IODP EXP 358 Daily Geomechanics Report

Report #092 20190209

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:	4,901.4 (4,899.4)	mBRT (mTVD)	**Section TD:**	6,000.0 (5,998.0)	mBRT (mTVD)
Section #:	1		**CSG Depth/Size:**	4,769~4,775 11-3/4" ESET	mBRT inches
Static MW:	1.35	sg	**Current ECD:**	1.39	sg
FIT/LOT/ XLOT:	N/A *Note: 1.46sg FIT @ 4,757mBRT*				
Current formation/ lithology:	Shale				
Sensor Offsets from the Bit:	N/A				
Left BHA to be fished:	8-1/2" PDC Bit (AxeBlade XZ716): 0~0.258 m Xceed675 8-3/8"Stabilizers: 0.258~8.027 m Lower C-Link 675: 8.027~10.971 m				
Current Operations:	Continued POOH. Inspection of the BHA on surface indicated that the BHA components below Lower C-Link (Bit, Xceed and C-Link lower Sub) were missing, requiring the need to fish for the components left in the hole. Made up 8-1/8" Overshot BHA and RIH. Successfully reentered the C2S and the experienced minor tight hole conditions between 4801-4805 mBRT. Bit depth 4838 mBRT as of 06:00 Feb.10.				

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	**1.35 sg** remains recommended MW for C2S; however, RTG also recognizes that it is reasonable to reduce MW to **1.33 sg** and still maintaining hole integrity. This reduction in MW will likely improve ROP. Earth stress gradients may rapidly increase with depth (with UCS not increasing as rapidly). If this occurs, 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.

Principal Findings

N/A

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Observations Summary

Fracture Gradient	N/A
Pore Pressure	No indication suggesting abnormal pressure has been observed.
Wellbore Breakout	Minor isotropic and/or anisotropic breakouts were identified below 4835 mBRT. Geomechanical analysis is ongoing and will later incorporate the image memory data.
Tensile Failure	N/A
Drilling Parameters	N/A
Other	N/A

Analysis

Drilling Experience Analysis

The fishing BHA successfully reentered C2S, and between 4801-4805 mBRT while RIH, small obstacles were encountered resulting in minor tight hole conditions. RIH continued with no adverse conditions.

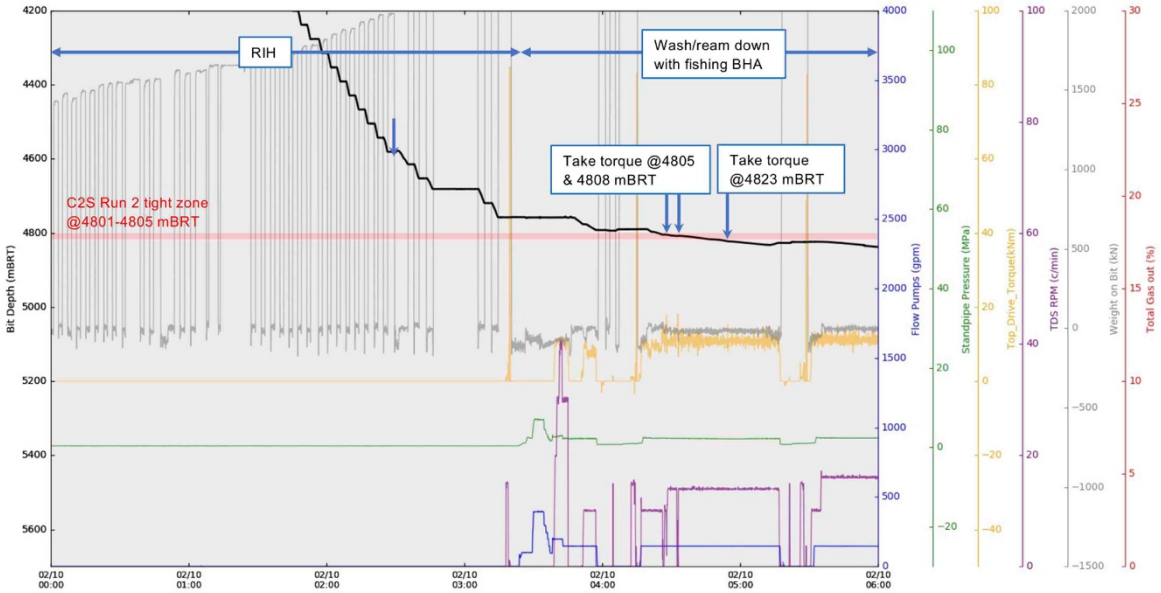

Figure 1 Drilling Experiences over last 6 hrs

Cuttings and Cavings Analysis

N/A

LWD Data Analysis

A general indication of hole conditions is summarized in Figure 2 showing a calculated eCaliper data along with image data in geographic reference frame. The average resistivity curves (especially, the shallow resistivity) and the resistivity images, indicate that the most enlarged hole sections are between the window and ~4837 mBRT. Below 4837 mBRT, it appears hole conditions improve inferred from a slight decrease in apparent hole enlargement and improved definition of features in the borehole image data.

