

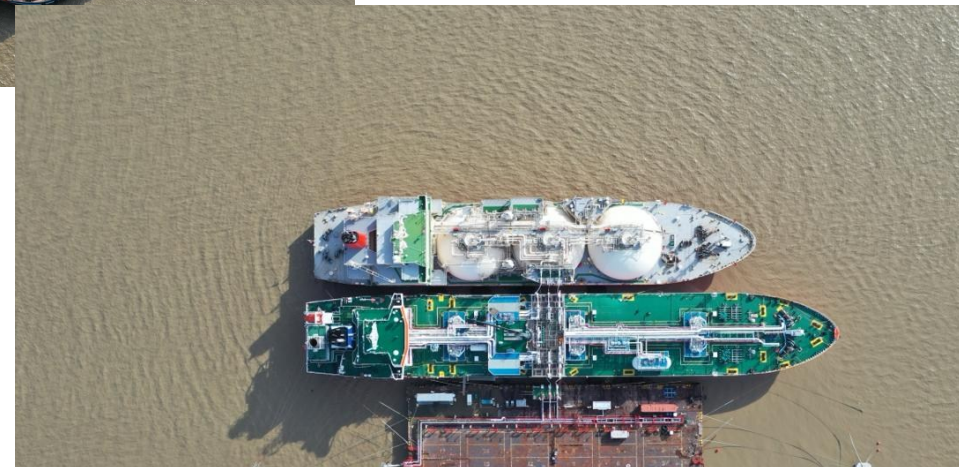
## LNG EASY MFP

<b>Client</b>	LNG EASY
<b>Field</b>	Rangon
<b>Location</b>	Myanmar
<b>Waterdepth</b>	15 M
<b>Type</b>	Spread-moored
<b>Mooring lines</b>	Chain, Nylon & HHP anchors

### Scope of Work

#### Design & Installation of the MFP

1. Design of the mooring system
2. Installation of chains & anchors
3. Hook-up of the MFP
4. Structural design of reinforcements
5. Installation of riser hoses & Hard piping
6. Commissioning of MFP and Cryogenic hose transfer system.
7. Successful offloading of first LNG carrier.
8. Offshore installation.
9. Acted as owner representative.

