Drill String Fatigue Analysis

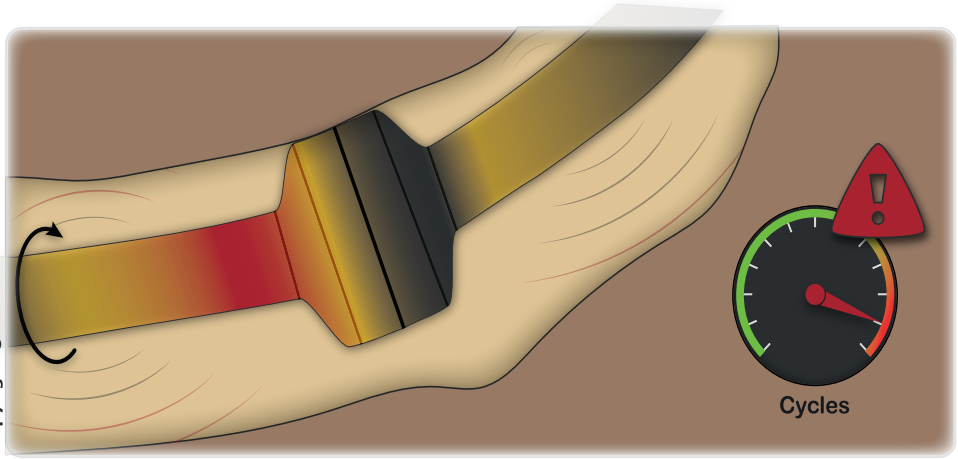
Ref: SI04

Objectives

- Evaluate well plan based on drill string fatigue failure risk, short/medium radius wells
- Monitor drill pipe fatigue damage in real-time and take preventive measures before failure
- Trouble shoot drill string fatigue failure
- Ensure follow up of drill pipe integrity and predict failure

Benefits / Pre-Well Real Time Post-Well

- Increase personnel and operation safety by improving drill pipe integrity
- Reduce NPT due to drill pipe failure (pipe body washout, …)
- Predict lifetime of new pipes in short/medium radius wells during tender evaluations
- Improve drill string life cycle management for short/medium radius wells with real-time support



Risk of drill string failure due to cyclic stresses induced by dynamic loads

Includes

- Stiff-string model with unique contact point management with side force including stress calculation
- Based on bending stress determination and cumulative fatigue accumulation rules (S/N Curves)
- Analyse fatigue along each pipe and/or any other specific point on downhole equipment
- Real-time drill pipe fatigue monitoring during all operations

Deliverables and Timing

- Earliest result delivery within 4 days after reception of full and usable set of data
- Delivery of final PowerPoint® or written report within 2 weeks, intermediate reports on demand
- Result support from our most experienced Drilling Champions, upon request
- Result presentation in client's office (optional)
- Real-time support available onsite or remotely (optional)