

Improving CP data with MiniLog

Value Case Study



Reliability and operability

Project: NIA_NGGT0043 MiniLog Stray Current Monitoring Devices for Cathodic Protection Re-Life
PEA cost: £20k
Duration: 2 years
Supplier: NGGT Internal
PEA benefits: £186k
Benefits realised: £144k

Key outcomes:

16

Number of back-logged defects safely closed

£144k

saved

Background

Cathodic Protection (CP) is applied to gas pipelines to prevent corrosion of the metal pipeline surface by connecting it to a more easily corroded “sacrificial metal” and supplying an electrical current from an alternate source. Using this technique, the sacrificial metal is corroded instead of the pipeline surface, helping maintain the integrity and reliability of the pipeline over time. The effectiveness of these CP systems is assessed by periodic measurement of the pipe-to-soil potential over the entire pipeline. Accurate readings of CP effectiveness are difficult to capture as it is not uncommon for measurement errors to arise from the effects of stray currents, for example, from overhead wires.

Instances where accurate CP effectiveness cannot be determined are logged as potential ‘defects’. In the past, each defect was subject to a lengthy investigative process which included multiple follow-on surveys and, in some cases, excavation and the installation of probes, in order to build up an accurate picture of the CP system. This process relied heavily on expert interpretation which opened the possibility for misinterpretation of the data and inaccurate classification of the pipeline condition.

What's new?

The MiniLog Stray Current Monitoring Device, piloted as part of this NIA project, enables readings to be automatically taken every few seconds over a 48-hour period. This produces a complete and accurate picture of the CP effectiveness on pipelines.

The benefits

NGGT has invested in eight MiniLog devices and there are now six people trained to use them. With the MiniLog system, technicians no longer need to travel to several locations along a pipeline to take readings.

They visit each site just twice: once to fit the device into the standard CP test post and once more to retrieve the equipment at the end of the trial. The MiniLog records true

pipe-to-soil potential data, i.e. error-free data, reducing the requirement for detailed analysis or the installation of probes.

Building a larger catalogue of data over a period of time with MiniLog has enabled more reliable interpretation of CP readings to assess pipeline defects in a more effective way. Error-free readings allow for more defects to be quickly and safely closed. It is reducing the backlog of defects that was commonplace with the traditional process and achieves a more accurate classification of defects as compliant or not. Since implementation, we have closed 16 defects. This has generated a total saving of £144k to date. There are significant future benefits too, as we have identified a further 86 existing defects where MiniLog will be used.