JOINT PROJECT TEAM

A&E STRUCTURES DEVELOPMENT PROJECT
LIBYAN OFFSHORE - NC41 BLOCK

Invitation for Pre-qualification

H_2S MONITORING SERVICES

C				
B				
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REVISIONS		**PREPARED**	**CHECKED**	**APPROVED**

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I. SCOPE

Tender Pre-Qualification is open for local and international Vendors specialized in provision of *H_2S Monitoring Services*. Therefore, Vendors are invited to express their interest by submitting their documents and providing the requested information as per the following requirements.

II. DEFINITIONS

The following definitions shall apply.

COMPANY:	Mellitah Oil & Gas B.V.
VENDOR:	Any organization providing an offer according to this document.
REQUIRED:	It is used to indicate mandatory equipment that shall be available on firm basis.
ON CALL:	It is used to indicate mandatory equipment that shall be available on call-off basis.
OPTIONAL:	It is used to indicate not mandatory equipment that shall be proposed and the COMPANY will have the option to require.

III. GENERAL INFORMATION / SCOPE OF WORK

COMPANY has planned to drill wells and acquire subsurface data for the optimization of an extensive development campaign within its concessions in Area "D" - Block NC41, Libya Offshore.
The campaign foresees the development of two structures, already discovered and appraised.

All technical data about wells engineering, including pressure and temperature gradient profiles, casing profiles, well trajectories and completion design, are available in the document *A&E Structures - Well Operations Scenario for Tender Evaluation*, attached to this document.

IV. EQUIPMENT DESCRIPTION

(+) To be specified by the VENDOR.

IV.1. STATIONARY MONITORING SYSTEM

ITEM	EQUIPMENT	COMPANY'S REQUIREMENTS	BIDDER'S OFFER
1	**H_2S/SO_2 MAIN MONITORING PANEL**	Required	
	Brand		(+)
	Model		(+)
	Type [Wired / Wireless]		(+)
	R.F.I. protection	Required	(+)
	Min. number of H_2S/SO_2 channels	16	(+)
	H_2S Alarm setting levels	n. 2 levels adjustable	(+)

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ITEM	EQUIPMENT	COMPANY'S REQUIREMENTS	BIDDER'S OFFER
	SO_2 Alarm setting levels	n. 2 levels adjustable	(+)
	Sensor fail alarms	Required	(+)
	Reading displays	ppm	(+)
	Alarms manual activation feature	Required	(+)
	Alarms manual exclusion feature	Required	(+)
	Hazardous Area Classification	Not Required	(+)
	Certification type		(+)
	Monitor panel installation site	H_2S Safety Supervisor Office	(+)
	Working Temperature Range [°C]		(+)
2	**H_2S SENSORS**	Required	
	Brand		(+)
	Model		(+)
	Sensor Type	H_2S - specific electrochemical	(+)
	Type [Wired / Wireless]		(+)
	Battery life (in case of Wireless system)		(+)
	Hazardous Area Classification	Zone I	(+)
	Certification		(+)
	Working Temperature Range [°C]		(+)
	Measuring range	0 ÷ 50 ppm	(+)
	Accuracy	± 1% full scale	(+)
	Sensitivity	1 ppm	(+)
	Response time	Less than 40 sec. for the T90 (90% of maximum value)	(+)
	Water & Dust Protection	IP65	(+)
3	**ALARM DEVICES**	Required	
	Brand		(+)
	Model		(+)
	Type [Wired / Wireless]		(+)
	Battery life (in case of Wireless system)		(+)
	Hazardous Area Classification	Zone I	(+)
	Certification		(+)
	Working Temperature Range [°C]		(+)

IV.2. PORTABLE DETECTOR TOOLS

ITEM	EQUIPMENT		COMPANY'S REQUIREMENTS	BIDDER'S OFFER
1	**PERSONAL ELECTRONIC. H_2S GAS DETECTORS**			
1.1	**STANDARD TYPE**		Required	
	Brand			(+)
	Model			(+)
	Measuring range H2S		0 ÷ 100 ppm [Sens. 1 ppm]	(+)
	Alarm setting levels		2 levels adjustable	(+)
	Alarm types		Audio, Visual & Vibration	(+)
	Hazardous Area Classification		Zone I	(+)
	Certification			(+)
	Water & Dust Protection		IP65	(+)
	Working Temperature Range [°C]			(+)
	Memory Data Logging	Required (Y/N)		(+)
		Min. Capacity		(+)
	Calibration Kit		Required	(+)

