H.V. DIAGNOSTICS SOLUTIONS AUSTRALIA

Leak Location in Oil Filled Cables

The Easy Way

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THE EASY WAY

TRADTIONAL METHODS FOLLOW AN UNFREINDLY PROCESS

Traditionally fault location using the freezing method for Oil Filled Cables has been a long, expensive, potentially damaging (to the cable) and environmentally unfriendly process.

HVDSA in conjugation with HVTest have pioneered an innovative drive-by method of locating the position of leaks in oil-filled cables that addresses the problems associated with the traditional method of excavating and freezing portions of the cable until the fault is isolated.

From 2010 until June 2020, HV Test have located over 400 cable leaks on cable networks that have been tagged for leak location using PFT to take place.

Our Simple

2 STEP PROCESS

STEP 1: TAGGING

All oil-filled cables in your system must first be tagged with our special chemical tracer elements. The tracer elements are introduced into the oil using our proprietary systems which carefully control the dosing concentrations to minimum levels. At these levels it has been shown that there is no impact on the dielectric properties of the oil yet the concentration of the tracer chemicals are sufficient to be detected by our super-sensitive detection systems even below the soil or tar and concrete pavings.

There is little economic sense in not tagging all the cables in a system in advance. New cables can be tagged at any stage in the future and pre-tagged cables can be “topped up” as required by our operators. The costs will depend upon the location and tagging requirements. .

There are a number of methods of introducing the tracer elements into the oil offline or online. Our preferred method is to introduce the tracer elements online whilst the oil is being treated or introduced. This can even be done with an operational cable under certain circumstances.

The speed of the tagging process depends on the speed at which the tagged oil can be introduced into the cable.

The order of these delays is typically days per cable and it is therefore important that all cables In a system are pre-tagged rather than waiting until a cable becomes faulty before tagging.

The tracer chemicals are non-naturally occurring and are used in such small quantities for the dosing levels required. They do not impact on the environment or the cable.

Our Simple
2 STEP PROCESS

STEP 2: FAULT LOCATION

The oil leak is located with our advanced tracer detection systems. A vehicle is fitted out with sampling, concentrating and analysis tools that will automatically sample the atmosphere as the cable route is traversed. The position of the samples are recorded using a GPS receiver and the sample analysed to detect the presence of tracer elements.

The concentration of the tracer elements are compared to baseline readings taken before the start of the fault location process and alarms are raised when the tracer components are detected at the required concentrations. Our systems are capable of detecting 10 parts per quadrillion (1015) of the tracer elements. This extreme sensitivity means that most leaks can be detected by slowly driving the cable route and sampling.

Extreme environmental, routing and other conditions may mean that samples may need to be collected from bore-holes drilled into the tar/concrete and these samples manually presented to the vehicle for analysis.

FAULT DETECTON

As with all oil-filled cable systems the presence of a fault is detected by dropping pressures or oil levels in the oil storage vessels. HVDSA can assist with online systems to detect level or pressure changes and report these changes to a centrally located control or service centre.

CASE STUDIES

Based on our experiences in locating oil leaks in the UK, South Africa and the Far East, we have since 2010 compiled a vast number of case studies of different types and rates of leaks in all types of environments. Our in house field services PFT system has located over 400 leaks

We invite interested parties to visit our facilities where we can demonstrate the efficacy of our systems and, if available, arrange interviews with end users where you can experience and discuss the benefits with the users of the system or service.

ENVIRONMENTAL IMPACT

The system has a massive economic impact in reducing the amount of oil that is spilled into the ground because of the ability to locate leaks so much faster than by way of the freezing method.

HV Diagnostics

COSTS

Costs will vary depending on the solution chosen but typically there are no direct costs involved per fault. The system will pay for itself in fault location savings (excluding clean-up savings and outage costs, fines etc.) after as little as 1 major or material leak and typically within 5-10 non critical leaks have been located.

TIME SAVINGS

Typically our experience has been that cable faults are accurately located within 3-4 hours of the arrival at a fully tagged cable. The time taken does depend on the fault location locale, the accurate cable route being known, reasonable climatic conditions being present and the cable installation specifics. We invite interested parties to visit our facilities where we can demonstrate the efficacy of our systems and, if available, arrange interviews with end users where you can experience and discuss the benefits with the users of the system or service.

ZERO CABLE DAMAGE

Cable damage caused by the exposure and freezing processes is entirely eliminated.

HV Diagnostics

OUR SYSTEM

At HVDSA we offer the service of finding oil leaks or selling the hardware and know-how of our tagging and leak location solution.

Our offer for the service to locate leaks or sale of the leak location technology, includes a HVDSA team to travel to your location, document your requirements and cable network details and to then produce a comprehensive offer for your review and consideration.

Customisation of the detection vehicle for your specific requirements and application is a key and strategic focus. The lead time on supplying a new and custom built system or shipping our suitably modified field services system, is typically 1-4 months, depending on the level of customisation required.

The system costs include the training, scheduled vehicle and equipment maintenance and assistance with leak location.

FOR MORE INFORMATION PLEASE CONTACT US ON

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