Kentucky Geologic Survey - #1 Marvin Blan
RST/PL Analysis

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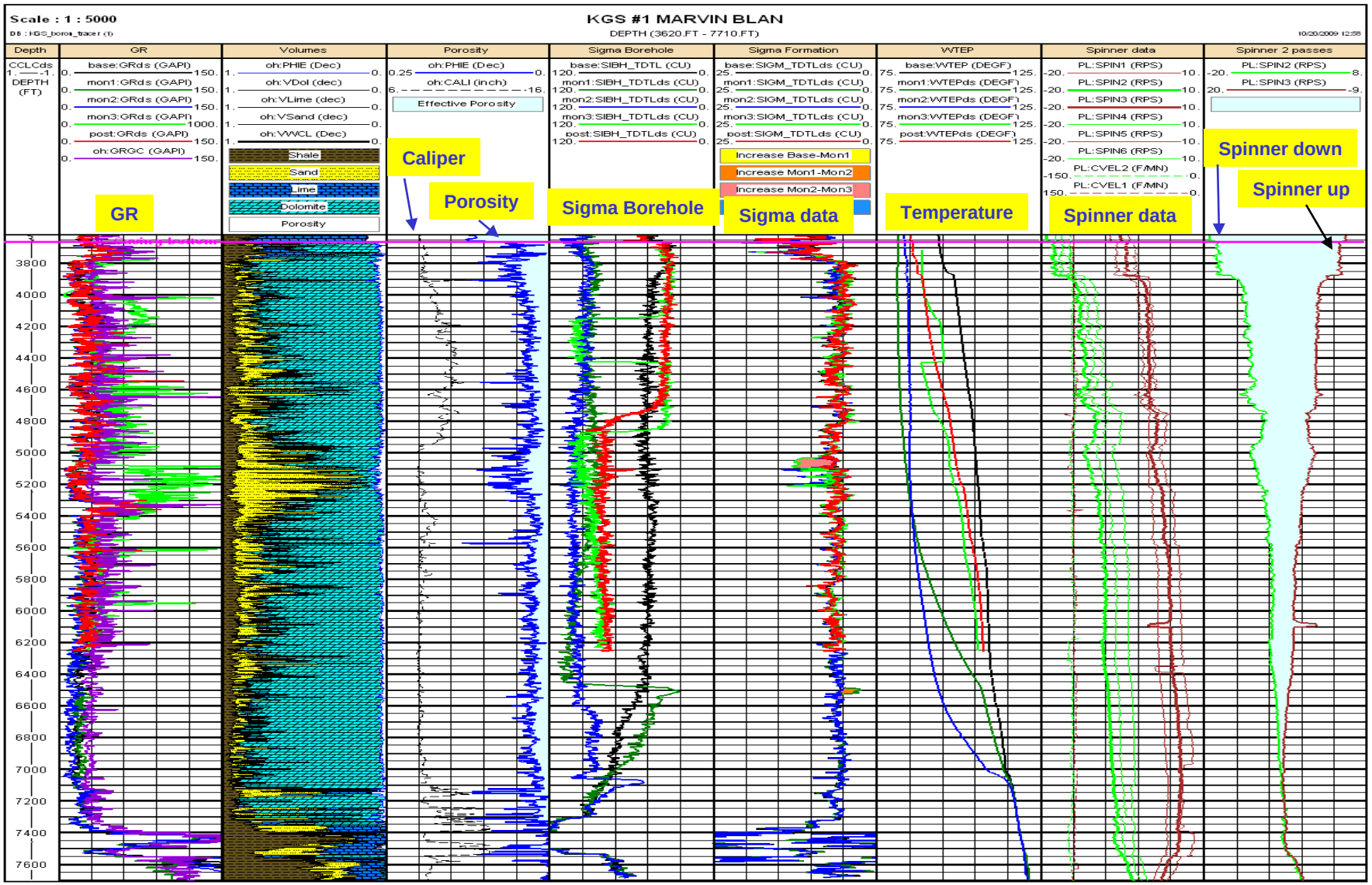
Macroscopic Capture Cross Section (Sigma - cu)

