

**AI TAKAMUL COMPANY FOR ENGINEERING TESTS
AND PROFESSIONAL SAFETY LIMITED**

Basra, North Rumaila, Quality Control Yard - Iraq

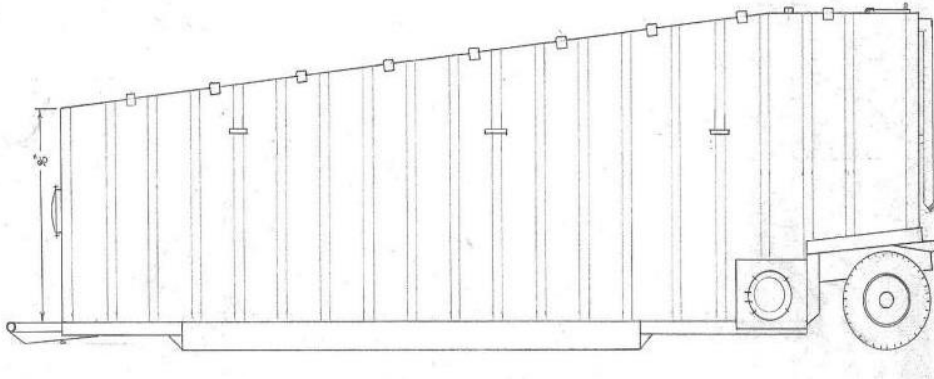


CERTIFICATE OF QUALIFICATION VISUAL AND WITNESS PRESSURE TEST

THIS REPORT COMPLIES WITH RECOGNIZED INTERNATIONAL STANDARDS & TECHNICAL REQUIREMENTS

CLIENT:	HALLIBURTON	REPORT No.:	QC-24-08-TSS-NDT-001
LOCATION:	TSS WORKSHOP & INSPECTION TEST AREA	JOB NO :	190824
WORK ORDER #	****	SPECIFICATION:	ASME B31.1 / CUSTOMER SPECIFICATION
DATE OF INSPECTION :	Wednesday, August 21, 2024	INSP. DUE DATE:	Thursday, February 20, 2025
TYPE OF INSPECTION:	VISUAL INSPECTION AND WITNESS PRESSURE TEST		

DESCRIPTION:	FRAC TANK 500 BBL	SAP NO:	11315231
BODY PRESSURE TEST	50 Psi	HOLDING TIME:	15 MINUTES
INLET PRESSURE TEST	50 Psi	HOLDING TIME:	15 MINUTES
Pump NO.::	EQ.NO:13119220	CAL DUE DATE:	19.AUG.2025
Pressure Gauge NO.:	468066	CAL DUE DATE:	19.JUL.2025



ONLINE TRACEABILITY

PRESSURE TEST WITNESS RESULT

BODY PRESSURE TEST 1:	The Above Item was Pressure Tested Up to 50 PSI Maximum Working pressure, Hold For 15 Minutes no Leak was Found while testing & Pressure Was Stable According To Chart Recorder
INLET PRESSURE TEST 2:	The Above Item was Pressure Tested Up to 50 PSI Maximum Working pressure, Hold For 15 Minutes no Leak was Found while testing & Pressure Was Stable According To Chart Recorder

PERSON DETAILS		REVIEW BY		
INSPECTOR NAME:	Usman Shabbir	SENIOR INSPECTOR:	NAVEED HUSSAIN	CLIENT:
QUALIFICATION:	ASNT, CVT, VI, V1	INSPECTION SUPERVISOR:	HANI ALI	HB&SIGN
SIGNATURE & STAMP:				DATE:

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AI TAKAMUL COMPANY FOR ENGINEERING TESTS AND PROFESSIONAL SAFETY LIMITED

