



CASE HISTORY ~ CH-072

CRUDE OIL STORAGE TANK REPAIR USING CARBON FIBER REINFORCED BIO-SEAL 192HB

THE CHALLENGE: A very large Crude Oil Storage Tank in the Middle East had suffered extensive internal corrosion damage in the top course of steel panels. This was a result of the hot, moist and acid fume exposure in the vapor space. The tank was a vital resource for the storage facility and to take it out of service for lengthy “hot-work” repairs would have been both very expensive and disruptive.

THE SOLUTION: TFT supplied a 20oz unidirectional carbon fabric and a high build version of BIO-SEAL 192 for saturation. This was applied to the outside of the tank with no access at all required to the internals. A consultant provided engineering calculations. These calculations specified the carbon fabric installation to meet wind damage resistance requirements. To ensure electrical insulation of the steel surface from the carbon fiber an initial coat of BIO-DUR 290 was applied. BIO-DUR 290 is a high build solvent-free epoxy coating with tremendous surface tolerance and a relatively long pot-life.

IMPLEMENTATION: A team of experienced installers working on scaffolds first cleaned to exterior surface by water jetting and light hand scraping to produce a firm surface for coating. BIO-DUR 290 was then applied by roller to a nominal thickness of 8 – 10 mils.

BIO-SEAL 192HB saturation resin is a 1/1 by volume, high build version of BIO-SEAL 192. Its high build properties assisted greatly in the application under the hot conditions. A total of three (3) layers of carbon reinforced fabric was applied circumferentially around the top course of the tank. It was imperative to observe overcoating times because of the ambient temperatures reaching as high as 120°F in the shade. As a rule of thumb overcoating was performed when the preceding coat had cured to a “gummy” condition.

After the last layer of carbon/epoxy was installed a final coat of locally sourced UV resistant paint was applied.



Crude Oil Storage Tank – “COST”

CONCLUSION: During the repair project the tank remained in service. The reinforcement of the tanks using this technique has tremendous value to the owners:

A far less expensive repair than conventional methods with NO time out of service. Unlike “hot-work” steel repairs there was no fire risk to adjacent facilities.

NO requirement to empty and “gas-free” the tank.

Immediate return to service without the necessity of surface preparation and coating of new steel.

For more information regarding this project, contact:

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PRODUCT: BIO-SEAL 192HB

YEARS: 2018 & 2020

LOCATION: MIDDLE EAST

We go where others fear to spread!

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Page 1 of 1