• Sand	5.6
• Lime	7.1
• Dolomite	4.8
• Clays	11 - 25
• Water	20 (FW), 50 (75 Kppm NaCl)
• Oil	20
• CO2	0.05
• Boron	~9000

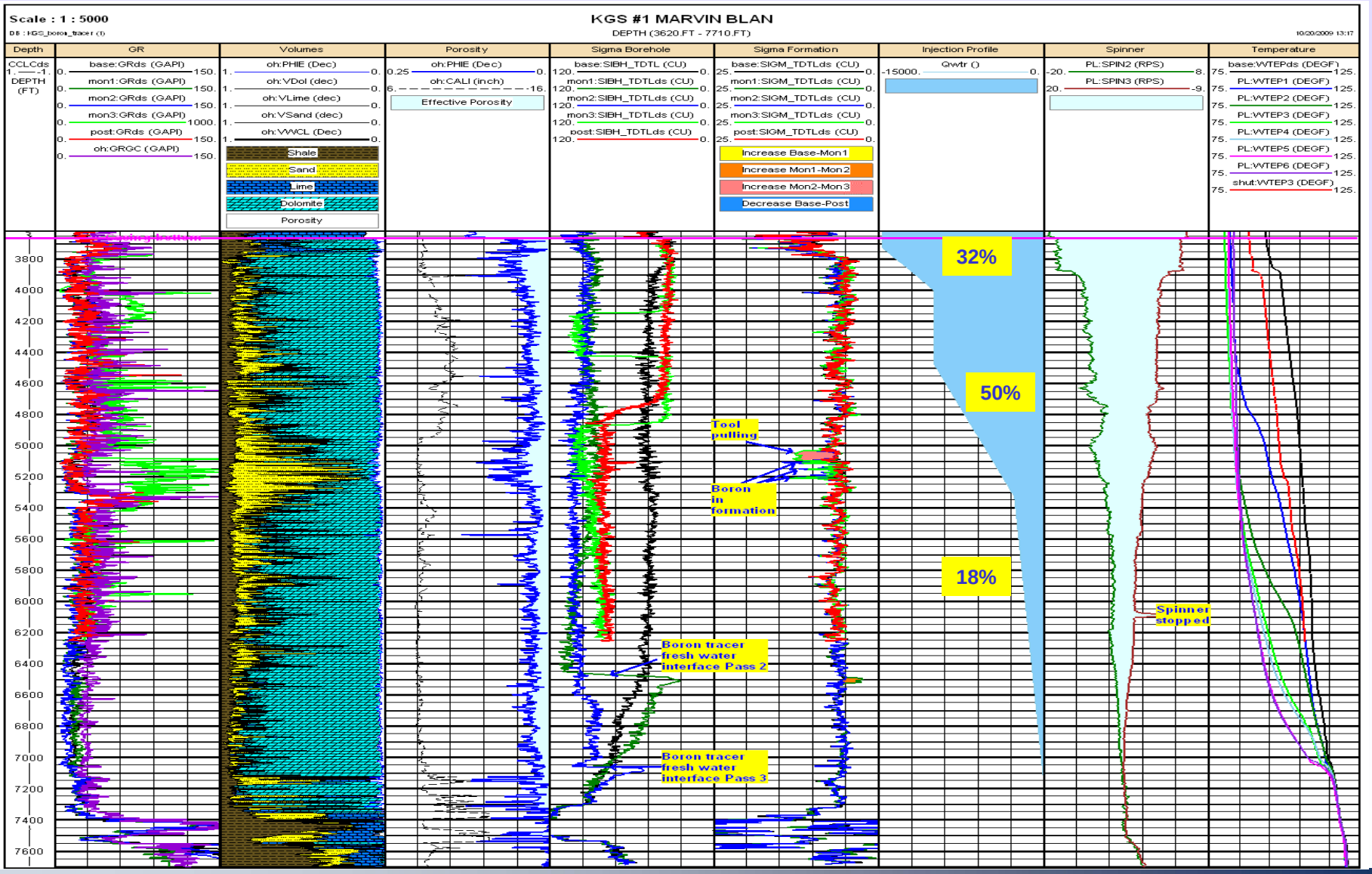
Logging Sequence

- Run down pass for baseline temperature
- Run Sigma baseline pass up
- Inject Boron Solution @ 10 bpm
- Run Sigma Monitor pass #1 up
- Inject Boron Solution @ 12 bpm
- Run Sigma Monitor pass #2 up
- Continue Injecting – run Sigma Monitor pass #3 down – ran out of Boron Solution
- Run Sigma Monitor pass #4 after injecting fresh water
- Later run all Production Logs at various speeds and injection rates

