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| **JOB DETAILS** | | | | | | | |
| **Client: NCOC  Work Location: Sulphur Plant**  **Item Location: Trench-2** | | | | **Report No: YKR-ON-PAUT-069**  **Form No: YKR-NDT-002-E**  **Work Order No: 27303061**  **Inspection Date: 25.09.2017** | | | |
| **JOB DESCRIPTION** | | | | | | | |
| Brief Description of Job: | | Encoded Thickness Measurement Survey of vessel A1-332-VA-202. (Solvent slops tank) | | | | | |
| Location: | | Sulphur Plant/Trench-2 | | Tag No.: | | A1-332-VA-202 | |
| Material: | | Carbon steel – SA516GR.70N | | Surface Condition: | | Painted | |
| **INSPECTION PROCEDURE** | | | | | | | |
| Procedure No: | QP-11-PAUT-CM-Q01 REV 00 | | In Accordance With: | | ASME SEC V | Acceptance Standard: | Client Specific |

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| **INSPECTION EQUIPMENT** | | | | | | | | | | | | | | | | | | | |
| Material type | | Carbon steel – SA516GR.70N | | | | | | Nominal WT | | | Shell 21.0mm | | | | | | | | |
| Equipment | | Olympus Omni scan MX2 | | | | | | | | | | | | | | | | | |
| Shoe | | N/A | Probe | | Olympus Hydro form | | | Elements | | 64 | | Size | | 64 mm | | | Pitch | | 1 mm |
| Equipment Parameters | | | | | | | | | | | | | | | Calibration block details | | | | |
| Mode | | Tx/Rx | | Filter | | None | | Points quant'y | | | 640 | | | | Cal block | | | Step Wedge | |
| Frequency | | 7.5 MHz | | Rectifier | | FW | | Sum gain | | | Auto | | | | Material | | | CS | |
| Energy | | 80 v | | Video filter | | On | | Ref sensitivity | | | BWE FSH | | | | Range | | | (6.25-25) mm | |
| Pulse width | | 100 ns | | Averaging | | 1 | | Scan sensit'ty | | | 0 dB | | | | temperature | | | Ambient | |
| PRF | | auto | | Focus depth | | 5 mm | |  | | |  | | | | Correction Factors | | | N/A | |
|  | |  | |  | |  | |  | | |  | | | | Accuracy Range | | | ±0.2mm | |
| Test temp | | Ambient | | Couplant | | Water | |  | | |  | | | |  | | |  | |
| Test techniques | | | | | | | | | | | | | | | | | | | |
| Test Ref | Scan type | | Beam type | | | | Index  offset | | Start element | Active elements | | | Angle -  Min | | | Angle -  Max | | Angle - Step | |
| 1 | Linear | | Compression | | | | 0 | | 1 | 64 | | | 0 | | | 0 | | 1 | |

Legend: N/A-Not applicable

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| **DETAILS AND RESULTS** | |
| A Phased Array inspection was carried out on A1-332-VA-202 for the area of 4-6-8 0’çlock positions on SHELL LOCATION-1 by facing to East on shell. All areas were scanned in increments of 50 mm giving an overlap of approx. 11mm and Varied in length and shape to maximise the area covered around the restrictions.  **SHELL-LOCATION-01**  Data collected with (0-3000) mm on X-axis, (0-500) mm on Y-axis. Datum “0” in scan axis started on South.  These areas were clearly marked with permanent marker to ensure accurate repeatability.  **The lowest measurement was 20.79 mm from nominal thickness is 21.0 mm refer screenshot**  **BOOT SHELL**  Data collected with (0-1700) mm on X-axis, (0-150) mm on Y-axis. Datum “0” in scan axis started on South and scanning towards East  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. The spot cross checked with Zero degree inspection and found no anomalies.  **The lowest measurement was 17.14 mm from nominal thickness is 17.0 mm refer screenshot** | |
| Restrictions: | **Geometry and coupling** |

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| **DETAILS AND RESULTS** |
| **INSPECTION LOCATIONS:**  **Insulation support ring**    **EAST**  **WEST**  **L1**  Datum ‘0’ Co-ordinates :  **SHELL-LOCATION-01 :**  X-direction: From insulation support ring to ‘0’ datum - 1200mm  Y-direction: From circumferential weld to ‘0’ datum - 50mm, towards East.  **BOOT SHELL**  X-direction: Datum ‘0’ marked(Center) on south side  Y-direction: From the boot support ring to ‘0’ datum - 50mm towards top. |

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| **CALIBRATION DETAILS** |
| **CALIBRATION DETAILS**   1. Calibration on (6.25-12.5-18.75-25) mm step wedge block:     **25.03mmm**  **18.82mmm**  **12.6mmm**  **6.42mmm** |

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| **RESULTS** |
| **SHELL-LOCATION-01**  Minimum thickness observed at SHELL-LOCATION-01:    As per the above screenshot of A-C-S view, minimum thickness observed is 20.79 mm.  Nominal thickness is 21.0 mm. Maximum thickness observed is 21.17mm.  The average value calculated by adding minimum and maximum values and divided by number of counts.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | S. No | Inspection Date | Min  (mm) | X  (mm) | Y  (mm) | Average (mm) | | 1 | 25.09.2017 | 20.79 | 710-790\* | 420-500\* | 20.98 |   Note : \* Minimum thickness observed at random spots in the mentioned area.  \*Minimum thickness observed at random spots in the mentioned area.    **INSPECTION IMAGE (SHELL-LOCATION-01):**    **0**  **Y**  **x**  **EAST**  **WEST**  **PAUT FULL SCAN VIEW OF SHELL LOCATION-01**    **BOOT SHELL**  Minimum thickness observed at BOOT SHELL:    As per the above screenshot of A-C-S view, minimum thickness observed is 17.14 mm.  Nominal thickness is 17.0 mm. Maximum thickness observed is 18.2mm  The average value calculated by adding minimum and maximum values and divided by number of counts.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | S. No | Inspection Date | Min  (mm) | X  (mm) | Y  (mm) | Average (mm) | | 1 | 25.09.2017 | 17.14 | 239-268\* | 83-102\* | 17.67 |   Note : \* Minimum thickness observed at random spots in the mentioned area.  \*Minimum thickness observed at random spots in the mentioned area.    **INSPECTION IMAGE (BOOT SHELL):**    **EAST**  **WEST**  **Y**  **0**  **x**    **PAUT FULL SCAN VIEW OF BOOT SHELL** |