IODP EXP 358 Daily Geomechanics Report

Report #040 20181219

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
Current Depth:	4,772 4,771	mBRT (mTVD)	**Section TD:**	5,667.5 (5,664.5)	mBRT (mTVD)
Section #:	1		**CSG Depth/Size:**	4757.0 11-3/4	mBRT inches
Static MW:	1.37	sg	**Current ECD:**	-	sg
FIT/LOT/ XLOT:	1.46sg FIT @ 4,757mBRT.				
Current formation/ lithology:	Shale				
Sensor Offsets from the Bit:	N/A				
Other BHA Offsets from the Bit	N/A				
Current Operations:	Milled window and rathole to 4,772mBRT. Circulated wellbore and completed window pass. Conducted FIT to 1.46 SG and commenced POOH 10-1/2" Tri Mill.				

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	Hole cleaning efficiency during operation considered effective. 1.37 sg remains recommended MW for Section 1.

Principal Findings

- Barolift sweeps considered effective at cleaning hole of large reworked P well cavings. Hole remains relatively stable.
- An increase in flow-rate resulted in the removal of large cavings that originated in the C0002P annulus.

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Observations Summary

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

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

Analysis

Drilling Experience Analysis

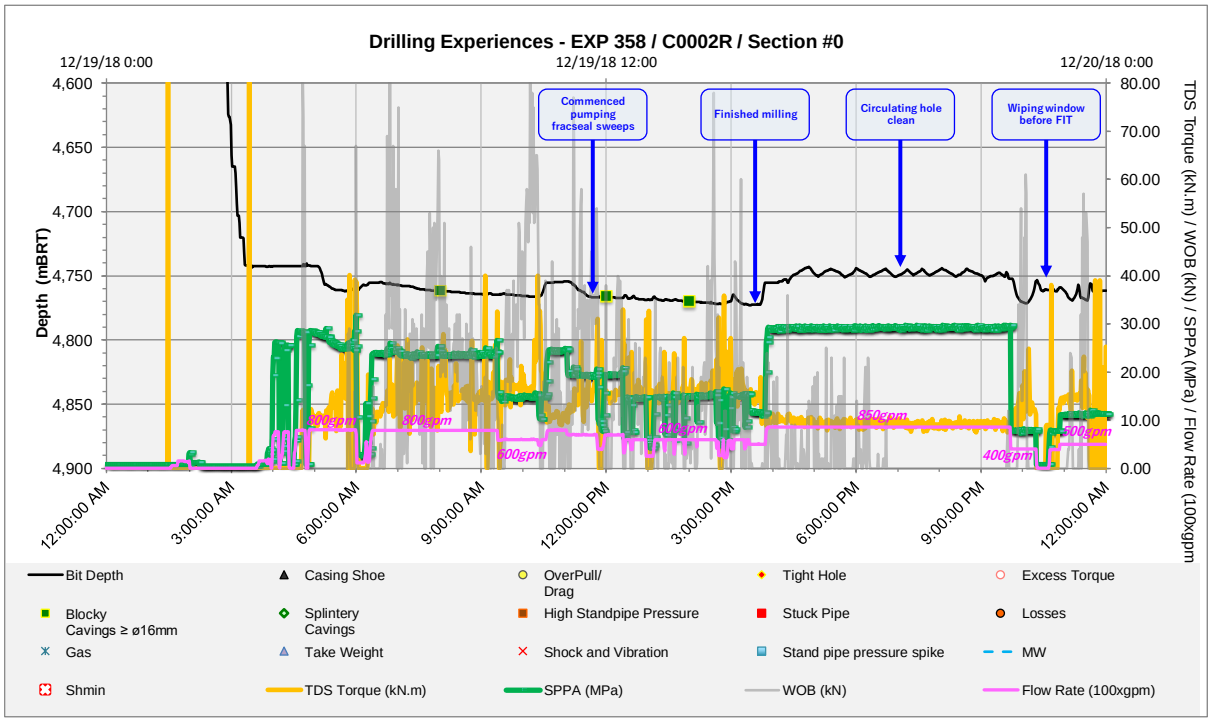
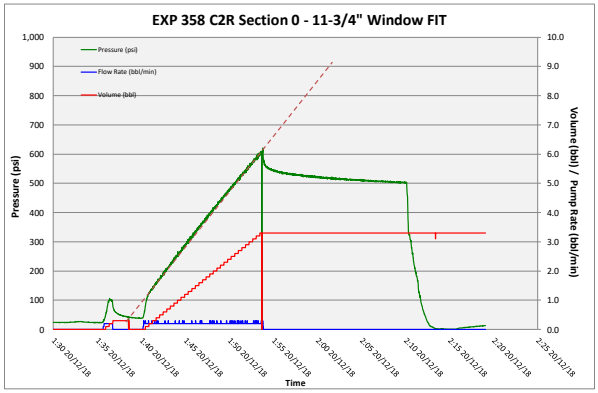


