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| **PHASED ARRAY ULTRASONIC TESTING REPORT** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **JOB DETAILS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Client: | | | **NCOC N.V.** | | | | Project: | | | | **ESKENE WEST KARABATAN** | | | | | | | | | | | Work Location: | | | | | **Oil Tr-1** | | | |
| **JOB DESCRIPTION** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brief Description of Job: | | | | | | | **Encoded Thickness Measurement Survey of Nozzle N3 on Vessel A1-210-VA-101.** | | | | | | | | | | | | | | | | | | | | | | | |
| Vessel No.: | | | | | | | **A1-210-VA-101** | | | | | | | | Location: | | | | | | | **Unit 210** | | | | | | | | |
| Material: | | | | | | | **Carbon steel – SA516-Gr70** | | | | | | | | Surface Condition: | | | | | | | **Painted** | | | | | | | | |
| Nominal thickness | | | | | | | **15.09 mm (SCH 80)** | | | | | | | | Diameter | | | | | | | **10 inch** | | | | | | | | |
| Part temperature | | | | | | | **5 °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 | | | | | | 103458 | | | | | | BK-01-1022 | | | | | | | 11.06.2019 | | | | |
|  | Step wedge calibration block | | | | | | Olympus | | | | | | 077314 | | | | | | - | | | | | | | - | | | | |
| **EQIPMENT PARAMETERS** | | | | | | | | | | | | | | | | | | | | | | | | **CALIBRATION BLOCK DETAILS** | | | | | | |
| Mode | | | | **Tx/Rx** | | | | Filter | **4.0-12.0 MHz** | | | | | | | 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 | | | | **(6.25-25.0) mm** | | |
| Pulse width | | | | **100 ns** | | | | Averaging | **1** | | | | | | | Ref sensitivity | | | | **+12 dB** | | | | Calibration Temperature | | | | **5° C** | | |
| PRF | | | | **Auto** | | | | Velocity | **5890 m/s** | | | | | | | Scan sensitivity | | | | **+1 dB** | | | |
| Probe | | | | **7.5L64** | | | | Wedge | **Short gasket plate hydroform** | | | | | | | Couplant | | | | **Water** | | | | Accuracy | | | | **±0.1 mm** | | |
| **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:    25.03 mm  12.6 mm  18.82 mm  6.25 mm |

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| Phased Array inspection was carried out on 10 inch **A1-210-VA-101.** The scanning areas are mentioned below. 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 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. |
| **Drawing A1-210-VA-101.** |
| C:\Users\User\Desktop\101.jpg |

|  |  |
| --- | --- |
| **DETAILS AND RESULTS** | |
| **Nozzle N3 (0-60)** | |
| C:\Users\nk11017099\Desktop\N3.JPG | Data collected with (0-860) mm on X-axis, (0-60) mm on Y-axis. Datum ‘’0” in scan axis started on North to East.  These areas were clearly marked with permanent marker to ensure accurate repeatability |
| D:\NCOC\vessels\Unit 210\N3.JPG | |
| The minimum thickness of the location 1 (0-60) | |
| D:\NCOC\vessels\Unit 210\N3 full.JPG  ***Y axis***  ***X axis*** | |
| Full scan view with the minimum thickness area of the location 1 (0-60) | |

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| S. No | Inspection Date | Nominal  (mm) | Min  (mm) | X  (mm) | Y  (mm) | Average (mm) |
| 1 | 14-03-2019 | 15.09 | 15.23 | (260-325) \* | (0-60) \* | 15.96 |

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| Examined by  PAUT Level II cert. No 1A 164/16  expiry date 28.02.2021 | Name: Dzmitry Kuryanau | Signature: ........................... | Date: 27 March 2019 |
| Approved by  PAUT Level II cert. No 1A 111/16  expiry date 31.12.2020 | Name: Andrei Shakunou | Signature: ........................... | Date: 27 March 2019 |
| Client Representative: |  | Signature: ........................... | Date: ........................... |