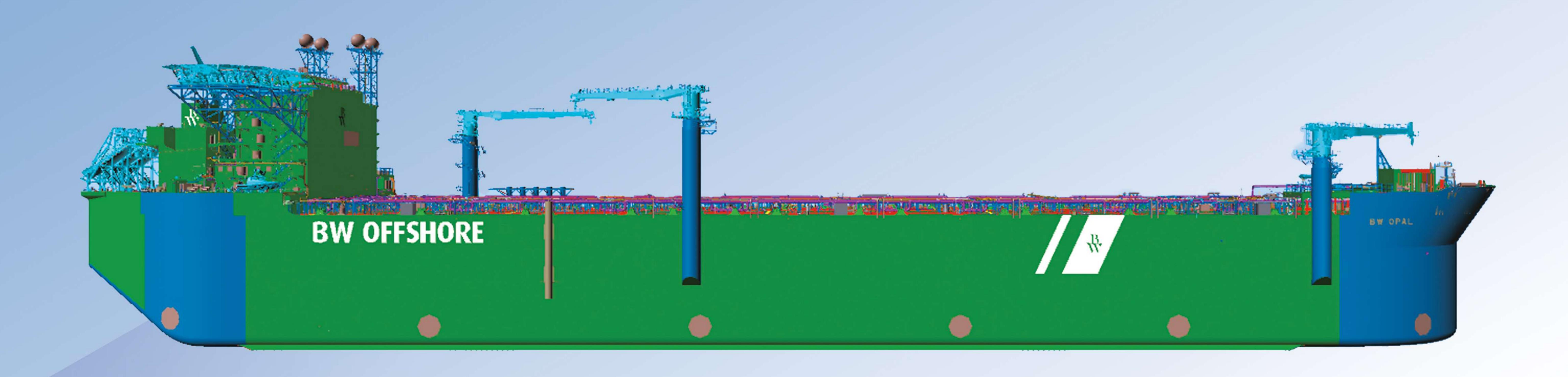


# PROJECT WORK REPORT

# BAROSSA FPSO PROJECT

Structural Analysis for Hull Equipment Foundation

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







Ulsan City, South Korea











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## Barossa FPSO 프로젝트

오스트레일리아 북쪽 Barossa Gas Field에 설치될 FPSO의 설계, 제작 및 설치 공사이며 BWO(Singapore)가 SANTOS로부터 수주하고, 당사는 BWO의 용역을 수행하였습니다.

#### 프로젝트 수행기간

2021년 04월 ~ 2022년 12월

#### 용역범위

Structural Analysis.

Antenna Tower & Underdeck Support Calculation 외 49개 항목을 검토하였습니다.

FPSO의 주요 Equipment의 정적/동적 해석을 수행하고

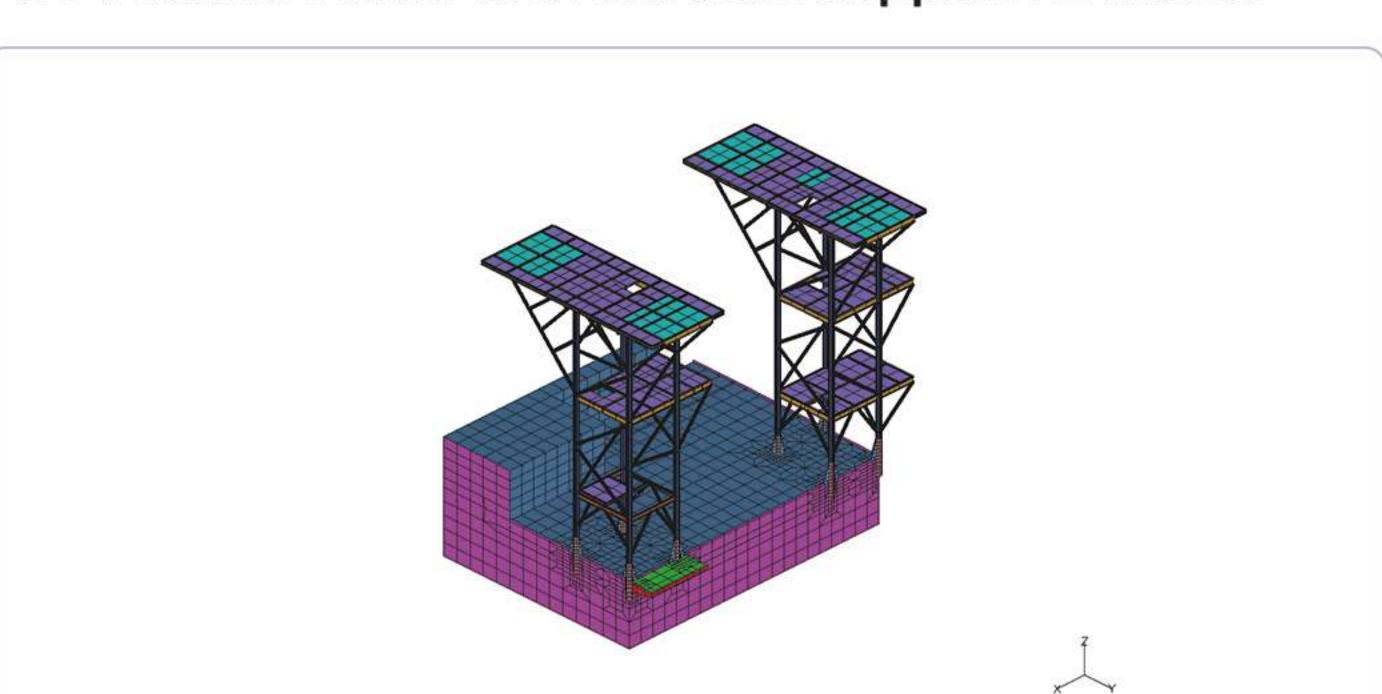
DNV Review를 통해 Hull Structure에 대한 기본 설계 능력 확보하며

