Non-destructive Testing of Welds in Gas Pipelines Repairs with Phased Array Ultrasonic Technique

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The work deals with non-destructive ultrasonic testing of butt and circumferential fillet welds in the repairing of gas pipelines. The new ultrasonic technique Phased Array was used for testing. The article compared the results of Phased Array ultrasonic inspection to X-ray inspection. Experimental samples were taken from real gas pipelines` repairs. It is a circumferential butt joint connecting 2 gas pipelines and 2 other types of circumferential fillet welds occurring during repairs of gas pipelines with pressure steel and steel patch. Experimental testing was conducted on ultrasonic flaw detector OmniScan MX2 by Olympus. Indications of defects in the weld joints obtained by ultrasonic testing are corresponding with the experimental results of X-ray inspection. Experimental results provided information for proposal of manufacture of artificial defects in these samples.

Keywords: Phased Array, repairs of gas pipelines, ultrasonic weld testing

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