Basra, North Rumaila, Quality Control Yard - Iraq



CERTIFICATE OF QUALIFICATION VISUAL AND MAGNETIC PARTICLE INSPECTION AND ULTRASONIC THICKNESS GAUGING INSPECTION

THIS REPORT COMPLIES WITH RECOGNIZED INTERNATIONAL STANDARDS & TECHNICAL REQUIREMENTS

CLIENT:	HALLIBURTON	REPORT No.:	QC-24-08-TSS-NDT-002
LOCATION:	TSS WORKSHOP & INSPECTION TEST AREA	JOB NO :	190824
WORK ORDER #		SPECIFICATION:	ASTM E709 & ASTM E 797
INSPECTION DATE:	Tuesday, August 20, 2024	NEXT INSPECTION DATE:	Wednesday, February 19, 2025
TYPE OF INSPECTION:	VISUAL AND MAGNETIC PARTICLE INSPECTION AND ULTRASONIC THICKNESS GAUGING		
DESCRIPTION:	FRAC TANK 500 BBL	SAP NO.:	11315231

INSPECTION DETAILS

RIGHT SIDE FRAC TANK

LEFT SIDE FRAC TANK

BACK SIDE FRAC TANK

FRONT SIDE FRAC TANK

ONLINE TRACEABILITY

* ALL READINGS IN MM
**MINIMUM THICKNESS PROVIDED BY CUSTOMER

ANGLE	THICKNESS AT POSITION						MINIMUM THICKNESS	FINAL REMARKS
	A	B	C	D	E	F		
RIGHT SIDE TOP 1	7.24	7.27	7.24	7.15	7.15	7.33	4.67 MM	SATISFACTORY
RIGHT SIDE MIDDLE 2	7.15	7.07	7.12	7.18	7.22	7.07		
RIGHT SIDE BOTTOM 3	7.37	7.41	7.15	7.18	7.10	7.19		
	G	H	I	J	K	L		
LEFT SIDE TOP 1	7.18	7.10	7.15	7.21	6.89	6.81		
LEFT SIDE MIDDLE 2	7.27	7.29	7.29	7.32	7.24	7.28		
LEFT SIDE BOTTOM 3	7.13	7.15	6.78	6.90	6.78	6.82		
	M	N			O			
BACK SIDE TOP 1	8.30	8.08			8.12			
BACK SIDE MIDDLE 2	8.53	8.62			8.49			
BACK SIDE BOTTOM 3	8.62	8.41			8.00			
	P	Q			R			
FRONT SIDE TOP 1	8.26	8.13			8.17			
FRONT SIDE MIDDLE 2	8.35	8.41			8.54			
FRONT SIDE BOTTOM 3	8.47	8.23			8.05			

INSPECTION RESULT

VT & MPI	Accepted	* ACCORDING TO ASTM E709
UT	Accepted	ACCORDING TO ASTM E 797

Inspection Evaluation

(MPI) The Above Item Has No Significant Discontinuous At The Time Of Inspection And Found Acceptable According To ASTM E709

U.T-The Above Item Was Found Acceptable As Per ASTM E 797

INSPECTION EQUIPMENT DETAILS

TECHNICAL DETAILS

AC YOKE S.N:	CAL DUE DATE	14-Oct-24	White Contrast WCP-2	MANUFACTURE	BATCH NO	EXPIRE DATE
201504048				Magnaflux	220602	JUN.2025
Digital Lux Meter WHITE LIGHT	2722003	16-Oct-24	Black Magnetic Ink 7HF	MANUFACTURE	BATCH NO	EXPIRE DATE
UT THICKNESS GAUGE:	3997	14-Oct-24		Magnaflux	220605	JULY.2025
UT TEST BLOCK:	NoBo5087	15-Oct-24	Fluorescent Magnetic Ink 7HF	1.2 to 2.4 ml/100 ml		
ASTM Test Block:	1657	14-Oct-24				
WHITE LIGHT INTENSITY:	3620 lux					

PERSON DETAILS

INSPECTOR NAME:	Usman Shabbir	SENIOR INSPECTOR:	NAVEED HUSSAIN	CLIENT:	
QUALIFICATION:	ASNT CPVT Level 2	INSPECTION SUPERVISOR:	HANI ALI	HB&SIGN	
SIGNATURE & STAMP:				DATE:	

