



**77 DREBBEL S.A.P.I DE C.V.
(ARENDALE/PEMEX PROJECT)**

**“OLEOGASODUCTO DE 20”OD DE
XANAB-D A XANAB-C” Y
“OLEOGASODUCTO DE 16”OD DE
KUIL-B A KUIL-C”**

(CAMPECHE BAY-MEXICO)

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1 General project Overview and Reference

The Project is “OLEOGASODUCTO DE 20” OD DE XANAB-D A XANAB-C” y “OLEOGASODUCTO DE 16” OD DE KUIL-B A KUIL-C” under the patronage of PEMEX-PETRÓLEOS MEXICANOS (CLIENT) and awarded by HOC OFFSHORE S. DE R.L. DE C.V., Company of ARENDAL S.A. de C.V. Group (MAIN CONTRACTOR) for the installation of the mentioned pipelines.

The project design envisages construction and installation (including burial) of approx. 5.7km total length of a 20” OD pipeline from XANAB-C to XANAB-D platforms and of approx. 2.6km total length of a 16” OD pipeline from KUIL-B to KUIL-C platforms. All platforms are located in the offshore area of Ciudad del Carmen – Gulf of Mexico (Campeche, Mexico).

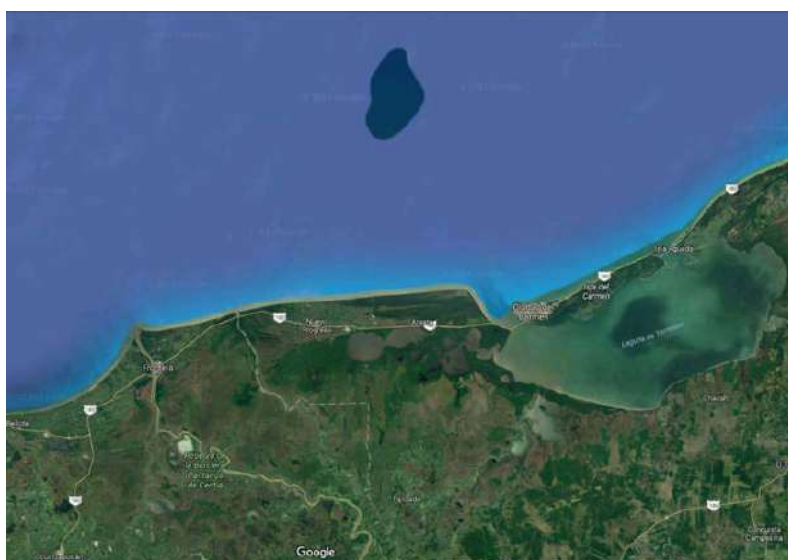


Figure 1 – General Location Map

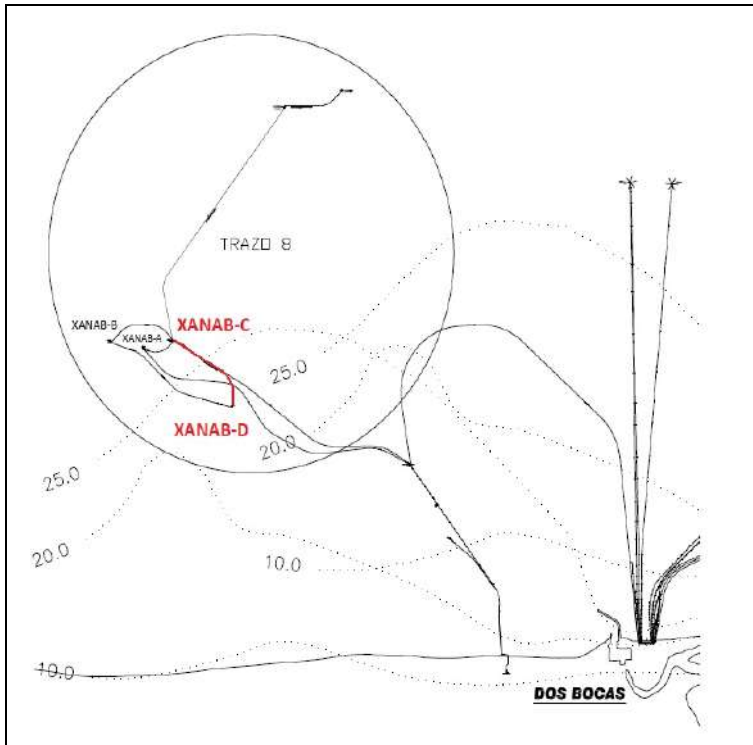


Figure 2 – XANAB D-C Platforms
General route layout

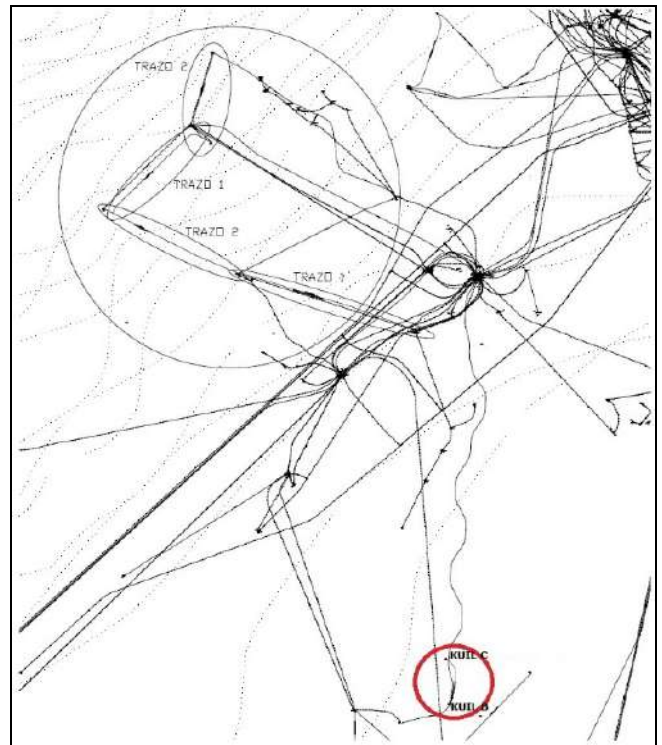


Figure 3 – KUIL B-C Platforms
General route layout

2 Scope of work

DREBBEL S.A.P.I de C.V. (CONTRACTOR) has been awarded by HOC OFFSHORE S. DE R.L. DE C.V. for the execution of various activities (i.e. survey, mattress installation, trenching works etc.) concerning the pipelines.

For this reason, DREBBEL S.A.P.I de C.V. has contracted SEA S.R.L. (Subcontractor - SEA) for the execution of the post-trenching activities of the 20" pipeline from Xanab-D Platform to Xanab-C Platform and of the 16" pipeline from KUIL-B Platform from KUIL-C Platform.

The area bathymetry ranged from approx. 24 m to 28 m.



The project execution started in January 2019, as previously planned, and was completed at the beginning of February 2019.

