines

Industry: Power Industry

Application: Monitoring Hydrogen Leaks from Hydrogen Cooled Turbines

Location: New Zealand

Introduction

Contact Energy, a leading electricity generator and retailer based in New Zealand has purchased the GasCheck 3000is to detect hydrogen leaks.

The company generates around 25% of the countrys electricity, across nine power stations and has over 635,000 customers, including National Grid.

Generators used within electricity power stations are devices that convert mechanical energy into electrical energy. Contact Energy generates electricity using hydro, geothermal and thermal energies.

Application

Within this application hydrogen was used as a cooling medium in the turbine generators, to help optimise heat removal and improve the systems operating efficiency.

Hydrogen is especially prone to leakage. Contact Energy were finding that a significant amount of hydrogen was being lost from its generators. This proved to be costly, and dangerous due to the emission of flammable hydrogen leaks.

Hydrogen As A Coolant

Hydrogen is an excellent coolant having a high specific heat, high thermal conductivity and low viscosity. Hydrogen is used to strip heat from moving generator components cooled with water, and re-circulated.

Why Detect Hydrogen?

Hydrogen is un-harmful to humans if inhaled, but is a highly flammable gas.

Why GasCheck 3000is Was Chosen

The Ion Science GasCheck is the only ATEX approved gas leak detector on the market designed specifically for the search and location of flammable gas leaks. The high thermal conductivity of hydrogen also delivers from the GasCheck 3000is, exceptional sensitivity to hydrogen.

Contact Energy selected the GasCheck 3000is to detect flammable hydrogen gas leaking from electricity generators, and effectively minimise the danger and costs during their electricity processing operations.

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