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ITEM	EQUIPMENT		COMPANY'S REQUIREMENTS	BIDDER'S OFFER
	Battery life			(+)
	Accessories		Bidder shall list the needed accessories	(+)
1.2	**WIRELESS TYPE**		On Call	
	Brand			(+)
	Model			(+)
	Measuring range		0 ÷ 100 ppm [Sens. 1 ppm]	(+)
	Alarm setting levels		2 levels adjustable	(+)
	Alarm types		Audio, Visual, Vibration, Man Down	(+)
	Hazardous Area Classification		Zone I	(+)
	Certification			(+)
	Water & Dust Protection		IP65	(+)
	Working Temperature Range [°C]			(+)
	Memory Data Logging	Required (Y/N)		(+)
		Min. Capacity		(+)
	Calibration Kit		Required	(+)
	Battery life			(+)
	Accessories		Bidder shall list the needed accessories	(+)

IV.3. FIXED CASCADE AIR BREATHING SYSTEM

ITEM	EQUIPMENT		COMPANY'S REQUIREMENTS	BIDDER'S OFFER
1	**FIXED CASCADE AIR BREATHING SYSTEM**		Required	
	The fixed cascade air breathing system comply with code:			(+)
	Certified by			(+)
2	**BREATHING AIR COMPRESSORS**			
	Brand			(+)
	Model			(+)
	Type		Mobile and approved for air breathing	(+)
	Quantity		1	(+)
	Flow rate capacity		min. 400 litres/min or as per SITE EMERGENCY RESPONSE PLAN	(+)
	Charging pressure [MPa / psi]			(+)
	Filtration and purifier device	Type / Class		(+)
		Capacity [m^3 at 20 °C]		(+)
	Condensation drain (Automatic / Manual)			(+)
	Certification		EN 12021	(+)
	Hazardous Area Classification			(+)
	Other(s) Certification			(+)
	Alarm device for Oil contents		Required	(+)
	Alarm device for CO contents		Required	(+)
	Alarm device for H_2S contents		Required	(+)
	Alarm device for methane contents		Required	(+)
	Alarm device for other contents			(+)
	Air compressor driving system		Electrical on main air compressor or as per SITE EMERGENCY RESPONSE	(+)

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ITEM	EQUIPMENT		COMPANY'S REQUIREMENTS	BIDDER'S OFFER
			PLAN	
	Motor power [kW]			(+)
	Hazardous Area Classification			(+)
	Working Temperature Range [°C]			(+)
	Provision to refill spare bottles of air breathing apparatus.		Required	(+)
3	**AIR BREATHING MANIFOLDS**			
3.1	**AIR BREATHING MANIFOLD TYPE A**		Required	
	Brand			(+)
	Model			(+)
	Quick Union Outlets Type			(+)
	Rated Working Pressure [MPa / psi]			(+)
	Working Temperature Range [°C]			(+)
	Rated Working Pressure			(+)
	Air flow delivery	Single	Each single outlet must be able to provide at least 300 litres/min or as per SITE EMERGENCY RESPONSE PLAN	(+)
		Total	At least 1200 litres/min (considering that 3 outlets provide 300 litres/min each and 2 outlets provide 150 litres/min each) or as per SITE EMERGENCY RESPONSE PLAN	(+)
	Pressure gauge		Required (1 for each manifold)	(+)
	Relief Valve		Required (1 for each manifold)	(+)
	Air pressure drop warning device		Required (1 for each manifold)	(+)
	Certification			(+)
3.2	**AIR BREATHING MANIFOLD TYPE B**		Required	
	Brand			(+)
	Model			(+)
	Quick Union Outlets Type			(+)
	Rated Working Pressure [MPa / psi]			(+)
	Working Temperature Range [°C]			(+)
	Air flow delivery	Single	Each single outlet must be able to provide at least 300 litres/minor as per SITE EMERGENCY RESPONSE PLAN	(+)
		Total	At least 750 litres/min (considering that 2 outlets provide 300 litres/min each and 1 outlet provide 150 litres/min) or as per SITE EMERGENCY RESPONSE PLAN	(+)
	Pressure gauge		Required (1 for each manifold)	(+)
	Relief Valve		Required (1 for each manifold)	(+)
	Air pressure drop warning device		Required (1 for each manifold)	(+)
	Certification			(+)

