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| **PHASED ARRAY ULTRASONIC TESTING REPORT** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **JOB DETAILS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Client: | | | **NCOC N.V.** | | | | Project: | | | | **ESKENE WEST KARABATAN** | | | | | | | | | | Work Location: | | | | **KUT UNIT-520** | | | |
| **JOB DESCRIPTION** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brief Description of Job: | | | | | | | **Encoded thickness measurement survey of 6" Line.** | | | | | | | | | | | | | | | | | | | | | |
| Line No.: | | | | | | | **A1-5200-UW-141-6”-A21-WN** | | | | | | | | | Location: | | | | | **Unit 520** | | | | | | | |
| Material: | | | | | | | **A333 Gr 6 SMLS** | | | | | | | | | Surface Condition: | | | | | **Painted** | | | | | | | |
| Nominal thickness | | | | | | | **7.11 mm** | | | | | | | | | Diameter | | | | | **6” inch** | | | | | | | |
| Part temperature | | | | | | | **0 °C** | | | | | | | | |  | | | | |  | | | | | | | |
| **INSPECTION PROCEDURE** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Procedure No: | | | | | **QP-11-PAUT-CM-Q01 REV 01** | | | | | | | 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 | | | | | | | 103625 | | | | | BK-01-0126 | | | | | 30.01.2019 | | | | |
|  | Step wedge calibration block | | | | | | Olympus | | | | | | | 077314 | | | | | - | | | | | - | | | | |
| **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 | | | | | **+12 dB** | | | Temperature | | | | | **20 °C** | | |
| PRF | | | | **auto** | | | | Focus depth | | **4 mm** | | | Scan sensitivity | | | | | **0 dB** | | | Correction | | | | | **n/a** | | |
| Probe | | | | **Olympus Hydroform** | | | | Wedge | | **n/a** | | | Couplant | | | | | **water** | | | Accuracy | | | | | **±0.2 mm** | | |
| **SCAN PLAN** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Test Ref | | Scan type | | | | Beam type | | | Index offset | | | | | | Start element | | Active elements | | | Minimum angle | | | Maximum  angle | | | | | Angle Step |
|  | | Linear | | | | Compression | | | - | | | | | | 1 | | 64 | | | 0 | | | 0 | | | | | 1 |

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| **CALIBRATION DETAILS** |
| Calibration on (6.25-12.5-18.75-25) mm step wedge block:    18,83 mm  25,01 mm  6,37 mm  12,64 mm |

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| **DETAILS AND RESULTS** |
| Phased Array inspection was carried out on 6 inchLine **A1-5200-UW-141-6”-A21-WN**. All areas were scanned in increments of 50 mm giving an overlap of approx. 11 mm and varied in length and shape to maximise the area covered around the restrictions. The datum points are shown in schemes 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 paint peel off on the surface. |
| **A1-5200-UW-141-6”-A21-WN**      Arear of inspected |

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| **DETAILS AND RESULTS** | |
|  | Data collected on (0-530) mm on X-axis (around the pipe), (0-850 mm) mm on Y-axis. Datum 0 in scan axis started at side dead centre and scanned in clockwise direction with respect to flow. Nominal thickness of the pipe is 7.11mm. |
| **A1-5200-UW-141-6”-A21-WN (Location 1) ( 0-850 )**  C:\Users\NK11016187\Desktop\0-850 full image.JPG  **The minimum thickness of the line** **A1-5200-UW-141-6”-A21-WN (Location 1) ( 0-850 )**  C:\Users\NK11016187\Desktop\0-850 c-image.JPG    **Full scan view with the minimum thickness area of the line A1-5200-UW-141-6”-A21-WN (Location 1) ( 0-850 )**   |  |  | | --- | --- | |  | Data collected on (0-530) mm on X-axis (around the pipe), (850-1800 mm) mm on Y-axis. Datum 0 in scan axis started at side dead centre and scanned in clockwise direction with respect to flow. Nominal thickness of the pipe is 7.11mm. | | **A1-5200-UW-141-6”-A21-WN (Location 1) ( 850-1800 )**  C:\Users\NK11016187\Desktop\850-1700-full image.JPG  **The minimum thickness of the line** **A1-5200-UW-141-6”-A21-WN (Location 1) ( 850-1800 )**  C:\Users\NK11016187\Desktop\850-1700-c-image.JPG    **Full scan view with the minimum thickness area of the line A1-5200-UW-141-6”-A21-WN (Location 1) ( 850-1800 )** | | | |

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| **RESULTS** | | | |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | Inspection Date | Location | Min (mm) | Max (mm) | X (mm) | Y (mm) | Avg (mm) | | **03.12.2018** | **Location-1 ( 0-850)** | **3.34** | **8.17** | **0-350** | **0-850** | **5.75** | | **Location-1 ( 850-1800)** | **2.95** | **8.11** | **0-300** | **850-1700** | **5.53** |   *Notes:*   1. *According to PAUT corrosion mapping including coating.* | | | |
| Examined by UT Level III  cer. No 309566 exp date: 13.06.2022 | Pragada Santhosh Kumar | Signature: ........................... | Date: 03 Dec 2018 |
| 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: 03 Dec 2018 |
| Client Representative: | ………………………….…. | Signature: ........................... | Date: ........................... |