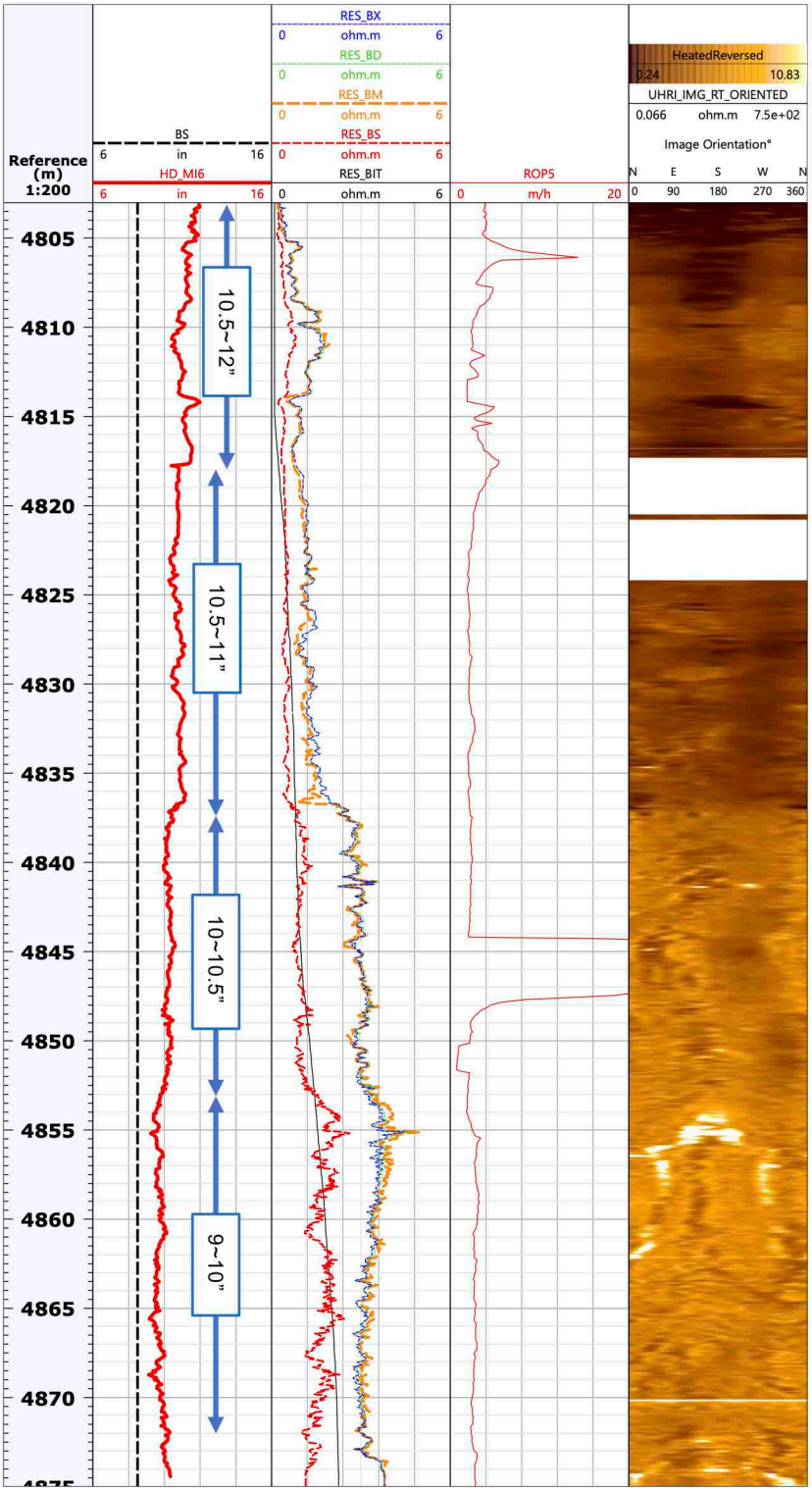

Figure 2 eCaliper profile based on LWD resistivity (predominately Shallow depth of investigation) collected in C2S Run 1. Although the average hole diameter is larger than the bit diameter, there does appear to be a trend towards minor improvement in hole condition below 4855 mBRT.

