

IODP EXP 358 Daily Geomechanics Report

Report #009 2018118 Final 4939

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 Nov.19 2018)

Site Name:	C0002	Hole Name:	Q
Water Depth:	1,939.0 m	RT-MSL:	28.5 m
Current Depth:	4,939.0 mBRT (4,942.0) mTVD	Section TD:	5,028 mBRT (5,030) mTVD
Section #:	1	CSG Depth / Size:	- mBRT
Static MW:	1.37 sg	Current ECD:	- sg
Current formation/ lithology:	Shale		
Sensor Offsets:	MWD D&I: 18.225 m from the bit MWD Downhole WOB: 14.86 m from the bit		
Current Operations:	Started drilling ahead Section #1 with motor BHA at 06:45. Experienced stuck pipe at 4870 mBRT from 07:10 as the BHA exited the 11-3/4" window. Succeeded to get free after work pipe with jarring at 08:10. Experienced stuck pipe again at 4871 mBRT, 4873 mBRT and 4879.5 mBRT, at 08:55-09:05, 09:45-09:55 and 11:17-11:37, respectively. Drilled ahead without tight spots afterward. 4939 mBRT as of 06:00 Nov.19		

Geomechanics Alert

GREEN	<p>Green = Projected model remains accurate White = Unanticipated deviation from model which <i>should not</i> affect drilling Yellow = Unanticipated deviation from model which <i>may</i> affect drilling Red = Imminent requirement to stop drilling</p>
Basis for Alert Level + Recommendations	No issue with 1.37 sg MW for Section 1.