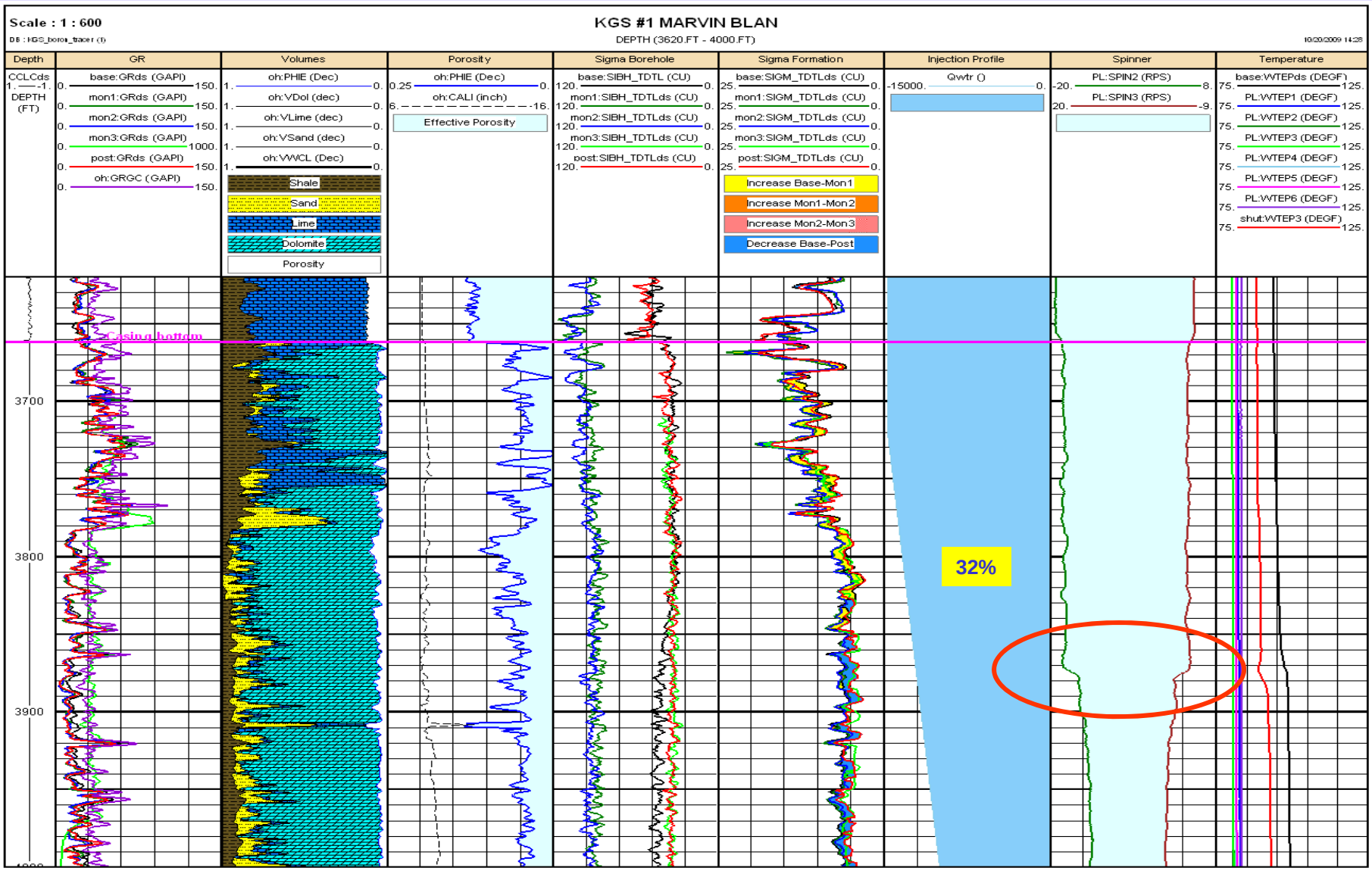
RST with OH Analysis and Production Log data



