

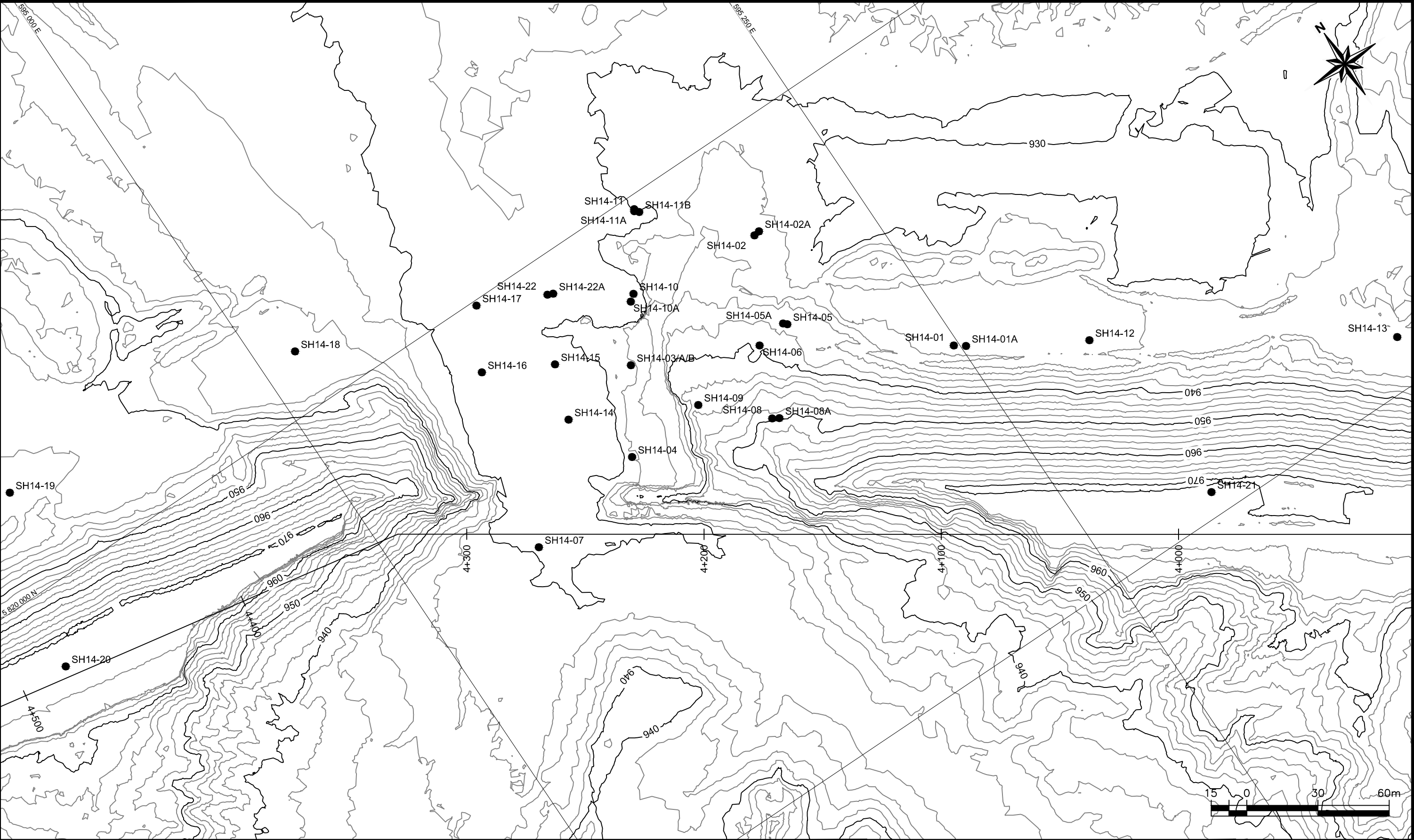
Independent Expert Engineering Investigation and Review Panel

Report on Mount Polley Tailings Storage Facility Breach

Appendix D: ATTACHMENT D1

Attachment D1: Thurber Logs of KCB Sonic Holes

Appendix D
Attachment 1
Thurber Logs of KCB Sonic Holes



LEGEND: ● SONIC HOLE	KCB SONIC HOLE LOCATIONS	DESIGNED	DRAWN
		PJW	NAK
	APPROVED		D. VAN ZYL
	MOUNT POLLEY INDEPENDENT EXPERT ENGINEERING INVESTIGATION AND REVIEW PANEL		FIGURE No. DECEMBER 15, 2014 D.A1-1

Hole Location Summary

Hole Number	Northing (m)	Easting (m)	Elevation (m)
SH14-01	5819872	595248	931.3
SH14-01A	5819869	595252	931.2
SH14-02	5819957	595204	932.9
SH14-02A	5819957	595207	932.9
SH14-03	5819941	595130	932.5
SH14-04	5819908	595109	932.2
SH14-05	5819918	595195	937.1
SH14-05A	5819920	595193	937.2
SH14-06	5819917	595180	937.5
SH14-07	5819899	595055	931.7
SH14-08	5819889	595167	947.6
SH14-08A	5819887	595170	947.6
SH14-09	5819911	595145	938.0
SH14-10	5819965	595148	932.2
SH14-11	5819995	595168	931.0
SH14-11B	5819992	595169	931.2
SH14-12	5819842	595297	930.8
SH14-13	5819770	595405	933.1
SH14-14	5819936	595096	930.1
SH14-15	5819959	595104	930.2
SH14-16	5819973	595076	930.2
SH14-17	5819998	595090	929.6
SH14-18	5820025	595016	934.8
SH14-19	5820042	594883	942.8
SH14-20	5819968	594862	969.9
SH14-21	5819760	595304	968.9
SH14-22	5819985	595118	929.9
SH14-22A	5819984	595120	930.0

SYMBOLS AND TERMS

FOR SOIL DESCRIPTION SHOWN ON LOGS

BASIC SOIL SYMBOLS

Predominant Material		Secondary Material	
GRAVEL		gravelly to some gravel	
SAND		sandy to some sand	
SILT		silty to some silt	
CLAY		clayey to some clay	
PEAT / ORGANICS		some organics	
Undifferentiated BEDROCK			
ORGANIC SILT			
FILL / DEBRIS			

PROPORTION OF MINOR COMPONENTS BY WEIGHT ⁽²⁾

and	35 - 50%
y / ey	20 - 35%
some	10 - 20%
trace	0 - 10%

SYMBOL VARIATIONS - EXAMPLES ⁽¹⁾

SAND and GRAVEL

SAND, silty

SILT with some clay



DENSITY OF GRANULAR SOILS

Description	SPT N ⁽⁴⁾
Very Loose	0 - 4
Loose	4 - 10
Compact	10 - 30
Dense	30 - 50
Very Dense	> 50

CONSISTENCY OF COHESIVE SOILS

Description	Undrained Shear Strength (kPa) ⁽⁴⁾
Very Soft	< 12
Soft	12 - 25
Firm	25 - 50
Stiff	50 - 100
Very Stiff	100 - 200
Hard	> 200

PENETRATION TESTS

Dynamic Cone Penetration	
Standard Penetration	
Becker Closed Casing	
Becker Open Casing	
Bounce Chamber Pressure	

CLASSIFICATION BY PARTICLE SIZE

Name	Size Range ⁽⁴⁾		
	(mm) ⁽³⁾	U.S. Standard Sieve Size	
		Retained	Passing
Boulders	> 200	8 inch	-
Cobbles	75 - 200	3 inch	8 inch
Gravel: coarse	19 - 75	0.75 inch	3 inch
Gravel: fine	5 - 19	No. 4	0.75 inch
Sand: coarse	2 - 5	No. 10	No. 4
Sand: medium	0.4 - 2	No. 40	No. 10
Sand: fine	0.075 - 0.4	No. 200	No. 40
Fines: silt	0.002 - 0.075	-	No. 200
Fines: clay	< 0.002	-	-

- Only selected examples of the possible variations or combinations of the basic symbols are illustrated.
- USCS refers to group symbols as defined by the Unified Soil Classification System. Soil descriptions related to fines and secondary materials are based on particle size where lab testing was completed by Thurber and visual and tactile field behaviour of samples where lab testing was not completed by Thurber.
- Approximate metric conversion.
- Reference Canadian Foundation Engineering Manual 4th Edition, 2006.

LOCATION: See Fig. 209
E 595248, N 5819872

TOP OF HOLE ELEV: 931.3 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: September 25, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☑ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◇ Residual ◆ Remolded ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
0							931
							930
1							
							929
2							
							928
3							
							927
4							
5							

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

Note: Field log of test hole based on visual observation during drilling completed by KCB. No samples were obtained by Thurber for confirmatory laboratory testing. Density/consistency/strength descriptions are based on field observations of highly disturbed samples. Refer to RSCPT14-01 and KCB laboratory testing for further information.

Nominal sonic core diameter 100 mm
Top of UPPER TILL

Refer to SH14-01A preferentially for redrill of interval 0 to 12.5 m.

Start of RSCPT14-01 at approx. 2.8 m

Grey, moist, angular GRAVEL with some sand and a trace of silt. (Fill)

Firm to stiff, grey-brown, moist, sandy SILT with some gravel and traces of clay, wood fragments and organics. (Possible weathered ablation/moraine till)

Very stiff to hard, brown, moist, sandy SILT with some gravel and a trace of clay. (Possible ablation/moraine till)

LOCATION: See Fig. 209
E 595248, N 5819872

TOP OF HOLE ELEV: 931.3 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



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DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS □ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◇ Residual ◆ Remolded ◆ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)	COMMENTS	SOIL DESCRIPTION
5							926		Very stiff to hard, brown, moist, sandy SILT with some gravel and a trace of clay. (Possible ablation/moraine till)
6							925		
7							924	No structure evident in disturbed sample from 6.4 to 11.3 m. See SH14-01A for more detailed soil description.	Firm to stiff, grey, moist, sandy SILT with some clay and trace to some gravel and trace cobbles to 125 mm diameter. (Possible ablation/moraine till) - some zones with some sand and clayey (possible disturbed glaciolacustrine)
8							923		
9							922		
10								Vibrating Wire Tip C at 9.4 m.	

LOCATION: See Fig. 209
E 595248, N 5819872

TOP OF HOLE ELEV: 931.3 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

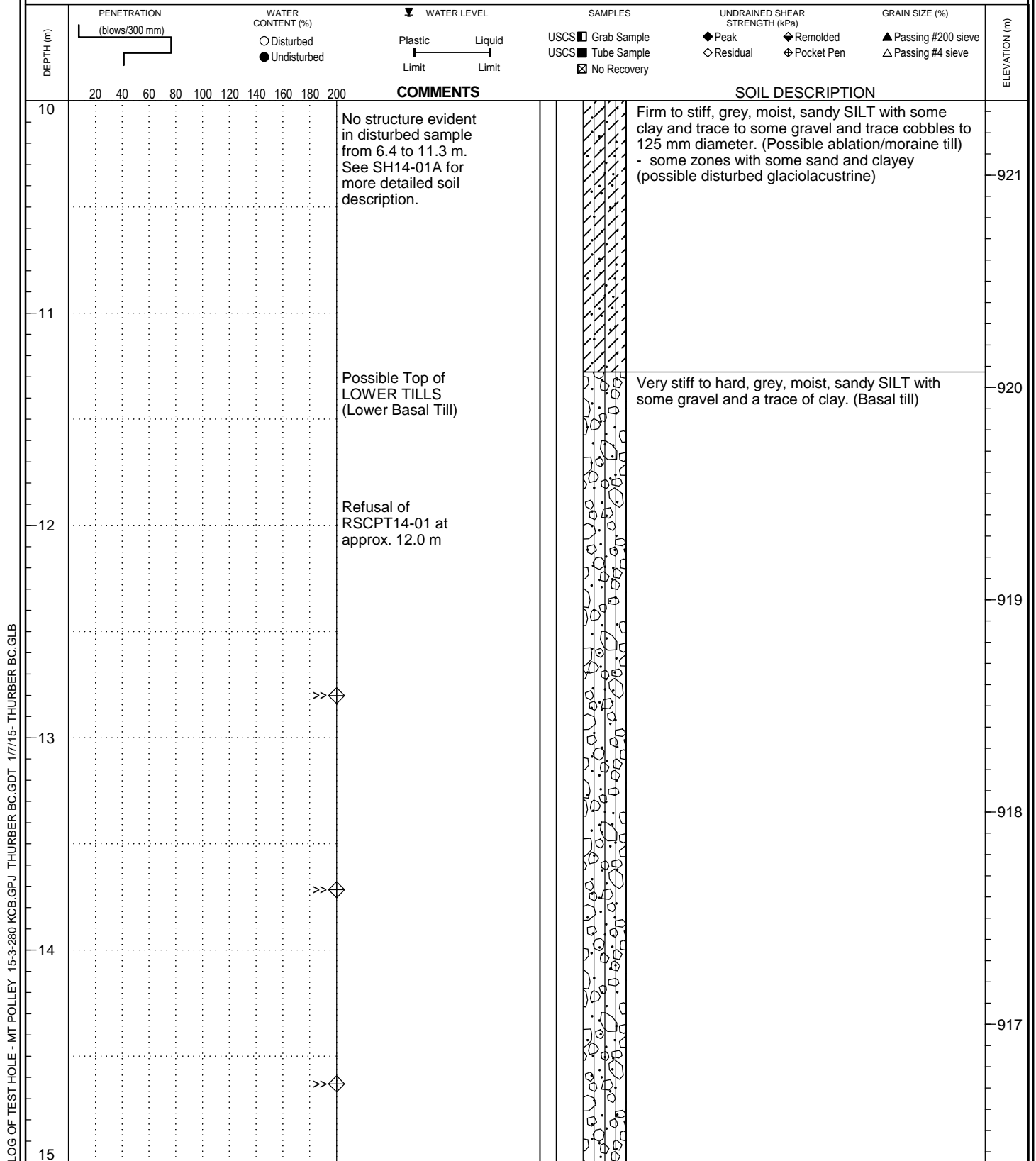


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DATE: September 25, 2014

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LOCATION: See Fig. 209
E 595248, N 5819872

TOP OF HOLE ELEV: 931.3 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

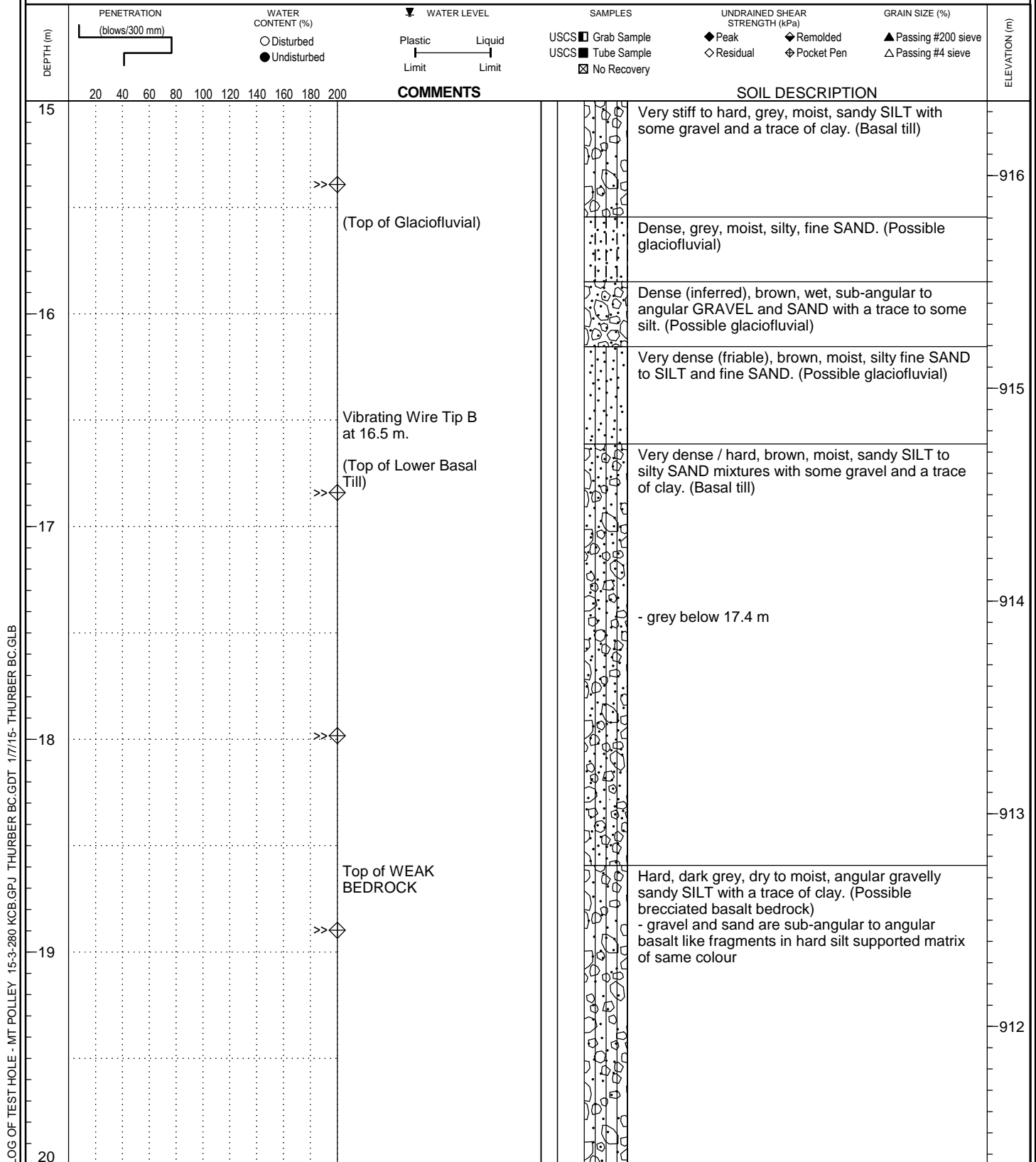


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DATE: September 25, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595248, N 5819872

TOP OF HOLE ELEV: 931.3 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



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DATE: September 25, 2014

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DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS □ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
20							911
21							910
22							909
23							908
24							907
25							

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

Hard, dark grey, dry to moist, angular gravelly sandy SILT with a trace of clay. (Possible brecciated basalt bedrock)

LOCATION: See Fig. 209
E 595248, N 5819872

TOP OF HOLE ELEV: 931.3 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



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DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS □ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
25							906
26							905
27							904
28							903
29							902
30							

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

Hard, dark grey, dry to moist, angular gravelly sandy SILT with a trace of clay. (Possible brecciated basalt bedrock)

- angular gravel (probable basalt boulder) from 27.1 to 27.7 m

LOCATION: See Fig. 209
E 595248, N 5819872

TOP OF HOLE ELEV: 931.3 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: September 25, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS □ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
30							901
31							900
32							899
33							898
34							897
35							

Hard, dark grey, dry to moist, angular gravelly sandy SILT with a trace of clay. (Possible brecciated basalt bedrock)

- some clay to clayey from 33.8 to 35.3 m

LOCATION: See Fig. 209
E 595248, N 5819872



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TOP OF HOLE ELEV: 931.3 m

PROJECT: Mount Polley Tailings Dam Breach

METHOD: Sonic

DATE: September 25, 2014

DRILLING CO.: Mud Bay Drilling Ltd.

FILE NO.: 15-3-280

INSPECTOR: CHS

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS □ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)	COMMENTS	SOIL DESCRIPTION
40									Very dense (inferred), friable, dark grey, dry to moist, silty, sandy, angular GRAVEL. (Possible brecciated basalt bedrock) - silt, sand and gravel of basalt-like origin with occasional white vein-like streaks of quartz or plagioclase feldspar
41									
42									
43									
44								Vibrating Wire Tip A at 43.9 m.	
45									End of hole at KCB instruction. Test hole left cased pending instrumentation installation completed September 27. Vibrating wire piezometers installed September 27 at 9.4 m (Tip C), 16.5 m (Tip B) and 43.9 m (Tip A) and test hole grouted.

LOCATION: See Fig. 209
E 595252, N 5819869

TOP OF HOLE ELEV: 931.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

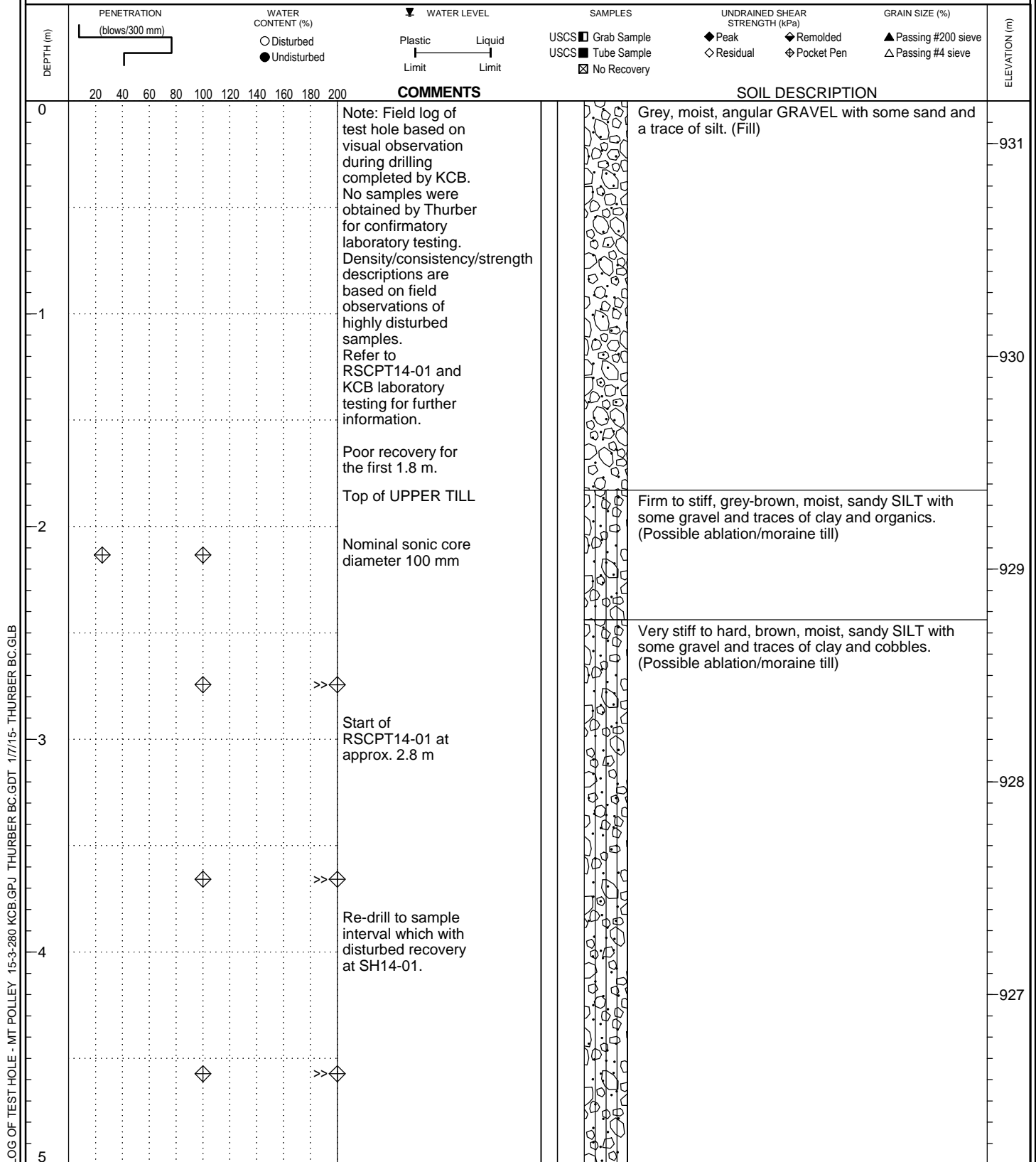


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Engineering Investigation and
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PROJECT: Mount Polley Tailings Dam Breach

DATE: September 25, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595252, N 5819869

TOP OF HOLE ELEV: 931.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

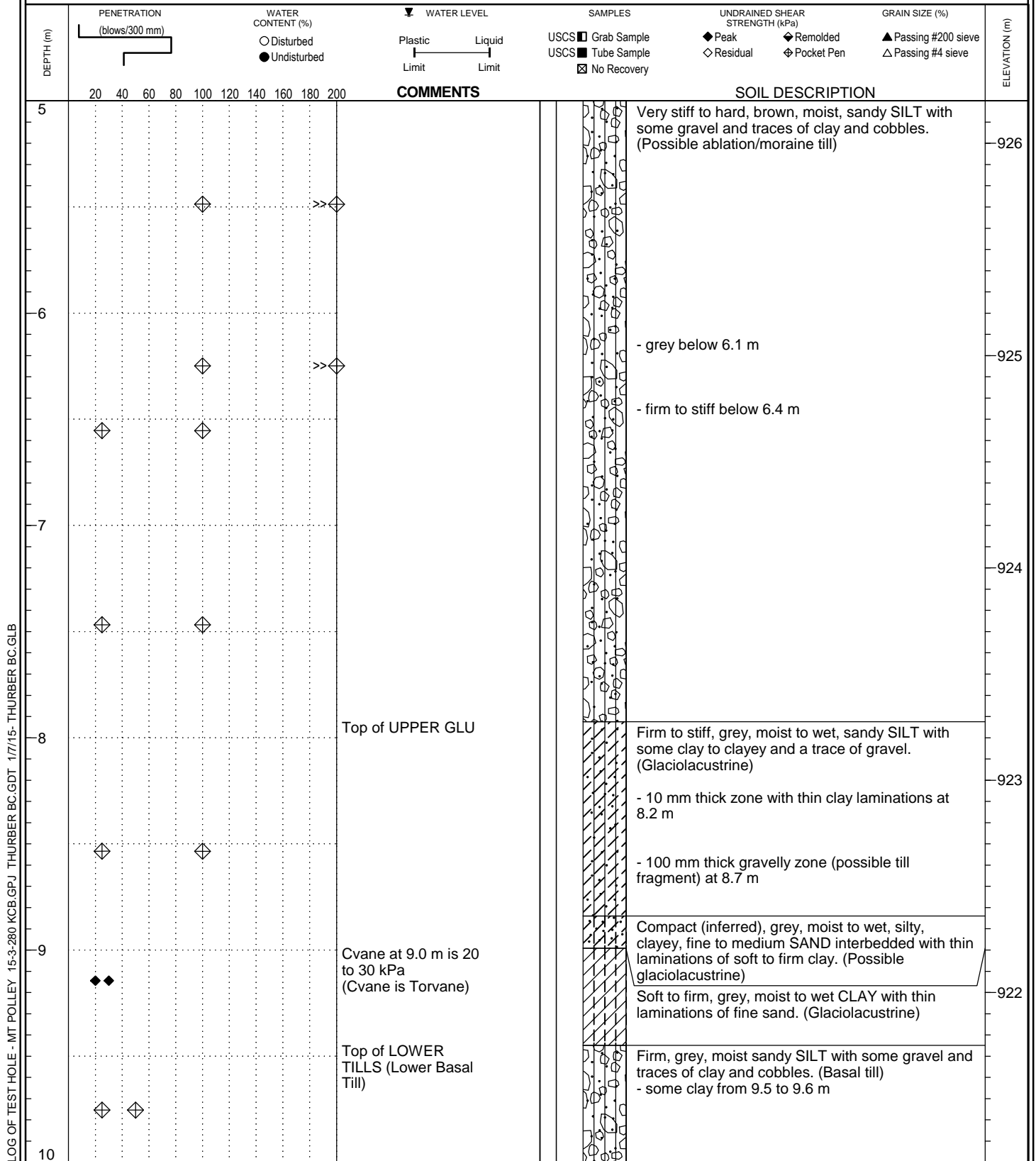


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PROJECT: Mount Polley Tailings Dam Breach

DATE: September 25, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595204, N 5819957

TOP OF HOLE ELEV: 932.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

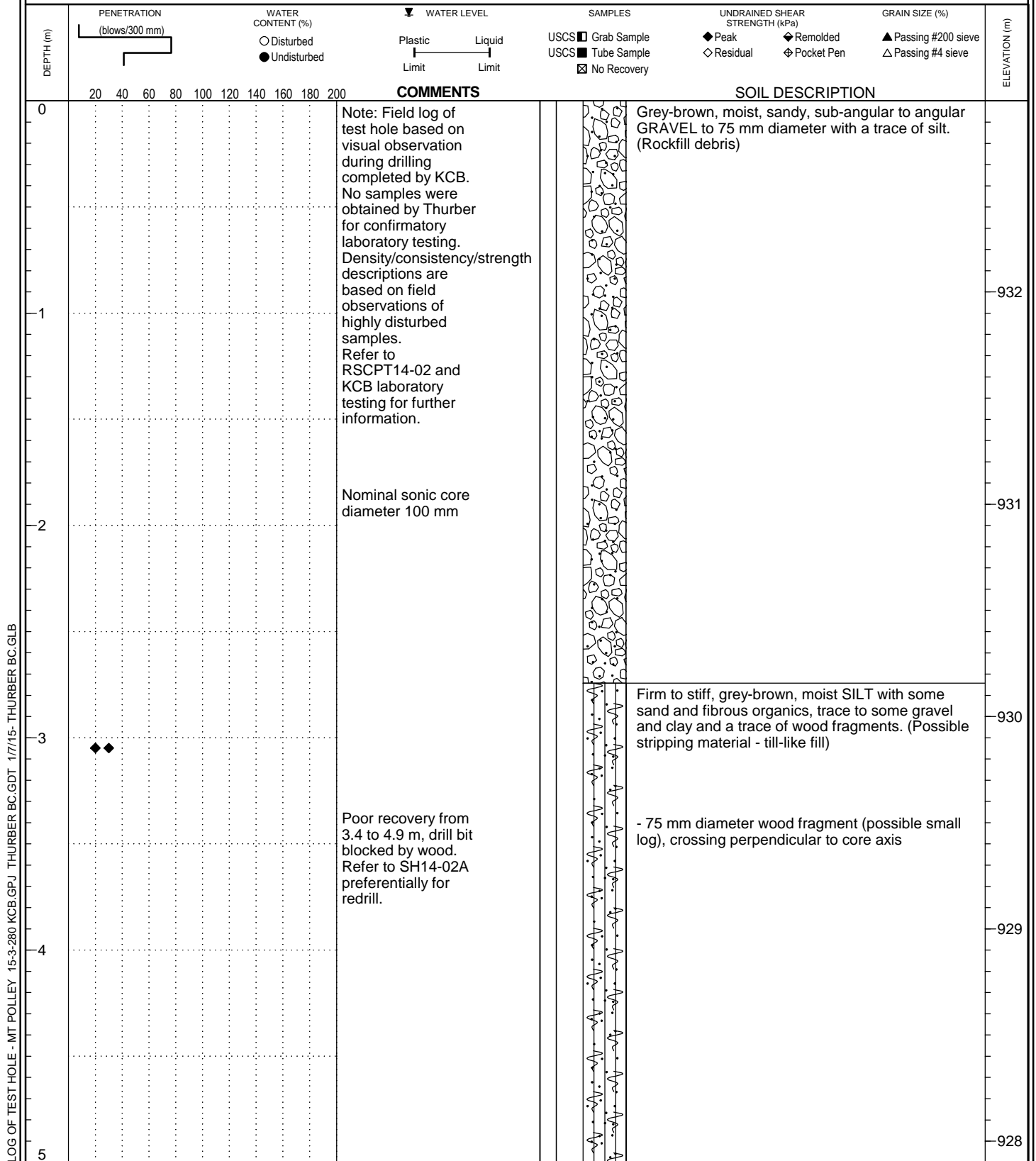


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PROJECT: Mount Polley Tailings Dam Breach

DATE: September 26, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595204, N 5819957

TOP OF HOLE ELEV: 932.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: September 26, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)	COMMENTS	SOIL DESCRIPTION
5									Firm to stiff, grey-brown, moist SILT with some sand and fibrous organics, trace to some gravel and clay and a trace of wood fragments. (Possible stripping material - till-like fill)
6								Top of UPPER TILL	Very stiff to hard, grey-brown, moist, sandy SILT with some gravel and trace to some clay. (Possible weathered ablation/moraine till)
7									No recovery.
8									
9									
10									End of hole due to poor recovery. Test hole grouted to base of fill upon completion. Moved to SH14-02A.

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595207, N 5819957

TOP OF HOLE ELEV: 932.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

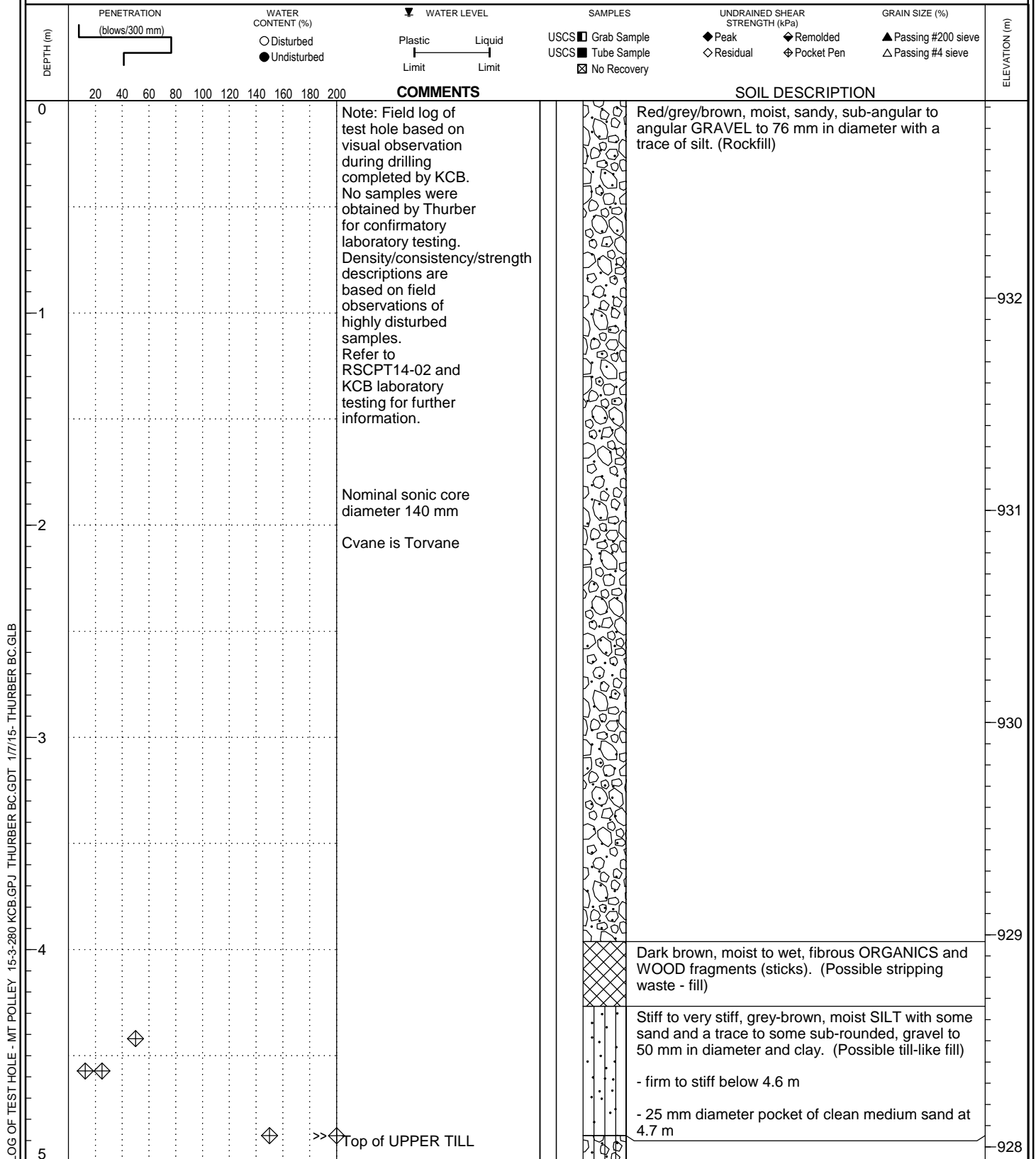


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DATE: September 26 and 27, 2014

FILE NO.: 15-3-280



LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595207, N 5819957

TOP OF HOLE ELEV: 932.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

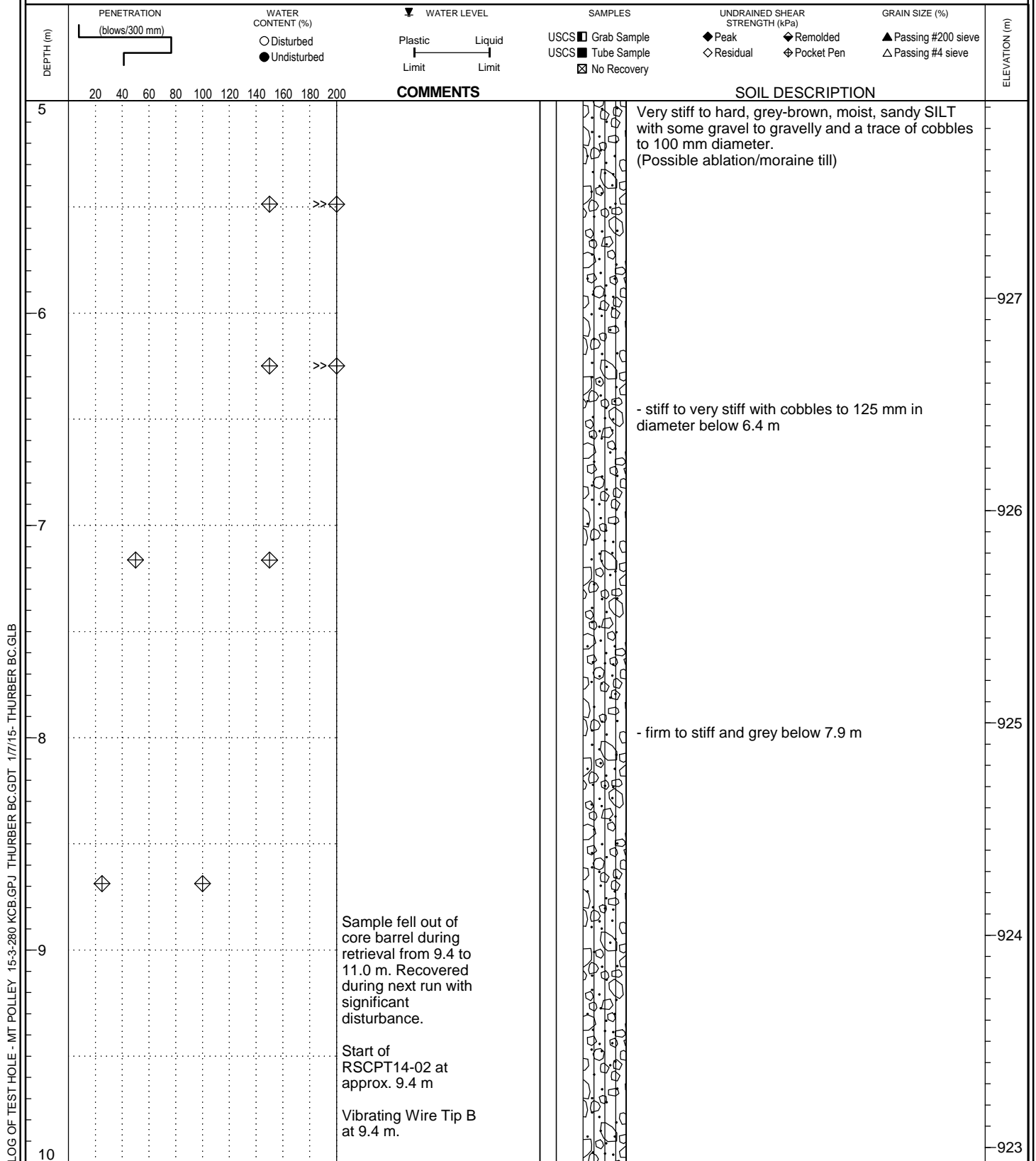


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PROJECT: Mount Polley Tailings Dam Breach

DATE: September 26 and 27, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595207, N 5819957

TOP OF HOLE ELEV: 932.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

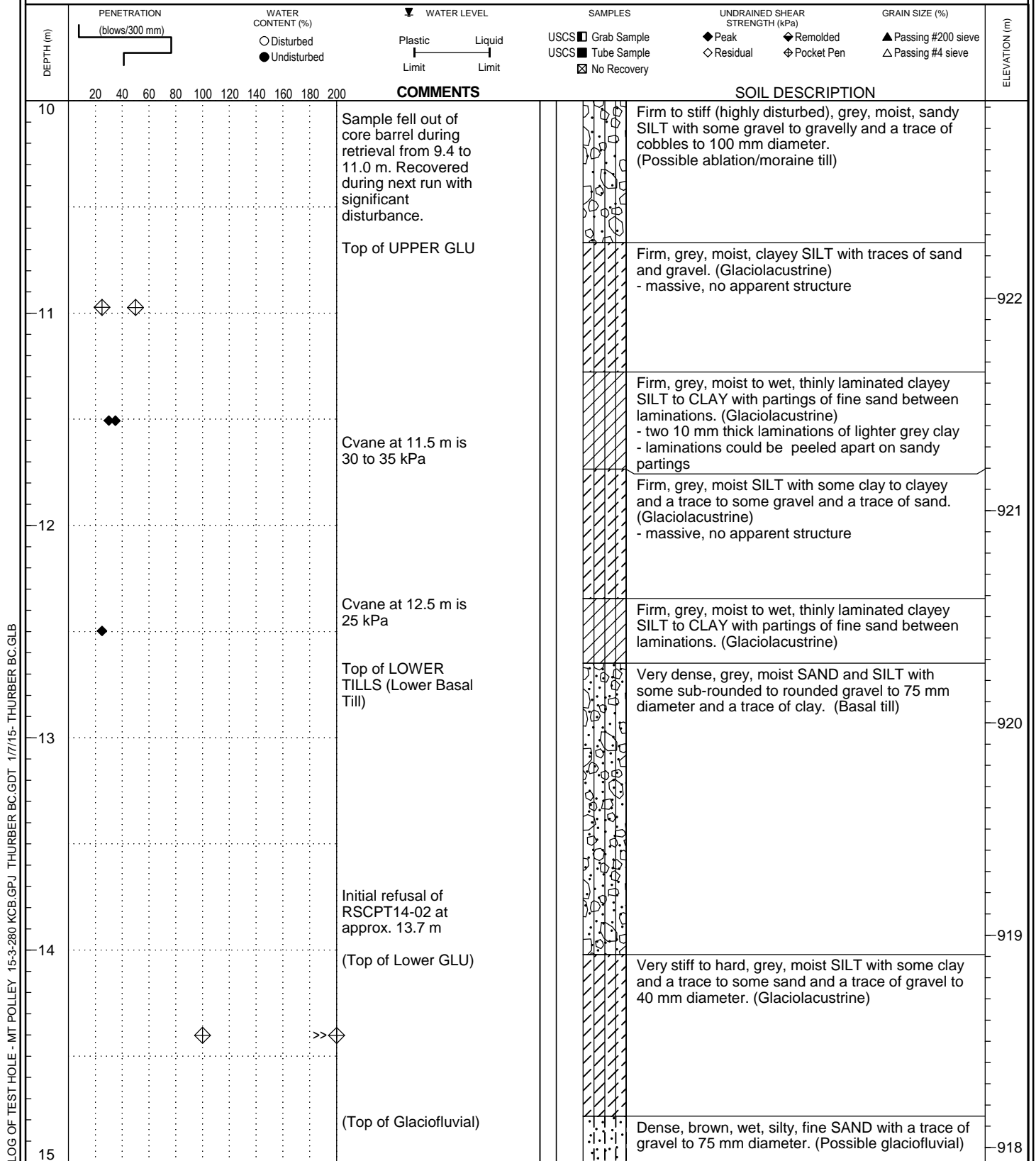


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PROJECT: Mount Polley Tailings Dam Breach

DATE: September 26 and 27, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595207, N 5819957

TOP OF HOLE ELEV: 932.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

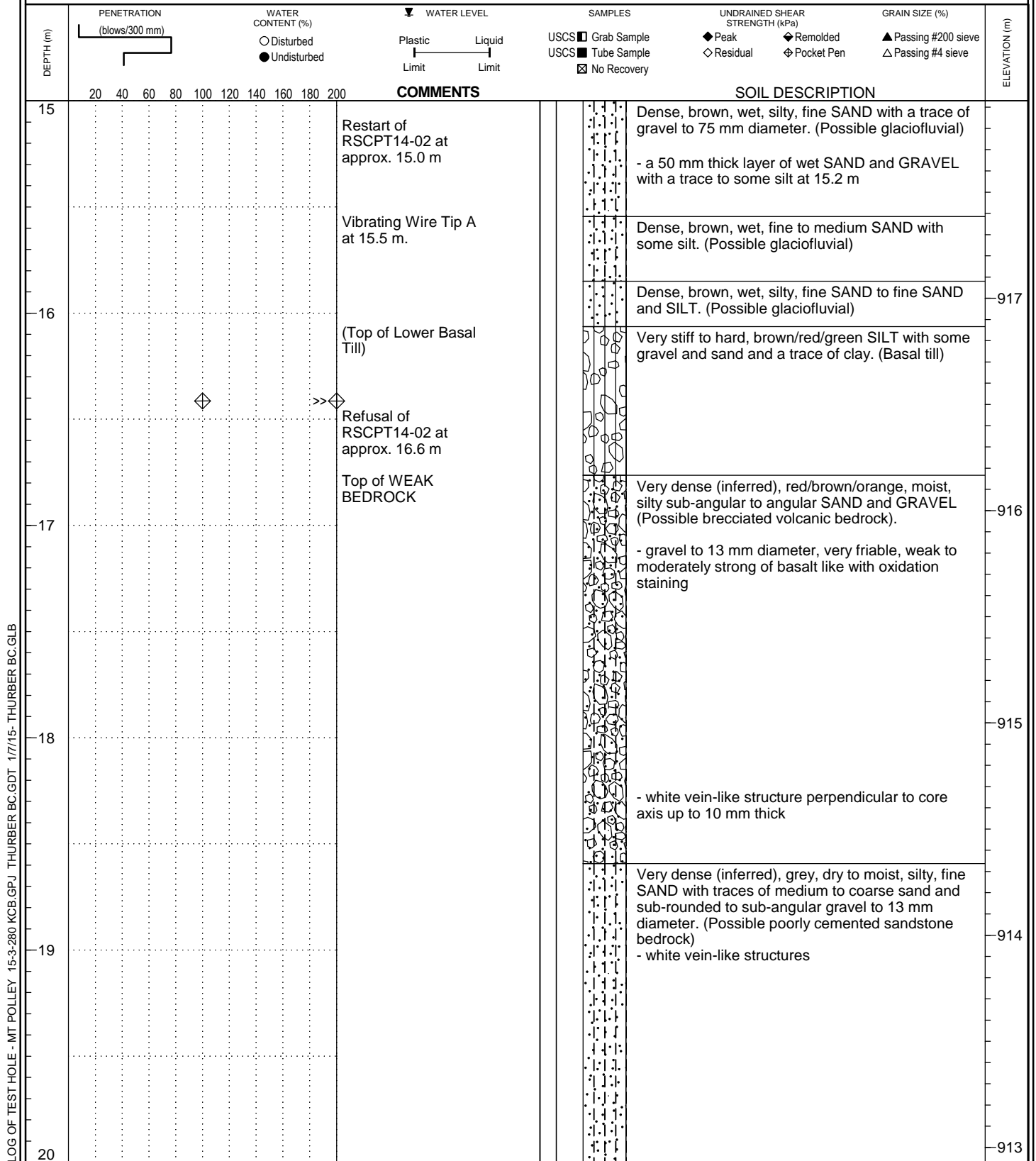


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PROJECT: Mount Polley Tailings Dam Breach

DATE: September 26 and 27, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595207, N 5819957

TOP OF HOLE ELEV: 932.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
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Review Panel

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DATE: September 26 and 27, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☑ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
20						Very dense (inferred), grey, dry to moist, silty, fine SAND with traces of medium to coarse sand and sub-rounded to sub-angular gravel to 13 mm diameter. (Possible poorly cemented sandstone bedrock)	
21						Very dense (inferred), dark grey, dry to moist SAND and sub-angular to angular GRAVEL to 13 mm diameter with a trace to some silt. (Possible brecciated volcanic bedrock) - sand and gravel particles of basalt-like origin - remnants of vein-like structure crosses at 20.7 m	912
22						Very dense (inferred), light grey, dry to moist, silty, fine to medium SAND. (Possible poorly cemented sandstone)	
23						Very dense / hard, dark grey, dry to moist, angular gravelly silty SAND. (Possible brecciated volcanic bedrock) - gravel, sand and silt matrix are sub-angular to angular of basalt like origin	911
24							910
25						End of hole at KCB instruction. Vibrating wire piezometers installed at 9.4 m (Tip B) and 15.5 m (Tip A) and test hole grouted.	909 908

Gravel fragments
are moderately
strong but friable.