기존 수행하던 구조 강도 검토에 더하여, 아래와 같은 항목을 추가로 검토했습니다.

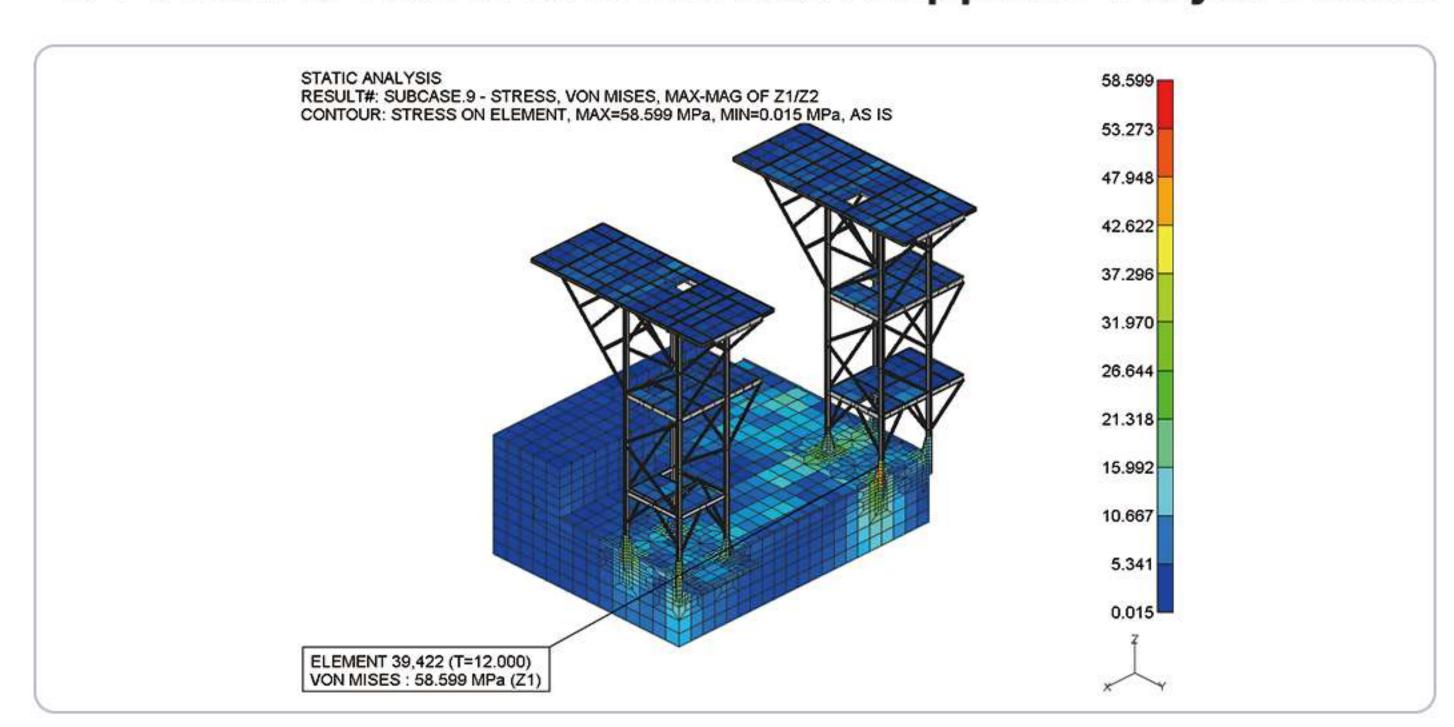
- Fatigue Analysis
- Pipe Vortex Induced Vibration Check
- Beam Torsional Strength Check
- Pipe Punching Shear Check
- Helideck Support 검토를 위한 규정 및 하중 조합 확인