The trenching works were performed by means of LEO Post-Lay Trenching Machine. The trenching machine was supported by the SV POSH HONESTO, supplied by CONTRACTOR.

The 30" Gas Pipeline had the following characteristics:

| ROUTE | DIAM | Pipe Thickness | Concrete Coating | Submerged Weight | HT | KM approx |
|------------------------|--------|-----------------|------------------|------------------|-----------|-----------|
| 20" XANAB-D to XANAB-C | 20" OD | 0.750" - 0.812" | 3" | 141.8 lb/feet | HIGH TEMP | 5.8 |
| 16" KUIL-B to KUIL-C | 16" OD | 0.625" | 2.5" | tba | | 2.6 |

Table 1: Pipeline details

The pipeline was flooded and unpressurized when post-trenching operations were performed.

The following table summarizes the Post-Trenching SOW:

| 1836 DREBBEL TRENCHING S.A.P.I. DE C.V. Oleogasoducto de 20"OD de la Plataforma XANAB-D hacia XABAB-C MEXICO | | | | | | | | | |
|---|-----|---|----------------|---------|-------|--------------------|----------------------|---------------------------------|-------------------------------|
| PRODUCT | CWC | Zone | Operations | from KP | to KP | Length (approx km) | Trench Depth (m) TOP | From Water Depth (approx m) LAT | To Water Depth (approx m) LAT |
| 20" Pipeline (OD 508 mm-0,812"/0,750" - 20,6/19,1mm WT) | 3" | transition from XANAB-D Plat. to trench quota | Post-trenching | 0,030 | 0,130 | 0,100 | 0-1 | -24,0 | -24,0 |
| | | Offshore section | | 0,130 | 3,273 | 3,143 | 1 | -24,0 | -28,0 |
| | | Transition | | 3,273 | 3,373 | 0,100 | 1-0 | -28,0 | -28,5 |
| | | <i>Cruce 1</i> | NO TRENCHING | 3,373 | 3,383 | 0,010 | NA | -28,5 | -28,5 |
| | | Transition | Post-trenching | 3,383 | 3,483 | 0,100 | 0-1 | -28,5 | -28,8 |
| | | End of original section | | 3,483 | 4,200 | 0,717 | 1 | -28,8 | -29,0 |
| | | Extension to XANAB-C | | 4,200 | 5,747 | 1,547 | | -29,0 | -29,5 |
| | | transition from trench quota to XANAB-C Plat. | | 5,747 | 5,847 | 0,100 | 1-0 | -29,5 | -28,3 |
| Total Km | | | | | | 5,807 | | | |