Figure 1 Drilling experiences over the last 24hrs *(Note: No ECD data available due to no APWD sensor in string)*

Completed milling C2Q window with no issues. FracSeal sweeps commenced at 1145hrs (every hour), the presence of FracSeal in the drilling fluid may have contributed to the successful FIT result.



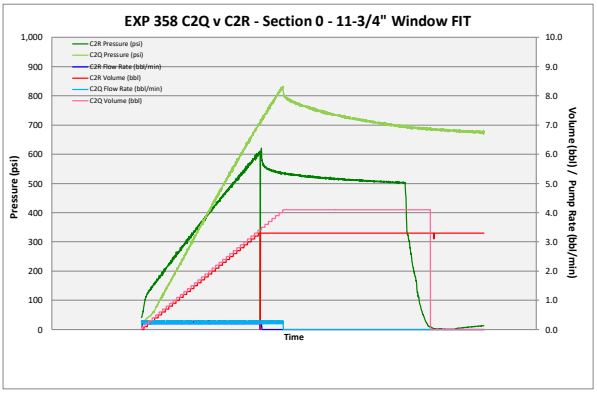


Figure 2 (a) C2R FIT **(b) C2Q v C2R FIT**

FIT at C2R 11-3/4" window was successfully completed to 610psi / 1.46sg EMW.

Cuttings Analysis

Cuttings were mainly silty claystone trace cement.

