IODP EXP 358 Daily Geomechanics Report

Report #049 20181228

RTG Team

RTG Supervisor(s)	David Castillo / Thomas Finkbeiner / Demian Saffer
RTG Watch Lead (00:00-12:00)	Kan Aoike
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 Depth:	4,963.0 (4,961.0)	mBRT (mTVD)	**Section TD:**	5,667.5 (5,664.5)	mBRT (mTVD)
Section #:	0		**CSG Depth/Size:**	4757.0 11-3/4	mBRT inches
Static MW:	1.39	sg	**Current ECD:**	(1.42)	sg
FIT/LOT/ XLOT:	1.46sg FIT @ 4,757mBRT.				
Current formation/ lithology:	Shale				
Sensor Offsets from the Bit:	TeleScope 675: (Direction + Inclination: 18.37 m)				
Other BHA Offsets from the Bit:	8-1/2” Insert Rock Bit: 0~0.25 m 8.125” Stabilizer: 8.47~10.13 m 2 x 6-3/4” Non-Magnetic Drill Collar + TeleScope 675: 10.91~32.58 m 9 x 6-3/4” Drill Collar: 32.58~117.17 m 6-1/2” Hydraulic Jar: 117.17~127.10 m 2 x 6-3/4” Drill Collar: 127.10~145.76 m 12 x 5.68” Heavy Weight Drill Pipe: 146.56~257.51 m Top of BHA: 258.51 m				
Current Operations:	Directionally drilled 8-1/2” hole from 4933.5 m to 4963 mBRT, with a combination of sliding and drilling. Because of no success of dropping the hole inclination and the limited bit life, decided to pull out BHA for changing out. 4963 mBRT (bit depth) as of 06:00 Dec.29.				

Geomechanics Alert

GREEN	Green = Projected model remains accurate White = Unanticipated deviation from model which *should not* affect drilling Yellow = Unanticipated deviation from model which *may* affect drilling Red = Imminent requirement to stop drilling
Basis for Alert Level + Recommendations	No further observations have been made to suggest any change in wellbore condition 1.39 sg remains recommended MW for Section 1.

Principal Findings

N/A

IODP EXP 358 Daily Geomechanics Report

Report #049 20181228

Observations Summary

Use this space to discuss any observations while drilling, running casing etc.

Fracture Gradient	N/A
Pore Pressure	No indications of overpressure observed.
Wellbore Breakout	N/A
Tensile Failure	N/A
Drilling Parameters	N/A
Other	N/A

Analysis

Drilling Experience Analysis

Directionally drilled ahead with poor ROP and drilling response when sliding. Whilst resulting in poor drilling performance, sliding does not appear to be degrading borehole integrity to date.

