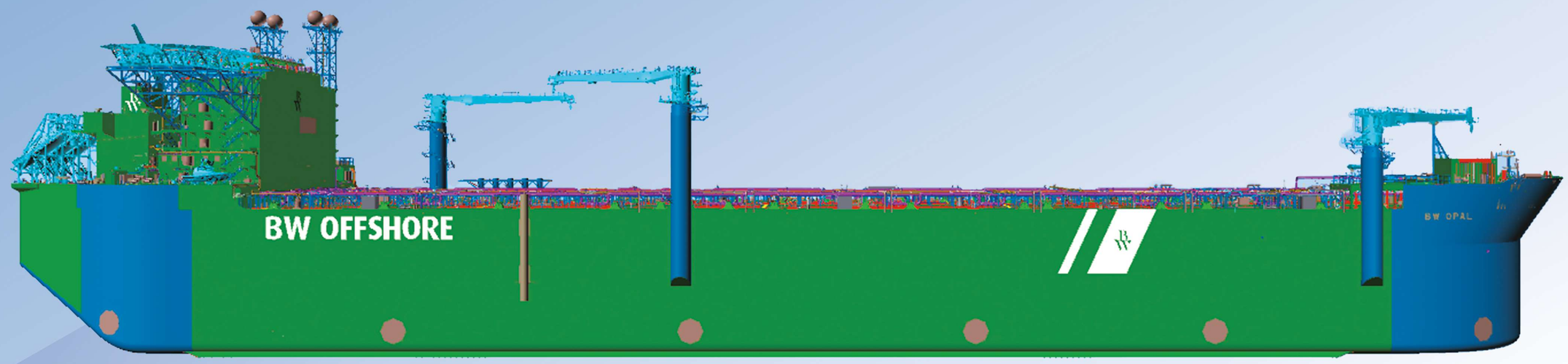
Lifting and Moving Technology
SEHO ENGINEERING

PROJECT WORK REPORT

BAROSSA FPSO PROJECT

Structural Analysis for Hull Equipment Foundation

- Helideck, Antena Tower & Underdeck Support Calculation
- Structural Analysis for total 49-items



SEHO ENGINEERING Co., Ltd.
Ulsan City, South Korea
+82-52-223-3221
+82-52-223-3558
seho@sehoenc.co.kr
www.sehoenc.co.kr

Lifting and Moving Technology
SEHO ENGINEERING

Barossa FPSO Project

BW Offshore (BWO) is awarded the Service contract by Santos North Australia Barossa Pty Ltd (Santos) for the provision and operation of a Floating Production Storage and Offloading (FPSO) facility for the Barossa gas field development. FG/SEHO is awarded the service contract by BWO and provides engineering services for structural strength check of equipment foundations.

Project Period

2021.04 ~ 2022.12

Scope of Work

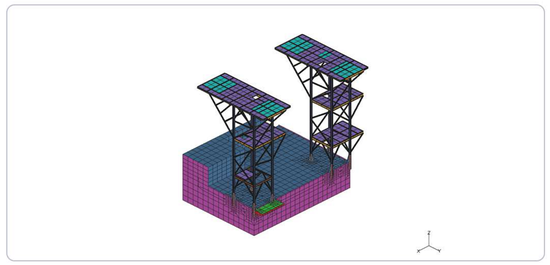
Structural Analysis.
Checked structural strength of 49 items, including Antenna Tower & Underdeck Support.

Done Static/dynamic analysis for Equipment foundation of FPSO, based on DNV Code.
In addition to the common structural strength analysis, the following items were reviewed.

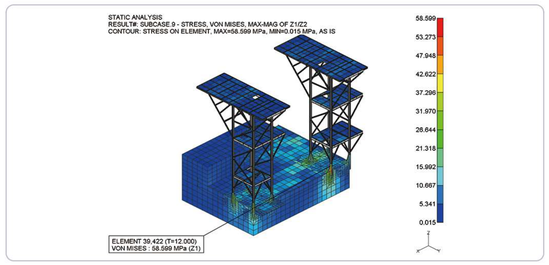
- Fatigue Analysis
- Pipe Vortex Induced Vibration Check
- Beam Torsional Strength Check
- Pipe Punching Shear Check
- Check Load Condition and Design Code for Helideck Support

