

IODP EXP 358 Daily Geomechanics Report

Report #050 20181229

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)	Toby Colson

Well Status

Site Name:	C0002	Hole Name:	R
Water Depth:	1,939.0 m	RT-MSL:	28.5 m
0600h Depth:	4,963.0 mBRT (4,961.0) (mTVD)	Section TD:	5,667.5 mBRT (5,664.5) (mTVD)
Section #:	0	CSG Depth/Size:	4757.0 mBRT 11-3/4 inches
Static MW:	1.39 sg	Current ECD:	- sg
FIT/LOT/ XLOT:	1.46sg FIT @ 4,757mBRT.		
Current formation/ lithology:	Shale		
Sensor Offsets from the Bit:	TeleScope 675: (Direction + Inclination: 18.37 m)		
Other BHA Offsets from the Bit:	8-1/2" Insert Rock Bit: 0~0.25 m Motor with 1.15 deg bend: 0.25~8.47 m 8.125" Stabilizer: 8.47~10.13 m 2 x 6-3/4" Non-Magnetic Drill Collar + TeleScope 675: 10.91~32.58 m 9 x 6-3/4" Drill Collar: 32.58~117.17 m 6-1/2" Hydraulic Jar: 117.17~127.10 m 2 x 6-3/4" Drill Collar: 127.10~145.76 m 12 x 5.68" Heavy Weight Drill Pipe: 146.56~257.51 m Top of BHA: 258.51 m		
Current Operations:	POOH the kick-off BHA to change out the bit and motor. MU BHA and RIH. 147 mBRT (bit depth) as of 06:00 Dec.30.		

Geomechanics Alert

GREEN	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
Basis for Alert Level + Recommendations	No further observations have been made to suggest any change in wellbore condition 1.39 sg remains recommended MW for Section 1.

Principal Findings

N/A

IODP EXP 358 Daily Geomechanics Report

Report #050 20181229

Observations Summary

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

Fracture Gradient	N/A
Pore Pressure	No indications of overpressure observed.
Wellbore Breakout	N/A
Tensile Failure	N/A
Drilling Parameters	N/A
Other	N/A

Analysis

Drilling Experience Analysis

High flow rate and rotation were required while pulling out the BHA to pass through the interval of 4800-4839 mBRT where drilling difficulties have been experienced. Substantial damage is expected in this interval.