LOCATION: See Fig. 209
E 595130, N 5819941

TOP OF HOLE ELEV: 932.5 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: September 29 and 30, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☑ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
0							932
1							931
2							930
3							929
4							928
5							

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

Notes: Field log of test hole based on visual observation during drilling completed by KCB. No samples were obtained by Thurber for confirmatory laboratory testing. Density/consistency/strength descriptions are based on field observations of highly disturbed samples. Refer to RSCPT14-03 and KCB laboratory testing for further information.

Soil Description: Grey, moist to wet, angular GRAVEL with some sand and traces of silt and cobbles to 100 mm diameter. (Rockfill)

Grain Size: ▲ Passing #200 sieve
△ Passing #4 sieve

LOCATION: See Fig. 209
E 595130, N 5819941

TOP OF HOLE ELEV: 932.5 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

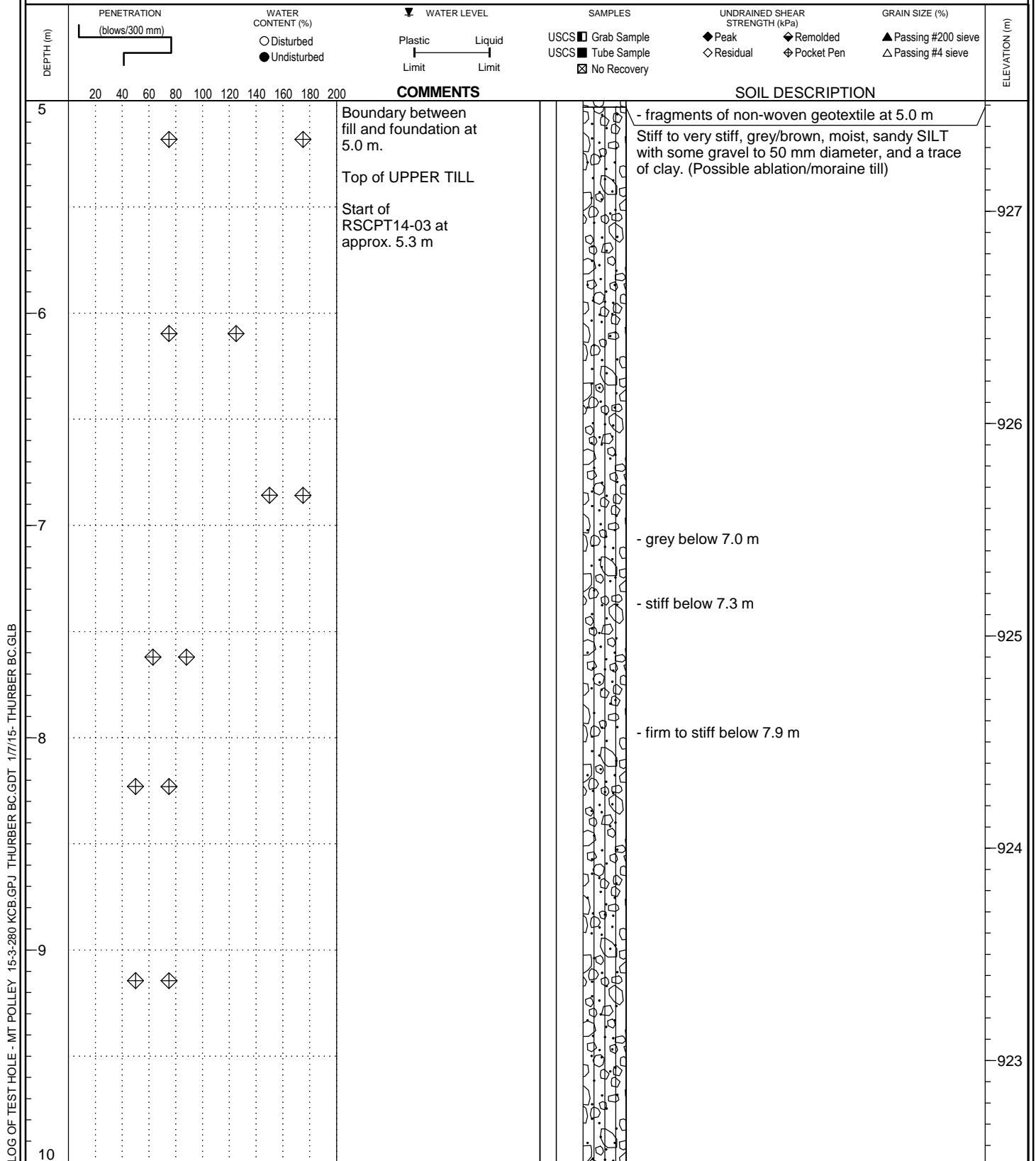


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DATE: September 29 and 30, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595130, N 5819941

TOP OF HOLE ELEV: 932.5 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

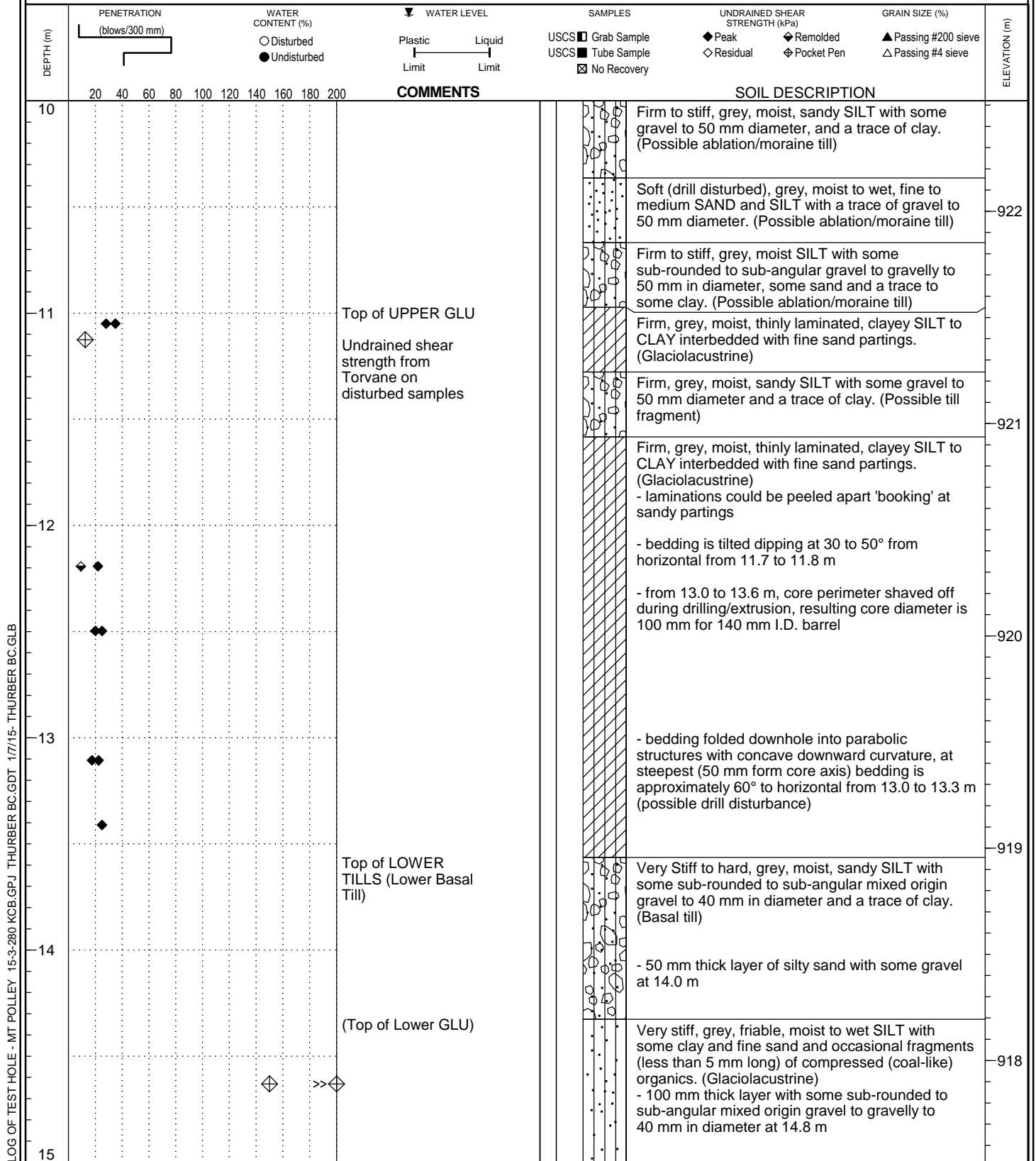


CLIENT: Mount Polley Independent Expert
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DATE: September 29 and 30, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595130, N 5819941

TOP OF HOLE ELEV: 932.5 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

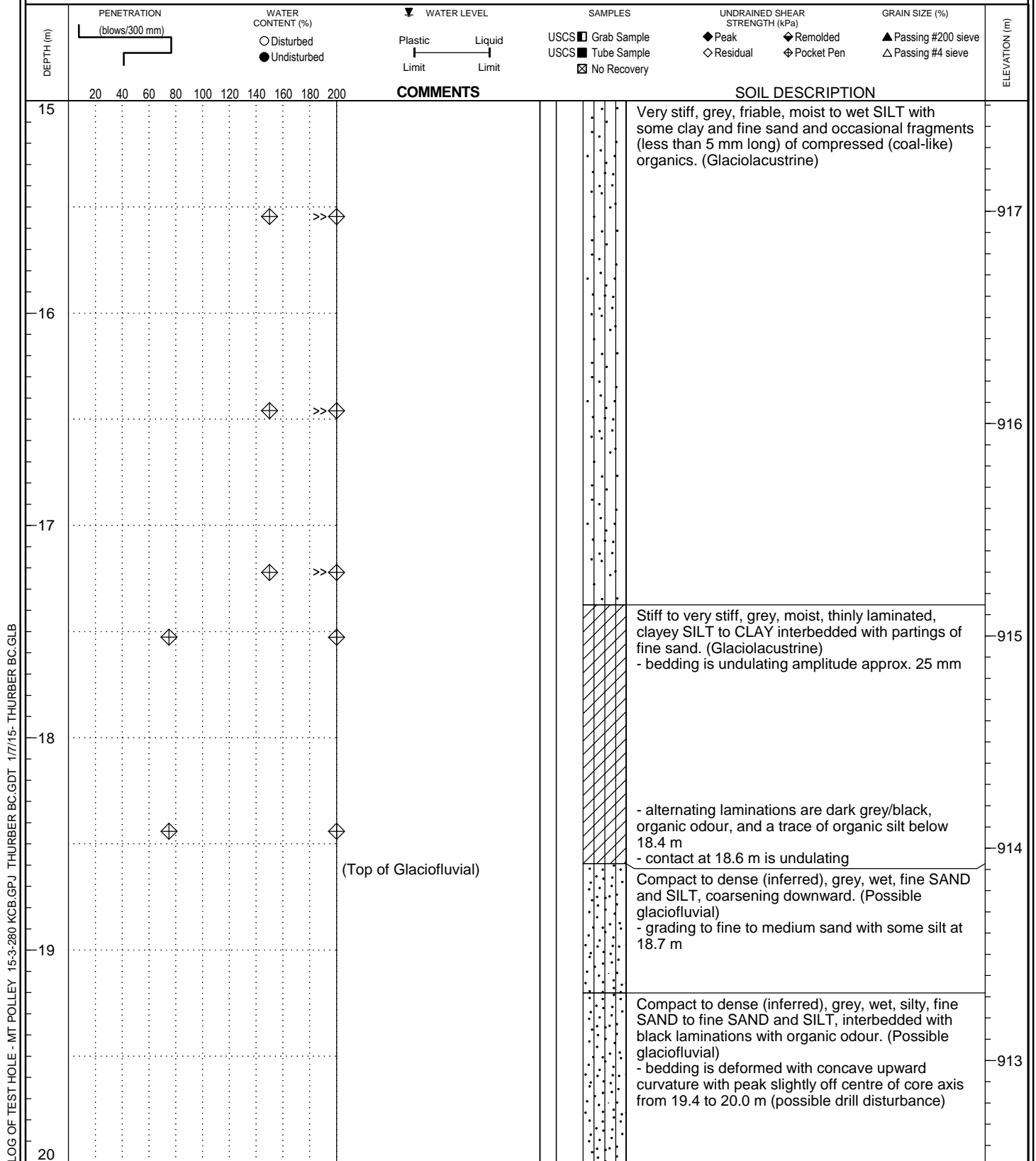


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DATE: September 29 and 30, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595130, N 5819941

TOP OF HOLE ELEV: 932.5 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

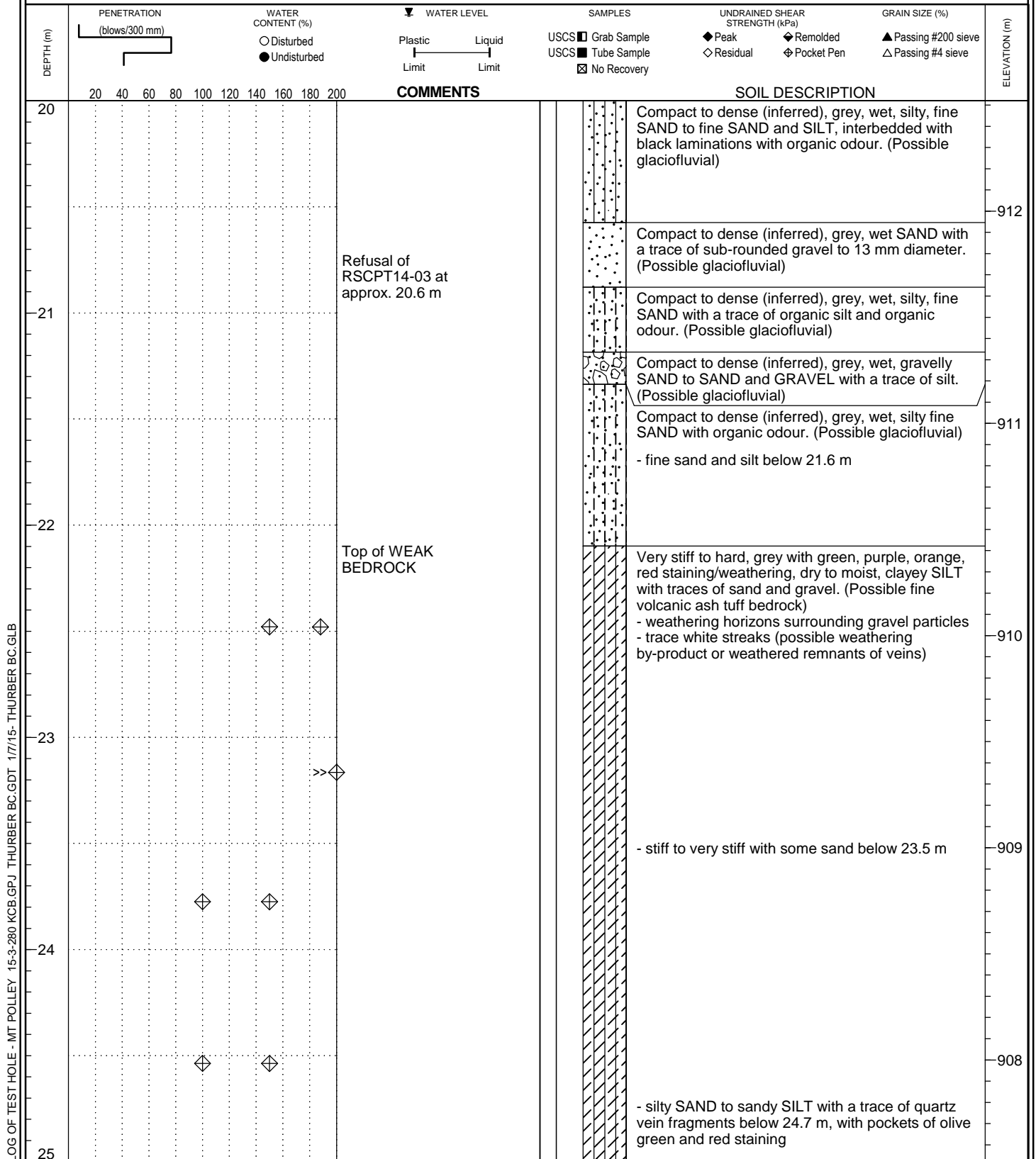


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DATE: September 29 and 30, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595130, N 5819941

TOP OF HOLE ELEV: 932.5 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
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DATE: September 29 and 30, 2014

FILE NO.: 15-3-280

PENETRATION (blows/300 mm)		WATER CONTENT (%)		WATER LEVEL		SAMPLES		UNDRAINED SHEAR STRENGTH (kPa)		GRAIN SIZE (%)		ELEVATION (m)
		○ Disturbed ● Undisturbed				USCS Grab Sample USCS Tube Sample No Recovery		Peak Residual		Remolded Pocket Pen Passing #200 sieve Passing #4 sieve		
DEPTH (m)	COMMENTS											SOIL DESCRIPTION
25												Very stiff to hard, grey with green, purple, orange, red staining/weathering, dry to moist, clayey SILT with traces of sand and gravel. (Possible fine volcanic ash tuff bedrock) - zone of purple SAND with a trace to some silt and a trace of white angular quartz vein fragments from 25.3 to 25.5 m
26												
27	>>											Very stiff to hard, grey-green, dry to moist, clayey SILT with traces of sand and sub-angular basalt gravel to 50 mm diameter. (Possible fine volcanic ash tuff bedrock)
28	>>											
29	>>											
30	Nominal sonic core diameter 100 mm below 29.3 m											- hard below 29.3 m with no gravel

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

Nominal sonic core
diameter 100 mm
below 29.3 m

LOCATION: See Fig. 209
E 595130, N 5819941

TOP OF HOLE ELEV: 932.5 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: September 29 and 30, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
30						Very stiff to hard, grey-green, dry to moist, clayey SILT with traces of sand and sub-angular basalt gravel to 50 mm diameter. (Possible fine volcanic ash tuff bedrock)	
31						Hard, grey with light green, rusty red, and white and black streaks, dry to moist SILT with some sand and sub-rounded to sub-angular gravel to 50 mm diameter of meta-basalt like origin and a trace of clay. (Possible fine volcanic ash tuff bedrock)	902
32						Very dense (inferred), light grey, dry to moist, silty, fine to medium SAND to SILT and SAND with a trace to some sub-angular to sub-rounded coal fragments to 13 mm diameter and some red and green alteration staining of matrix. (Possible poorly cemented sandstone bedrock)	901
33						Very stiff, green with purple and white staining/streaking, dry to moist, fine sandy SILT with a trace to some sub-rounded to sub-angular gravel to 13 mm diameter and a trace of clay. (Possible fine volcanic ash tuff bedrock)	900
34						Very stiff to hard, grey, dry to moist SILT with some clay with green and white streaks/fine mineralization. (Possible fine volcanic ash tuff bedrock)	899
35							898

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595130, N 5819941

TOP OF HOLE ELEV: 932.5 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: September 29 and 30, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
35							897
36							896
37							895
38							894
39							893
40							

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595130, N 5819941

TOP OF HOLE ELEV: 932.5 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: September 29 and 30, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
40							892
41							891
42							890
43							889
44							888
45							

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

Very dense (inferred), grey, dry to moist, silty, fine SAND to fine SAND and SILT with some sub-angular to angular basalt gravel and a trace to some medium to coarse sand. (Possible brecciated volcanic bedrock)

Very dense (inferred), friable, dark grey/black, dry to moist, silty, sandy, sub-angular to angular GRAVEL to 50 mm diameter. (Probable brecciated volcanic bedrock)
- gravel of moderately strong basalt like origin with no visible structure, alteration or veins.
- localized zones of silt and sand with some gravel

LOCATION: See Fig. 209
E 595130, N 5819941

TOP OF HOLE ELEV: 932.5 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: September 29 and 30, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☑ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)	COMMENTS	SOIL DESCRIPTION
45									Very dense (inferred), friable, dark grey/black, dry to moist, silty, sandy, sub-angular to angular GRAVEL to 50 mm diameter. (Probable brecciated volcanic bedrock) - gravel of moderately strong basalt like origin with no visible structure, alteration or veins. - localized zones of silt and sand with some gravel
46									
47									- a 100 mm intact basalt cobble at 47.7 m
48									End of hole at KCB instruction. Test hole sounded through casing upon completion to 47.8 m. Slope inclinometer installed and test hole grouted.
49									
50									

LOCATION: See Fig. 209
E 595109, N 5819908

TOP OF HOLE ELEV: 932.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: September 30 and October 1, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS □ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
0							932
1							931
2							930
3							929
4							928
5							

Note: Field log of test hole based on visual observation during drilling completed by KCB. No samples were obtained by Thurber for confirmatory laboratory testing. Density/consistency/strength descriptions are based on field observations of highly disturbed samples. Refer to RSCPT14-04 and KCB laboratory testing for further information.

Nominal sonic core diameter 140 mm from 0 to 18.6 m

Open HDPE pipe standing vertically installed through rockfill access road during construction to facilitate drilling.

Grey-brown, moist to wet, cobbly, sandy, angular to sub-angular GRAVEL to 100 mm diameter with some silt. (Rockfill)

LOCATION: See Fig. 209
E 595109, N 5819908

TOP OF HOLE ELEV: 932.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

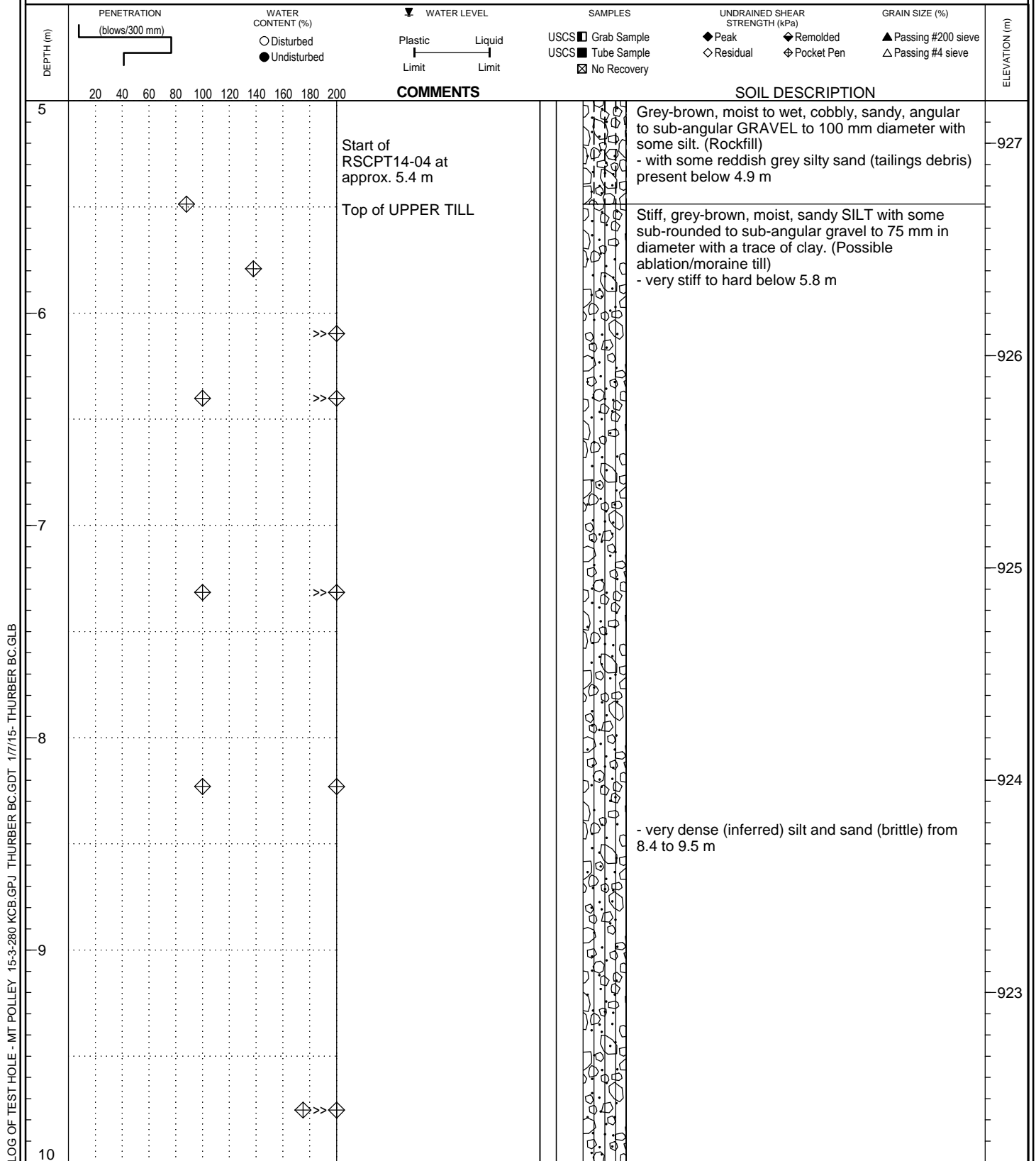


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: September 30 and October 1, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595109, N 5819908

TOP OF HOLE ELEV: 932.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

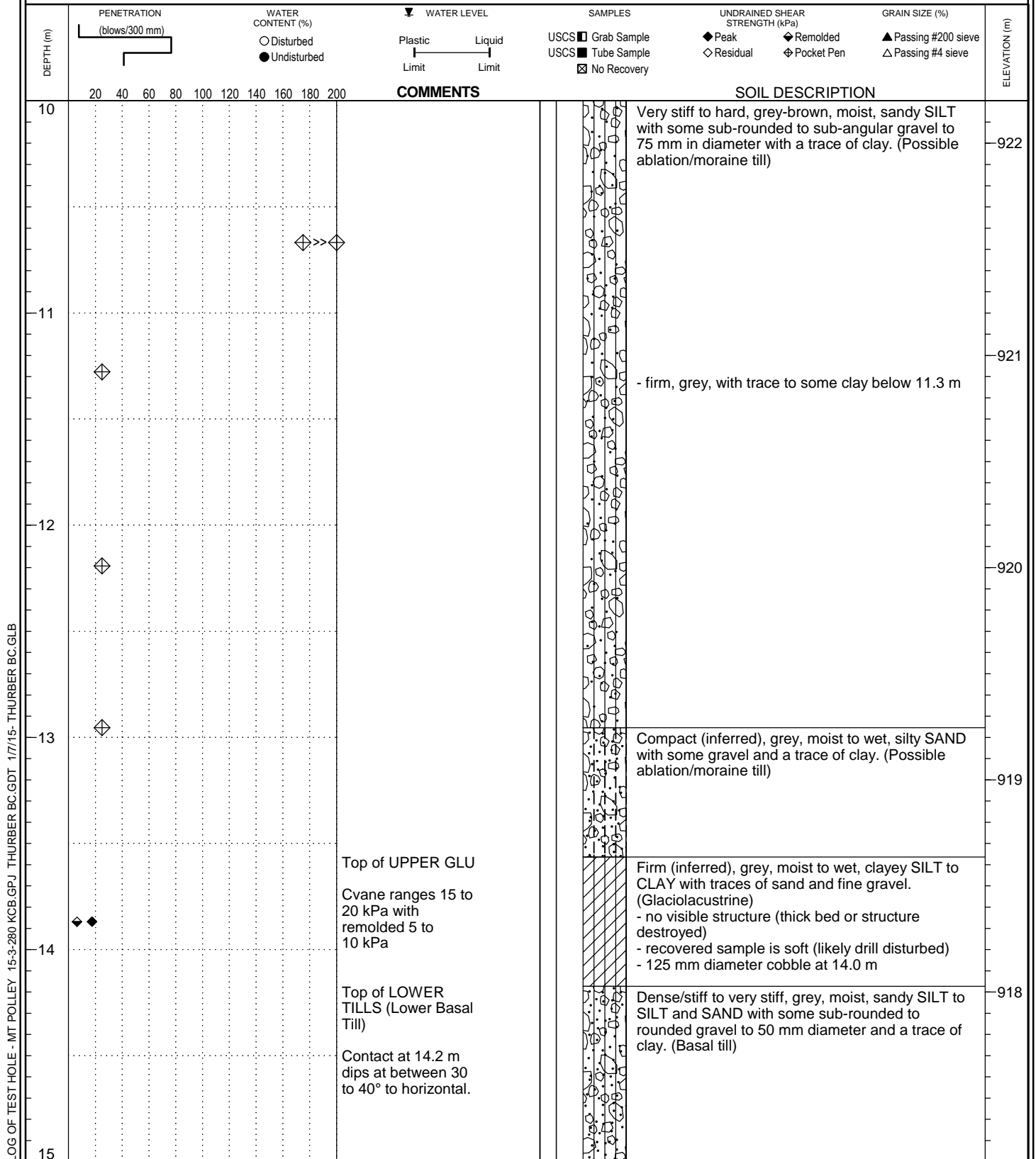


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: September 30 and October 1, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595109, N 5819908

TOP OF HOLE ELEV: 932.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: September 30 and October 1, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
15							917
16							916
17							915
18							914
19							913
20							

COMMENTS

SOIL DESCRIPTION

(Top of Lower GLU)

(Top of Glaciofluvial)

Refusal of
RSCPT14-04 at
approx. 17.2 m

Nominal sonic core
diameter 100 mm
below 18.6 m

Stiff to very stiff, grey, moist, thinly laminated, clayey SILT to CLAY interbedded with fine sand partings. (Glaciolacustrine)
- bedding dips at 35 to 45° to horizontal
- zone about 50 mm thick where no bedding apparent at 15.4 m
- below 15.4 m, bedding reverses to 20 to 30° from horizontal in opposite orientation to that above

Compact to dense (inferred), grey, wet, thinly laminated, silty, fine to medium SAND interbedded with firm to stiff silt. (Possible glaciofluvial)
- bedding is deformed with peak near centre of core axis (possibly due to drill action) and limbs dipping at 20 to 30° to horizontal by core perimeter (concave downward)
- loose (disturbed), grey, moist SAND with trace to some silt from 16.1 to 16.3 m

Compact to dense (inferred), brown, wet, sandy rounded to sub-angular GRAVEL to 75 mm diameter and a trace of silt. (Possible glaciofluvial)

Compact to dense (inferred), thickly laminated, fine to medium SAND with trace silt interbedded with compact (brittle) fine SAND and SILT. (Possible glaciofluvial)
- 15 mm average bed thickness

Compact to dense (inferred), brown with reddish staining (possible oxidization), wet, sandy, sub-rounded to sub-angular GRAVEL to 50 mm diameter with a trace of silt. (Possible glaciofluvial)

Very dense (inferred), purple to pink, moist, sandy, sub-rounded to angular GRAVEL to 75 mm diameter, with some silt. (Possible till fragment)
- gravel is altered/weathered, mixed origins

Compact to dense (inferred), brown, wet, fine to medium SAND with some silt to silty. (Possible glaciofluvial)

LOCATION: See Fig. 209
E 595109, N 5819908

TOP OF HOLE ELEV: 932.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: September 30 and October 1, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
20							912
21							911
22							910
23							909
24							908
25							

(Top of Lower Basal Till)

Top of WEAK BEDROCK

Driller infers weathered rock below 21.3 m

Very dense, purple to pink, moist, sandy, sub-rounded GRAVEL to 100 mm diameter, with some silt. (Basal till)

Dense (inferred), brown, moist to wet, gravelly to 25 mm diameter SAND with a trace to some silt. (Possible glaciofluvial)

Very dense (inferred), purple to pink, dry to moist, SAND with some angular friable gravel to 25 mm diameter. (Possible weathered igneous bedrock) - texture suggests highly weathered, moderately strong meta-igneous (monzonite) rock

- no apparent structure or discontinuities visible

- sand grains may be phenocrysts with pervasive (potassic) alteration

- 75 mm diameter, very strong (R5) green meta-igneous xenolith, possible chloritic alteration at 22.0 m

LOCATION: See Fig. 209
E 595109, N 5819908



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

TOP OF HOLE ELEV: 932.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

PROJECT: Mount Polley Tailings Dam Breach

DATE: September 30 and October 1, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	<div> <div> WATER LEVEL </div> <div> Plastic Limit Liquid Limit </div> </div>	<div> <div> SAMPLES </div> <div> USCS Grab Sample USCS Tube Sample No Recovery </div> </div>	<div> <div> UNDRAINED SHEAR STRENGTH (kPa) </div> <div> Peak Residual Remolded Pocket Pen </div> </div>	<div> <div> GRAIN SIZE (%) </div> <div> Passing #200 sieve Passing #4 sieve </div> </div>	ELEVATION (m)
25							907
26							906
27							905
28							904
29							903
30							

LOCATION: See Fig. 209
E 595195, N 5819918



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

TOP OF HOLE ELEV: 937.1 m

METHOD: Sonic

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 1, 2014

DRILLING CO.: Mud Bay Drilling Ltd.

FILE NO.: 15-3-280

INSPECTOR: CHS

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☑ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
0							937
1							936
2							935
3							934
4							933
5							

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

Drill casing and core barrel became fused at 2 m. Test hole abandoned, moved to SH14-05A.

LOCATION: See Fig. 209
E 595193, N 5819920

TOP OF HOLE ELEV: 937.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 3, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☑ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
0							937
1							936
2							935
3							934
4							933
5							

Note: Field log of test hole based on visual observation during drilling completed by KCB. No samples were obtained by Thurber for confirmatory laboratory testing. Density/consistency/strength descriptions are based on field observations of highly disturbed samples. Refer to RSCPT14-05 and KCB laboratory testing for further information.

RSCPT14-05 located approx. 7 m from SH14-05A

SH14-05 was abandoned at 2 m due to equipment malfunction.

Nominal sonic core diameter 140 mm

Top of UPPER TILL

Cvane is Torvane

Grey, moist, angular GRAVEL to 75 mm diameter with some sand and a trace of silt. (Rockfill)

Firm, dark brown/grey, moist, organicy SILT with some sand and traces of sub-rounded gravel to 25 mm diameter, clay and wood (sticks). (Possible weathered glaciolacustrine)

Firm, grey/brown, moist, sandy SILT with some sub-angular to rounded gravel to 75 mm diameter and a trace to some clay. (Possible ablation/moraine till)

- trace of organics and oxidation staining above 3.4 m

- stiff to very stiff below 3.7 m

LOCATION: See Fig. 209
E 595193, N 5819920

TOP OF HOLE ELEV: 937.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 3, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS <input type="checkbox"/> Grab Sample USCS <input type="checkbox"/> Tube Sample <input checked="" type="checkbox"/> No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
5							932
6							931
7							930
8							929
9							928
10							

LOCATION: See Fig. 209
E 595193, N 5819920

TOP OF HOLE ELEV: 937.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 3, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS <input type="checkbox"/> Grab Sample USCS <input type="checkbox"/> Tube Sample <input checked="" type="checkbox"/> No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
10							927
11							926
12							925
13							924
14							923
15							

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

Start of RSCPT14-05 at approx. 13.2 m

Vibrating Wire Tip C at 13.7 m

Firm to stiff, grey, moist, sandy SILT with some sub-angular to rounded gravel to 75 mm diameter and a trace to some clay. (Possible ablation/moraine till)

LOCATION: See Fig. 209
E 595193, N 5819920

TOP OF HOLE ELEV: 937.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

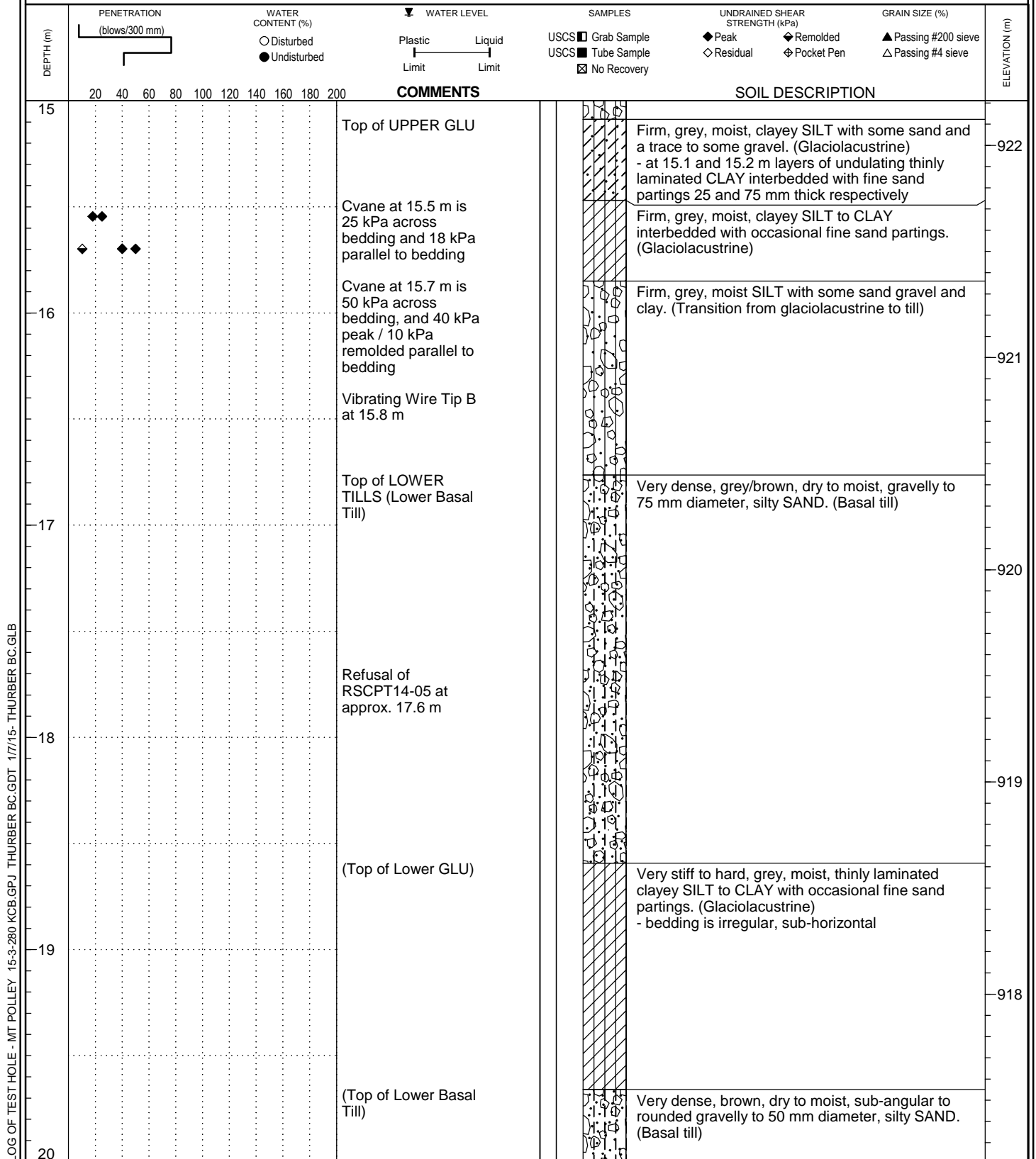


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 3, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595193, N 5819920

TOP OF HOLE ELEV: 937.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 3, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS □ Grab Sample USCS ■ Tube Sample <input checked="" type="checkbox"/> No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
20							917
21							916
22							915
23							914
24							913
25							

Vibrating Wire Tip A
at 20.7 m

Top of WEAK
BEDROCK

Very dense, brown, dry to moist, sub-angular to rounded gravelly to 50 mm diameter, silty SAND. (Basal till)

- fine sand and silt below 21.3 m

Very stiff, red/orange/purple/brown, moist, sandy SILT with some sub-rounded to sub-angular gravel, a trace of clay and pervasive oxidation staining. (Basal till)

Very dense (inferred), dark grey-black, moist to dry, silty, angular SAND with some fine, angular gravel and a trace of clay. (Possible brecciated volcanic bedrock)
- gravel particles friable down to 10 mm diameter
- sand and gravel of basalt like origin

- dry and gravelly to 50 mm diameter below 23.2 m

LOCATION: See Fig. 209
E 595193, N 5819920

TOP OF HOLE ELEV: 937.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 3, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS □ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)	COMMENTS	SOIL DESCRIPTION
25							912		Very dense (inferred), dark grey-black, moist to dry, silty, angular SAND with some fine, angular gravel and a trace of clay. (Possible brecciated volcanic bedrock) - gravel particles friable down to 10 mm diameter - sand and gravel of basalt like origin
26							911		
27							910		
28							909		
29							908		
30									End of hole at KCB instruction. Vibrating wire piezometers installed at 13.7 m (Tip C), 15.8 m (Tip B) and 20.7 m (Tip A) and test hole grouted.

LOCATION: See Fig. 209
E 595180, N 5819917

TOP OF HOLE ELEV: 937.5 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 4, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%)	WATER LEVEL	SAMPLES	UNDRAINED SHEAR STRENGTH (kPa)	GRAIN SIZE (%)	ELEVATION (m)
		○ Disturbed ● Undisturbed	Plastic Limit Liquid Limit	USCS ■ Grab Sample USCS ■ Tube Sample ☑ No Recovery	◆ Peak ◇ Residual	◆ Remolded ◆ Pocket Pen ▲ Passing #200 sieve △ Passing #4 sieve	
	20 40 60 80 100 120 140 160 180 200						
	COMMENTS						SOIL DESCRIPTION
0	<p>Note: Field log of test hole based on visual observation during drilling completed by KCB. No samples were obtained by Thurber for confirmatory laboratory testing. Density/consistency/strength descriptions are based on field observations of highly disturbed samples. Refer to RSCPT14-06 and KCB laboratory testing for further information.</p> <p>Nominal sonic core diameter 140 mm from 0 to 20.1 m</p> <p>Cvane is Torvane</p>						Grey, moist GRAVEL with traces of sand, silt and angular cobbles to 150 mm diameter. (Rockfill)
1							937
							936
2							935
3							934
4							933
5							

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595180, N 5819917

TOP OF HOLE ELEV: 937.5 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

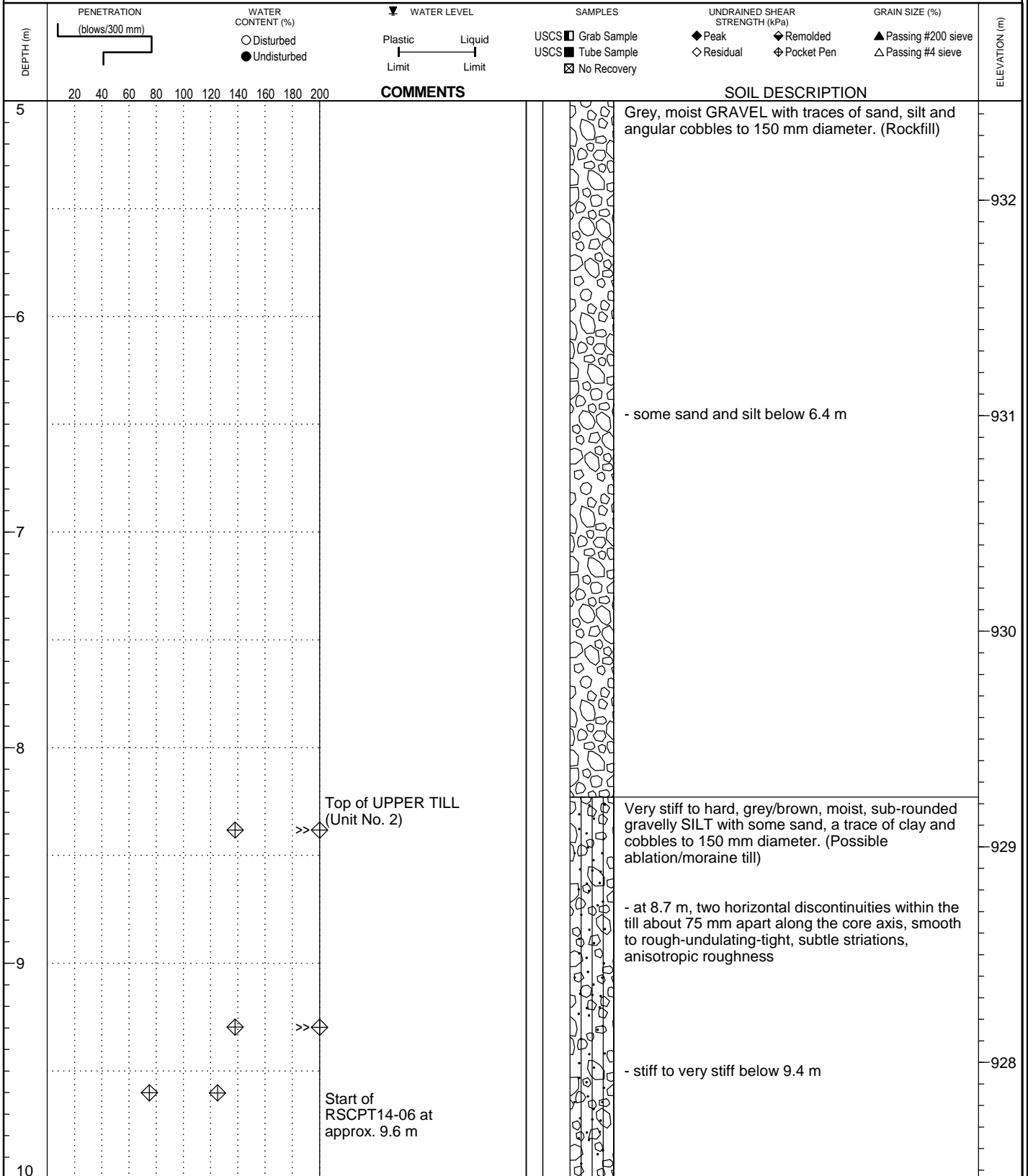


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 4, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595180, N 5819917

