INCREASING UTILIZATION OF A HIGHLY FLEXIBLE MANUFACTURING SYSTEM WITH LONG CHANGEOVER TIMES

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Keywords: Welltec, Digitalization, Production Planning, Operation Optimization, Automation

ABSTRACT

Welltec delivers intervention and completion solutions as a service to the oil well industry. Their original 'Well Tractor®' (see Figure 1) serves the purpose of tool transportation through oil pipelines. Welltec's production setup must be highly flexible, due to newly revised designs and repairs of their own equipment. Furthermore, the 'Well Tractor®' uses intricate parts with strict tolerances which sets additional requirements to the manufacturing quality. This causes long changeover times for Welltec's CNC machines as various changes like tooling must be done before a new part can be produced. The requirements for high flexibility and long changeover time complicate the production planning. As a result, Welltec experiences low and inadequate utilization of the CNC machines. Therefore, Welltec seeks solutions which can be implemented to increase the utilization of their CNCs. These solutions must be compatible with their current robot setup in facilities around the world.

Figure 1: Welltec's Well Tractor®

The work conducted in this paper expects to propose a detailed solution which Welltec can implement to increase the utilization of their CNC machines. The methods used in this paper may include but is not limited to a discrete event simulation in 3DExperience or EnterpriseDynamics. Tests of the proposed solution will be conducted by setting up prototypes of individual parts, in order to test their functionality and implementation compatibility in smaller steps.

Acknowledgement

The authors of this work gratefully acknowledge Grundfos for sponsoring the 10th MechMan symposium.

REFERENCES

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