IODP EXP 358 Daily Geomechanics Report

Report #086 20190203

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)	Emily Wisbey

Well Status

Site Name:	C0002		**Hole Name:**	S	
Water Depth:	1,939.0	m	**RT-MSL:**	28.5	m
0600h Hole Depth:	4,779.0 (4,777.0)	mBRT (mTVD)	**Section TD:**	6,000.0 (5,998.0)	mBRT (mTVD)
Section #:	0		**CSG Depth/Size:**	4,773.0 11-3/4" ESET	mBRT inches
Static MW:	1.39	sg	**Current ECD:**	-	sg
FIT/LOT/ XLOT:	N/A *Note: 1.46sg FIT @ 4,757mBRT*				
Current formation/ lithology:	Shale				
Sensor Offsets from the Bit:	TeleScope 675 (IWOB: 15.016 m, GR: 17.735 m, D+I: 18.381 m)				
Other BHA Offsets from the Bit:	8-1/2" Insert Bit: 0~0.25 m Motor w/ 1.15° bend: 0.25~8.432 m 8.125" Stabilizer: 8.432~10.095 m TeleScope 675: 14.236~22.561 m UBHO: 32.527~33.487 m 6.75" Collar x 3 + XO x 1: 34.487~119.154 m Jar: 119.154~129.075 m 6.75" Collar x 2: 129.075~147.731 m				
Current Operations:	RIH 8-1/2" Kick-off LWD BHA to 4,779m. Commenced drilling kick off section. Took weight at 4779, 4786 and 4788 mBRT. Drilled down to 4788.5 mBRT then went into WOW due to rough sea condition. Pulled out BHA above the top of ESET.				

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 drillin80
Basis for Alert Level + Recommendations	C2S can initially be drilled with a **1.35 SG** MW using only FracSeal as the mud additive. While C2S is within 2-4 m horizontally from the C2P hole, an extra amount of FracSeal should be blended with the mud to seal the existing open cracks/beds/fractures as quickly and efficiently as possible. The extra FracSeal would help maximise stability in the fragile hole section near the C2S window and keep it stable during drilling, POOH with LWD BHA, and RIH/POOH with coring BHA operations. If we find earth stress gradients increases with depth (and UCS does not increase as quickly), RTG may recommend increasing the MW slightly (e.g., +0.01 SG increments) with Watch Leaders and Supervisors closely monitoring. This process could be repeated based on real-time learnings. Any subsequent increase in MW in C2S would not pose a serious risk of drilling fluid invasion in the shallower sections if FracSeal was applied generously. **1.35 SG** MW would increase ROP and perhaps deepen section TD if needed.

Principal Findings

N/A

Observations Summary

Fracture Gradient	N/A
Pore Pressure	N/A
Wellbore Breakout	N/A
Tensile Failure	N/A
Drilling Parameters	N/A
Other	N/A

Analysis

Drilling Experience Analysis

Tagged the bottom at 4779 mBRT as expected and took weight at 4786 and 4788 mBRT (Fig.1). No formation is expected between 4779.5 and 4786 mBRT, consistent with the C2R log (Fig.2). A relatively firm formation (or cement) is expected below 4788 mBRT where high GR was observed in C2R (Fig.2).

