

Samples 365
+
388

Structural Geology Cuttings Observation Sheet

Exp.: 358 Site: 6007 Hole: QB Date: 12/04/2018 Observer: Summary:

Cuttings No.	depth (mbsf)	size (mm)	structure ID	Number in Sandstone	Number in mudstone (silt to clay)	Number (Lithology not noted)	Comment
✓ CR 0365	3027.5	(> 4) or 1 - 4	vein or mineral filled fracture			1	sub parallel cross seal veins, + occasional bedding veins
			slickenline				
			scaly fabric	—	—	—	
			deformation band/ cataclastic band	—	—	—	
			other: <u>open fracture / drill induced slickens</u>			2/7	count as "not deformed"
			no deformation bedding present?	15		288	2 elongate splinters, 4 flat splinters, 2 ver. fault laminae on 25 grains
✓ CR 0365	3027.5	> 4 or 1 - 4	vein or mineral filled fracture	—	—	1	opaque calcite vein
			slickenline	—	—	—	
			scaly fabric	—	—	—	
			deformation band/ cataclastic band	—	—	—	
			other: <u>drill induced slickens</u>			2	shiny strial on rough surface
			no deformation bedding present?			186	1 pumice laminae
✓ JD 0388	3047.5	(> 4) or 1 - 4	vein or mineral filled fracture	—	1		
			slickenline	—	4		+ to shiny surfaces ("drilled induced")
			scaly fabric	—	—	—	
			deformation band/ cataclastic band	—	—	—	
			other: <u>cement</u>			2	no deformation
			no deformation bedding present?	21		244	many burrows filled with pyrite
				1	yes		

Samples 365
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Structural Geology Cuttings Observation Sheet

Exp.: 354 Site: 002 Hole: QB Date: Dec 4 Observer: Summary:

Cuttings No.	depth (mbsf)	size (mm)	structure ID	Number in Sandstone <i>CEMENT</i>	Number in mudstone (silt to clay)	Number (Lithology not noted)	Comment
CR 0365 <i>CEMENT</i>	3027.5	> 4 or 1 - 4	vein or mineral filled fracture	2			
			slickenline				
			scaly fabric				
			deformation band/ cataclastic band				
			other: _____				
			no deformation	8			4 grey 4 brown cement
			bedding present?				
YR 0388	3047.5	> 4 or 1 - 4	vein or mineral filled fracture				
			slickenline				
			scaly fabric				
			deformation band/ cataclastic band				
			other: <i>pyrite</i>				
			no deformation	14	3		6, but likely to be drill-induced
			bedding present?		89		
CR 0365 <i>CEMENT</i>	3027.5 <i>CEMENT</i>	> 4 or 1 - 4	vein or mineral filled fracture	3			
			slickenline				
			scaly fabric				
			deformation band/ cataclastic band				
			other: _____				
			no deformation			10	4 grey, 3 brown, 3 grey/brown
			bedding present?				

Structural Geology Cuttings Observation Sheet

Exp.: 358 Site: 6002 Hole: QB Date: Dec 4 Observer: Summary:

Cuttings No.	depth (mbsf)	size (mm)	structure ID	Number in Sandstone	Number in mudstone (silt to clay)	Number (Lithology not noted)	Comment
404	3067.5	> 4 or 1 - 4	vein or mineral filled fracture			2	1 fragment of calcite vein, calcite 4 likely drilling induced
			slickenline	—	—	—	
			scaly fabric	—	—	—	
			deformation band/ cataclastic band	—	—	—	
			other: open fractures			6	
		no deformation bedding present?	31	241	1	1 burrow filled with calcite & well preserved in silty claystone	

404	3067.5	> 4 or 1 - 4	vein or mineral filled fracture				7 likely to be drill-induced
			slickenline	—	—	—	
			scaly fabric	—	—	—	
			deformation band/ cataclastic band	—	—	—	
			other: pyrite			2	
		no deformation bedding present?	23	161			

404 cement	3067.5	> 4 or 1 - 4	vein or mineral filled fracture			2	
			slickenline	—	—	—	
			scaly fabric	—	—	—	
			deformation band/ cataclastic band	—	—	—	
			other: _____			—	
		no deformation bedding present?			9	7 mix brown & grey elements, 4 brown	

Samples 466
+
436

Structural Geology Cuttings Observation Sheet

Exp.: 358 Site: 6002 Hole: Q13 Date: Dec 4 Observer: Summary:

