

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 WITNESS PRESSURE TEST

THIS REPORT COMPLIES WITH RECOGNIZED INTERNATIONAL STANDARDS & TECHNICAL REQUIREMENTS

| | | | |
|---------------------|--|-----------------------|--|
| CLIENT: | HALLIBURTON | REPORT NO.: | QC-24-09-TSS-NDT-143 |
| LOCATION: | TSS YARD | STANDARD: | ASTM E709 & ASTM E797 & AP6A, ASME B31.1 |
| WORK ORDER # | ***** | | |
| DATE OF INSPECTION: | Thursday, September 19, 2024 | INSPECTION. DUE DATE: | Tuesday, March 18, 2025 |
| TYPE OF INSPECTION: | VISUAL AND MAGNETIC PARTICLE INSPECTION AND ULTRASONIC THICKNESS GAUGING & WITNESS PRESSURE TEST | | |
| DESCRIPTION: | BALON VALVE 3" 600 CL | SERIAL NO: | 5 KML |
| Pump NO : | 13119220 | CAL DUE DATE: | 19.AUG.2025 |
| Pressure Gauge NO.: | 468080 | CAL DUE DATE: | 19.JUN.2025 |

(a) Normal condition: Large reflector echo, Area of diffused echo, Detector, Surface, Target.

(b) Corrosion present on back surface: Small reflector echo, Area of diffused echo, Detector, Target. Reflection echo become wide small by diffused reflection caused by corroded tubular surface.

ONLINE TRACEABILITY

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

| POINTS | THICKNESS AT POSITION | | MINIMUM THICKNESS PROVIDED BY CUSTOMER |
|--------|-----------------------|-------|--|
| | A | B | |
| 0° | 11.09 | 10.92 | 5.61 MM |
| 90° | 10.87 | 11.20 | |
| 180° | 11.15 | 10.80 | |
| 270° | 11.06 | 11.08 | |

| 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 E797

BODY PRESSURE TEST- The Above Item was Pressure Tested up to 100 Psi A low Pressure Hold for 5 Minutes And Maximum Working pressure 1440 Psi Hold 18 Minutes Leak was Found while testing & Pressure Was Stable According To Chart Recorder

| 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 | Concentration of 7HF: | | 1.2 to2.4 ml/100 ml | |
| WHITE LIGHT INTENSITY: | 3620 lux | | | | | | |

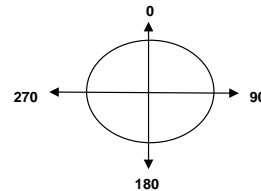
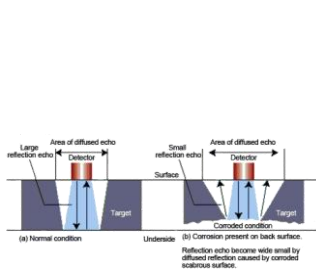
| PERSON DETAILS | | REVIEW BY | | | |
|--------------------|-----------------|------------------------|----------------|---------|--|
| INSPECTOR NAME: | M.Shahzad Ahmed | SENIOR INSPECTOR: | NAVEED HUSSAIN | CLIENT: | |
| QUALIFICATION: | | INSPECTION SUPERVISOR: | HANI ALI | HB&SIGN | |
| SIGNATURE & STAMP: | | | | DATE: | |



CERTIFICATE OF QUALIFICATION VISUAL AND MAGNETIC PARTICLE INSPECTION AND ULTRASONIC THICKNESS GAUGING INSPECTION WITNESS PRESSURE TEST