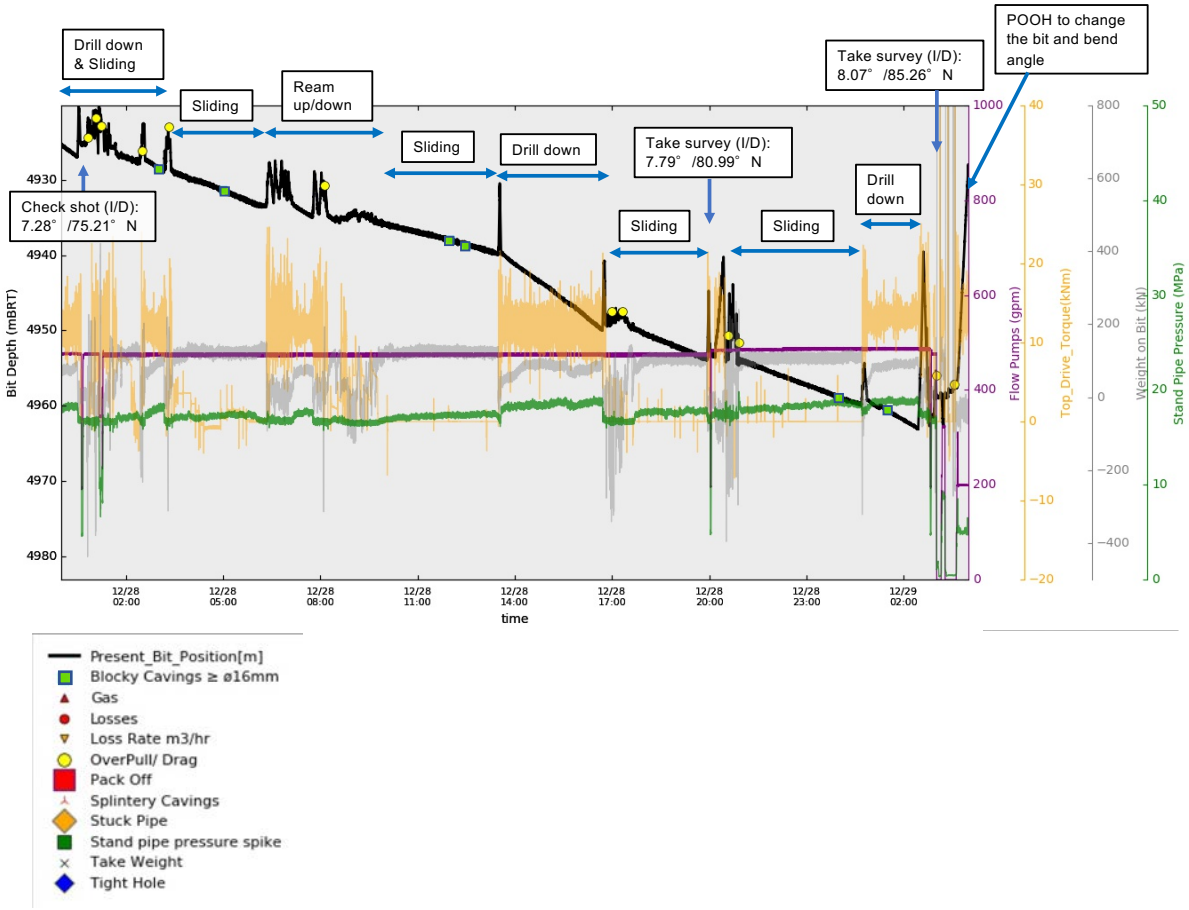


Figure 1: Drilling experiences over the last 28 hrs (~04:00 Dec.28).

Cuttings and Cavings Analysis

Coarser rock fragments > ø4mm in diameter, were typically blocky and approximately ~ø10 mm in size. Cutting typically have a signature in tri-cone bit morphology. Whilst the lower ROP associated with directional drilling results in a lower cutting volume, Figure 3 (lag time corrected cutting) indicates an increase in cuttings larger than 4mm during the sliding events. No notable indications of wellbore instability were seen. Tuff grains remained present throughout, possibly as fall from the interval of 4840-4843 mBRT or those derived from different tuff layers below.

