

# IODP EXP 358 Daily Geomechanics Report

Report #010 2018119 Final 4989

## 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.20 2018)

Site Name:	C0002	Hole Name:	Q
Water Depth:	1,939.0 m	RT-MSL:	28.5 m
Current Depth:	4,989.0 mBRT (4,987.0) mTVD	Section TD:	4,989 mBRT (4,987.0) 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:	Continued drilling ahead Section #1 with motor BHA. Reached the section TD 4989.0 mBRT at 18:35. Took #7 survey and confirmed the hole inclination at 0.74 deg. Performed circulation and bottoms-up, and then wiper trip to 4864 mBRT. Encountered stuck pipe at 4873 mBRT at 01:45 Nov.20. Performed work pipe with jarring and released pipe. Continued ream up/down between 4850-4885 mBRT by 06:00.		

## Geomechanics Alert

<b>GREEN</b>	<p><b>Green</b> = 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

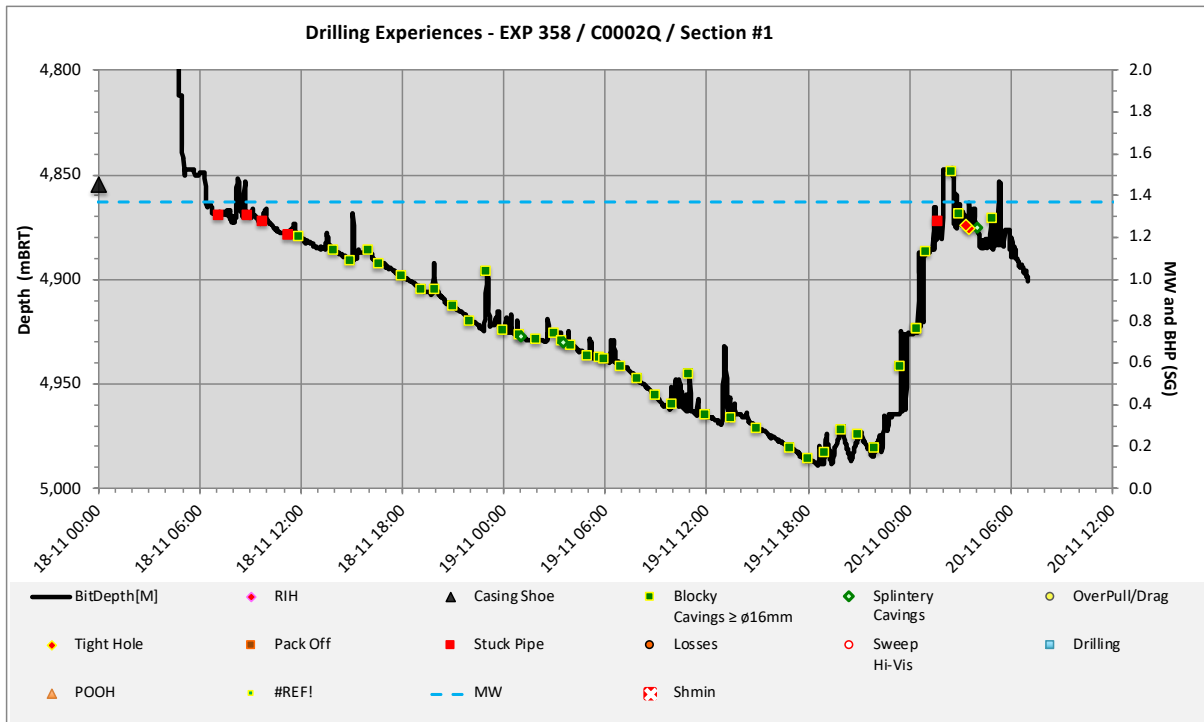
## Observations Summary

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

Fracture Gradient	No losses.
Pore Pressure	Low and steady background gas within 0~0.4%.
Wellbore Breakout	No image log available.
Tensile Failure	No image log available.
Drilling Parameters	Surface RPM 60 /min. Surface and downhole torque are constant, no shocks or sticklip recorded on BHA until getting the section TD.
Other	

# IODP EXP 358 Daily Geomechanics Report

Report #010 2018119 Final 4989



## Analysis

### LWD Log Analysis

N/A

### Drilling Experience Analysis

N/A

### Cuttings Analysis

Soft clay cuttings comprise 95% or more of solids coming up to the shaker. Besides those, fine hard chips, less than 1 cm in size, angular or platy in shape, consisting of shale/mudstone are contained ~5%. These hard chips are probably also cuttings produced by mechanical impact of the bit at the bottom. According to the Geoservices report, the major lithological components of the cuttings are claystone and silty claystone.