Principal Findings

N/A

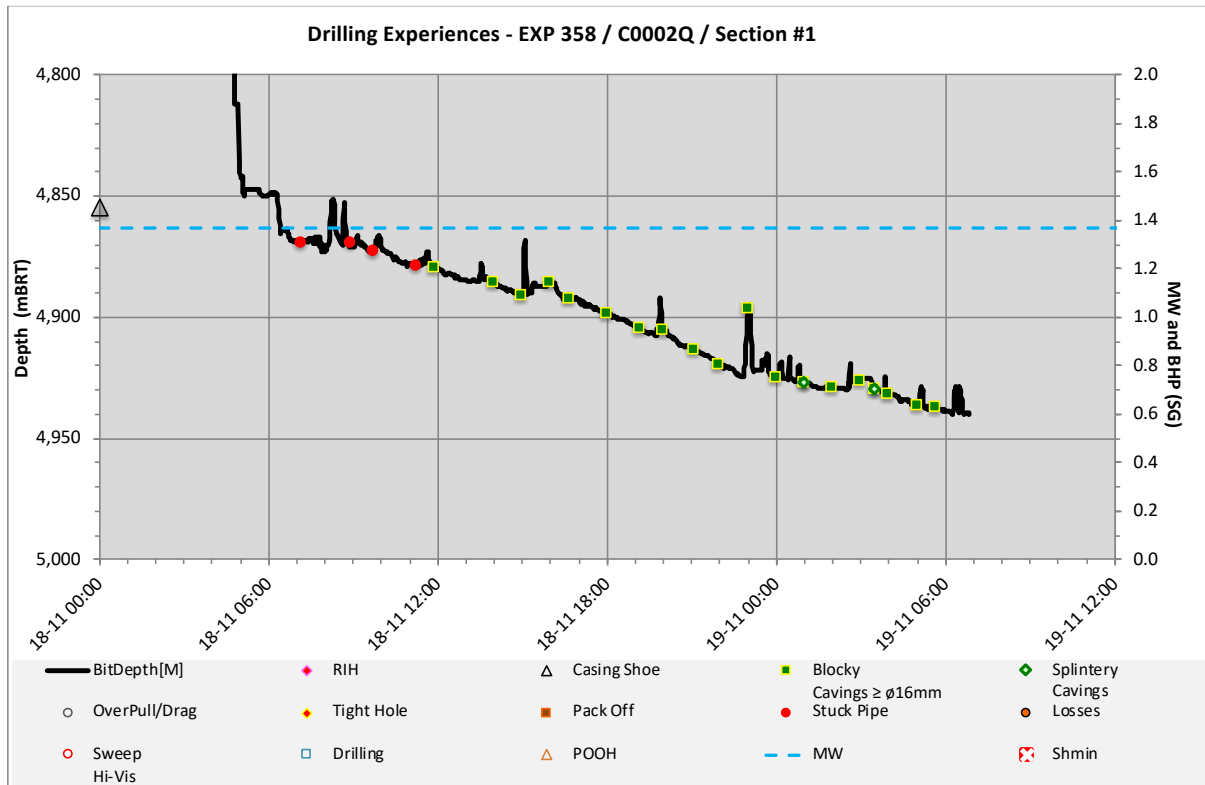
Observations Summary

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

Fracture Gradient	No losses.
Pore Pressure	Low and steady background gas within 0~0.5%.
Wellbore Breakout	No image log available.
Tensile Failure	No image log available.
Drilling Parameters	Surface RPM 30c/min, increased to 60c/min once BHA was out of 11-3/4" casing. Surface and downhole torque are constant, no shocks or sticklip recorded on BHA.
Other	

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Analysis

LWD Log Analysis

N/A

Drilling Experience Analysis

N/A

Cuttings Analysis

N/A

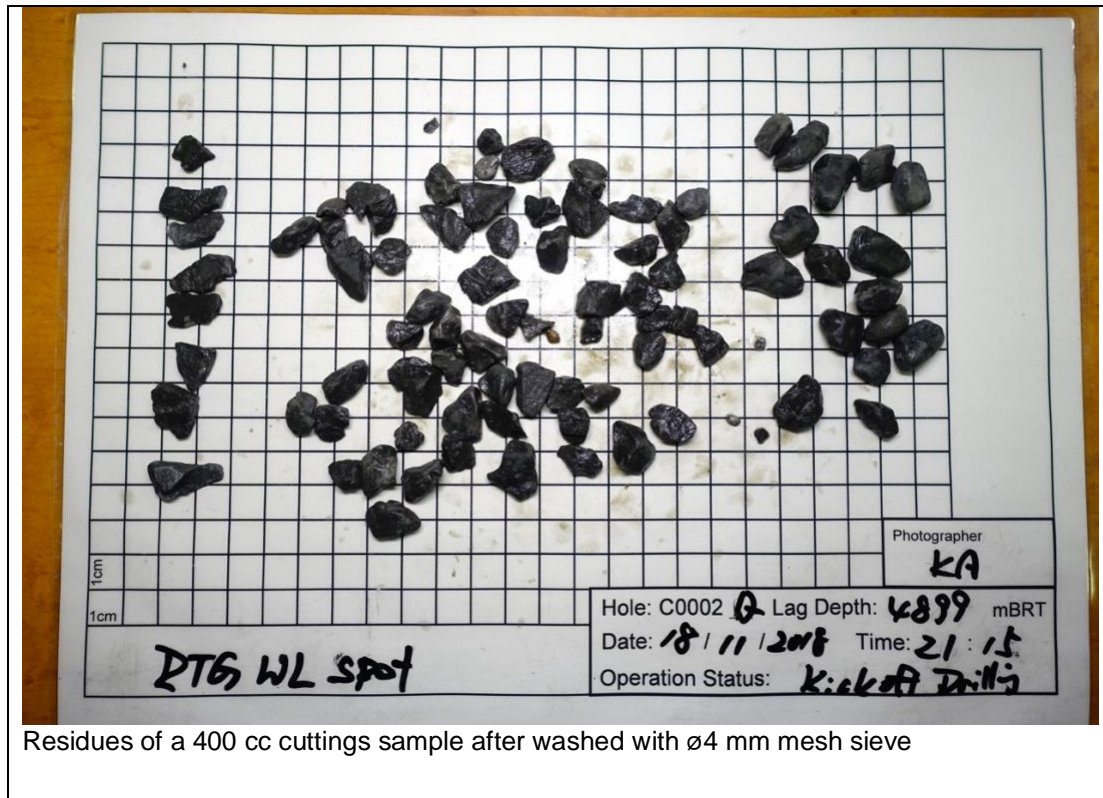
Cavings Analysis

Cavings (> ø4 mm) contained in cuttings generally at ~10% per unit volume from the beginning of kick-off operations, consisting of mudstone. In the following sample, fine pebble-sized (< ø20 mm) blocky, angular and rounded blocky cavings comprise 30%, 20% and 30%, respectively. Fresh platy or tabular cavings are also contained at ~20%. Occurrence of splintery cavings is rare. Anisotropic breakouts could be occurring but in very limited extent.

2018/11/18 21:15 – 4899 mBRT lag depth

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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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