

INTECSEA ECA Tool

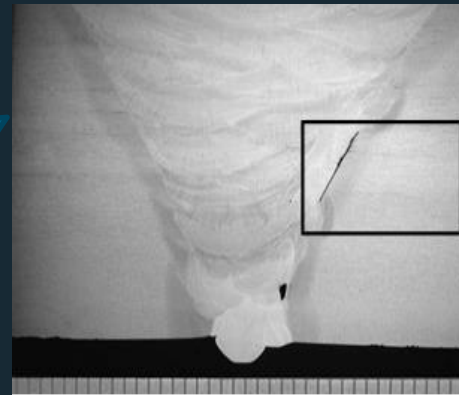
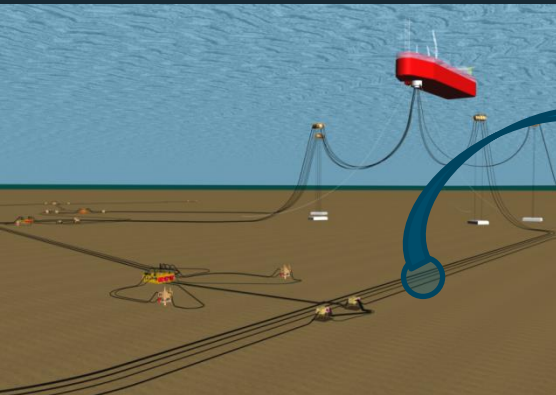
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WorleyParsons Group



ENGINEERING CRITICAL ASSESSMENT (ECA)



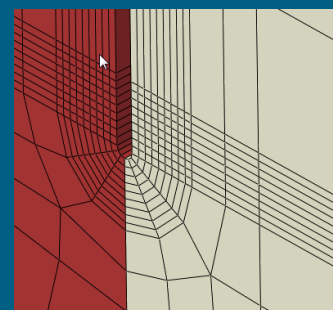
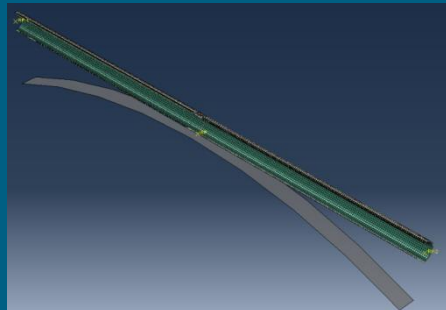
PIPELINES/RISERS are pipes connected by **WELDS**, which always have **DEFECTS**

Check



Defined by

3D Finite Element Fracture Model



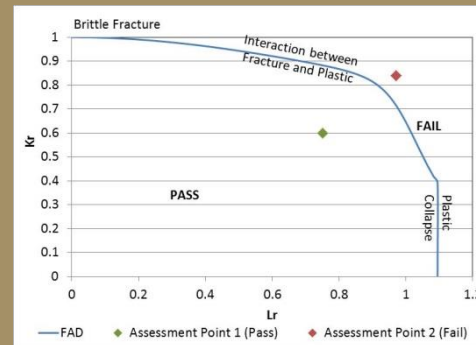
Advantages

- More accurate
- More appropriate for large strain condition
- More appropriate for clad/lined pipe
- Able to model material mismatch and bi-axial loading condition

Drawbacks

- Time for modelling
- Expensive computational cost

Analytical Solutions



Advantages

- Low Computational Cost
- Widely Used in the Industry

Drawbacks

- Less accurate due to simplification
- Not able to model material mismatch and bi-axial loading
- Not appropriate for CRA pipe and large strain condition

Engineering Critical Assessment (ECA)

INTECSEA ECA Tool



Features

- Detailed 3D Modelling using Abaqus
- DNV Verified Models and Methodology with Actual Project Track Record
- Displacement and Force Controlled Models for Reeling, S/J-Lay and Operation ECAs
- Applicable for Onshore and Offshore Pipelines/Risers (C-Mn and CRA Pipes)
- Tearing Solver to Determine the Crack Growth in the Current Strain Cycle and Update the Flaw Size for the Next Strain Cycle Automatically
- Full Automation from Installation to Operation ECAs (including Fatigue Crack Growth Calculations)
- Full Set of Inputs and Outputs for Quality and Transparent Check

