

IODP EXP 358 Daily Geomechanics Report

Report #063 20190111

RTG Team

RTG Supervisor(s)	David Castillo / Thomas Finkbeiner / Demian Saffer
RTG Watch Lead (00:00-12:00)	Emily Wisbey
RTG Watch Lead (12:00-24:00)	Toby Colson

Well Status

Site Name:	C0002	Hole Name:	R
Water Depth:	1,939.0 m	RT-MSL:	28.5 m
0600h Hole Depth:	5,052.0 mBRT (5049.0 mTVD)	Section TD:	5,667.5 mBRT (5,664.5 mTVD)
Section #:	1	CSG Depth/Size:	4757.0 mBRT 11-3/4" inches
Static MW:	1.39 sg	Current ECD:	1.436sg @ 600gpm sg
FIT/LOT/ XLOT:	1.46sg FIT @ 4,757mBRT.		
Current formation/lithology:	Shale		
Sensor Offsets from the Bit:	arcVISION 675: (APWD: 6.919 m, Resistivity: 7.631 m, GR: 7.682 m) TeleScope 675: (IWOB: 11.699m, Direction + Inclination: 16.064 m) <i>*Note arcVISION and TeleScope are behind 12-1/4" HRR Underreamer</i>		
Other BHA Offsets from the Bit:	8-1/4" x 12-1/4" HRR-8000 reamer: 1.46 m 10-5/8" Stabilizer: 21.771 m Top of BHA: 341 m		
Current Operations:	RIH 8-1/2" x 12-1/4" LWD BHA (BHA #21) from 530 - to the C2R window. Trouble shot pipe handler. Reamed down to 4,838mBRT, continued attempting to work past 4,838mBRT – no go. Circulated bottoms up and pumped out of hole to 11-3/4" window. POOH to 2,920mBRT, function tested BOP and continued to POOH 8-1/2" x 12-1/4" LWD BHA.		

Geomechanics Alert

GREEN	<p>Green = Projected model remains accurate White = Unanticipated deviation from model which <i>should not</i> affect drilling Yellow = Unanticipated deviation from model which <i>may</i> affect drilling Red = Imminent requirement to stop drilling</p>
Basis for Alert Level + Recommendations	<p>1.39 sg remains recommended MW for Section 1. Observation suggests hole cleaning remains a key factor in current wellbore condition.</p>

Principal Findings

None.

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Observations Summary

Fracture Gradient	N/A
Pore Pressure	No indications of overpressure observed.
Wellbore Breakout	N/A
Tensile Failure	N/A
Drilling Parameters	Flow pumps were increased to 700 gpm which increased abundance of material circulated over the shakers.
Other	N/A

Analysis

Drilling Experience Analysis

Whilst some minor high torque and WOB was encountered at ~ 4806 and 4821 mBRT when reaming down, the wellbore was reamed with no major indications of increasing instability. The BHA assembly was unable to pass 4,841 mBRT which is a few metres above where good hole conditions are believed to exist. See memory resistivity data from previous BHA run (Figure 5)