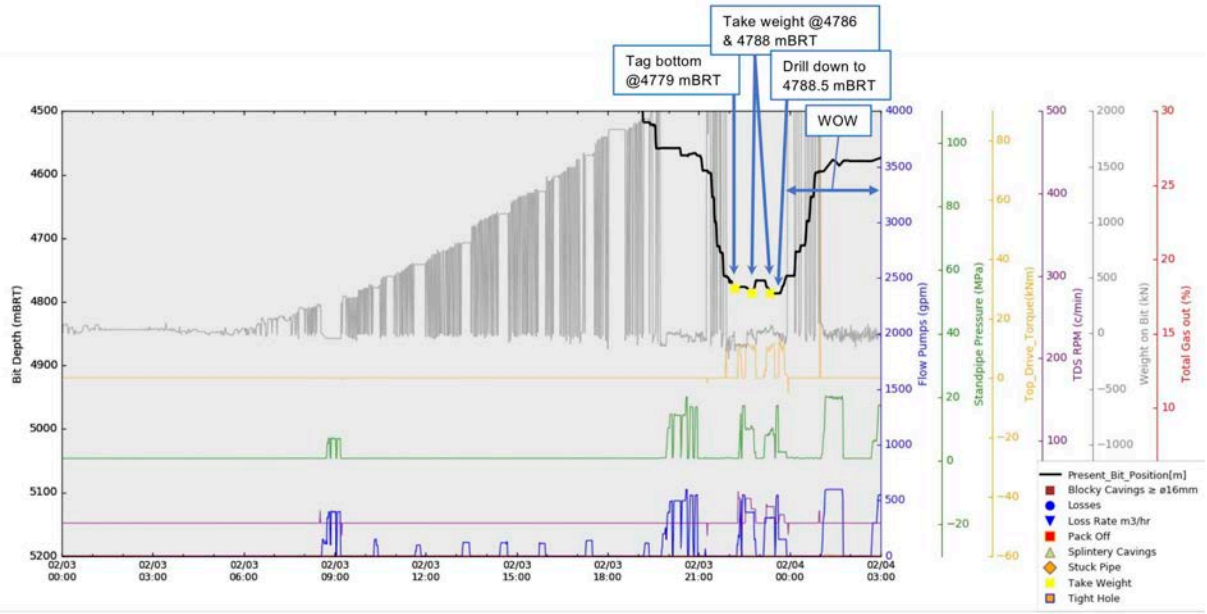

Figure 1 Drilling Experiences over last 27hrs

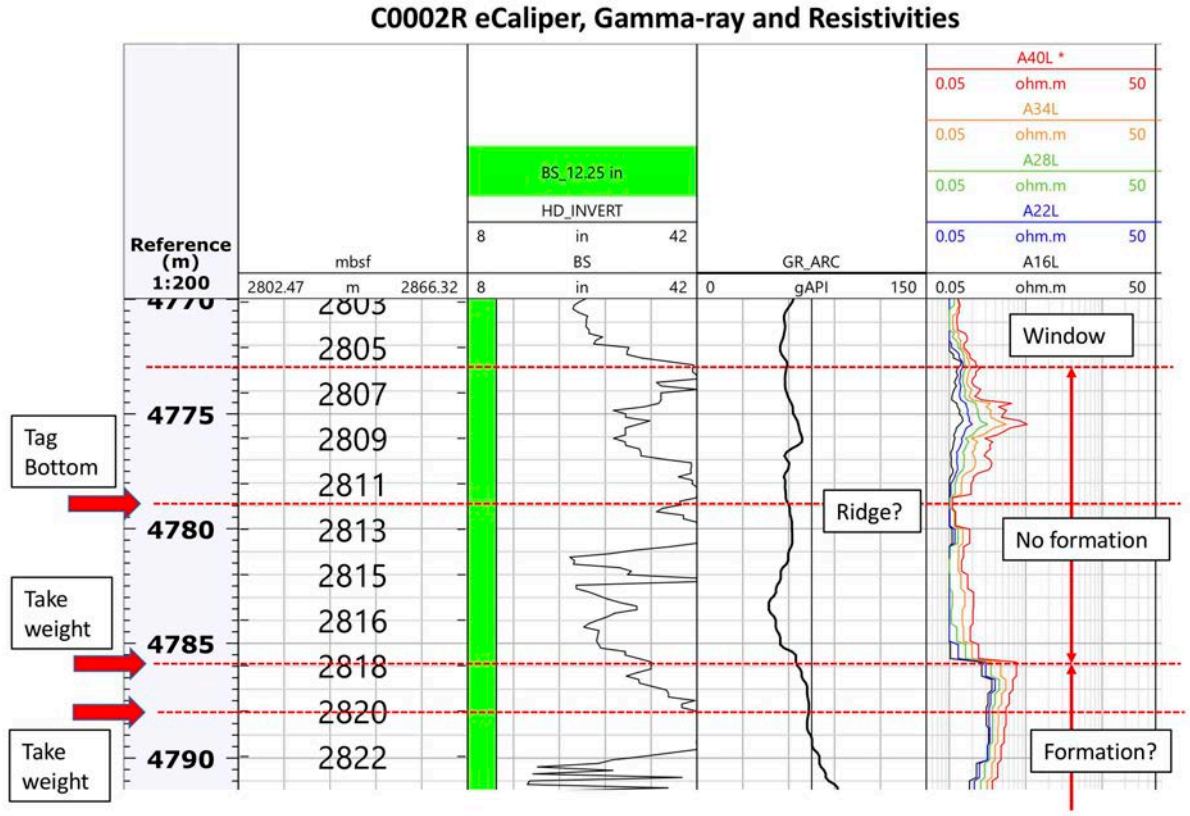

Figure 2 Correlation between C2R LWD logs and indications of C2S kick-off drilling.

Cuttings and Cavings Analysis

Small amounts of Barolift fibers, fine cuttings, subagular cement fragments ≤ ø 17 mm and junk of severing came up to the shakers while WOW (Fig.3).

Figure 3 Cuttings/cavings sample while WOW (circulation) (from OPG sample).

LWD Data Analysis
N/A

SFIB Analysis
No further updates.

Geomechanical Model Review

There is no change in the current stress model, but planned MW profile is updated.

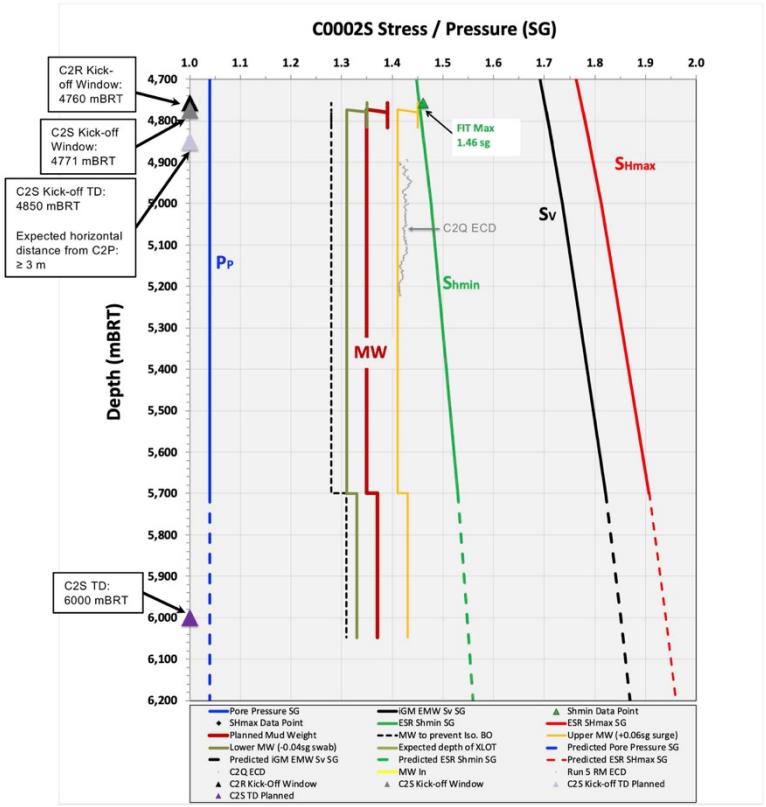

Figure 4 Current stress model for C2S