|  1836 DREBBEL S.A.P.I. DE C.V. Oleogasoducto de 16"OD de la Plataforma KUIL-C hacia KUIL-B MEXICO | | | | | | | | | |
|---|------|--|----------------|---------|-------|--------------------|----------------------|---------------------------------|-------------------------------|
| PRODUCT | CWC | Zone | Operations | from KP | to KP | Length (approx km) | Trench Depth (m) TOP | From Water Depth (approx m) LAT | To Water Depth (approx m) LAT |
| 16" Pipeline (OD 406,4 mm-0,625"/15,9mm WT) | 2,5" | transition from KUIL-C Plat. to trench quota | Post-trenching | 0,340 | 0,420 | 0,080 | 1 | -23,8 | -24,0 |
| | | Offshore section | | 0,420 | 2,846 | 2,426 | | -24,0 | -24,0 |
| | | transition from trench quota to KUIL-B Plat. | | 2,846 | 2,925 | 0,079 | | -23,5 | -23,4 |
| Total Km | | | | | | 2,585 | | | |

Table 2: SEA's scope of work

3 Encountered soil condition

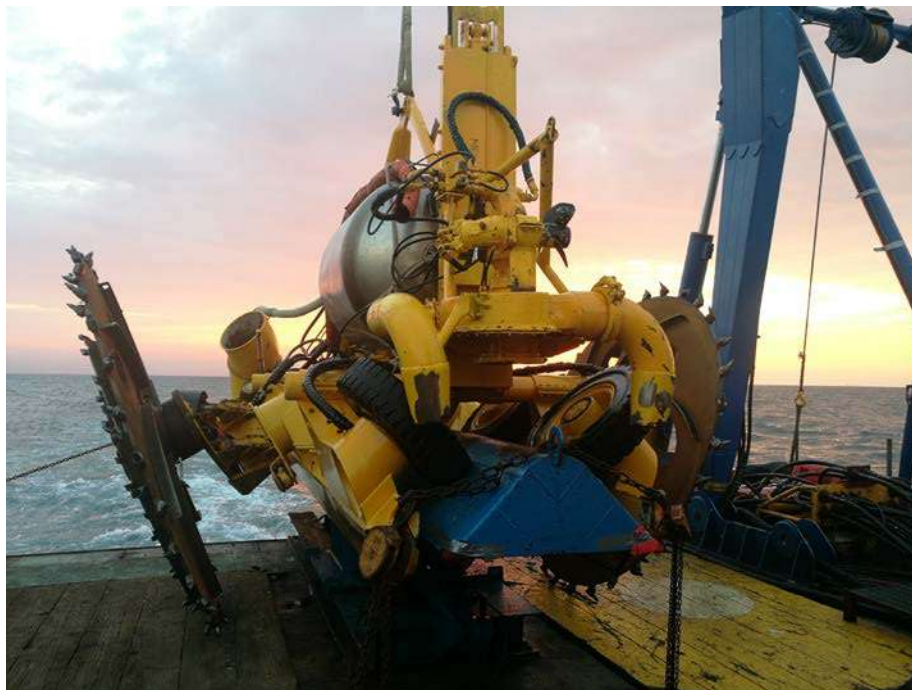
20" XANAB-D to XANAB-C: surficial layer characterized by medium dense to dense fine SAND, with outcropping HARD SOIL and ROCK.

16" KUIL-B to KUIL-C: SANDY SOIL with variable quantity of CLAY and SILT.

4 Photos at worksite



TSV POSH HONESTO moored at Tampico Port



LEO PTM assembled on POSH HONESTO stern



LEO PTM launching operations



LEO PTM during XANAB trenching operations - by night.

5 Reference