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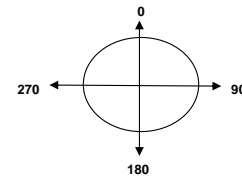
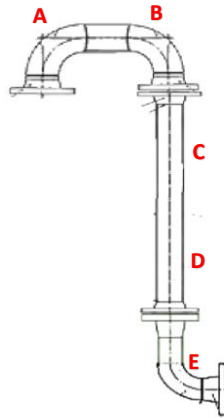


CERTIFICATE OF QUALIFICATION VISUAL AND MAGNETIC PARTICLE INSPECTION AND ULTRASONIC THICKNESS GAUGING INSPECTION

THIS REPORT COMPLIES WITH RECOGNIZED INTERNATIONAL STANDARDS & TECHNICAL REQUIREMENTS

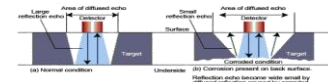
CLIENT:	HALLIBURTON	REPORT No.:	QC-24-08-TSS-NDT-003
LOCATION:	TSS WORKSHOP & INSPECTION TEST AREA	JOB NO :	190824
WORK ORDER #		SPECIFICATION:	ASTM E709 & ASTM E 797
INSPECTION DATE:	Tuesday, August 20, 2024	NEXT INSPECTION DATE:	Wednesday, February 19, 2025
TYPE OF INSPECTION:	VISUAL AND MAGNETIC PARTICLE INSPECTION AND ULTRASONIC THICKNESS GAUGING		
DESCRIPTION:	FRAC TANK RELIEF LINE	FRAC TANK SAP NO.:	11315231

INSPECTION DETAILS



ONLINE TRACEABILITY

* ALL READINGS IN MM
**MINIMUM THICKNESS PROVIDED BY CUSTMER



ANGLE	THICKNESS AT POSITION				MINIMUM THICKNESS	FINAL REMARKS
	0°	90°	180°	270°		
A	6.47	6.56	6.49	6.40	4.67 MM	SATISFACTORY
B	6.51	6.43	6.48	6.54		
C	6.60	6.62	6.44	6.47		
D	6.53	6.45	6.50	6.56		
E	6.57	6.59	6.50	6.53		

INSPECTION RESULT

VT & MPI	Accepted	* ACCORDING TO ASTM E709
UT	Accepted	ACCORDING TO ASTM E 797

Inspection Evaluation

(MPI) The Above Item Has No Significant Discontinuous At The Time Of Inspection And Found Acceptable According To ASTM E709

U.T-The Above Item Was Found Acceptable As Per ASTM E 797

INSPECTION EQUIPMENT DETAILS

TECHNICAL DETAILS

INSPECTION EQUIPMENT DETAILS				TECHNICAL DETAILS			
AC YOKE S.N:	201504048	CAL DUE DATE	14-Oct-24	White Contrast WCP-2	MANUFACTURE	BATCH NO	EXPIRE DATE
Digital Lux Meter WHITE LIGHT	2722003	CAL DUE DATE	16-Oct-24		Magnaflux	220602	JUN,2025
UT THICKNESS GAUGE:	3997	CAL DUE DATE	14-Oct-24	Black Magnetic Ink 7HF	MANUFACTURE	BATCH NO	EXPIRE DATE
UT TEST BLOCK:	NoBo5087	CAL DUE DATE	15-Oct-24		Magnaflux	220605	JULY,2025
ASTM Test Block:	1657	CAL DUE DATE	14-Oct-24	Fluorescent Magnetic Ink 7HF	1.2 to 2.4 ml/100 ml		
WHITE LIGHT INTENSITY:	3620 lux						

