

IODPEXP 358 Daily Geomechanics Report

Report #003 20181112 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 13 Nov. 2018)

Site Name:	C0002	Hole Name:	Q
Water Depth:	1,939.0 m	RT-MSL:	28.5 m
Current Depth:	4,867.2 mBRT (4,865.3) mTVD	Section TD:	4,867.2 mBRT (4,864.0) mTVD
Section #:	0	CSG Depth / Size:	- mBRT
Static MW:	1.37 sg	Current ECD:	- sg
Current formation/ lithology:	Shale		
Sensor Offsets:	-		
Current Operations:	Performed FIT at the window section from 05:45 to 06:30. Succeeded in pressurizing up to 830 psi (1.45 sg) without significant mud loss; pressure held at 670 psi (1.43 sg) after pumps shut-in. Confirmed no further FIT repeat cycle was needed. Conditioned mud to increase MW from 1.33 to 1.37 sg. POOH from 20:25. 1337.5 mBRT as of 06:00 Nov.13.		

Geomechanics Alert

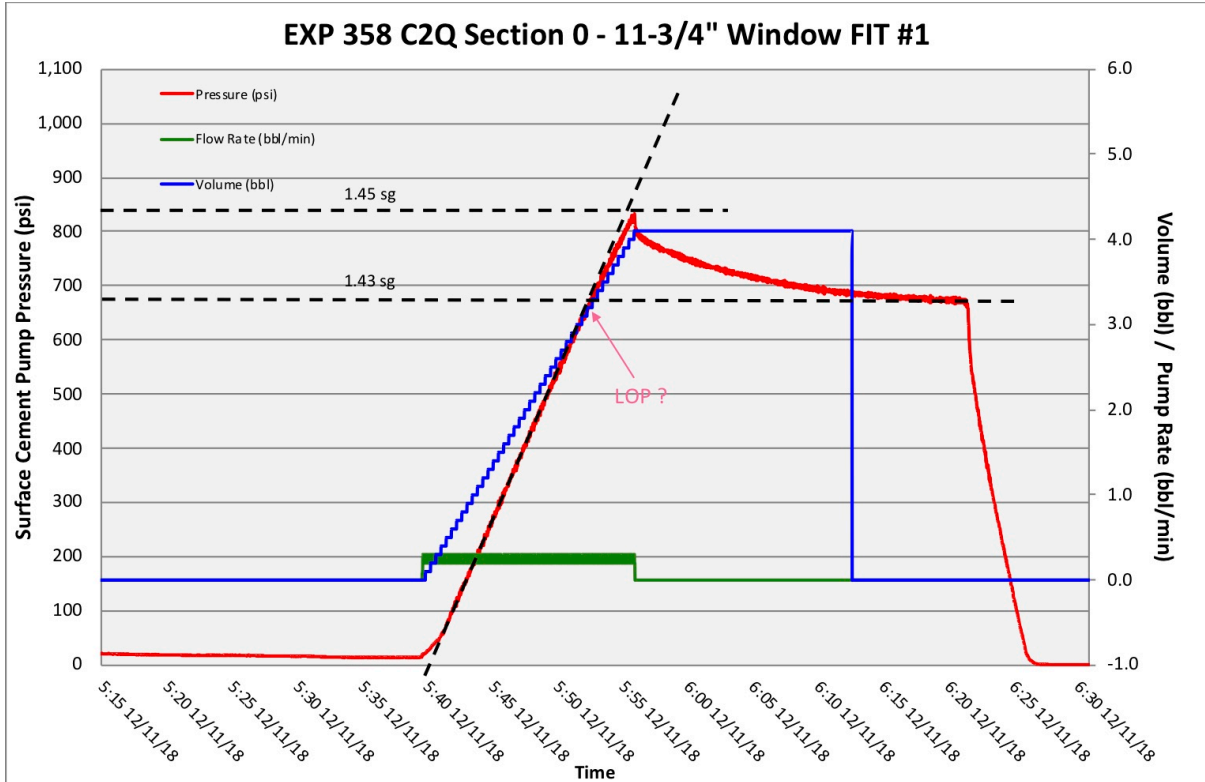
GREEN	<p>Green = Projected model remains accurate White = Unanticipated deviation from model which <i>should not</i> affect drilling Yellow = Unanticipated deviation from model which <i>may</i> affect drilling Red = Imminent requirement to stop drilling</p>
Basis for Alert Level + Recommendations	No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

Principal Findings

Reexamined the result of the last FIT pressure measurements, and it is possible that the linear pressure build-up gradient deviated slightly at 670 psi (1.43 sg). This pressure *possibly* indicates a LOP (leak-off pressure). Volume pumped during the test was 4.1 bbls. Volume returned was 3.6 bbl, implying 0.6 bbls was lost into the formation. A maximum pressure of 830 psi (1.45 sg) was achieved without formation breakdown. Pressure decay after pump shut-in suggests that the formation could hold a pressure of at least 670 psi (1.43 sg).

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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

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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.

Therefore, for now we will continue to call this test a FIT until we learn more from the LWD image data after it passes through the rat-hole.

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