IODP EXP 358 Daily Geomechanics Report

Report #008 2018117 Final 4867

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
RTG Office Support	N/A

Well Status (as of 06:00 on 18 Nov. 2018)

Site Name:	C0002		**Hole Name:**	Q	
Water Depth:	1,939.0	m	**RT-MSL:**	28.5	m
Current Depth:	4,867.2 (4,865.3)	mBRT mTVD	**Section TD:**	4,867.2 (4,865.3)	mBRT mTVD
Section #:	1		**CSG Depth / Size:**	-	mBRT
Static MW:	1.37	sg	**Current ECD:**	-	sg
Current formation/ lithology:	Shale				
Sensor Offsets:	MWD D&I: 18 m from bit (tentative, to be confirmed) MWD Downhole Torque and Vibration: 17 m from bit (tentative, to be confirmed)				
Current Operations:	Completed rig service (replaced cylinder on Travelling Block Dolly). Pressure tested IBOP. Made up 8-1/2" Kick Off BHA. Meanwhile, performed air-gun test. RIH from 15:00. Carried out shallow tests at 500 mBRT. Reached 4848 mBRT at 05:10 Nov.18. Performed preparation procedures at 4849 mBRT (underway as of 06:00).				

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 issue with 1.37 sg MW for Section 1.

Principal Findings

N/A

Observations Summary

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

Fracture Gradient	
Pore Pressure	
Wellbore Breakout	
Tensile Failure	
Drilling Parameters	
Other	

Analysis

LWD Log Analysis

N/A

Drilling Experience Analysis

N/A

Cuttings Analysis
N/A

Cavings Analysis
N/A

SFIB Analysis
N/A

Geomechanical Model Review (a review of the FIT results)

Potentially no changes to the pre-drill geomechanical model because FIT (Formation Integrity Test) does not directly contribute sufficient information for constraining or refining subsurface earth stresses. By design, FIT is intended to determine whether the planned mud weight can be supported by the formation.

The planned mud weight of 1.37 sg with an operational safety upper margin of +0.06 sg (surge pressure), required a formation pressure integrity up to 1.43 sg. The FIT in the C0002Q rat-hole achieved that objective. It is possible that a leak-off pressure of 1.43 sg may have occurred, but a maximum pressure of 1.45 sg was achieved before the pumps were shut-in. If a leak-off pressure of 1.43 sg did occur, this implies a leak-off-test (LOT) had occurred (no longer a FIT). A leak-off-pressure of 1.43 sg may be interpreted as a possible approximation of S3 or Shmin stress magnitudes.

This interpretation would require a pass of the LWD image log across the rat-hole section to identify whether a new tensile was created, or drilling fluids leaked into a pre-existing bedding plane or natural fracture. The former would have direct implications of S3, while the latter would require further information such as bedding plane orientation.

However, since no LWD data acquisition is planned for the rat hole section, we will have no chance to confirm which case occurred. Therefore, we continue to call this test a FIT.

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