THIS REPORT COMPLIES WITH RECOGNIZED INTERNATIONAL STANDARDS & TECHNICAL REQUIREMENTS

| | | | |
|---------------------|---|-----------------------|--|
| CLIENT: | HALLIBURTON | REPORT NO.: | QC-24-09-TSS-NDT-144 |
| LOCATION: | TSS YARD | STANDARD: | ASTM E709 & ASTM E797 & AP6A, ASME B31.1 |
| WORK ORDER # | ***** | | |
| DATE OF INSPECTION: | Thursday, September 19, 2024 | INSPECTION. DUE DATE: | Tuesday, March 18, 2025 |
| TYPE OF INSPECTION: | VISUAL AND MAGNETIC PARTICLE INSPECTION AND ULTRASONIC THICKNESS GAUGING & WITNESS PRESSURE TEST | | |
| DESCRIPTION: | FLANGE: 3" 600 CL X 3" 206 WING | SERIAL NO: | TSS-0010 |
| Pump NO : | 13119220 | CAL DUE DATE: | 19.AUG.2025 |
| Pressure Gauge NO.: | 468080 | CAL DUE DATE: | 19.JUN.2025 |



ONLINE TRACEABILITY

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

| POINTS | THICKNESS AT POSITION | | MINIMUM THICKNESS PROVIDED BY CUSTOMER |
|--------|-----------------------|--|--|
| | A | | |
| 0° | 7.41 | | 3.15 MM |
| 90° | 7.53 | | |
| 180° | 7.21 | | |
| 270° | 7.34 | | |

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
 Note:MPI Wet Fluorescent inspection Thread With UltraViolet Light

U.T-The Above Item Was Found Acceptable As Per ASTM E797

BODY PRESSURE TEST- The Above Item was Pressure Tested up to 100 Psi A low Pressure Hold for 5 Minutes And Maximum Working pressure 1440 Psi Hold 18 Minutes Leak was Found while testing & Pressure Was Stable According To Chart Recorder

| 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 14HF | MANUFACTURE | BATCH NO | EXPIRE DATE |
| DC COIL: | 22650 | CAL DUE DATE | 15-Oct-24 | | Magnaflux | 220306 | March,2025 |
| UV BLACK LIGHT: | 1898977 | CAL DUE DATE | 14-Oct-24 | Concentration of 14HF: | | 0.1 to 0.4 ml/100 ml | |
| WHITE LIGHT INTENSITY: | 3620 lux | UV BLACK LIGHT INTENSITY: | 3140 µw/cm² | Concentration of 7HF: | | 1.2 to 2.4 ml/100 ml | |

PERSON DETAILS

REVIEW BY

| | | | | | |
|--------------------|----------------|------------------------|----------------|---------|--|
| INSPECTOR NAME: | M.Shahad Ahmed | SENIOR INSPECTOR: | NAVEED HUSSAIN | CLIENT: | |
| QUALIFICATION: | | INSPECTION SUPERVISOR: | HANI ALI | HB&SIGN | |
| SIGNATURE & STAMP: | | | | DATE: | |

Original - Client Files Copy - Area Office QC/FN/PT/077 Rev.00 DATED 07.NOV.2021



CERTIFICATE OF QUALIFICATION VISUAL AND MAGNETIC PARTICLE INSPECTION AND ULTRASONIC THICKNESS GAUGING INSPECTION WITNESS PRESSURE TEST

THIS REPORT COMPLIES WITH RECOGNIZED INTERNATIONAL STANDARDS & TECHNICAL REQUIREMENTS

| | | | |
|---------------------|--|-----------------------|--|
| CLIENT: | HALLIBURTON | REPORT NO.: | QC-24-09-TSS-NDT-145 |
| LOCATION: | TSS YARD | STANDARD: | ASTM E709 & ASTM E797 & AP6A, ASME B31.1 |
| WORK ORDER # | ***** | | |
| DATE OF INSPECTION: | Thursday, September 19, 2024 | INSPECTION. DUE DATE: | Tuesday, March 18, 2025 |
| TYPE OF INSPECTION: | VISUAL AND MAGNETIC PARTICLE INSPECTION AND ULTRASONIC THICKNESS GAUGING & WITNESS PRESSURE TEST | | |

| | | | |
|---------------------|-----------------------------------|---------------|-------------|
| DESCRIPTION: | FLANGE: 3" 600 CL X 3" 206 THREAD | SERIAL NO: | 28377-3 |
| Pump NO : | 13119220 | CAL DUE DATE: | 19.AUG.2025 |
| Pressure Gauge NO.: | 468080 | CAL DUE DATE: | 19.JUN.2025 |

(a) Normal condition
 (b) Corrosion present on back surface.
 Reflection echo become wide small by diffused reflections caused by corroded concave surface.

