



**76 DREBBEL S.A.P.I DE C.V.
(PERMADUCTO/PEMEX PROJECT)**

**“GASODUCTO DE 8”OD DE MANIK-A
A IXTAL-B
Y GASODUCTO DE 12”OD DE
BATAB-A A ONEL-A”**

(CAMPECHE BAY-MEXICO)

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1 General project Overview and Reference

The Project was "GASODUCTO DE 8" OD DE MANIK-A A IXTAL-B Y GASODUCTO DE 12" OD DE BATAB-A A ONEL-A"- under the patronage of PEMEX and awarded to PERMADUCTO S.A. de C.V. (Grupo Protexa) as the Main Contractor.

The project included the design, the construction and the installation (including burial) of approx. 6.8km total length of a 8"OD pipeline from MANIK-A to IXTAL-B platforms and of approx. 9.6km total length of a 12"OD pipeline from BATAB-A to ONEL-A platforms and of another 8" pipeline route section of approx. 0,300 Km length laid from IXTAL-A Platform and the connection ("disparo submarino") with the 8" gas pipeline route which run from MANIK-A to IXTAL-B Platforms.

All platforms were in the offshore North-East of Ciudad del Carmen – Gulf of Mexico (Campeche, Mexico).



Figure 1 – General Location Map

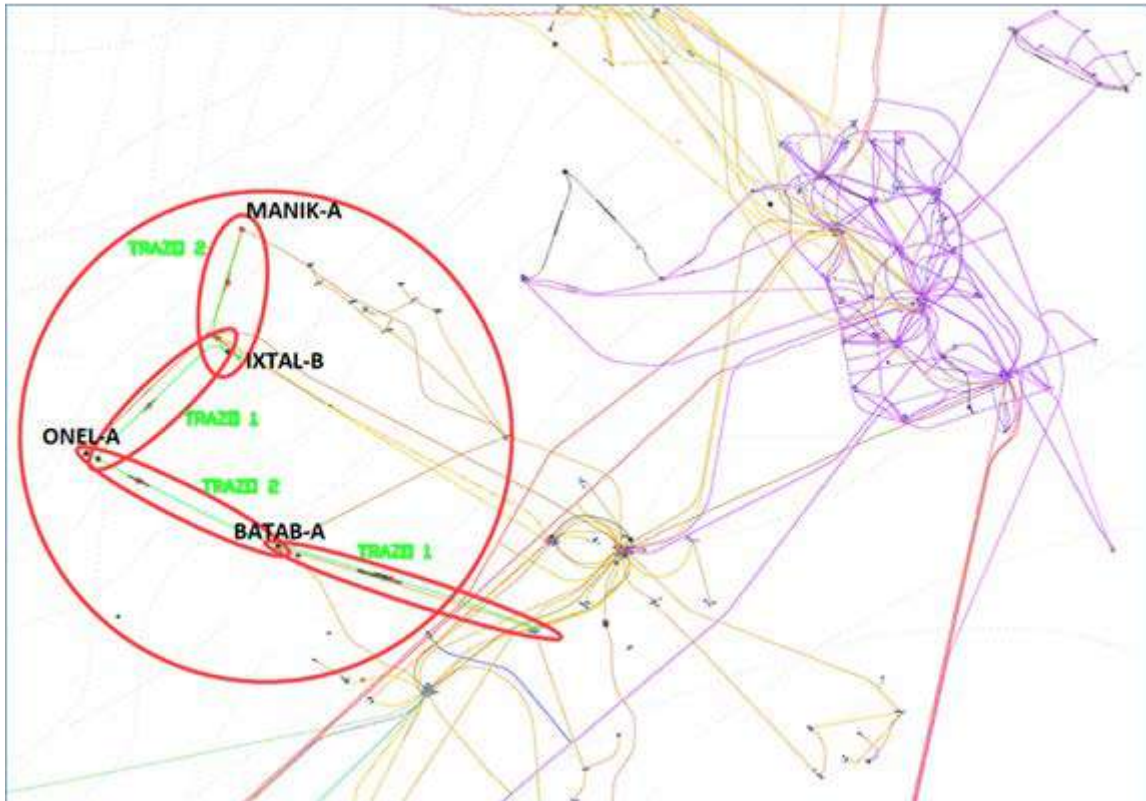


Figure 2 – General route layout and Platforms

2 Scope of work

DREBBEL S.A.P.I de C.V. (CONTRACTOR) has been awarded by PERMADUCTO 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 12" pipeline from Batab-A Platform to Onel-A Platform and of the 8" pipeline from Manil-A Platform to Ixtal-B Platform + additional connecting section from "Disparo" on 8" Manik-A/Ixtal-B to Ixtal-A

The area bathymetry ranged from approx. 48 m to 79 m.



The project execution started in August 2018 with the mobilization from Europe to Mexican sites (Ciudad del Carmen for the transfer to API Port Storage Area and then to Seybaplaya Port for the final assembly onboard of TSV SABALO)

The project was completed at the middle of November 2018 but trenching operations were carried out from September to October.

The trenching works were carried out by means of JOLLY Post-Lay Trenching Machine. The trenching machine was supported by the TSV SABALO, supplied by CONTRACTOR but equipped with L.A.R.S system supplied by SEA.

The Pipelines had the following characteristics:

ROUTE	DIAM	Pipe Thickness	Concrete Coating	KM approx
8" MANIK-A to IXTAL-B	8" OD	9.5mm/ 14.27mm	1,5"	6,4
8" DISPARO on MANIK-A/IXTAL-B to IXTAL-A	8" OD	9.5mm/ 14.27mm	1,5"	0,3
12" BATAB-A to ONEL-A	12"OD	11.1 mm	1.25"	9.6

Table 1: Pipeline details

The pipelines were flooded and unpressurized during post-trenching operations.

The following tables summarize the Post-Trenching SOW:

SCOPE	From KP	to KP	Meters	WD
8" PIPELINE FROM MANIK-A TO IXTAL-B	0.040	4.811	4.771	From -67m to -79m
	5.244	5.936	692	
	5.971	6.422	451	
8" PIPELINE FROM DISPARO TO IXTAL-A	0.040	0.338	298	From -48m to -77m
12" PIPELINE FROM BATAB-A A ONEL-A	0.040	4.955	4.915	From -71,5m to -79m
	5.042	8.994	3.952	
	9.100	9.600	500	

Table 2 –SEA's post-trenching scope of work



3 Encountered soil condition

Along the 12" OD BATAB-A HACIA ONEL-A route, the surficial layer was mainly characterized by very soft to soft calcareous clay of low plasticity, and by very soft to soft sandy clay

Along the 8" OD MANIK-A TO IXTAL-B route, the surficial layer was mainly characterized by very soft to soft calcareous clay of low plasticity, and very soft to soft sandy clay

4 Photos at worksite



The JOLLY PTM



TSV SABALO equipped with L.A.R.S. and trenching spread.



JOLLY PTM on TSV SABALO deck



Offshore JOLLY PTM Launching