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IV.4. PORTABLE AIR BREATHING APPARATUS

ITEM	EQUIPMENT		COMPANY'S REQUIREMENTS	BIDDER'S OFFER
1	**SCBA TYPE A** (Self Contained Breathing Apparatus)		Required	
	Brand			(+)
	Model			(+)
	Type		Open circuit automatic positive pressure demand units with full face mask	(+)
	Carrying System		Backpack type	(+)
	Certification			(+)
	Autonomy		30 minutes (1200 litres air capacity)	(+)
	Cylinder Water Capacity [litres]			(+)
	Rated Working Pressure [MPa / psi]			(+)
	Working Temperature Range [°C]			(+)
	Quick Union for the connection at Cascade Air Breathing System		Required	(+)
	Pressure Reducer Safety Valve		Required	(+)
	Pressure Gauge		Required	(+)
	Low Pressure Alarm	Set at [MPa / psi]	Required	(+)
		Sound [decibel]		(+)
	Voice amplifier diaphragm		Required	(+)
	Compatibility with "Two Ways Portable Radio Communication System"		Required	(+)
	Weight [kg]			(+)
	Dimensions	Length[mm]		(+)
		Width [mm]		(+)
		Height [mm]		(+)
	Stowing Case Type		Required. Waterproof, shock resistant and resistant to Chemical attack.	(+)
2	**SCBA TYPE B** (Working/Escape)		Required	
	Brand			(+)
	Model			(+)
	Type		Open circuit automatic positive pressure demand units with full face mask	(+)
	Carrying System	Backpack Type	Backpack Type	
		Hip Mounted (Colt) type		
	Certification			(+)
	Autonomy		10 minutes (400 litres air capacity)	(+)
	Certification			(+)
	Cylinder Water Capacity [litres]			(+)
	Rated Working Pressure [MPa / psi]			(+)
	Working Temperature Range [°C]			(+)
	Quick Union for the connection at Cascade Air Breathing System		Required	(+)
	Pressure Reducer Safety Valve		Required	(+)
	Pressure Gauge		Required	(+)
	Low Pressure Alarm	Set at [MPa / psi]	Required	
		Sound [decibel]		
	Voice amplifier diaphragm		Required	(+)
	Compatibility with "Two Ways Portable		Required	(+)

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ITEM	EQUIPMENT		COMPANY'S REQUIREMENTS	BIDDER'S OFFER
	Radio Communication System"			
	Weight [kg]			(+)
	Dimensions	Length[mm]		
		Width [mm]		
		Height [mm]		
	Stowing Case Type		Required Waterproof, shock resistant and resistant to Chemical attack.	(+)
3	**EEBA** (Emergency Escape Breathing Apparatus)		Required	
	Brand			(+)
	Model			(+)
	Type		Constant flow with flame retardant defogging type hood	(+)
	Carrying System			(+)
	Certification			(+)
	Autonomy		10 minutes (400 litres air capacity)	(+)
	Cylinder Water Capacity [litres]			(+)
	Rated Working Pressure [MPa / psi]			(+)
	Working Temperature Range [°C]			(+)
	Valve		Required	(+)
	Pressure Gauge		Required	(+)
	Weight [kg]			(+)
	Length [mm]			(+)
	Width [mm]			(+)
	Height [mm]			(+)
	Stowing Case Type		Required Waterproof, shock resistant and resistant to Chemical attack.	(+)
	Carry Bag Type or Jerkin		High Visibility	(+)
	Antistatic Bag		Required	(+)

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