TOP OF HOLE ELEV: 937.5 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

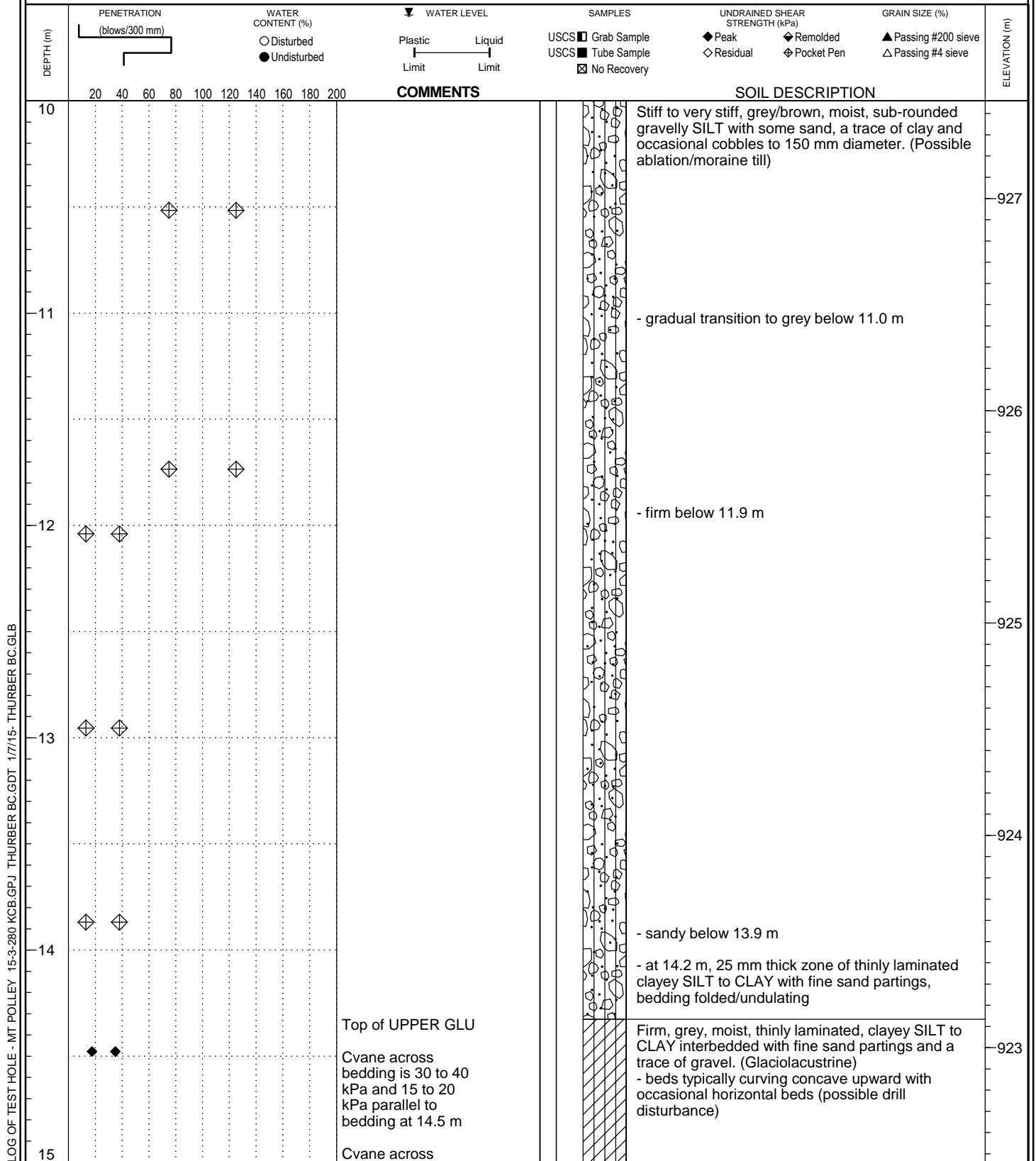


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 4, 2014

FILE NO.: 15-3-280



LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595180, N 5819917

TOP OF HOLE ELEV: 937.5 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

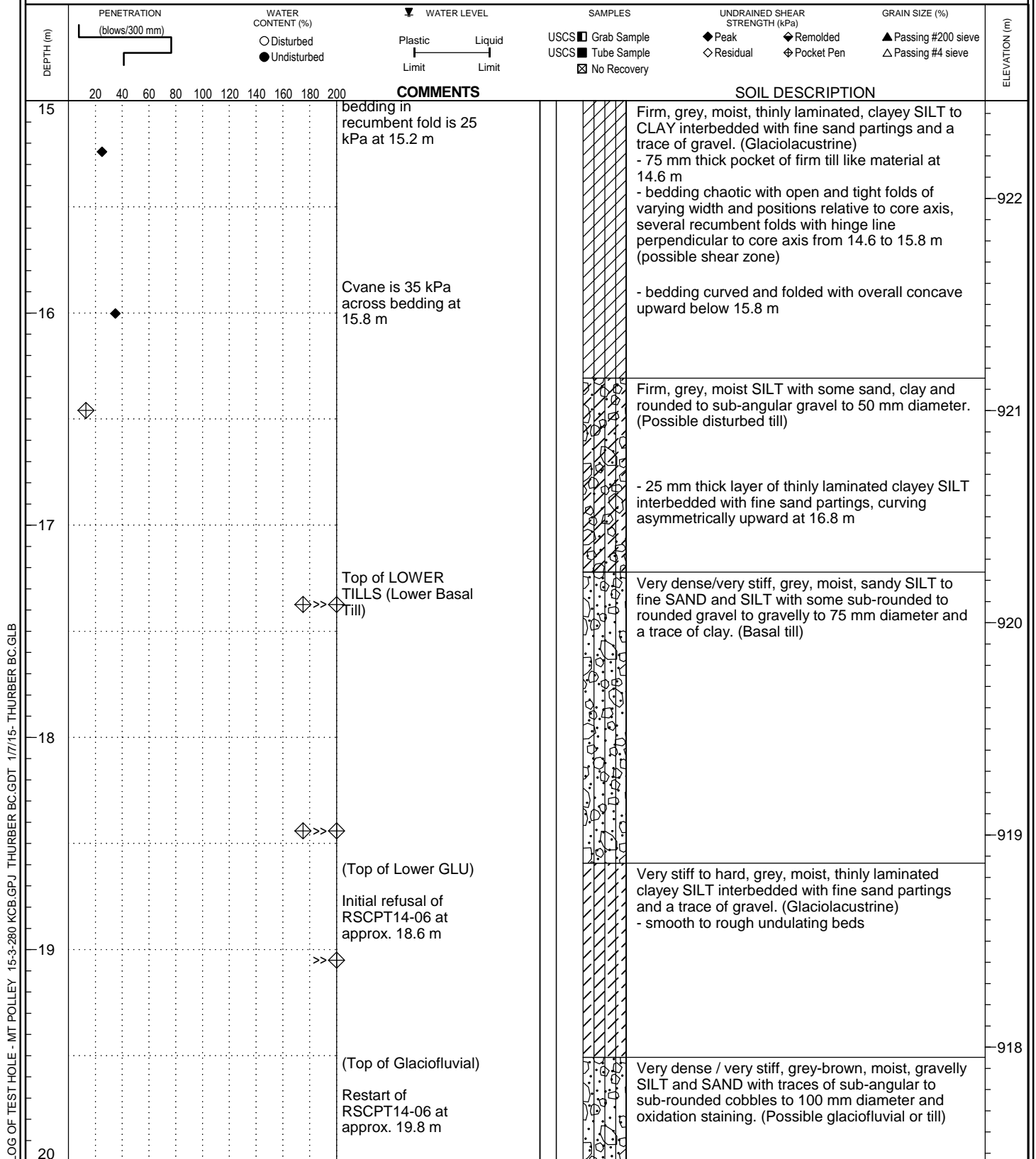


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 4, 2014

FILE NO.: 15-3-280



LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595180, N 5819917

TOP OF HOLE ELEV: 937.5 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

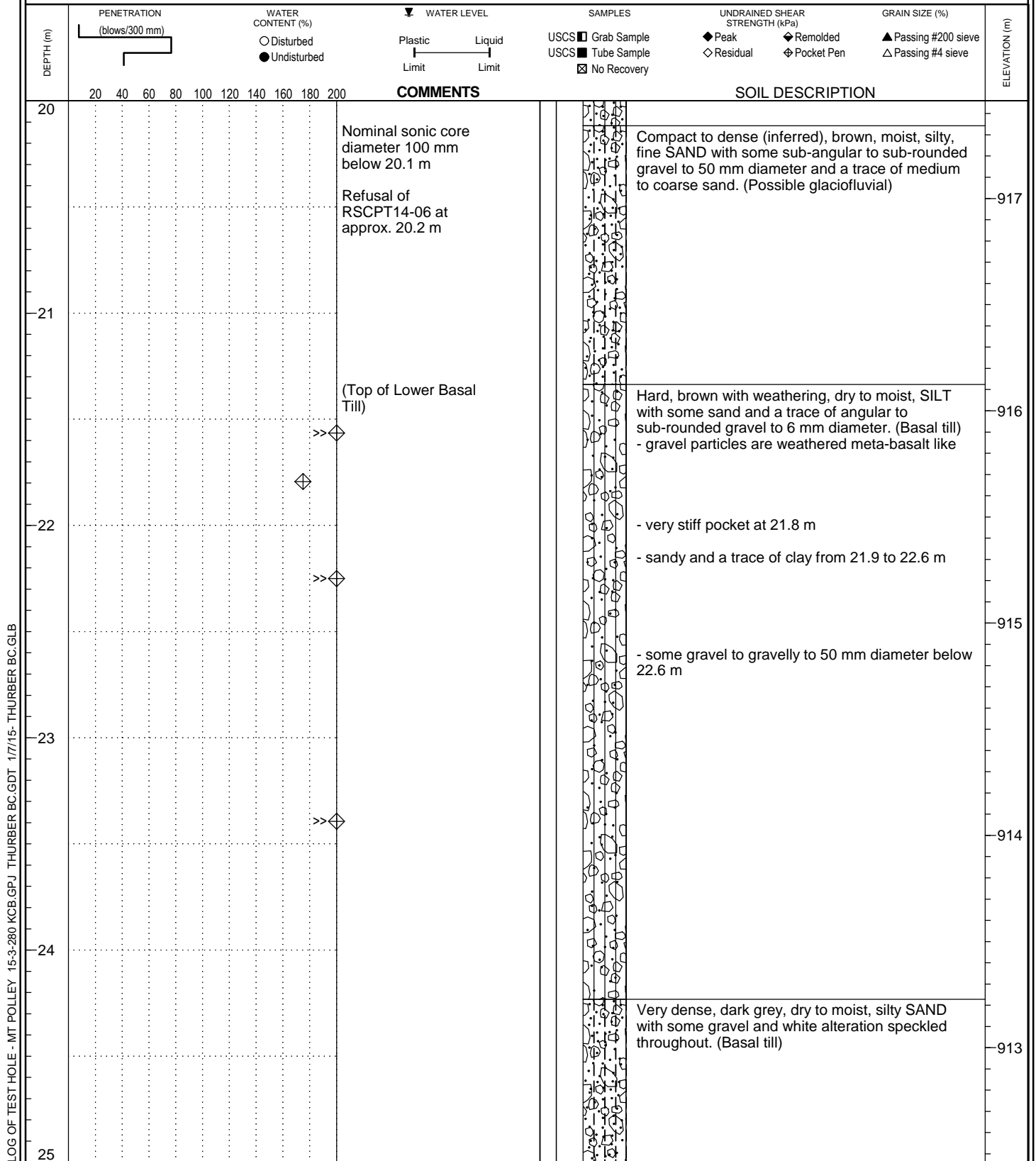


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 4, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595180, N 5819917

TOP OF HOLE ELEV: 937.5 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

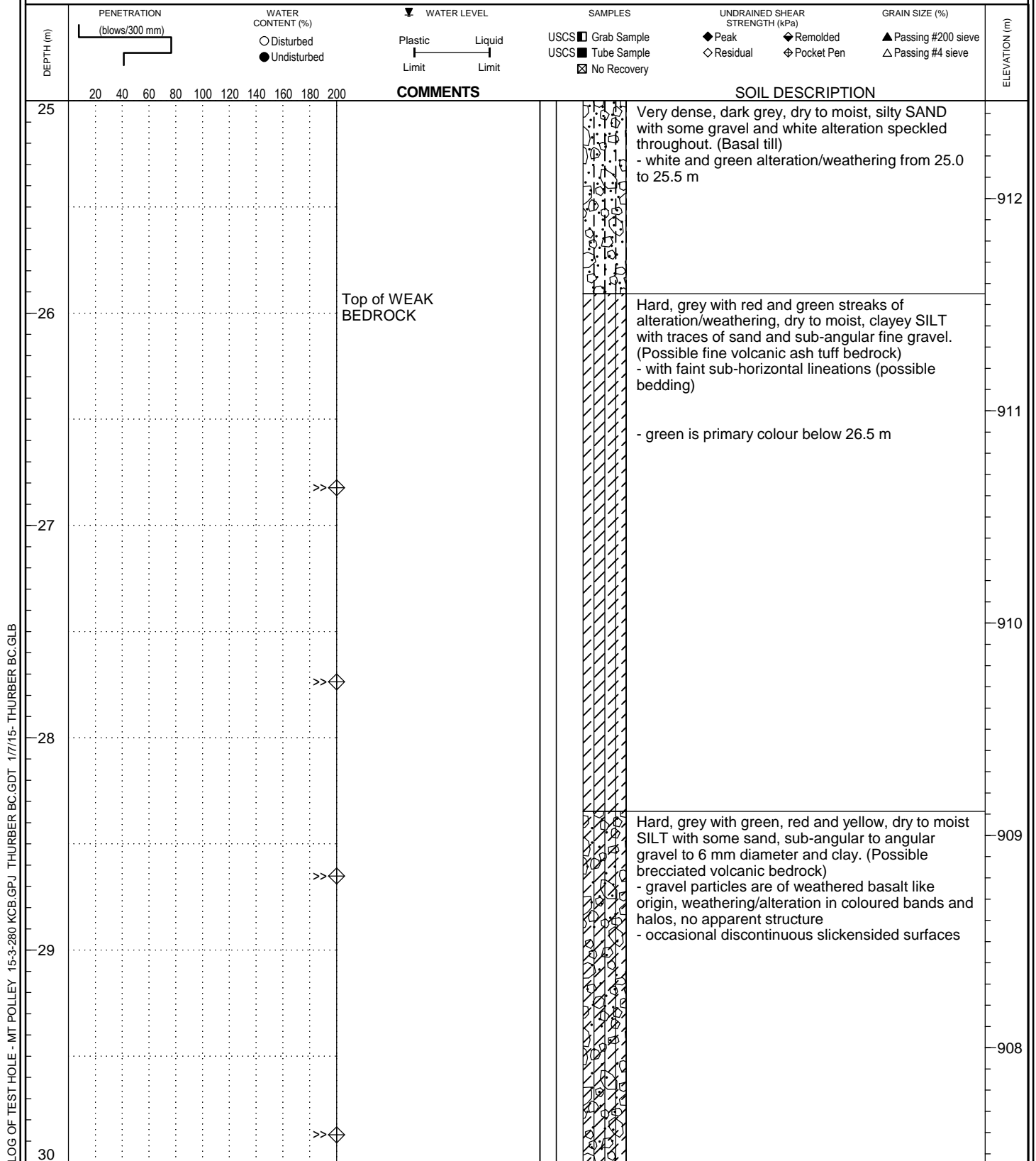


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 4, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595180, N 5819917

TOP OF HOLE ELEV: 937.5 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 4, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%)	WATER LEVEL	SAMPLES	UNDRAINED SHEAR STRENGTH (kPa)	GRAIN SIZE (%)	ELEVATION (m)
		○ Disturbed ● Undisturbed	Plastic Limit Liquid Limit	USCS □ Grab Sample USCS ■ Tube Sample ☒ No Recovery	◆ Peak ◇ Residual	◆ Remolded ◇ Pocket Pen ▲ Passing #200 sieve △ Passing #4 sieve	
	20 40 60 80 100 120 140 160 180 200						
30						Hard, grey with green, red and yellow, dry to moist SILT with some sand, sub-angular to angular gravel to 6 mm diameter and clay. (Possible brecciated volcanic bedrock)	
							907
31							
							906
32							
							905
33							
							904
34							
							903
35							

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595055, N 5819899

TOP OF HOLE ELEV: 931.7 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

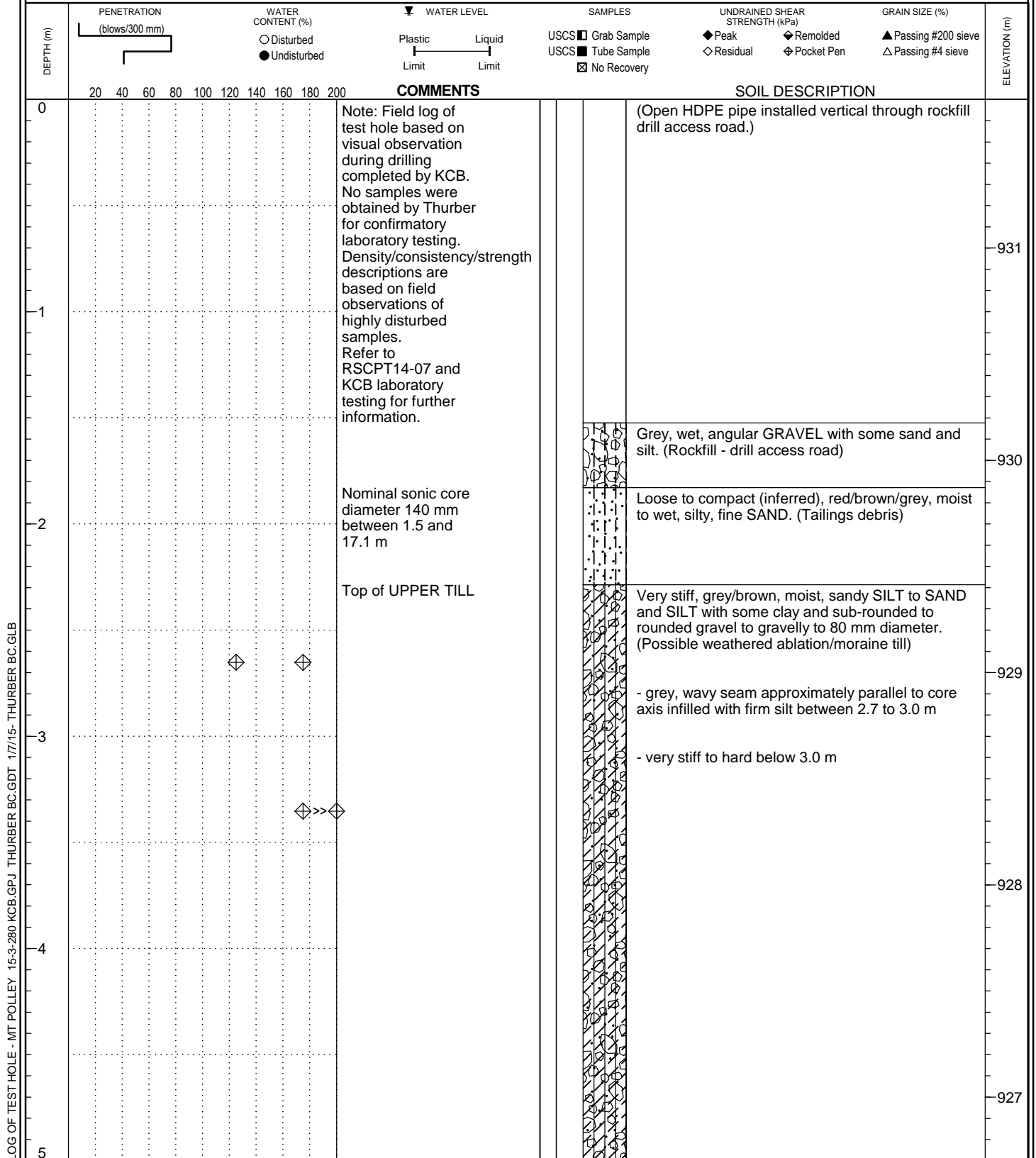


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 6, 2014

FILE NO.: 15-3-280



LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595055, N 5819899

TOP OF HOLE ELEV: 931.7 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

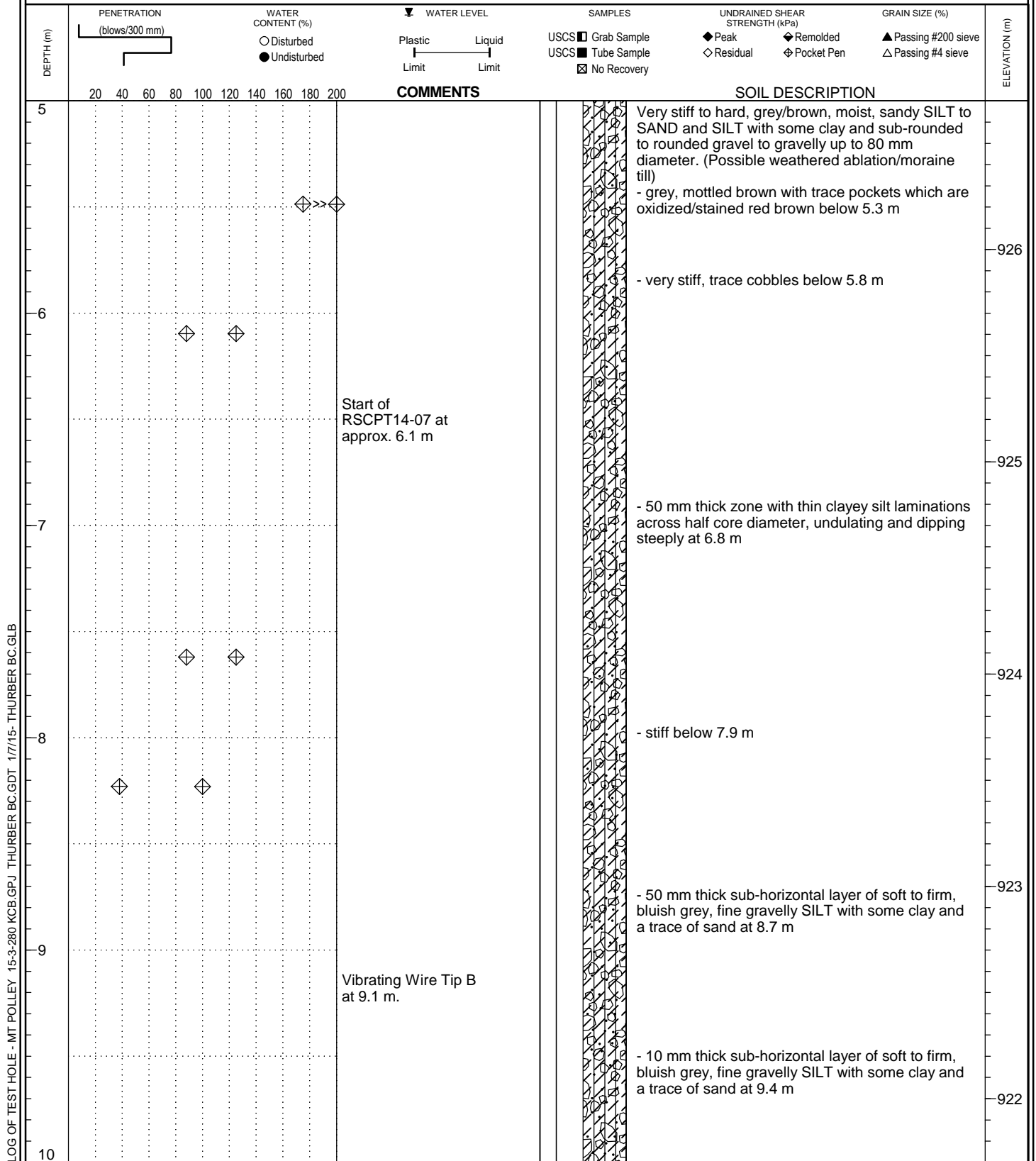


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 6, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595055, N 5819899

TOP OF HOLE ELEV: 931.7 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

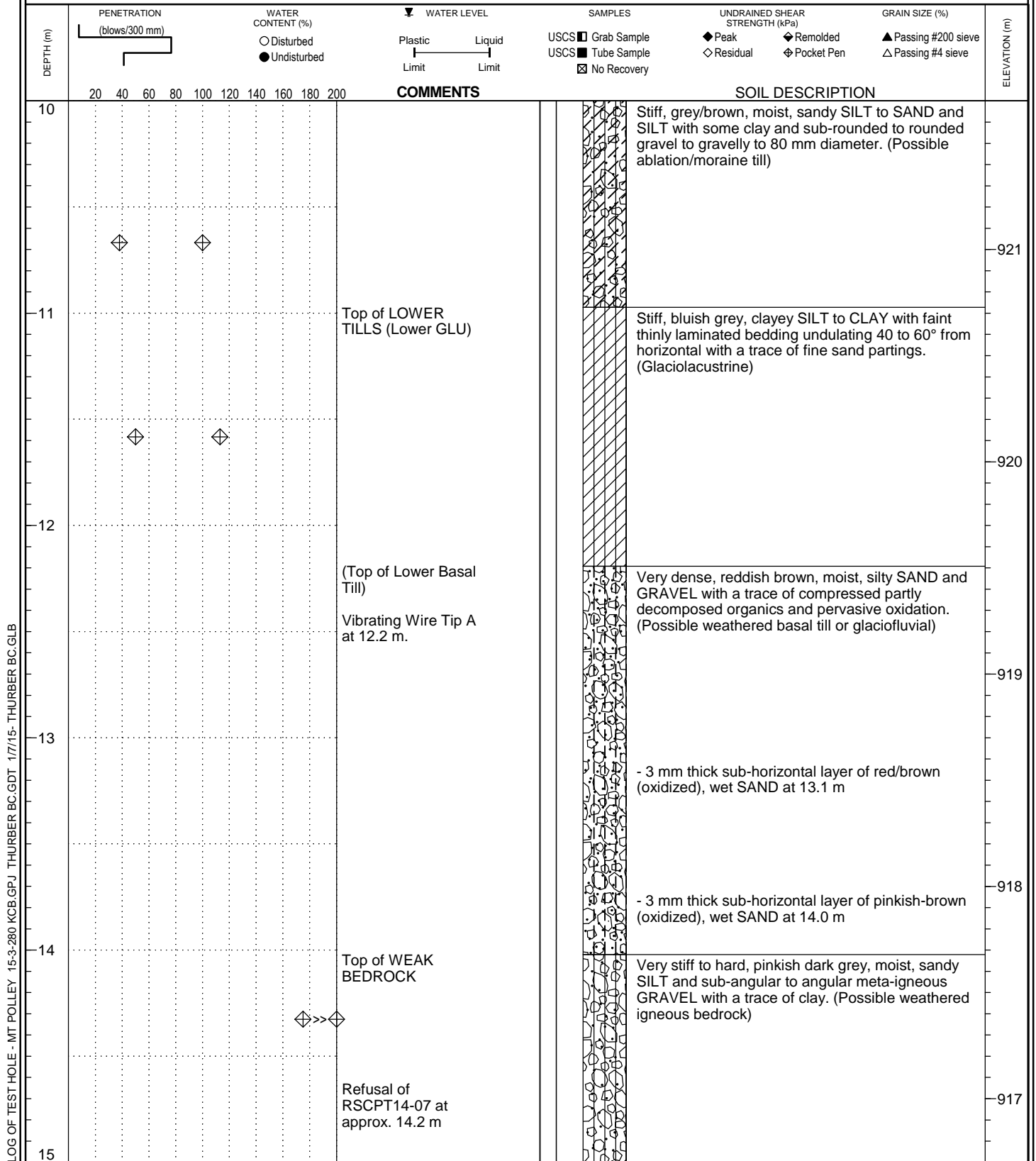


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 6, 2014

FILE NO.: 15-3-280



LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595055, N 5819899

TOP OF HOLE ELEV: 931.7 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

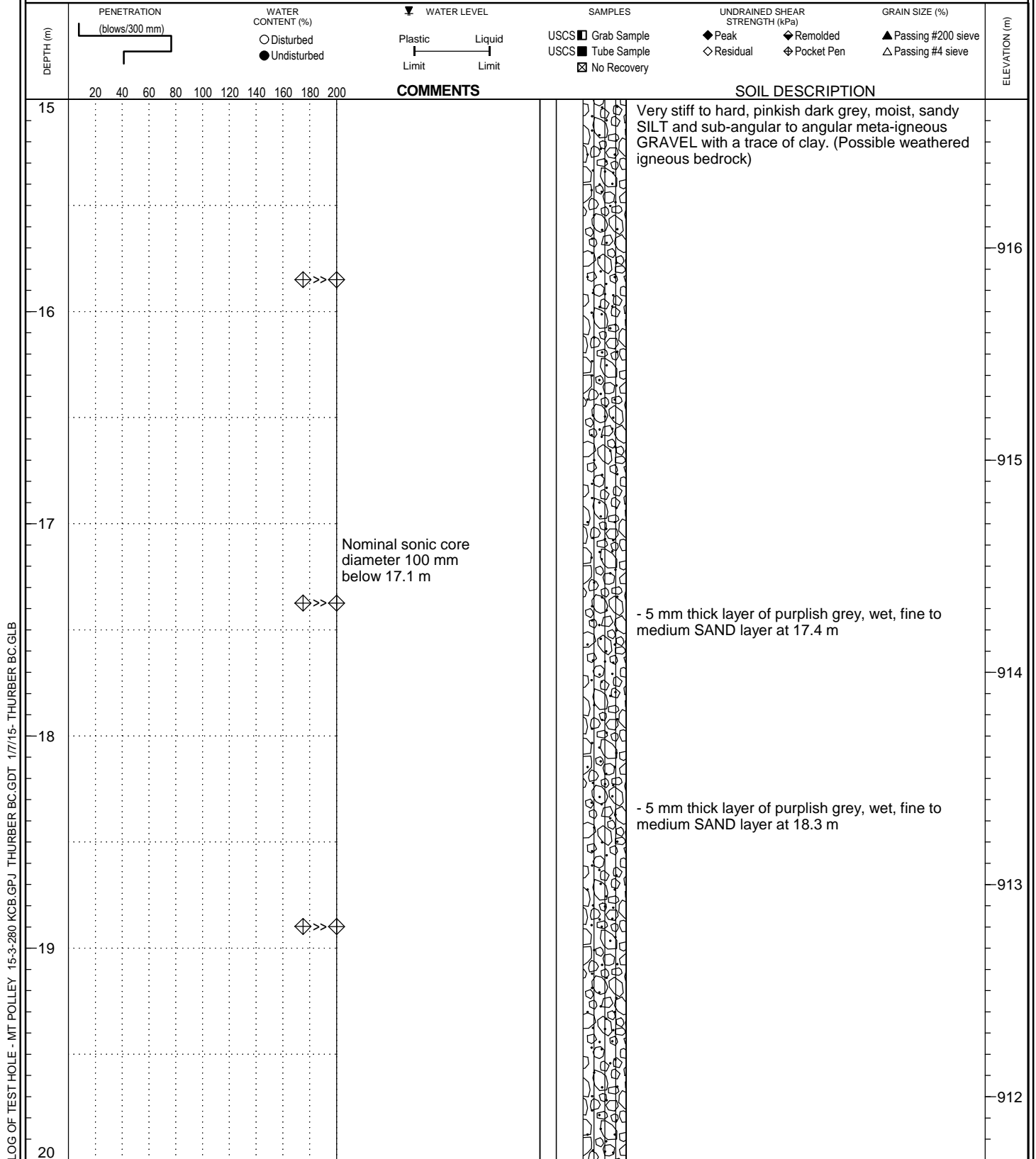


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 6, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595055, N 5819899

TOP OF HOLE ELEV: 931.7 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 6, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%)	WATER LEVEL	SAMPLES	UNDRAINED SHEAR STRENGTH (kPa)	GRAIN SIZE (%)	ELEVATION (m)
		○ Disturbed ● Undisturbed	Plastic Limit Liquid Limit	USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	▲ Passing #200 sieve △ Passing #4 sieve	
	20 40 60 80 100 120 140 160 180 200						
20						Very stiff to hard, pinkish dark grey, moist, sandy SILT and sub-angular to angular meta-igneous GRAVEL with a trace of clay. (Possible weathered igneous bedrock)	
						End of hole at KCB instruction. Test hole sounded through casing upon completion to 20.3 m. Vibrating wire piezometers installed at 9.1 m (Tip B) and 12.2 m (Tip A) and test hole grouted.	911
21							
							910
22							
							909
23							
							908
24							
							907
25							

LOCATION: See Fig. 209
E 595167, N 5819889

TOP OF HOLE ELEV: 947.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 6 and 7, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☑ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
0							947
1							946
2							945
3							944
4							943
5							

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

Note: Field log of test hole based on visual observation during drilling completed by KCB. No samples were obtained by Thurber for confirmatory laboratory testing. Density/consistency/strength descriptions are based on field observations of highly disturbed samples. Refer to RSCPT14-08 and KCB laboratory testing for further information.

Nominal sonic core diameter 140 mm between 1.5 and 29.3 m

Cvane is Torvane

Grey/brown, angular GRAVEL and COBBLES with some sand, a trace of silt and occasional boulders to 1.0 m diameter. (Rockfill)

LOCATION: See Fig. 209
E 595167, N 5819889

TOP OF HOLE ELEV: 947.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 6 and 7, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample <input checked="" type="checkbox"/> No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
5							942
6							941
7							940
8							939
9							938
10							

LOCATION: See Fig. 209
E 595167, N 5819889

TOP OF HOLE ELEV: 947.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 6 and 7, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample <input checked="" type="checkbox"/> No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)	COMMENTS	SOIL DESCRIPTION
								10	
11									
12									
13									
14									
15									

LOCATION: See Fig. 209
E 595167, N 5819889

TOP OF HOLE ELEV: 947.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 6 and 7, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☑ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)	COMMENTS	SOIL DESCRIPTION
15									Grey/brown, angular GRAVEL and COBBLES with some sand, a trace of silt and occasional boulders to 1.0 m diameter. (Rockfill)
									- some clumps of stiff to very stiff, grey/brown SILT with some sand and a trace of gravel (Possible rockfill and till fill mixture) from 15.5 to 17.0 m
16									
17									- possible boulder from 17.0 to 18.0 m
18									- some sand and a trace to some silt below 18.0 m
19									
20									

LOCATION: See Fig. 209
E 595167, N 5819889

TOP OF HOLE ELEV: 947.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 6 and 7, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS <input type="checkbox"/> Grab Sample USCS <input type="checkbox"/> Tube Sample <input checked="" type="checkbox"/> No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
25						Stiff to very stiff, grey, moist, sandy SILT with some gravel. (Possible ablation/moraine till)	
						Dense (inferred), grey, moist SAND and SILT with some gravel to gravelly and trace of clay. (Possible ablation/moraine till)	922
						- very soft (disturbed) zone at 25.9 m	
26						(No recovery)	
							921
							920
27							
28						Very dense, grey, moist SAND and SILT with some gravel to gravelly and trace of clay. (Basal till)	919
29						- cored a minimum 150 mm long green, meta-igneous cobble at 29.3 m	918
30							

Drill loss inferred
from 25.9 to 28.0 m
(See SH14-08A)

LOWER TILLS
(Lower Basal Till)

Refusal of
RSCPT14-08 at
approx. 28.9 m

Nominal sonic core
diameter 100 mm
below 29.3 m

LOCATION: See Fig. 209
E 595167, N 5819889

TOP OF HOLE ELEV: 947.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 6 and 7, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☑ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
30							917
31							916
32							915
33							914
34							913
35							

COMMENTS

SOIL DESCRIPTION

Very dense, grey, moist SAND and SILT with some gravel to gravelly and trace of clay. (Basal till)

Very dense (inferred), grey, moist SAND with some silt to silty and some sub-angular to rounded gravel to 50 mm diameter. (Basal till)

- a trace of gravel from 31.1 to 31.4 m

Hard, grey/brown, moist SILT with some sand and sub-rounded to rounded gravel to 75 mm diameter. (Basal till)

- 25 mm thick layer of wet, gravelly SAND at 32.6 m

- fine sandy SILT with a trace to some gravel below 33.4 m

- two 5 mm thick layers of silty, fine SAND approximately 25 mm apart at 33.5 m

Dense (inferred), dark grey, moist to wet, silty, fine SAND with a trace of black organic staining and odour of decomposition. (Possible glaciofluvial)

- very stiff to hard, dark grey, moist, thinly laminated SILT interbedded with fine sand partings including a trace of black organics from 34.6 to 34.75 m
Bedding overall curvature concave downward.
With a closed fold - almost chevron - about 10 mm wide limb to limb near one edge of core with peak of fold pointing downhole.

(Top of Glaciofluvial)

Vibrating Wire Tip A
at 34.7 m.

LOCATION: See Fig. 209
E 595167, N 5819889

TOP OF HOLE ELEV: 947.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 6 and 7, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%)	WATER LEVEL	SAMPLES	UNDRAINED SHEAR STRENGTH (kPa)	GRAIN SIZE (%)	ELEVATION (m)
		○ Disturbed ● Undisturbed	Plastic Limit Liquid Limit	USCS <input type="checkbox"/> Grab Sample USCS <input type="checkbox"/> Tube Sample <input checked="" type="checkbox"/> No Recovery	◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	▲ Passing #200 sieve △ Passing #4 sieve	
	20 40 60 80 100 120 140 160 180 200						
35						Dense (inferred), dark grey, moist to wet, silty, fine SAND with a trace of black organic staining and odour of decomposition. (Possible glaciofluvial)	912
36						Soft/loose (likely heavily drill disturbed), dark grey, moist to wet, fine SAND and SILT with some gravel to gravelly. (Till-like)	911
37						Very dense (inferred), purplish brown with oxidation, dry to moist, gravelly silty SAND. (Basal till)	910
38						- two 25 mm thick layers of brown, wet, gravelly SAND and a trace to some silt at 37.5 and 37.6 m	909
39						- cobble at least 125 mm diameter at 38.7 m	908
40						Very stiff to hard, grey, moist, gravelly sandy SILT with a trace of clay. (Basal till)	908

(Top of Lower Basal Till)

LOCATION: See Fig. 209
E 595167, N 5819889

TOP OF HOLE ELEV: 947.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

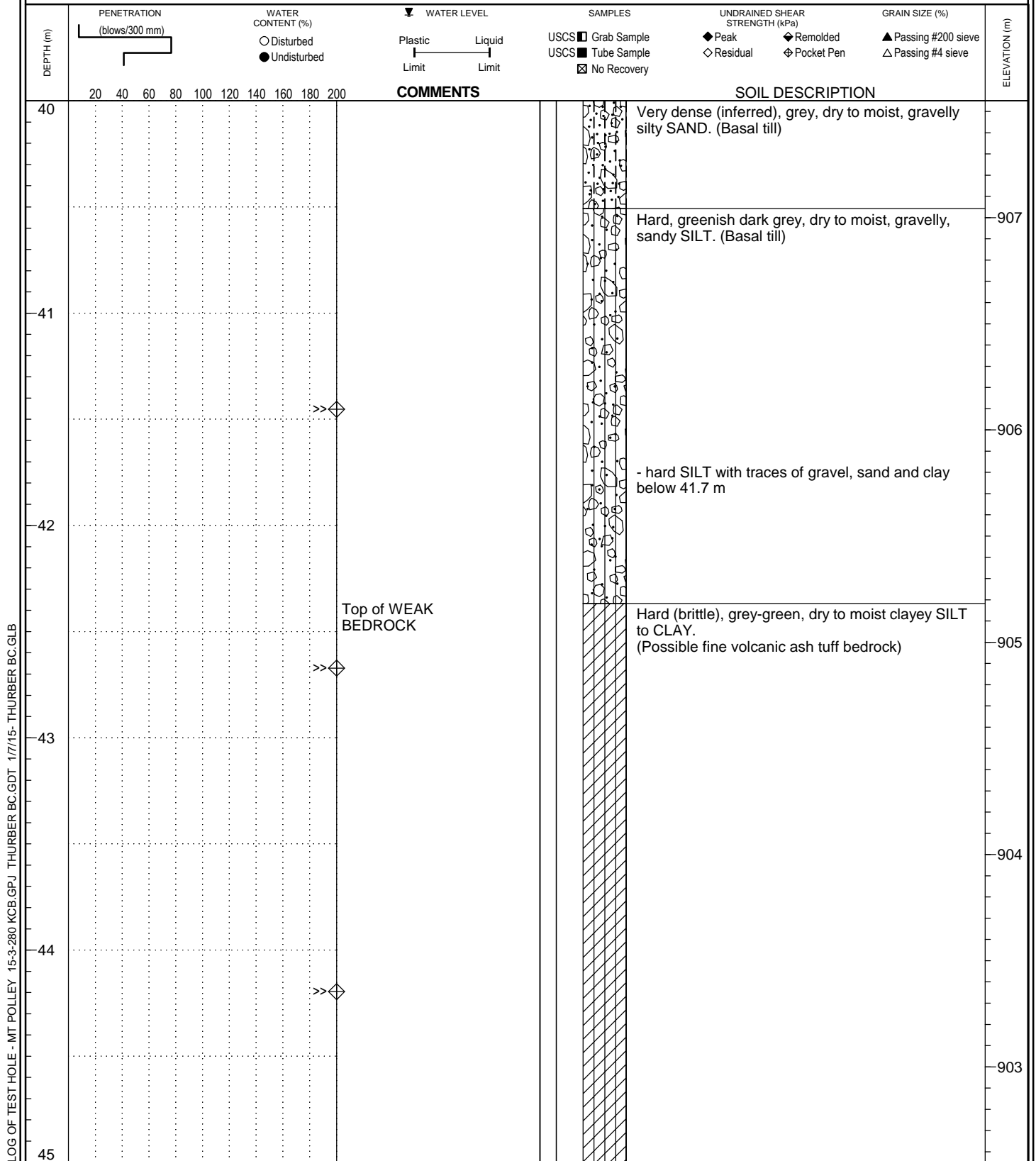


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 6 and 7, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595167, N 5819889

TOP OF HOLE ELEV: 947.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

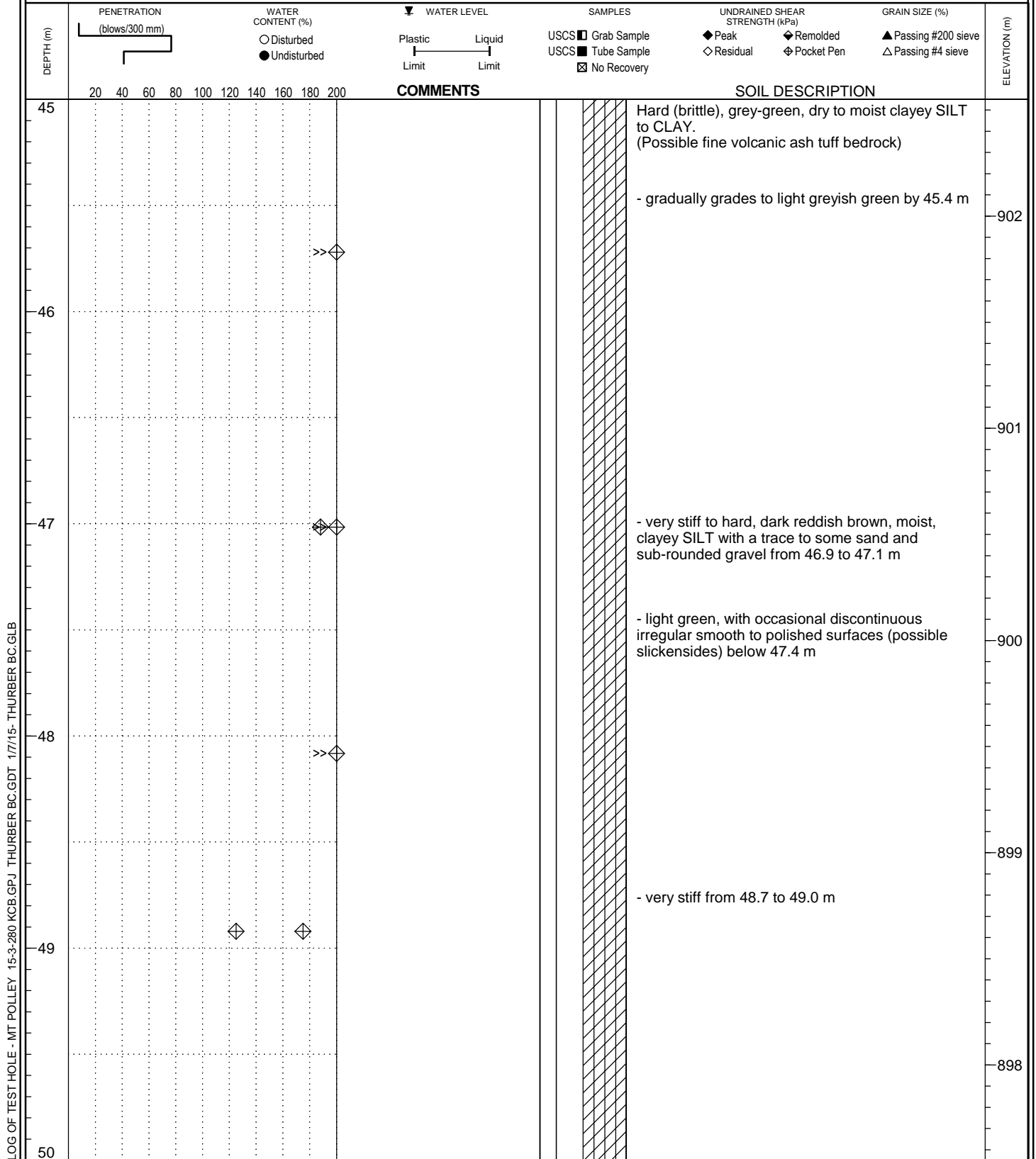


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 6 and 7, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595167, N 5819889

TOP OF HOLE ELEV: 947.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

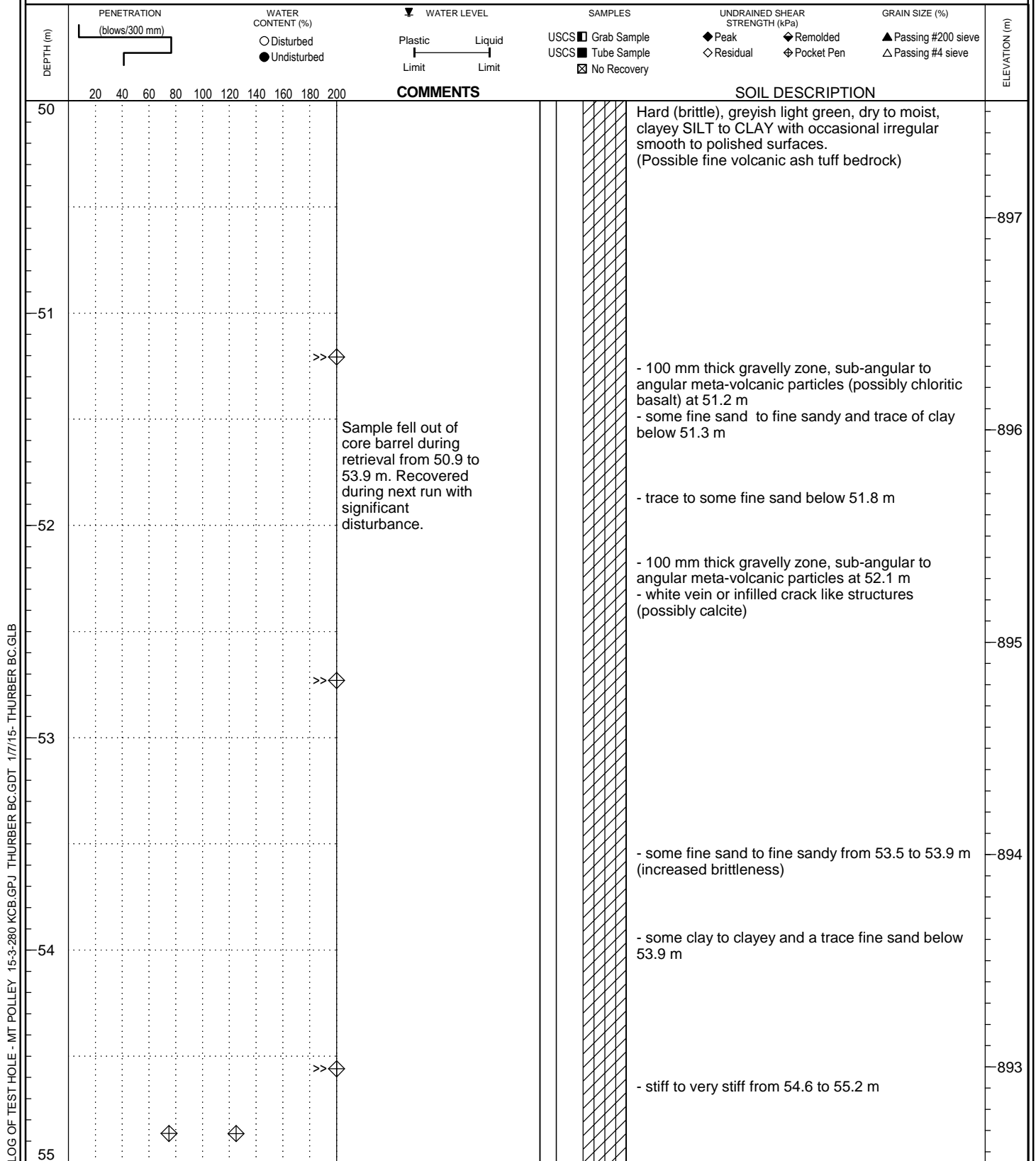


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 6 and 7, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595167, N 5819889

TOP OF HOLE ELEV: 947.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

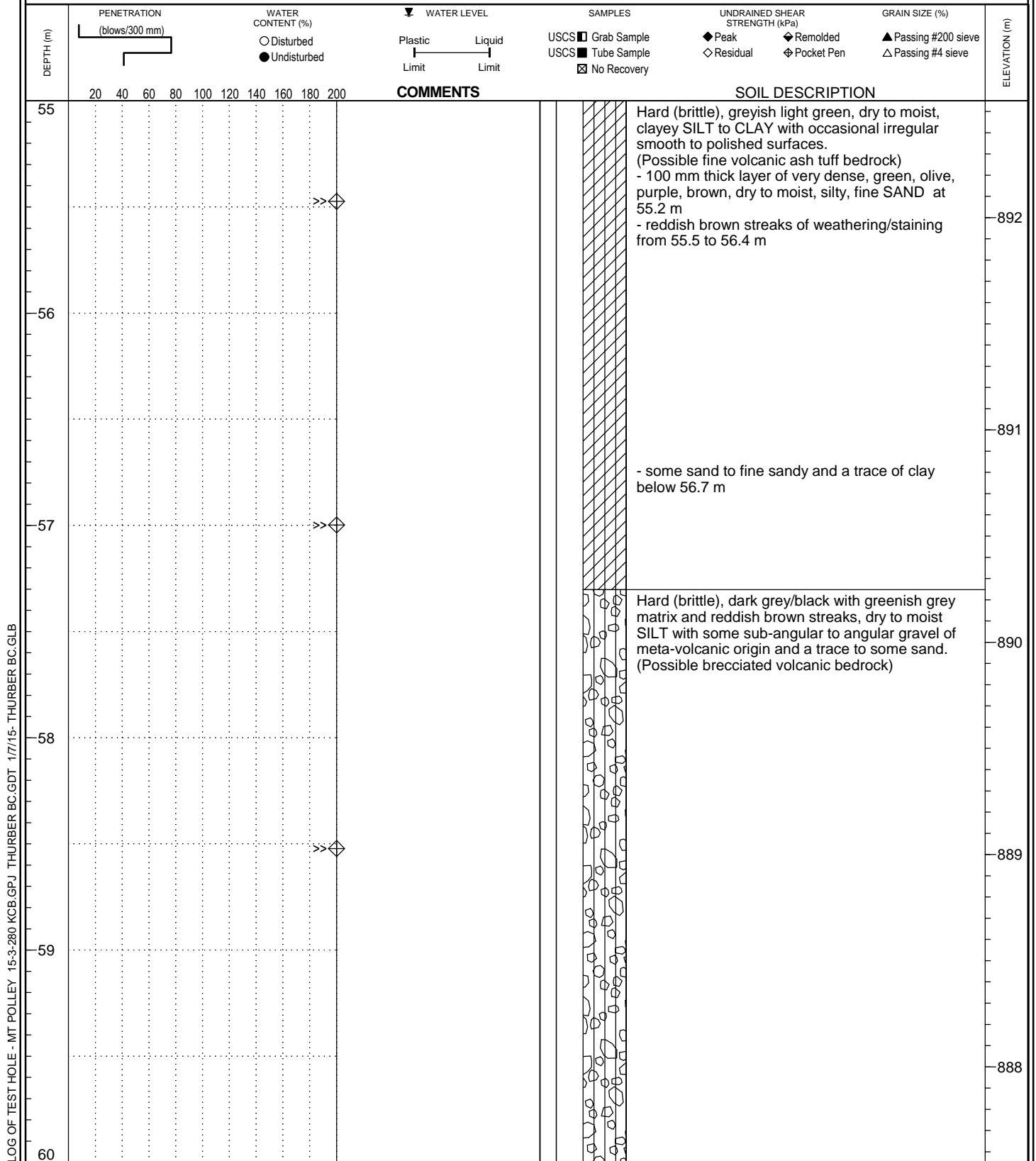


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 6 and 7, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595167, N 5819889

TOP OF HOLE ELEV: 947.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 6 and 7, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%)	WATER LEVEL	SAMPLES	UNDRAINED SHEAR STRENGTH (kPa)	GRAIN SIZE (%)	ELEVATION (m)
		○ Disturbed ● Undisturbed	Plastic Limit Liquid Limit	USCS □ Grab Sample USCS ■ Tube Sample ☒ No Recovery	◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	▲ Passing #200 sieve △ Passing #4 sieve	
60							887
61							886
62							885
63							884
64							883
65							

COMMENTS**SOIL DESCRIPTION**

End of hole at KCB instruction. Test hole sounded through casing upon completion to 60.0 m. Vibrating wire piezometers installed at 22.9 m (Tip C), 24.1 m (Tip B) and 34.7 m (Tip A) and test hole grouted.

