

Certificate of Calibration

Al Takamul Yard, North Rumailah South Iraq

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Date of Issue:

May 6, 2024

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REF NUMBER	: By Contract	APPROVED BY CALIBRATION LABORATORY CHARGE QC
Job No #	: QC/JN/23/00201	
CERTIFICATE NUMBER	: QC240506-01	

CUSTOMER DETAILS

Name : **Halliburton Worldwide IRAQ (Sperry)**
 Address : Basra - Iraq (ZPEC Rig-23)

EQUIPMENT IDENTIFICATION AND SPECIFICATIONS

Description : **10 Fixed Gas Sensors**
 Type : Digital
 Calibrated Range : 40 PPM H2S 50% LEL
 Calibrated By : Asjad Rafiq
 Calibration Date : May 6, 2024
 Calibration Due : **August 5, 2024**
 Location : ZPEC23



Serial Number	Sensor Type	Location	Manufacturer	Model
A20-401750165-10-003	LEL	Cellar	MSA	Ultima XE
A23-402505485-10-004	LEL	Shale Shaker	MSA	Ultima XE
B15-401094266-10-006	LEL	Rig Floor	MSA	Ultima XE
C19-401578793-10-004	LEL	Bell Nipple	MSA	Ultima XE
G21-402209276-10-003	H2S	Cellar	MSA	Ultima XE
B22-402321480-10-009	H2S	Shale Shaker	MSA	Ultima XE
B22-402321480-10-001	H2S	Rig Floor	MSA	Ultima XE
K21-402321477-10-007	H2S	Bell Nipple	MSA	Ultima XE
A15-40013193-10-001	LEL	Spare	MSA	Ultima XE
F14-4698784-10-004	H2S	Spare	MSA	Ultima XE

ENVIRONMENTAL CONDITIONS DURING TEST

Ambient Temperature : 34 °C ± 2 °C
 Relative Humidity : 30 %RH ± 5 %RH

CALIBRATION METHOD

Reference cylinders consisting of gases LEL & H2S is used , which are detected by gas detector by diffusion.

TRACEABILITY

The measurements made by Quality Control, realize the physical units of measurements (SI), through its state of the art calibration standards that are controlled and maintained by QC.

REFERENCE EQUIPMENT USED :

DESCRIPTION	SERIAL NO.	Make	Valid Until
Calibration Gas Cylinder (40PPM H2S)	555895	Gulf Cryo	25-Dec-2024
Calibration Gas Cylinder (50% LEL)	140135	Bristol	18-Oct-2024

CALIBRATION TEST RESULTS

Applied Gas	Values of UUC	Values on Reference Standard	Error in Reading of UUC	Uncertainty of Measurement
Methane(LEL)% (Cellar)	50.0	50	0.0	± 1
Methane(LEL)% (Rig Floor)	50.0	50	0.0	± 1
Methane(LEL)% (Shale Shaker)	51.0	50	1.0	± 1
Methane(LEL)% (Bell Nipple)	49.0	50	-1.0	± 1
H2S PPM (Cellar)	39.0	40	-1.0	± 1
H2S PPM (Rig Floor)	40.0	40	0.0	± 1
H2S PPM (Shale Shaker)	40.0	40	0.0	± 1
H2S PPM (Bell Nipple)	40.2	40	0.2	± 1
Methane(LEL)% (Spare)	39.8	40	-0.2	± 1
H2S PPM (Spare)	40.1	40	0.1	± 1