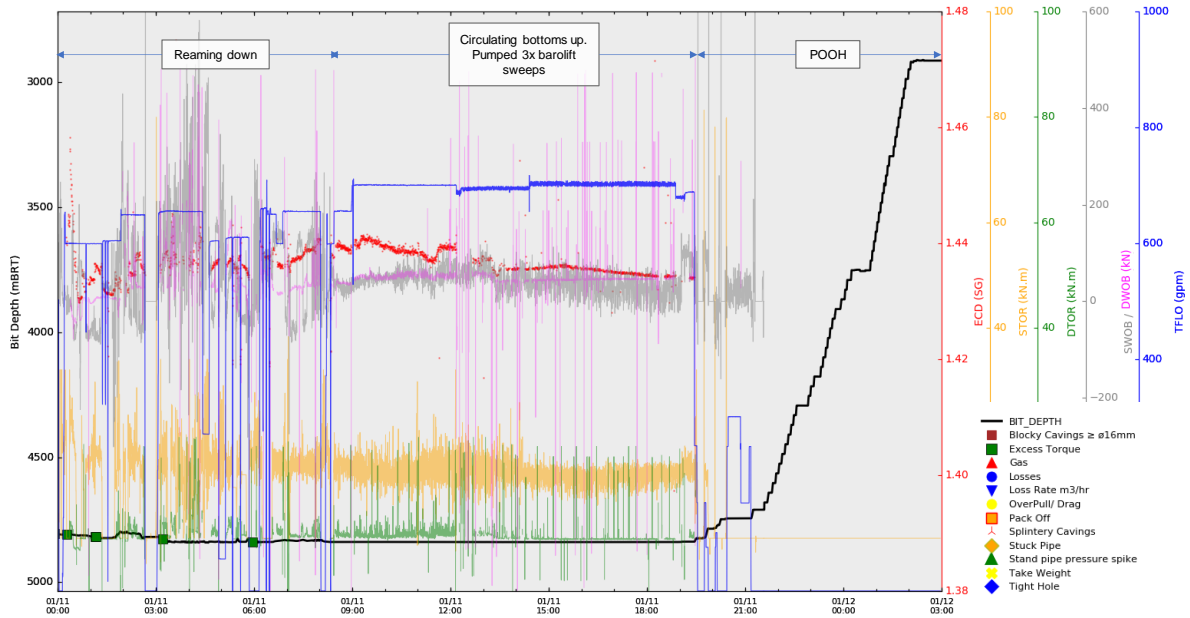


Figure 1 Drilling experiences over the last 24 hrs

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Cuttings and Cavings Analysis

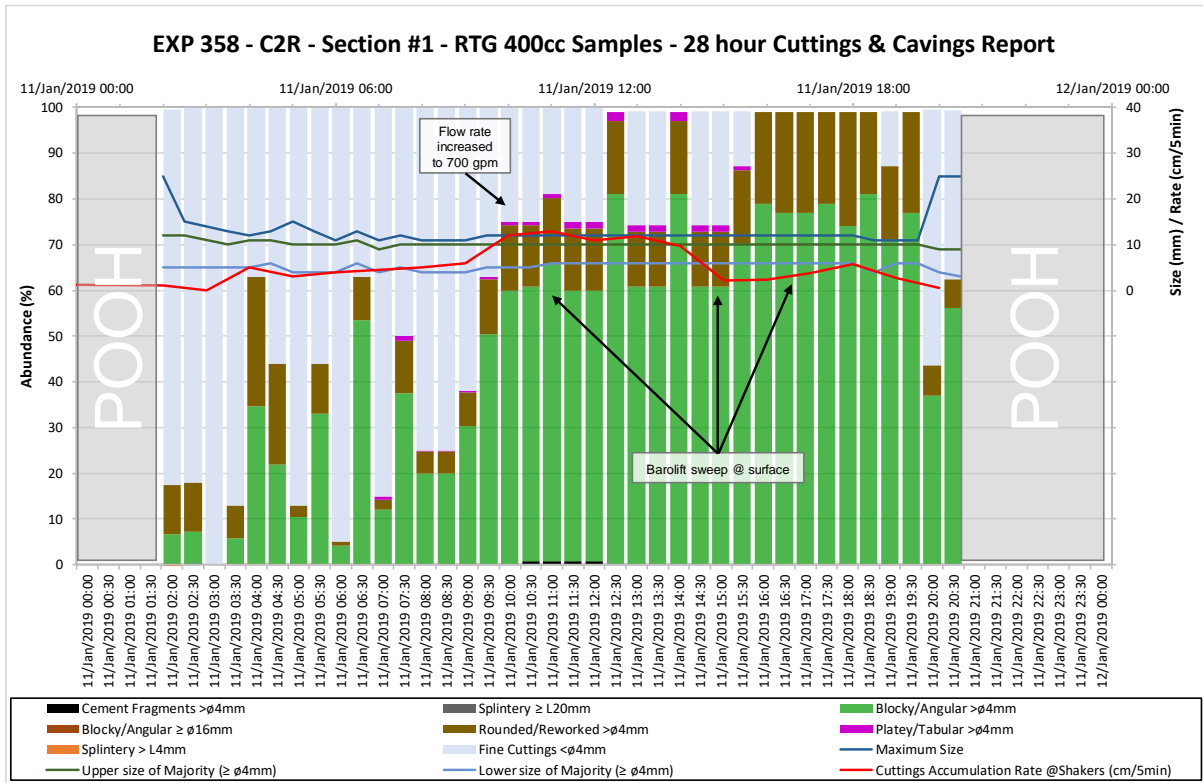


Figure 2 Analysis of cuttings/cavings > φ 4mm (taken from 400cc RTG Samples) over last 24 hrs. Not corrected for lag-time

