Project Info

- 08 / 12 / 2020
- CCH8™ Bulk Rolls
- 950m²
- Transverse & Vertical layers
- Shaybah NGL Plant, Saudi Arabia
- FOQSCO
- CC Hydro™ used to provide an impermeable containment lining solution to a newly construction Pyrophoric Treatment Area

Completed CC Hydro™ containment lining installation at Saudi Aramco's Shaybah NGL Plant

In December 2020, CC Hydro™ GCCB* was used in the construction of a Pyrophoric Treatment Area at Saudi Aramco's Shaybah NGL Plant.

A similar project was completed at Saudi Aramco's Haradh Gas Plant in 2016 which resulted in Concrete Canvas® and CC Hydro™ products being declared as best practice for future projects.

Prior to that, reinforced concrete slabs were considered; however, CC Hydro™ was ultimately chosen and will continue to be specified due to its ability to reduce time on site and installation time, as well as overall project costs. CC Hydro™ also has a durability in excess of 50 years, as certified by the British Board of Agrément.

Works for this project were carried out by FOQSCO for Saudi Aramco.

The weather conditions during the installation period were mainly hot and dry with intense sunshine which meant the installation process had to be adapted slightly to accommodate these conditions.

*Geosynthetic Cementitious Composite Barrier

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Prior to installation, 20cm of marl was laid, graded, watered and compacted to begin creating the base of the containment area. Following a compaction test carried out by a third party, a second layer was added in the same way and also compaction tested.

Once ground preparation had been completed, three sides of the containment area were surrounded by dykes or levees. The entirety of the containment area was then covered with a 300 GSM Geotextile.

An 8mm thick variant of CC Hydro™ (CCH8™) was delivered to site in Bulk Rolls and suspended from a spreader beam mounted on an excavator. The Bulk Rolls were deployed transversely across the Pyrophoric Treatment Area and cut to required lengths. Once laid, the lengths of CC Hydro™ were thermally welded to create an impermeable joint.

The CC Hydro™ edges were then captured in anchor trenches behind the dykes, which were then backfilled with marl. At the end of each day, the CC Hydro™ was hydrated using a hose and tanker for an hour and again for two more hours after a two-hour interval. This was repeated the following day to ensure adequate hydration and prevent evaporation of the water due to the dry conditions.

Delivery of first marl layer for area base

Compaction of marl layers

Hydration of marl following compaction

Compaction testing of marl base

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CC HYDRO™

Concrete Impregnated Containment

CONTAINMENT

Construction of dykes

Creation of anchor trenches behind dyke walls

Completed ground works

Geotextile laid to act as additional barrier between substrate and CC Hydro™

CC Hydro™ laid transversely across treatment area & vertically down dyke wall

CC Hydro™ lengths thermally welded for impermable joints

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CC HYDRO™
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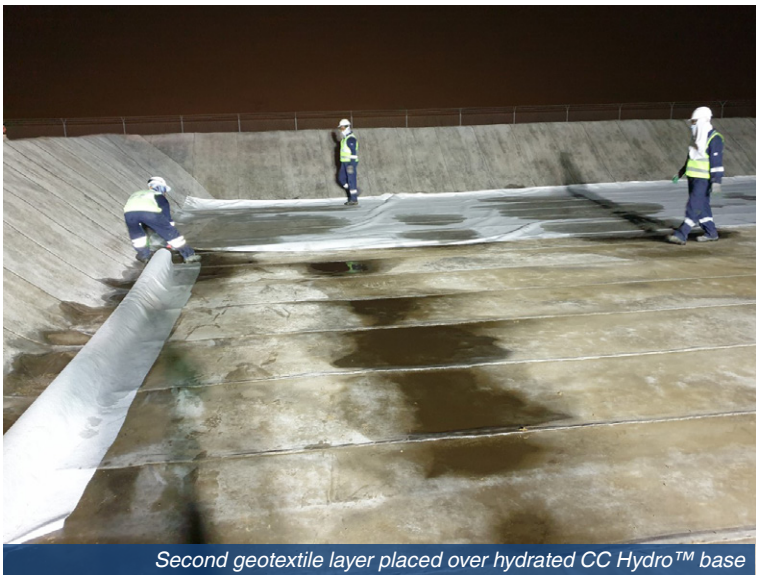
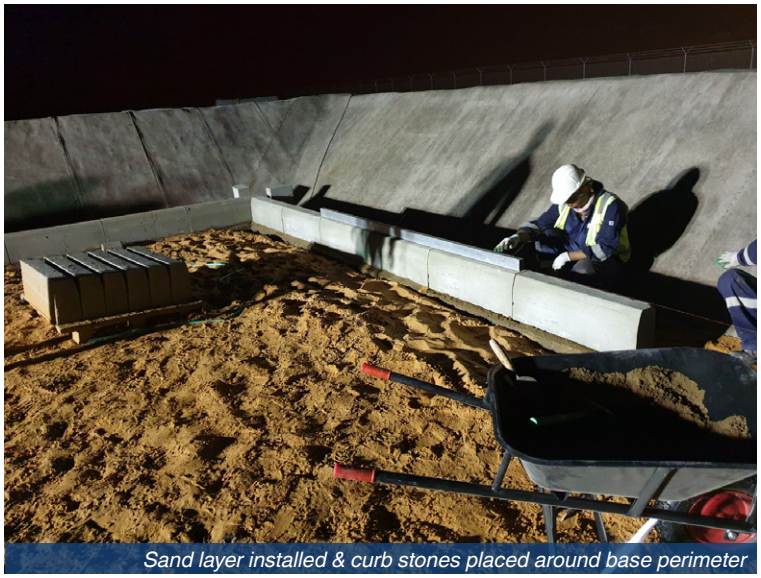
First hydration given at night to prevent evaporation


Second geotextile layer placed over hydrated CC Hydro™ base


Sand layer installed & curb stones placed around base perimeter


Interlocking paving installed over the base to create traffickable surface


A security fence was erected around the completed Treatment Area


Bollards were installed & painted along with the curb stones for added safety

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Completed Pyrophoric Treatment Area prior to erection of the security fence

A total of 950m^2 of CCH8™ was installed in 24 hours, over the course of four days. A team of nine people from FOQSCO carried out the works for the client.

The project was deemed a success and the client was very satisfied with the outcome, particularly with regards to the time savings involved with installing CC Hydro™ over alternatives. Any other form of concrete would have provided an inferior solution.

Firstly, conventional methods would not have been able to provide the impermeablility levels required and provided by CC Hydro™. Secondly, regular maintenance and repair work would have been required for conventional concrete solutions. Furthermore, conventional concreting methods would have required significantly more time on site and would be a much longer process overall due to curing times. The remote location of the site would also have resulted in complications in terms of logistics.

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