LOCATION: See Fig. 209
E 595170, N 5819887

TOP OF HOLE ELEV: 947.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 8, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)	COMMENTS	SOIL DESCRIPTION
0								Note: Field log of test hole based on visual observation during drilling completed by KCB. No samples were obtained by Thurber for confirmatory laboratory testing. Density/consistency/strength descriptions are based on field observations of highly disturbed samples. Refer to RSCPT14-08 and KCB laboratory testing for further information.	(No recovery)
1									
2								Cvane is Torvane	
3								KCB instructed driller to quickly drill to 24.7 m, discarding any heavily washed/disturbed recovery. Re-drill to sample interval 24.7 to 29.3 m which was not recovered at SH14-08.	
4									
5									

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595170, N 5819887

TOP OF HOLE ELEV: 947.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 8, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
5							942
6							941
7							940
8							939
9							938
10							

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595170, N 5819887

TOP OF HOLE ELEV: 947.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 8, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
10							937
11							936
12							935
13							934
14							933
15							

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595170, N 5819887

TOP OF HOLE ELEV: 947.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 8, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
15							932
16							931
17							930
18							929
19							928
20							

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595170, N 5819887

TOP OF HOLE ELEV: 947.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 8, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)	COMMENTS	SOIL DESCRIPTION
20									(No recovery)
21									
22									
23									
24									
25								UPPER TILL	Firm (likely drill disturbed), grey, moist, sandy, gravelly SILT with a trace to some clay. (Possible ablation/moraine till)

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

Start of
RSCPT14-07 at
approx. 21.2 m

LOCATION: See Fig. 209
E 595170, N 5819887

TOP OF HOLE ELEV: 947.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

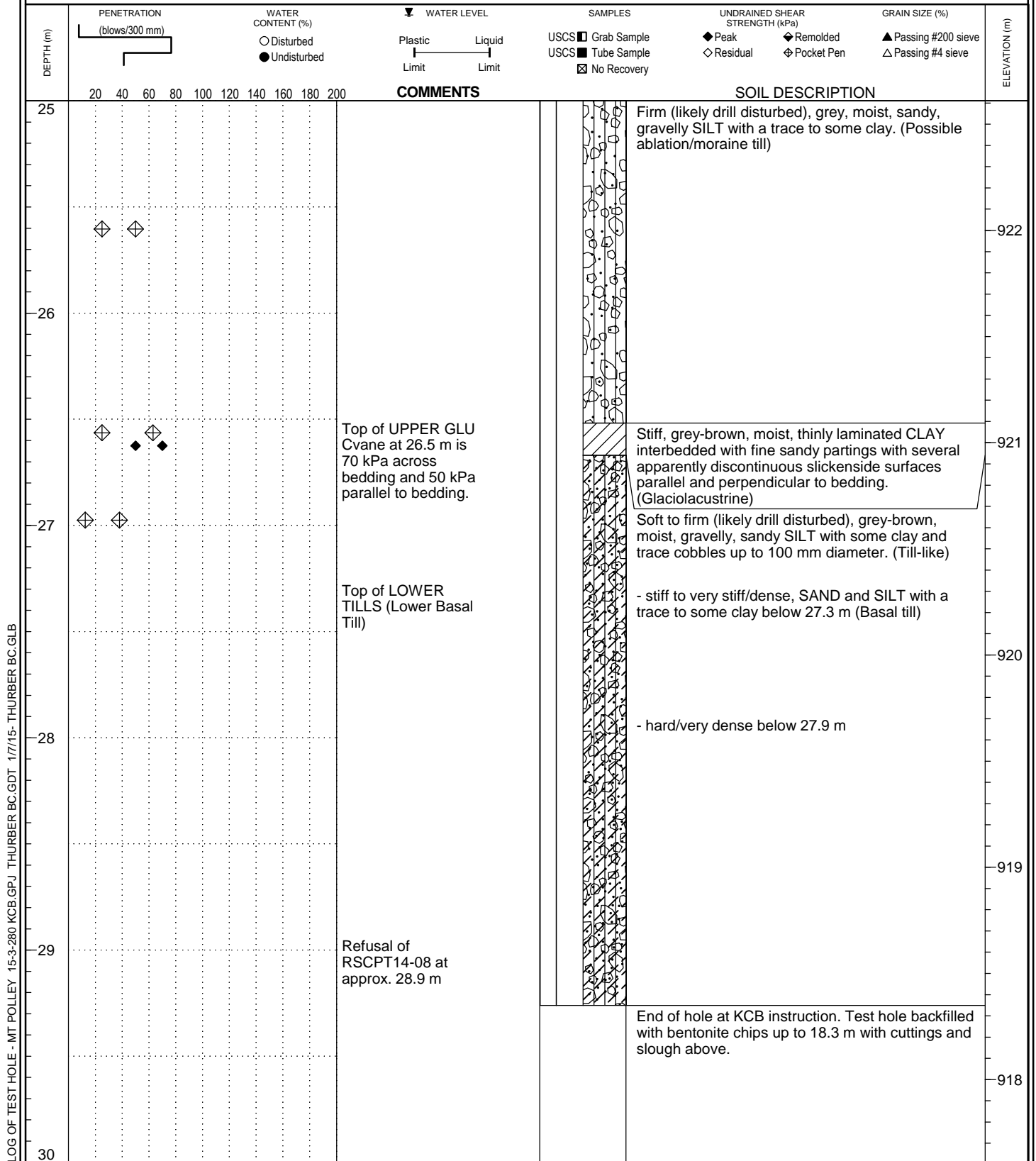


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 8, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595145, N 5819911

TOP OF HOLE ELEV: 938.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 8 and 9, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%)	WATER LEVEL	SAMPLES	UNDRAINED SHEAR STRENGTH (kPa)	GRAIN SIZE (%)	ELEVATION (m)
		○ Disturbed ● Undisturbed	Plastic Limit Liquid Limit	USCS ■ Grab Sample USCS ■ Tube Sample ☑ No Recovery	◆ Peak ◇ Residual ◆ Remolded ◆ Pocket Pen	▲ Passing #200 sieve △ Passing #4 sieve	
	20 40 60 80 100 120 140 160 180 200						
	COMMENTS						SOIL DESCRIPTION
0	<p>Note: Field log of test hole based on visual observation during drilling completed by KCB. No samples were obtained by Thurber for confirmatory laboratory testing. Density/consistency/strength descriptions are based on field observations of highly disturbed samples. Refer to KCB laboratory testing for further information.</p> <p>Nominal sonic core diameter 140 mm to 20.1 m</p> <p>Cvane is Torvane</p>						Grey/brown, angular GRAVEL and COBBLES with some sand, a trace of silt and occasional boulders to 1.0 m in diameter. (Rockfill)
1							937
2							936
3							935
4							934
5							933

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

- pockets of stiff, sandy SILT with some sub-rounded gravel (Till like fill) from 3.3 to 7.9 m

- wet below 4.9 m

LOCATION: See Fig. 209
E 595145, N 5819911

TOP OF HOLE ELEV: 938.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 8 and 9, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☑ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
5							938.0
6							932
7							931
8							930
9							929
10							928

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

Boundary between fill and foundation at 9.8 m.

- fragment of non-woven geotextile at 9.8 m

LOCATION: See Fig. 209
E 595145, N 5819911

TOP OF HOLE ELEV: 938.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

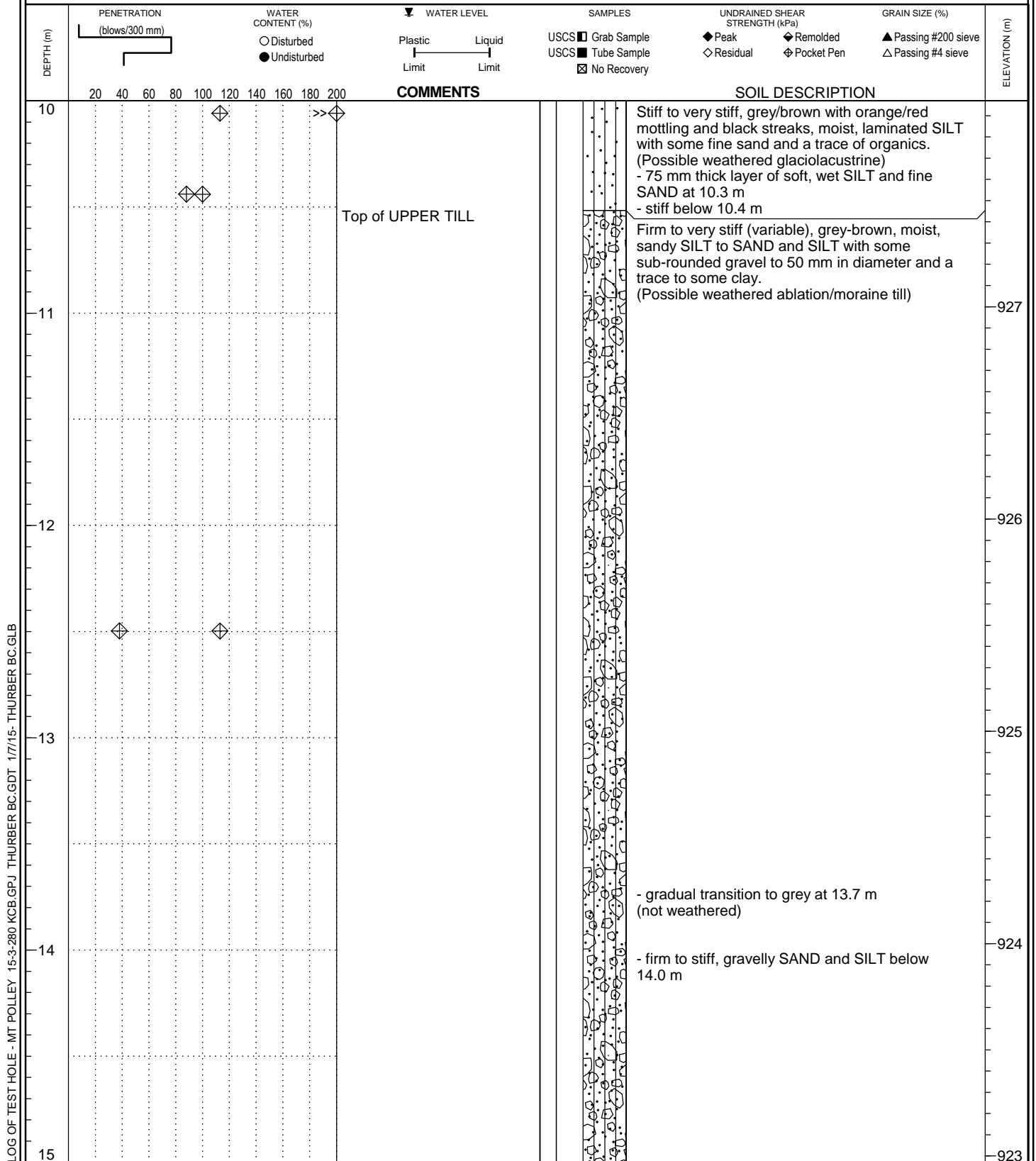


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 8 and 9, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595145, N 5819911

TOP OF HOLE ELEV: 938.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

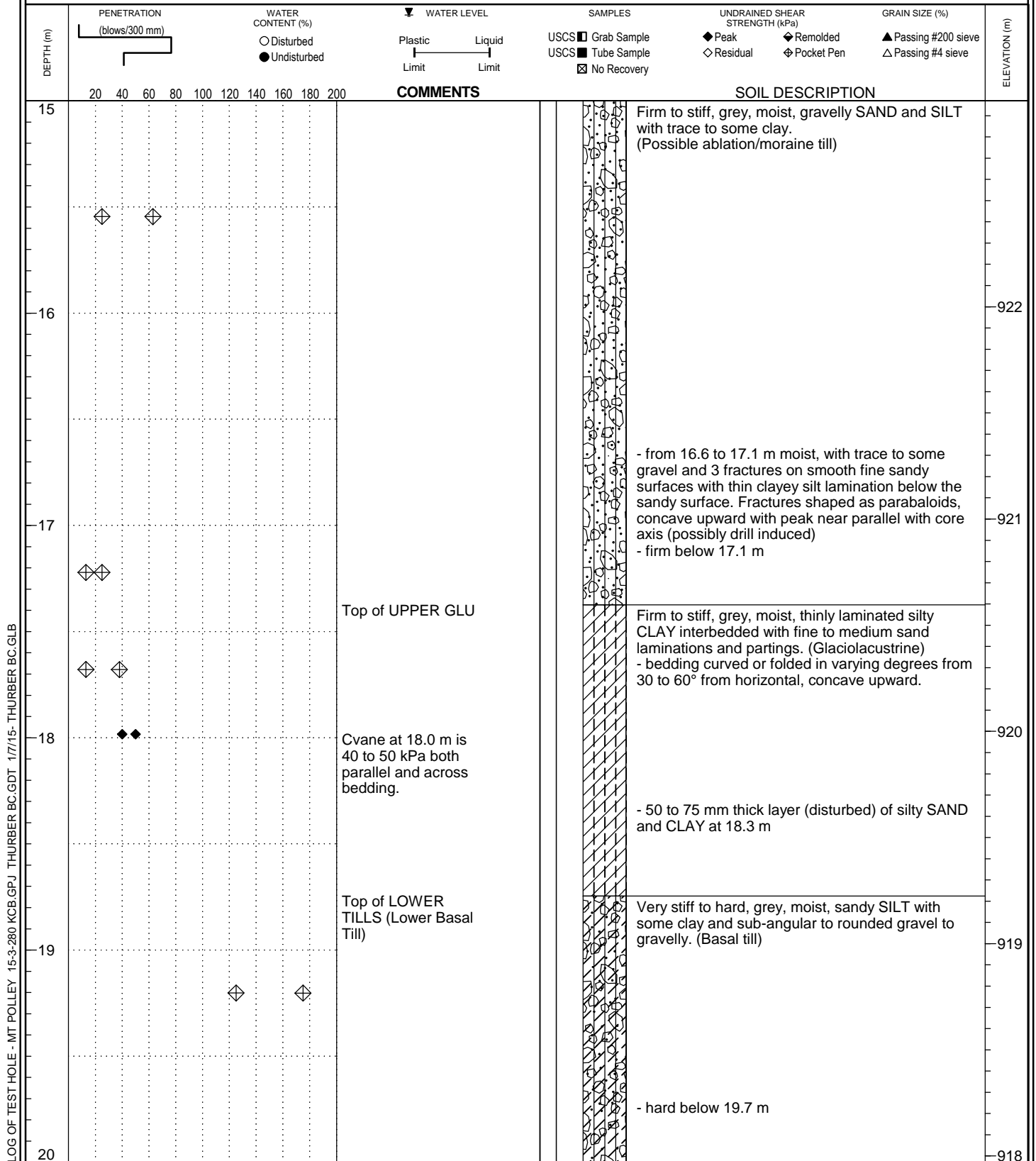


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 8 and 9, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595145, N 5819911

TOP OF HOLE ELEV: 938.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

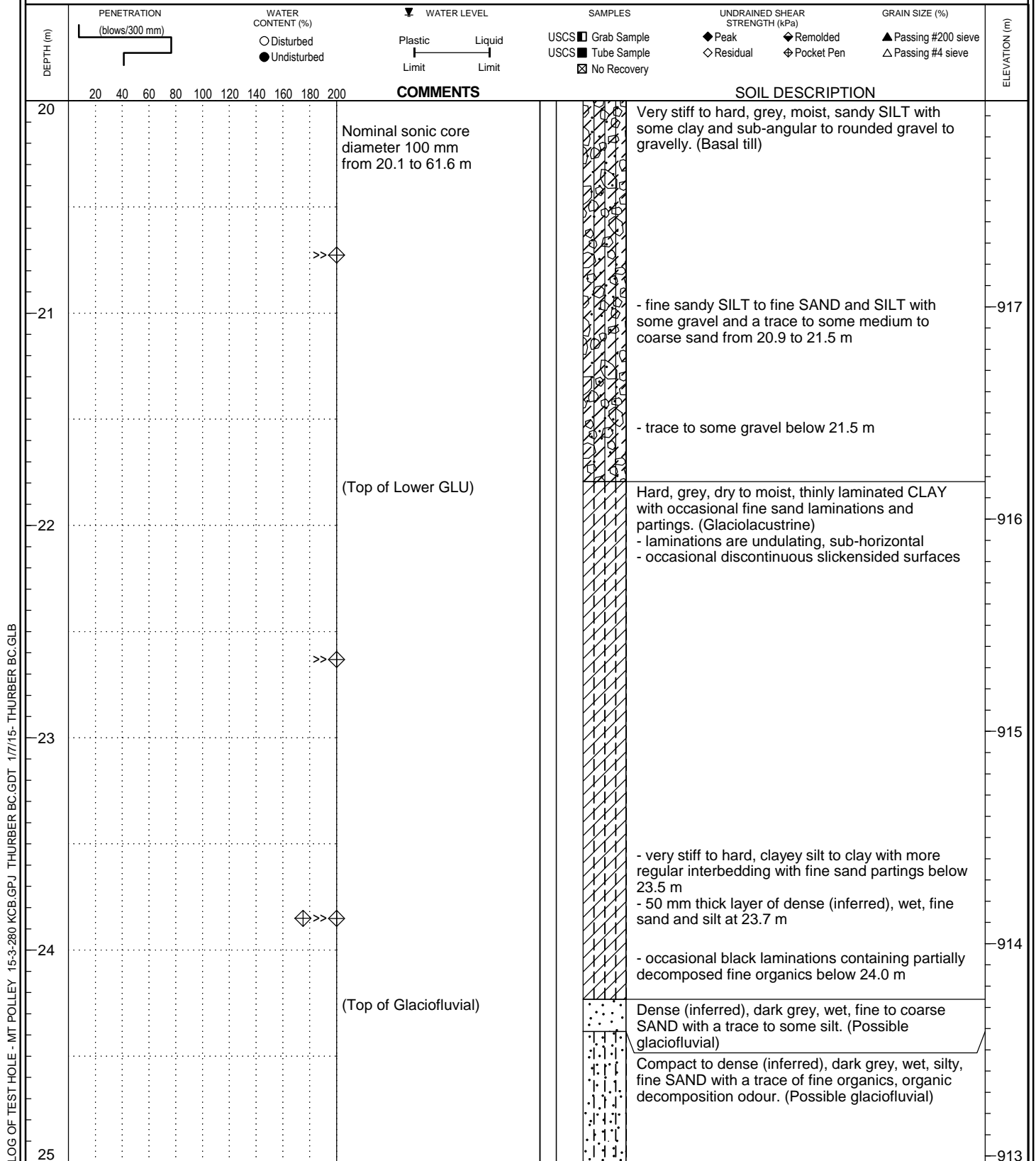


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 8 and 9, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595145, N 5819911

TOP OF HOLE ELEV: 938.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

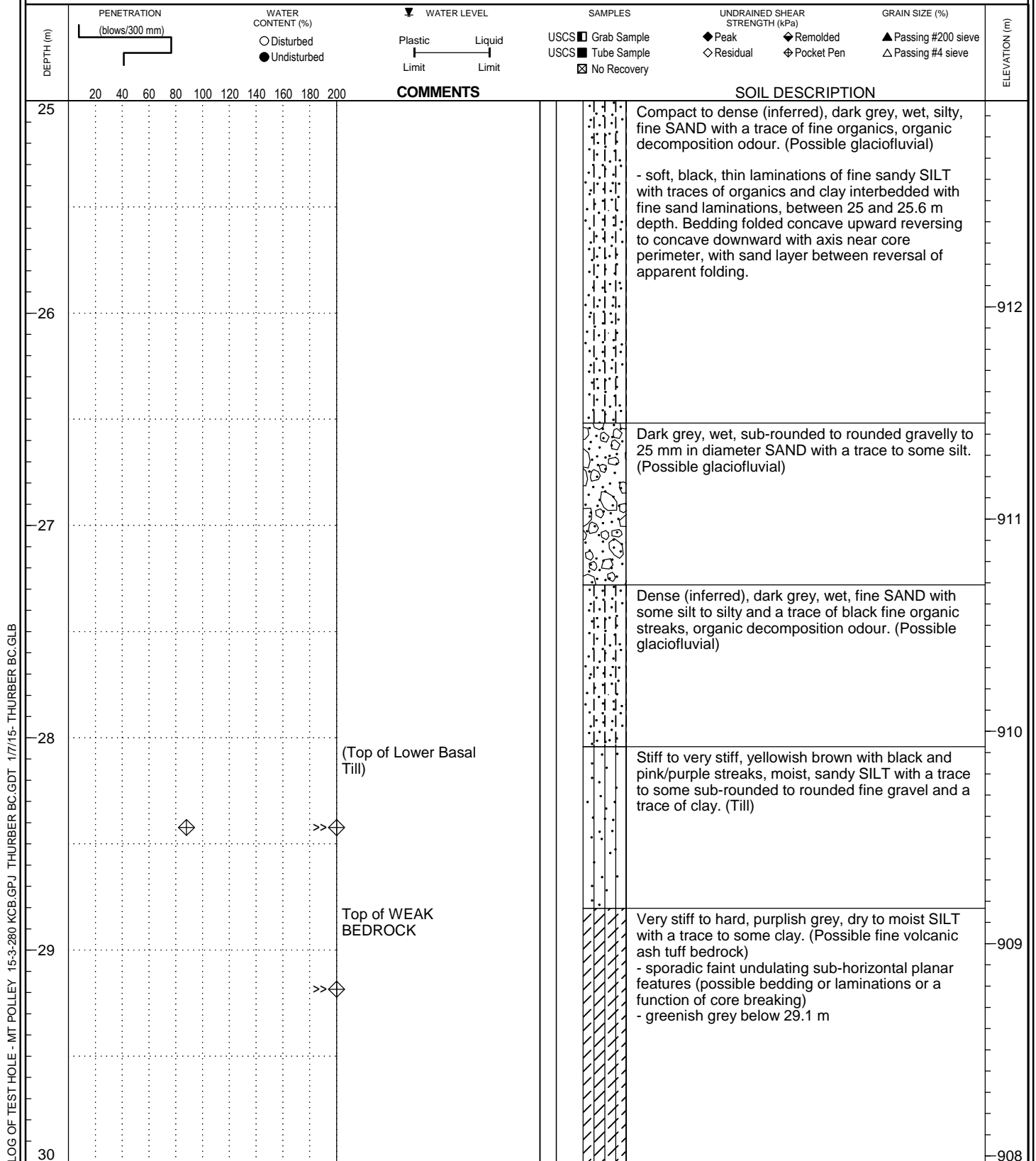


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 8 and 9, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595145, N 5819911

TOP OF HOLE ELEV: 938.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

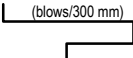














CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 8 and 9, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%)	WATER LEVEL	SAMPLES	UNDRAINED SHEAR STRENGTH (kPa)	GRAIN SIZE (%)	ELEVATION (m)
		 Disturbed  Undisturbed	 Plastic Limit Liquid Limit	USCS  Grab Sample USCS  Tube Sample  No Recovery	 Peak  Residual	 Remolded  Pocket Pen  Passing #200 sieve  Passing #4 sieve	
COMMENTS				SOIL DESCRIPTION			
30						Very stiff to hard, greenish grey, dry to moist SILT with a trace to some clay. (Possible fine volcanic ash tuff bedrock)	
						- white, irregular vein-like structures, possible calcite infilled at 30.5 m	
						- 2 mm thick layer of glossy black coal like seam at 30.8 m	
31						- 150 mm thick layer of black, angular gravel to 40 mm in diameter of basalt like origin (possible drill crushed cobble) at 31.1 m	907
						- 100 mm thick zone of white, irregular vein-like structures, possible calcite infilled at 31.2 m	
32							906
33							905
34							904
35							903

LOCATION: See Fig. 209
E 595145, N 5819911

TOP OF HOLE ELEV: 938.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

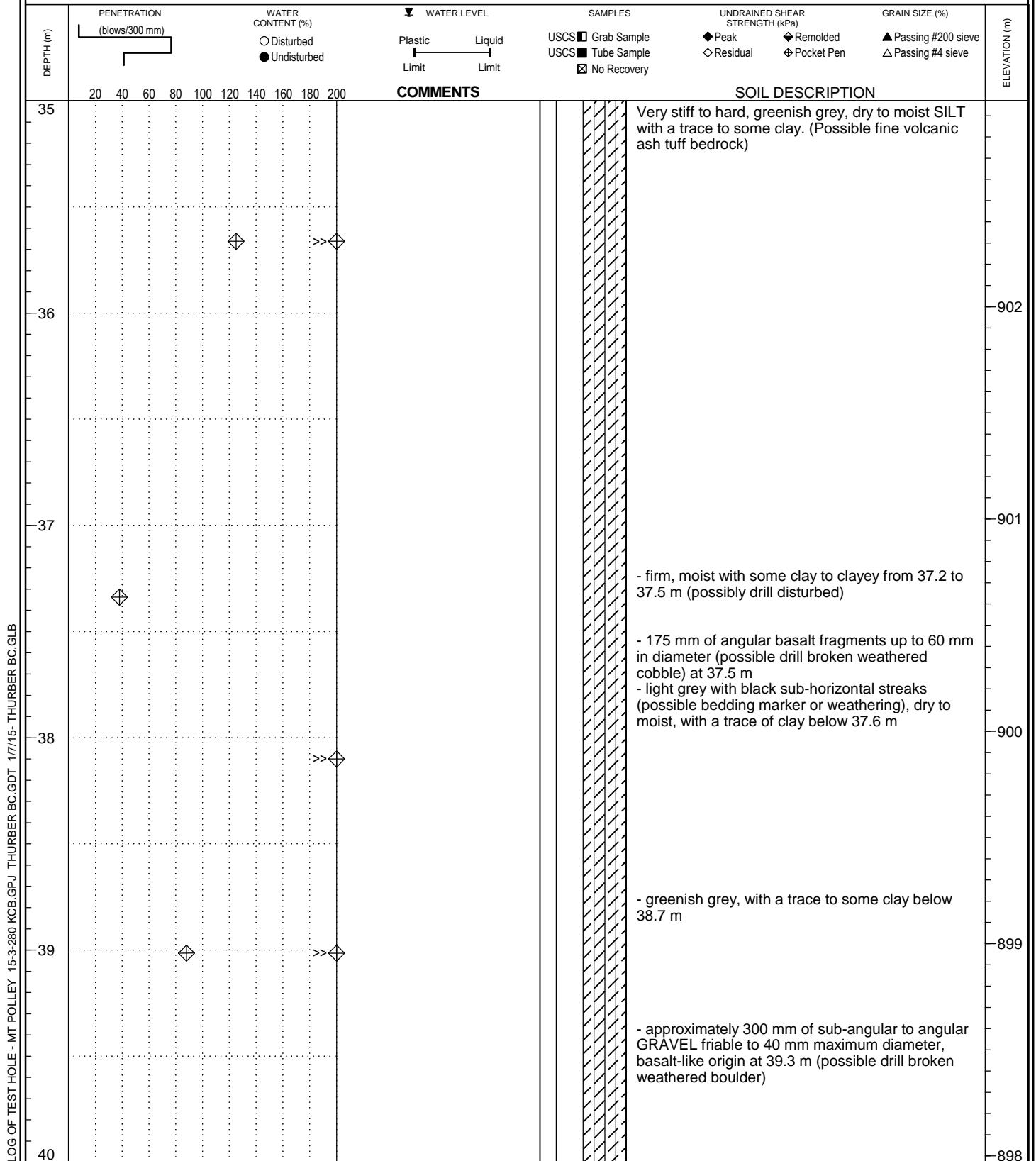


CLIENT: Mount Polley Independent Expert
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Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 8 and 9, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595145, N 5819911

TOP OF HOLE ELEV: 938.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 8 and 9, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)	COMMENTS	SOIL DESCRIPTION
40									Very stiff to hard, greenish grey, dry to moist SILT with a trace to some clay. (Possible fine volcanic ash tuff bedrock)
41									- 150 mm thick zone with diffuse white powdery speckling and some coarse crystals (possible calcite) at 41.0 m - hard, fractures along horizontal curvilinear planes - blocky, a trace of clay from 41.1 to 41.5 m
42									
43									
44									
45									

LOCATION: See Fig. 209
E 595145, N 5819911

TOP OF HOLE ELEV: 938.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 8 and 9, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%)	WATER LEVEL	SAMPLES	UNDRAINED SHEAR STRENGTH (kPa)	GRAIN SIZE (%)	ELEVATION (m)
		○ Disturbed ● Undisturbed	Plastic Limit Liquid Limit	USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	◆ Peak ◇ Residual	◆ Remolded ◆ Pocket Pen ▲ Passing #200 sieve △ Passing #4 sieve	
	20 40 60 80 100 120 140 160 180 200						
	COMMENTS						SOIL DESCRIPTION
45							Very stiff to hard, greenish grey, dry to moist SILT with a trace to some clay. (Possible fine volcanic ash tuff bedrock)
46							
47							- approximately 200 mm of angular gravel sized basalt fragments at 46.9 m (possible drill broken weathered boulder)
48							- frequent discontinuous slickensided surfaces in opposing planes, ranging from 40 to 60° from horizontal, noted from 48.2 to 49.7 m
49							
50							- slickenside undulating at about 60° to horizontal at 49.7 m

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595145, N 5819911

TOP OF HOLE ELEV: 938.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

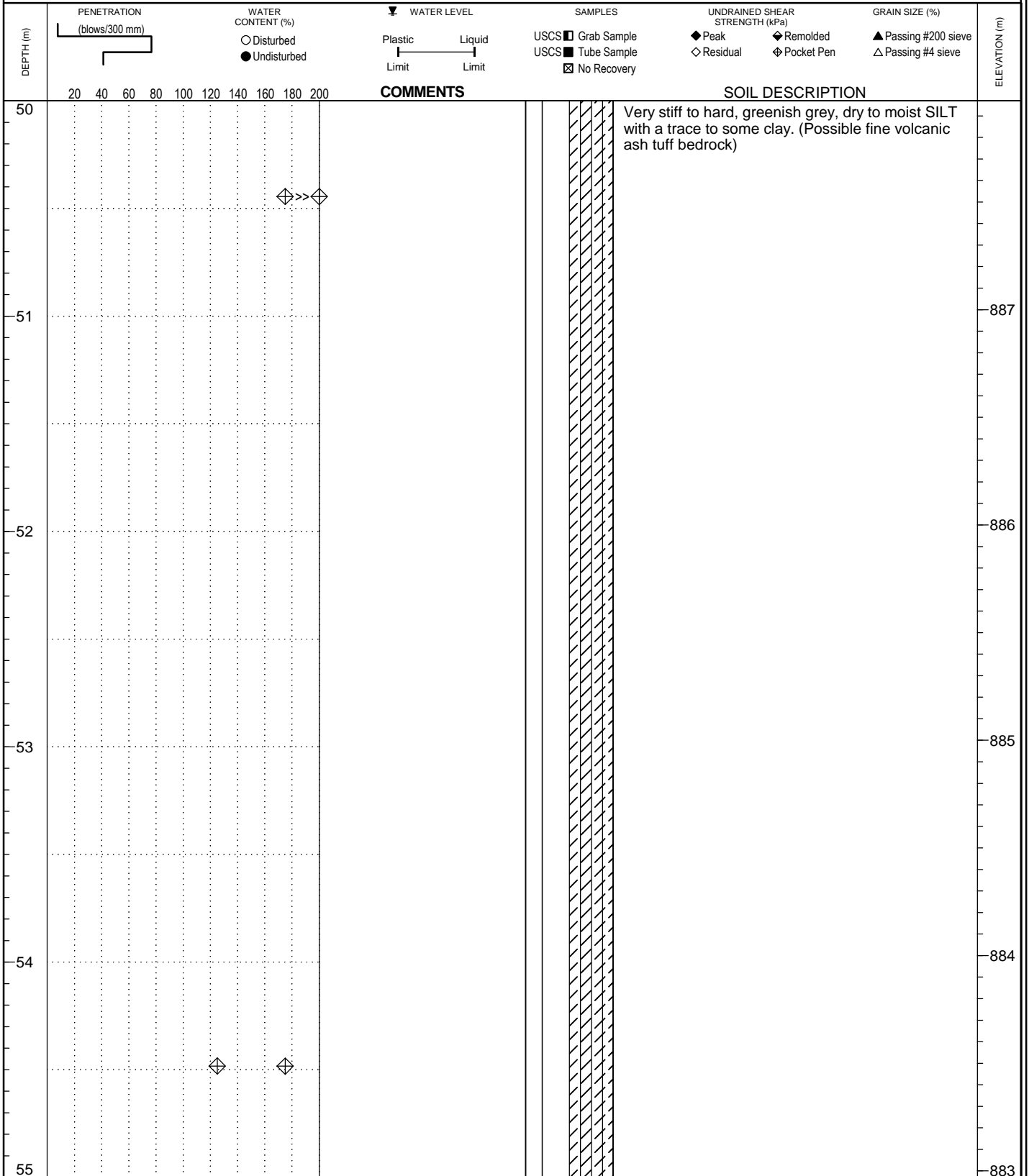


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 8 and 9, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595145, N 5819911

TOP OF HOLE ELEV: 938.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 8 and 9, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼	Plastic Limit	Liquid Limit	SAMPLES USCS Grab Sample USCS Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◇ Residual ◆ Remolded ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
55									Very stiff to hard, greenish grey, dry to moist SILT with a trace to some clay. (Possible fine volcanic ash tuff bedrock)
									- 450 mm thick zone with diffuse white powdery speckling (possible calcite) at 55.5 to 56.0 m
56									- dark grey below 56.0 m
57									
58									- dark grey, angular SAND and GRAVEL of basalt-like origin from 57.8 to 58.2 m (possible drill broken boulder)
									- greenish dark grey, with some sub-rounded to angular gravel to 25 mm diameter of basalt-like origin below 58.2 m
59									
60									

LOCATION: See Fig. 209
E 595145, N 5819911

TOP OF HOLE ELEV: 938.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

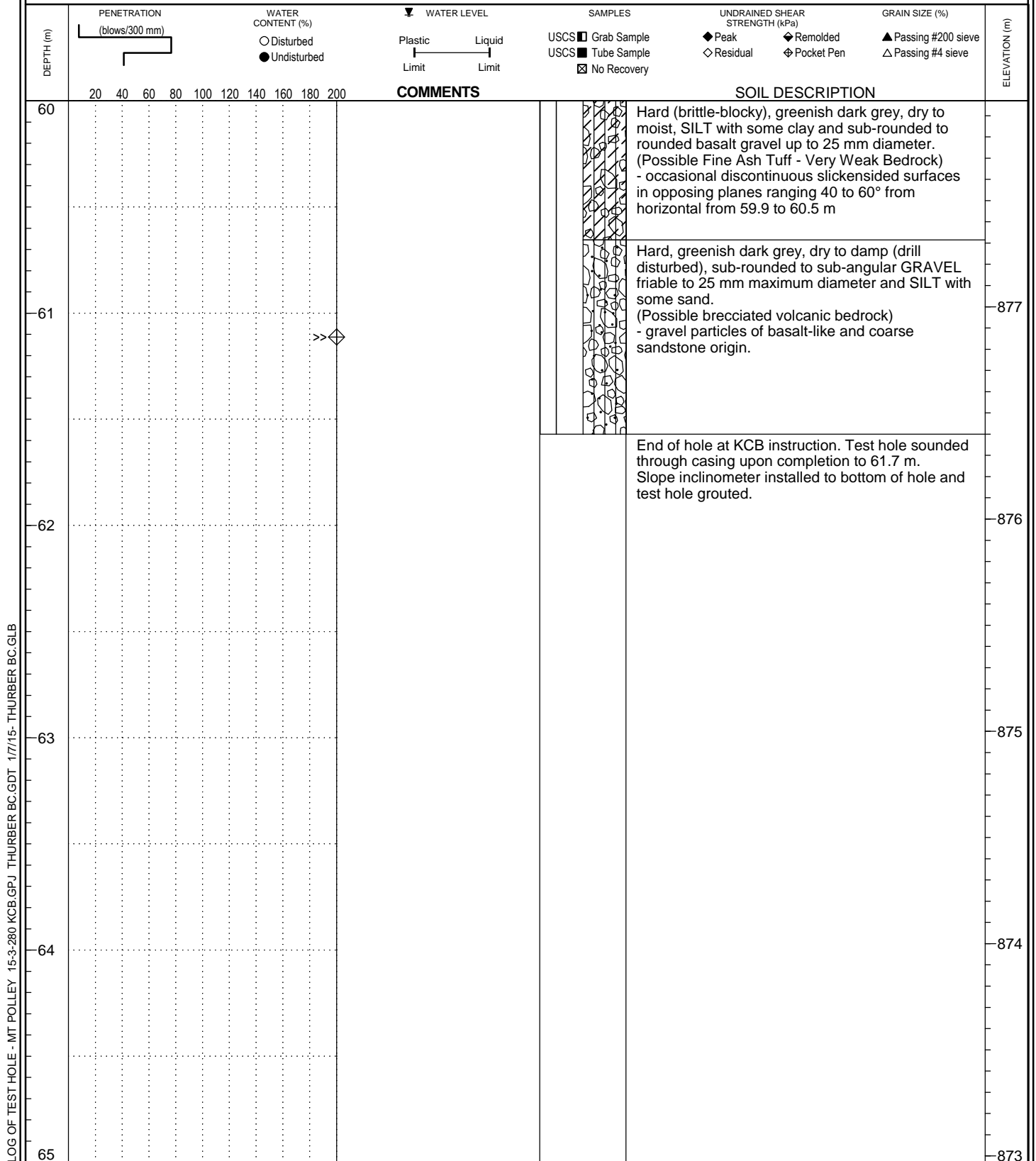


CLIENT: Mount Polley Independent Expert
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PROJECT: Mount Polley Tailings Dam Breach

DATE: October 8 and 9, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595148, N 5819965

TOP OF HOLE ELEV: 932.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 9 and 10, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%)	WATER LEVEL	SAMPLES	UNDRAINED SHEAR STRENGTH (kPa)	GRAIN SIZE (%)	ELEVATION (m)
		○ Disturbed ● Undisturbed	Plastic Limit Liquid Limit	USCS <input type="checkbox"/> Grab Sample USCS <input type="checkbox"/> Tube Sample <input checked="" type="checkbox"/> No Recovery	◆ Peak ◇ Residual	◆ Remolded ◇ Pocket Pen ▲ Passing #200 sieve △ Passing #4 sieve	
	20 40 60 80 100 120 140 160 180 200						
	COMMENTS						SOIL DESCRIPTION
0							932
1							931
2							930
3							929
4							928
5							

Note: Field log of test hole based on visual observation during drilling completed by KCB. No samples were obtained by Thurber for confirmatory laboratory testing. Density/consistency/strength descriptions are based on field observations of highly disturbed samples. Refer to RSCPT14-10 and KCB laboratory testing for further information.

Nominal sonic core diameter 140 mm between 0 and 17.1 m

Cvane is Torvane

Poor recovery in tailings debris.

Top of UPPER TILL

Grey/brown, angular GRAVEL and COBBLES with some sand, a trace of silt and occasional boulders to 0.5 m in diameter. (Rockfill debris)

Grey, angular GRAVEL and red/brown, fine SAND and SILT. (Mixture of rockfill and tailings debris)

LOCATION: See Fig. 209
E 595148, N 5819965

TOP OF HOLE ELEV: 932.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

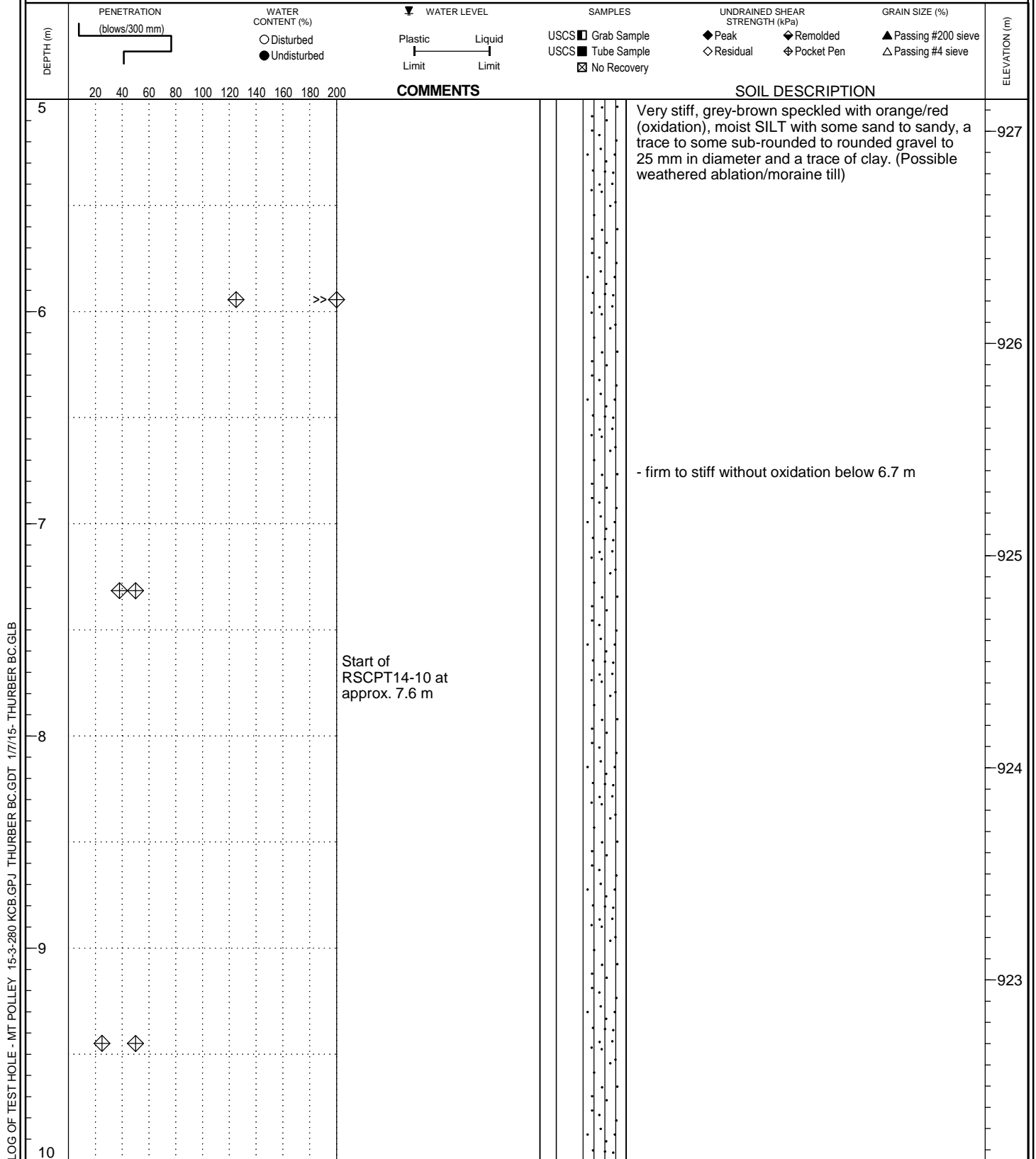


CLIENT: Mount Polley Independent Expert
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PROJECT: Mount Polley Tailings Dam Breach

DATE: October 9 and 10, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595148, N 5819965

TOP OF HOLE ELEV: 932.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

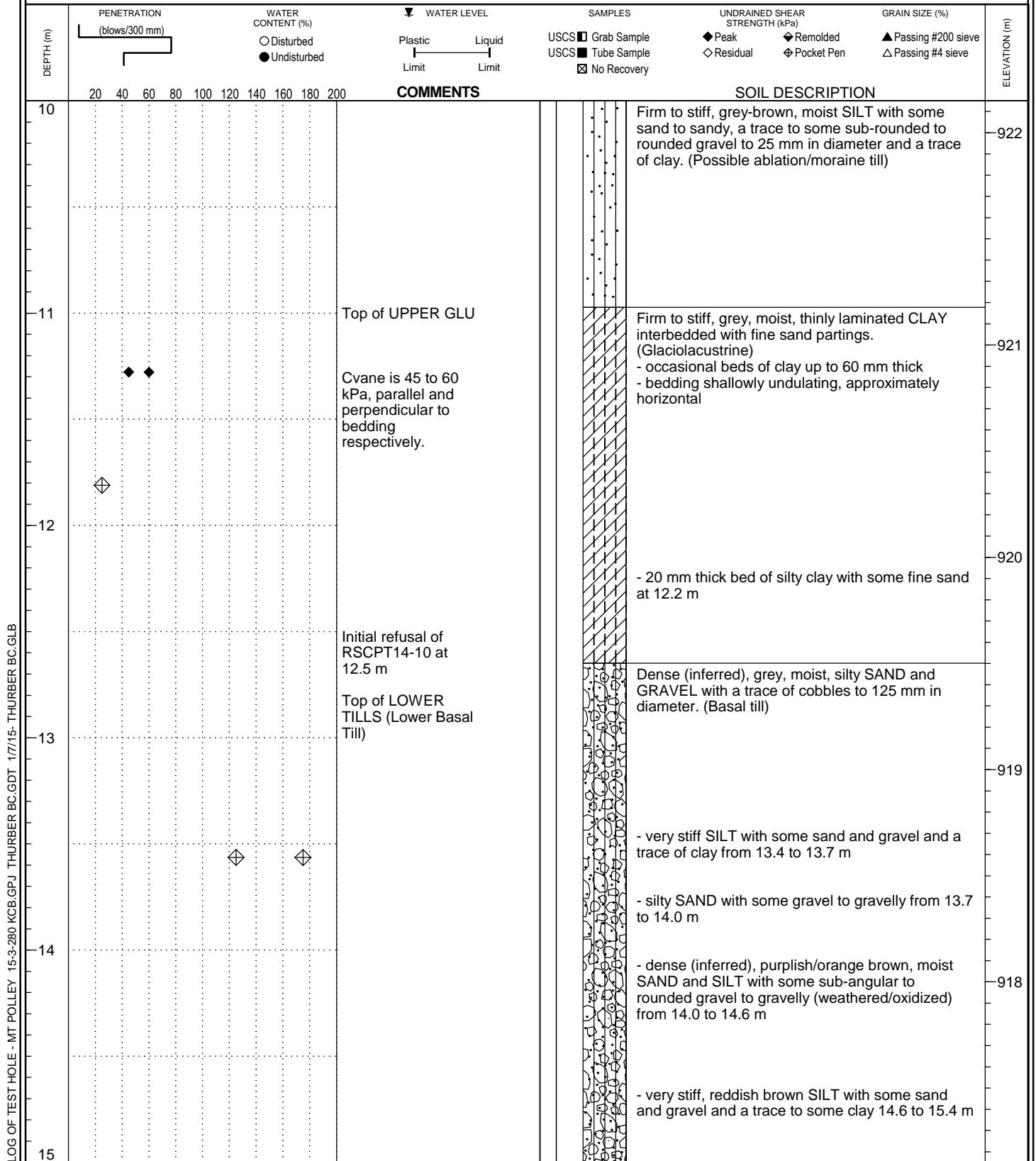


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 9 and 10, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595148, N 5819965

