BRINGING WELL ABANDONMENT CEMENT PLUG OPERATIONS INTO THE 21ST CENTURY WITH INNOVATIVE DISTRIBUTED FIBER OPTIC SENSING TECHNOLOGY

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SPE WELL ABANDONMENT CONFERENCE
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FLI - TECHNOLOGY ANIMATION

FLI - LOW FOOTPRINT WELL INTERVENTION
CAN FLI MONITOR A CURING CEMENT PLUG?

MSc study undertaken to establish:

• Can the fiber optic survive long enough?
• Is it possible to distinguish the curing profile of the cement?
• Is it possible to distinguish voids or contamination?
CONTAMINATED CEMENT STUDY 2D PLOT
CONTAMINATED CEMENT STUDY 3D PLOT
REAL-TIME CEMENT ASSURANCE USING DTS

Probe descending

Probe on bottom begins monitoring

Max exothermic heating
BENEFITS OF USING FLI TO VERIFY CEMENT PLUG INTEGRITY

• **Real-time monitoring** of cement plug operations for execution quality control

• **Reducing WOC time** by several hours for every cement plug

• **Evidential proof** of adherence to guidelines and/or regulations

• **Optimisation and standardisation** of cement plug operations for multi-well abandonment campaigns

• **Low risk** technology that is very unlikely to directly cause non-productive time if it does not perform as expected
OTHER APPLICATIONS

- Production logging
  - Gas lift optimization
  - Fracture diagnostics
  - Stimulation diagnostics
  - Steam injection/ SAGD monitoring
- Leak detection
- Annular & cement plug monitoring
- Vertical seismic profiling
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