



79 2102 KOLİN-KALYON JOINT VENTURE

**(Petroleum Pipeline Corporation -
BOTAŞ)**

KUZEY MARMARA GAS FIELD

**2X28" (+2X2,375" EACH)
GAS PIPELINES
(SILIVRI - TURKEY)**



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1 General project Overview and Reference

Kuzey Marmara Gas Field is located in the north of Sea of Marmara about 2.5 km off the coast of Silivri, approximately 65 km west of Istanbul, Turkey and was discovered in 1988.

The Silivri Underground Gas Storage Facilities in the depleted gas fields of Kuzey Marmara and Değirmenköy have been successfully operated by Türkiye Petrolleri A.O (TPAO) since April 2007. In September 2016, Petroleum Pipeline Corporation (BOTAS) took over the existing Silivri Underground Gas Storage Facilities from TPAO, including the Kuzey Marmara Underground Gas Storage Expansion (Phase III) Project.

Due to Turkey's need for more gas storage capacity and recently discovered additional available working gas capacity in the Kuzey Marmara reservoir, the Kuzey Marmara Underground Gas Storage Expansion (Phase III) Project is being developed to increase the injection and withdrawal capacity by the installation of the following facilities:

- Installation of a New Surface Plant (NSP) with an injection rate of 30 MMSm³/d and a withdrawal rate of 50 MMSm³/d
- Installation of a new 28" onshore pipeline from Kuzey Marmara Gathering Station (KMGS) to New Surface Plant
- Installation of a new 36" pipeline connected to 36" BOTAS pipeline grid
- Integration of the existing Shared Facility (SF) to the NSP
- Installation of two new offshore platforms in the Marmara Sea close to KMGS
- Installation of two new 28" offshore pipelines from platforms to KMGS connected to the existing 24" and the new 28" onshore pipelines to NSP

Kolin Kalyon Joint Venture (KKJV) has been awarded for the installation of the on-shore&off-shore project infrastructure, including the jackets, pipelines and composite cables.

Within the scope of works, KKJV has invited SEA S.r.l. (SEA) to provide a quotation for trenching and back-filling of two 28" pipelines, with two 2,375" piggy-backed pipelines each.

