



# Case Study

## Multi-Site Complex Repairs & Bund Containment

Regional DNO Substation



## The Project

Our client, a distribution network operator, has many sites where oil filled transformers and equipment are situated on concrete plinths with either partial bases and walls or none at all.

If the equipment held on the site area was to leak oil or explode the hydrocarbons would enter the environment and the unit forced to shut down until deemed fit for use again. A solution needed to be found to mitigate environmental damage without having a major effect on client efficiencies (i.e. shutting down substations whilst clean up, repair and containment work took place).

Stones are used so site personnel can walk in the area without slipping and greatly improves rain water run-off. In this case, this process revealed three potential scenarios; removing the stone and still finding stone; removing the stone and finding hard clay or removing the stone which would reveal cables, trenches etc.

In all, a total of 100 sites needed bunding within a 12 week period.

## The Solution

The new Adler and Allan JBAR System was proposed as the most cost-effective and rapid to install solution available. This is a modular bund system that has raised walls avoiding the need to dig down into the site, can be custom made to fit any area, is highly effective for flood mitigation and oil containment and can be quickly erected, giving fast turnaround to avoid any service disruption.

Adler and Allan's DISAB vehicle was deployed to remove stones to a nominated depth of 300ml. DISAB is an extremely powerful and versatile suction and blowing machine.

JBAR allows for specific volumes of bund containment to be calculated and specified. Stringent tests have proven that JBAR combined with layers of Icopol, a structured water-based lining, gives a watertight bund.

The Icopol lining system fits beneath the JBAR base plate to form a secondary base with all corners neat and right to ensure water tightness.

Adler and Allan's Adalline polyurea spray lining process was applied to give a fully waterproof and highly resilient coating over the bunded area. This is an extremely fast-setting - minutes not days - coating which created a useable surface within 24 hours. It is eco-friendly, contains low or no-solvents or VOC's and withstands contraction and expansion.

All bunds were then tested for water-tightness using a large



volume of water contained within the bund for 8 hours.

Each bund area had an anti-slip working area applied to allow personnel to step in and move safely within the bund. This is applied using either a fast-setting glue or small stone method or pre-cut anti-slip strips.

Sumps were specified as part of the works. These can pump out excess water which may get retained in the bund and allows easy removal. The best location for each bund sump was determined in the final specifications.

Some bund areas had an additional challenge where extra earthing structures were sited next to the power units. The solution to this challenge was to install a Compact JBAR within the bund JBAR System to contain and protect the earthing structure. As this increased the volume for containment within the exterior JBAR the bund walls were heightened. In addition, to prevent any water leaking back into the earthing bund we specified non-return valves on the system. This would only release water out and not back into the area.

The final stage to complete the whole project involved replacing the bund stones using the high-powered blowing capability of the DISAB vehicle.

## The Outcome

Our client now has an extremely effective solution, were a unit to explode or leak, they now have protection with a 10 year warranty. This Adler and Allan bund process took only 4 days to complete from start to finish, on average.