# IODP EXP 358 Daily Geomechanics Report

Report #010 2018119 Final 4989



Cuttings consisting of soft clay and hard chips of shale/mudstone with a few cement fragments (Lag depth = 4940 mBRT). Residues of a 400-cc cutting sample after washing with a 4mm-mesh sieve.

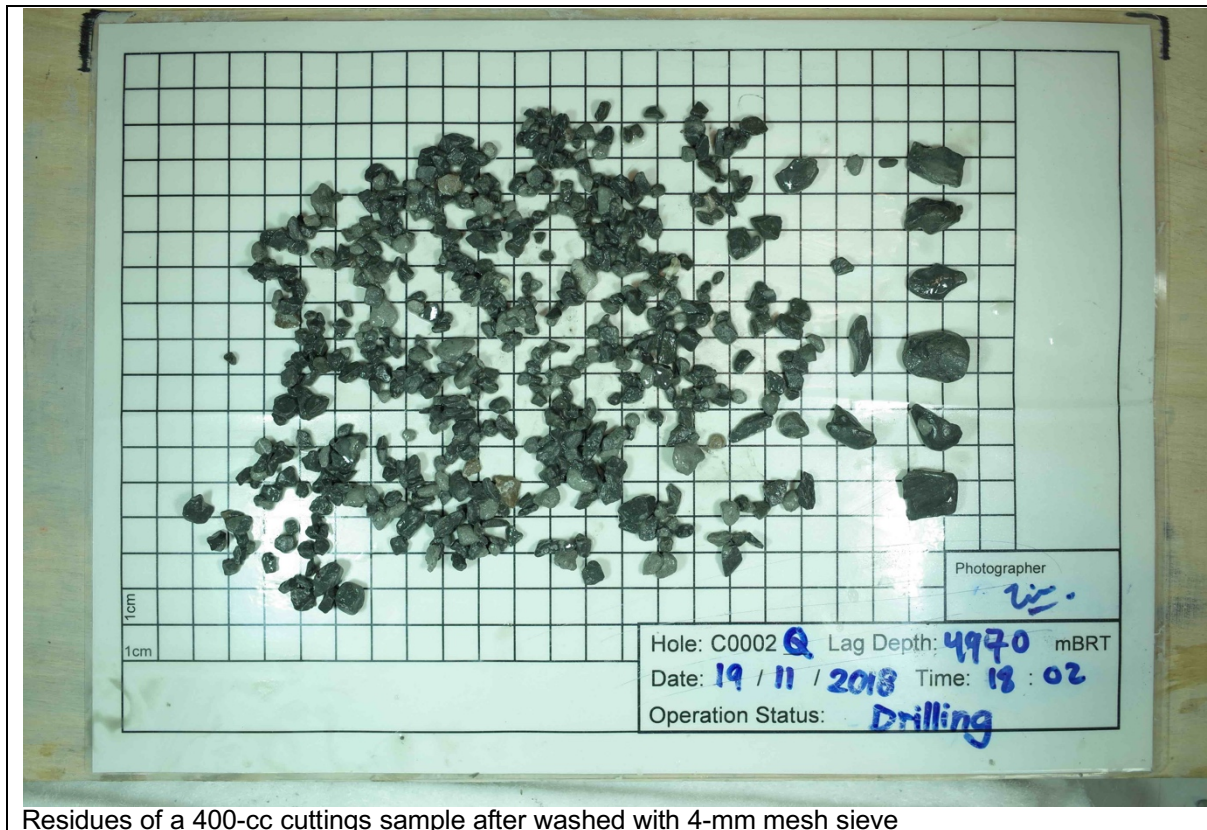
## Cavings Analysis

Cavings ( $> \phi 4$  mm) are contained in cuttings generally at ~5% per unit volume, consisting of shale/mudstone. Those less than  $\phi 10$  mm comprise ~95%, blocky, angular or platy in shape. Occurrence of blocky/angular or rounded blocky cavings larger than  $\phi 16$  mm is less than 0.5% per unit volume. Occurrence of splintery cavings is rare.

2018/11/19 18:02 – 4970 mBRT lag depth

# IODP EXP 358 Daily Geomechanics Report

Report #010 2018119 Final 4989



Residues of a 400-cc cuttings sample after washed with 4-mm mesh sieve

## 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.