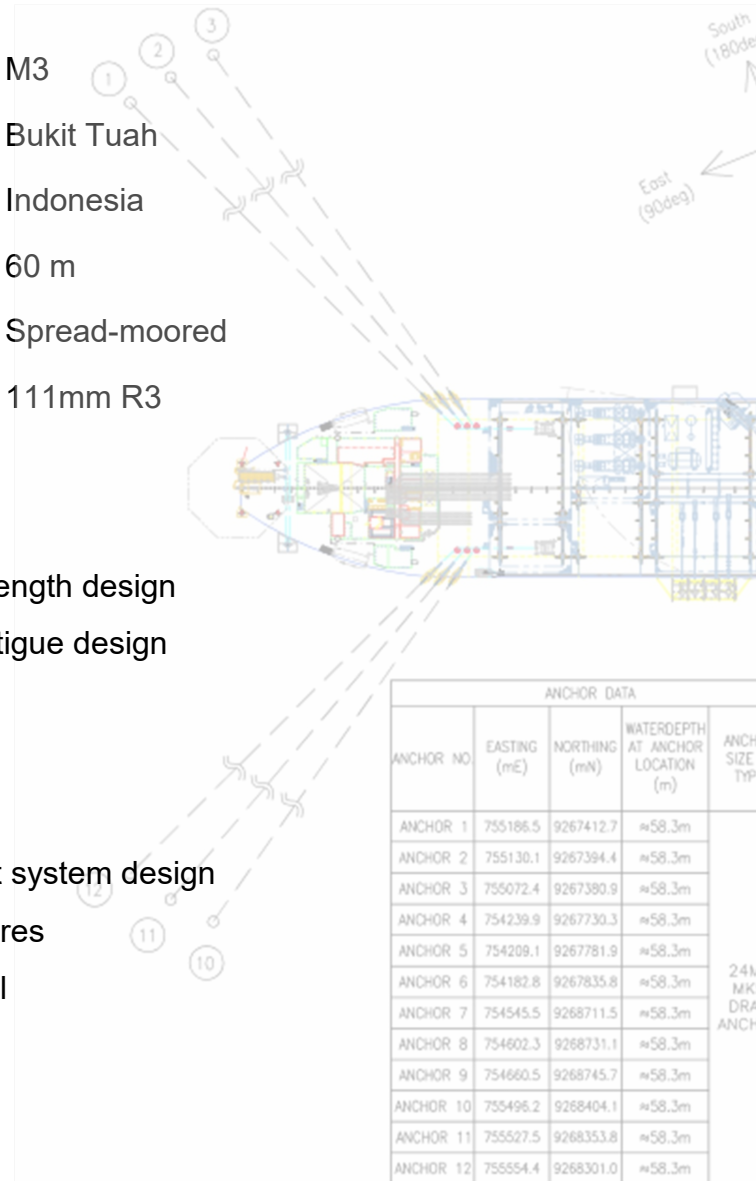


## BUKIT TUAH MOORING

**Client** M3  
**Field** Bukit Tuah  
**Location** Indonesia  
**Waterdepth** 60 m  
**Type** Spread-moored  
**Mooring lines** 111mm R3

### Scope of Design

1. Mooring system strength design
2. Mooring system Fatigue design
3. Anchor system
4. Chain stopper
5. Chain chute
6. Hook-up equipment system design
7. Installation procedures
8. ABS Class approval



