

# Flange Joint Protection in the North Sea



Enviropeel has been successfully protecting flange bolts on a large gas platform in the North Sea, operated by two of the world's largest oil companies, for more than five years. So, when it came to choosing a system for bolt protection on a new linked platform, the operators decided that Enviropeel was the best approach to use. The new platform was suffering from the corrosive effects of the severe North Sea environment on its bolted systems and a new contract for joint encapsulation across the platform was awarded to A&E Systems Ltd in the UK.

## PLANNING

The original specification called for 6087 flanges on 25 pipe systems throughout the platform. Following several weeks of planning, two survey

trips were completed by Enviropeel personnel using the platform design isometrics to identify and tag all flanges that were to be protected. The initial

plan was to mobilize a six-man team per rotation with three machines and an intended start date of February 2008, ending in August at the time of the departure of the accommodation platform.

## MOBILISATION

Although a first mobilization did take place in February, accommodation and commissioning issues delayed the second trip and application only began in earnest in mid June – reducing the time available from 7 months to less than three.

Above: Typical signs of bolt corrosion on the new platform

Below: Identifying the systems and joints was one of the first challenges for the A&E teams - with separate isometrics for each of 25 systems and a carnival of tags on every level.



**CORPORATE OFFICE:**  
1521 East Washington St.  
Indianapolis, IN 46201  
317.639.4261  
1.877.HORNER.2  
[www.hornerindustrial.com](http://www.hornerindustrial.com)

## OTHER LOCATIONS:

Fort Wayne, IN  
260.434.1189

Terre Haute, IN  
812.466.5281  
800.288.5281

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317.639.4261**

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The reduction in the time available forced a number of operational changes on the project. Manpower was increased from 6 per rotation to 8 per shift, with an extra application unit and full utilization of all machines, rather than having one or two on

standby as originally intended. Maximum manning was achieved in August when up to 24 personnel and five application units were on the platform to complete as many flanges as possible before the accommodation platform departed.

As well as less time, an examination by the operators of the schedules used to allocate suitable flanges and systems determined that an increase in the workscope was required, with an additional 831 joints to be completed – a new total of 7123. Unfortunately, isometrics of the new workscope didn't match those originally supplied for the two tagging surveys. This, plus missing tags lost or removed in the

Left: two applicators work from either side of a large flange joint.

Below: during application a joint can look messy, but once both coats are completed and trimmed the joints look, and are, ready for the worst conditions the North Sea can throw at them! 






Application builds coats in succession, working from underneath, around the sides and finally above with two coats to provide maximum protection. The underside is the most difficult area to finish aesthetically but trimming between and after each coat ensures full protection. All trimmings and drips/spills are collected and recycled.



months between the survey and start of the project, meant a significant increase in workload surveying and maintaining accurate application data.

With pressure for increased joint numbers, at the same time as a requirement to maintain strict quality control, it took a massive effort by the teams, supervisors and client to streamline the identification, recording and application process, allowing the teams to begin increasing the numbers of joints

completed. Although equipment servicing issues (arising from the unprecedented throughput of material), pressure testing and other operational issues brought delays as the platform systems went 'live', numbers steadily increased until up to 200 joints a day became possible. The final tally, as the team packed for the departure of the accommodation platform, was 6231, leaving about 800 joints to be completed at a later date. 



## CONCLUSION

Overall, a very satisfactory result. Meeting the production targets in such a drastically reduced timescale created challenges that could not be solved by simply increasing manpower and equipment levels – no easy task in itself with mobilization dates being put back week after week. This was the first Enviropeel project to operate with more than two machines, but tripling the workforce and adding extra application units did not have the same effect on the output; working practices and logistics all had to be revised as the project developed, to maximize productivity.

Early setbacks were overcome by the dedication of supervisory and other staff, working with a client that understood the extra pressures that had been created. The final result was not just a higher number of joints completed than the original workscope, but also a greater understanding of what was required to meet these new challenges.

Right and above: A review of the finished applications shows the high standards maintained throughout the project. 