Technical Benefits

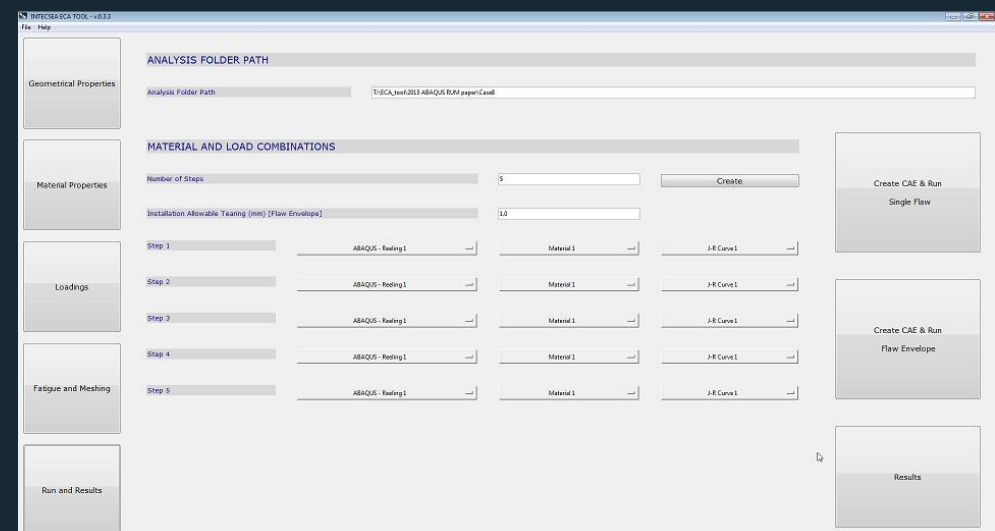
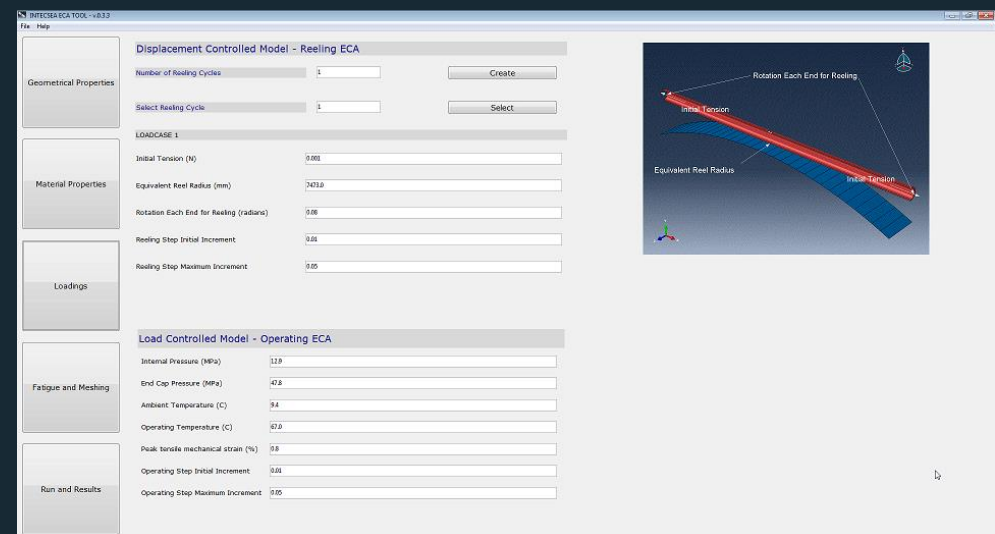
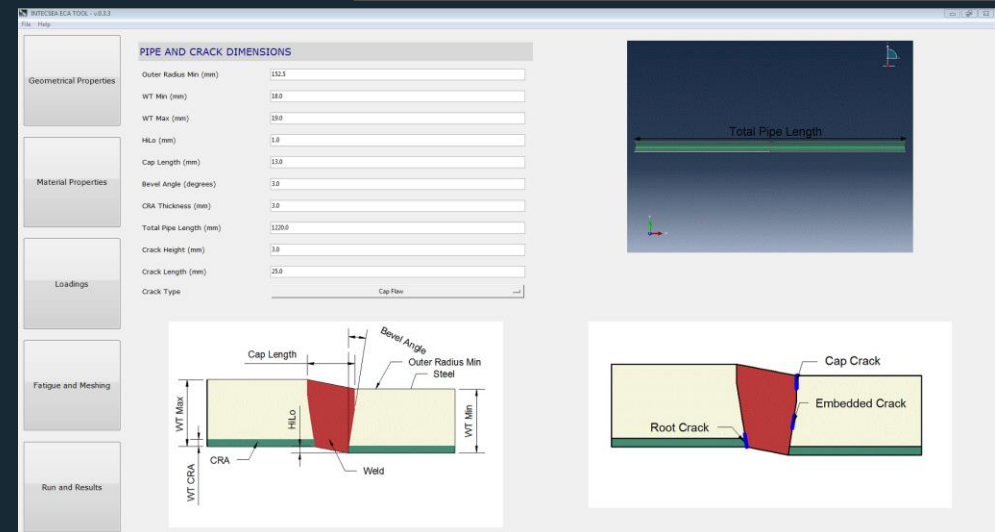
- Significantly Improve Efficiency by Reducing Execution Time by more than 80%
- Better Quality Check
- Enable Sensitivity Studies for More Robust and Optimized Solutions
- Provide Possibilities to Perform Probabilistic ECA at Level 3C

Commercial Benefits

- Be able to Provide a Bespoke Service within a very Tight Schedule/Time Frame
- Lower Cost associated with ECA Scopes of Work
- Level 3C ECA can be Considered and Executed during FEED

Demo Video

- <http://intecsea.com/technology/tools/>



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