TOP OF HOLE ELEV: 932.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

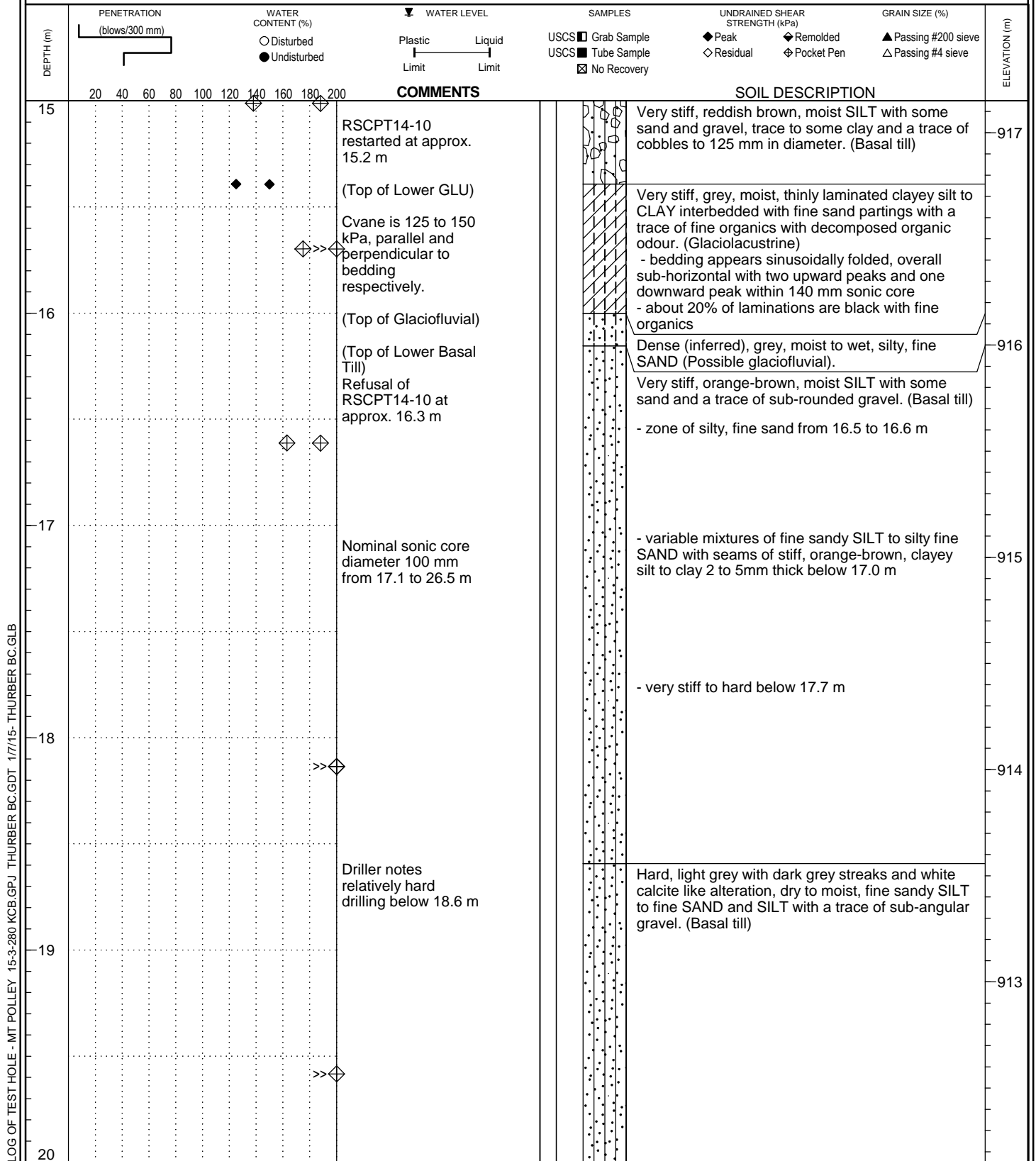


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 9 and 10, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595148, N 5819965

TOP OF HOLE ELEV: 932.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 9 and 10, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼	Plastic Limit	Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◇ Residual	Remolded ◆ Pocket Pen ◇	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
COMMENTS										
20									Hard, light grey with dark grey streaks and white calcite like alteration, dry to moist, fine sandy SILT to fine SAND and SILT with a trace of sub-angular gravel. (Basal till)	912
21									Hard, dark grey, dry to moist, fine sandy SILT with some sub-rounded to rounded basalt-like gravel and a trace of clay and possible calcite alteration. (Basal till)	911
22									Very dense (inferred), dark greenish grey, dry to moist, sub-angular to angular SAND and fine GRAVEL with frequent bands/layers 1 to 4 mm thick of very stiff, dark red-brown silt with a trace of clay. (Possible brecciated volcanic bedrock)	910
23										909
24									Hard, dark grey, dry to moist with black and green highlights SILT with some sub-angular to angular basalt-like gravel. (Possible brecciated volcanic bedrock) - 150 mm thick layer of very dense (inferred), silty, fine SAND at 24.1 m	908
25									Hard, dark red/purple/brown, dry to moist SILT with some angular gravel (basalt and altered/metamorphic) and a trace to some clay. (Possible brecciated volcanic bedrock)	

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595148, N 5819965

TOP OF HOLE ELEV: 932.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 9 and 10, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)	COMMENTS	SOIL DESCRIPTION
25							907		Hard, dark red/purple/brown, dry to moist SILT with some angular gravel (basalt and altered/metamorphic) and a trace to some clay. (Possible brecciated volcanic bedrock)
26							906		Very dense (inferred), dark grey with purplish weathering, interlocking angular GRAVEL (moderately strong meta-basalt like) to 50 mm diameter with traces of silt and clay between stones. (Possible brecciated volcanic bedrock) - heavily disturbed by drill action
27							905		
28							904		
29							903		End of hole at KCB instruction. Test hole sounded through casing upon completion to 26.5 m. Test hole grouted to base of fill with bentonite chips and cuttings above.
30									

LOCATION: See Fig. 209
E 595168, N 5819995

TOP OF HOLE ELEV: 931.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP



CLIENT: Mount Polley Independent Expert Engineering Investigation and Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 14, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%)	WATER LEVEL	SAMPLES	UNDRAINED SHEAR STRENGTH (kPa)	GRAIN SIZE (%)	ELEVATION (m)
		○ Disturbed ● Undisturbed	Plastic Limit Liquid Limit	USCS ■ Grab Sample USCS ■ Tube Sample ☑ No Recovery	◆ Peak ◇ Residual ◆ Remolded ◆ Pocket Pen	▲ Passing #200 sieve △ Passing #4 sieve	
	20 40 60 80 100 120 140 160 180 200	COMMENTS			SOIL DESCRIPTION		
0		<p>Note: Field log of test hole based on visual observation during drilling completed by KCB. No samples were obtained by Thurber for confirmatory laboratory testing. Density/consistency/strength descriptions are based on field observations of highly disturbed samples. Refer to RSCPT14-11 and KCB laboratory testing for further information.</p> <p>Cvane is Torvane</p> <p>See also SH14-11B for 0 to 14 m.</p> <p>Top of UPPER TILL</p>				Grey/brown, angular GRAVEL and COBBLES with some sand and boulders to 0.5 m in diameter and a trace of silt. (Rockfill debris)	930
1						Loose red/brown angular, gravelly, fine SAND and SILT. (Mixture of rockfill and tailings debris)	
2						Loose to compact, grey, angular GRAVEL and COBBLES with some sand, silt, and boulders to 0.5 m in diameter. (Rockfill)	929
3						Stiff to very stiff, brown mottled grey SILT with some sand, gravel and clay. (Possible weathered ablation/moraine till) - some gravel fragments friable and weathered - 100 mm thick layer of brown, moist organic SILT with some fibrous organics at 2.1 m - sandy below 2.6 m	928
4					Very stiff, grey mottled brown, moist, sandy, rounded gravelly to 60 mm in diameter SILT with a trace of clay. (Possible ablation/moraine till)	927	
5						926	

LOCATION: See Fig. 209
E 595168, N 5819995

TOP OF HOLE ELEV: 931.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP

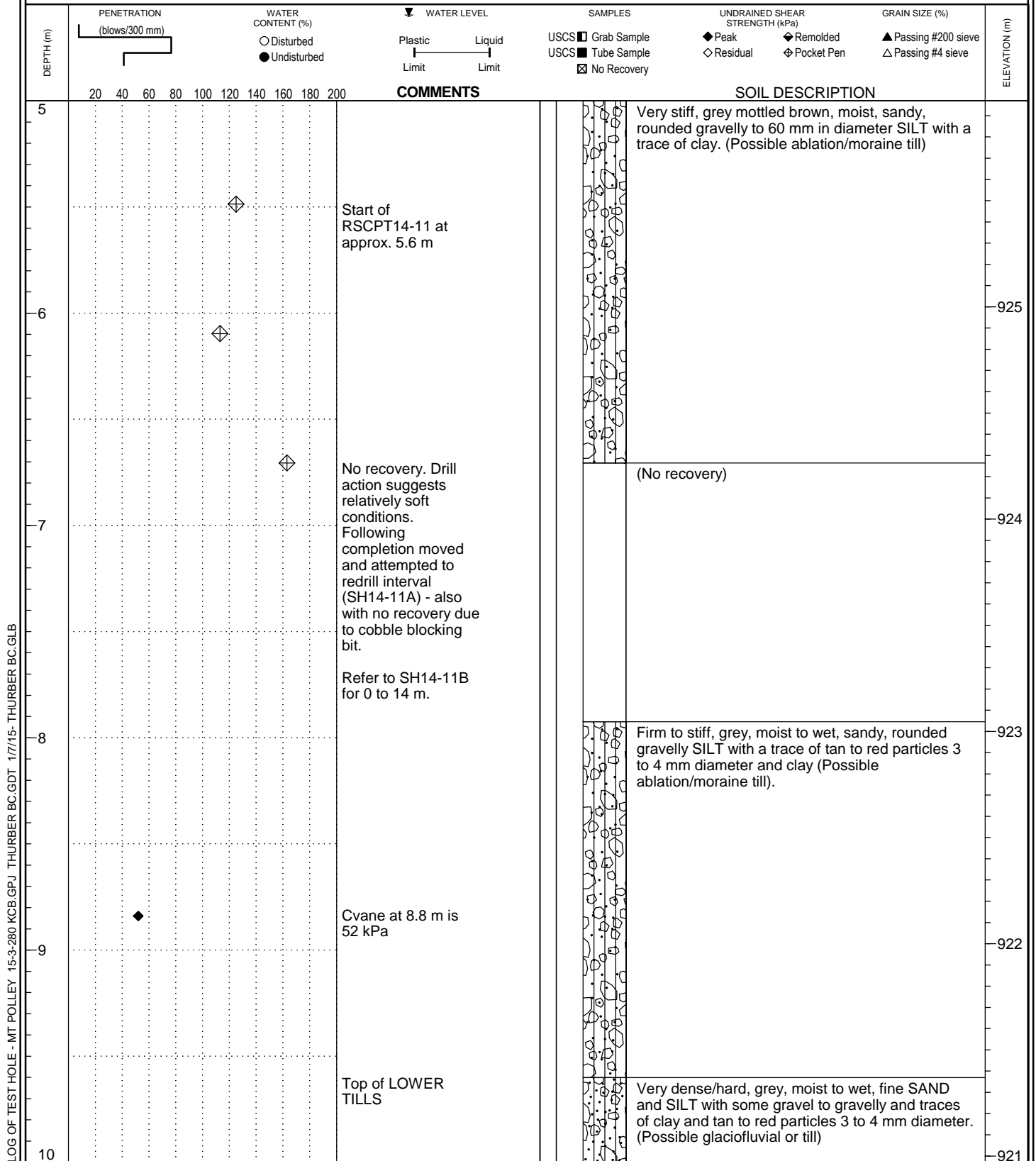


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 14, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595168, N 5819995

TOP OF HOLE ELEV: 931.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP

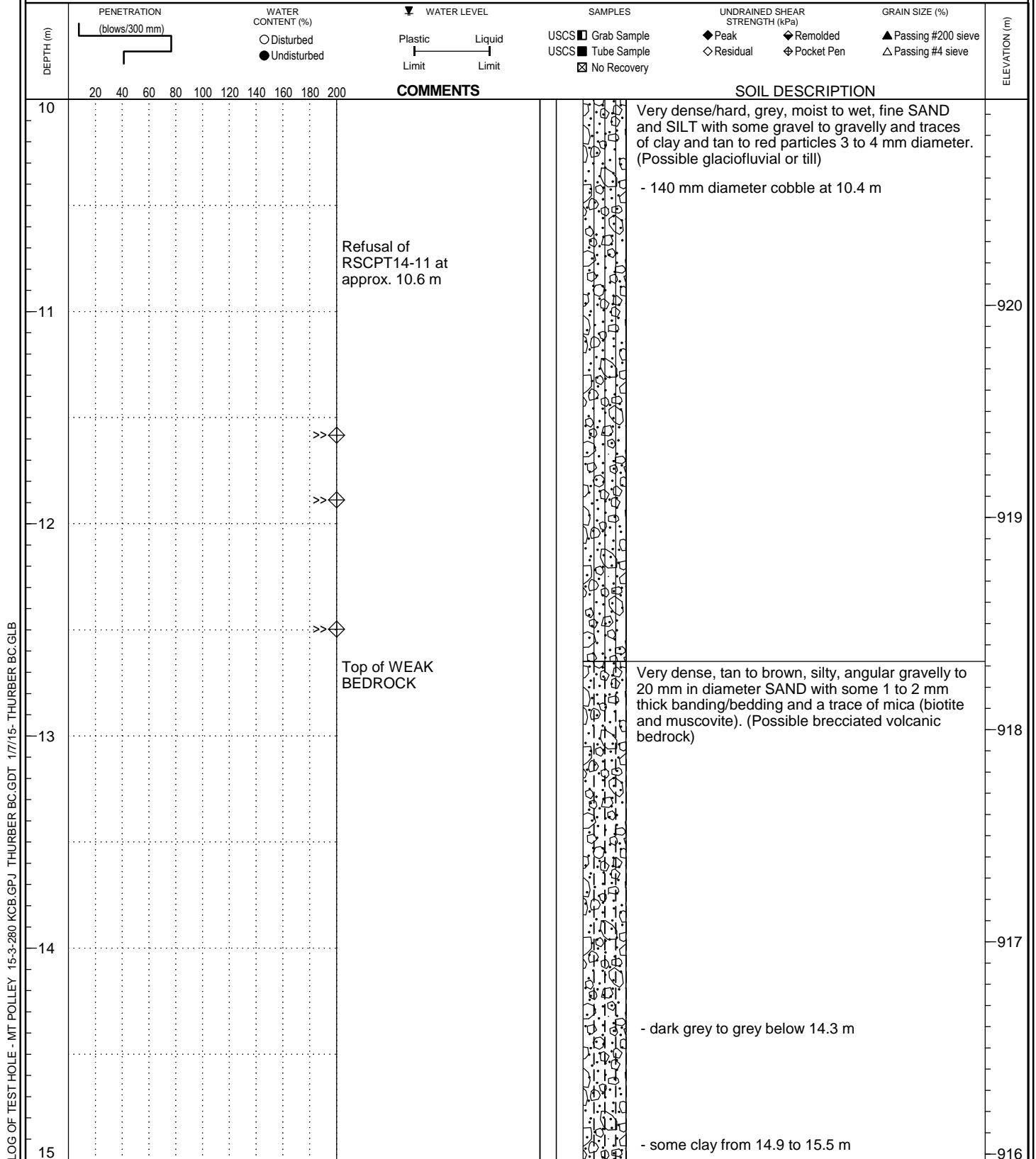


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 14, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595168, N 5819995

TOP OF HOLE ELEV: 931.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 14, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
15							
16							915
17							914
18							913
19							912
20							911

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

Very dense, dark grey to grey, silty, angular gravelly to 20 mm in diameter SAND with some 1 to 2 mm thick banding/bedding and a trace of mica (biotite and muscovite). (Possible brecciated volcanic bedrock)

- dark grey to black, folded band comprised of silt and clay 5 to 7 mm thick at 16.1 m

Very dense, dark grey to black, angular gravelly SAND with some silt to silty and some clay. (Possible brecciated volcanic bedrock)
- rock fragments generally appear to be meta-sedimentary or basalt

Light grey, moist, angular granitic SAND and GRAVEL. (Possible weathered igneous bedrock intrusion)

Very dense, dark grey to black, angular gravelly SAND with some silt to silty and some clay. (Possible brecciated volcanic bedrock)
- sand and gravel consist of meta-sedimentary or basalt origin

LOCATION: See Fig. 209
E 595168, N 5819995

TOP OF HOLE ELEV: 931.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 14, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
20						Very dense, dark grey to black, angular gravelly SAND with some silt to silty and some clay. (Possible brecciated volcanic bedrock) - sand and gravel consist of meta-sedimentary or basalt origin	
						End of hole at KCB instruction. Test hole grouted upon completion to 2.1 m depth with cuttings backfill from 0 to 2.1 m.	
						Following completion, SH14-11A drilled about 2 m away in attempt to recover lost interval at 7 m. Core barrel bit blocked with cobble, no recovery. Refer to SH14-11B.	910
21							
22							909
23							908
24							907
25							906

LOCATION: See Fig. 209
E 595169, N 5819992

TOP OF HOLE ELEV: 931.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

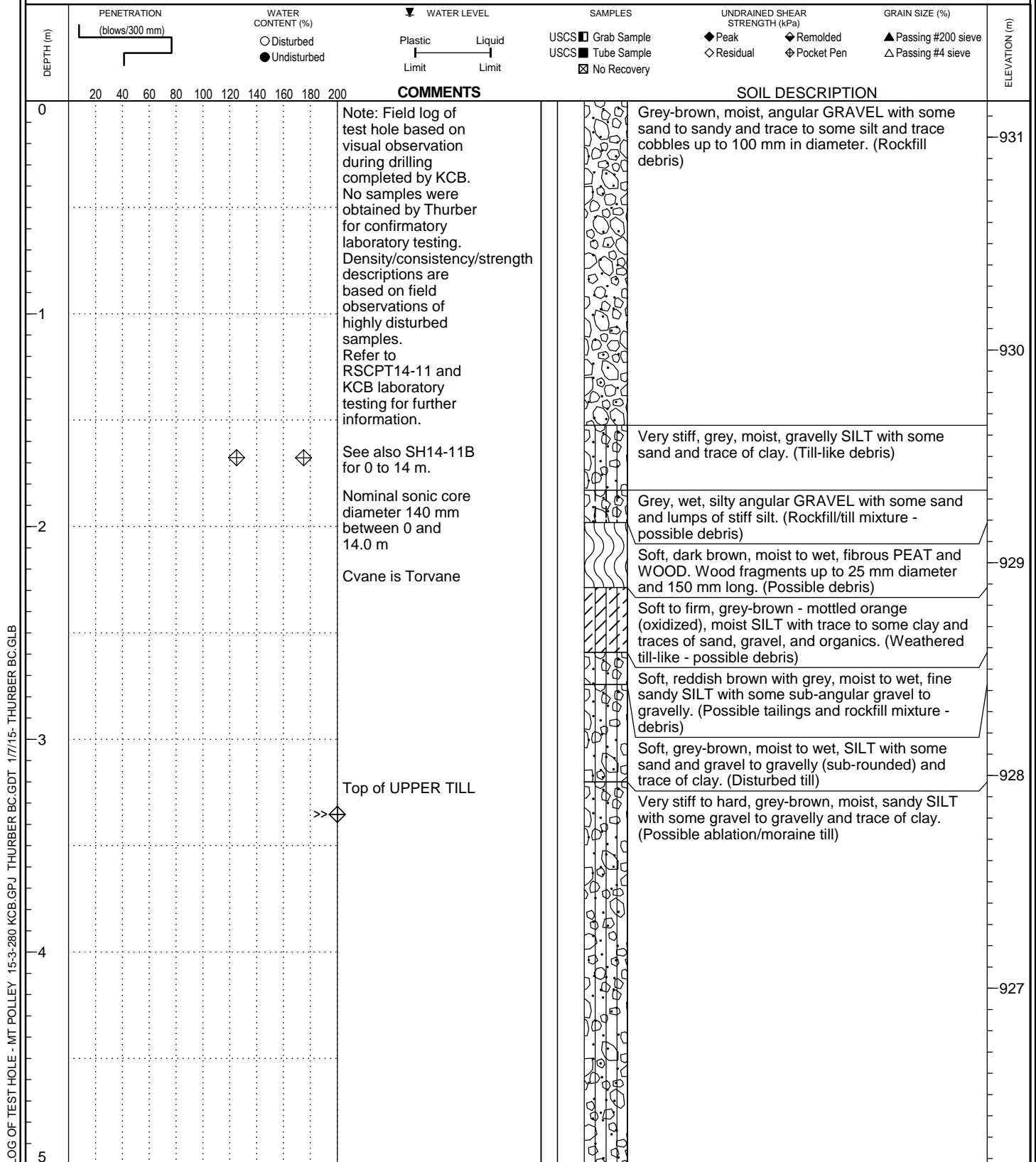


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 22, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595169, N 5819992

TOP OF HOLE ELEV: 931.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

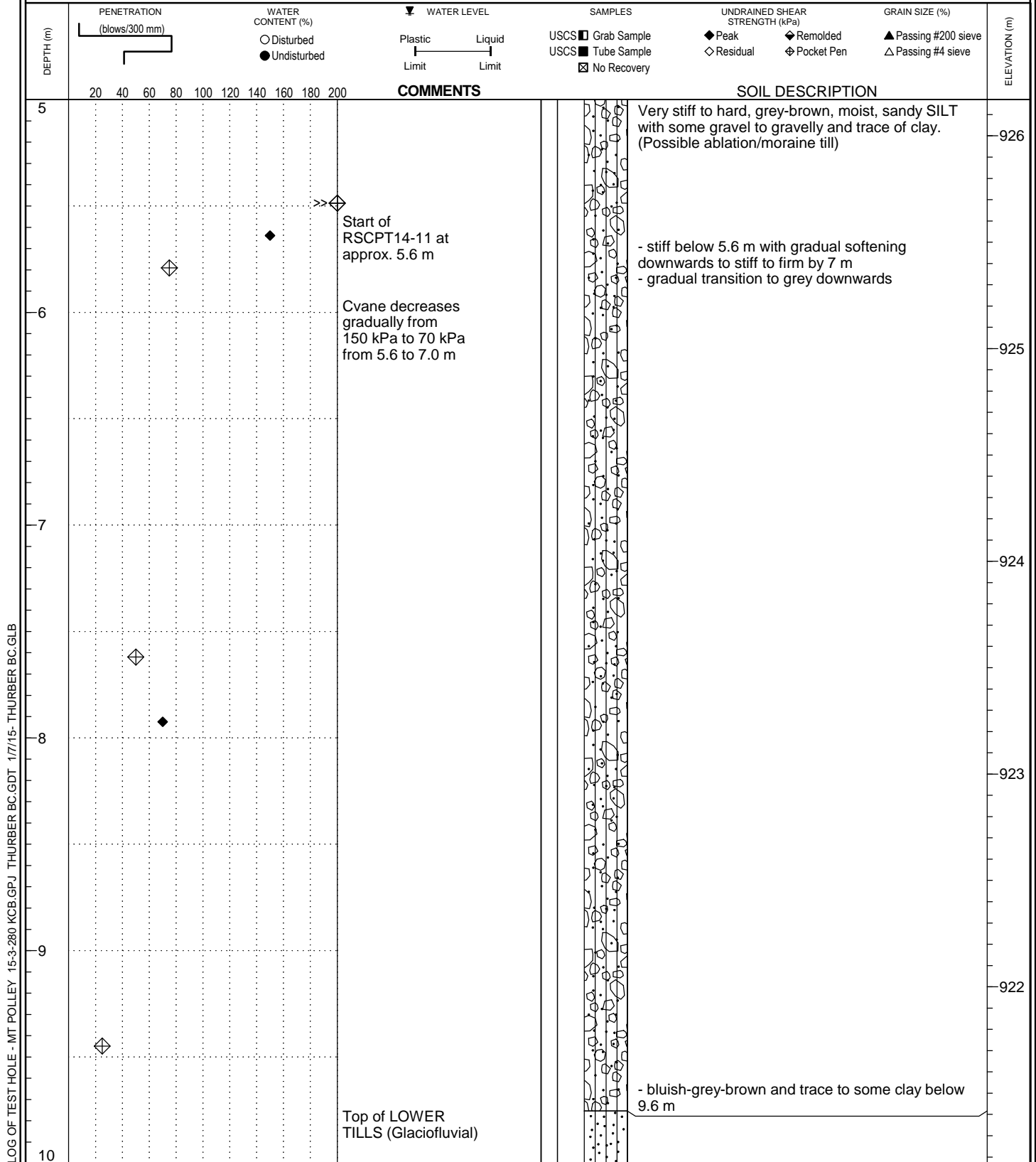


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 22, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595169, N 5819992

TOP OF HOLE ELEV: 931.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

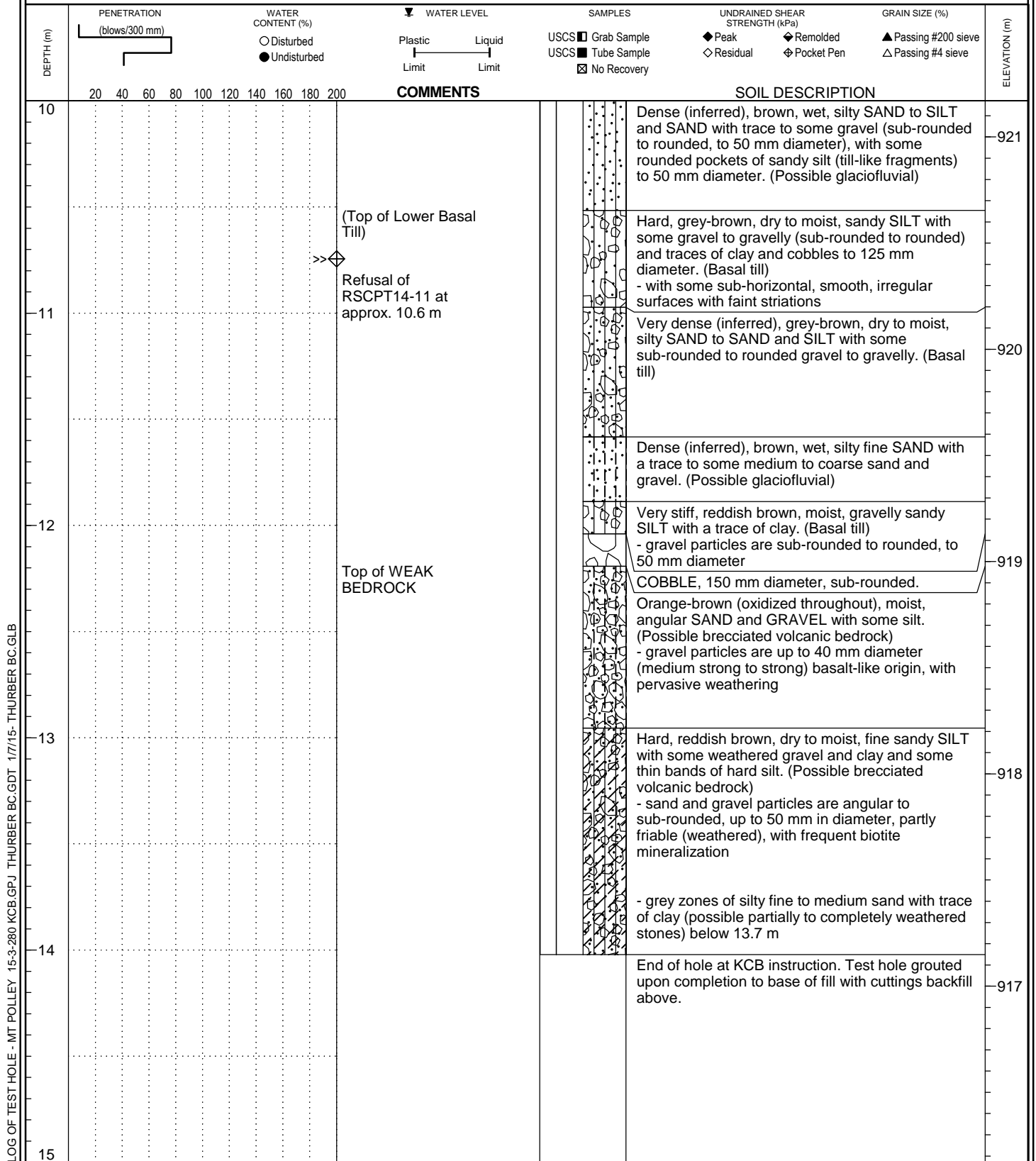


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 22, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595297, N 5819842

TOP OF HOLE ELEV: 930.8 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP

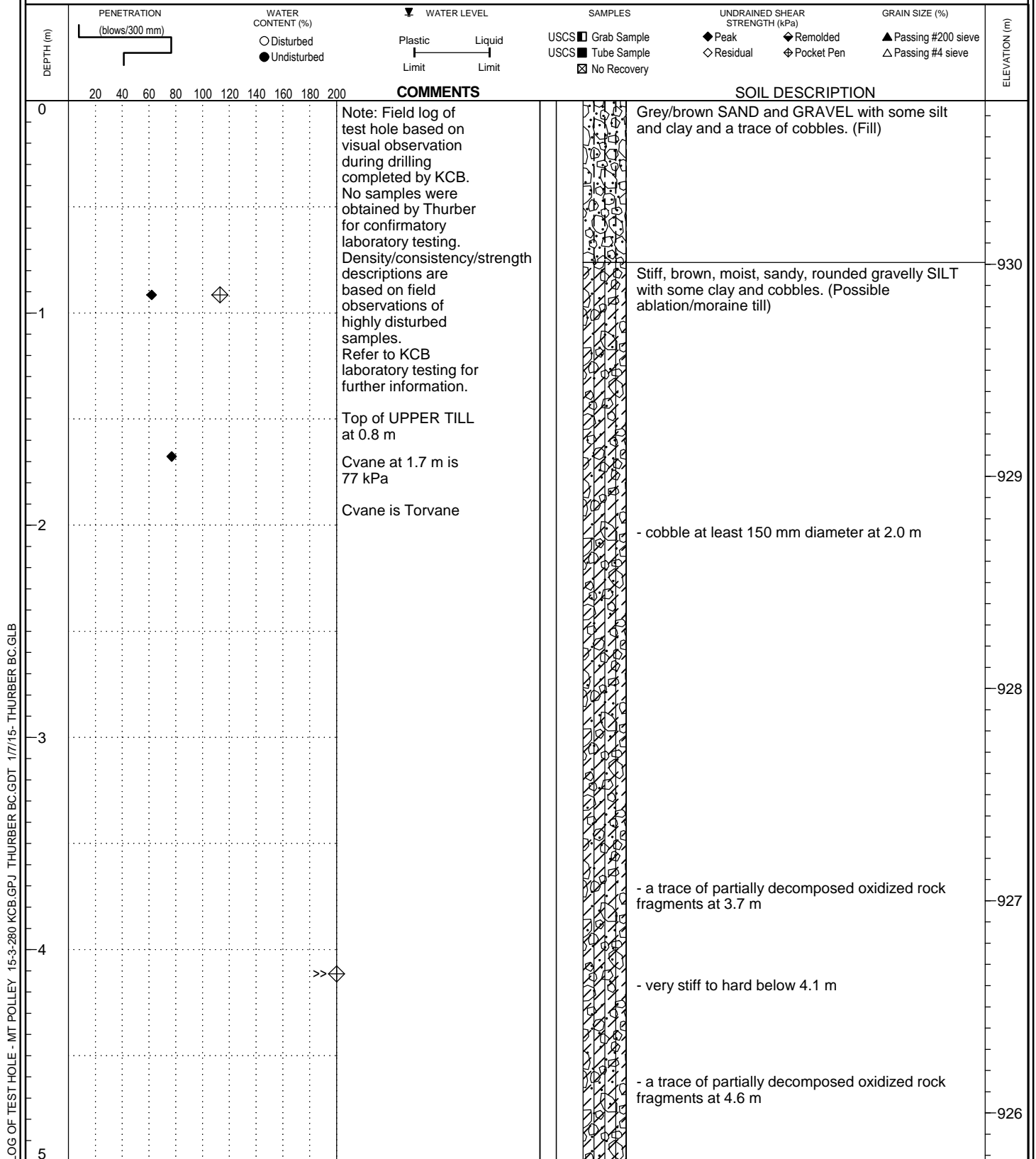


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 15, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595297, N 5819842

TOP OF HOLE ELEV: 930.8 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP

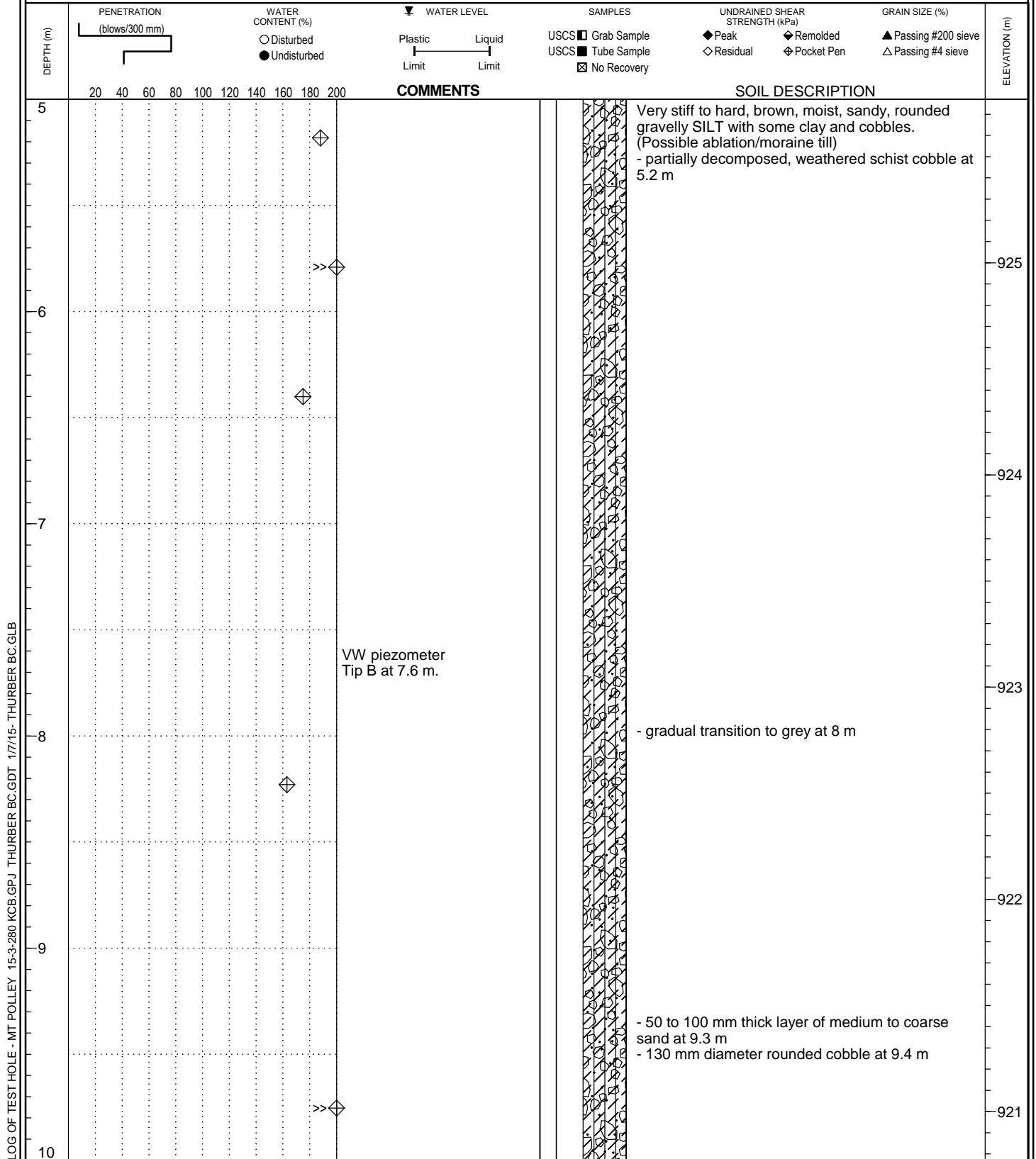


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 15, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595297, N 5819842

TOP OF HOLE ELEV: 930.8 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 15, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%)	WATER LEVEL	SAMPLES	UNDRAINED SHEAR STRENGTH (kPa)	GRAIN SIZE (%)	ELEVATION (m)
		○ Disturbed ● Undisturbed	Plastic Limit Liquid Limit	USCS <input type="checkbox"/> Grab Sample USCS <input type="checkbox"/> Tube Sample <input checked="" type="checkbox"/> No Recovery	◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	▲ Passing #200 sieve △ Passing #4 sieve	
	20 40 60 80 100 120 140 160 180 200						
	COMMENTS						SOIL DESCRIPTION
10							Very stiff to hard, grey, moist, sandy, rounded gravelly SILT with some clay and cobbles. (Possible ablation/moraine till)
11							
12							Hard/very dense, grey, moist, rounded gravelly SILT and SAND with a trace to some clay and a trace of cobbles. (Basal till)
13							
14							- sandy below 13.7 m
15							- 200 mm thick layer of silty, sandy GRAVEL at 14.8 m

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595297, N 5819842



CLIENT: Mount Polley Independent Expert Engineering Investigation and Review Panel

TOP OF HOLE ELEV: 930.8 m

PROJECT: Mount Polley Tailings Dam Breach

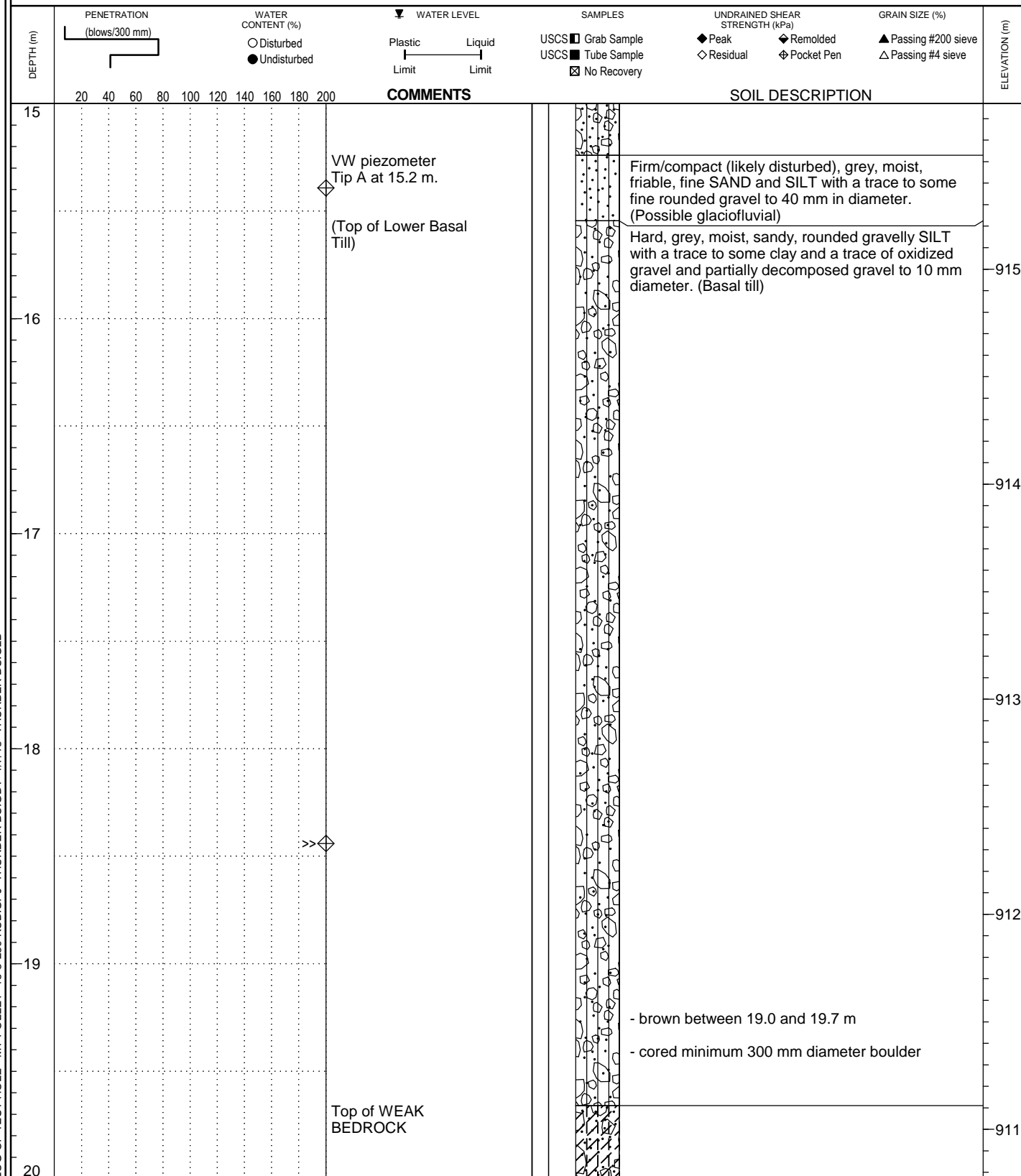
METHOD: Sonic

DATE: October 15, 2014

DRILLING CO.: Mud Bay Drilling Ltd.

FILE NO.: 15-3-280

INSPECTOR: BSP



LOCATION: See Fig. 209
E 595297, N 5819842

TOP OF HOLE ELEV: 930.8 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 15, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)	COMMENTS	SOIL DESCRIPTION
20									Very dense, dark grey, moist, silty, angular gravelly SAND with some clay. (Possible brecciated volcanic bedrock) - sand and gravel likely of meta-sedimentary or basalt origin
21									
22									
23									
24									End of hole at KCB instruction. Vibrating wire piezometers installed at 7.6 m (Tip B) and 15.2 m (Tip A) and test hole grouted.
25									

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595405, N 5819770

TOP OF HOLE ELEV: 933.1 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP

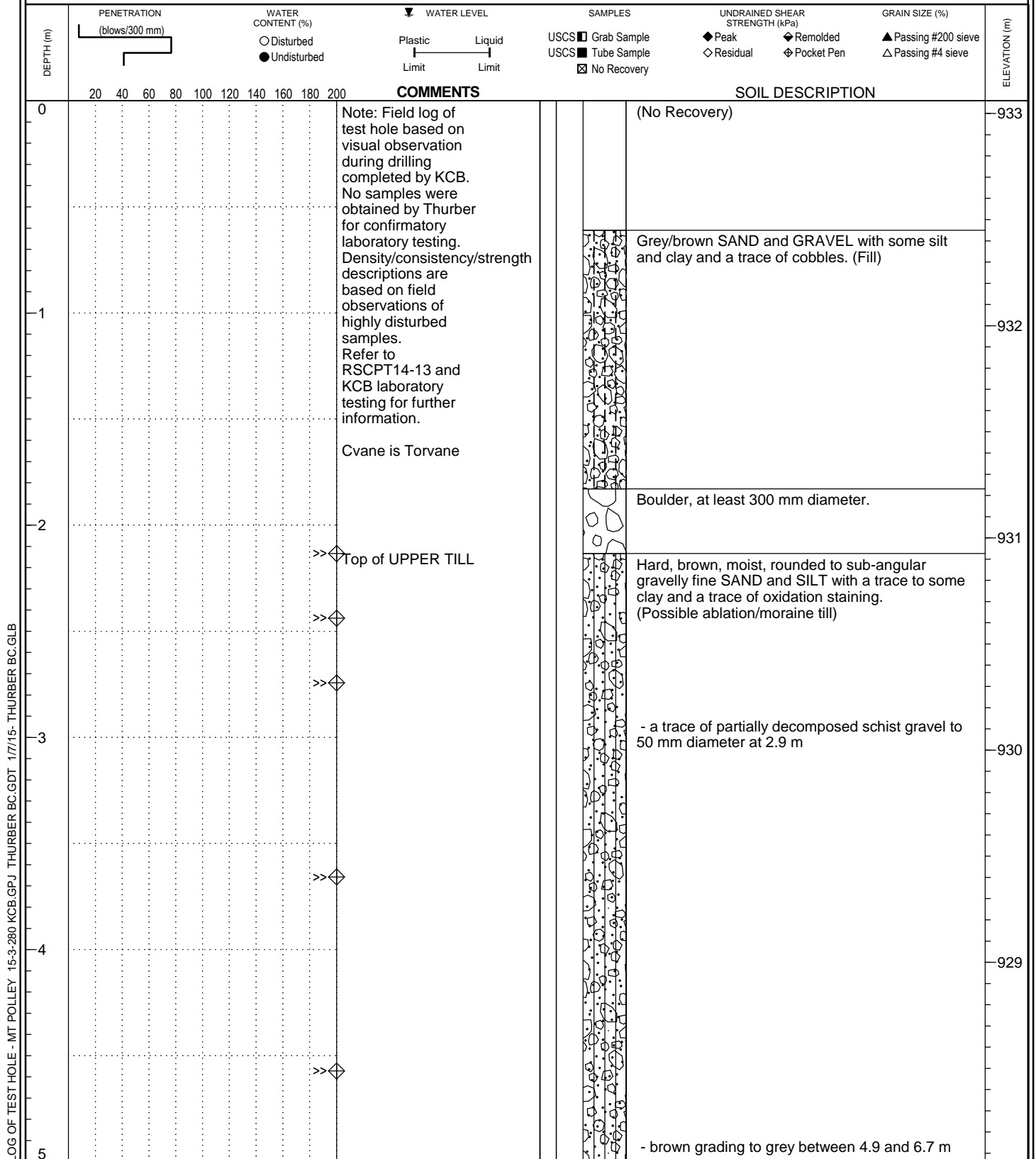


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 16, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595405, N 5819770