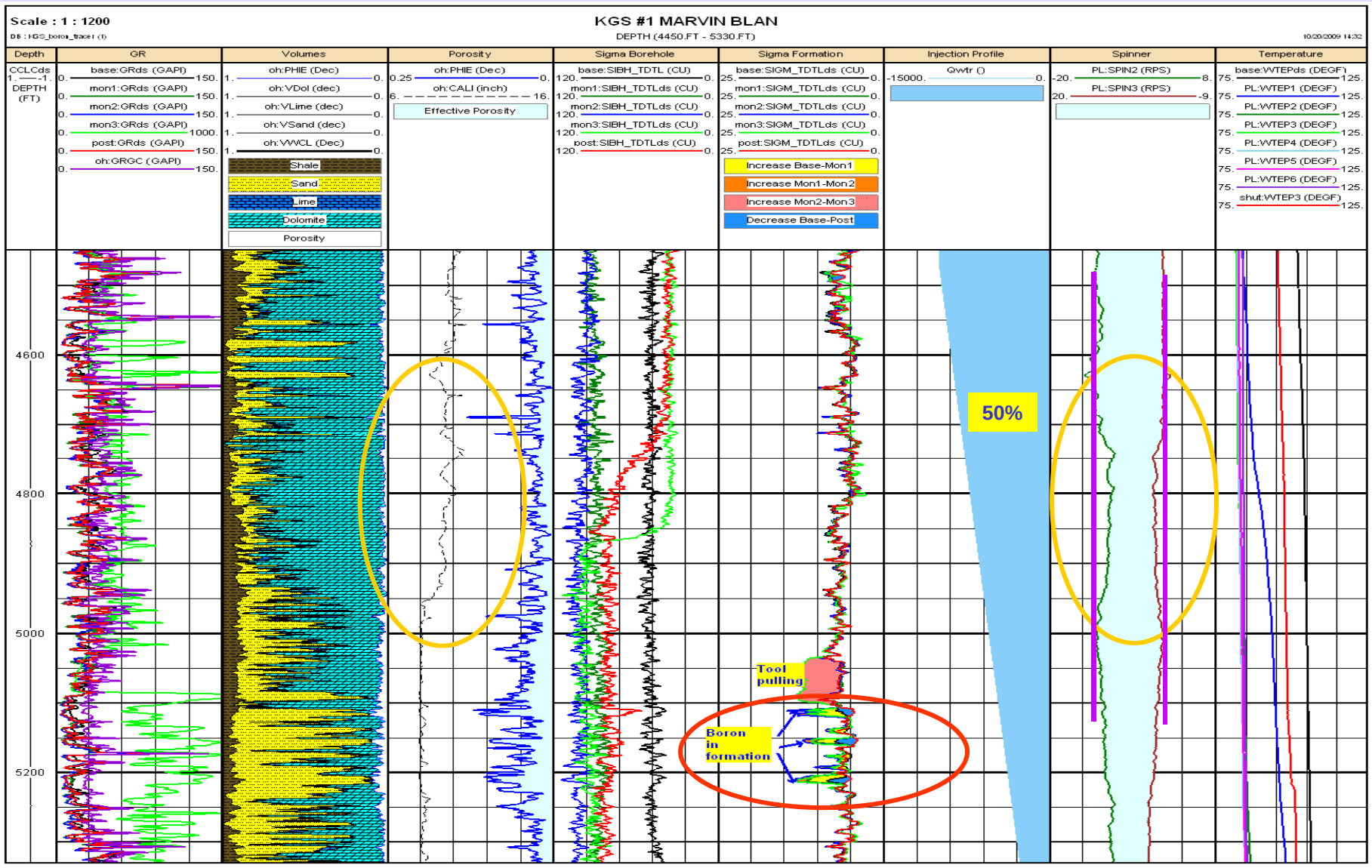
RST and Production Log Analysis



