



Project Info



15 / 11 / 16



CCH8™ Bulk Rolls



4,000m²



Longitudinal layers



Lephalale, South Africa



Ndzani Spec-Con



CCH8™ was used to remediate a gravity thickener tank floor to extend its operational life and ensure efficient functioning at a mine in South Africa.

Completed installation

In November 2016, CC Hydro™ was used to line a gravity thickener tank floor at Exxaro's Grootegeluk mine in Lephalale, South Africa.

The gravity thickeners at Exxaro's Grootegeluk mine in Lephalale play a pivotal role in the recycling of water used for settlement of fines generated through fragmentation (blasting from mining) and degradation (handling processes in pit and plant; loading of trucks, bunkers, silos, chutes, transfer points). As part of Exxaro's maintenance programme it was deemed necessary to remediate each of these tanks so as to extend their operational life and ensure efficient functioning.

The mine only has a 3 week window period each year in which to carry out maintenance of this nature. Further to this, it is essential that treated water remains available during this period. For this reason only one tank will be remediated per year over the course of the next 3 years whilst 3 remain operational at all times.

It was initially determined that remediation of the tank floor would be carried out by re-lining with a geomembrane underlay and concrete slab overlay. The major challenge with this conventional solution was installing the system to an area of approx. 4,000m² in less than 3 weeks whilst maintaining quality. Another challenge are the temperatures inside the tank, which often exceed 40°C, making conventional installation techniques difficult.

*Geosynthetic Cementitious Composite Mat





The tank was drawn down and sediment removed before installation



The CCH was delivered to site in bulk rolls



The CCH was installed over 7 days



Fixing the CCH to the tank walls

On deliberation of the functionality requirements and time constraints of Exxaro it was decided that 8mm thick CC Hydro™ (CCH8™) would be used to remediate the tank floor.

Works were carried out by Ndizani Spec-con, concrete remediation specialists, under the supervision of Paterson Cooke, engineering consultants.

Within the 3-week maintenance period the tank has to be drawn down, sediment removed and the current gravel wearing course re-graded and compacted prior to any lining. However, the timeframe allocated to the installation of CCH8™ was just 7 days due to the limited time remaining in the program after completion of other items.

Once the ground preparation had been completed, the CCH8™ was delivered to site in bulk rolls. These rolls were then lifted into the tank and manipulated on site in accordance with stringent occupational health and safety standards. Once unrolled and positioned, thermal welding of the geomembrane was conducted and the welds pressure tested. Once welding was completed, the CC Hydro™ was hydrated.



The flexible CC was easily fitted to the complex shape of the tank



Thermal welding



Hydration of the CC Hydro™



Completed installation

In total, around 4,000m² of CCH8™ was laid within the allocated 7 days without any interruption.

During the installation period, there were a number of significant thunder showers, however, there were no associated lost time occurrences due to CC Hydro's unique properties which allow it to be installed in wet weather conditions.

The client was satisfied with the outcome of the installation, and impressed with how easily CC Hydro™ could be cut to fit the tank without any kinking or rippling. The tank is once again operational.