



GeoGard™ EPDM membrane provides cost-effective solution for irrigation canal



Background

In 2011, the Trangie-Nevertire Irrigation Scheme received funding under the Australian Government's Private Irrigation Infrastructure Operators Program (PIIOP). This funding aimed to deliver water savings across the scheme of almost 30,000 ML/annum. Funding was spent most notably on the reshaping and lining of approximately 110 km of water delivery channels.

Several lining products were trialed and considered by the Trangie-Nevertire Irrigation Scheme. The Firestone GeoGard™ EPDM membrane was chosen to complete the channel modernisation due to speed of installation, durability, local support and backing of its major multi-national manufacturer.

Preparation and Roll Out

The existing main channel width varies between 15 and 21 metres. The lining design needed to accommodate for wide channel widths, as well as existing and new infrastructure including metering points, culverts and other infrastructure.

Construction work began in 2011 with the award of the construction contract and first procurement of the Firestone GeoGard EPDM liner.

Quick Facts

Project scope:

- Deliver 30,000 ML of water savings per annum
- Line 110 km of existing earth channels
- Install 2.19 million m² of 1.1 mm Firestone GeoGard™ EPDM

Challenges faced:

- Strict Federal safety and quality requirements
- Harsh environment (strong UV exposure, large temperature fluctuations and significant dust)
- Installation had to be completed within a specific construction window outside irrigation season, so channels could be kept operational

Solutions:

- Rapid installation rates, up to 35,000 m²/day
- Large sheets and variety of sheet sizes reduced on-site cutting and seaming
- Fast and easy installation
- Long term durability
- Highly flexible at all installation temperatures
- High elasticity (>300%)



The Triangie-Nevertire Irrigation Scheme (TNIS) • Australia

The density of the EPDM membrane panels reduced the need to stop work during windy conditions. The GeoGard membrane's ease to adapt to soil irregularities, its flexibility even at low temperatures and size of its sheets enabled the contractor to expedite the project. To date, installation rates of up to 35,000 m² per day have been achieved.

Significant benefits were realised when considering the stringent Occupational Health and Safety requirements of the scheme. The non-slip nature of the GeoGard membrane enables greater access for workers in all conditions and the Firestone QuickSeam™ Splice Tape sealing system eliminated the need for generators to power equipment commonly needed for alternative lining options.

Ongoing Benefits

Among the reasons for choosing Firestone GeoGard were the benefits the project will see post-construction. The EPDM geomembrane is durable, has high UV resistance, excellent fire performance and a good puncture resistance. In addition, people and animals are better able to escape the canal due to the higher friction angle and flexible nature of the product.

Long term maintenance costs will be reduced, as any damage can be repaired at any time of the product's lifecycle by a 1 or 2-man crew, using the QuickSeam sealing system. No power source for welding is required.

Quality Assurance

The local authorised distributor developed and implemented a detailed quality inspection system. They

carried out all quality assurance inspections of EPDM lining works as required. This included consultation and monitoring of all parties (principal, earthworks and subcontractors) design specification and quality assurance requirements, testing and reporting. Air lance testing of all seams also helped increase installation quality.

Exceptional Longevity



Firestone Building Products has been in the lining business for over 40 years. Projects installed 40 years ago are still functional and are living proof of this durability.

For further information regarding Firestone GeoGard EPDM, please contact your local Firestone representative.

Scheme Information:

- Number of farms served - 66
- Irrigated area - 21,540 ha
- Length of main channel - 209 km
- Subsidiary delivery channels - 35.5 km
- Peak flow rate: 700 ML/day
- Crops grown under irrigation - coarse grains, cotton, oil seeds, wheat, pasture, lucerne and vegetables
- Annual additional production attributable to irrigation on this scheme - \$35 million AUD (\$32.5 million USD)



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