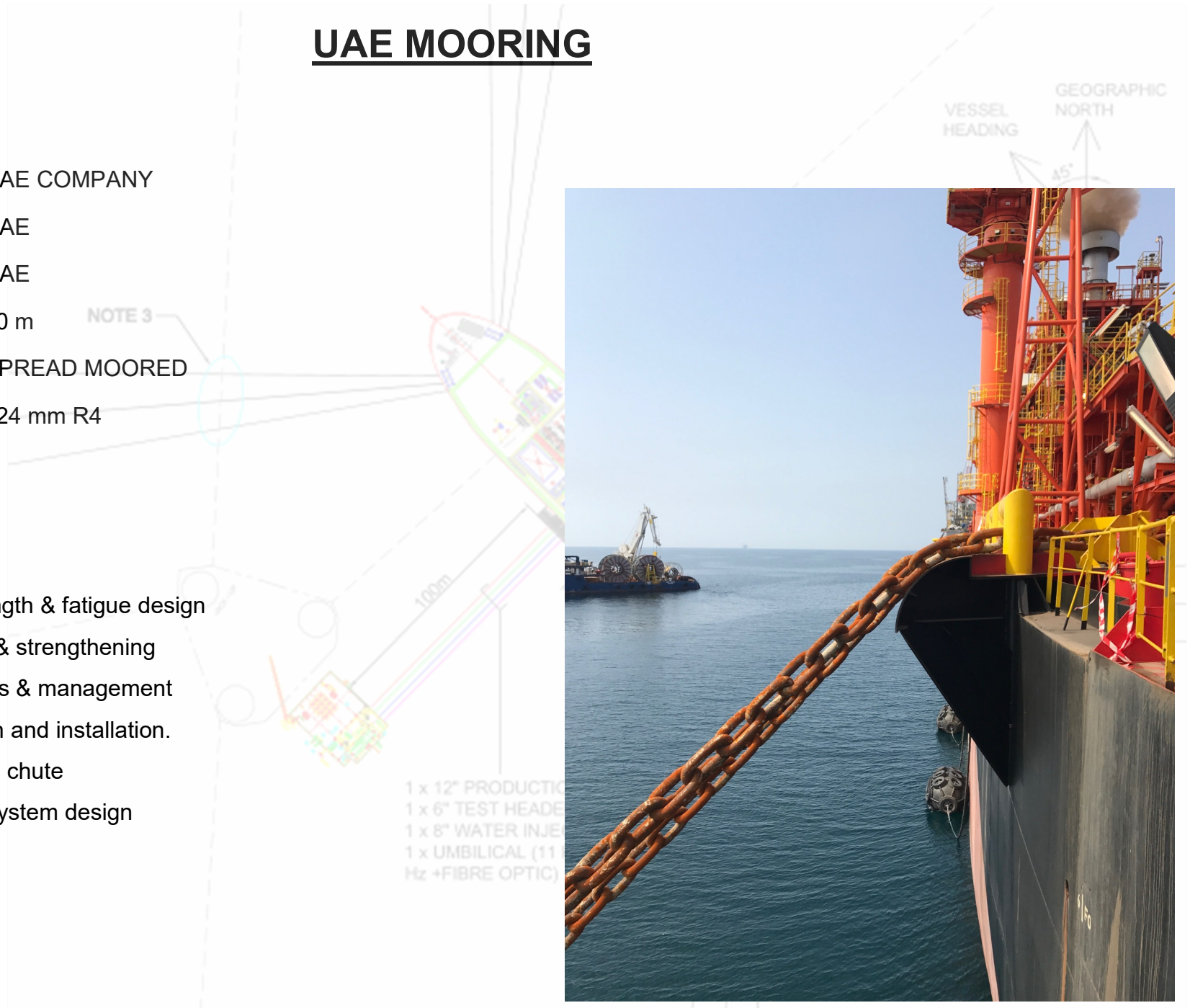


## UAE MOORING

<b>Client</b>	UAE COMPANY
<b>Field</b>	UAE
<b>Location</b>	UAE
<b>Waterdepth</b>	70 m
<b>Type</b>	SPREAD MOORED
<b>Mooring lines</b>	124 mm R4

### Scope of Design

1. Mooring System strength & fatigue design
2. Vessel modifications & strengthening
3. Installation procedures & management
4. Anchor system design and installation.
5. Chain stopper , Chain chute
6. Hook-up equipment system design
7. Offshore Installation
8. Full EPIC
9. DNV Class approval