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 16, 2014

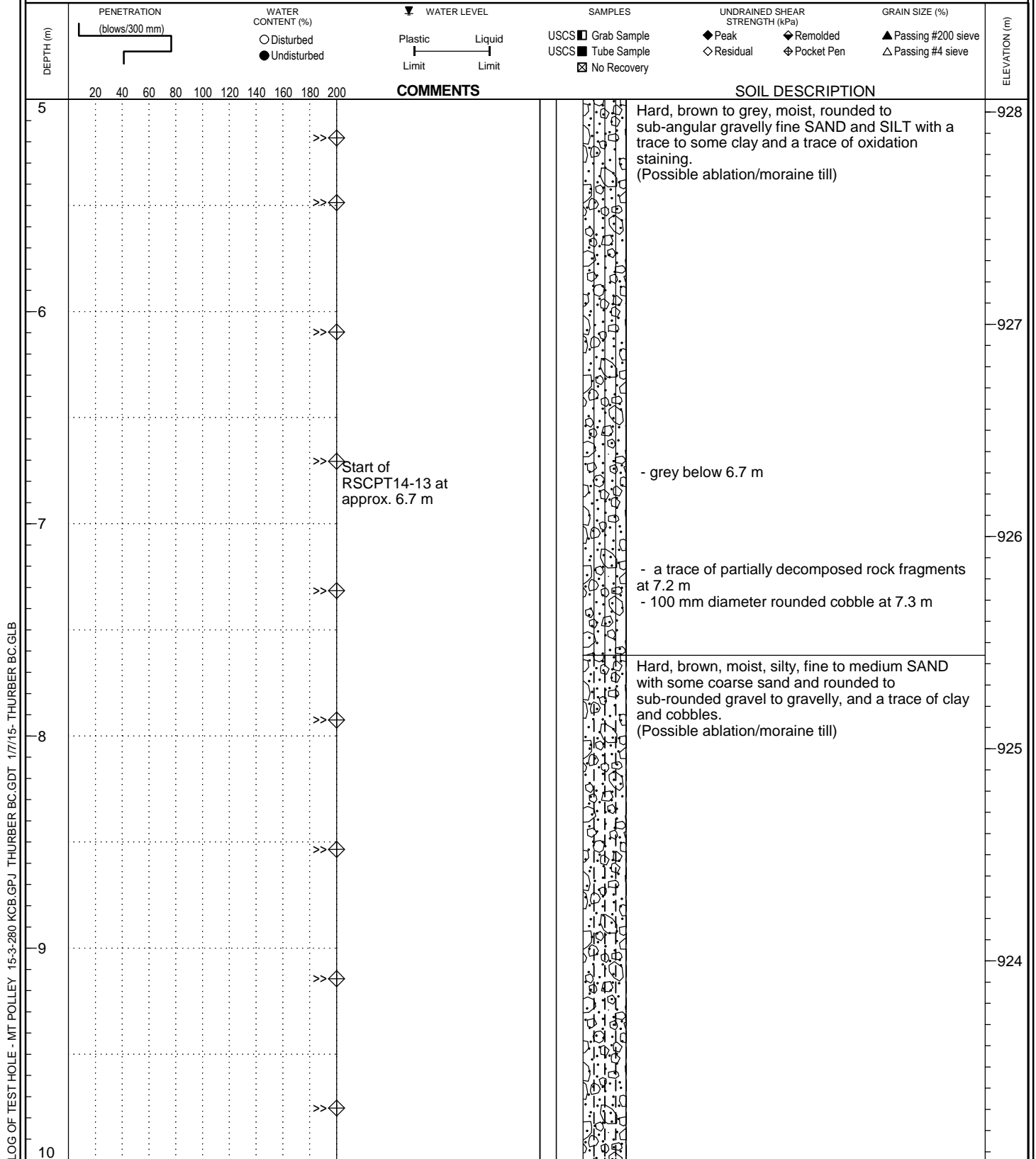
FILE NO.: 15-3-280

TOP OF HOLE ELEV: 933.1 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP



LOCATION: See Fig. 209
E 595405, N 5819770



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 16, 2014

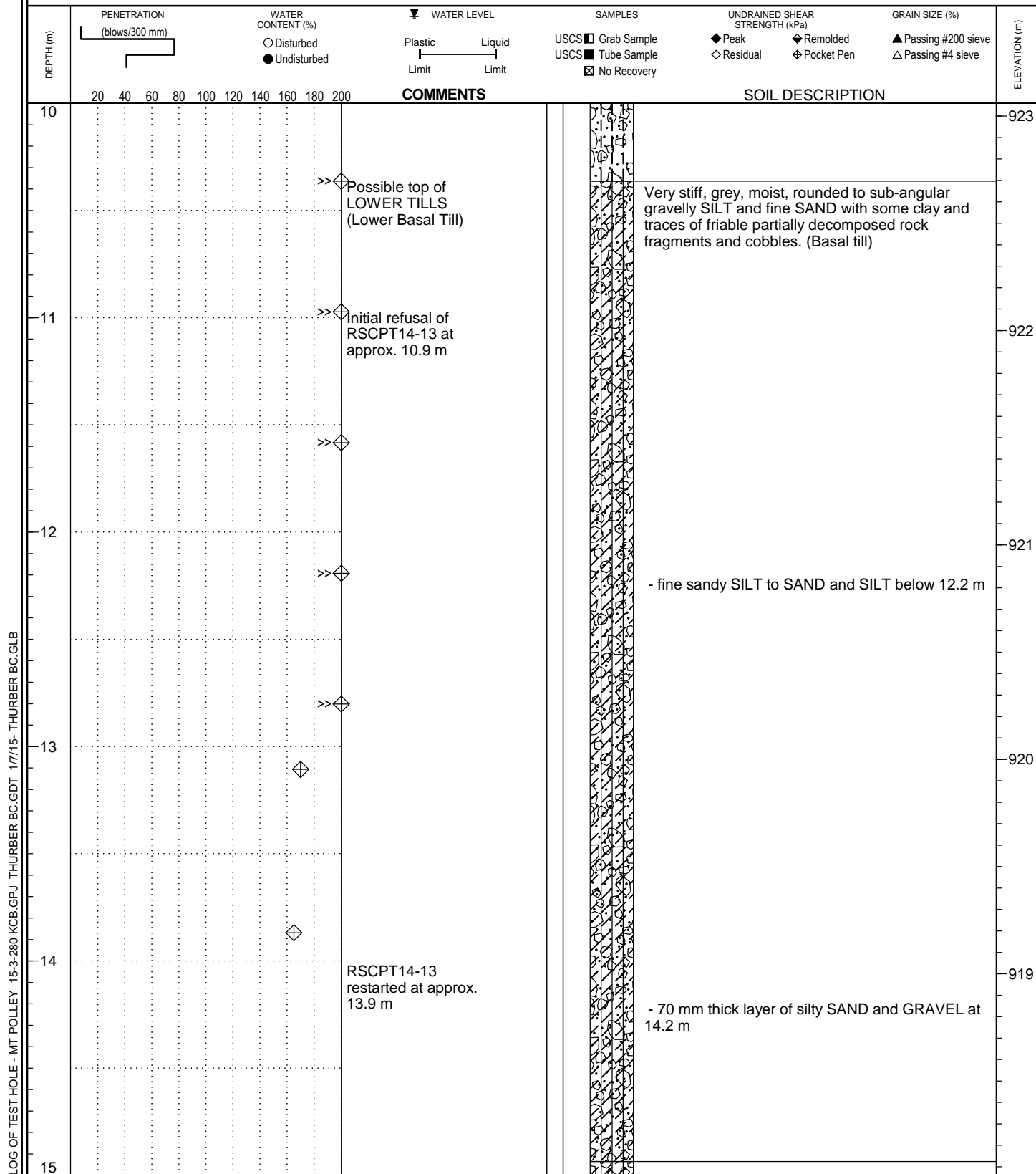
FILE NO.: 15-3-280

TOP OF HOLE ELEV: 933.1 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP



LOCATION: See Fig. 209
E 595405, N 5819770

TOP OF HOLE ELEV: 933.1 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP

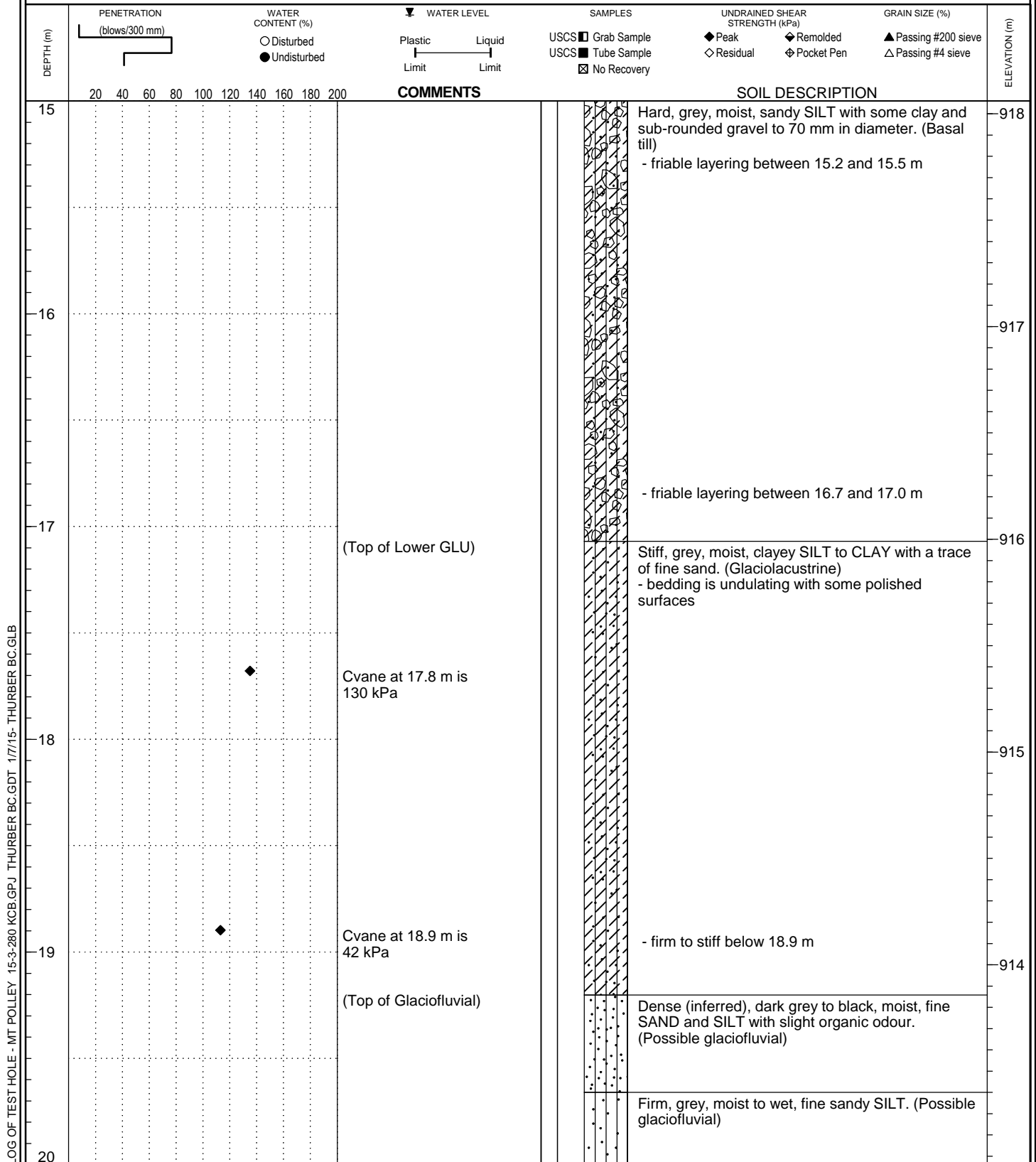


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 16, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595405, N 5819770

TOP OF HOLE ELEV: 933.1 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP

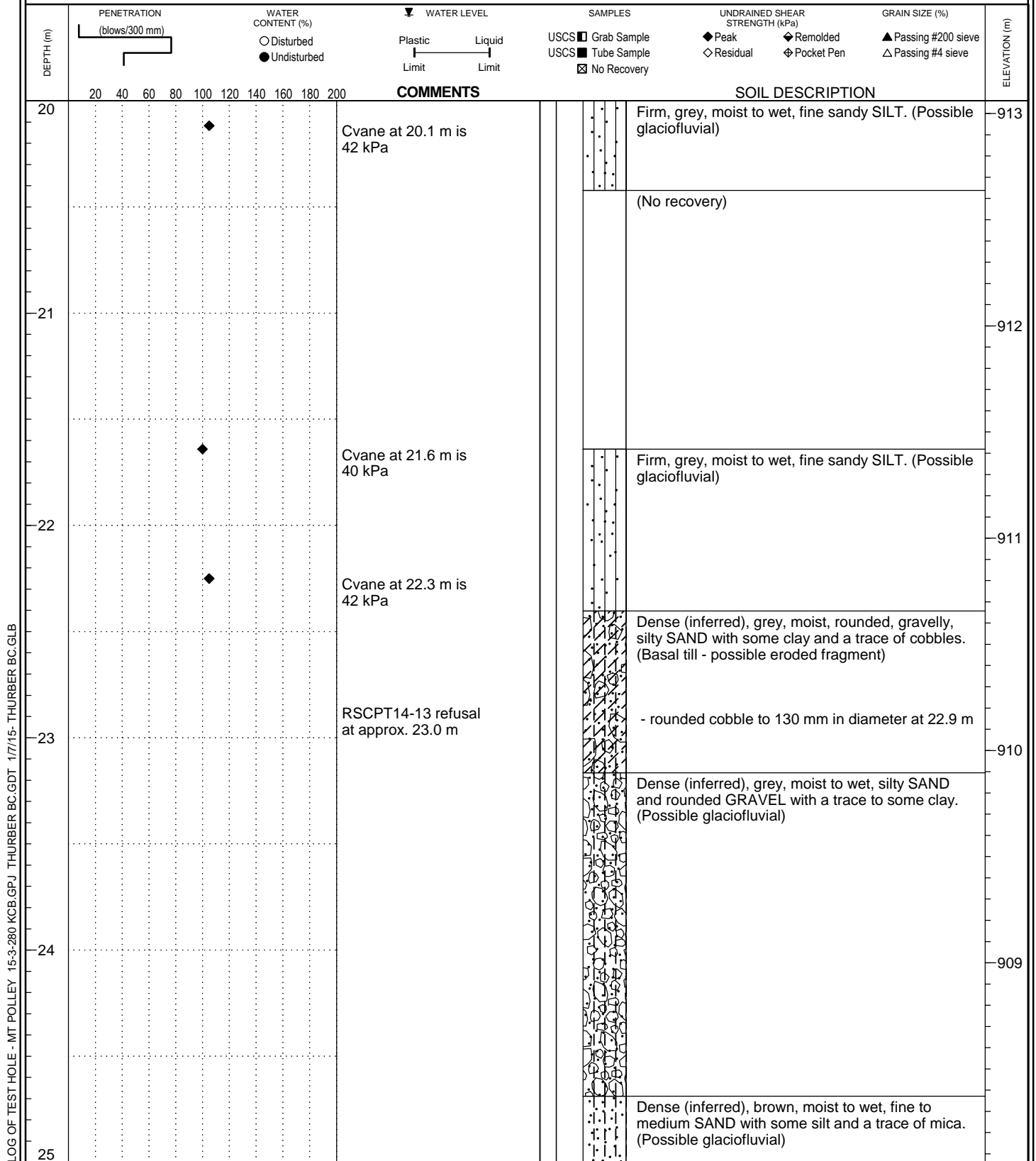


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 16, 2014

FILE NO.: 15-3-280



LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595405, N 5819770

TOP OF HOLE ELEV: 933.1 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 16, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
25							908
						Dense (inferred), brown, moist to wet, fine to medium SAND with some silt and a trace of mica. (Possible glaciofluvial)	
26							907
27							906
						(Top of Lower Basal Till)	
28							905
29							904
						- reddish brown below 29.0 m	
30							

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595405, N 5819770

TOP OF HOLE ELEV: 933.1 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 16, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
30							903
						Hard, reddish brown, moist, sandy, rounded gravelly SILT with some clay and a trace of cobbles to 100 mm diameter. (Basal till)	
31						- some cobbles at 31.4 m	902
						- some 3 to 4 mm thick layers of fine sand with some silt at 31.7 m	
32						- trace oxidation on gravel below 32.3 m	901
33						Top of bedrock not encountered within depth of investigation. Refer to VW11-10 for possible bedrock elevation.	900
						End of hole at KCB instruction. Test hole grouted upon completion to base of fill with cuttings backfill above.	
34							899
35							

LOCATION: See Fig. 209
E 595096, N 5819936

TOP OF HOLE ELEV: 930.1 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP

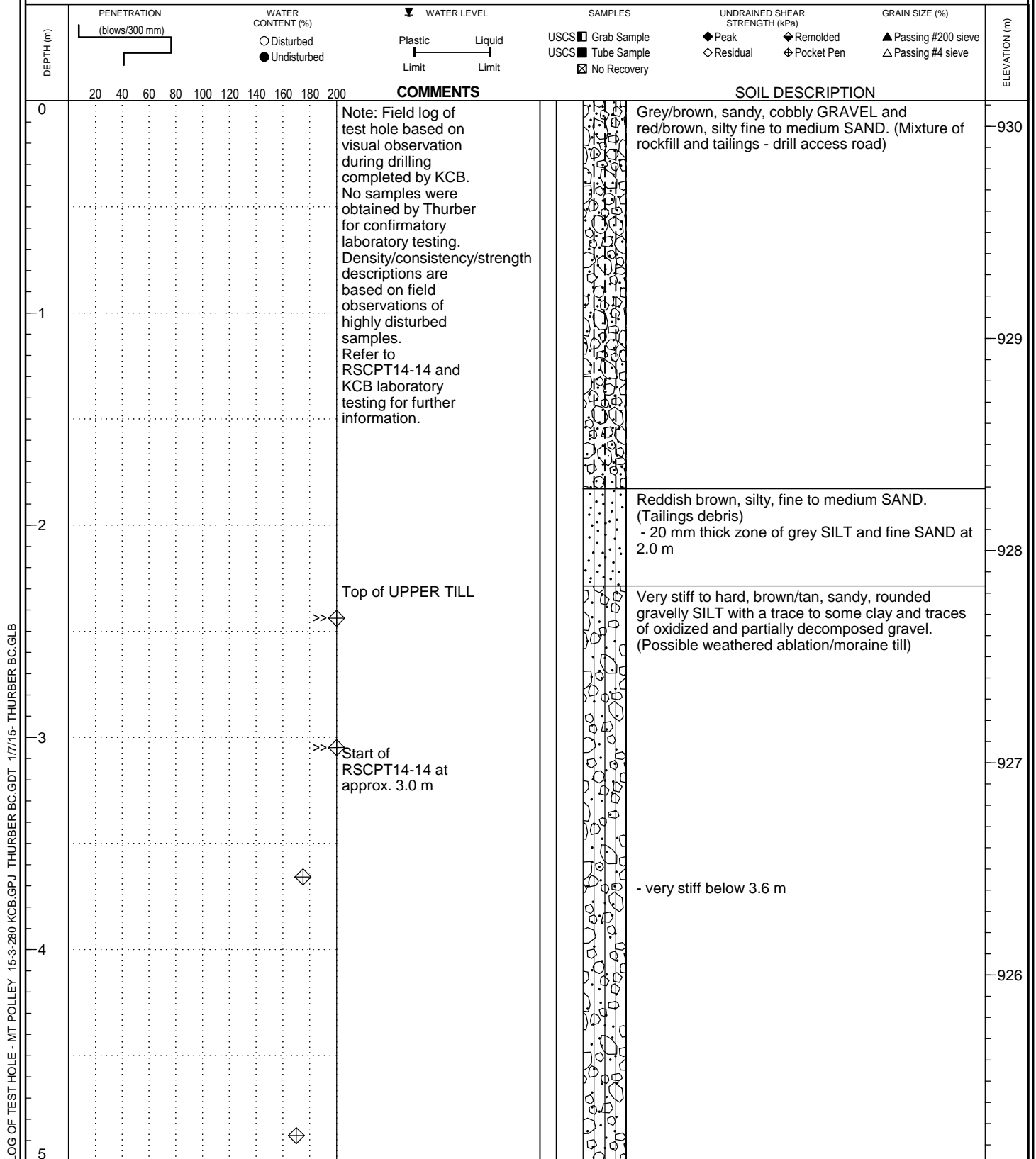


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 16, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595096, N 5819936

TOP OF HOLE ELEV: 930.1 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP

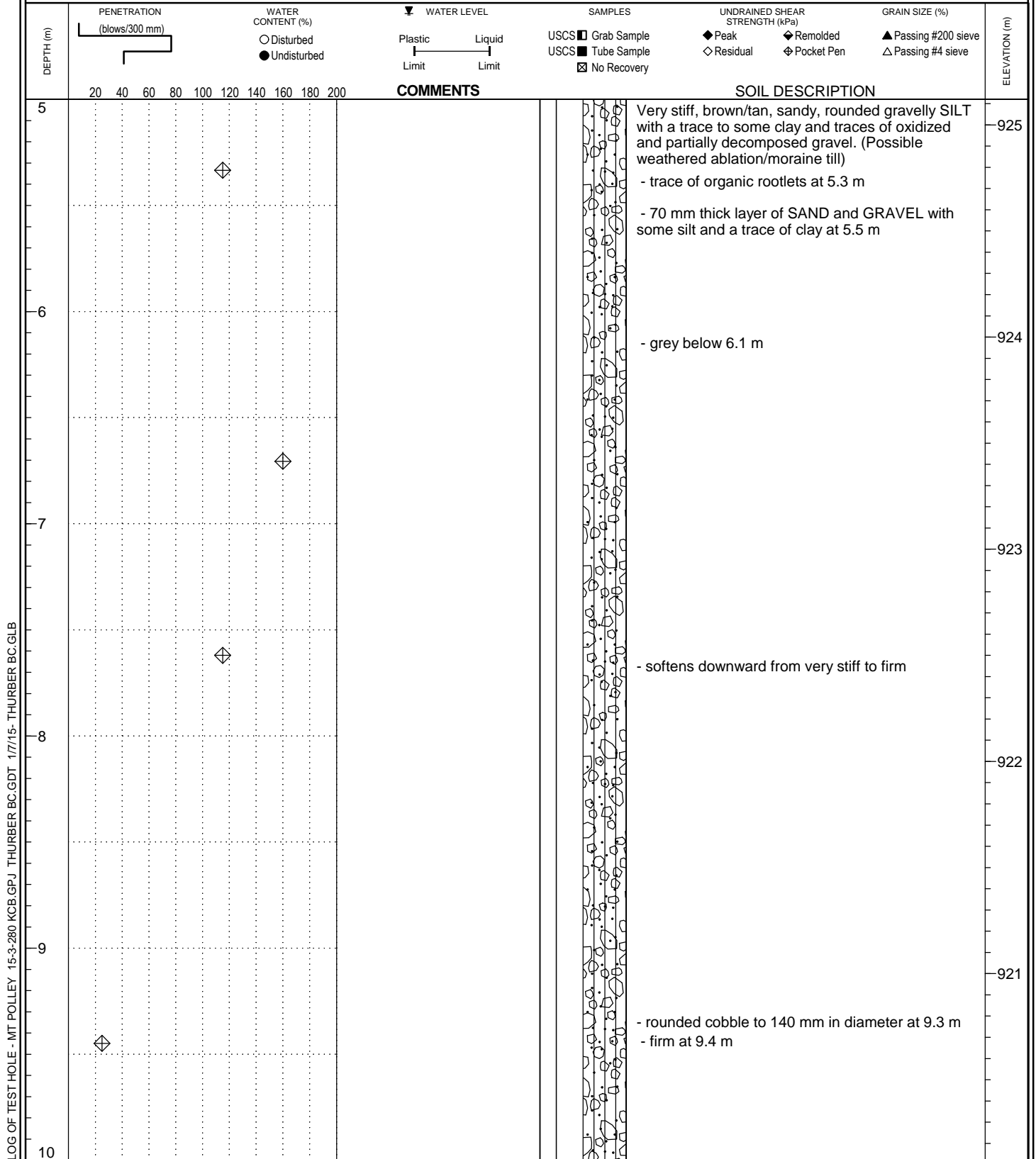


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 16, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595096, N 5819936

TOP OF HOLE ELEV: 930.1 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP

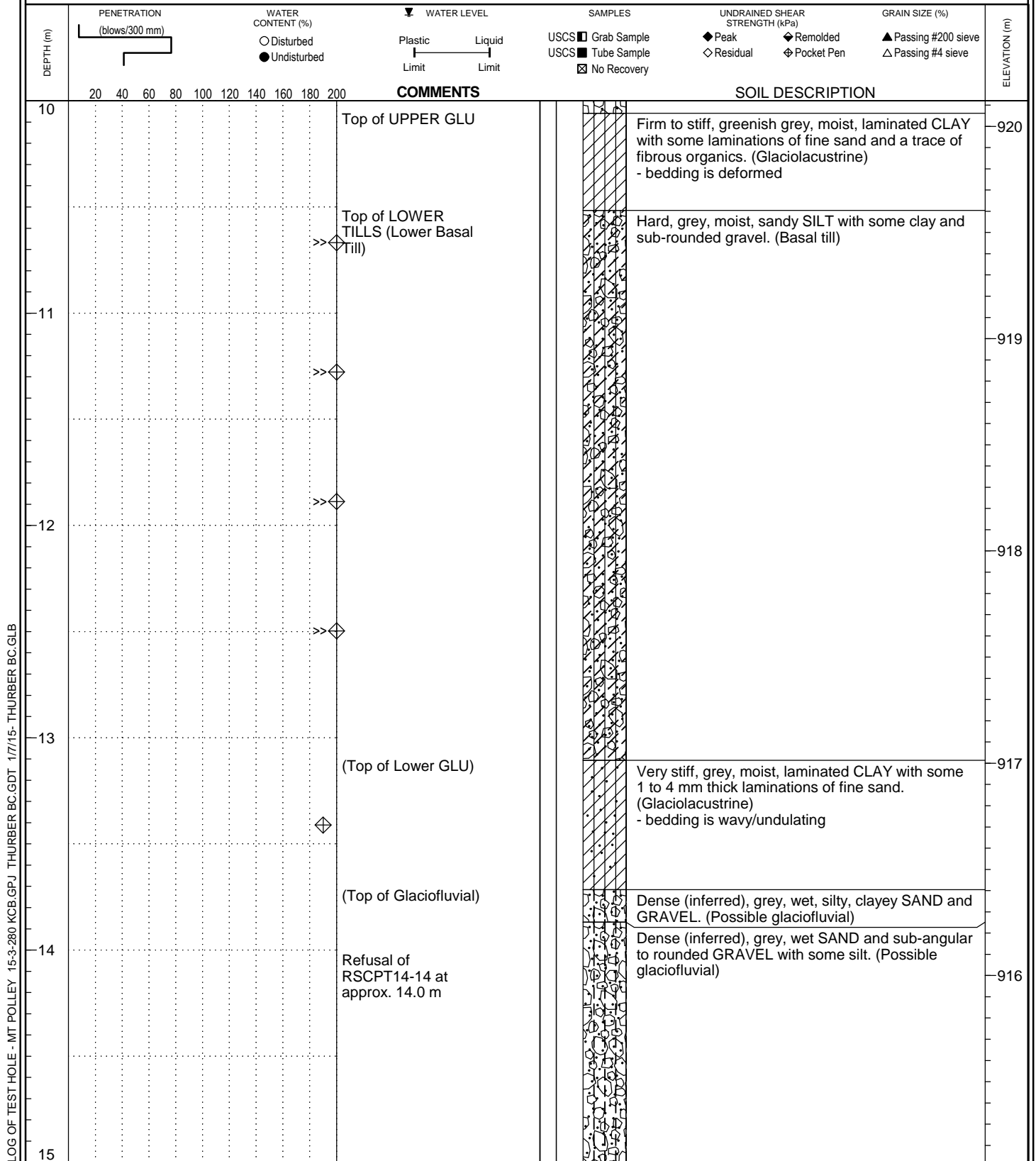


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 16, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595096, N 5819936

TOP OF HOLE ELEV: 930.1 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP

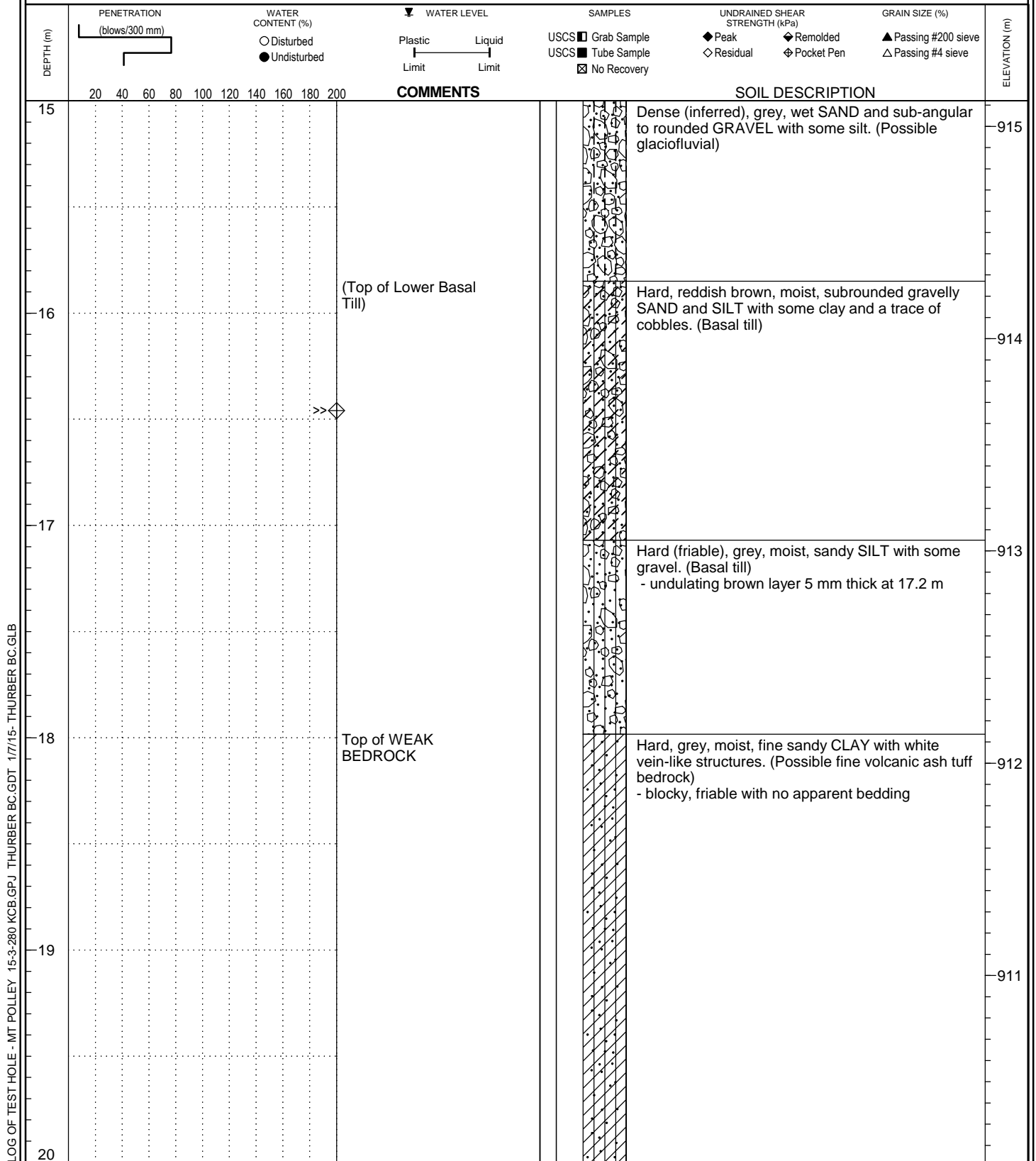


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 16, 2014

FILE NO.: 15-3-280



HOLE NO.
SH14-14

LOCATION: See Fig. 209
E 595096, N 5819936



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel
PROJECT: Mount Polley Tailings Dam Breach
DATE: October 16, 2014
FILE NO.: 15-3-280

TOP OF HOLE ELEV: 930.1 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%)	WATER LEVEL	SAMPLES	UNDRAINED SHEAR STRENGTH (kPa)	GRAIN SIZE (%)	ELEVATION (m)
		○ Disturbed ● Undisturbed	Plastic Limit Liquid Limit	USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	◆ Peak ◇ Residual	▲ Passing #200 sieve △ Passing #4 sieve	
	20 40 60 80 100 120 140 160 180 200						
20							910
21							909
22							908
23							907
24							906
25							

COMMENTS

SOIL DESCRIPTION

Hard, grey, moist, fine sandy CLAY with white vein-like structures. (Possible fine volcanic ash tuff bedrock)
- blocky, friable with no apparent bedding

- brown to grey mottled with some gravel between 21.3 and 21.6 m

- fractured rock/possible boulder between 22.3 and 22.6 m

- grey-brown below 22.9 m

- grey below 23.3 m

End of hole at KCB instruction. Test hole sounded through casing upon completion to 23.6 m. Test hole grouted to surface.

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595104, N 5819959

TOP OF HOLE ELEV: 930.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP

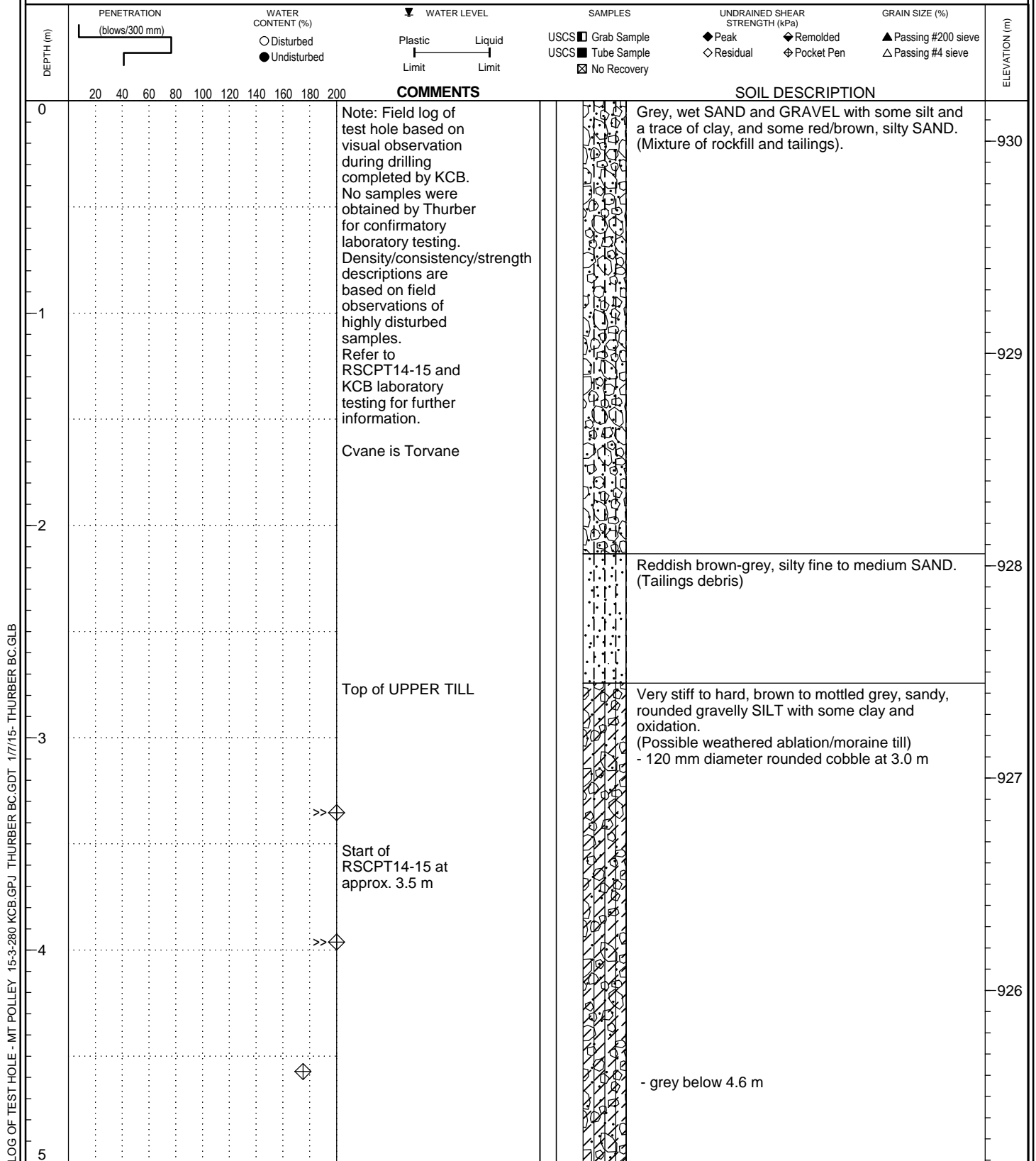


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 17, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595104, N 5819959

TOP OF HOLE ELEV: 930.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 17, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595104, N 5819959

TOP OF HOLE ELEV: 930.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP

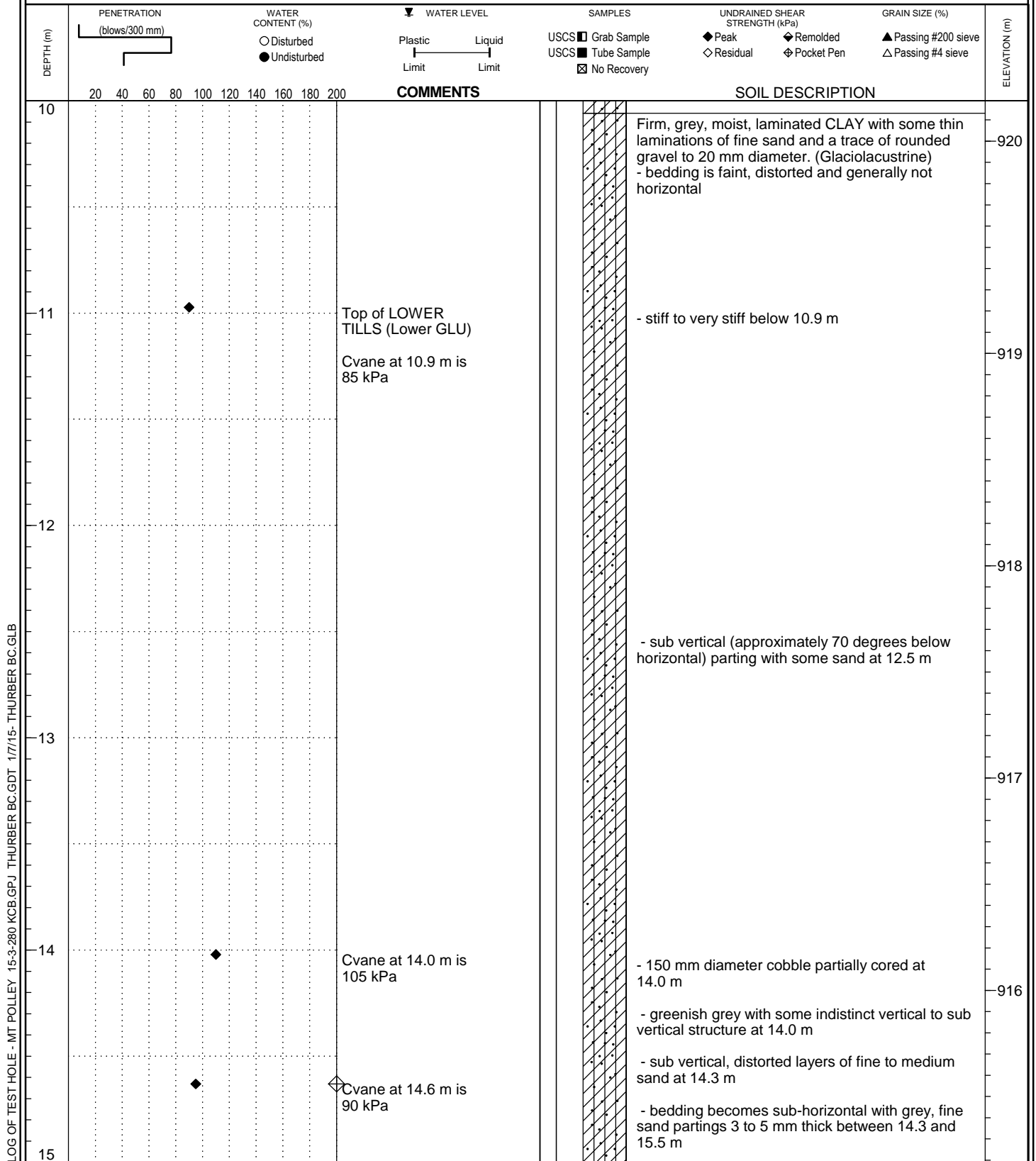


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 17, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595104, N 5819959

TOP OF HOLE ELEV: 930.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP

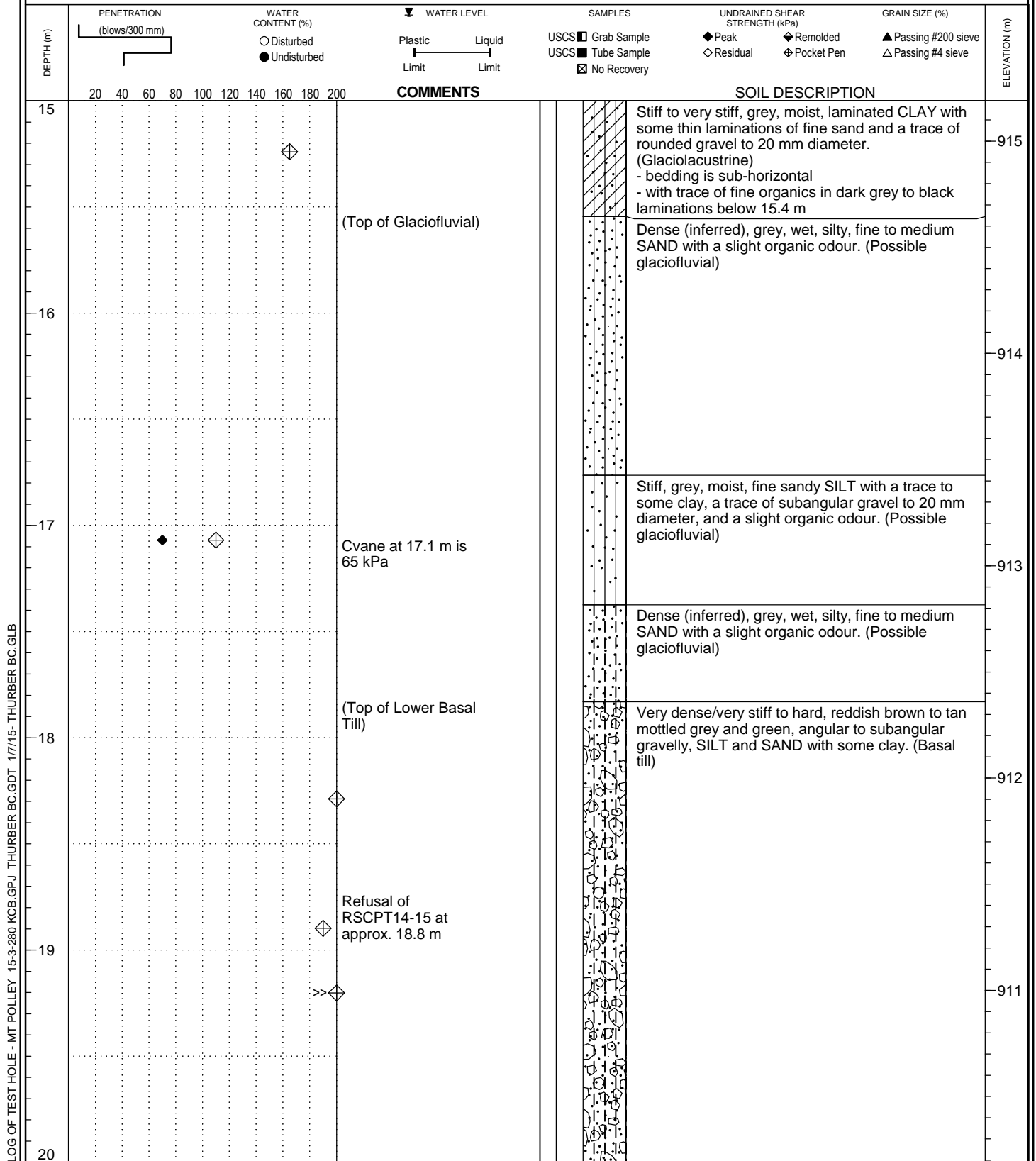


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 17, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595104, N 5819959

TOP OF HOLE ELEV: 930.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 17, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS □ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)	COMMENTS	SOIL DESCRIPTION
								20	
21							909		Hard, green mottled brown, moist, sandy, angular to subrounded gravelly SILT with some clay. (Possible brecciated volcanic bedrock) - with reddish brown sub-horizontal banding
22							908		
23							907		
24							906		End of hole at KCB instruction. Test hole grouted to surface upon completion.
25									

LOCATION: See Fig. 209
E 595076, N 5819973

TOP OF HOLE ELEV: 930.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP

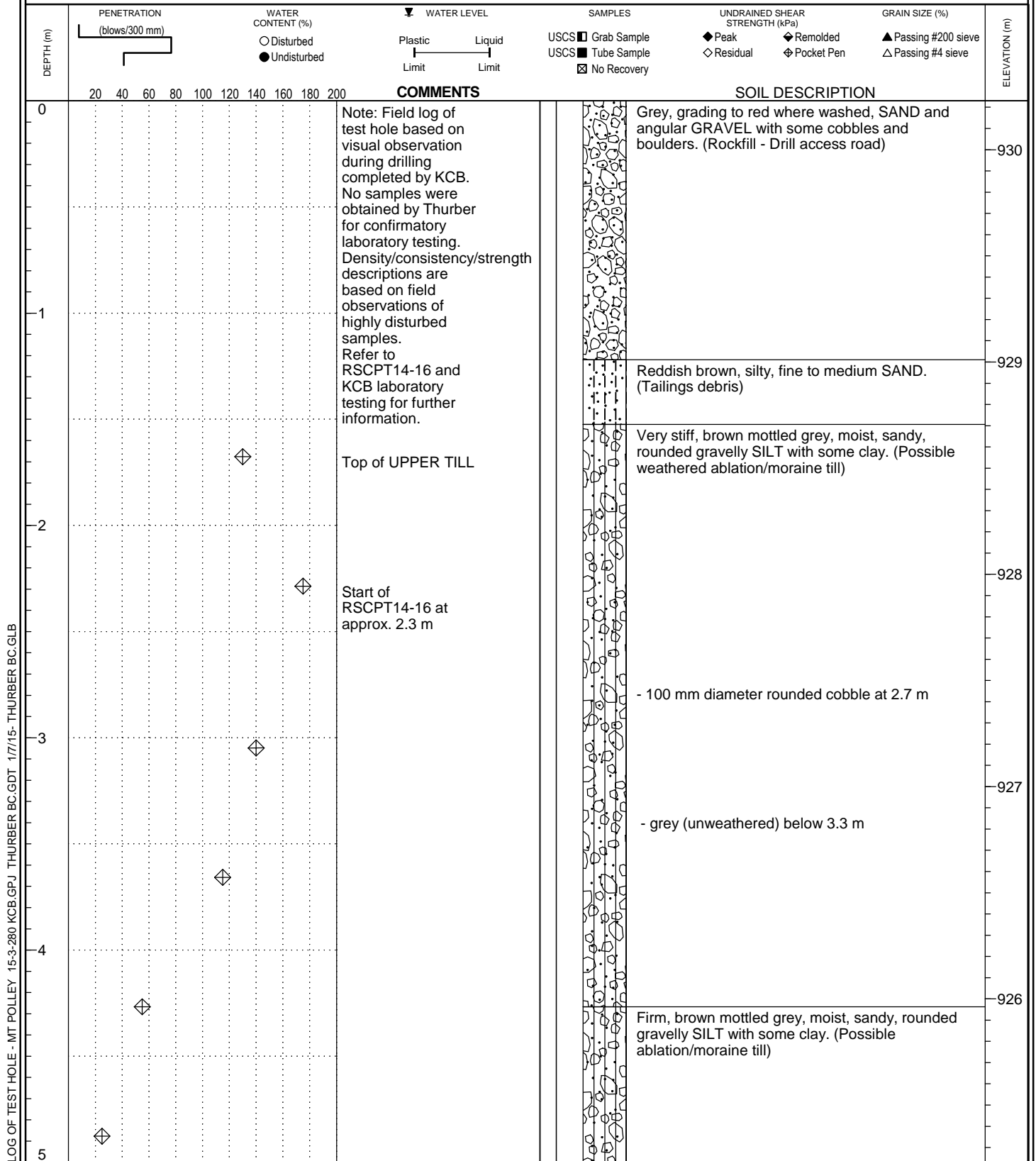


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 17 and 18, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595076, N 5819973

TOP OF HOLE ELEV: 930.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP

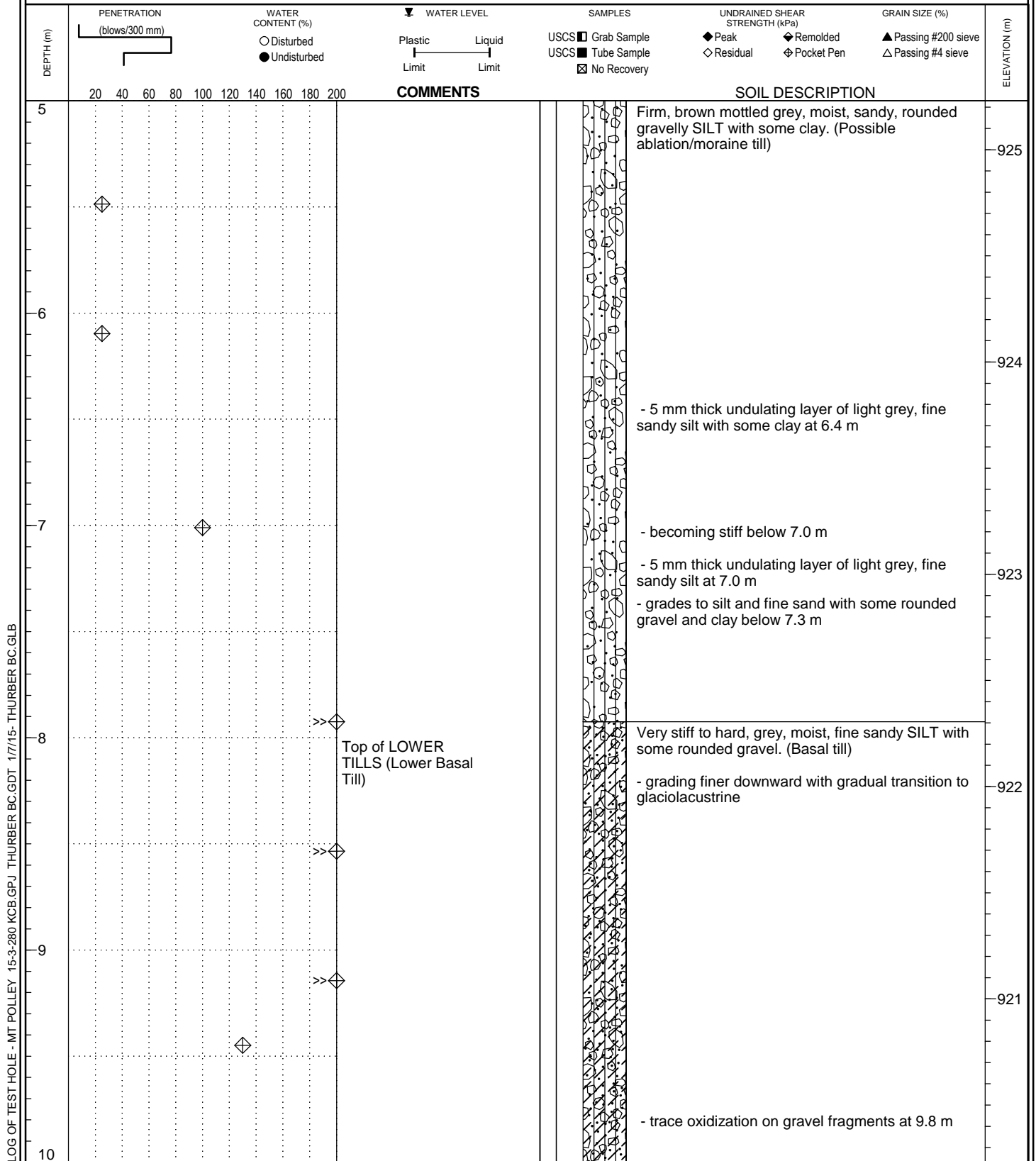


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 17 and 18, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595076, N 5819973