Structural Analysis

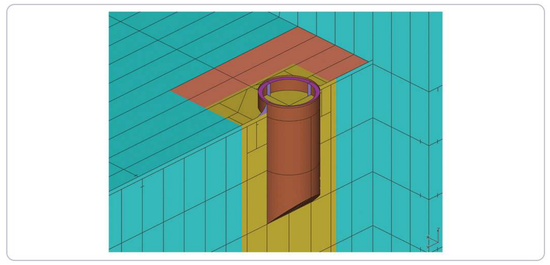
● Antenna Tower & Underdeck Support FE Model



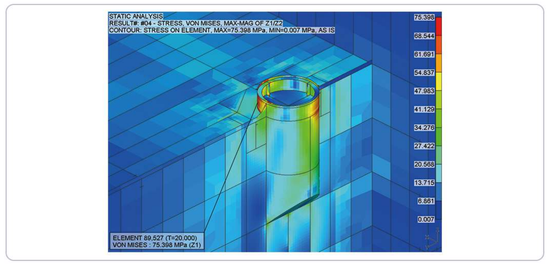
● Antenna Tower & Underdeck Support Analysis Result



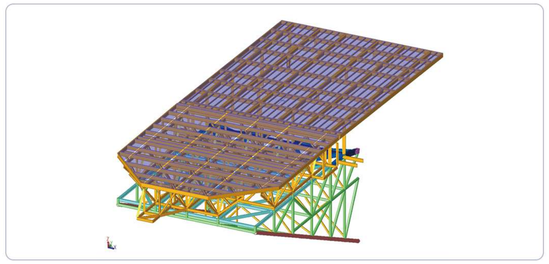
● Service Crane Pedestal FE Model



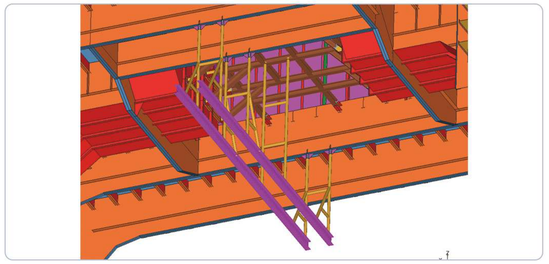
● Service Crane Pedestal Analysis Result