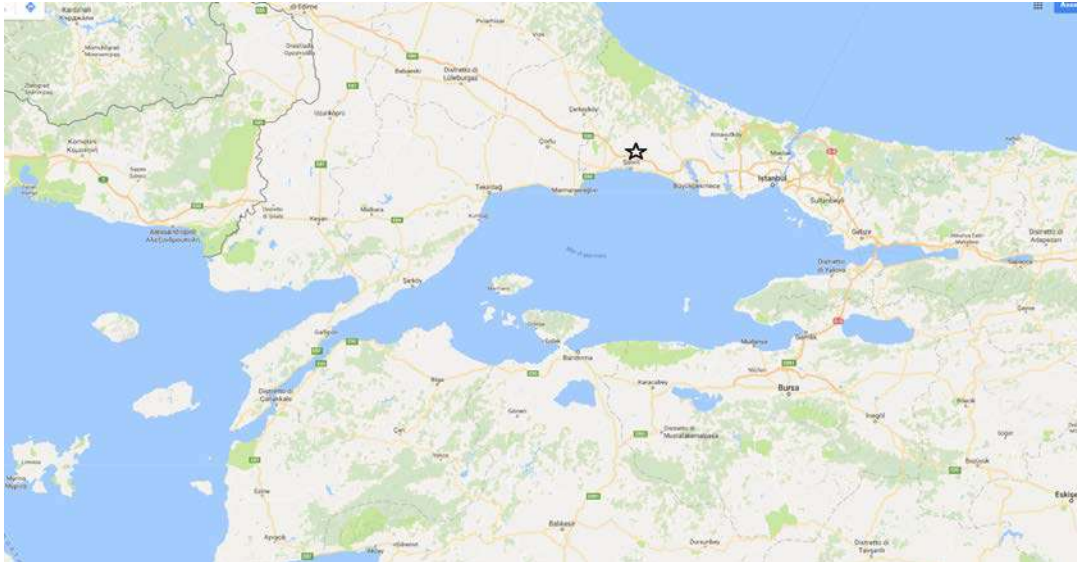


Figure 1: Location Map



Figure 2: General Layout of Plant, Pipelines and Offshore Platforms

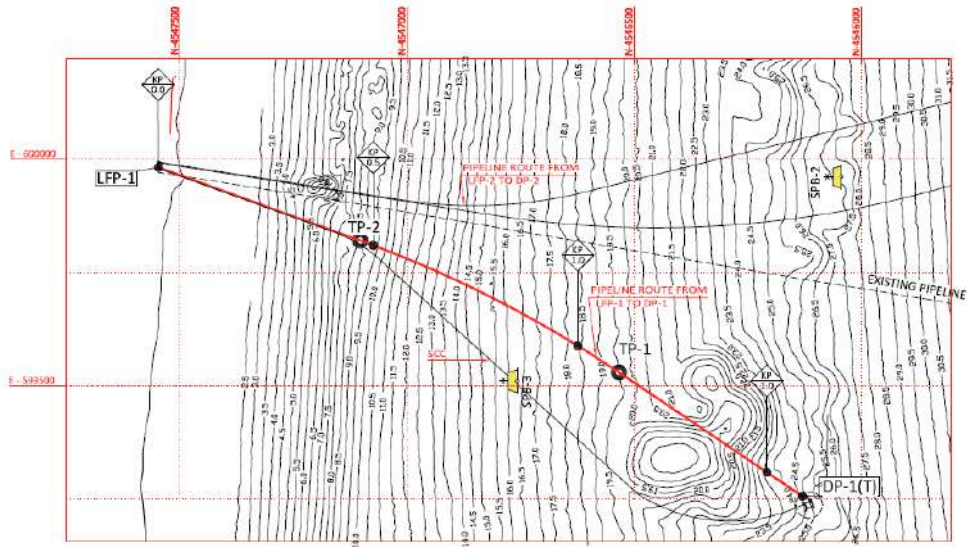


Figure 3: Pipeline layout from DP-1 to LFP-1 = PL1

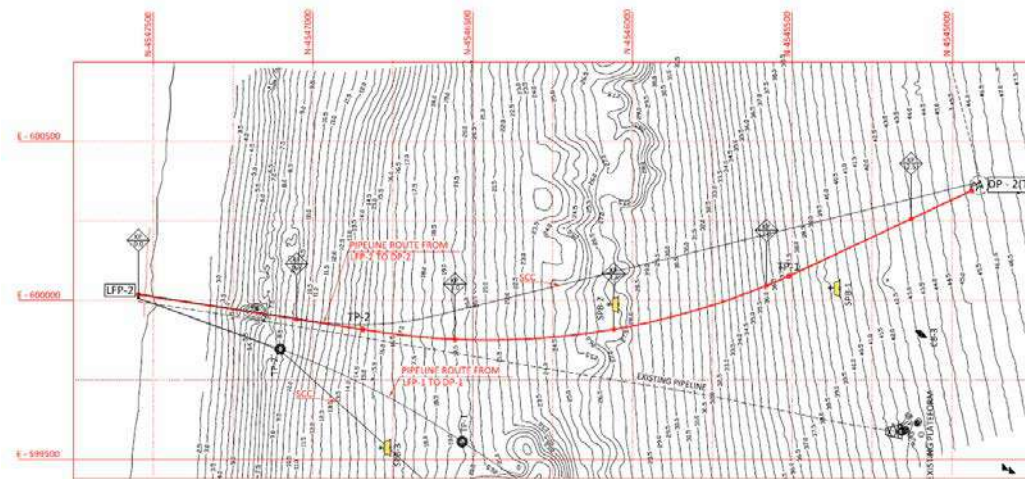


Figure 4: Pipeline layout from DP-2 to LFP-2 = PL2

2 Scope of work

SEA carried out the post-trenching operations of DP1 pipeline and DP2 pipeline as per details in the table below:

2102 KOLİN-KALYON Joint Venture Post-Trenching of 2x28" + 2x2,375" piggyback KUZEY MARMARA UNDERGROUND GAS STORAGE FIELD SCOPE OF WORK								
		Section	From KP	To KP	Length (approx km)	Trench Depth	From Water Depth (approx m) LAT	To Water Depth (approx m) LAT
LFP-1 to DP-1	28" Gas Pipeline (OD 711,20 mm- WT 23,1 mm) +2x2,375" piggy- backs	Near Shore	0,505	1,308	0,803	1,8 m BOP	-8,0	-20
		Final Transition	1,308	1,408	0,100	1,8--0 m BOP	-20	-22
LFP-2 to DP-2	28" Gas Pipeline (OD 711,20 mm- WT 23,1 mm) +2x2,375" piggy- backs	Near Shore	0,580	2,430	1,850	1,8 m BOP	-11	-39,5
		Final Transition	2,430	2,530	0,100	1,8--0 m BOP	-39,5	-44

3 Encountered Soil condition

According to DERINSU Report and alignments provided, that include the borehole stratigraphy along the routes, SEA considers the presence of an hard soil layer/rock, outcropping in nearshore area, which is described as "very weak to extremely weak, dark green, highly weathered claystone", along both routes (hard soil layer observed at the end of geotechnical samples DP1-1, DP1-2, DP1-3 and DP1-4).

Besides, based on the geophysical survey carried out on the TPAO pipeline, SEA considers the presence of a rocky sections outcropping from seabed extending from approx. KP 0.370 to KP 0.510 which removal/levelling KKJV shall take care of.