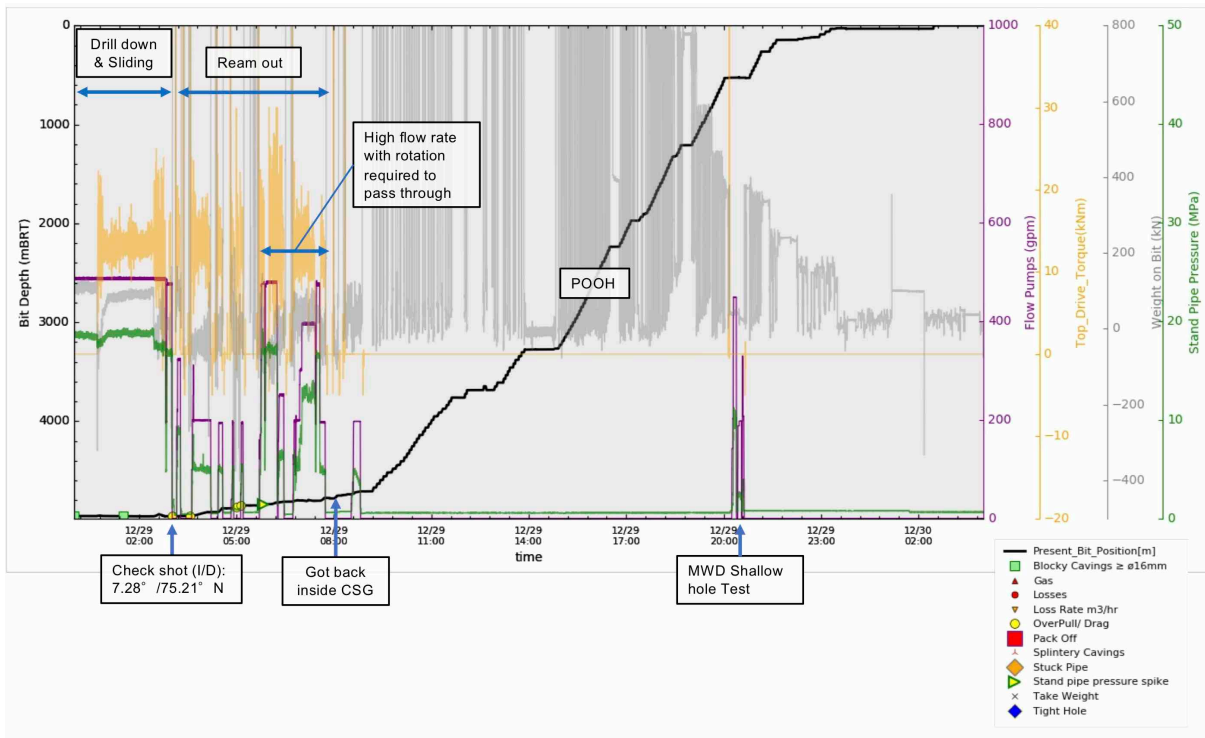


Figure 1: Drilling experiences over the last 28 hrs (~04:00 Dec.30).

Cuttings and Cavings Analysis

Coarser shale/mudstone fragments > ϕ 4mm in diameter, were typically blocky and approximately ~10 mm in size. Cutting typically have a signature in tri-cone bit morphology. Lag time corrected cutting/cavings occurrences show variations associated with drilling events. No notable indications of wellbore instability were seen in the shale/mudstone fragments. Besides, tuff grains remained present throughout. They are generally rounded but were probably formed as fresh blocky cavings derived from a tuff layer(s) at the interval of 4840-4843 mBRT or different tuff layers below. Local anisotropic failure restricted to a tuff layer(s) is possibly occurring.