#### Structural Analysis

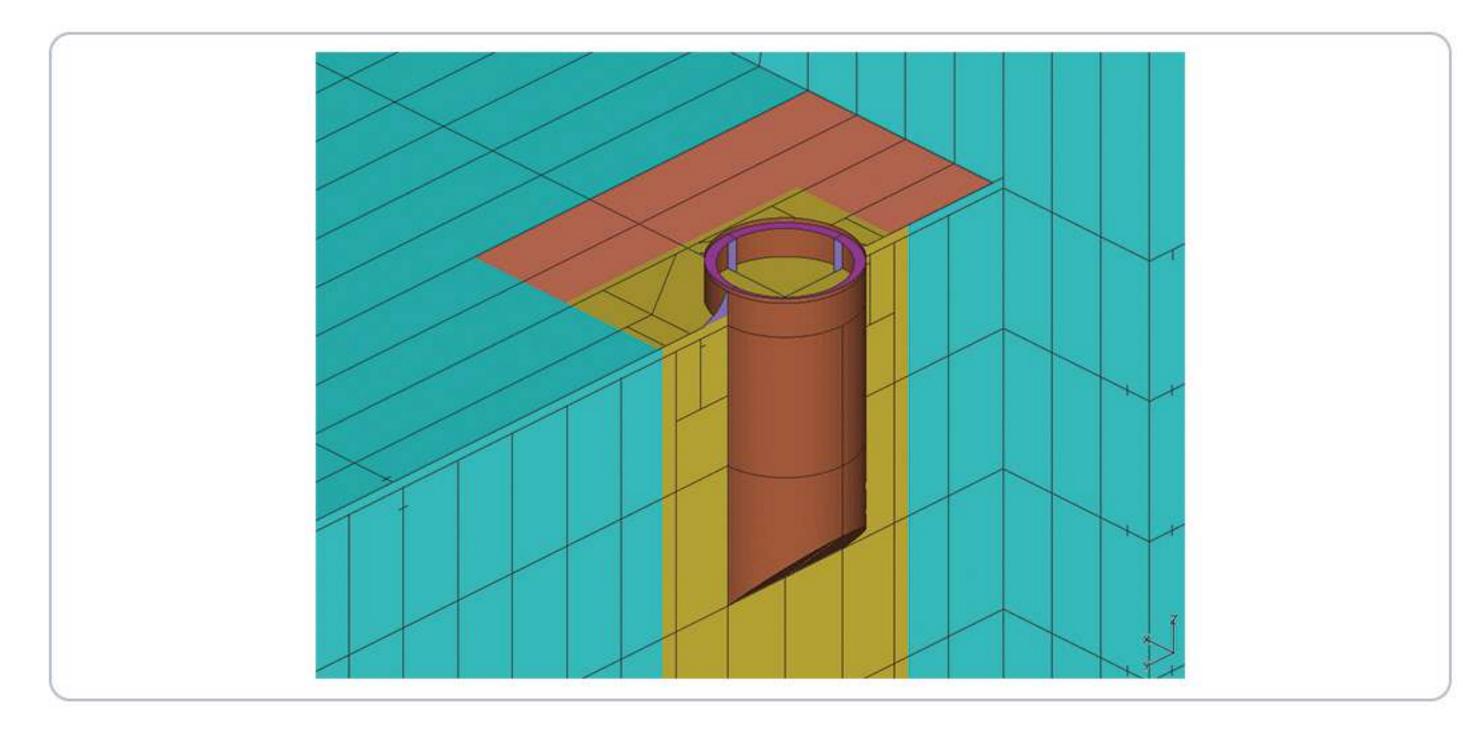
Antenna Tower & Underdeck Support FE Model



