

Case Study: **Hydraulic Piping for Cantilever and Drill Floor Assembly Piping of SESV: UAE**

The SESV is an innovative combination of a self-propelled jack-up with a removable cantilever and workover unit. The vessel also has DP 2 positioning, accommodation for 150 personnel and multi cranes including one of 200 tonnes capacity.

The project involved implementation of Non Welded Hydraulic / High Pressure Piping for Main HPU distribution system and Cantilever Ring line system. Top drive system, Travelling Assembly, Main rider winch, Iron rough neck, Pipe handling system, Hydraulic Cathead are the major equipments involved in these systems.

**The key points of the projects are as follows:**

SI No	Line Name	Line Size	Line Pressure	TMI Technology Used
1	Main HPU Distribution Lines	97 x 12 mm, 80 x 10 mm	5000 PSI	Retain Ring Flange System
2	Cantilever Ring Line System	50 x 5 mm	3000 PSI	37 Degree Flare Flange System

The total length of all the piping was about **1100 m**.

**The project scope of work was as follows:**

- 1. Design / Engineering:** Based on the preliminary information that we received from the end user like P&ID of the system, tentative routing plan, equipment end connections etc. we arrived at the BOM. The creation of the BOM was solely relied upon us by the customer. The routing changes are done based on the mutual understanding between the customer designers and our field personnel to achieve the accuracy and aesthetic look.
- 2. Pipe Fabrication:** After finalising the routing plan and getting the design approval from the client for fabrication, our site team consisting of 1-2 lead technicians and customer's installation team started fabrication of the pipe spools at a workshop arranged near to the vessel.

All the pipe spools were fabricated at the site workshop and were handled such that contamination of the pipe/ tube by environmental dirt, moisture, rust, pollution or by any other means was avoided. After fabrication, each pipe spool was inspected and certified by yard QC.



- 3. Installation:** The installation of the QC Inspected Fabricated pipe spools was done according to the piping layout and by following the Tube-Mac Installation Standards and Procedures Manual 2017. The Erection was closely monitored by Tube-Mac and our Technicians.

The pipe supports were installed as per the standard requirement and design provided by the design team.

The piping joints were torqued to the required value after completion of the pipe erection and before doing the pressure test.



4. **Pressure Testing:** The installed pipes were Pressure tested to 1.5 x system working pressure by the customer installation team with hydraulic oil and was witnessed.
5. **Flushing:** The customers installation team did the flushing. The required cleanliness value was achieved without any hassles (which is a typical characteristic of any project installed with TMI Non-Welded Piping).
6. **Commissioning and Handover:** After completion of flushing activity the flushing loops were dismantled and reconnected to the respective equipment ports. The reassembled joints were re-torqued to the required value and the system equipments were run. The customer acknowledged the reports after the successful commissioning activity.