IODP EXP 358 Daily Geomechanics Report

Report #050 20181229

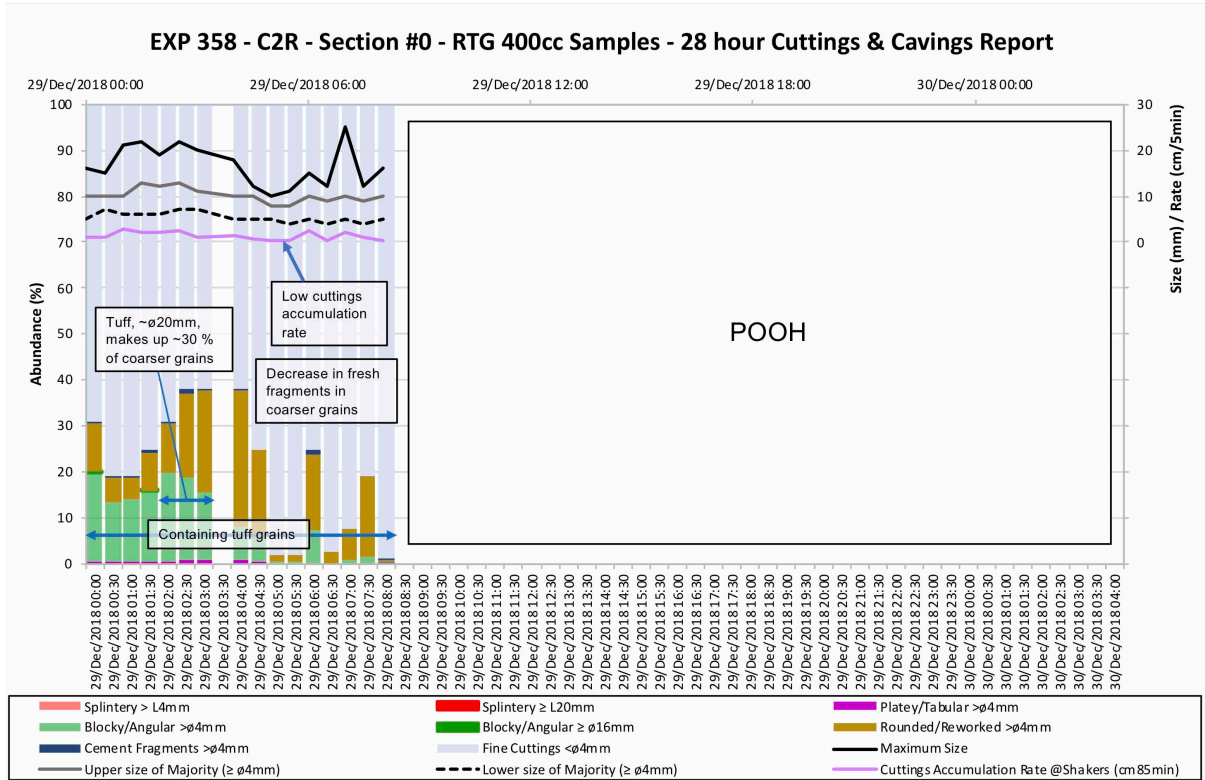


Figure 2: Analysis of cuttings/cavings > ø 4mm (taken from 400cc RTG Samples) over last 28 hrs (~04:00 Dec.30)

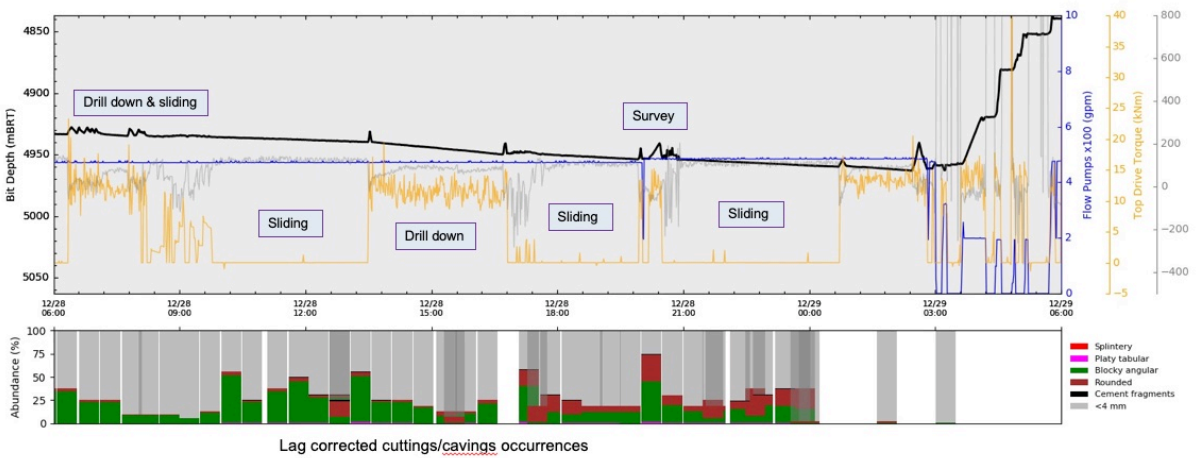


Figure 3: Correlation between drilling events and lag corrected cuttings/cavings occurrences over last 24 hrs (00:00~24:00 Dec.29).

