



**Vertech
Case Study
GWA Flare Tip Replacement**

Introduction

The Goodwyn Alpha Life Extension (GLE) project is an ongoing project to extend the life of the Goodwyn platform, its associated wells, risers and subsea infrastructure until its end of economic life. The object of the project is to extend design life by a further 12-18 years from 2025 to realise the production of existing reservoirs and the upcoming Greater Western Flank development.

The Goodwyn Alpha Flare Tip is a Safety Critical Element responsible for ensuring the safe disposal of gas and liquid hydrocarbons. As part of the GLE project, the platform's HP/LP flare tip was due to be replaced in 2018. Historically the flare tip was replaced was in 1998 (with a 10-year design life).

A designed flare tip handling package and rope access rigging and lifting services were used to remove and replace the Flare tip located 160m above the sea level and 120m above the deck on vertically designed flare tower.

Through Vertech's success in the past with technically challenging projects, we were once again asked to work closely with Woodside's EPCM to ensure both the Flare Tip replacement and remediation works on the Flare Tower were completed safely and without incident during a challenging shutdown window.

Key Services

- ☑ Constructability Development
- ☑ Project Planning
- ☑ Risk Engineering Collaboration & Consultation
- ☑ Safe Work Methodology Development
- ☑ Rescue Scenario Development and Testing
- ☑ Rigging Plans
- ☑ NDT Competency Assessment
- ☑ Mechanical Fitting & Flange Management Competencies
- ☑ EEHA Electrical Inspection Trade
- ☑ Procurement and Logistics





Problem Solved

HP/LP Flare Tip Handling Package (FTHP)

Specifically built for the GWA Flare Tower, the package was refurbished and trialled at King Bay Supply Base on a Mock-up Flare Tower.

Additional Services Provided

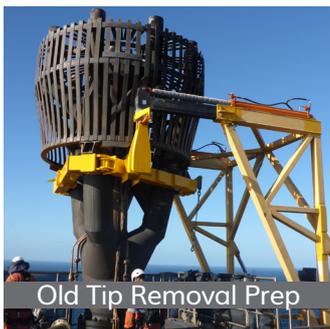
In addition to the Flare Tip replacement Vertech personnel also provided the following services on the flare tower within the same shutdown window:

- Removal and Replacement of Nav Aids
- Belzona Repairs of Critical Structural Members
- NDT and Visual Inspection
- Coatings Procedure Specification Development
- Coatings Procedure Qualification
- Adhesion Testing

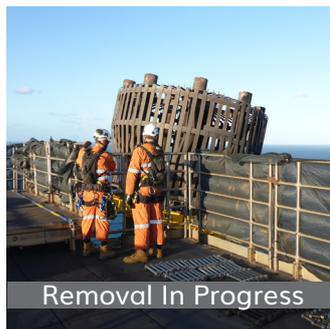
Rope Access Solution

It was established early in the project that only Vertech rope access personnel would have access to the tower. Vertech personnel were required to be competent in the operation and fault finding of the 14t bespoke electric and hydraulic operating system so that in the event of system shutdown rope access personnel could ensure project success.

The pre-shut down access to flare tower (lower levels), presented a unique challenge due to the potential radiant heat exposure in the event of facility blowdown. Vertech provided equipment, a safe means of access and an emergency escape plan specifically for this eventuality. This access for setup of equipment and tooling at lower levels of the flare tower ultimately provided an efficient lead-in to the shutdown scope of work.



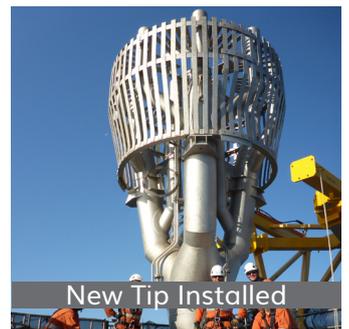
Old Tip Removal Prep



Removal In Progress



Flare Tip Installation



New Tip Installed

Project Execution

On arrival the team commissioned the Flare Tip Handling Package and function tested the FTHP and all other Vertech equipment. This was followed by a 'make safe' campaign, removing potential dropped objects.

The FTHP was driven to the top of the flare where heavy rigging and lifting equipment was used by our multi-disciplined rope access team to remove the flare tip. The operation was carried out a second time to install a new flare tip and perform all the tensioning and torquing requirements.

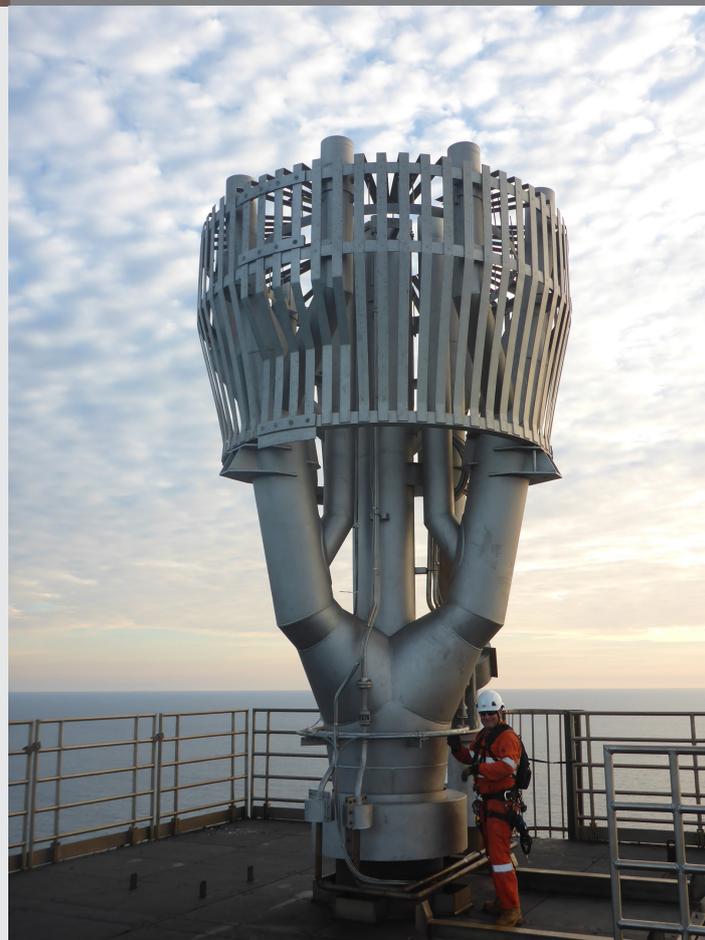
There were a number of challenges in the engineering, planning and execution throughout this project. Through outstanding leadership both onshore and offshore this scope was a success and provided within timescales and under budget.

Client Feedback

Below are a few comments from the client providing feedback on the project:

"Congratulations to the Vertech Team on the Safe & Successful completion of the Flare Tip Replacement & Flare Tower Refurbishment Scopes! This has been a very high-risk activity, with many challenges encountered along the way. To your credit, you have executed the scope in a very professional manner, with perfect HSEQ performance. Well done boys & enjoy a well-earned rest!"

"Super HSE result, and it is really excellent to have GWA back in the production system."



Client Reference

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