IODP EXP 358 Daily Geomechanics Report

Report #087 20190204

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:	4,788.5 (4,786.5)	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:	1.38	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:	Continued WOW. RIH BHA to 4767 mBRT. Rigged up WL equipment and RIH Gyro Tool. Set the tool face orientation to SSW. Retrieved Gyro Tool and rigged down. Washed/reamed down to reenter the kick off hole. Tagged the bottom at 4788.3 mBRT without rotation. Picked up BHA and attempted to reenter, however, could not go down below 4786.5 mBRT without rotation. Decided to POOH for changing BHA.				

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	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

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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 4788.3 mBRT without rotation in the first run. After once picking up BHA, took weight at shallower depths and could not go down below 4786.5 without rotation. New hole drilling was suspected. The enlarged hole around ESET makes reentering quite difficult as in the previous holes.

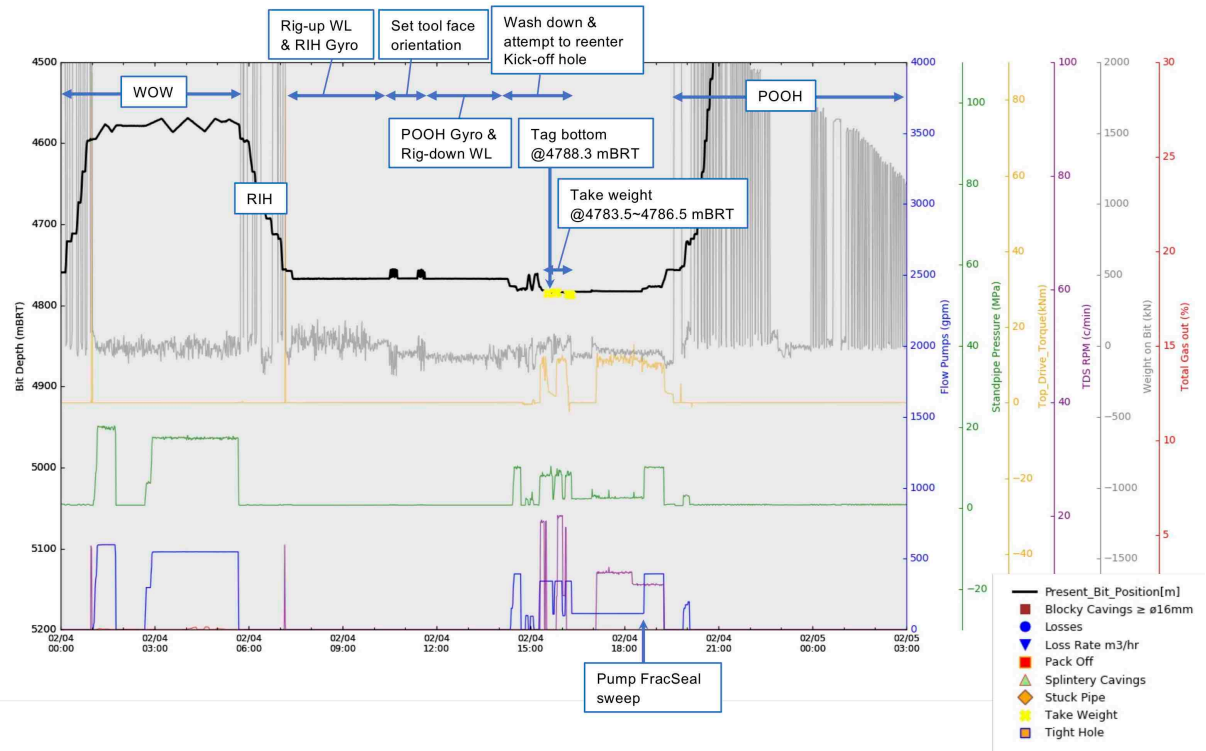

Figure 1 Drilling Experiences over last 27hrs

Cuttings and Cavings Analysis

Small amounts of Barolift fibers, fine cuttings, angular~blocky rock fragments ø4~16mm, subagular cement fragments and junk of severing came up to the shakers after washing down and while POOH (Fig. 2). The coarse rock fragments and cement fragments are probably derived from the new hole.