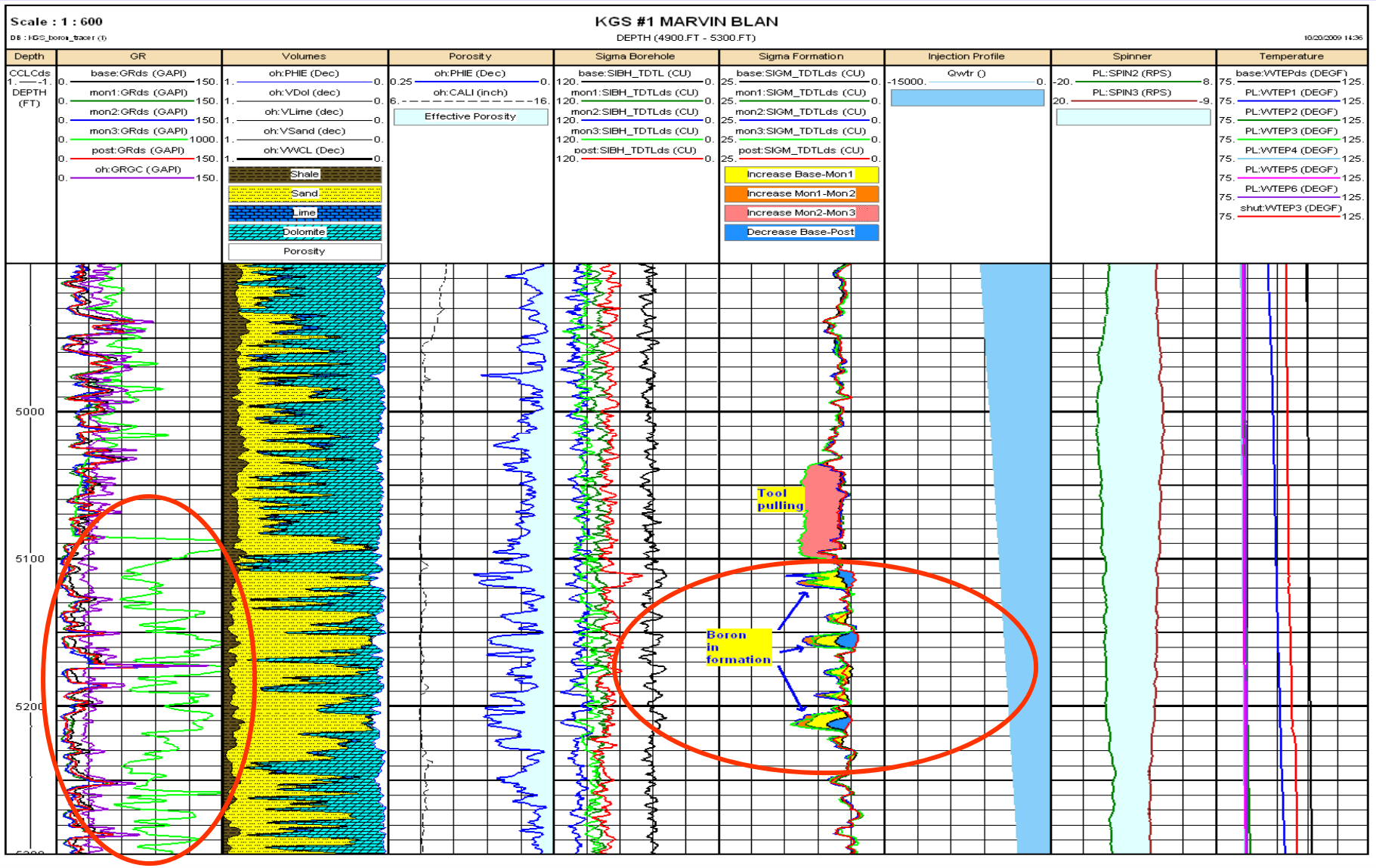
RST and Production Log Analysis - Top Interval