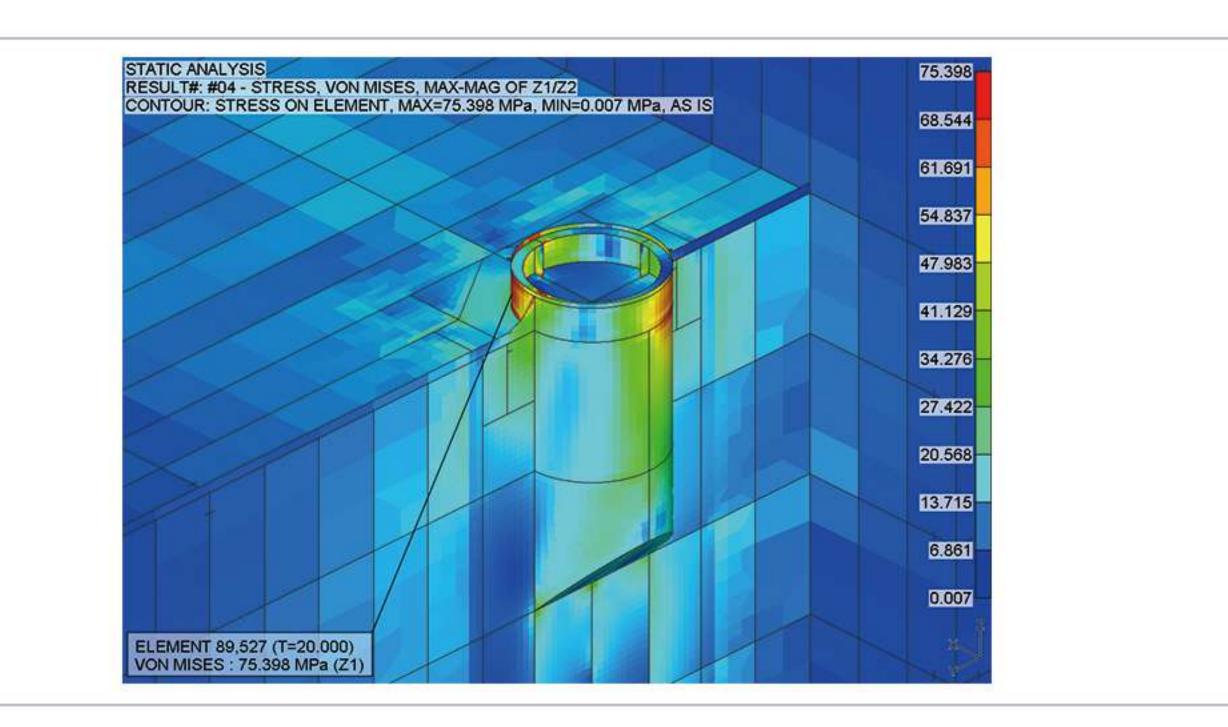
Antenna Tower & Underdeck Support Analysis Result