PERSON DETAILS

INSPECTOR NAME:	Usman Shabbir	SENIOR INSPECTOR:	NAVEED HUSSAIN	CLIENT:	
QUALIFICATION:		INSPECTION SUPERVISOR:	HANI ALI	HB&SIGN	
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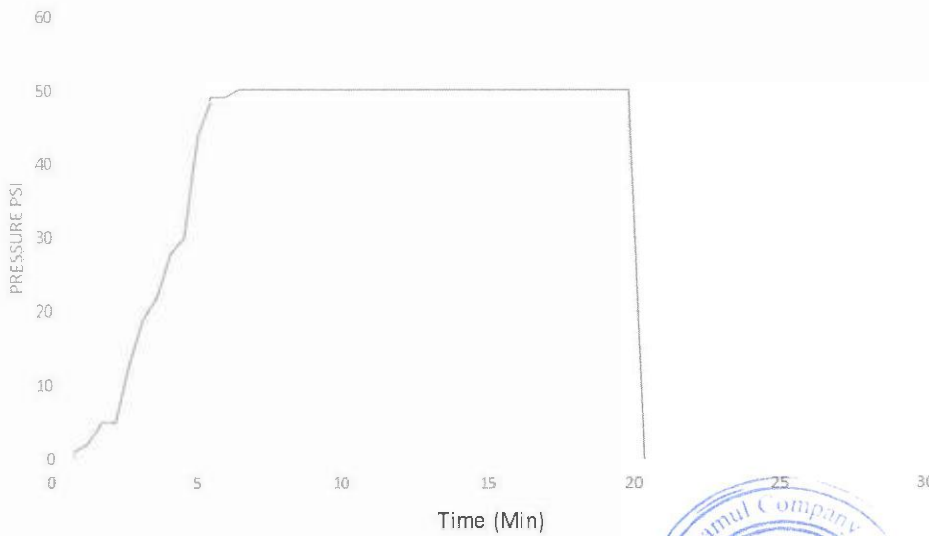


Data Collection Report

Gauge Information	
Serial Number	468066
Model	XP2I
Message Store	TSS test area
Units	PSI
SCALE	15000 PSI

Run Info	
Start Time	9:30 AM
Stop Time	9:50 AM
Test Date	21-Aug-24
EQ NUMBER	11315231
LAST CALIB	20.Jul.2024

READING



TESTED BY: Khaldoon Asad
APPROVED BY: Hassan Kamel
COMMENTS: Body Test

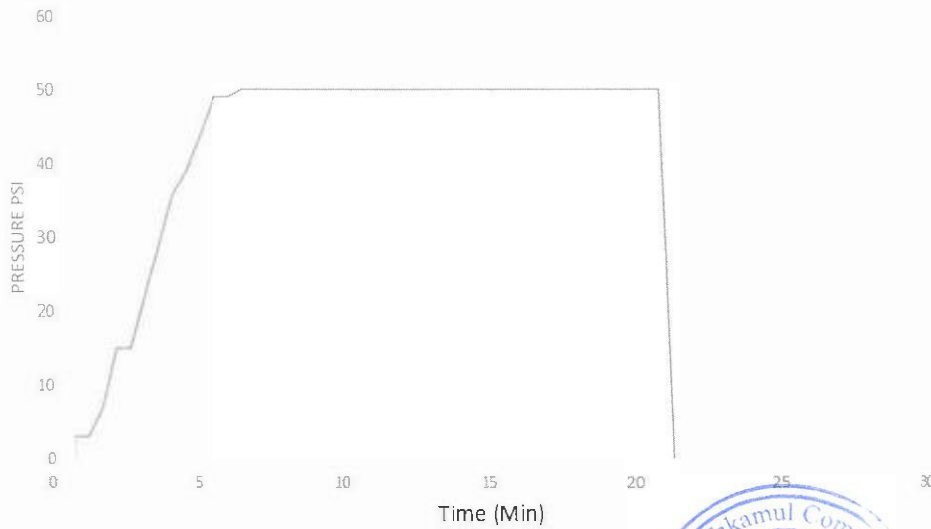


Data Collection Report

Gauge Information	
Serial Number	468066
Model	XP2i
Message Store	TSS test area
Units	PSi
SCALE	15000 PSi

Run Info	
Start Time	10:00 AM
Stop Time	10:21 AM
Test Date	21-Aug-24
EQ NUMBER	11315231
LASTCALIB	20.Jul.2024

READING



TESTED BY: Khaidoon Asad
APPROVED BY: Hassan Kamel
COMMENTS: Inlet Test

