



**63 PETROBRAS/GLOBAL
INDUSTRIES –CAMARUPIM
PROJECT
BACIA DE ESPIRITO SANTO–
BRAZIL**

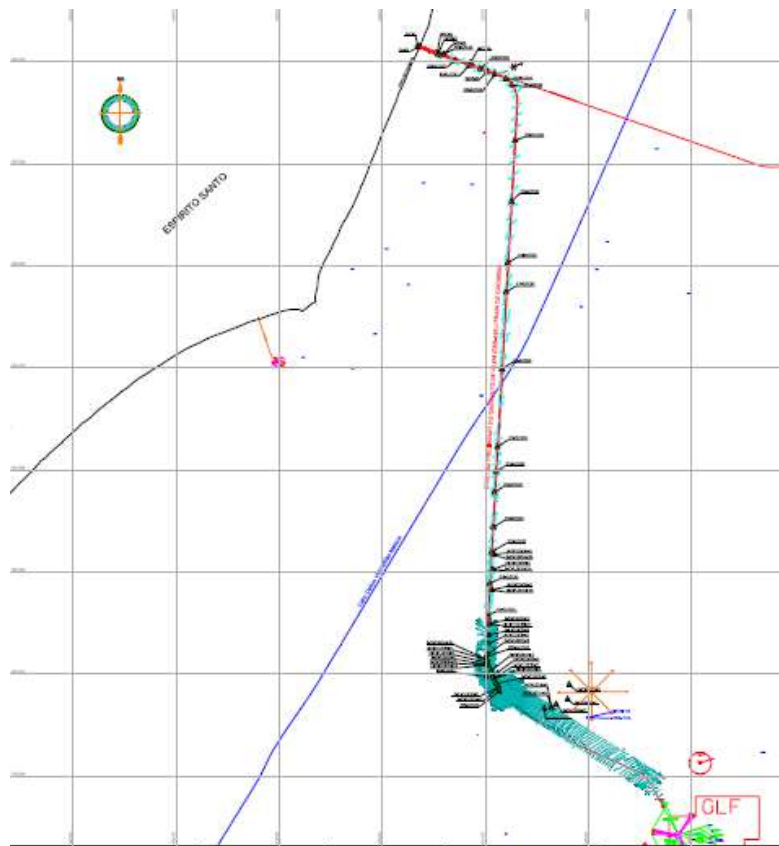
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1 General project Overview and Reference

Petrobras developed the "SISTEMA DE ESCOAMENTO DE GÁS DO CAMPO DE GOLFINHO" area for the production of Oil and Gas. Part of this field development involved a 24" gas pipeline and a PLEM.

GLOBAL INDUSTRIES OFFSHORE was awarded by PETROBRAS Petróleo Brasileiro for the EPC Camarupim Project in Espírito Santo Basin, ES, offshore Brazil.

In summary, the project consisted on installation of approximately 52km of 24" Gas Pipeline from the Cacimbas beach to PLEM (ESS164), being the firsts 1200m via a Horizontal Directional Drilling (shore approach area). SEA S.r.l. was contracted by GLOBAL INDUSTRIES OFFSHORE to perform the post-trenching from milestone 8m WD (finishing of Horizontal Directional Drilling) to milestone 26m WD. The Trenching Support/Accommodation Vessel was IROQUIS, provided by GLOBAL INDUSTRIES OFFSHORE.



Praia de Cacimbas (Bacia de Espírito Santo) – Pipeline Route

2 Scope of work

The following table extracted from Petrobras document " I-ET-3671.00-6520-960-PPR-001_Rev.0" summarizes the trenching sections of original scope of work:

24-IN GAS PIPELINE SECTIONS	Zone	Trench Depth (m) (1)	Length (m)	KP Start	KP End	Water Depth KP Start (m)	Water Depth KP End (m)	Prior Trenching Hydrotest Pressure (kg/cm ²)	After Trenching Hydrotest Pressure (kg/cm ²)
SECTION 1 (LDA = 0m - LDA = 8m)	NEARSHORE	(3)	1500	0.000	1.500	0	8	250	250
SECTION 2 (LDA = 8m - LDA = 20m)	NEARSHORE	1.0 (2)	6626	1.500	8.126	8	20	250	250
SECTION 3 (LDA = 20m - LDA = 26m)	NEARSHORE	1.0 (2)	6056	8.126	14.182	20	26	250	250

Post-trenching on SEA charge:

Pipeline	Trench Cover (T.O.P.)	Length	Water Depth	
			Min	Max
24" GNL	1,0	Approx. 14.000 Meters	8 m	26 m

Section	Zone	Trench Depth (m) TOP	Length (m)	KP Start	KP End	Water depth KP Start (m)	Water depth KP End (m)
SECTION 2	Nearshore	1,0	6926	1,200	8,126	8	20
SECTION 3	Nearshore	1,0	6056	8,126	14,182	20	26
+ additional sections							

3 Encountered Soil condition

The soil is clay and silt, except near the drilling hole where it is fine sand.

After the route curve the soil is silty clay.

The below table describes the soil properties.

Table 5.3 – Soil Data.

Location	Description	γ_{sub} (kN/m ³)	S_u (kPa)
Directional Drilling Hole HDD	Fine sand	10,9	-
From Directional hole to curve	Clay silt	6,0	5,2 to 9,4
After curve	Clay silt	4,6 to 5,6	6,6 to 9,5

4 Photos at worksite



Mobilization phase in Vitoria



IROQUOIS support vessel.



COMBO PTM

5 Reference



Global Industries
Brasil

July 23, 2009

COMPLETION CERTIFICATE

Global Industries hereby confirms that:

SEA s.r.l., registered address via Mariani 44/46 – 48100 Ravenna (Italy), was awarded contract with Global Industries, which covered the post lay trenching works of approximately 14 km of 24" offshore pipeline and belonging to the Camarupim Project in Brazil.

The works have been performed and completed in full compliance with the final provision of the abovementioned scope of work and to the complete satisfaction of Global.

Alan Buchi

Project Manager