ZOHR PROJECT

SAIPEM

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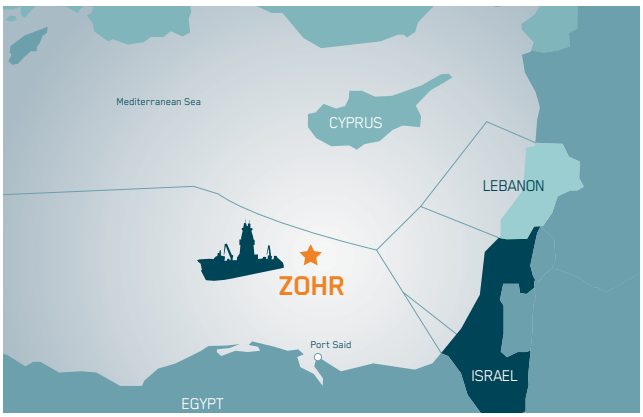
COUNTRY SITE:	**EGYPT - 150 km North Offshore Damietta Port**
CLIENT:	BELAYIM PETROLEUM COMPANY (PETROBEL)
CONTRACTING ENTITIES:	Saipem SA/Saipem MISR
PROJECT DIRECTOR:	Giuseppe Tese'/ Deputy PD : Luigi Ferroni
CONTRACT AWARD DATE:	ASU = April 2016 (LLI) + July 2016 ORU = May 2017 (LLI) + July 2017
DURATION	ASU = 21 months ORU = 21 months
PAC DATE	ASU = 4th April 2018 & 15th August 2018 (estimated) ORU = December 2018 (estimated)
HSE DATA	ASU = 6.293.590 Manhours / LTIR = 0.16 / TRIR = 0.32 ORU = 2.950.985 manhours / LTIR = 0 / TRIR = 0 (@ end june-18)
BUSINESS SEGMENT:	SURF: EPCI of rigid sealines, infield flowlines, and Subsea structures.

SUPERGIANT ZOHR GAS FIELD DEVELOPMENT PROJECT



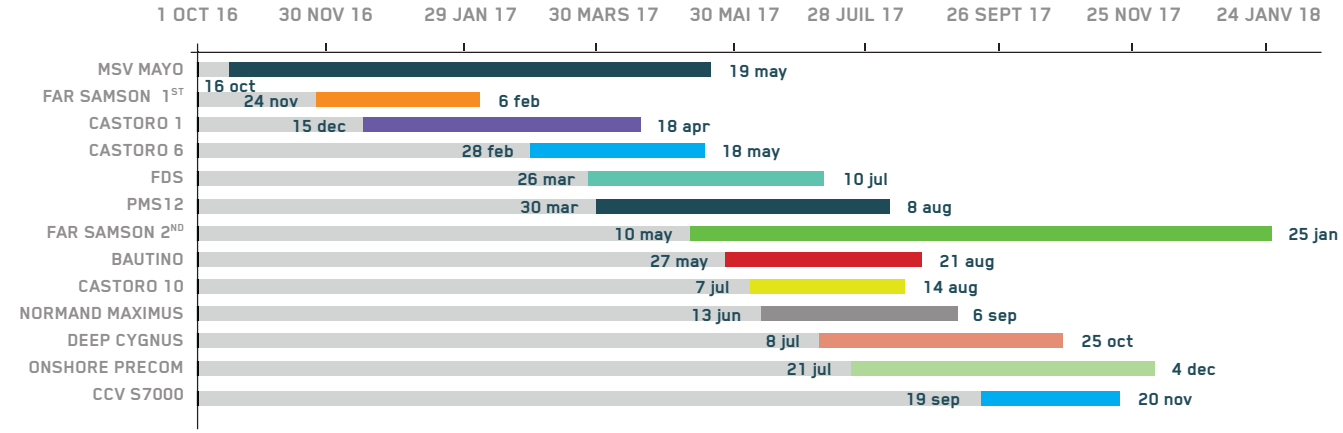
ACCELERATED START-UP (ASU)

This Accelerated Start-Up (ASU) Phase started in April 2016 with the award of the Long Lead Items (LLI) by our Client, PETROBEL, consisted mainly in :

- Coating (3LPE and concrete), transportation and installation of the carbon steel sealines 8" (glycol injection), 14" (service), and 26" (gas export) of about 220/230 km each, from onshore to 1.500 m water depth;
- Transportation and installation of main umbilical connected to the Control Platform (about 160 km);
- EPCI of subsea systems of 6 wells, with 6 cladded infield lines of 14", 2 Flexibles lines 2", 6 infield umbilicals, 2 Manifolds, and all associated subsea structures (15 PLETS, 23 Spools, 3 Suctions piles & foundations) & 1 Tie-In Spool Bse.

