



REVIEWER'S REPORT

Manuscript No.: IJAR-55585

Title: **RISK BASED INSPECTION (RBI) OF HYDROGEN EMBRITTLMENT**

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 Name: Mr. Bilal Mir

Reviewer's Comment for Publication.

The manuscript addresses an important and timely topic related to **hydrogen embrittlement and the application of Risk-Based Inspection (RBI)** in oil, gas, and petrochemical industries. The subject is relevant due to the growing use of hydrogen as a clean energy carrier and the associated integrity challenges of industrial equipment. The effort to align the inspection methodology with **API 580 / API 581 standards** is appreciated and adds practical value to the study.

However, the manuscript requires **minor revisions** before acceptance:

1. Language and Grammar:

The paper contains numerous grammatical errors, typographical mistakes, and sentence structure issues that affect readability and clarity. A thorough English language revision is strongly recommended.

2. Technical Clarity:

While the concepts of hydrogen embrittlement, RBI, and damage factors are relevant, some sections lack sufficient explanation and continuity. Clearer definitions, smoother transitions between sections, and better structuring would improve understanding.

3. Methodology Description:

The proposed methodology for calculating the High Temperature Hydrogen Attack (HTHA) damage factor is described qualitatively. Including clearer calculation steps, assumptions, or illustrative tables/figures would strengthen the technical quality.

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4. **Consistency and Formatting:**

Section numbering, references, symbols, and equations should be standardized. Some figures, equations, and references are mentioned but not clearly presented.

5. **Conclusion Enhancement:**

The conclusion appropriately summarizes the work but could be improved by explicitly highlighting the novelty, limitations, and future research directions.

Overall, the manuscript presents **useful and relevant content**, and with **minor revisions focused on language, clarity, and presentation**, it would be suitable for publication.