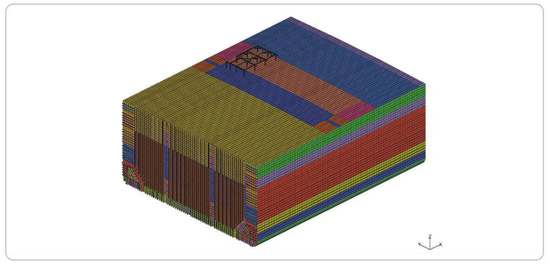
● Helideck Support FE Model



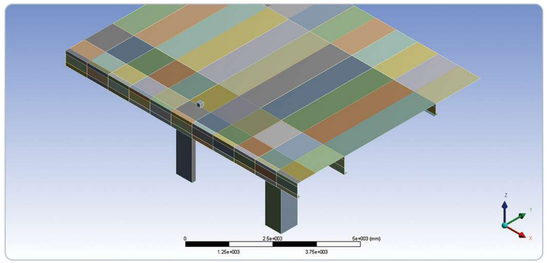
● Monorail FE Model



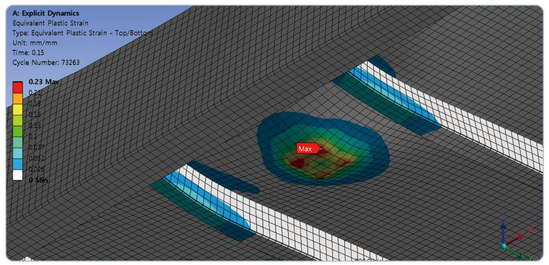
● FPSO Hull Structure FE Model



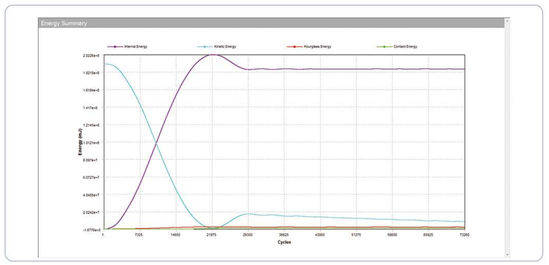
● Drop Object FE Model



● Drop Object Analysis Result



● Drop Object Energy Summary Graph



Barossa FPSO Calculation Work List

No.	Calculation Note Title	No.	Calculation Note Title
1	Antenna Tower and Underdeck Support	16	Mooring Fittings Underdeck Support
2	Deck Support for Wheel loading of multi-rollers	17	Offloading Line Support and Underdeck
3	Emergency Generator Foundation	18	Offloading Station Foundation
4	Equipment Foundation and Underdeck Support	19	Open Drain Tank Support
5	Firewater Pump Foundation and Underdeck Support	20	Overboard Lines Support
6	Flare Line Piperack Stools and Underdeck Support	21	Padeye and Support in Engine Room
7	Towing Winch Foundation and Underdeck Support	22	Provision Laydown - Portside LQ - B deck and Support
8	Helideck & Helipark Deck and Support	23	Service Crane Foundation and Underdeck Support
9	Hose Maintenance Platform and Support	24	Towing Brackets and Underdeck Support
10	Hydraulic Oil Drain Tank Support	25	Tug Boat Pushing Area
11	Jib Rest of Service Crane and Support	26	Turret Main Deck Laydown Areaand Underdeck support
12	Laydown Area and Underdeck Support	27	Mooring Line Replacement Foundation
13	Lifeboat Davit Foundation and Underdeck Support	28	Material Handling Davit Foundation
14	Living QuartersBulkhead Reinforcement for Helideck Support	29	Turret Stair Tower Underdeck Support
15	Marine Piperack and Underdeck Support (Including Lifting)	30	Topside Piperack Stools and Underdeck Support

Work Performance Records for the last 3-years

No.	Project Name	Company / Contractor	Duration	Remarks
14	ITER - VS - Coil in Situ Winding Work - Staging & Prototype Design	IO / Yujin MS	2022~2023	On-going
13	Vacuum Insulated Pipe Design & Analysis	DuckCheun	2022~2023	On-going
12	Artificial Structure for Display	Government / GSI	2023	On-going
11	HD-10,000 F/C Mooring Design & Analysis	SK Ocean Plant	2023	On-going
10	Consulting of Method Statement for FOWT	SK Ecoplant	2022	Finish
9	Design of Special Lifter for Ship's Propulsion	Zvezda / DH Ent	2021~2023	Finish
8	Barossa FPSO - Structural Analysis	BWO / FG Ind.	2021~2022	Finish
7	Mumbai Trans Harbour Link Project - Marine Work & Installation Analysis	Daewoo TATA / DWST	2021~2023	Finish
6	Cable Protection System(CPS) Design Analysis	DWNT / Panduite	2022	Finish
5	ITER - Bracing Tools Manufacturing Design	IO / Yujin MS	2022	Finish
4	Lifting Work Procedure for Floating Crane	Kumyong	2022	Finish
3	Vibration Analysis for SCR	WK Industry	2021	Finish
2	Power System Design of Air Boat	Government / KUMHA	2021~2022	Finish
1	Development of Mine Laying System Design	Government / KUMHA	2020~2022	Finish

Software & Tools

ANSYS
Structural Analysis

ENGYS
Applications by Industry
CFD & Optimisation

Orca3D
Orca3D
Marine Design for
Rhinoceros

OrcaFlex
Dynamic Analysis Software
for Offshore Marine Systems

SACS
Structure Analysis
Computer System for
Offshore Plant

PATRAN & FEA2007
Hull and General
Structural Analysis
Program

Rhino
Geometric
Modeling

MIDAS-NFX
Structural Analysis
& Civil Engineering

MOSES
Multi-Operational Structural
Engineering Simulator,
Motion & Stability Analysis

OPTI-MOOR
Mooring Analysis

NASTRAN
Analysis Solver

AUTO-CAD
2D & 3D Drawing

3D MAX
3D Drawing

IN-HOUSE SOFTWARE
Ballasting Calculation,
Towing Calculation,
Lug Calculation,
Welding Calculation and Etc.

SEHO ENGINEERING Co., Ltd.
Ulsan City, South Korea
+82-52-223-3221
seho@sehoenc.co.kr
+82-52-223-3558
www.sehoenc.co.kr

Lifting and Moving Technology
SEHO ENGINEERING