TOP OF HOLE ELEV: 930.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP

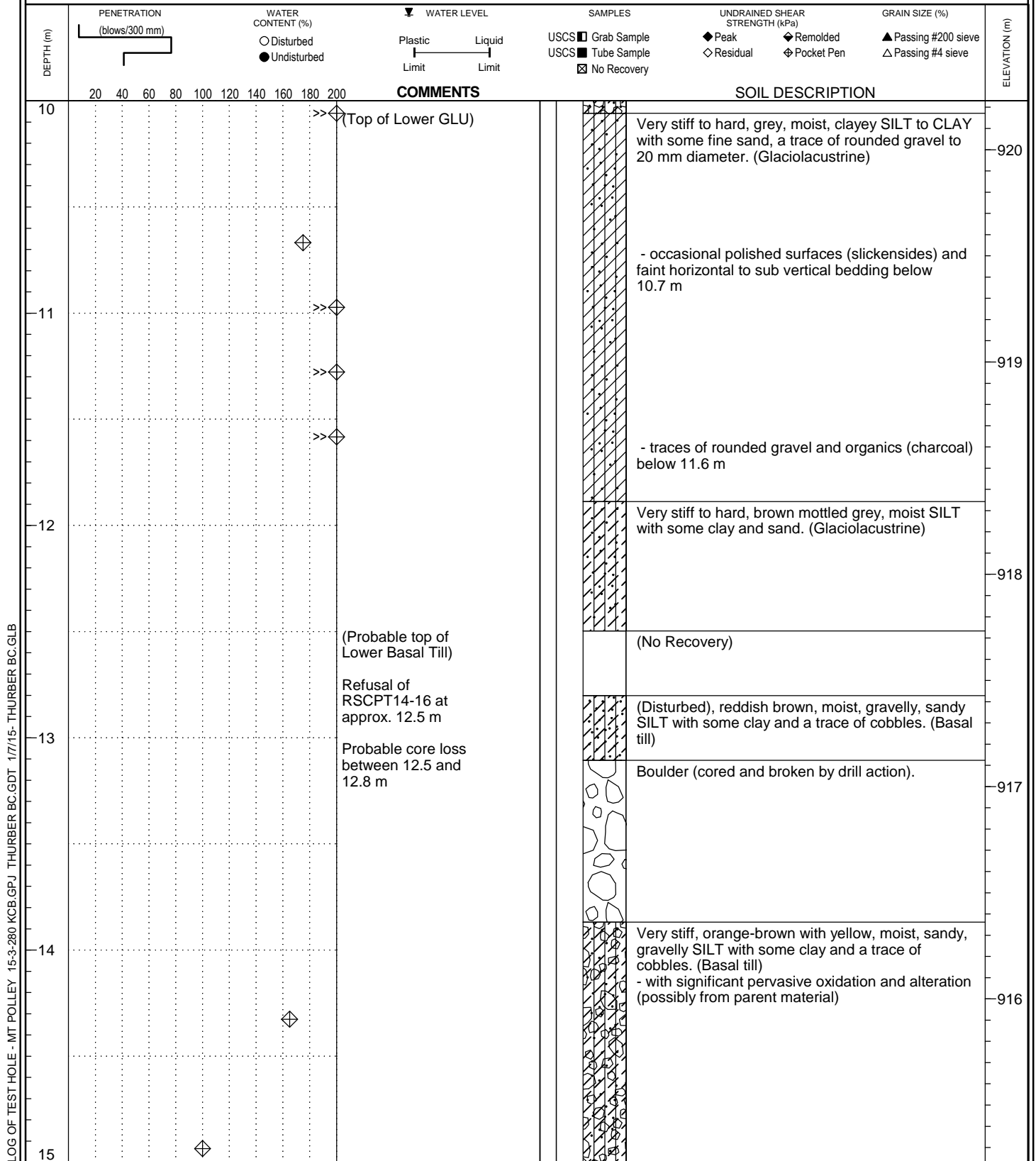


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 17 and 18, 2014

FILE NO.: 15-3-280



LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595076, N 5819973

TOP OF HOLE ELEV: 930.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 17 and 18, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)	COMMENTS	SOIL DESCRIPTION
15							915	Top of WEAK BEDROCK	Hard, bluish green mottled grey-brown, clayey SILT to CLAY with some sand and gravel. (Possible fine volcanic ash tuff bedrock)
16							914		
17							913		
18							912		Hard, reddish brown, dark grey to black, mottled greenish sandy, gravelly SILT with some clay. (Possible brecciated volcanic bedrock)
19							911		
20									

LOCATION: See Fig. 209
E 595076, N 5819973

TOP OF HOLE ELEV: 930.2 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP

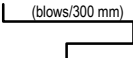
















CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 17 and 18, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%)	WATER LEVEL	SAMPLES	UNDRAINED SHEAR STRENGTH (kPa)	GRAIN SIZE (%)	ELEVATION (m)
		 Disturbed  Undisturbed		USCS  Grab Sample USCS  Tube Sample  No Recovery	 Peak  Residual	 Remolded  Pocket Pen  Passing #200 sieve  Passing #4 sieve	
	20 40 60 80 100 120 140 160 180 200		Plastic Limit Liquid Limit				
COMMENTS				SOIL DESCRIPTION			
20						Hard, reddish brown, dark grey to black, mottled greenish sandy, gravelly SILT with some clay. (Possible brecciated volcanic bedrock)	910
21						- with some reddish brown and green sub-horizontal banding - 130 mm diameter rounded volcanic cobble at 21.0 m	909
22							908
23						Very dense (inferred), grey, moist, silty fine SAND with traces of clay and coal. (Possible poorly cemented sandstone bedrock)	907
24						End of hole at KCB instruction. Test hole sounded through casing upon completion to 23.4 m. Slope inclinometer installed and test hole grouted to surface.	906
25							

LOCATION: See Fig. 209
E 595090, N 5819998

TOP OF HOLE ELEV: 929.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP

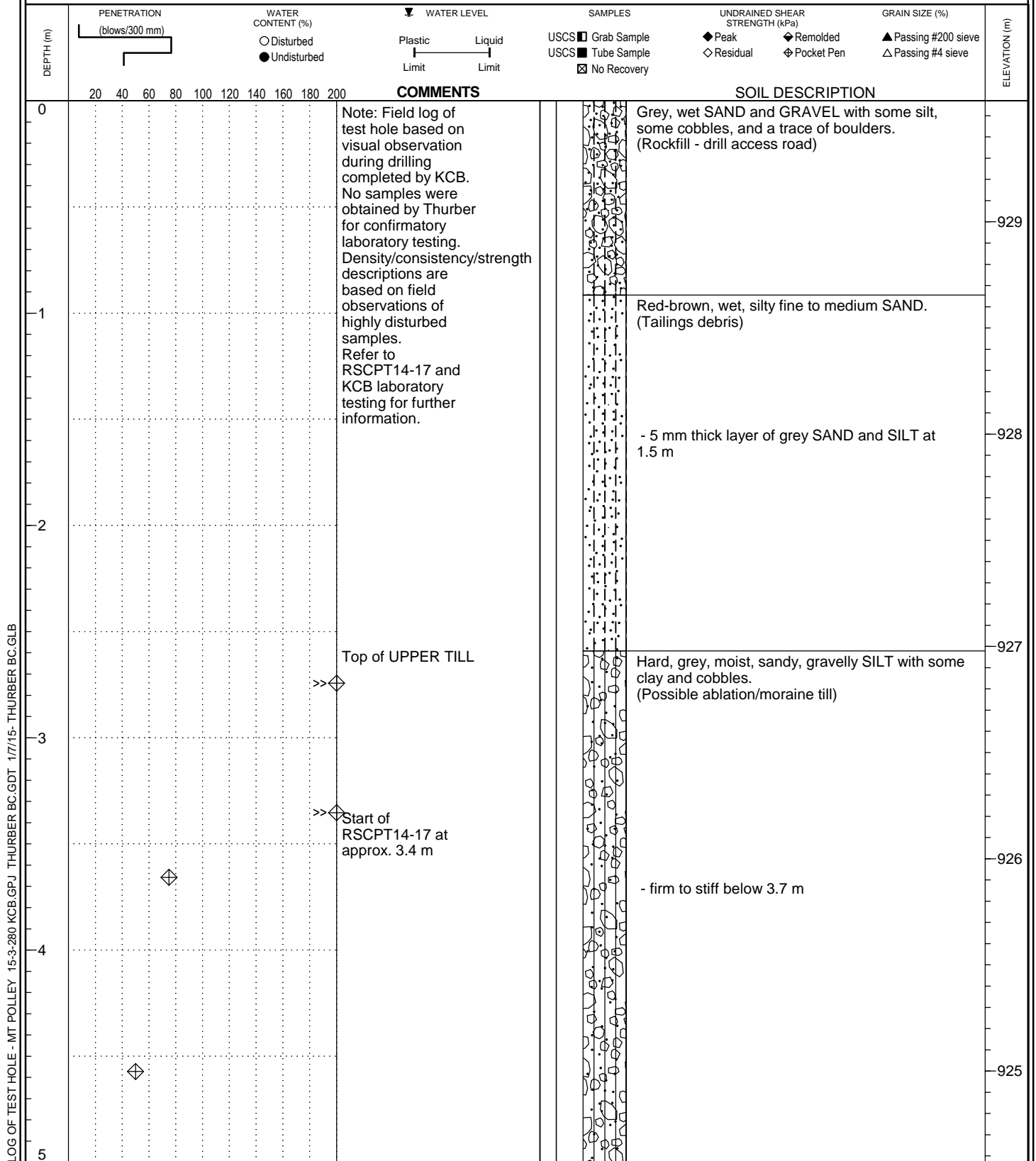


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 18, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595090, N 5819998

TOP OF HOLE ELEV: 929.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP

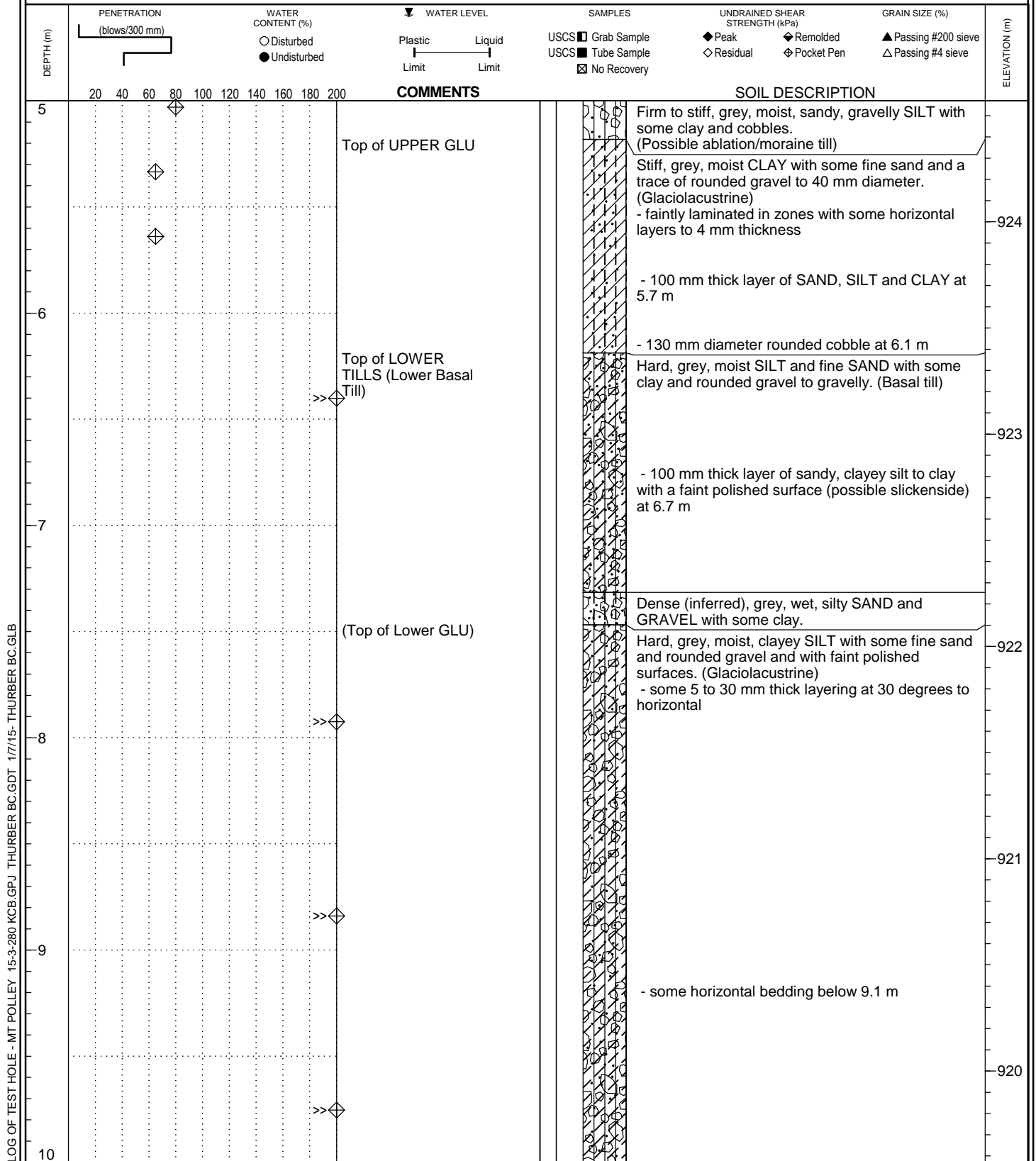


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 18, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595090, N 5819998

TOP OF HOLE ELEV: 929.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP

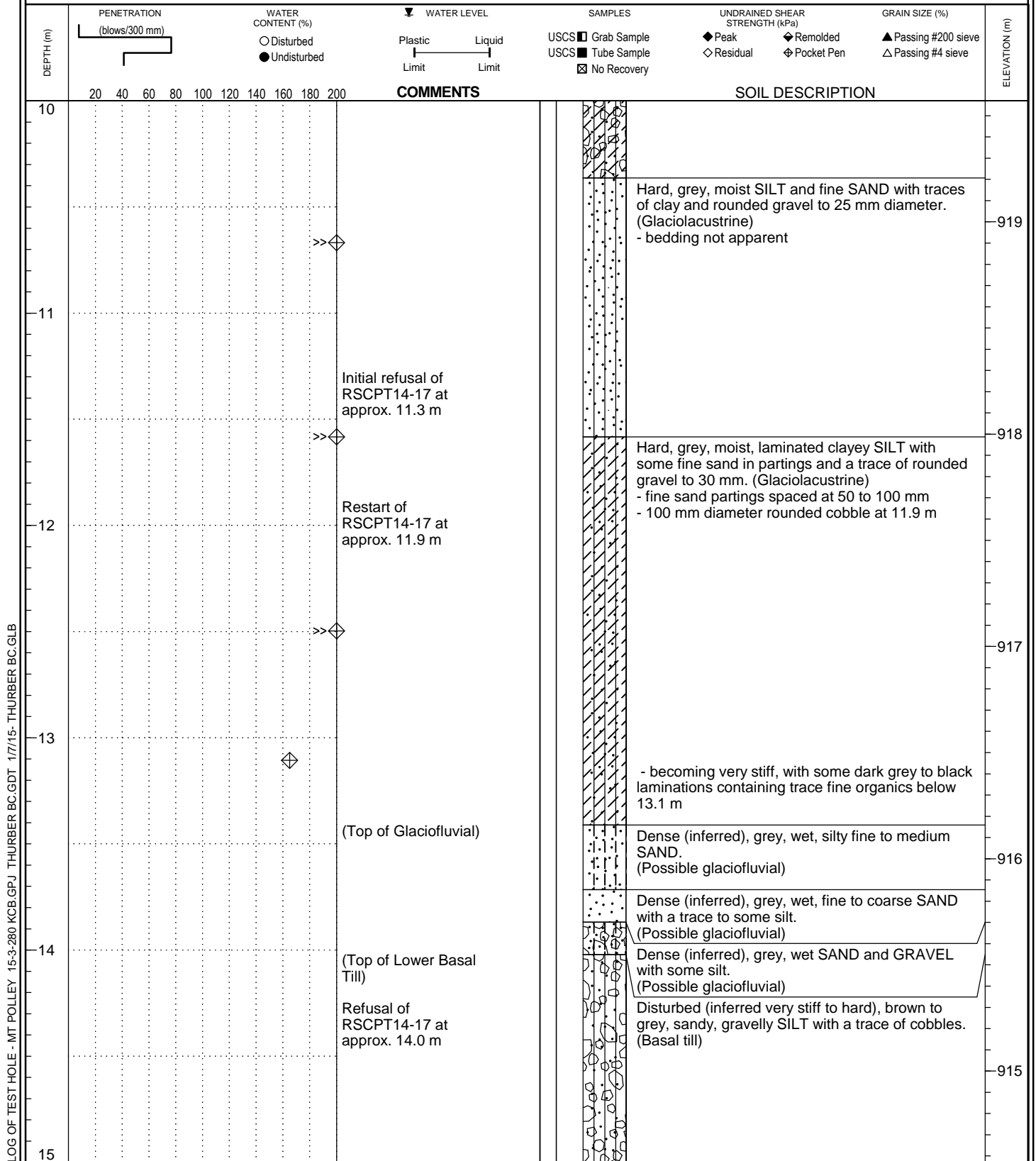


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 18, 2014

FILE NO.: 15-3-280



LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595090, N 5819998

TOP OF HOLE ELEV: 929.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 18, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☑ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
15						Disturbed (inferred very stiff to hard), brown to grey, sandy, gravelly SILT with a trace of cobbles. (Basal till)	
						- 130 mm diameter rounded cobble at 15.5 m	914
16						Very dense (inferred), black, moist, silty angular SAND and GRAVEL with a trace of clay. (Possible brecciated volcanic bedrock)	
						- gravel and matrix of basalt-like origin	913
17							
							912
18							
							911
19						Hard, dark grey to black, moist, friable, sandy, subrounded to subangular gravelly SILT with some clay. (Possible brecciated volcanic bedrock)	
						- gravel and matrix of basalt-like origin	910
20							

Top of WEAK
BEDROCK

LOCATION: See Fig. 209
E 595090, N 5819998

TOP OF HOLE ELEV: 929.6 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: BSP



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 18, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☑ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)	COMMENTS	SOIL DESCRIPTION
20									Hard, dark grey to black, moist, friable, sandy, subrounded to subangular gravelly SILT with some clay. (Possible brecciated volcanic bedrock) - gravel and matrix of basalt-like origin
									End of hole at KCB instruction. Test hole grouted to surface upon completion.
21									
22									
23									
24									
25									

LOCATION: See Fig. 209
E 595016, N 5820025

TOP OF HOLE ELEV: 934.8 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

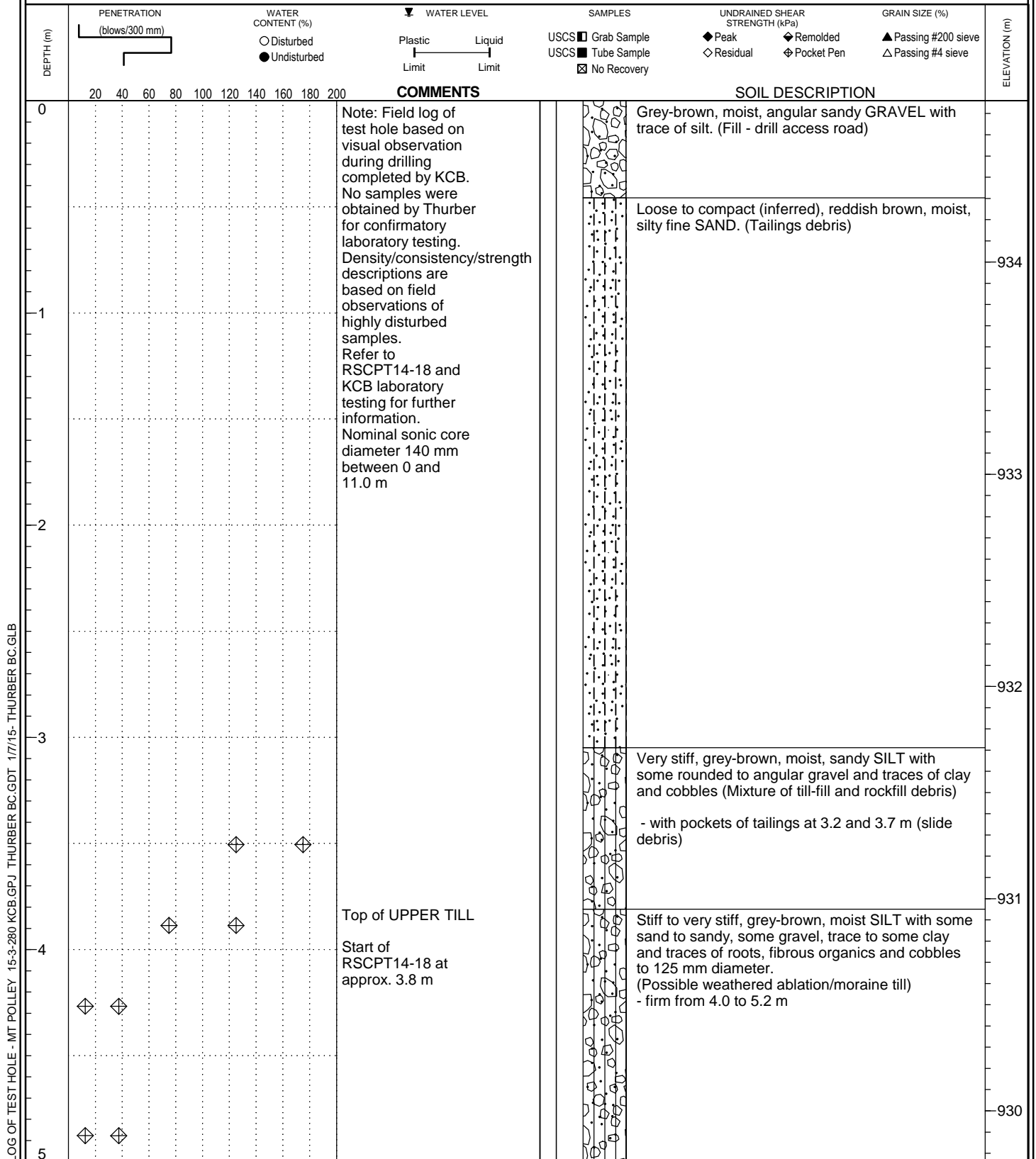


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 20, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595016, N 5820025

TOP OF HOLE ELEV: 934.8 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

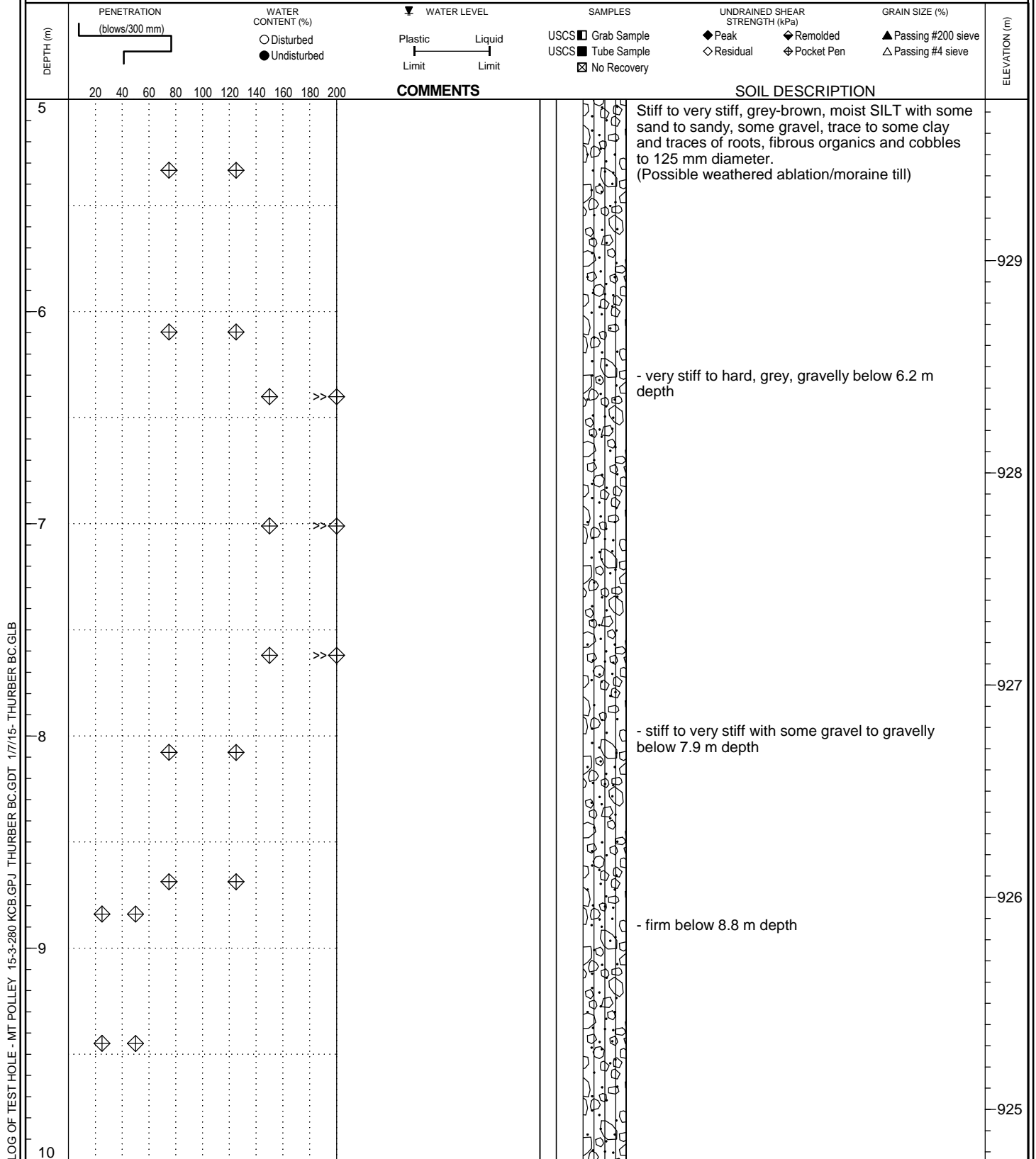


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

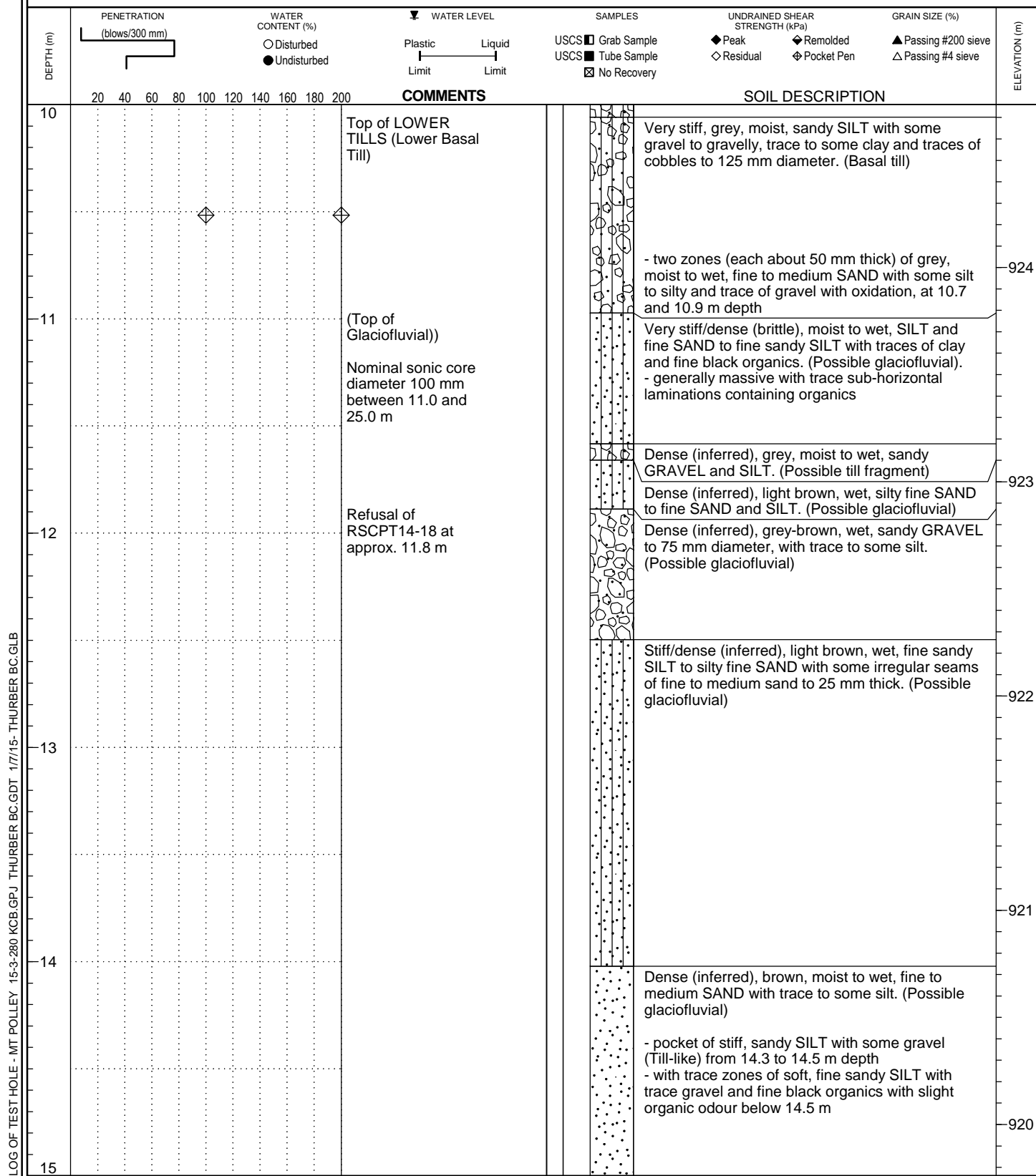
DATE: October 20, 2014

FILE NO.: 15-3-280





TOP OF HOLE ELEV: 934.8 m
METHOD: Sonic
DRILLING CO.: Mud Bay Drilling Ltd.
INSPECTOR: CHS



LOCATION: See Fig. 209
E 595016, N 5820025

TOP OF HOLE ELEV: 934.8 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

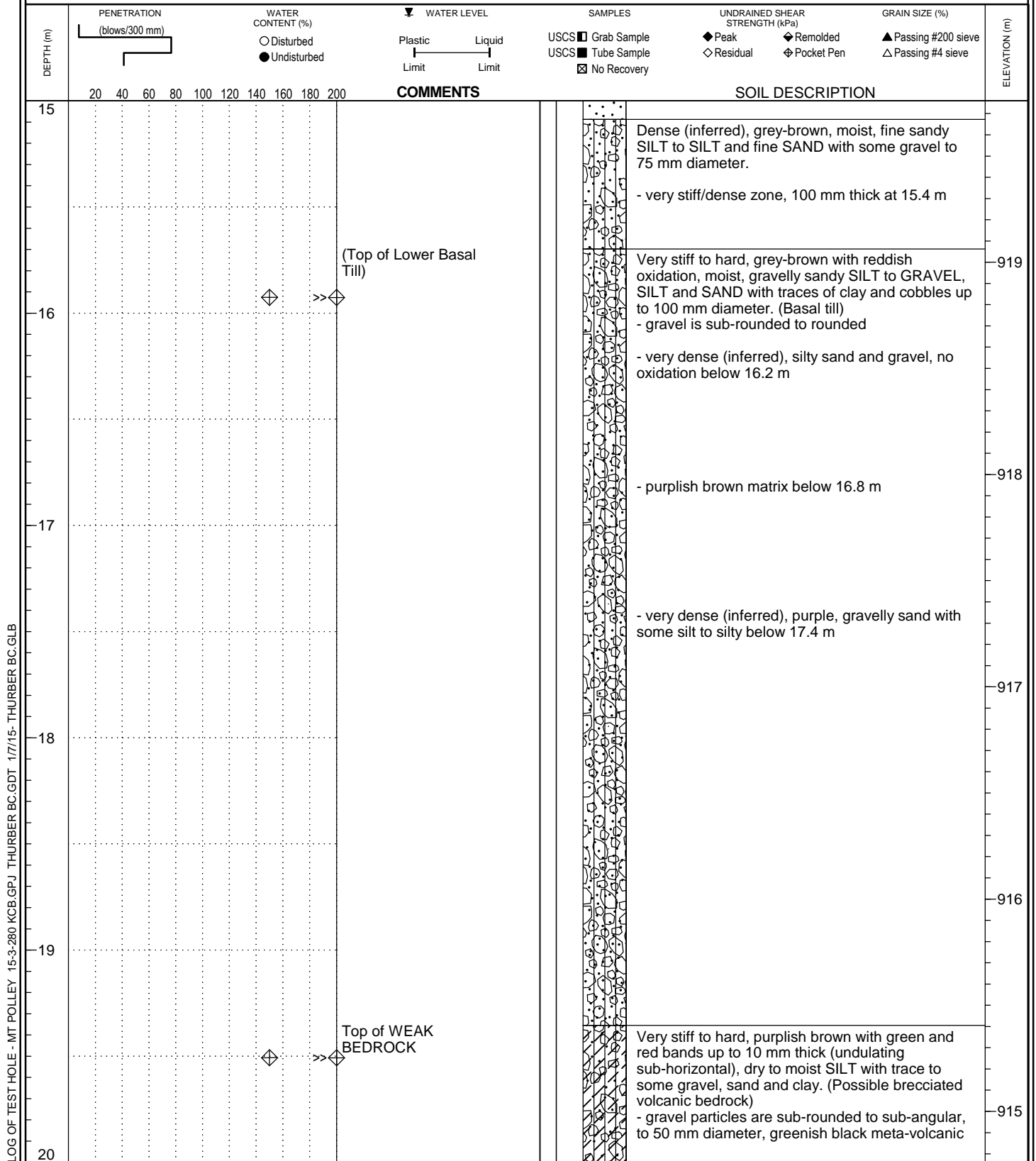


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 20, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595016, N 5820025

TOP OF HOLE ELEV: 934.8 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

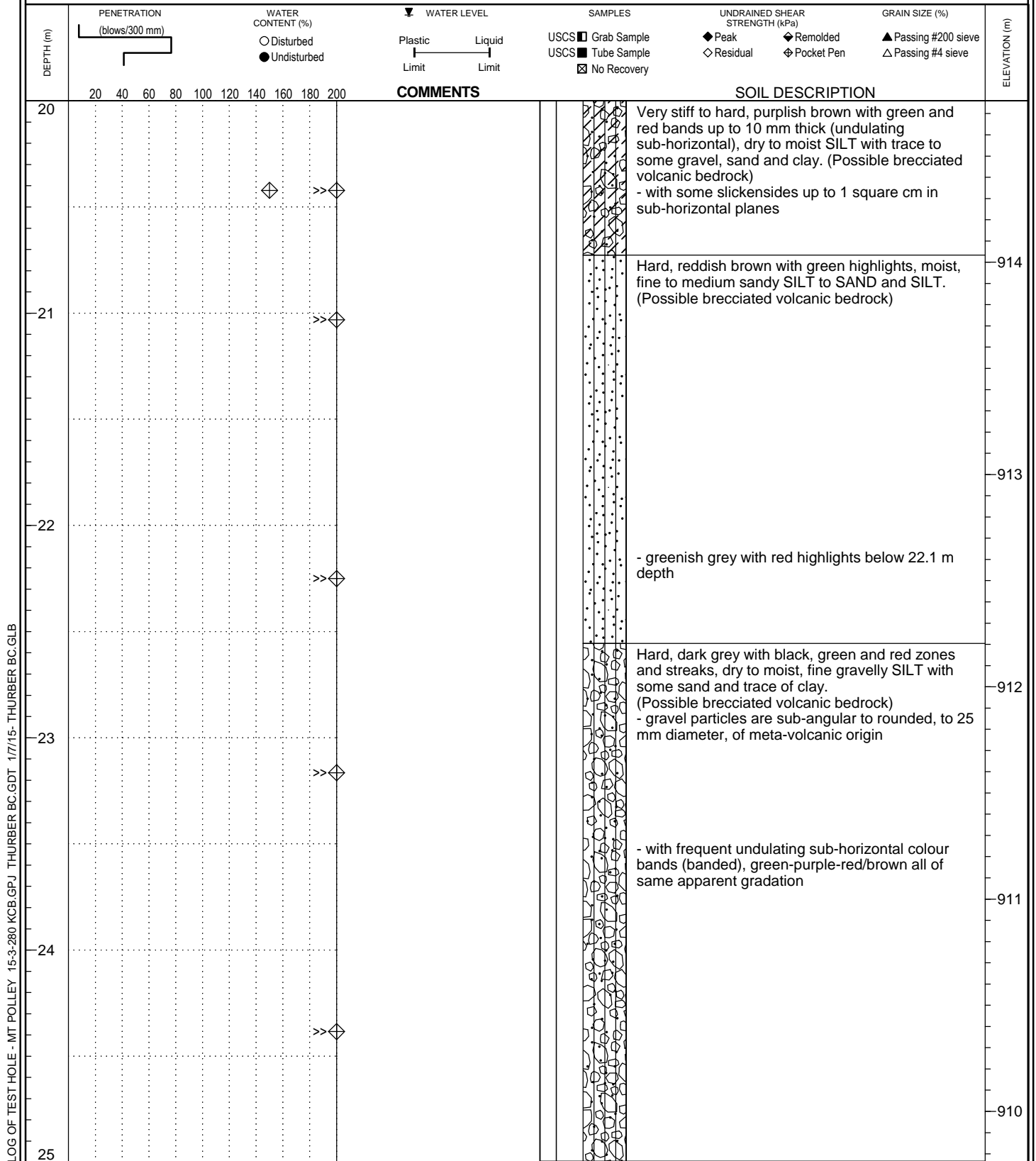


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 20, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595016, N 5820025

TOP OF HOLE ELEV: 934.8 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 20, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS □ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)	COMMENTS	SOIL DESCRIPTION
25								Artesian groundwater flow noted flowing from 7" casing at 11.0 m when 6" casing removed (on order of 1.5 to 3 m head).	End of test hole at KCB instruction. Test grouted to surface upon completion.
26								About 0.5 hours following initial grouting artesian flow resumed at 10 to 20L/min. Returned and successfully regouted with heavier mix.	
27									
28									
29									
30									

LOCATION: See Fig. 209
E 594883, N 5820042

TOP OF HOLE ELEV: 942.8 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

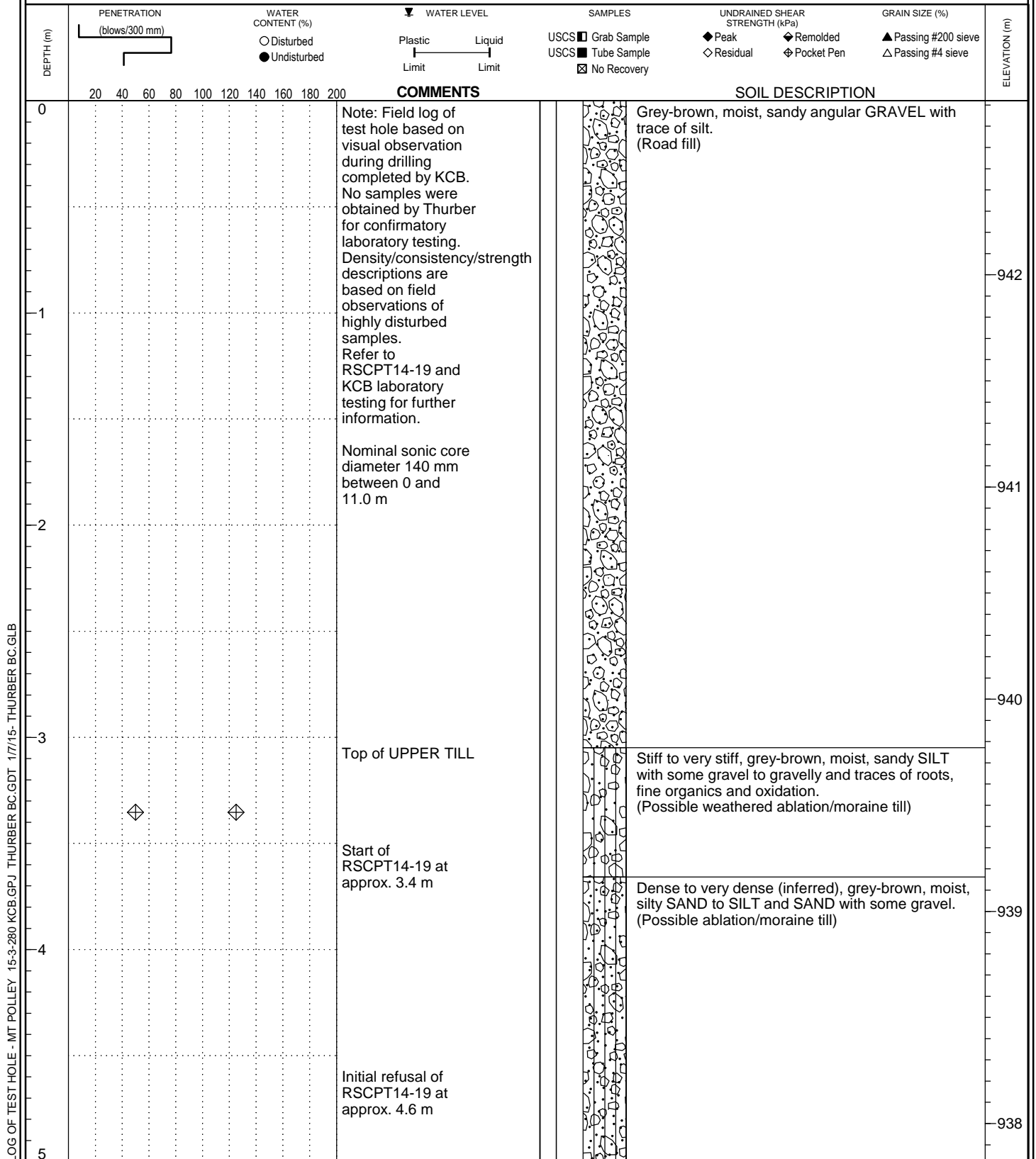


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 20, 2014

FILE NO.: 15-3-280



LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 594883, N 5820042

TOP OF HOLE ELEV: 942.8 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

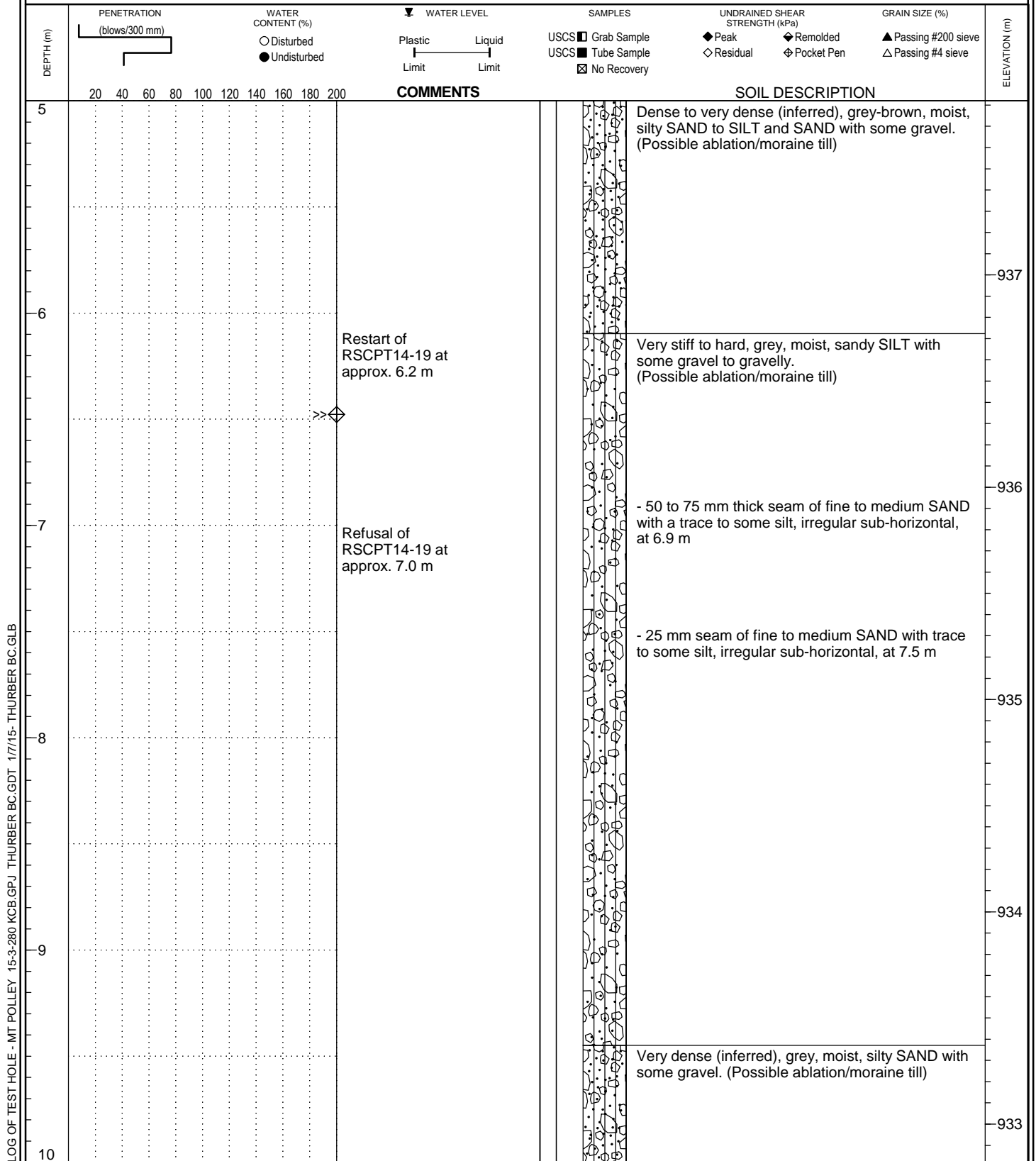


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 20, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 594883, N 5820042

TOP OF HOLE ELEV: 942.8 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 20, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☑ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
10						Very dense (inferred), grey, moist, silty SAND with some gravel. (Possible ablation/moraine till)	
						Hard, dark grey, gravelly SILT with some sand to sandy. (Possible ablation/moraine till)	
						- red/brown with oxidation below 10.8 m	932
11						Compact to dense (inferred), light grey/brown, moist to wet, fine SAND and SILT with some gravel with trace fine to medium sand seams to 5 mm thick. (Possible glaciofluvial)	
						Compact to dense (inferred), brown, wet, gravelly, fine to coarse SAND with a trace to some silt. (Possible glaciofluvial)	931
12						Compact to dense (inferred), brown, moist to wet, silty fine to medium SAND with some gravel to gravelly. (Possible glaciofluvial)	
						Very stiff to hard, grey-brown, moist, gravelly SILT with some sand to sandy. (Basal till) - oxidation at 13.1 m depth - 100 mm thick zone of brown, wet, fine to medium SAND with some silt and gravel at 13.3 m	930
13							
14							
15							

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

>>◆

Nominal sonic core
diameter 100 mm
below 11.0 m

Top of LOWER
TILLS (Glaciofluvial)

(Top of Lower Basal
Till)

LOCATION: See Fig. 209
E 594883, N 5820042

TOP OF HOLE ELEV: 942.8 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 20, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☑ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
15						Very stiff to hard, grey-brown, moist, gravelly SILT with some sand to sandy. (Basal till)	
16						Very hard, purple-brown, dry to moist, gravelly SILT to SILT and GRAVEL with some sand to sandy and trace to some clay. (Basal till) - gravel particles to 40 mm diameter, sub-angular to rounded, - generally matrix supported, with no apparent structure (massive)	927
17							926
18						Very dense (friable), dry to moist, purple mottled greenish grey, angular sandy GRAVEL with some silt and trace to some clay. (Possible brecciated volcanic bedrock) - gravel particles are purplish grey meta-volcanic	925
19							924
20						- trace of white, vein-like structures at 19.5 m	923

Top of WEAK
BEDROCK

HOLE NO.
SH14-19

LOCATION: See Fig. 209
E 594883, N 5820042

TOP OF HOLE ELEV: 942.8 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 20, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☑ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)	COMMENTS	SOIL DESCRIPTION
20									Very dense (friable), dry to moist, purple mottled greenish grey, angular sandy GRAVEL with some silt and trace to some clay. (Possible brecciated volcanic bedrock) - gravel particles are purplish grey meta-volcanic
									End of test hole at KCB instruction. Test hole grouted to surface upon completion.
21									
22									
23									
24									
25									

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 594862, N 5819968

TOP OF HOLE ELEV: 969.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 21, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS Grab Sample USCS Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◇ Residual ◆ Remolded ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
0							969
1							
2							968
3							967
4							966
5							965

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 594862, N 5819968

TOP OF HOLE ELEV: 969.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 21, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☑ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
5						Grey-brown, moist, angular GRAVEL with some sand to sandy and trace to some silt. (Possible transition zone) - typically minus 25 mm crushed material with trace oversize - trace woodwaste (stick) at 5.2 m depth - sharp colour break, grey below 5.3 m (possible lift or stage boundary)	964
6							
7						Grey-brown, moist, angular GRAVEL with some sand to sandy and some silt to silty. (Possible filter zone) - typically minus 25 mm crushed material with trace oversize	963
8						- sharp colour break, grey below 7.9 m (possible lift or stage boundary)	962
9							961
10							960

LOCATION: See Fig. 209
E 594862, N 5819968



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

TOP OF HOLE ELEV: 969.9 m

PROJECT: Mount Polley Tailings Dam Breach

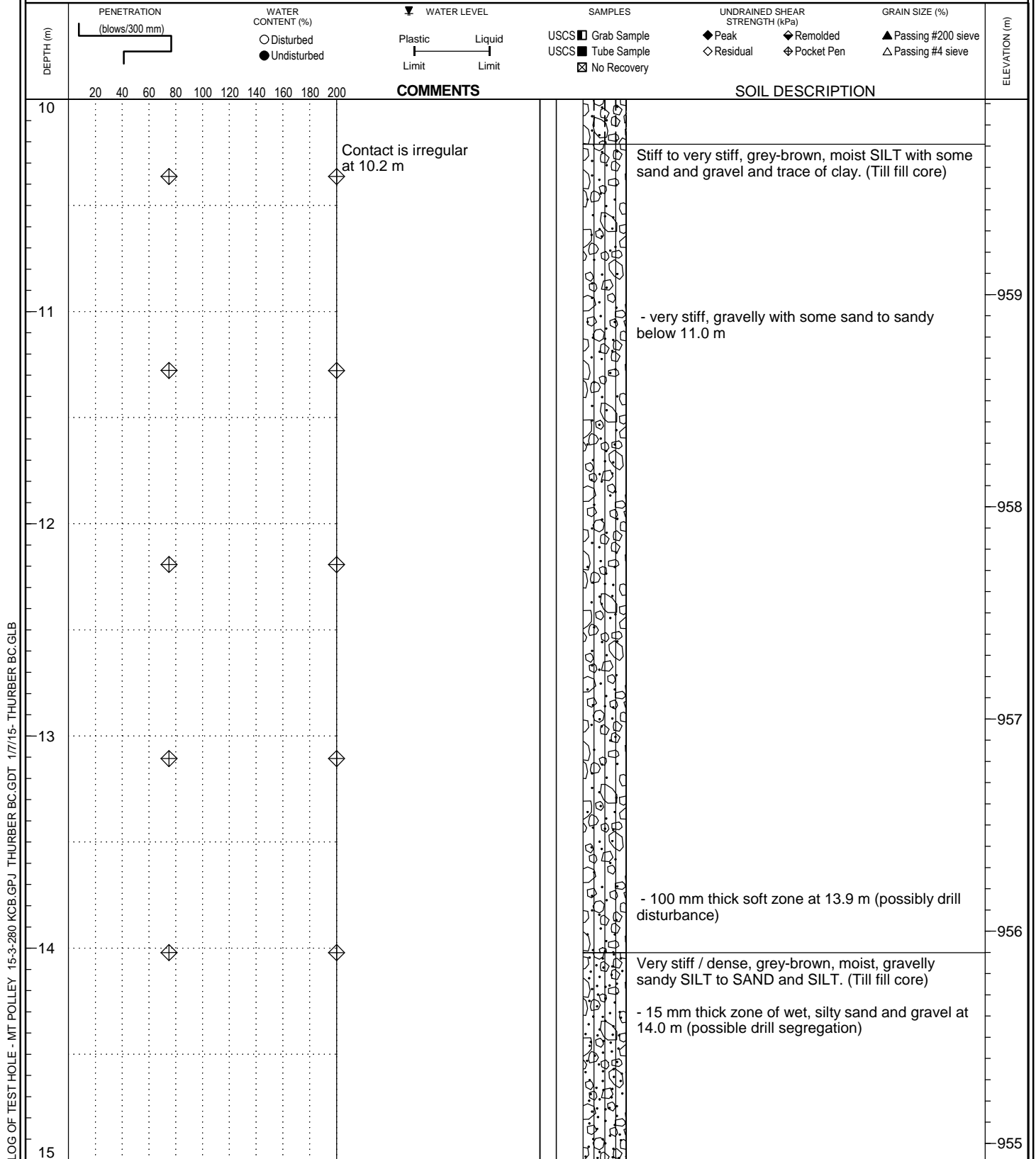
METHOD: Sonic

DATE: October 21, 2014

DRILLING CO.: Mud Bay Drilling Ltd.