IODP EXP 358 Daily Geomechanics Report

Report #050 20181229

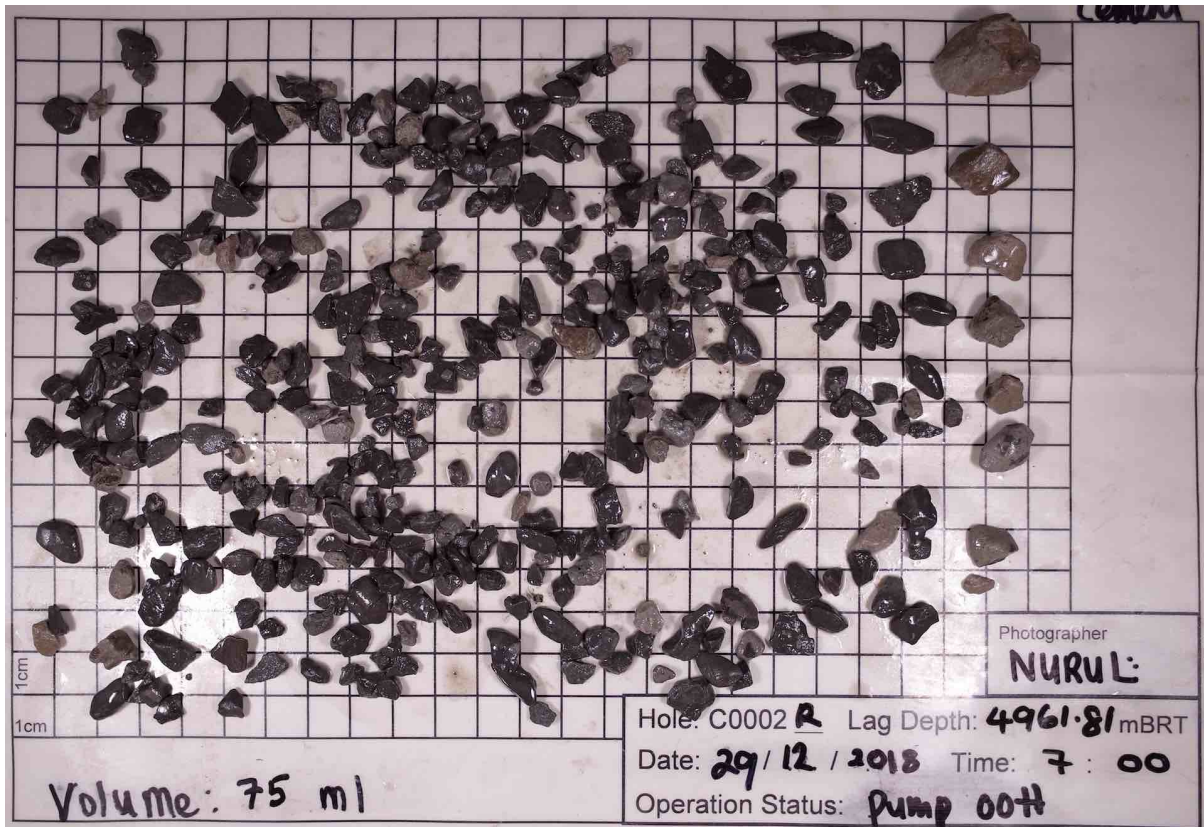


Figure 4: Example of cuttings/cavings $> \varnothing 4\text{mm}$ (taken from 400cc RTG Samples). Rounded shale fragments $\leq \varnothing 10\text{mm}$ is predominant. Light gray rounded to sub-angular grains are tuff fragments, probably formed as fresh blocky cavings and worn out on the way to the surface due to their softness. It is conceivable that local anisotropic failure restricted to a tuff layer(s) is possibly occurring.

LWD Data Analysis

N/A

SFIB Analysis

No further updates

IODP EXP 358 Daily Geomechanics Report

Report #050 20181229

Geomechanical Model Review

No change in the current stress model.

