



**TOTAL**  
EXPLORATION & PRODUCTION

## Protecting Wellheads Offshore Case Study

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METAL PROTECTION

## Conducting an offshore pilot protecting wellheads for Total Exploration & Production

Location	K5A Platform
Local Environment	Offshore
Date	January 2016
Condition	Weather was dry with a little wind
Total Coatings	2
Substrate Type	Wellhead
Duration	7 Days (shuttling bet. platforms)

### Summary

Our representatives were asked by Total E&P to protect three wellheads with Oxifree TM198. The wellheads were in reasonable condition; however visible corrosion could be seen on certain areas. After encapsulation with TM198 the well heads would be completely protected from any further corrosion damage caused by the harsh offshore environment.

### Introduction

The K5A platform is a wellhead platform located 115 kilometres northwest of Den Helder, North Holland. The environment is very corrosive due to the mixture of salt in the atmosphere which accelerates the corrosion process. This is especially so with complicated shapes which trap moisture such as valves, flanges and wellhead structures

### Objective

Our representative was asked to protect three wellheads that showed visible signs of corrosion. Previously these wellheads had been protected with paint, however clearly this was failing under the conditions. This project was seen as an offshore pilot to test the benefits of using TM198 in an offshore environment. No shutdown to the equipment was necessary and minimal surface preparation was required unlike with conventional coating systems, speeding up the process and keeping costs down for the client.

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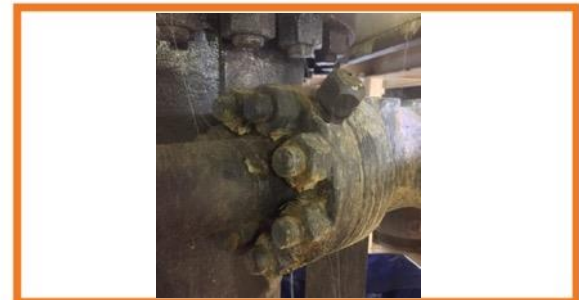
*Corroded bolts on the annulus flange prior to application of Oxifree TM198*



After



Before



After



# Case Study

## Process

Oxifree TM198 requires minimal surface preparation - loose rust being removed with a wire brush. No sandblasting is necessary, which significantly saves costs. Weather conditions such as humidity and temperature are also not an issue saving the client further costs and eliminating the 'failure rate' of traditional coating systems such as paint. The wellhead manager at Total E&P we initiated the project with had experienced costly maintenance projects where changing weather conditions meant their equipment was left in a half-finished state and more venerable as a result. With Oxifree applications this is not an issue.

Work areas were then set up using fireproof tarpaulin to collect any dripping TM198 material, which could then be put back into the machine for re-use.

Aluminium tape was used to cover the flange spaces in order to reduce material usage and therefore lower costs. The underside and hard to coat areas were applied to first before moving on to the easier reached areas.

The Polymelt 50 ATEX machine was used as this is safe for working in hazardous environments. A team of two Oxifree trained technicians carried out the work.

Silicone sealant was used to protect the leading edges of the material. Although this is not necessary, it is a precaution that can be used when applying Oxifree offshore.

## Solution

Oxifree applications were made to 2 wellheads, one complete and one in sections. The areas coated included flanges, valves, lock nuts and pipes – a variety of shapes and sizes. The initial project was to coat three wellheads, however shuttling between the work and accommodation platforms resulted in reduced man hours available, the applications were

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downscaled accordingly by the Total E&P supervisor present onsite. The application will protect the well heads from corrosion in their harsh offshore environment. Due to the nature of TM198, the application could be made to live equipment and the product starts working immediately.

The material can be removed at any time for inspection or access to equipment, and the areas simply refilled.

## Conclusion

Whilst the wellheads were not in bad condition, corrosion was clearly visible. This project is an offshore pilot, however our representative recommended coating the other wellheads on the platform. The intention is for Total E&P to inspect the protected wellheads later in the year to see the level of protection that Oxifree TM198 has provided.

It would also be advisable for our representative to perform a full site visit on the platform to see the overall condition of the rest of the equipment. Protecting critical items such as flanges with Oxifree TM198 can save maintenance costs dramatically, which is especially relevant with low oil and gas prices and the aim on saving both capital and operational expenditure.