The coating of the pipes has been done in Port-Said by our subcontractor Petrojet, with active supervision by our team. While the fabrication of all subsea structures was made in Alexandria at Petrojet Yard, also under extensive coordination by our teams to maintain the fast-track fabrication schedule.

This phase has involved the mobilization of numerous vessels: the Castorone, the CastoroSei, the Castoro 10 and the PMS 12 for the sealines installation from Onshore to deep sea; followed by the FDS, the Normand Maximus and the S7000 for the installation of structures and umbilicals; finally, the Far Samson (during more than 6 months), the MSV Deep Cygnus, the PMS Mayo and the Bautino for all other activities.




BAUTINO


CASTORO 10


CASTORO 6


FAR SAMSON


PMS MAYO


S7000


CASTORO 1


DEEP CYGNUS


NORMAND MAXIMUS


FDS


PMS12

The first milestone was successfully achieved on 13th September 2017 with handover to Client of the 8" & 14" sealines, the subsea systems for 2 wells (Z1/Z6), together with all umbilicals.
The 2nd milestone (Z2/Z3) was achieved early December 2017, after installation by the S7000 of 2 spools of 26", which enabled our Client to launch the production of its 26" gas export line in 2017.

The subsea systems of the 5th well (Z4) and 6th well (Z7) have been installed and tested, respectively in January 2018 and May 2018.

ORU PHASE (OPTIMIZED RAMP-UP)

The additional ORU Phase (Optimized Ramp-Up), awarded by our Client in July 2017, has been executed with the same execution scheme, with the fabrication of all subsea structures (12 PLETs, incl. 1 off 30", 19 jumpers & spools, 1 manifold, 2 Tie-In Spool Bases, 3 suction piles) in Petrojet Yard.

The offshore laying activities cover :

- Approx. 215km 30" Gas line and 215km of 8" glycol line
- 4 x 14" infield clad lines (15km in total)
- 1 x 8" infield line (2.3km)
- 1 off 2" Flexible line

The laying of the 30" sealine was performed by the FDS2, the Castorone, the CastoroSei and the and local subcontracted barge PMS12. Same for the laying of 8" line (except FDS2).
Pipelaying performances were globally even higher than the one observed during ASU phase.

The PLET 30" was installed by the FDS2 in June 2018.

The FDS performed installation of the suction piles, TSB, Manifold, most of the PLETs, all Infield flowlines and umbilicals, as well as the biggest jumper (26").
The Far Samson was mobilized again for a campaign of ~200 days for activities on this Phase.


FDS


FDS2


FAR SAMSON


CASTORO 1


CASTORO 6


PMS12

The installation & precommissioning schedule of the ~215 km pipeline 30" required tremendous efforts of simultaneous works, in deep water, shallow water, and shore approach, to succeed in achieving **on the 6th of August 2018 the completion ahead of schedule.**

CHALLENGES

27 months from Discovery Announcement to 1st gas
17 months from EPCI Contract Award to 1st gas

A TECHNICALLY CHALLENGING PROJECT (ASU)

A technically challenging project (ASU)

- Demanding material requirement for carbon steel lines in sour service (specific lab tests campaign, demanding stress design constraints)
- Design of 600 Km of sealines concentrated in 5 months
- Big size valves and connectors to be qualified
- New concept of 26'' connector for rigid line to be qualified
- 26'' spool design
- 30" PLET design (with ILV and mudmat)(ORU)
- Complex seabed profile requiring trenching from shore to 1400 m water depth.
- Tailored post lay intervention works at deep water (up to 900 m) by post-trenching machine ''Beluga''
- Landfall (fabrication / weather conditions)
- Pre-commissioning (long lines from shore to 1500 m water depth)

SUCCESS FACTORS

- Good capacity of coordination with Client and fast decision when changes of installation sequence are required
- Close cooperation with Client during the Integrated Commissioning of Subsea system

Fast-track "attitude":

- Common target Client and Contractor : Achieve 1st Gas
- Mutual trust and transparency
- Anticipation in Purchase Orders placement for LLI prior to Contract Award
- Drilling schedule shared in "real time"
- Documentation management: Company approval focused on essential documents

Large Naval Spread mobilized and operating in parallel

Close SIMPOS monitoring with Client drilling campaign

Best in Class resources and vessels

Long lasting presence in Egypt and extensive experience with local offshore contractors and Egyptian regulations