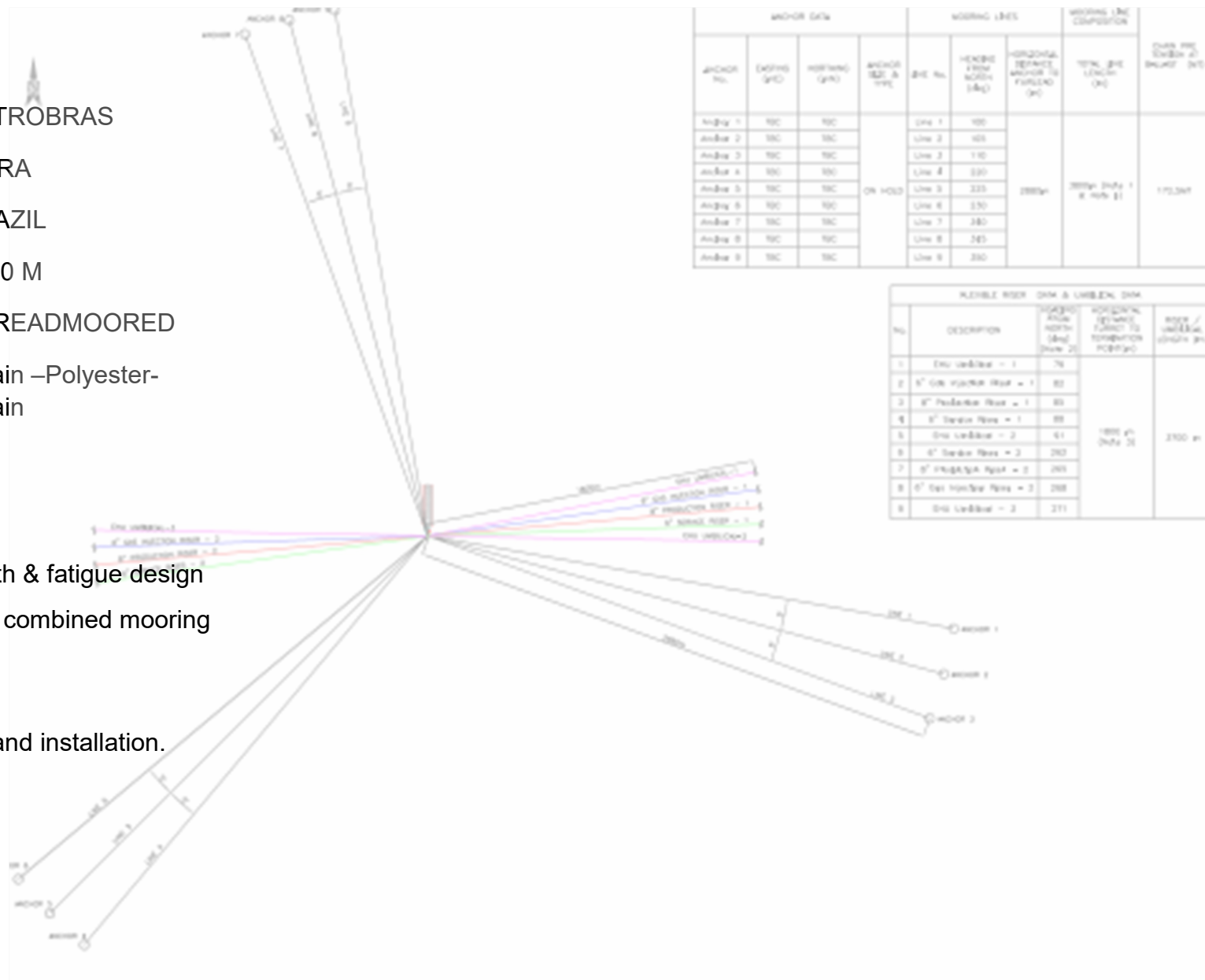


# FEED BAB / PETROBRAS LIBRA

**Client** PETROBRAS  
**Field** LIBRA  
**Location** BRAZIL  
**Waterdepth** 2400 M  
**Type** SPREADMOORED  
**Mooring lines** Chain –Polyester-Chain

## Scope of Design

1. Mooring System strength & fatigue design
2. Riser incorporation and combined mooring analysis
3. Installation procedures
4. Anchor system design and installation.





## HESS MALAYSIA TEMPORARY MOORING

<b>Client</b>	HESS
<b>Field</b>	Bergading
<b>Location</b>	Malaysia
<b>Waterdepth</b>	70 m
<b>Type</b>	Disconnectable Spread-moored
<b>Mooring lines</b>	76 mm R4

### Scope of Design

1. Mooring System disconnectable design
2. Vessel modifications & strengthening
3. Operating Procedures
4. Anchor system
5. Chain stopper , Chain chute
6. Hook-up equipment system design
7. Offshore Installation
8. Full EPIC
9. ABS Class approval