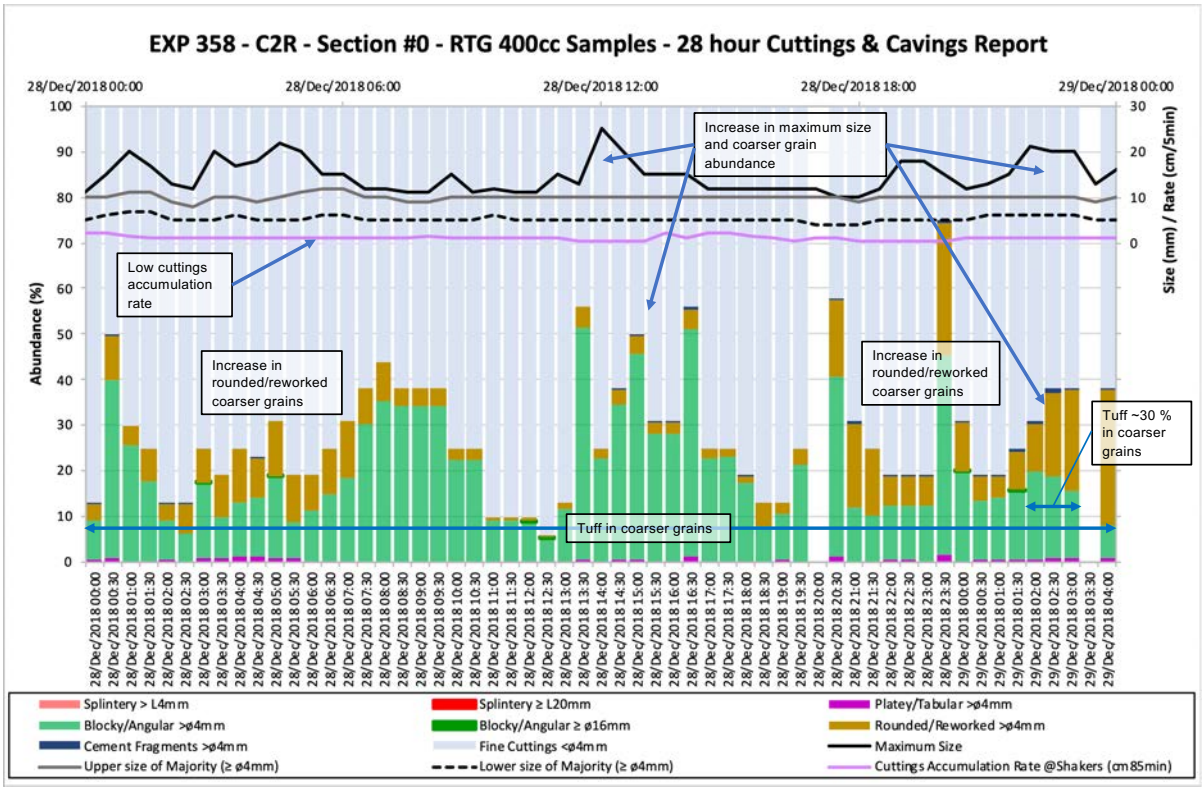
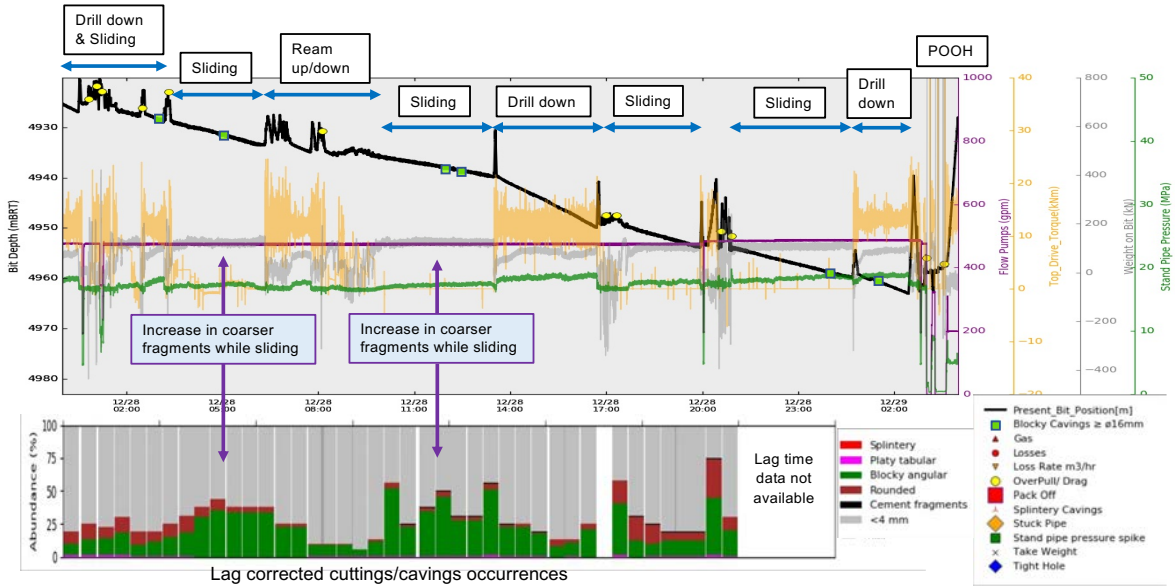