Cuttings No.	depth (mbsf)	size (mm)	structure ID	Number in Sandstone	Number in mudstone (silt to clay)	Number (Lithology not noted)	Comment
466	3107.5	> 4 or 1 - 4	vein or mineral filled fracture	—	—	—	+5 likely drilling induced
			slickenline	—	2	—	
			scaly fabric	—	—	—	
			deformation band/ cataclastic band	—	—	—	
			other: <u>open fracture</u>	—	1	—	
no deformation bedding present?				18	228	1	4 cement: 2 brown with calcite veins, 2 gray with clast of wall rock. yes
466	3107.5	> 4 or 1 - 4	vein or mineral filled fracture	—	1	1	one hairline vein in siltstone, one fragment of calcite vein ~0.5cm 2 w/ drill induced shiny striae, 2 fractured grains 6 cement not included in this count 2 clasts of bedding, 1 w/ coarse sand to silt cement
			slickenline	—	—	—	
			scaly fabric	—	—	—	
			deformation band/ cataclastic band	—	—	—	
			other: <u>drilling induced damage</u>	—	4	—	
no deformation bedding present?				—	178	0	yes
436	3087.5	> 4 or 1 - 4	vein or mineral filled fracture	—	1	—	—
			slickenline	—	—	—	
			scaly fabric	—	—	—	
			deformation band/ cataclastic band	—	—	—	
			other: <u>Carbonate cement</u>	3	—	—	
no deformation bedding present?				21	169	—	—

Samples 436
+
482

Structural Geology Cuttings Observation Sheet

Exp.: 358 Site: 222 Hole: QB Date: Dec 6 Observer: Summary:

Cuttings No.	depth (mbsf)	size (mm)	structure ID	Number in Sandstone	Number in mudstone (silt to clay)	Number (Lithology not noted)	Comment
436	3087.5	> 4	vein or mineral filled fracture	—	—	2	calcite. 2: likely to be drill-induced
		or	slickenline	—	—	—	
		1 - 4	scaly fabric	—	—	—	
			deformation band/ cataclastic band	—	—	—	
			other: <u>Carbonate Cementation</u>	—	11	4	
		no deformation bedding present?	22	137			
482	3127.5	> 4	vein or mineral filled fracture	—	—	1	calcite 3: drill-induced?
		or	slickenline	—	—	—	
		1 - 4	scaly fabric	—	—	—	
			deformation band/ cataclastic band	—	—	—	
			other: _____	—	—	—	
		no deformation bedding present?	18	99			
482	3127.5	> 4	vein or mineral filled fracture	—	—	2	..
		or	slickenline	—	—	—	
		1 - 4	scaly fabric	—	—	—	
			deformation band/ cataclastic band	—	—	—	
			other: _____	—	—	—	
		no deformation bedding present?	7	125			

Structural Geology Cuttings Observation Sheet

Sample 5
501 +
507

501
+
507

Exp.: 358 Site: C002

Hole: QB

Date: Dec 6

Summary:

Cuttings #	structure ID	Number in Sandstone	Number in mudstone (silt to clay)	Number (Lithology not noted)	Comment
501	vein or mineral filled fracture	0	4	0	calcite vein, 1 platy fragment of calcite vein
Observer JD	slickenline	0	0	0	
Depth (mbsf) 3147.5	scaly fabric	0	0	0	
	deformation band/ cataclastic band	0	0	0	
Size (mm) > 4 or 1-4	other: _____				
	no deformation bedding present?	7	207	1	few burrows filled with pyrite, 1 cement with calcite veins
501	vein or mineral filled fracture			2	no. 5 mm calcite vein, host rock uncertain may be sand. Crack seal veins - fibers grad perpendicular to wall rock contact. Inclusions of siltstone (pictures)
Observer CR	slickenline	-	-	-	
Depth (mbsf) 3147.5	scaly fabric	-	-	-	
	deformation band/ cataclastic band	-	-	-	
Size (mm) > 4 or 1-4	other: drilling induced def			6	3 striae + 3 open fractures, drill induced, otherwise not deformed
	no deformation bedding present?	45	196		fine laminations in sand, rarely in silt
0507	vein or mineral filled fracture	0	0	1	
Observer JD	slickenline	0	0	0	2 likely drilling induced
	scaly fabric	0	0	0	
Depth (mbsf) 3167.5	deformation band/ cataclastic band	0	0	0	
	other: open fracture	0	3	0	
Size (mm) > 4 or 1-4	no deformation bedding present?	17	137	3	burrows filled with silt and orange quartz (2) 3mm wide calcite vein 3 cement grains with calcite veins grey and brown cement, 1 pumice?