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Cavings Analysis

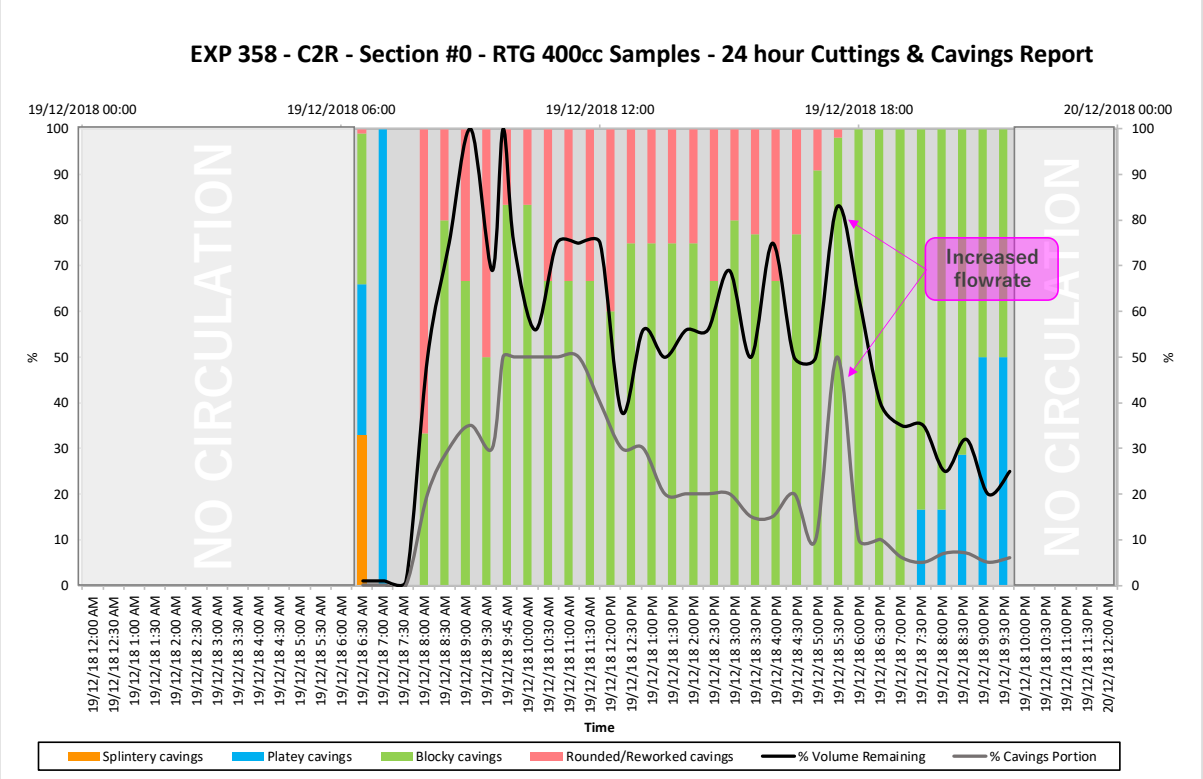

Figure 3 Analysis of cuttings/cavings > ø 4mm (taken from 400cc RTG Samples) over last 24hrs

Figure 4 Cuttings and cavings from milling out section #0 rathole on C2R

From 0800hrs on the 19th December, large blocky cavings both fresh and re-worked dominated the shakers, resulting in 100% of the %volume remaining (black curve Figure 3) until ~10am.
The presence of fresh and reworked blocky cavings continued until ~1800hrs, where the reworked blocky cavings all but disappeared. This in turn resulted in the %volume remaining (black curve Figure 3) decreasing from ~80% to ~40% and % volume of cavings (grey curve Figure 3) also decreasing. From 1900hrs, while circulating with a high flow rate prior to conducting the FIT few cavings, though the presence of platey cavings, likely mechanically induced increased.

Both the fresh and reworked blocky cavings are likely from rock immediately around the window which was broken while drilling to C2P well, but were yet to be dislodged until drilling through with the milling BHA.

The increase in flowrate at 1550 (Figure 1) resulted in an increase in hole cleaning efficiency (especially for large cavings), and as such the % volume remaining and % cavings also spiked.
In addition, following riser boost and several FracSeal and Barolift sweeps large rounded cavings were no longer seen over shakers (~18:00 on the 19th Dec). Hole cleaning efficiency during operation is considered effective due to size on volume of samples at the shakers.

LWD Data Analysis
N/A

SFIB Analysis
N/A

Geomechanical Model Review

No change in the current stress model.

