

CASE STUDY:

BIDIM C

**SOUTH AUSTRALIAN MINE
AUGUST 2018**

bidim C

bidim C conductive geotextile is the world's first commercial conductive geotextile made with graphene technology. It has been designed to provide an effective, simple means for designers and installers of lining systems to undertake liner integrity surveys, providing reliable leak detection of liner pin holes down to 1mm in diameter.

bidim C Range employs the power of imgne® X3 geotextile graphene technology to provide surface resistivity across the geotextile.

Graphene, a two-dimensional sheet of carbon atoms, is the lightest, strongest, most electrically conductive substance yet discovered.

Graphene is regarded as the "wonder material" of our time because of its unique and exceptional properties.

Located in South Australia, this mine site had aggressive wastewater needing to be contained. For this application, a leakage of the lining system can cause damage and ultimately cause failure of the storage.

A robust design was completed, comprising (from the top downwards) –

- a CSPE liner as the primary liner
- bidim A34C conductive geotextile
- a geocomposite drainage layer (or geonet) to achieve zero hydrostatic head on the secondary liner
- a compacted clay layer as the secondary liner to provide even further protection

The cross-section below (page 2) shows the lining system.

While the primary liner leakage rate was designed to allow for state of practice seepage rates with an additional factor of safety, the target commissioning seepage rate was close to zero.

In order to achieve the target seepage rates, a high sensitivity electrical liner integrity survey was to be performed. As the primary liner is not available with a conductive layer to ensure an accurate survey, a conductive material was required below the CSPE primary liner membrane layer.

Geofabrics were selected to provide the geotextile between the geonet and the CSPE liner (primary liner) to provide a cushion and filter layer. The bidim A34 geotextile was made highly conductive so that the installer could perform a leak detection survey on their installed liner. This was the first bidim A34C project undertaken.

> bidim C Range



Geocomposite drain and conductive geotextile being installed

Geofabrics also supplied the geocomposite drain (or geonet) material to provide the drainage layer between the primary and secondary lining layers.

The design and construction works were completed at the mine site in South Australia by Fabtech. The CSPE geomembrane materials were pre-fabricated to shop drawings for precision installation on site.

The constructed result was a high-quality storage asset with an assured commissioning process, avoiding risk or delays when handing the asset over to the operational department at the mine.

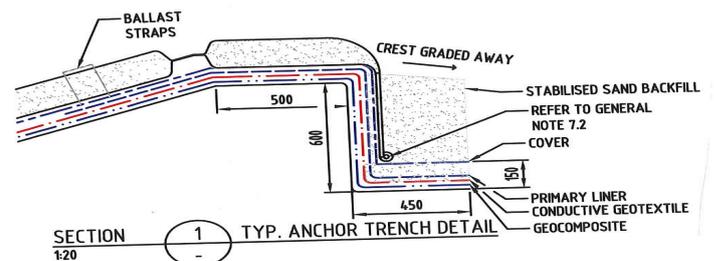
“bidim A34 C provided the client with comfort that no defects were present before the storage was hydrostatically commissioned, ensuring that the construction goals were achieved.

Leak detection surveys are a great tool for all lining systems prior to handover from installer to client.”

- Graham Fairhead, Managing Director, Fabtech PTY LTD.



CSPE primary liner (brown) being installed over the conductive geotextile



Cross-section of lining system, showing conductive geotextile under primary liner but above the geocomposite drain