CR

#4 cement

Structural Geology Cuttings Observation Sheet

Samples 507 + 541

Exp.: 358 Site: C002 Hole: QB Date: Dec 6

Summary:

Cuttings #	structure ID	Number in Sandstone	Number in mudstone (silt to clay)	Number (Lithology not noted)	Comment	Cement present?
0507	vein or mineral filled fracture	0	3	0	calcite veins	12 mixed brown & grey - no deformation
Observer JD	slickenline	0	0	0	3 likely drilling-induced	
Depth (mbsf) 3167.5	scaly fabric	0	0	0		
Size (mm) > 4 or 1-4	deformation band/ cataclastic band	0	0	0		
	other: _____	0	0	0		
	no deformation bedding present?	37	324	5	burrows filled with quartz? well preserved yes	
0541	vein or mineral filled fracture	0	0	1	1 calcite fragment (fibrous)	03 mixed brown & grey cement - no deformation
Observer JD	slickenline	0	0	0		
Depth (mbsf) 3187.5	scaly fabric	0	0	0		
Size (mm) > 4 or 1-4	deformation band/ cataclastic band	0	0	0		
	other: _____					
	no deformation bedding present?	12	242	2	few pyrite burrows, fossils, 2 samples with black clay, and fine laminations - deformed	
0541	vein or mineral filled fracture			2	calcite 1. crack seal 1. ? (too small)	
Observer YY	slickenline					
Depth (mbsf) 3187.5	scaly fabric					
Size (mm) > 4 or 1-4	deformation band/ cataclastic band					
	other: _____					
	no deformation bedding present?	38	137	1	foliated. apparently bedding (not clear)	

Structural Geology Cuttings Observation Sheet

Samples 570 + 610

(see sketch on reverse side)
Found 5 more calcite vein fragments in non-described

Exp.: 358 Site: C002 Hole: QB Date: Dec 7 Summary:

Cuttings #	structure ID	Number in Sandstone	Number in mudstone (silt to clay)	Number (Lithology not noted)	Comment	Cement present?
0570	vein or mineral filled fracture			1	grainy calcite, ~ 0.5-1cm with small mm fibers veins cutting through it.	NO
Observer CR	slickenline	—	—	—		(3 pieces in non-described portion) brown
Depth (mbsf) 3207.5	scaly fabric	—	—	—		
Size (mm) >4 or 1-4	deformation band/ cataclastic band	—	—	—		
	other: drilling induced slicks			10	all on relatively angular cuttings	
	no deformation bedding present?	8	274	4	2 with coarse sand to silt contacts	
0570	vein or mineral filled fracture	0	0	4	fibrous calcite veins	1 brown cement no deformation
Observer JD	slickenline	0	0	0	22 likely drilling induced	
Depth (mbsf) 3207.5	scaly fabric	0	0	0		5m angular
Size (mm) >4 or 1-4	deformation band/ cataclastic band	0	0	0		
	other: _____	0	0	0		
	no deformation bedding present?	17	248	0		
0610	vein or mineral filled fracture	0	0	3		± brown = 0.7cm
Observer JD	slickenline	0	0	0	2 likely drilling induced	
Depth (mbsf) 3227.5	scaly fabric	0	0	0		
Size (mm) >4 or 1-4	deformation band/ cataclastic band	0	0	0		
	other: _____	0	10	0		
	no deformation bedding present?	09	150	1	no	

Samples 410
+ 631

Structural Geology Cuttings Observation Sheet

Exp.: 358 Site: C002 Hole: QB Date: Dec 7

Summary: _____

Cuttings #	structure ID	Number in Sandstone	Number in mudstone (silt to clay)	Number (Lithology not noted)	Comment	Cement present?
0610	vein or mineral filled fracture	0	0	2	calite vein	no cement
JD	slickenline	0	0	0	9 slickenlines & shiny surfaces likely drilling induced	
Depth (mbsf) 3227.5	scaly fabric	0	0	0		
Size (mm) > 4 or 1-4	deformation band/ cataclastic band	0	0	0		
	other: _____					
	no deformation bedding present?	47	233	2		
0631	vein or mineral filled fracture	-	-	-		no cement
CR	slickenline	-	-	-		
Depth (mbsf) 3247.5	scaly fabric	-	-	-		
Size (mm) > 4 or 1-4	deformation band/ cataclastic band	-	-	-		
	other: <u>driller induced striae</u>		18			
	no deformation bedding present?	-	225	-	3 coarse sand / 3 white sand / 6 splinters with drill striae maybe 1	
0631	vein or mineral filled fracture	-	-	-		yes. 2.
YY	slickenline	-	-	1	clear striation on flat surface but no alteration, no vein on the surface	
Depth (mbsf) 3247.5	scaly fabric	-	-	-		
Size (mm) > 4 or 1-4	deformation band/ cataclastic band	-	-	-		
	other: _____					
	no deformation bedding present?	11	194	-	white fine sand (1) ~ 90% Btz?	