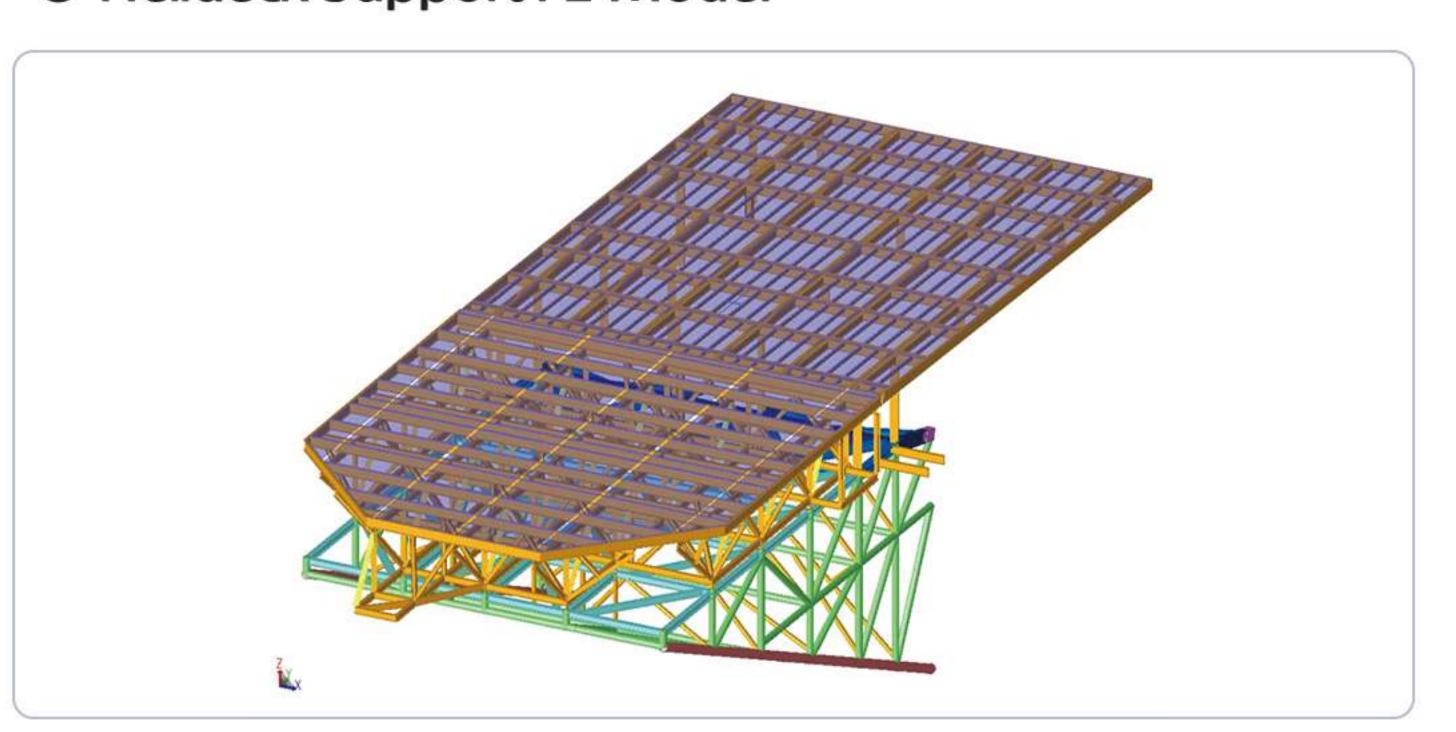
Service Crane Pedestal FE Model



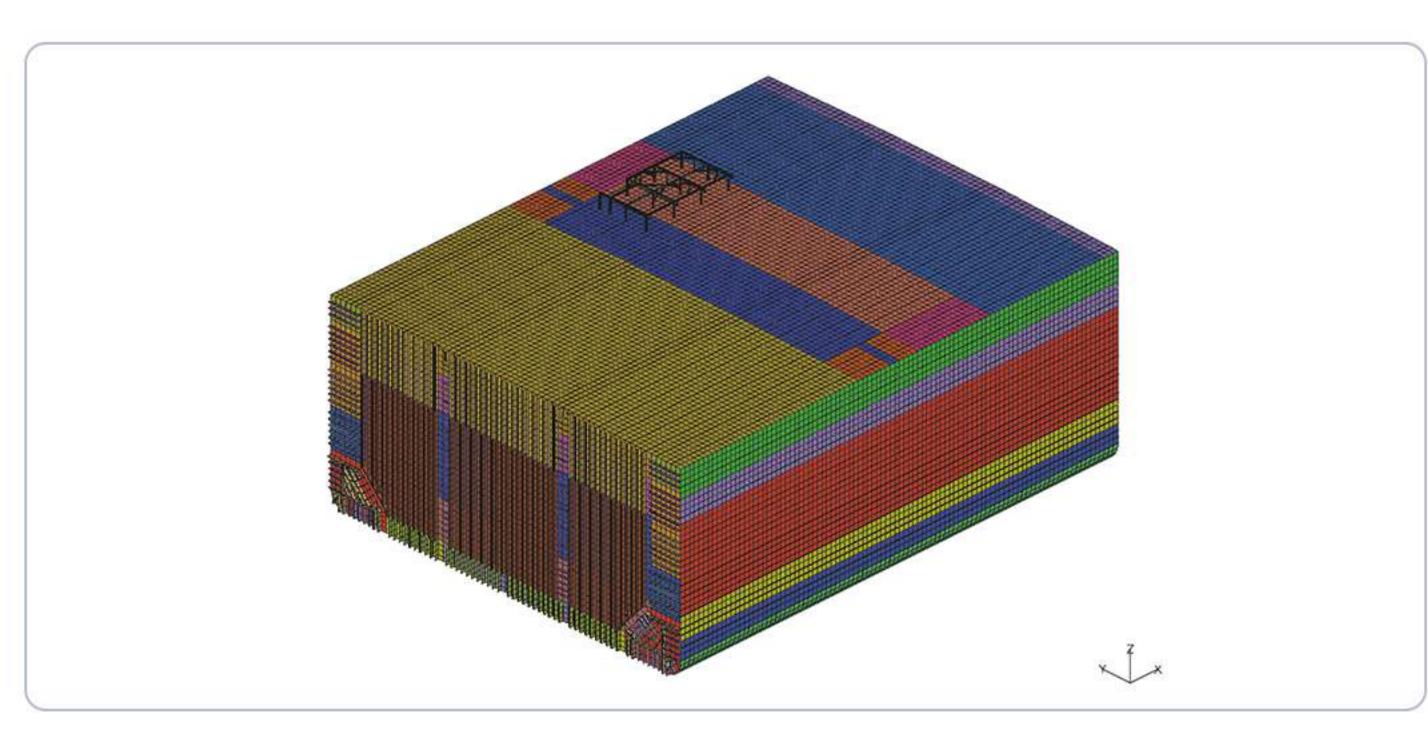
Service Crane Pedestal Analysis Result



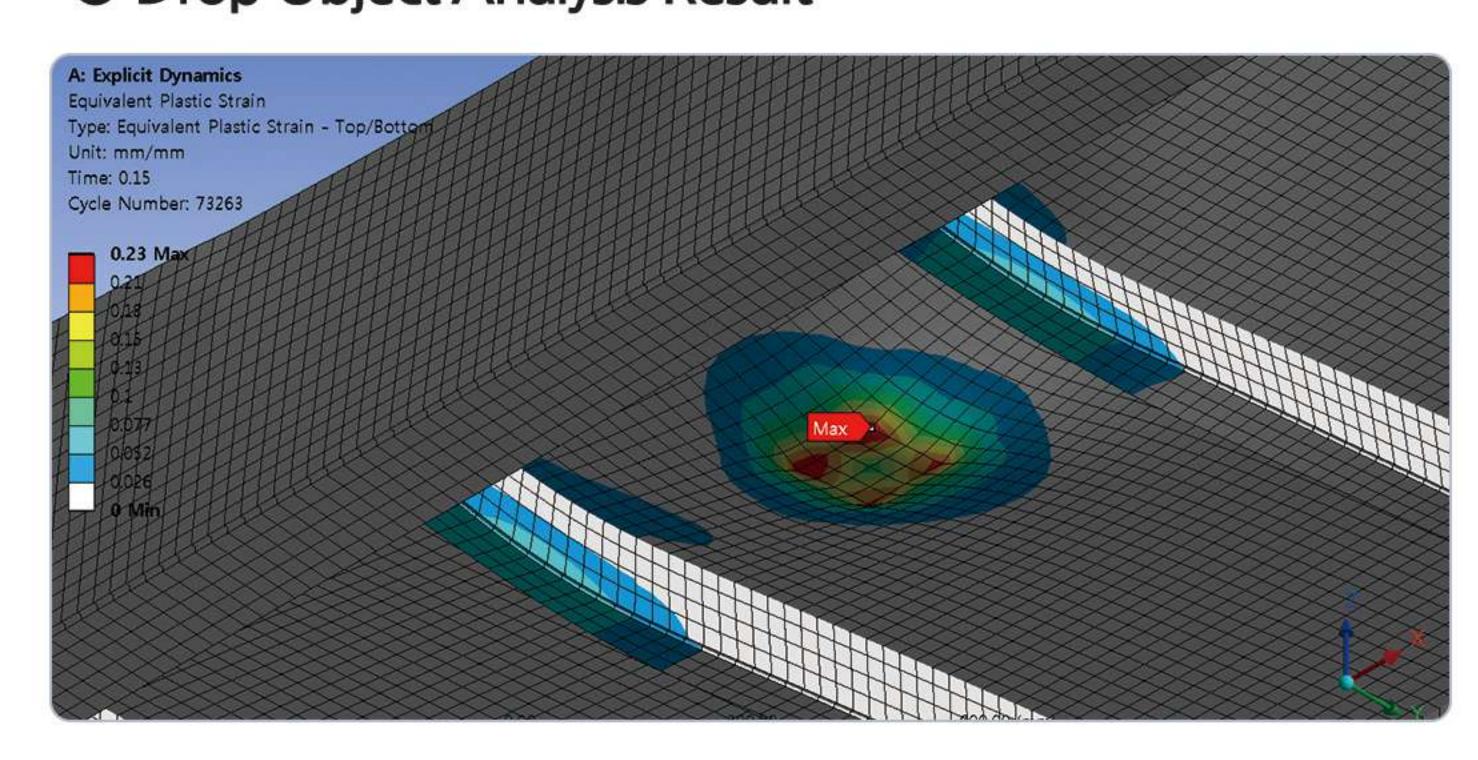
Helideck Support FE Model



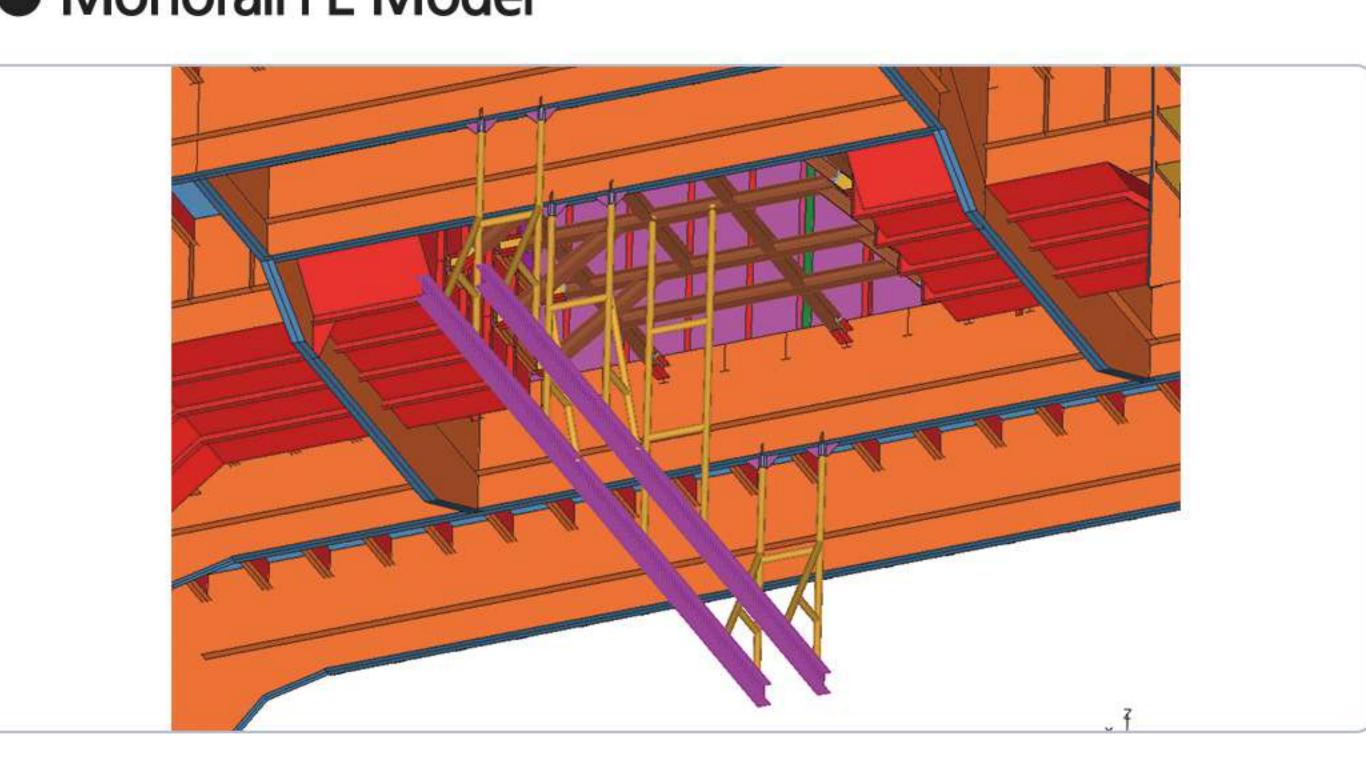
