



Risk Reduction for Expandable Technology Application by the use of Specialist Software Tools

Technica-NNC Limited have recently developed and launched two software tools that provides considerable understanding of the risks associated with the application of expandable technology. The software provides accurate engineering data to the well engineer designing and implementing the project. Both tools can be used at the high level screening or at the detailed planning stage. The tools are provided on a sale or rental basis. Technica-NNC's experienced well engineers use these tools when supporting clients existing engineering capability.

Technica-NNC's WellConstructor revolutionises the process of designing expandable well applications. WellConstructor enables the design engineer to quickly, systematically and accurately evaluate design solutions, including comprehensive triaxial design, working stress design for burst, collapse and axial installation and service life loads. WellConstructor is an Internet based service that allows well engineers within the Oil and Gas Industry to gain a detailed insight into the post expansion properties of steel tubulars based on specifically defined parameters.

www.technica-nnc.com/wellconstructor

Technica-NNC's WellFocus is risk management software providing guidance for risk identification, assessment and mitigation during well planning and operations.

WellFocus challenges technical limits and manages the mitigation process for project specific risks. It utilises a dynamic database function and incorporates a risk simulation facility for easy interrogation of well engineering operational data. Generic databases can be provided as part of the software package, one of which is for expandable technology applications. WellFocus provides a comprehensive package that facilitates increased integrity and reduces the cost of designing, implementing and operating future wells.



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WellConstructor: Expandable Tubular Solutions

“Allows Well Engineers to gain an insight into the post expansion properties of steel tubulars...”

Expandable tubulars are increasingly being used in the oil and gas industry for drilling, completion and repair of wells. Because of the highly non-linear nature of the problem, it is not easy to establish one set of standard design rules for engineers wishing to use the expandable tubulars. Some of the important parameters which a well engineer must know are the post-expansion properties of the tubular like the collapse strength, change in length, wall thinning etc. Computational techniques like the finite element (FE) method will be used by experts to simulate the expansion process and to predict post-expansion properties.

- www.technica-nnc.com/wellconstructor
- Design Optimization
- Operations Screening Tool
- Fast and Accurate
- Cost Effective

This predictive technique requires specialist software and highly skilled analysts. Technica-NNC has overcome this technical challenge by developing a web based consultancy service 'WellConstructor' that can be used over the Internet by well engineers to specify the input and output parameters for computer simulation of a tube expansion problem.

Wellconstructor is a high level well engineering tool, which is based on Technica NNC's capabilities and expertise in analysing the expandable tubulars. Wellconstructor is designed to: -

- Bring hi-tech computational simulation within easy reach of well engineers
- Increase the exposure and utilization of the expandable technology
- Provide high-level screening and design optimization tool for well engineers
- Improve the understanding of the expansion process and the post-expansion properties
- De-risk any field trials



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“Technical Excellence Supporting the Oil & Gas Industry..”

WellFocus analyses a sequence of activities, each of which contains information on:

- ‘Risk free’ time and cost
- Potential hazards (including time and cost implications)
- Probability of hazard occurrence
- General description of hazards and their consequences

When all possible hazards are assigned and quantified, a simulation can be run on the project, or an individual activity, to illustrate a number of possible outcomes from the input data.

Output includes:

- Project or activity cost and time spread
- A ranked list of the most influential risks
- Risked time versus depth curves
- Risked time versus progress curves
- Statistical data for analysis

All this combines to present a simple program for efficient focussing of engineering effort to reduce risk exposure and expertly manage operations.

Technica-NNC is a subsidiary of NNC Holdings Limited, an international engineering and project management service provider, employing around 1300 people. As an organisation, we are able to provide solutions from a wide range of industrial and commercial backgrounds including defence, nuclear and the upstream and downstream oil and gas sectors. Combining industry expertise, we deliver consistent technological and economic advantage to our clients through a wide range of project environments and application technologies. For further information on WellFocus please contact us on: solutions@technica-nnc.co.uk

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