technicusconsulting

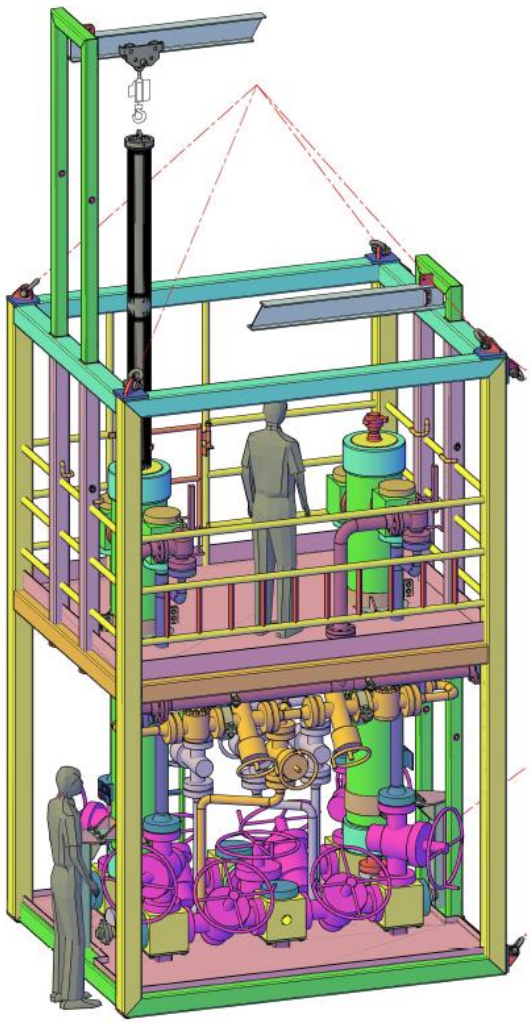
Sand Filter Offshore Skid Frame Design

170 High Street
Gorleston
Great Yarmouth
Norfolk
NR31 6RG

T: 01493 800 655
e: info@technicusconsulting.com

Sector:	Offshore
Client:	Steel Services Ltd
Value:	£200,000
Completion:	2013

Technicus Consulting was appointed by Steel Services Limited to provide structural design and consultancy services for a carbon steel offshore skid frame structure. The skid frame was required to provide crash protection and support for a 16" Sand Filtration Plant. This skid frame design was made more challenging by a requirement for it to be lifted (onshore and offshore) in two orientations, and the incorporation of an integral telescoping gantry crane to allow servicing and maintenance of the sand filter cores.



This project involved detailed structural assessment of the complex loading arrangements applied to the skid frame structure from the proposed lifting (in 2 orientations), handling, transportation and offshore operation of the skid frame. The latter involved calculation of acceleration forces applied to the structure due to roll, pitch and heave of the supporting vessel, and offshore wind loads relevant to the area in which the skid frame will be operated.

As the skid frame provided support to large bore pipework, the self-weight of the fluid within the system formed a significant load on the supporting structure, particularly under operational conditions when subject to vessel motion accelerations. The use of 3-D structural analysis and design software allowed member stresses and anticipated deflections to be accurately assessed under all support arrangements to ensure a structurally efficient design.