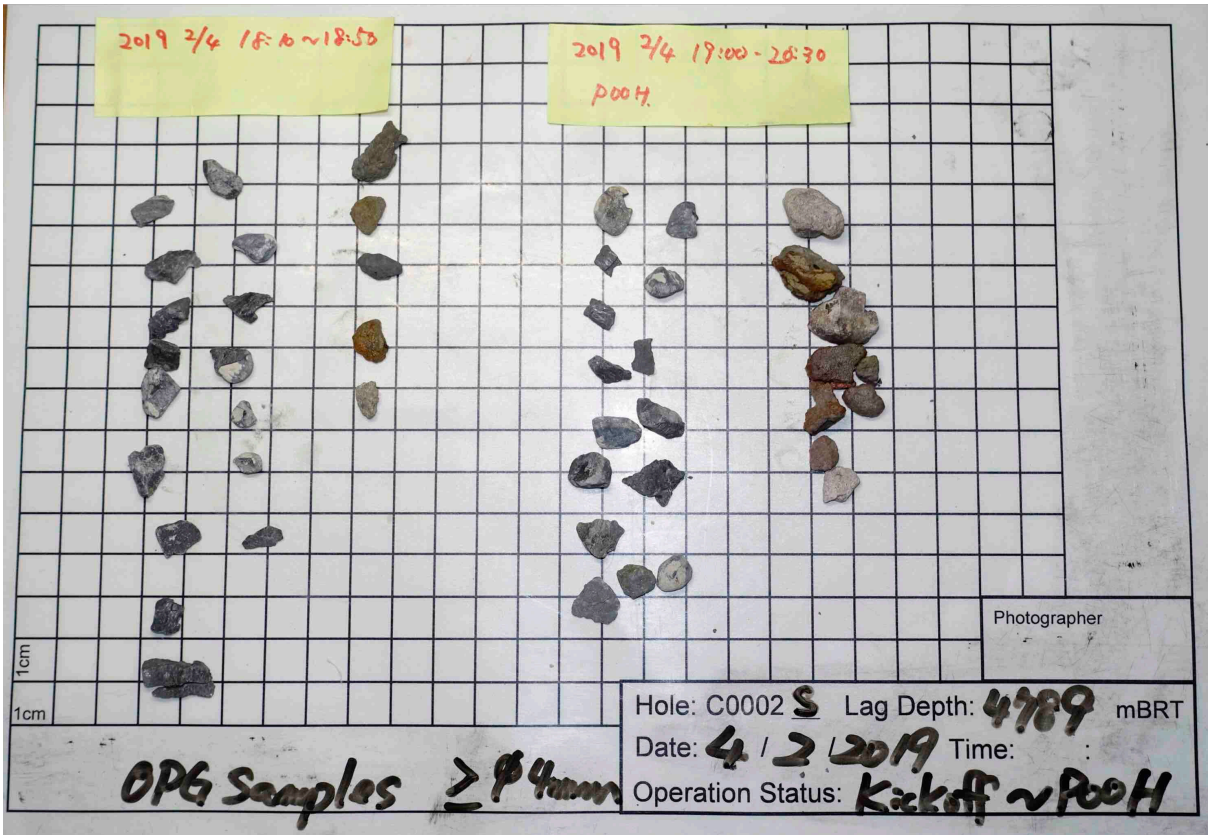

Figure 2 Cuttings/cavings and cement fragments ≥ ø4mm (from OPG samples).

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.

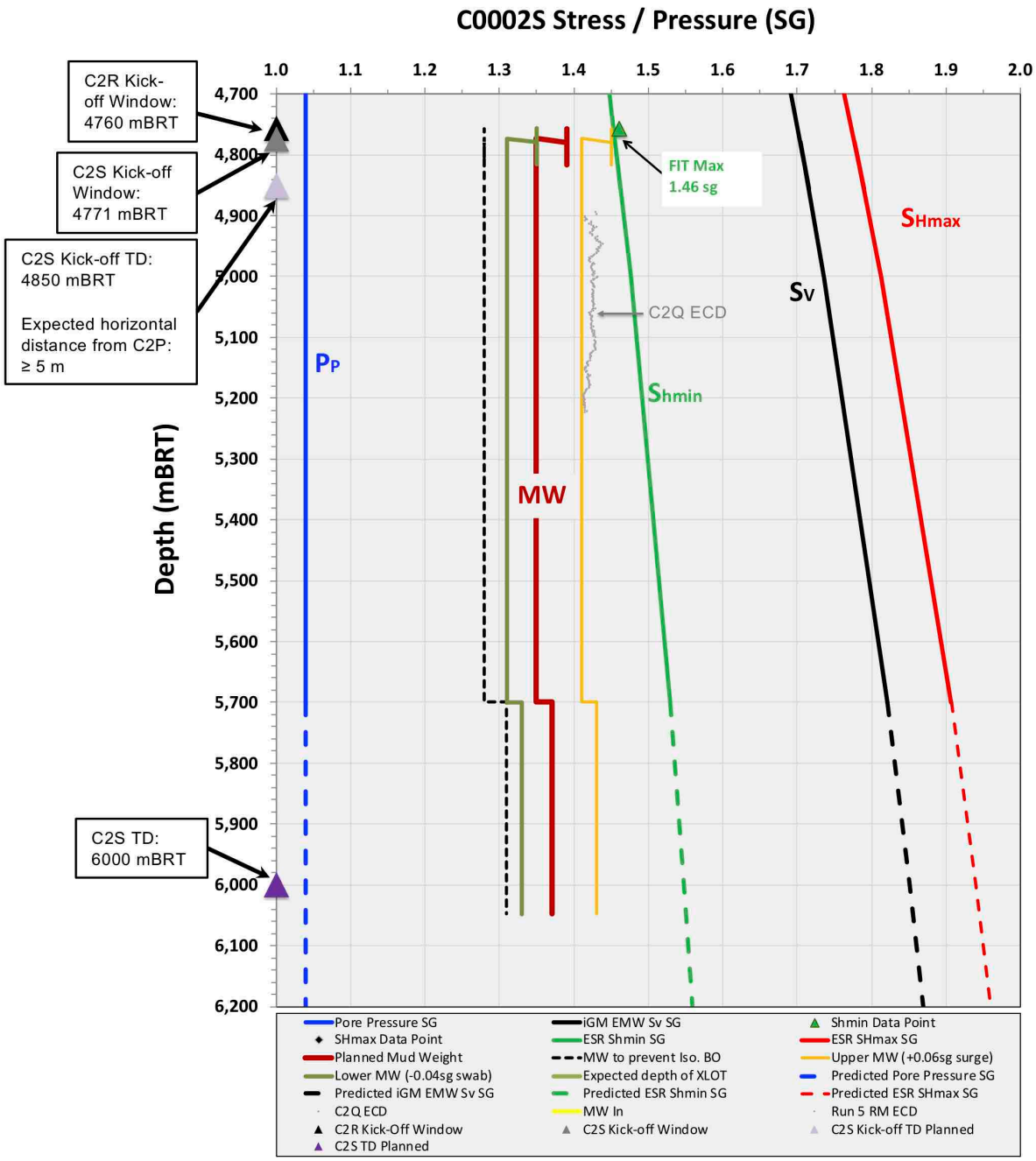

Figure 3 Current stress model for C2S