

NORTHERN ADELAIDE IRRIGATION SCHEME



DATE: OCTOBER 2019

CLIENT: SA WATER

GEOMEMBRANE INSTALLER: GEOTEST

CIVIL CONTRACTOR: LEED ENGINEERING

LOCATION: KORUNYE, ADELAIDE

COOLGUARD® OASIS

ADVANTAGES

Coolguard® geomembranes are formulated with Dupont Elvaloy® (KEE) as part of a tri-polymer alloy; meaning they are suited to applications where chemical resistance, high physical strength and other unique properties are necessary.

CoolGuard® geomembranes are engineered for use in areas where primary and/or secondary containment of hydrocarbons, liquids, aggressive chemicals, and other regulated substances is required. CoolGuard® can handle many petrochemicals in primary

The superior performance coupled with the flexibility of the Coolguard® geomembrane is the result of the combination of select polymer blending, stabilisers and the unique reinforcing mediums.

The Bolivar Waste Water Treatment Plant, South Australia's largest; processes 60% of metropolitan Adelaide's raw sewage. The SA Water sewage treatment plant pumps recycled water to the Adelaide Plains for use in irrigated agriculture and horticulture.

SA Water engaged Geofabrics to assist in the infrastructure upgrade - with the aim of delivering an additional 12 GL per year of recycled water for irrigation. Phase 2 was to construct recycled water storage infrastructure to the area north of the Gawler River, enabling a new major irrigation area to be built.

The recycled water storage included two 200 megalitre earth bank storage ponds. The pond's storage capacity was designed to cater to future growth in the area, for at least the next twenty years.

The Coolguard® Oasis 1.14mm geomembrane typically has a 20 year warranty but when combined with a 1.52mm floating cover, the warranty can be extended to 30 years.

The improved performance is largely due to the Dupont Elvaloy® technology, which enables protection against weathering and UV resistance, whilst allowing the the PVC alloy to maintain it's flexibility.

The 30 year warranty comprises a twenty-year straight component with the subsequent ten years pro-rata. This means at the twenty year milestone, if normal weathering has occurred, 100% of the supply cost of liner can be replaced at the manufacturer's expense.

SOLUTION: bidim® A64 cushion geotextile

Selecting a suitable cushion geotextile for the liner is as important as selecting a durable liner. The bidim® A64 cushion geotextile was selected specifically for its Needle-Free properties.

Needle punched geotextiles are manufactured by punching continuous filament polyester strands with hundreds of needles. These needles are so thin that they quite often snap off during the process. Geofabrics' manufacturing plant in Albury, NSW can use a detector to identify and manually remove any needles which would inevitably puncture the liner it is specifically designed to cushion. T5 Trinet drainage net was included and chosen in the design to allow any leaks to pass into a sub-liner leak detection system and essentially allow any leaks to be identified and located.

Extensive product testing, product performance and AS 4020 approvals were all part of the decision-making process; and ultimately the bidim® A64 cushion geotextile was identified as the most suitable solution.

OUTCOME:

Geofabrics were able to successfully and economically deliver the products on time and in full, and with Australian manufacturing quality assurance (MQA).

REDUCED RISK

The liner installation was carried out by Geotest. The liner was able to be prefabricated in their yard, undercover and out of the elements. Prefabrication is possible with Coolguard® Oasis due to the flexible nature of PVC-alloy. Its flexibility allowed it to be folded into panels and then further welded on-site without the risk of stress cracking. Prefabricating also significantly minimises time on-site welding and less time on site means reduced risk with less time spent around earthmoving equipment.

REDUCED MAINTENANCE COSTS

The ponds are in full operation and supplying water to the surrounding community and agriculture operations. Should any damage occur during the pond operations and design life, the Coolguard® Oasis liner can be easily repaired due to its flexibility and weld-ability, which will remain for the life of the product. By using premium products like Coolguard® Oasis and Australian Made geotextiles, SA Water ensured that maintenance would be minimised throughout the life of the pond.

PROUDLY AUSTRALIAN

Geofabrics is the only geotextile manufacturer in Australia, with plants in Albury and Southern Queensland.

We pride ourselves on providing the best service to customers across the country, whilst supporting the Australian economy through Australian manufacturing.

GEOFABRICS IS COMMITTED TO BUILDING A STRONG, SUSTAINABLE FUTURE FOR AUSTRALIA



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