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| **PHASED ARRAY ULTRASONIC TESTING REPORT** | | | | | | | | | | | | | | | |
| **JOB DETAILS** | | | | | | | | | | | | | | | |
| Client: | | **NCOC N.V.** | | Project: | **ESKENE WEST Turnaround 2019** | | | | | | Work Location: | | | **GAS 2 Tr-2** | |
| **JOB DESCRIPTION** | | | | | | | | | | | | | | | |
| Brief Description of Job: | | | | **Encoded Thickness MFL verification of bottom plates R7P1 (A1-330-TB-201)** | | | | | | | | | | | |
| Line No.: | | | | **A1-330-TB-201** | | | | Location: | | | **Unit 330** | | | | |
| Material: | | | | **SA 516 Gr.60** | | | | Surface Condition: | | | **UNCOATED** | | | | |
| Nominal thickness | | | | **7.0 mm** | | | | Diameter | | | **-** | | | | |
| Part temperature | | | | **20 °C** | | | |  | | |  | | | | |
| **INSPECTION PROCEDURE** | | | | | | | | | | | | | | | |
| Procedure No: | | | **QP-11-PAUT-CM-Q01 REV 02** | | | In accordance with: | | | **ASME sec V** | | | In accordance with: | | | **Client Specification** |
| **INSPECTION EQUIPMENT** | | | | | | | | | | | | | | | |
| S. No | Equipment/  Material Name | | | Manufacturer | | | Serial No | | | Calibration certificate No | | | Calibration Expiry date | | |
|  | OmniScan MX2 | | | Olympus | | | 103704 | | | BK-01-1672 | | | 12.09.2019 | | |
|  | Step wedge calibration block | | | Olympus | | | 145414 | | | - | | | - | | |

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| **EQIPMENT PARAMETERS** | | | | | | **CALIBRATION BLOCK DETAILS** | |
| Mode | **Tx/Rx** | Filter | **None** | Points quantity | **640** | Cal block | **Step wedge** |
| Frequency | **7.5 MHz** | Rectifier | **FW** | No of elements | **64** | Material | **CS** |
| Energy | **40 V** | Video filter | **On** | Element pitch | **1 mm** | Range | **(6.25-25) mm** |
| Pulse width | **100 ns** | Averaging | **1** | Ref sensitivity | **8 dB** | * Temperature | **15 °C** |
| PRF | **auto** | Focus depth | **Unfocused** | Scan sensitivity | **+5 dB** | Correction | **n/a** |
| Probe | **Olympus Hydroform** | Wedge | **n/a** | Couplant | **Water** | Accuracy | **±0.1 mm** |

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| **SCAN PLAN** | | | | | | | | |
| Test Ref | Scan type | Beam type | Index offset | Start element | Active elements | First Element | Last Element | Element Step |
|  | Linear | Compression | 30.5 | 1 | 64 | 1 | 64 | 1 |

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| **CALIBRATION DETAILS** |
| Calibration on (6,25-12,5-18,75-25) mm step wedge block:    18,78 mm  25.05 mm  6,29 mm  12,55 mm |

**R7P1**

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| **DETAILS AND RESULTS** |
| Phased Array inspection was carried out on bottom plates **R7P1** of tank **A1-330-TB-201.**The, scanning areas were mentioned below. All areas were scanned in increments of 50 mm giving an overlap of approx. The datum points are shown in drawings for clarity. These areas were clearly marked with permanent marker to ensure accurate repeatability. The surface condition was good with Minimal loss of Data due to surface roughness. |
| **A1-330-TB-201** |
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| **DETAILS AND RESULTS** | |
| **Plate R7P1 on A1-330-TB-201** | |
| Y  X | Data collected with (800-1200) mm on X-axis, (100-300) mm on Y-axis. |
|  | |
| The minimum thickness of the plate R7P1 on A1-330-TB-201 | |

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| **DETAILS AND RESULTS** |
| ***Y axis***  ***X axis*** |
| Full scan view with the minimum thickness area of the plate R7P1 on A1-330-TB-201 |

**Result**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Line number | Description | Nominal thickness, mm | Location number | Date | Minimum thickness, mm | Maximum thickness, mm | Area of maximum thickness lose | | | | Average thickness, mm |
| Start X | End X | Start Y | End Y |
| **A1-330-TB-201** | Plate | 7.0 | R7P1 | 04 May 2019 | 5.99 | 7.34 | 881 | 920 | 227 | 264 | 6.66 |
| 966 | 1016 | 200 | 226 |

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| Examined by  UT Level III cert. No 282671  Examined by  UT Level III cert. No 300400 | Name: Arul Vignesh  expiry date: 01.05.2021  Name: Kishore kumar  expiry date: 07.07.2023 | Signature: ...................... | Date: 04 May 2019 |
| Approved by  UT Level III cert. No 2B189/16  PA-UT Level II cert. No. 1A 110/16 | Name: Klindukhou Viachaslau  expiry date: 31.05.2021  expiry date: 31.12.2020 | Signature: ........................... | Date: 04 May 2019 |
| Client Representative: |  | Signature: ........................... | Date: ........................... |