

SUBMERGED PIPELINE TEST

This test took place at an access well located in Orange, Texas bounded by petrochemical plants and brackish waters which periodically submerge the substrates during storms and hurricanes. The application was completed in October 2016 and followed by a series of inspections - at 3 months, 8 months and 21 months. During this period Hurricane Harvey caused the entire area from Beaumont to Houston to be flooded, completely submerging one of the test flanges.

The inspections were to be accomplished by cutting away sections of Enviropeel and resealing after the inspection. Small areas of Enviropeel can easily be removed and resealed for inspections and testing without affecting the integrity of the coating.

Two test areas were completed: a 36" blind flange and a 12" blind flange in a soil-to-air interface.



Test 1: 36" Blind Flange

The photo on the right shows a 36" blind flange with visible corrosion present on the flange and fastenings. As part of the test, a section of the flange and the face of an adjacent nut were abraded to expose the underlying steel in order to investigate the effect of the application in areas

where no coating is present. Note the extent of the rust coming through the coating above the abraded patches. Application was completed on 10/12/16 (above left).

First inspection on 1/12/17 after 3 months.

A section of the coating around the abraded area was removed for the first inspection. As shown right, the exposed steel remained completely corrosion free and the area of rust previously noted has receded. This is due to the effect of Enviropeel's built-in inhibiting oil, which has stops existing corrosion and loosens surface rust allowing it to be wiped away.





Second inspection on 6/13/17 after 8 months.

The Enviropeel is cut away from the same location as previously - as well as from the nut of the bolt which had not been uncovered since the original application. As can easily be seen there are no new signs of corrosion in either area. Also note that the external rust has receded even further.

Top: the substrate after removal for the second inspection. Note the total absence of rust from the bare steel.

Final inspection on 7/18/18 after 21 months

The coating is removed from the same location as previously after nearly two years. There are no signs of new corrosion on the exposed steel and the rust staining has faded even further. Despite evident external contamination from flooding and the environment, inside the coating is unaffected.



Above: removal for the third inspection. Externally the coating shows dirt from the muddy environment but inside everything is in perfect condition.

Repairing and resealing Enviropeel

Following each inspection the removed material was resealed using a standard electric heat gun to melt the removed patch back into the coating - even when heavily soiled. This is standard practice for inspection and maintenance on Enviropeel installations where the ability to easily test targeted locations without needing to redo the application saves time and money.

Right: pic 1 shows patch removed, 2, 3 and 4 show heat gun repair after each inspection





Test 2: encapsulating a 12" blind flange
Application date: 10/12/16

Not only was this blind flange in a soil-to-air interface, but it was submerged under water during Hurricane Harvey for over a week. For the test, soil was cleared away from the flange to allow access, as shown above. Enviropeel was then applied to encapsulate the entire flange and the pipework covered over. After 21 months of rain and flooding the encapsulation was almost completely black but, when the inspection area was cut away, showed the inside of the Enviropeel to be in its original condition and that no further corrosion had occurred on the blind flange, as you can see in the before and after photos below left and right.

Conclusion: Not only has the Enviropeel coating completely stopped all existing corrosion and prevented further corrosion occurring, but it has also reduced rust staining on all surfaces.



Top left: the original flange prior to application and, top right, after Enviropeel has been applied.

Below left: condition of substrate prior to application.

Below right: inspection reveals substrate to be in original condition without any further corrosion despite flooding.



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