

REVIEWER'S REPORT

Manuscript No.: IJAR-59609

Title: Advanced Non-Destructive Inspection and Integrity Assurance of Offshore and Marine Pipelines for Critical Energy and Water Infrastructure in Saudi Arabia.

Recommendation:

Accept as it is

Accept after minor revision.....

Accept after major revision

Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality	✓			
Techn. Quality		✓		
Clarity		✓		
Significance		✓		

Reviewer Id: JPR-364

Reviewer's Comment for Publication.

The manuscript addresses an important engineering topic by examining advanced non-destructive inspection and integrity assurance methods for offshore and marine pipelines supporting energy and water infrastructure in Saudi Arabia. The review provides a comprehensive discussion of ultrasonic testing, guided waves, magnetic flux leakage, acoustic monitoring, distributed fibre sensing, underwater robotics, and digital-twin technologies. The proposed risk-based framework effectively connects defect detection, measurement uncertainty, fitness-for-service assessment, and maintenance decisions. The emphasis on Saudi-specific environmental conditions, desalination infrastructure, and national inspection capabilities adds practical significance. However, the literature search and selection process should be described in greater detail to improve reproducibility, and the accuracy and consistency of references, DOI information, tables, and figures should be carefully checked. The practical implementation pathway would also benefit from clearer validation criteria and more specific guidance on evaluating inspection performance under actual offshore and marine operating conditions. Minor revisions are recommended to strengthen methodological transparency and presentation. Overall, the manuscript is well organized, technically relevant, and valuable for pipeline integrity management, and it may be considered for publication after minor revision.