4 Photos at worksite



PTM Spread containers



PTM on piggy-backed pipe




GEO PTM



TSV layout

5 Reference

	PJM_FO_03	Rev 0 Date 09.09.19
	TITOLO: TITLE:	Questionario di soddisfazione del Cliente Customer Satisfaction Questionnaire (CSQ)

DATI DEL CLIENTE / CUSTOMER DETAILS

Cliente / Customer:	KUZEY MARMARA DOĞAL GAZ DEPOLAMA TEVSİ PROJESİ İKMAL İNŞAATI KOLİN KALYON ADI ORTAKLIĞI TİCARİ İŞLETMESİ		
Progetto / Project:	CONTRACT FOR TRENCHING AND BACK-FILLING ACTIVITIES	Periodo di lavoro / Project Period of Execution:	June 2021 / October 2022
Contatto / Reference:		Posizione / Job Title:	
E-mail / E-mail:		Tel / Phone:	

ISTRUZIONI / INSTRUCTIONS

Gentile Cliente,
Chiediamo un momento del Suo tempo per completare questo questionario di soddisfazione del Cliente. Per favore compili il questionario scegliendo uno dei seguenti numeri che indicano il Suo livello di soddisfazione. I diversi numeri rappresentano la seguente valutazione:

Dear Customer,
We kindly request a moment of your time to complete the satisfaction questionnaire. Please tick one of the following numbers to indicate your level of satisfaction. The numbers represent the following evaluation:

- 1 - Scarso / Very poor
- 2 - Basso / Poor
- 3 - Medio / Fair
- 4 - Buono / Good
- 5 - Eccellente / Excellent

QUESTIONARIO - parte A / QUESTIONNAIRE - part A

A) Fase di Tender / Tender Phase

1 - Qualità dell'emissione della proposta (esempio: presentazione, rispetto dei tempi richiesti per l'emissione, conformità con il layout della proposta richiesta)

Quality of proposal issuing (e.g. presentation, conformity to time limits, layout required)

1 2 3 4 5

2 - Rapporti tra il personale SEA e il Cliente durante la fase di emissione proposta

Relationship between SEA personnel and Customer during the proposal processing


1 2 3 4 5





3 - Chiarezza e approfondimento nel dettaglio della proposta

Clarity and depth of detail of proposal

1 2 3 4 5

4 - Qualità della proposta tecnica (in accordo con i requisiti tecnici della Richiesta di Quotazione)

	<p align="center">PJM_FO_03</p>	<p align="right">Rev 0 Date 09.09.19</p>
<p>TITOLO: TITLE:</p>	<p align="center">Questionario di soddisfazione del Cliente Customer Satisfaction Questionnaire (CSQ)</p>	<p align="right">Pag 2 of 4</p>
<p>Quality of technical proposal (in compliance with technical requirements of RFQ)</p> <p><input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input checked="" type="checkbox"/> 4 <input type="checkbox"/> 5</p>		
<p>Commenti / Comments:</p>		
<p>QUESTIONARIO - parte B / QUESTIONNAIRE - part B</p>		
<p>B) Esecuzione dei servizi da parte di SEA S.r.l / Service execution by SEA S.r.l</p>		
<p>1 - Capacità di esecuzione dell'attrezzatura durante la fase operativa Performance of equipment during operational work phase</p>		
<p><input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5</p>		
<p>2 - Rapporti tra il personale SEA e il Cliente durante l'esecuzione del progetto Relationship between SEA personnel and Customer during the project execution</p>		
<p><input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input checked="" type="checkbox"/> 4 <input type="checkbox"/> 5</p>		
<p>3 - Conformità con i requisiti del Cliente Compliance with Customer's requirements</p>		
<p><input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input checked="" type="checkbox"/> 4 <input type="checkbox"/> 5</p>		
<p>4 - Conformità con il cronogramma di progetto Compliance with the work schedule</p>		
<p><input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5</p>		
<p>5 - Abilità tecnica nell'esecuzione dei servizi richiesti Technical ability in the execution of services</p>		
<p><input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input checked="" type="checkbox"/> 4 <input type="checkbox"/> 5</p>		
<p>6 - Abilità tecnica nella risoluzione di eventi imprevisti e di cambiamenti nello scopo del lavoro Technical ability to respond to unforeseen events and changes in the scope of work</p>		
<p><input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input checked="" type="checkbox"/> 4 <input type="checkbox"/> 5</p>		
<p>10 - "Status" / condizione dell'attrezzatura e dei materiali usati per l'esecuzione dei servizi Status / condition of equipment and materials used for the service execution</p>		
<p><input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input checked="" type="checkbox"/> 4 <input type="checkbox"/> 5</p>		
<p>Commenti / Comments:</p>		

	<p align="center">PJM_FO_03</p>	<p align="right">Rev 0 Date 09.09.19</p>
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<p>L'esecuzione dei servizi richiesti ha soddisfatto le aspettative del Cliente (prego inserire il nome del Cliente) KKJV così come le aspettative del Cliente Finale (prego inserire il nome del Cliente Finale)</p>		
<p>The service execution satisfied the Customer XXXX 's expectations, as well as the final Clients expectations (KKJV)</p>		
<p>LOGO CLIENTE CUSTOMER'S LOGO</p> 	<p>Data / Date: 09/11/22</p>	<p>Firma / Signature: Huseyin Yasar </p>
<p>SEA Srl</p> 	<p>Date sent: 07/11/2022</p>	<p>Date received: 9/11/2022</p>
<p align="right"> SEA srl Via Mantani, 44/46 48122 RAVENNA P. IVA 01206570390 </p>		