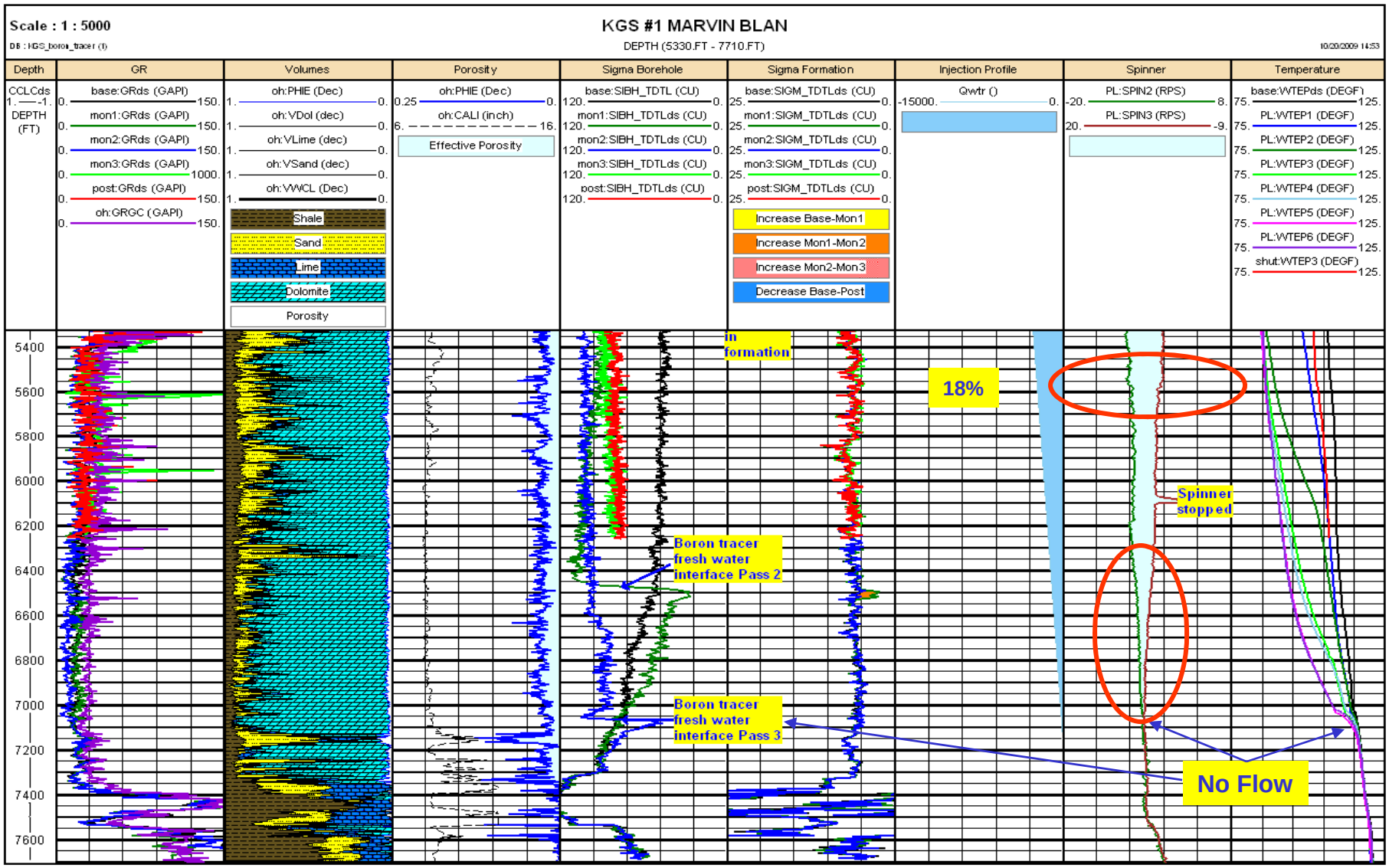
RST and Production Log Analysis - Middle Interval



RST and Production Log Analysis - Sands



RST and Production Log Analysis - Bottom Interval



Conclusions

- Volume of Boron-fluid entering intergranular porosity is significant and can be seen by the Sigma measurement due to high porosity.
- Volume of Boron-fluid entering fracture porosity may be significant but cannot be seen by the Sigma measurement due to low porosity.
- Flow into fracture porosity can be identified using Production Logs.
- Boron solution in the wellbore can be followed with Sigma Borehole.
- Oxygen Activation is occurring on Monitor pass #3 run down and can be used for confirmation.