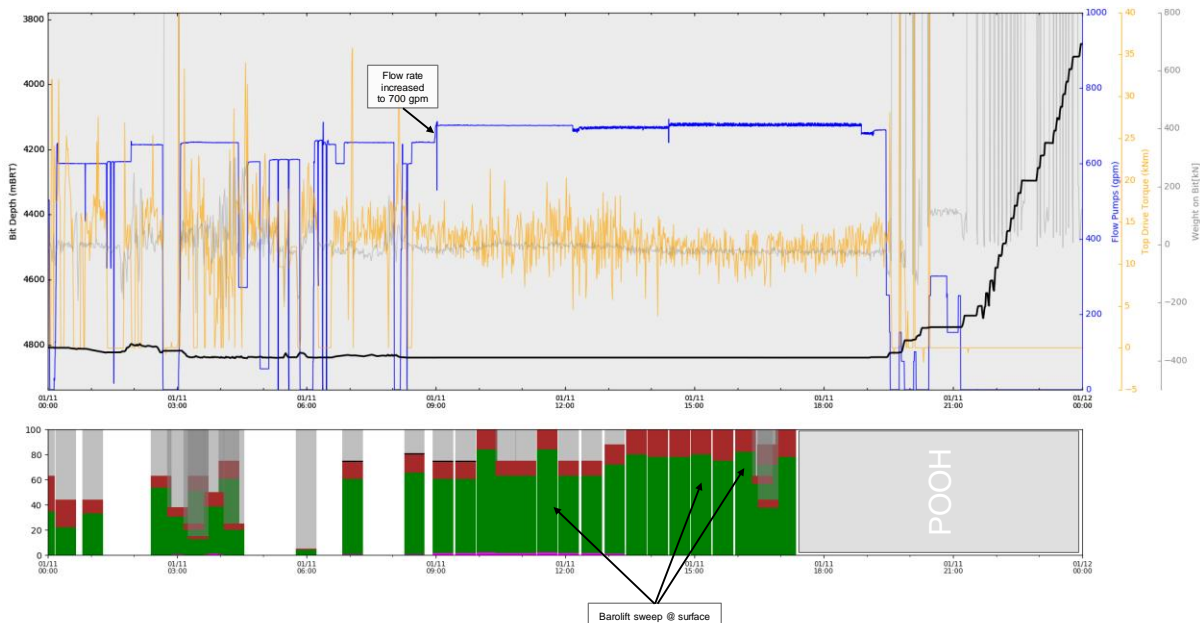


Figure 3 Correlation between drilling events and lag corrected cuttings/cavings occurrences