SFIB Analysis

N/A

Geomechanical Model Review

No change in the current stress model.

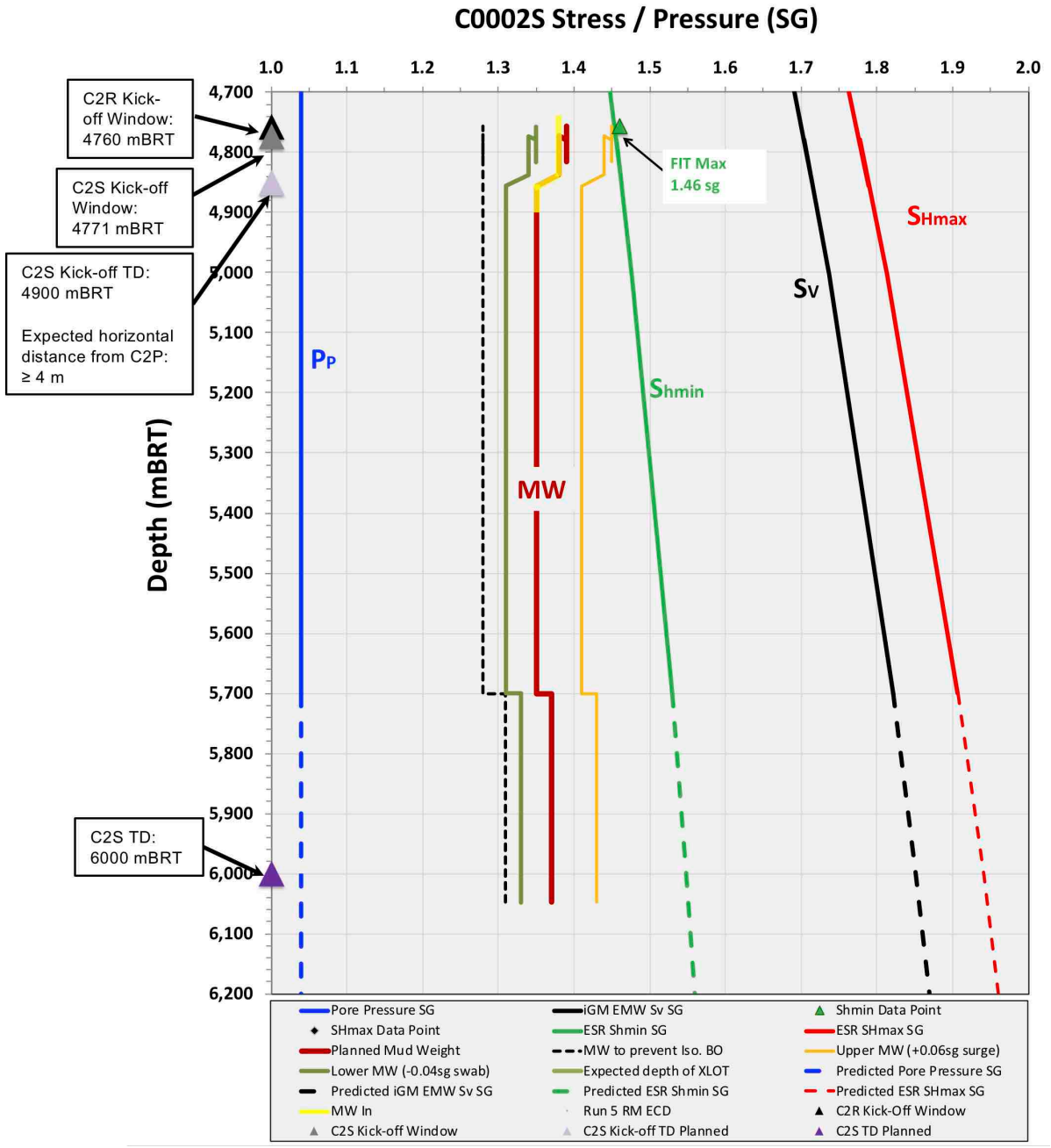

Figure 3 Current stress model for C2S