FPSO Hull Structure FE Model



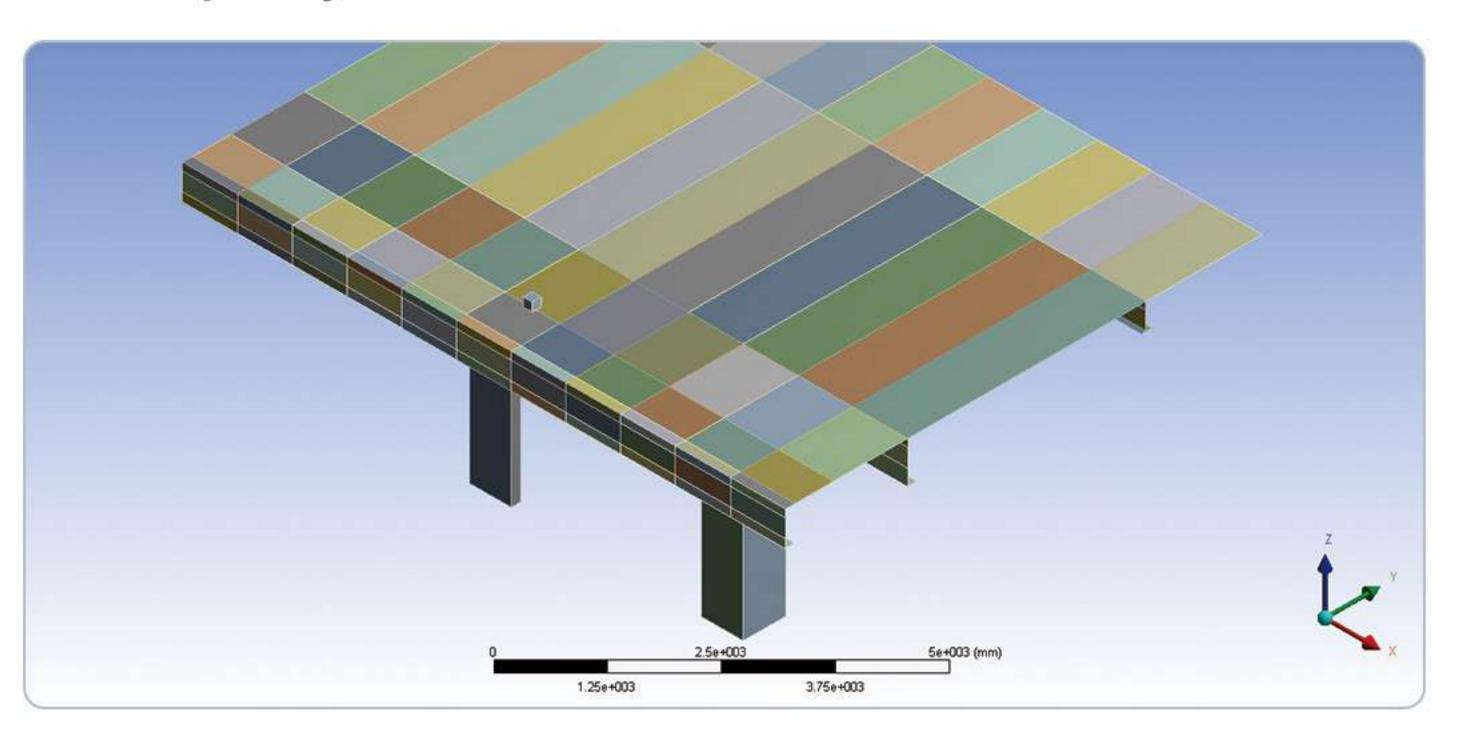
Drop Object Analysis Result



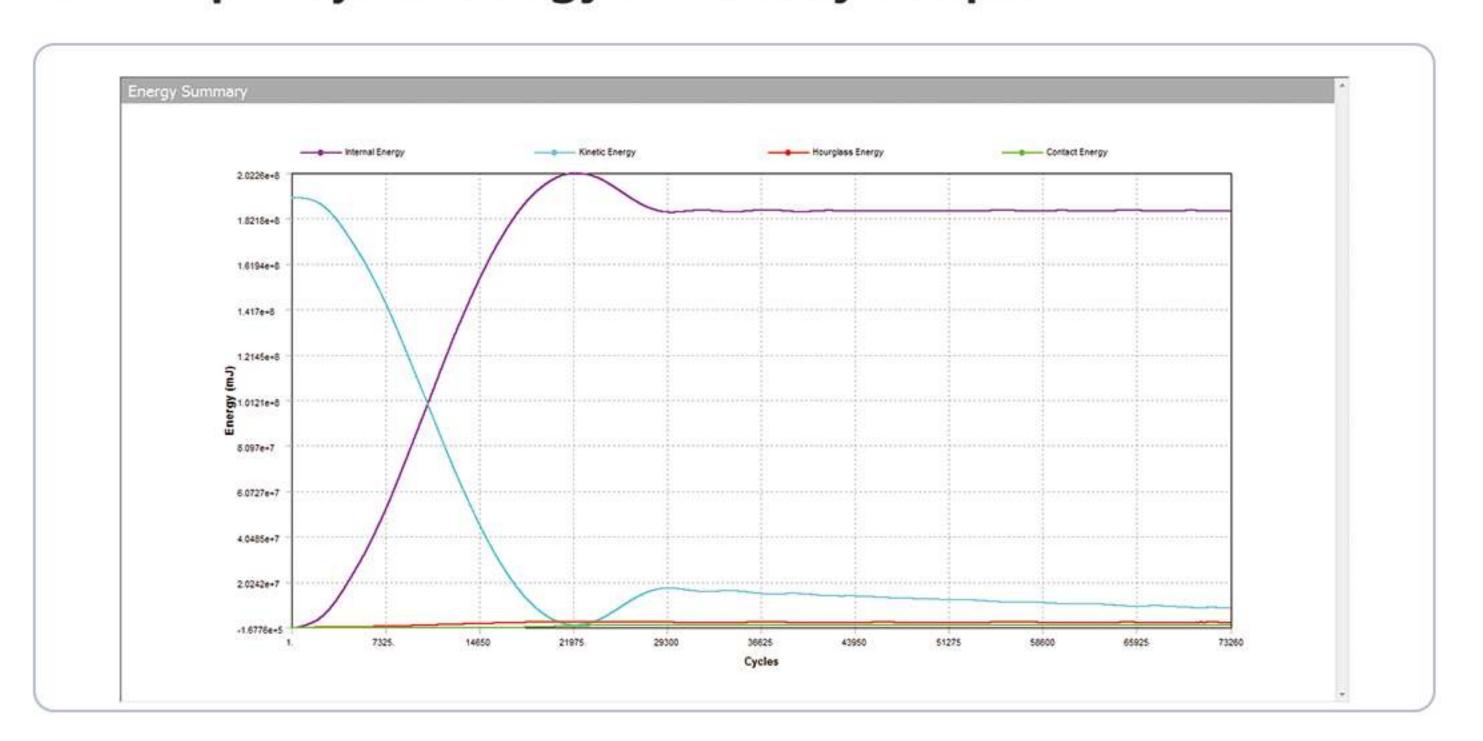
Monorail FE Model



Drop Object FE Model



Drop Object Energy Summary Graph



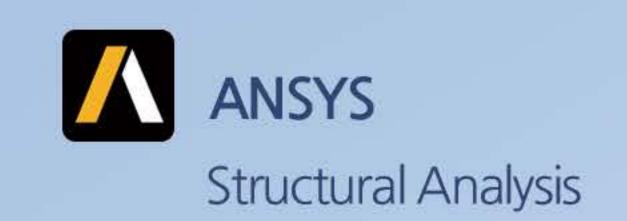
#### Barossa FPSO Calculation Work List

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







Orca3D Orca3D Marine Design for Rhinoceros



Dynamic Analysis Software for Offshore Marine Systems



Structure Analysis Computer System for Offshore Plant



PATRAN & FEA2007

Hull and General Structural Analysis Program



Geometric Modeling





Multi-Operational Structural Engineering Simulator, Motion & Stability Analysis





NASTRAN Analysis Solver





3D Drawing



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