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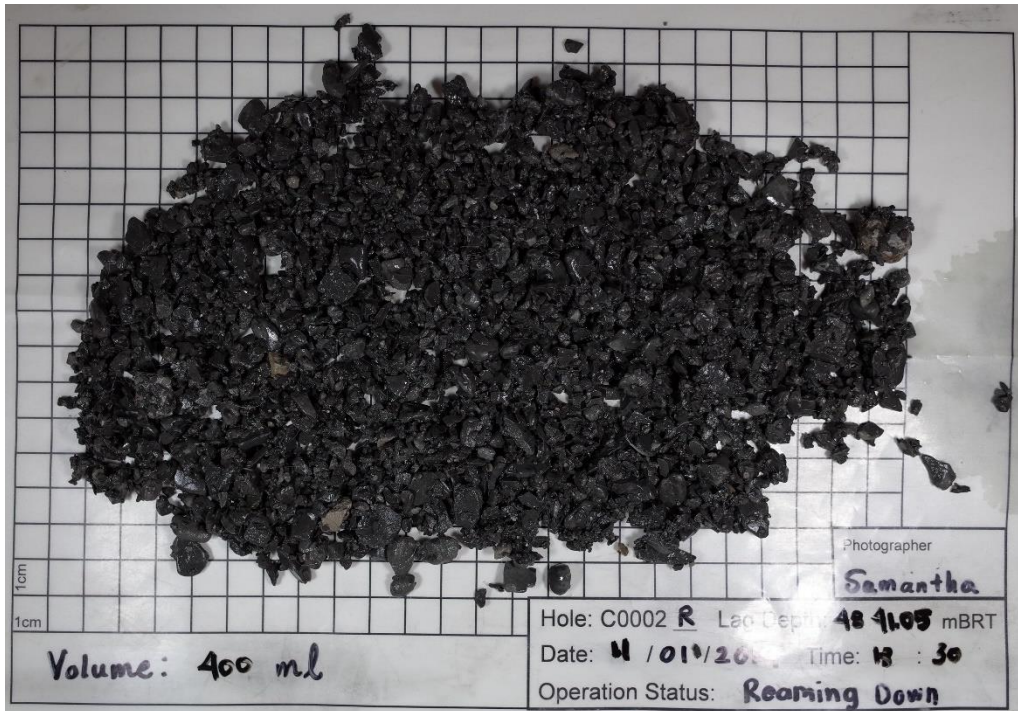


Figure 4 Example of cuttings/cavings > \varnothing 4mm (taken from 400cc RTG Samples)

- The predominant cuttings during reaming down and circulation are fresh small blocky cuttings $\leq \varnothing$ 10 mm.
- Large amounts of tuff (<50%) was present during reaming down and effectively absent (<1%) during circulation at 4841.05 mBRT bit depth.
- Whilst the volume of cuttings increased with increasing circulation and BaroLift sweeps, the size and proportion reduced after several hours of circulation or ~ 5x bottoms up w/ 3x barolift sweeps.