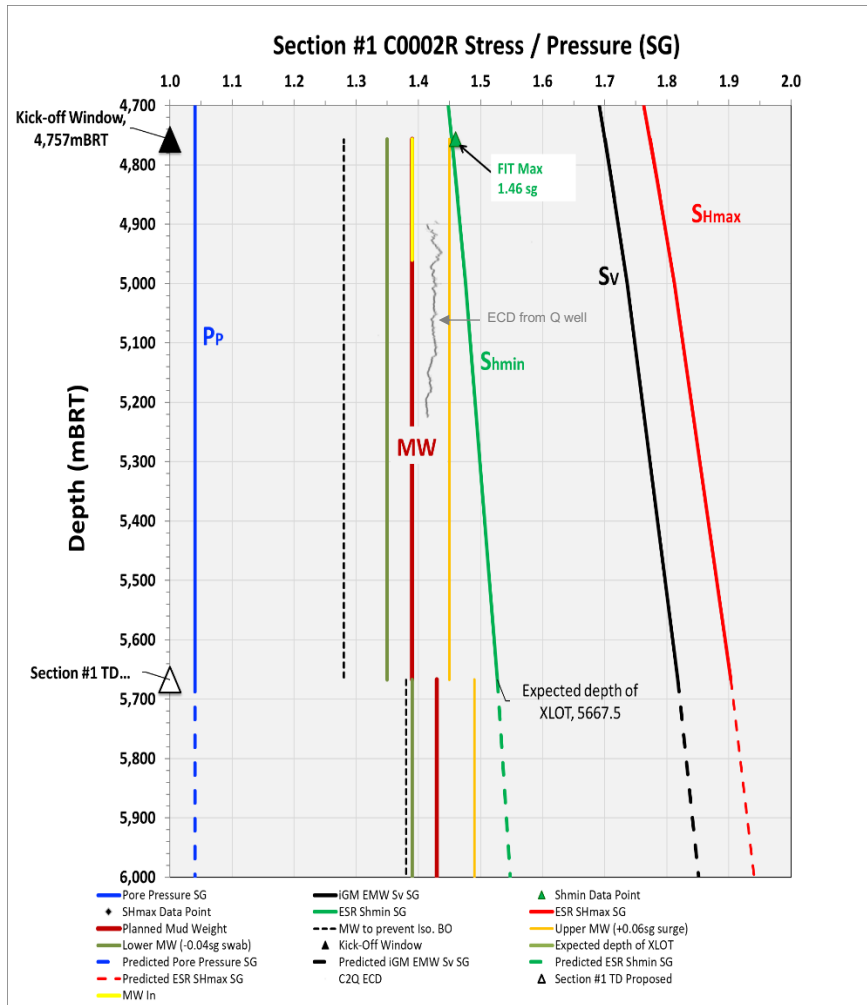


Figure 5: Current stress model for Section #1

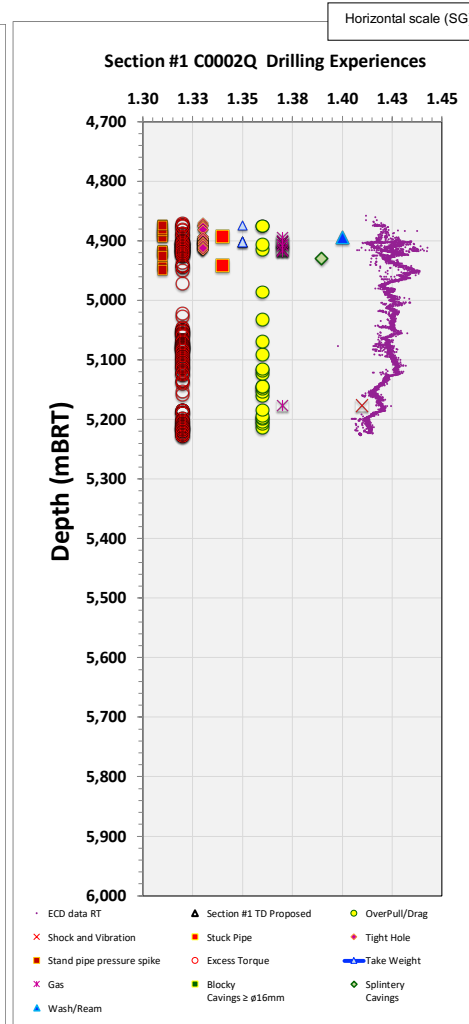


Figure 6: C0002Q Drilling Experiences

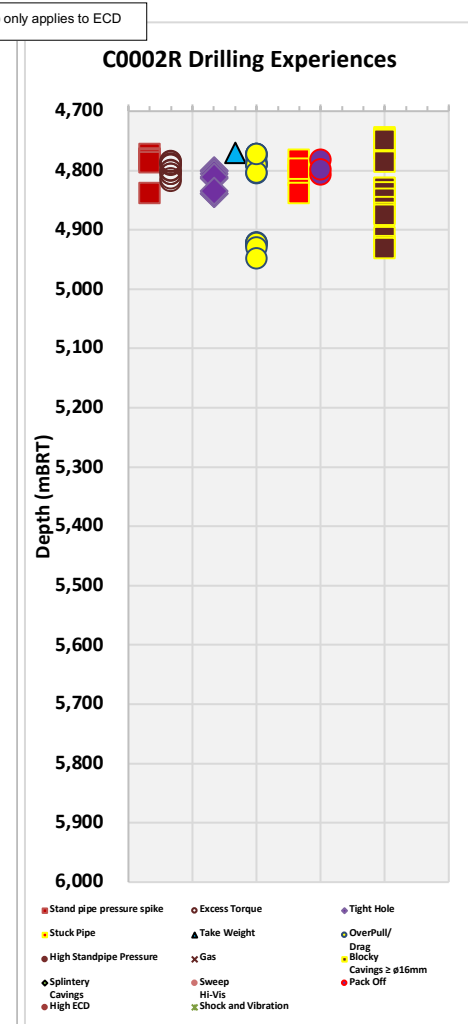


Figure 7: C0002R Drilling Experiences