Pluto Site A Flare Tip Replacement

Client: Woodside Energy Ltd

Overview

AEC was engaged by Woodside Energy Ltd (WEL) to perform detailed design, fabrication support, rigging design, lift planning and engineering for the replacement of Pluto (Onshore) Site A "Boil Off Gass" (BOG) flare tips.

A crane could not be used to change out the tips due to operational risks. One flare had to remain operational at any given time.

The Challenge

The original overturning lugs on the flare stacks did not align with the sheave system on the flare tower and critical equipment was omitted, which resulted in the flare stacks not being able to be lowered to the ground per the original documented procedures.

One set of the original guide rails on the flare tower were fabricated too short, which restricted the distance at which the flare stacks could be lifted vertically. This resulted in the flare stack not being able to be separated and lowered to the ground per the original procedures.

The Solution

Alternative rigging gear was designed and fabricated to enable the flare stacks to be lowered to carry out replacement of the flare tips.

As a long term solution, after the flare stacks were lowered to the ground, the original overturning lugs and 1 set of guide arms were replaced with custom designed fittings and guide arms which were engineered by AEC.

AEC also produced drawings, engaged fabricators and oversaw the entire fabrication process to ensure the items were fabricated to specification, on time and within approved budgets.

Detailed lift plans were also prepared by AEC including "story board" drawings listing step by step procedures for the removal and reinstallation of the two flare stacks.

Outcome

The flare stacks were lowered to the ground safely using the custom designed rigging gear, where the flare tips were replaced. Replacement overturning lugs and guide arms were welded on and the flare stacks were lifted back into place without incident.