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LWD Data Analysis

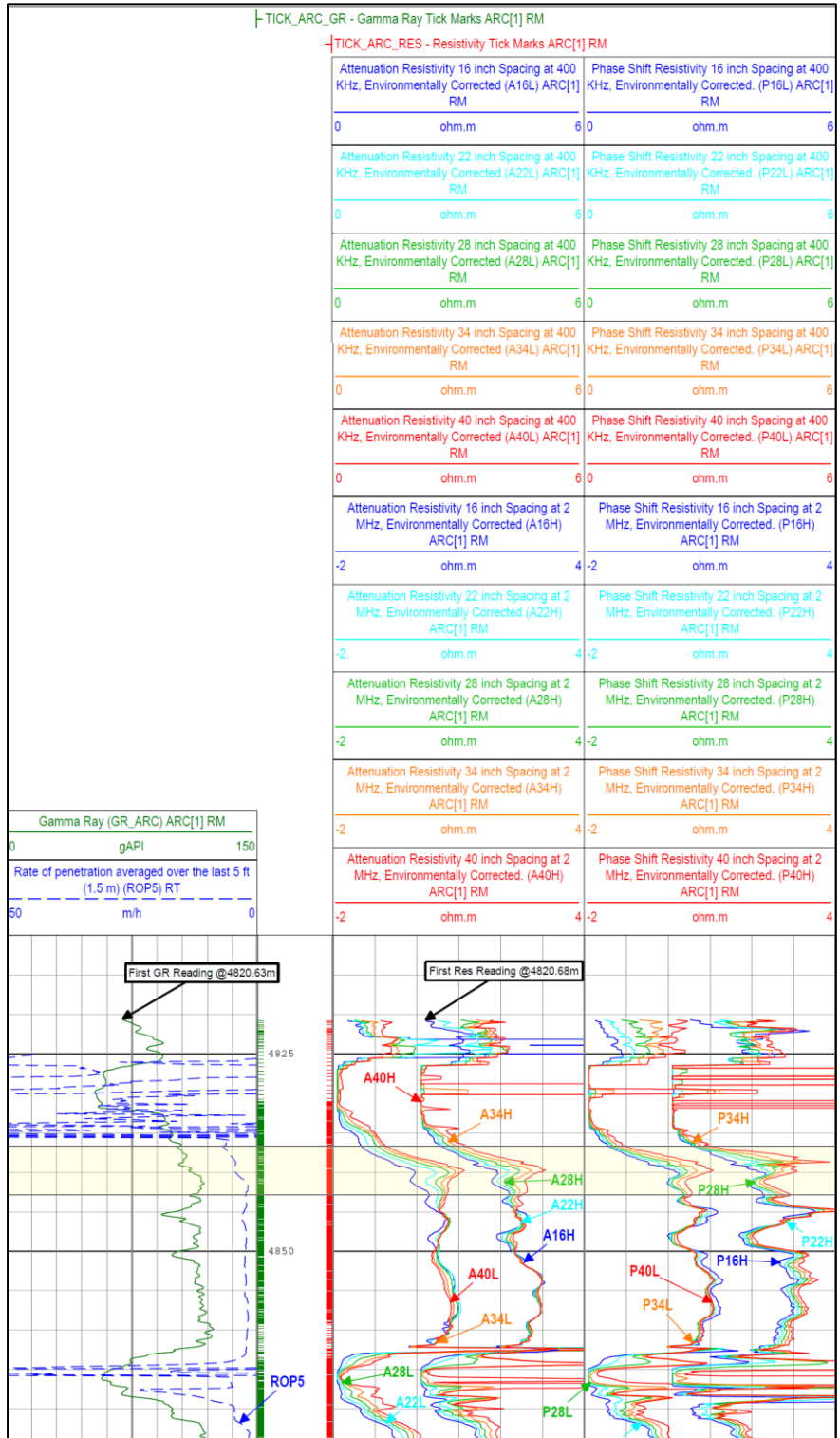


Figure 5 Recorded Mode LWD Log from BHA #20

Yellow box in Figure 5 shows depth at 4,840mBRT where hole condition appears to improve.

SFIB Analysis

No further updates.

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Geomechanical Model Review

No change in the current stress model.