Figure 2: Analysis of cuttings/cavings > ø 4mm (taken from 400cc RTG Samples) over last 28 hrs (~04:00 Dec.29)



Lag corrected cuttings/cavings occurrences

Figure 3. Correlation between drilling events and lag corrected cuttings/cavings occurrences during 00:00~21:00 Dec.28.

Figure 4: Example of cuttings/cavings > ø 4mm (taken from 400cc RTG Samples). Blocky/angular shale fragments ≤ ø10 mm are predominant. Light gray rounded to subrounded grains are tuff fragments.

LWD Data Analysis
N/A

SFIB Analysis
No further updates

Geomechanical Model Review

No change in the current stress model.

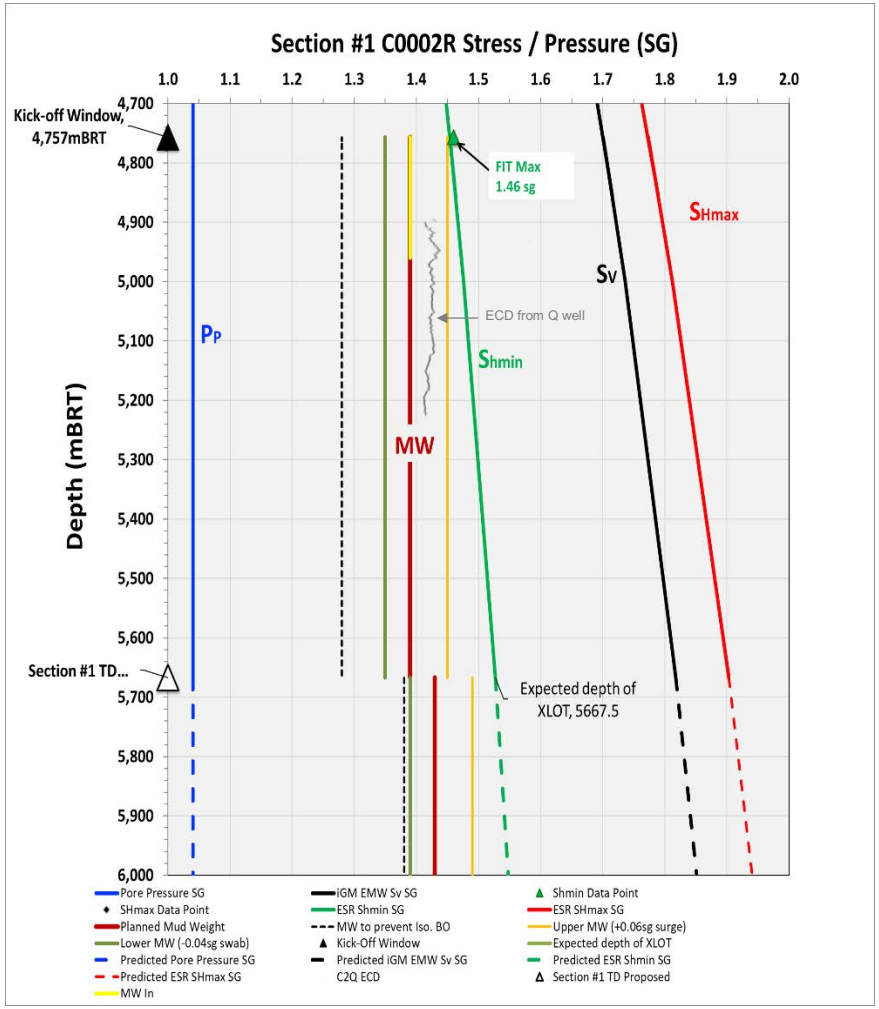


Figure 5: Current stress model for Section #1

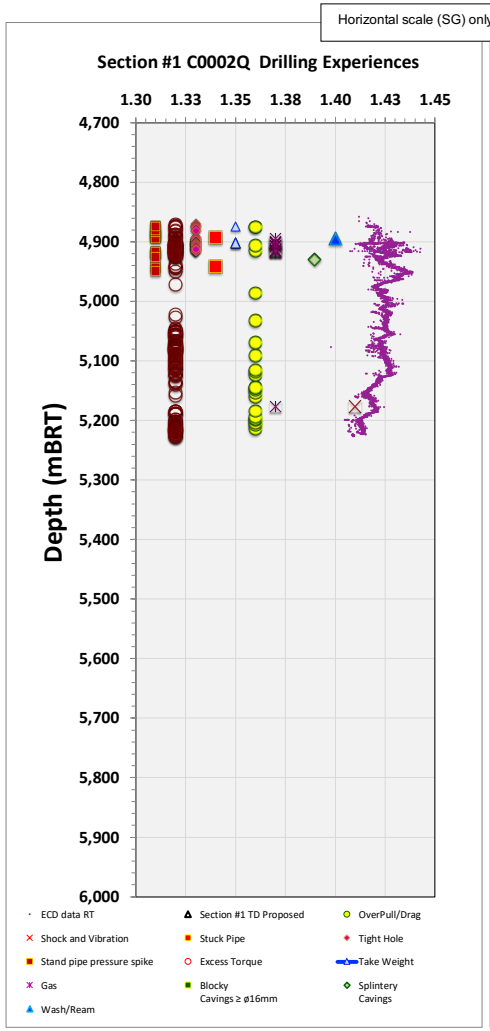


Figure 6: C0002Q Drilling Experiences

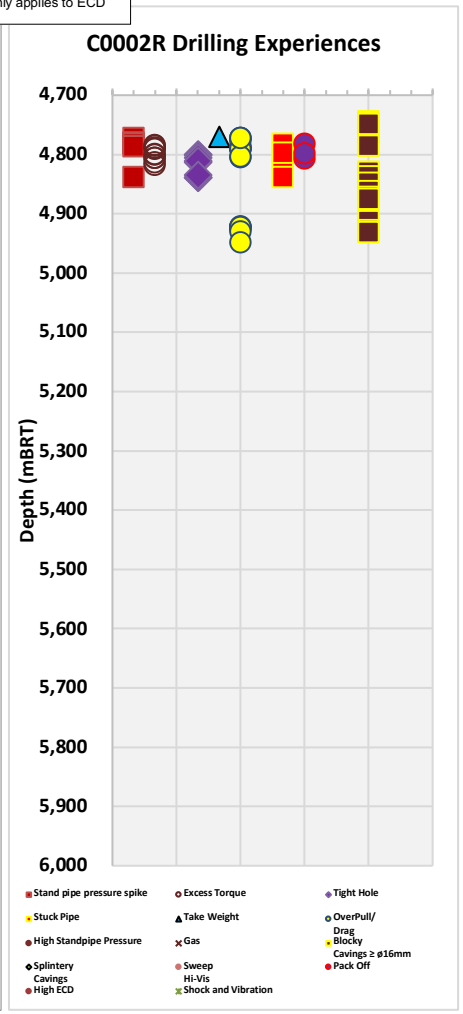


Figure 7: C0002R Drilling Experiences