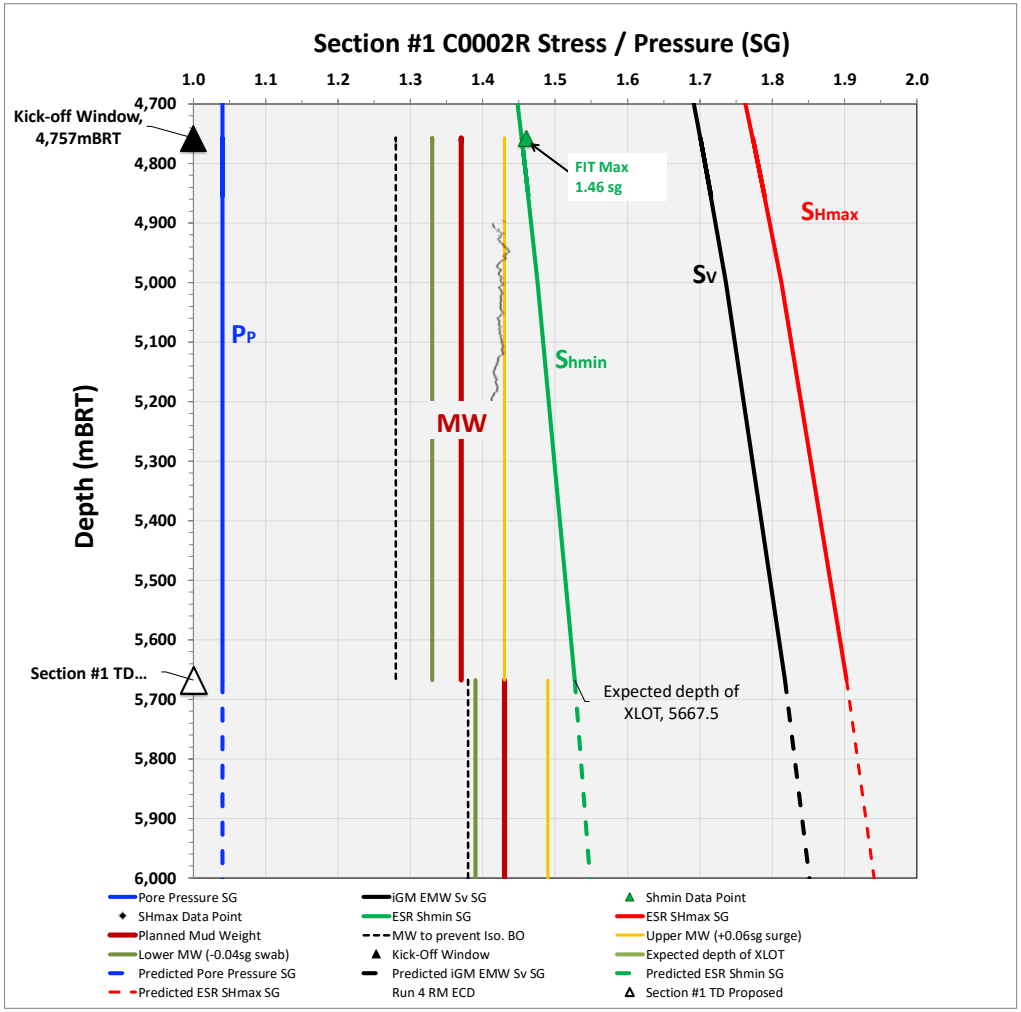

Figure 5 Current stress model for Section #1

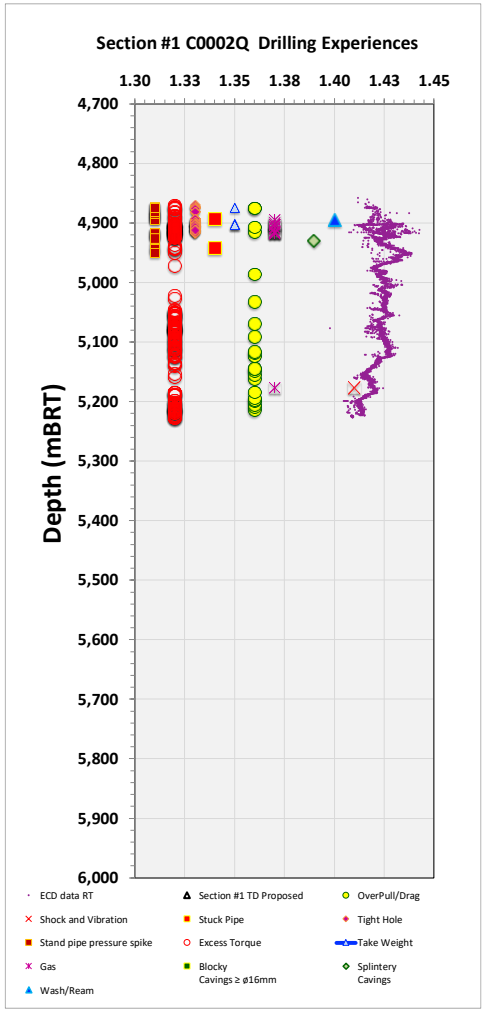

Figure 6 C0002Q Drilling Experiences