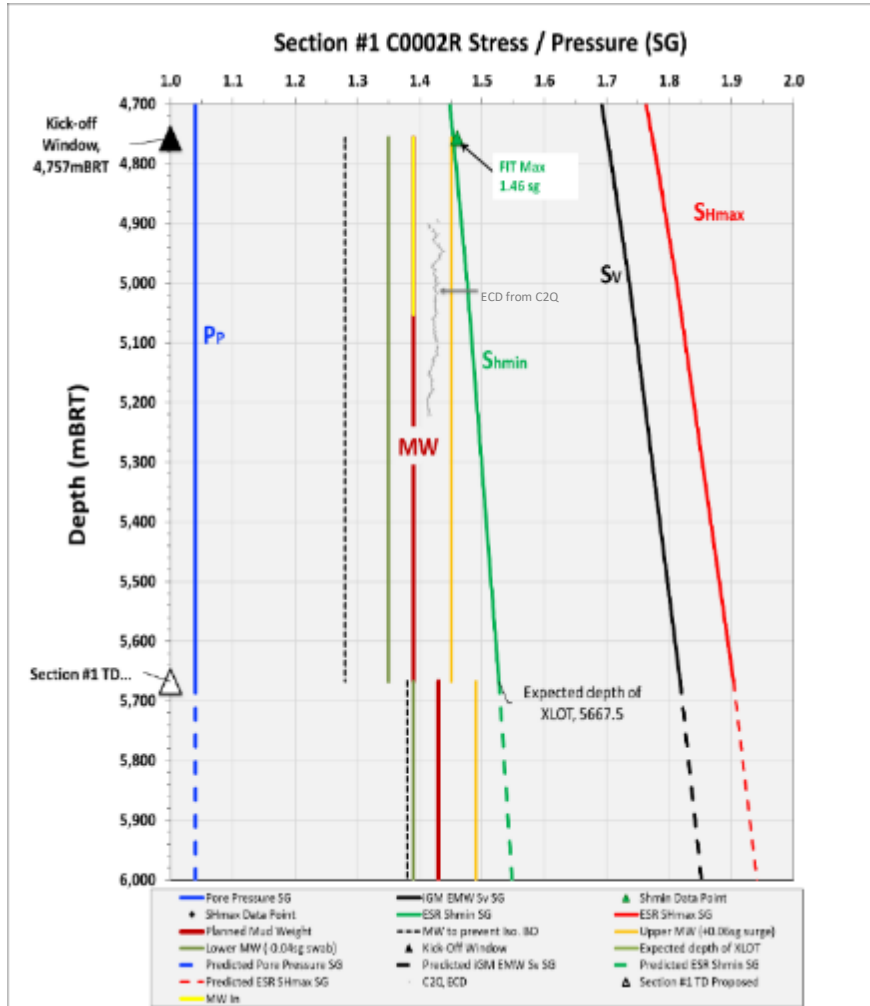


Figure 6 Current stress model for Section #1

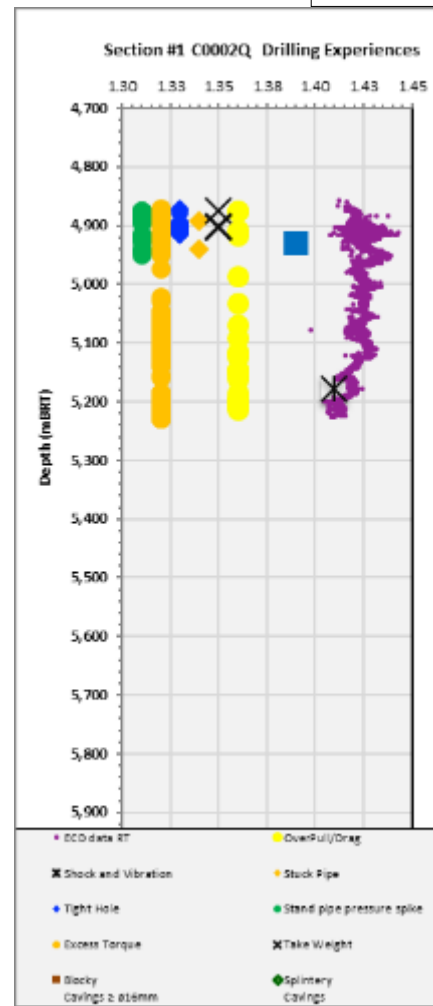


Figure 7 C0002Q Drilling Experiences

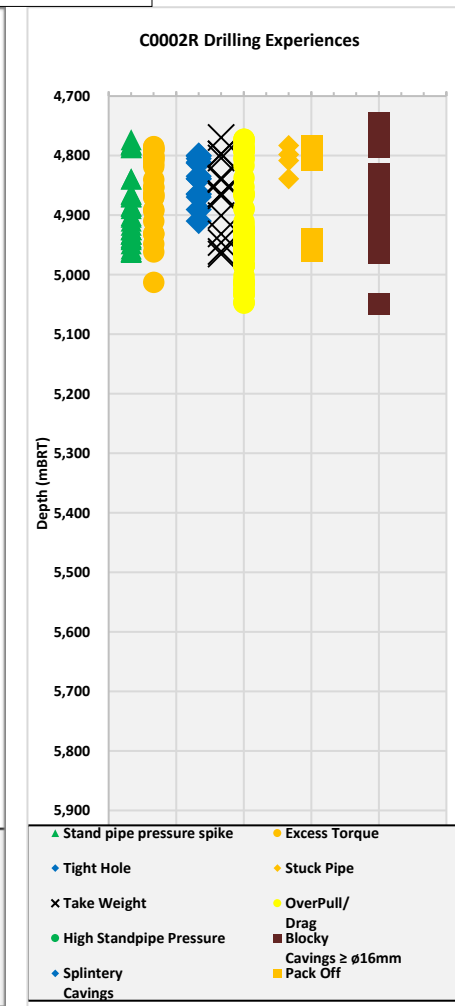


Figure 8 C0002R Drilling Experiences