ONLINE TRACEABILITY

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

| POINTS | THICKNESS AT POSITION | | MINIMUM THICKNESS PROVIDED BY CUSTOMER |
|--------|-----------------------|--|--|
| | A | | |
| 0° | 7.77 | | 3.15 MM |
| 90° | 7.65 | | |
| 180° | 7.53 | | |
| 270° | 7.68 | | |

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
 Note:MPI Wet Fluorescent inspection Thread With UltraViolet Light
U.T-The Above Item Was Found Acceptable As Per ASTM E797
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| 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 14HF | MANUFACTURE | BATCH NO | EXPIRE DATE |
| DC COIL: | 22650 | CAL DUE DATE | 15-Oct-24 | | Magnaflux | 220306 | March,2025 |
| UV BLACK LIGHT: | 1898977 | CAL DUE DATE | 14-Oct-24 | Concentration of 14HF: | | 0.1 to 0.4 ml/100 ml | |
| WHITE LIGHT INTENSITY: | 3620 lux | UV BLACK LIGHT INTENSITY: | 3140 μw/cm ² | Concentration of 7HF: | | 1.2 to 2.4 ml/100 ml | |

| PERSON DETAILS | | REVIEW BY | | | |
|--------------------|-----------------|------------------------|----------------|---------|--|
| INSPECTOR NAME: | M.Shahzad Ahmed | SENIOR INSPECTOR: | NAVEED HUSSAIN | CLIENT: | |
| QUALIFICATION: | | INSPECTION SUPERVISOR: | HANI ALI | HB&SIGN | |
| SIGNATURE & STAMP: | | | | DATE: | |

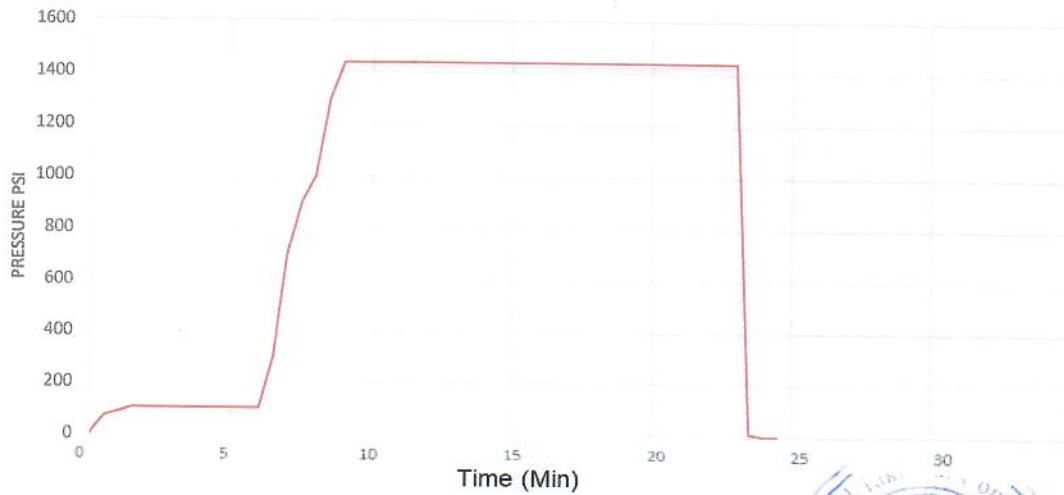


Data Collection Report

| Gauge Information | |
|-------------------|-----------|
| Serial Number | 468080 |
| Model | XP2I |
| Calibration Date | 20-Jun-24 |
| Range | 15000 PSI |

| Run Info | |
|------------|-----------|
| Start Time | 10:30 AM |
| Stop Time | 10:53 AM |
| Test Date | 19-Sep-24 |
| EQ NUMBER | 5KML |

READING



TESTED BY : HAIDER EMAD
APPROVED BY: KHALDOON ASAD
COMMENTS: body test