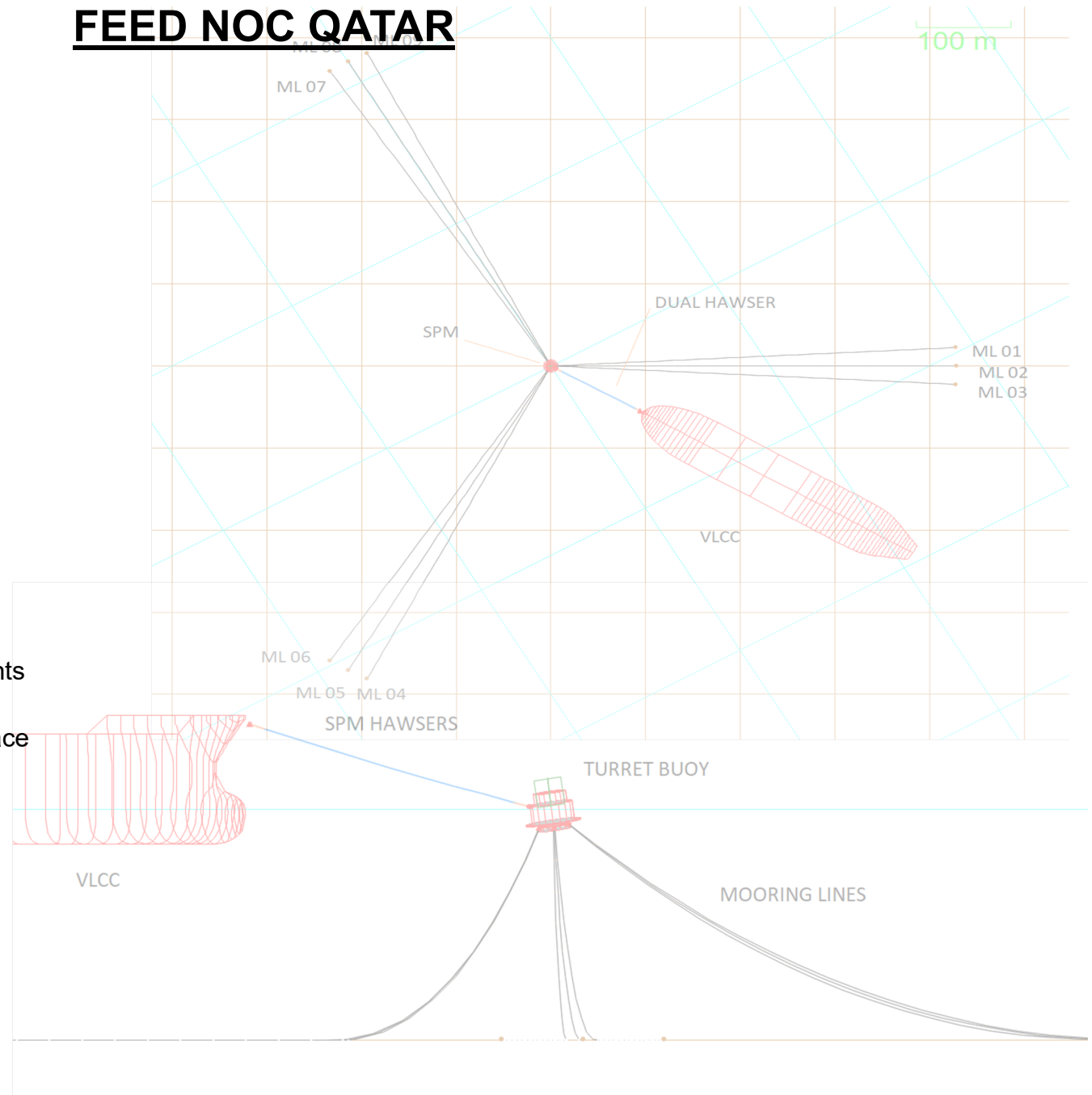


## FEED NOC QATAR

<b>Client</b>	North Oil Company
<b>Field</b>	AL SHAHEEN
<b>Location</b>	Qatar
<b>Waterdepth</b>	70 M
<b>Type</b>	CALM BUOY, SPREAD MOORED, TURRET
<b>Mooring lines</b>	Chain

### Scope of Design

1. FEED STUDY level 1,2&3 for the mooring systems and vessel conversion requirements for FSO and CALM Buoy system
2. Chain stoppers and mooring system interface specifications, design
3. Structural design and engineering for reinforcements on vessel
4. Naval Architecture for conversion
5. Mooring analysis
6. Fatigue analysis
7. Complete Mooring system design





## ING BANK OSX-2 LAY-UP

**Client** Ing bank

**Field** Lay-up

**Location** Indonesia

**Waterdepth** 15 M

**Type** Spread-moored and quay side mix

**Mooring lines** Chain & Nylon

### Scope of Work

- Decommissioning and lay-up for the mooring system, EPIC
1. Decommissioning of the mooring system
  2. Detailed mooring analysis for vessel lay-up.
  3. Structural strength analysis of the FPSO and jetty bollards.
  4. Supply of mooring system.
  5. Offshore installation.
  6. Acted as owner representative.

Line	Paid out length (m)	Type	MBL (MT)
L01	41.7	PES/PP	200
L02	40.5	PES/PP	200
L03	30.9	PES/PP	200
L04	29.7	PES/PP	200
L05	27.6	PES/PP	200
L06	27.5	PES/PP	158
L07	26.8	PES/PP	200
L08	27.5	PES/PP	200
L09	40.0	PES/PP	158
L10	40.5	PES/PP	158
L11	32.0	PES/PP	158
L12	31.5	PES/PP	158
L13	33.0	PES/PP	158
L14	32.2	PES/PP	158
L15	34.5	PES/PP	158
L16	34.5	PES/PP	158
L17	55.5	PES/PP	158
L18	63.5	PES/PP	158
L19	64.5	PES/PP	158

Lines	Section 1	Section 2	Section 3	Total Length	Anchor Radius	Headline FPSO (m)
AL01	8m chain	50m rope	305m chain	363m	350m	225
AL02_A	60m chain	304m chain	NA	364m	350m	140
AL02_B		304m chain	NA	364m	350m	130
AL03	8m chain	50m rope	305m chain	363m	350m	125