FILE NO.: 15-3-280

INSPECTOR: CHS



LOCATION: See Fig. 209
E 594862, N 5819968

TOP OF HOLE ELEV: 969.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

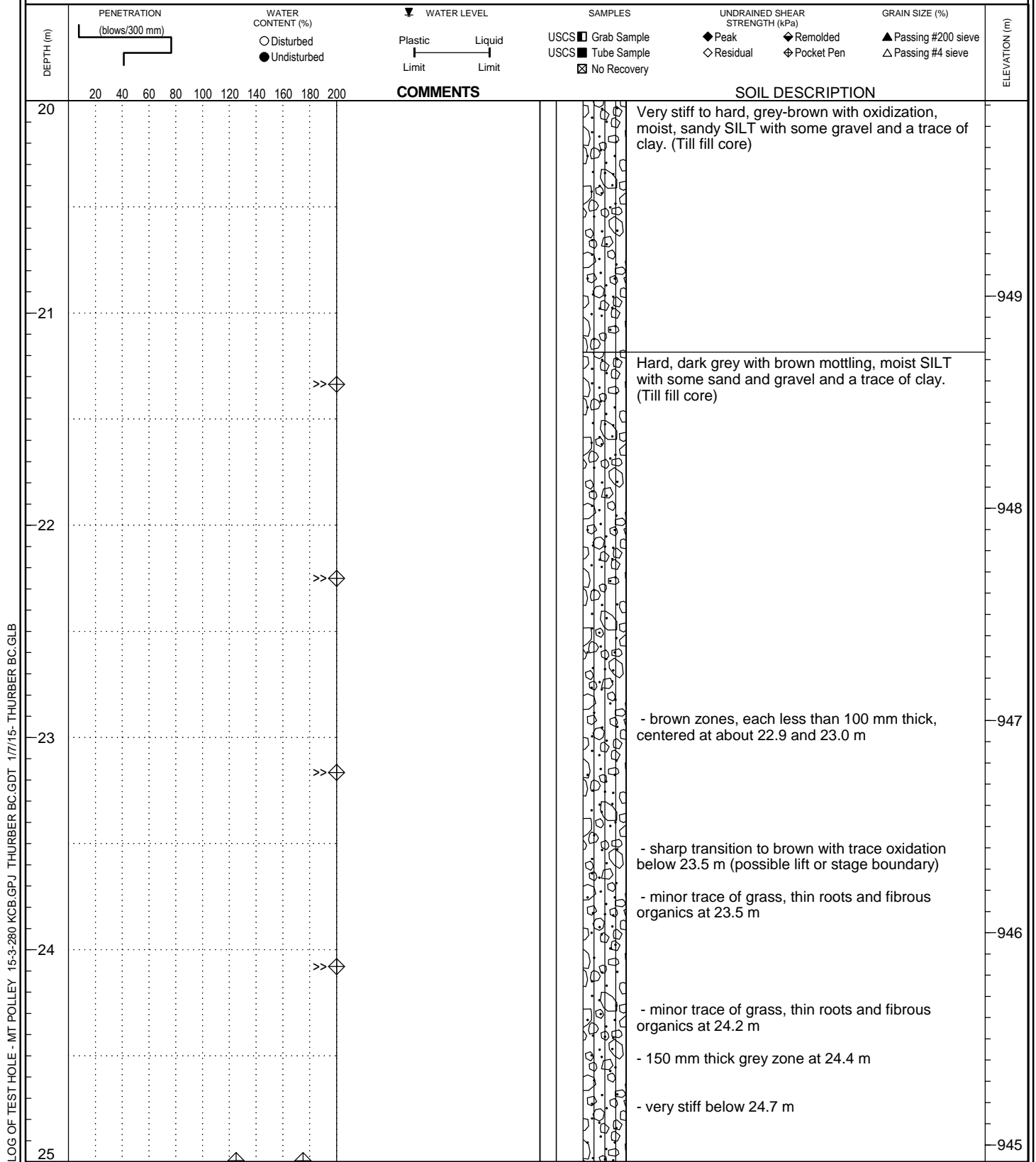


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 21, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 594862, N 5819968

TOP OF HOLE ELEV: 969.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

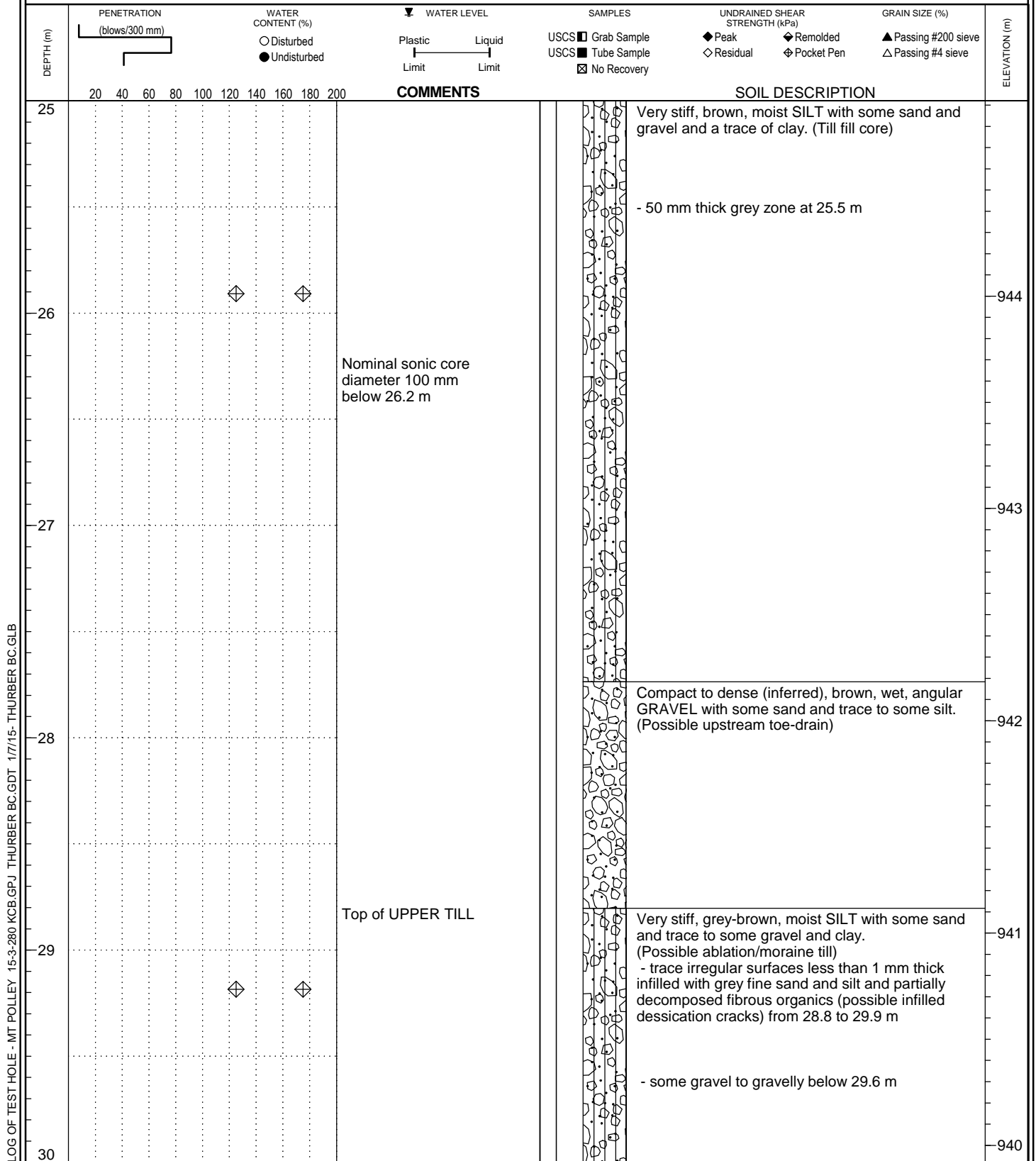


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 21, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 594862, N 5819968

TOP OF HOLE ELEV: 969.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 21, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS □ Grab Sample USCS ■ Tube Sample <input checked="" type="checkbox"/> No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)	COMMENTS	SOIL DESCRIPTION
								30	
31							939		
32							938		Very dense, grey, moist, SAND and SILT with some gravel to gravelly and trace of clay. (Possible ablation/moraine till)
33							937		
34							936		
35							935		

LOCATION: See Fig. 209
E 594862, N 5819968

TOP OF HOLE ELEV: 969.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 21, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
35							
36							934
37							933
38							932
39							931
40							930

COMMENTS

SOIL DESCRIPTION

Very dense, grey, moist, SAND and SILT with some gravel to gravelly and trace of clay. (Possible ablation/moraine till)

- 10 mm thick sub-horizontal irregular seam of fine to medium SAND with trace to some silt at 38.3 m depth

Top of LOWER
TILLS (Glaciofluvial)

Compact to dense (inferred), dark grey, wet, fine to medium SAND with some silt to silty. (Possible glaciofluvial)

LOCATION: See Fig. 209
E 594862, N 5819968

TOP OF HOLE ELEV: 969.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

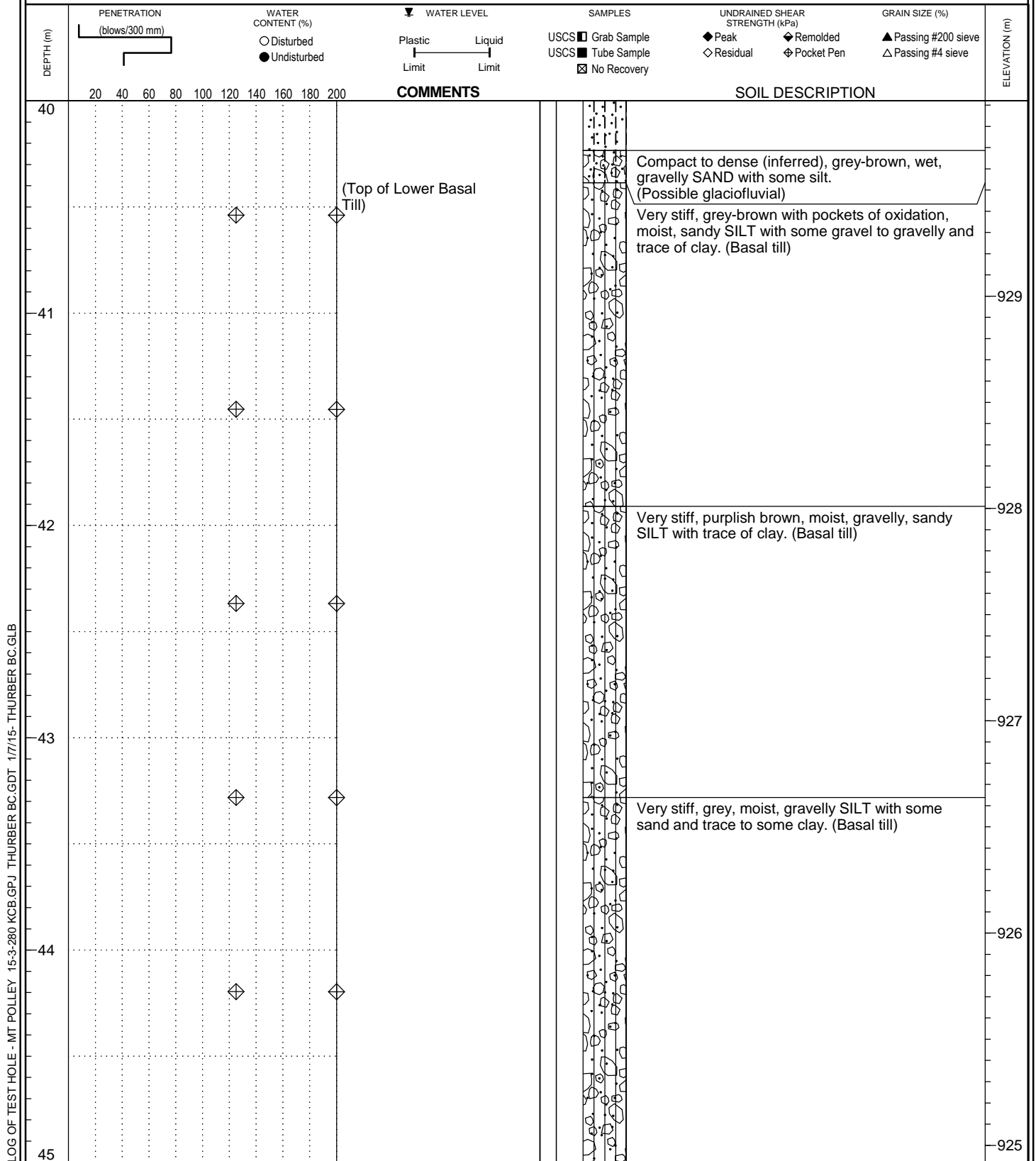


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 21, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 594862, N 5819968

TOP OF HOLE ELEV: 969.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

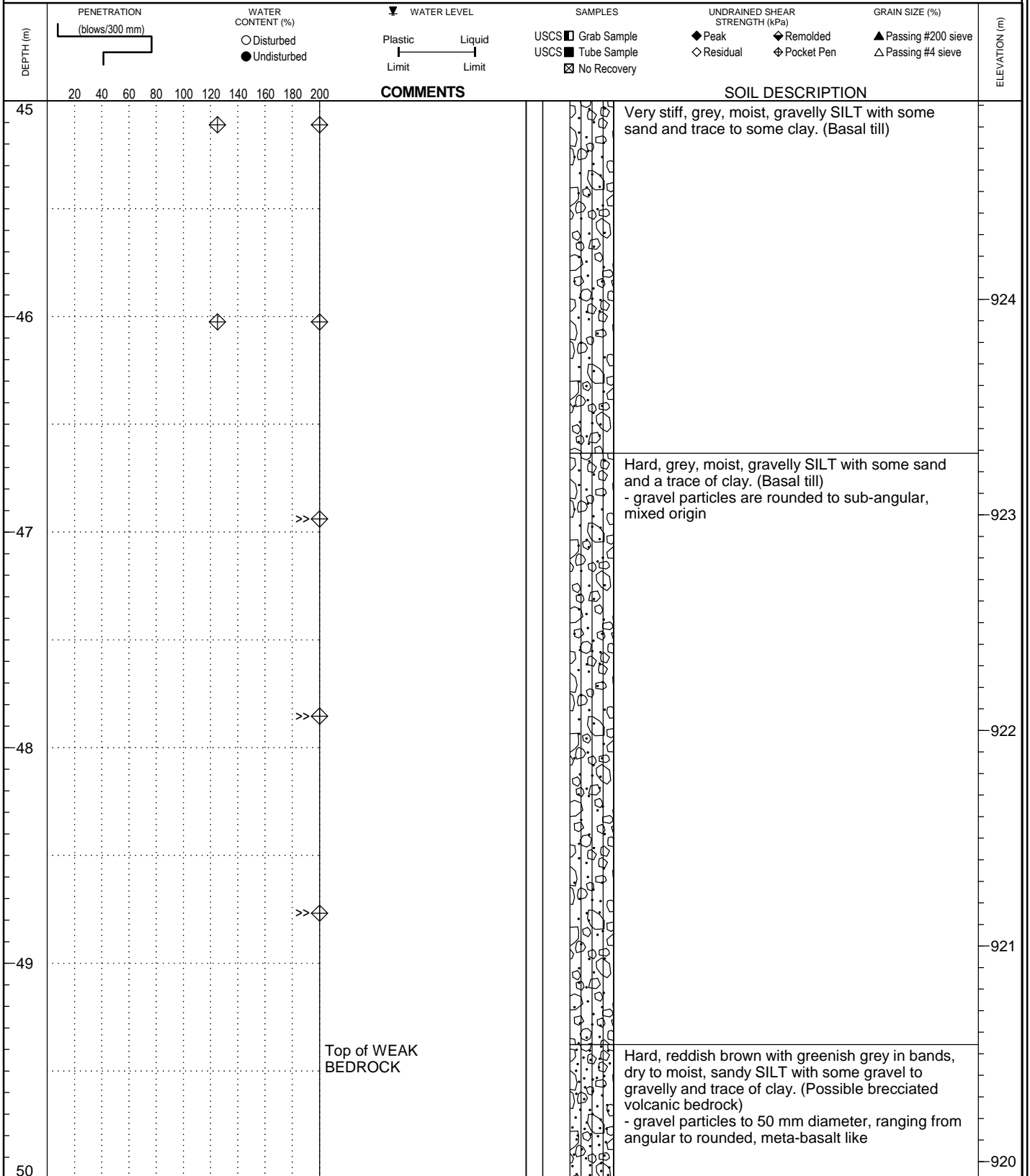


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 21, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 594862, N 5819968

TOP OF HOLE ELEV: 969.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 21, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL	SAMPLES USCS Grab Sample USCS Tube Sample No Recovery	UNDRAINED SHEAR STRENGTH (kPa) Peak Residual Remolded Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
50						Hard, reddish brown with greenish grey in bands, dry to moist, sandy SILT with some gravel to gravelly and trace of clay. (Possible brecciated volcanic bedrock) - greenish grey bands, very dense (inferred) silt and fine sand (texture resembles fine meta-igneous rock) at 50.0 m	
51						- 100 mm thick layer of reddish brown, wet, angular to sub-angular GRAVEL with some silt and trace to some clay at 51.2 m	919
52						Hard, reddish brown with greenish grey bands, dry to moist SILT with some sub-rounded gravel and a trace to some sand and clay. (Possible brecciated volcanic bedrock)	918
53						- sub-rounded cobble shaped pocket consisting of very dense (inferred), dark grey, SAND with some silt at 53.3 m (may be crystals in decomposed cobble)	917
54						End of test hole at KCB instruction. Test hole sounded through casing upon completion to 54.0 m. Vibrating wire piezometers installed at 51.8 m (Tip A), 39.9 m (Tip B) and 35.1 m (Tip C) and test hole fully grouted up to 10.2 m upon completion.	916
55							915

LOCATION: See Fig. 209
E 595304, N 5819760

TOP OF HOLE ELEV: 968.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 23 and 24, 2014

FILE NO.: 15-3-280

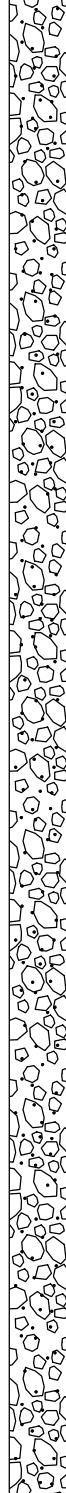
DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL Plastic Limit Liquid Limit	SAMPLES USCS Grab Sample USCS Tube Sample No Recovery	UNDRAINED SHEAR STRENGTH (kPa) Peak Residual Remolded Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
0							

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

Note: Field log of test hole based on visual observation during drilling completed by KCB. No samples were obtained by Thurber for confirmatory laboratory testing. Density/consistency/strength descriptions are based on field observations of highly disturbed samples. Refer to RSCPT14-21 and KCB laboratory testing for further information.

Note RSCPT14-21 located approx. 55 m to southeast. Start of RSCPT14-21 at 0 m in till fill core.

Nominal sonic core diameter 140 mm between 0 and 35.4 m



968

967

966

965

964

LOCATION: See Fig. 209
E 595304, N 5819760

TOP OF HOLE ELEV: 968.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 23 and 24, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS <input type="checkbox"/> Grab Sample USCS <input type="checkbox"/> Tube Sample <input checked="" type="checkbox"/> No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
5							963
6							962
7							961
8							960
9							959
10							

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

Grey, moist, angular GRAVEL with some sand and a trace to some silt and cobbles to 125 mm diameter. (Downstream dam shell - rockfill)

- some silt below 5.8 m

Brown, moist, silty SAND and GRAVEL to sandy GRAVEL with some silt. (Downstream dam shell - rockfill)
- gravel is angular to sub-angular and to 75 mm diameter
(colour change may indicate lift/stage boundary)

Grey, dry to moist, angular GRAVEL with some sand and a trace to some silt and cobbles to 125 mm diameter. (Downstream dam shell - rockfill)

LOCATION: See Fig. 209
E 595304, N 5819760

TOP OF HOLE ELEV: 968.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 23 and 24, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%)	WATER LEVEL	SAMPLES	UNDRAINED SHEAR STRENGTH (kPa)	GRAIN SIZE (%)	ELEVATION (m)
		○ Disturbed ● Undisturbed	Plastic Limit Liquid Limit	USCS <input type="checkbox"/> Grab Sample USCS <input type="checkbox"/> Tube Sample <input checked="" type="checkbox"/> No Recovery	◆ Peak ◇ Residual	◆ Remolded ◆ Pocket Pen ▲ Passing #200 sieve △ Passing #4 sieve	
	20 40 60 80 100 120 140 160 180 200			COMMENTS	SOIL DESCRIPTION		
10					Grey, dry to moist, angular GRAVEL with some sand and a trace to some silt and cobbles to 125 mm diameter. (Downstream dam shell - rockfill)		
11					- possible pinkish grey boulder at 11.6 m (shattered by drill)		958
12					Greenish grey-brown, dry to moist, silty SAND and GRAVEL. (Downstream dam shell - rockfill) - gravel is angular to rounded and to 75 mm diameter (possible lift/stage boundary)		957
13							956
14					Brown, moist, sandy, angular GRAVEL with some silt and cobbles to 100 mm diameter. (Downstream dam shell - rockfill) (possible lift/stage boundary)		955
15							954

LOCATION: See Fig. 209
E 595304, N 5819760

TOP OF HOLE ELEV: 968.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 23 and 24, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample <input checked="" type="checkbox"/> No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)	COMMENTS	SOIL DESCRIPTION	
								15		
16										952
17									<p>- grey, moist to wet, with some silt and a trace of clay below 17.1 m</p>	951
18										950
19									<p>- dry to moist, no clay below 19.5 m</p>	949
20										

LOCATION: See Fig. 209
E 595304, N 5819760

TOP OF HOLE ELEV: 968.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 23 and 24, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☑ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
20							948
21							947
22							946
23							945
24							944
25							

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

Grey, dry to moist, sandy, angular GRAVEL with some silt and cobbles to 100 mm diameter. (Downstream dam shell - rockfill)

LOCATION: See Fig. 209
E 595304, N 5819760

TOP OF HOLE ELEV: 968.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 23 and 24, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☑ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)	COMMENTS	SOIL DESCRIPTION
25									Grey, dry to moist, sandy, angular GRAVEL with some silt and cobbles to 100 mm diameter. (Downstream dam shell - rockfill)
26									- brown moist below 26.2 m (possible lift/stage boundary)
27									
28									
29									
30									

LOCATION: See Fig. 209
E 595304, N 5819760

TOP OF HOLE ELEV: 968.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

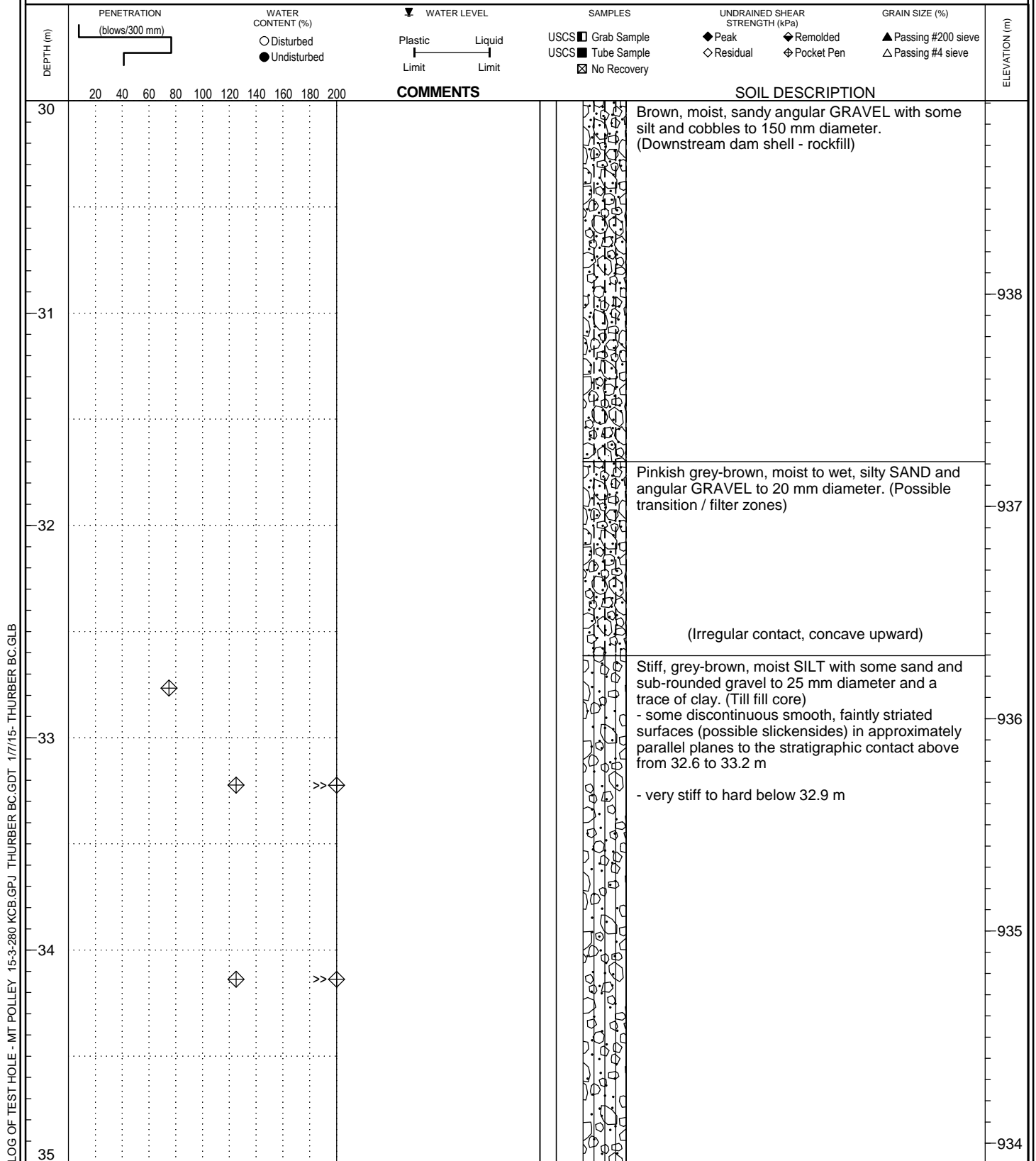


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 23 and 24, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595304, N 5819760

TOP OF HOLE ELEV: 968.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

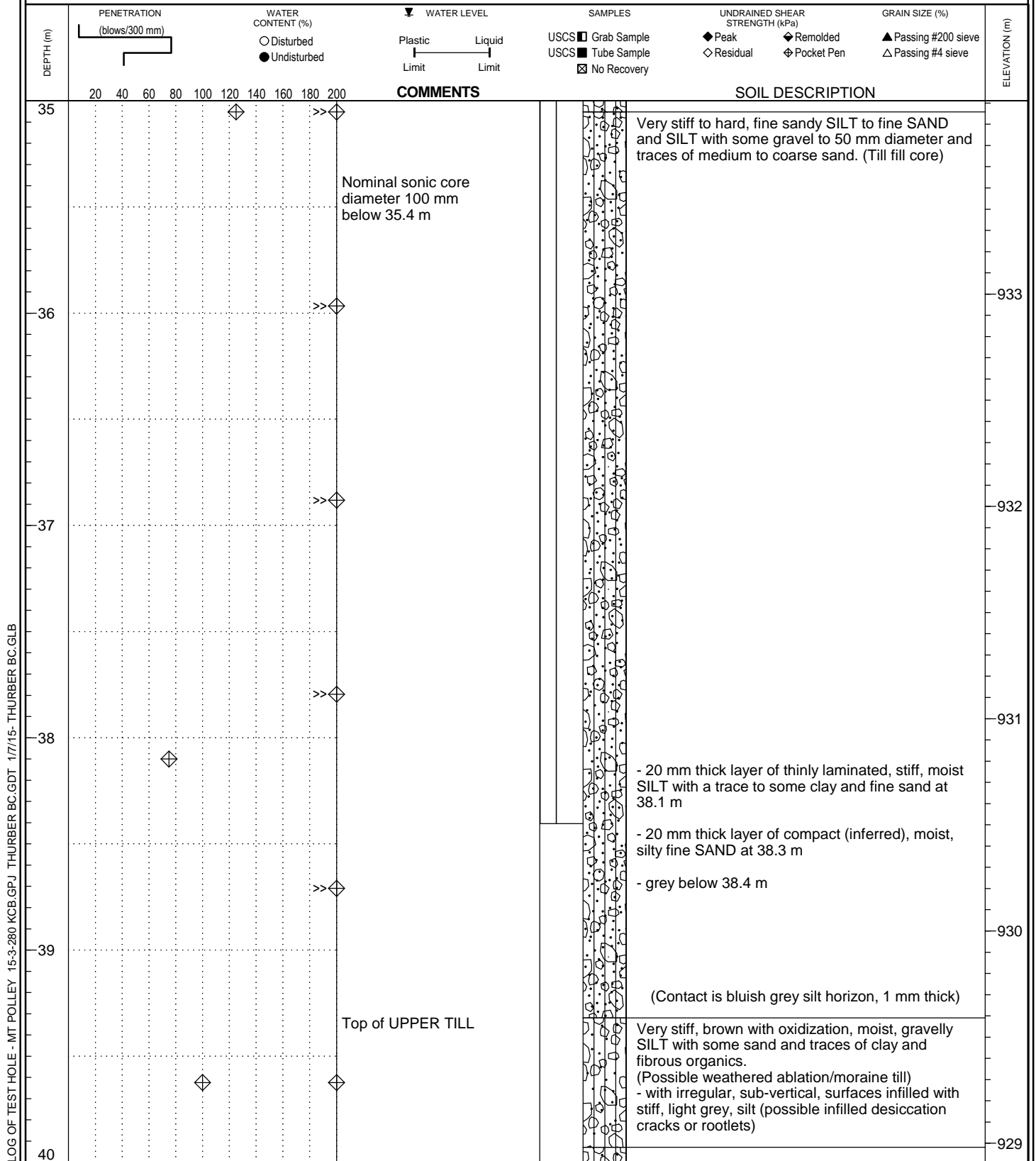


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 23 and 24, 2014

FILE NO.: 15-3-280



LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595304, N 5819760

TOP OF HOLE ELEV: 968.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

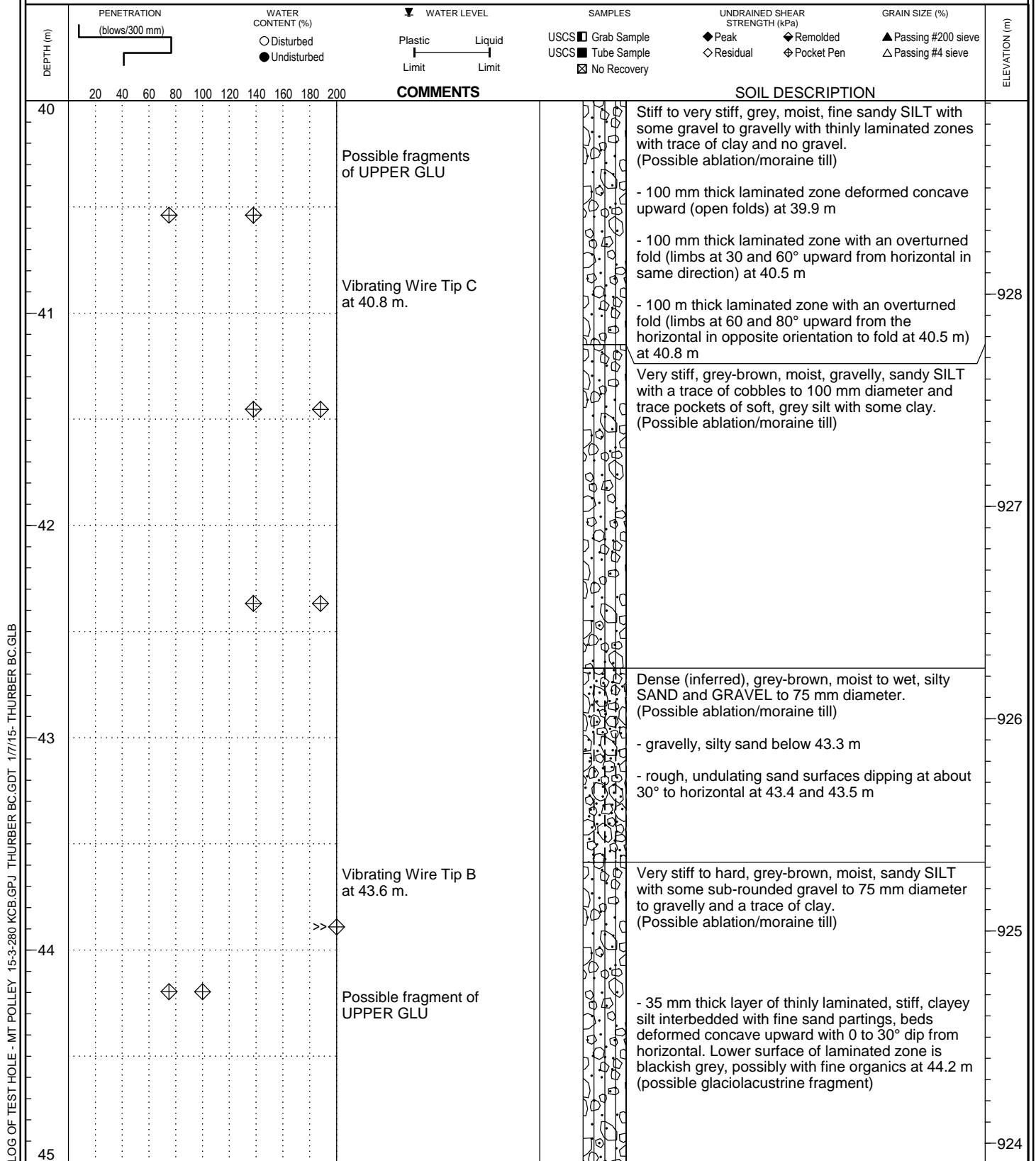


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 23 and 24, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595304, N 5819760

TOP OF HOLE ELEV: 968.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

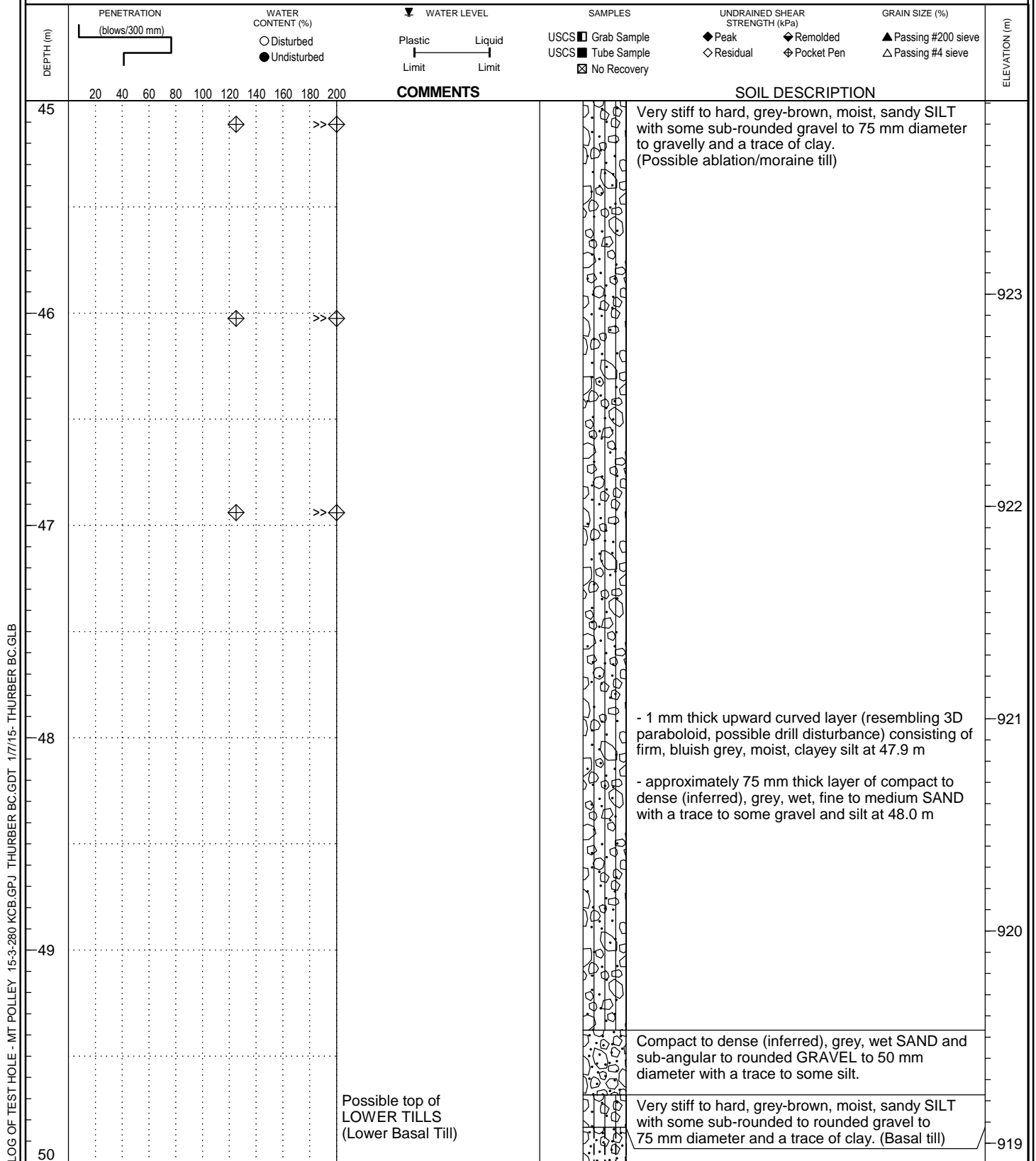


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 23 and 24, 2014

FILE NO.: 15-3-280



LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595304, N 5819760

TOP OF HOLE ELEV: 968.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 23 and 24, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%)	WATER LEVEL	SAMPLES	UNDRAINED SHEAR STRENGTH (kPa)	GRAIN SIZE (%)	ELEVATION (m)
		○ Disturbed ● Undisturbed	Plastic Limit Liquid Limit	USCS <input type="checkbox"/> Grab Sample USCS <input type="checkbox"/> Tube Sample <input checked="" type="checkbox"/> No Recovery	◆ Peak ◇ Residual	◆ Remolded ◆ Pocket Pen ▲ Passing #200 sieve △ Passing #4 sieve	
	20 40 60 80 100 120 140 160 180 200						
	SOIL DESCRIPTION						
50	Very dense (inferred), grey-brown, dry to moist, silty, fine SAND with some gravel to gravelly, a trace to some medium to coarse sand, and a trace of cobbles to 100 mm diameter. (Basal till)						
51	- approximately 75 mm thick layer of grey, wet, sand and gravel with a trace to some silt at 51.4 m						918
52							917
53							916
54							915
55							914

LOCATION: See Fig. 209
E 595304, N 5819760

TOP OF HOLE ELEV: 968.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

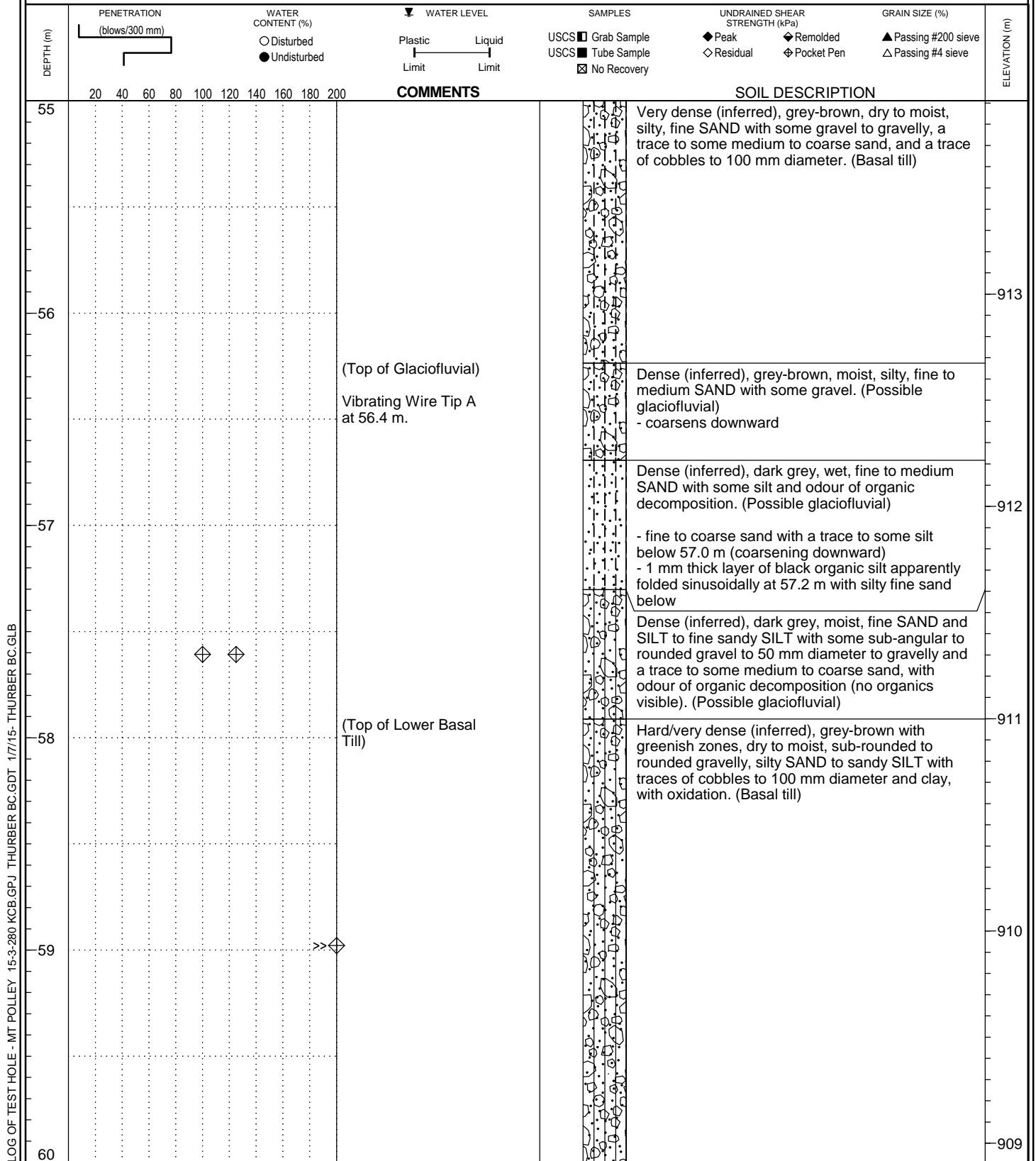


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 23 and 24, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595304, N 5819760

TOP OF HOLE ELEV: 968.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 23 and 24, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%)	WATER LEVEL	SAMPLES	UNDRAINED SHEAR STRENGTH (kPa)	GRAIN SIZE (%)	ELEVATION (m)
		○ Disturbed ● Undisturbed	Plastic Limit Liquid Limit	USCS <input type="checkbox"/> Grab Sample USCS <input type="checkbox"/> Tube Sample <input checked="" type="checkbox"/> No Recovery	◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	▲ Passing #200 sieve △ Passing #4 sieve	
	20 40 60 80 100 120 140 160 180 200						
	SOIL DESCRIPTION						
60	Very dense (inferred), grey brown with oxidation, moist to wet, SAND and GRAVEL with some silt to silty. (Basal till)						
61							908
62	- 100 mm thick layer with diffused precipitated carbonate mineral within silt matrix (likely calcite, vigorous reaction to acid) at 61.3 m						907
63	- 25 mm thick oxidized layer, reddish-orange at 62.2 m						906
	- 25 mm thick oxidized layer, reddish-orange at 62.6 m						
	- a trace to some silt from 63.1 to 63.6 m						
64	- a trace to some silt from 64.0 to 64.2 m						905
65							904

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595304, N 5819760

TOP OF HOLE ELEV: 968.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 23 and 24, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☑ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
65						Very dense (inferred), grey brown with oxidation, moist to wet, SAND and GRAVEL with some silt to silty. (Basal till) - 50 mm thick layer with trace to some silt at 65.2 m	
						- a trace to some silt below 65.7 m	
66						Hard, reddish brown/bluish grey, moist, sandy gravelly SILT. (Basal till) - gravel particles are rounded to sub-angular, to 75 mm diameter	903
67						Very dense (inferred), dark grey with reddish brown zones and streaks, dry to moist, silty, angular SAND and GRAVEL to 25 mm diameter with a trace of clay. (Possible brecciated volcanic bedrock) - gravel particles are meta-basalt like, in some zones interlocking as if brecciated cobbles - frequent irregular sub-vertical to vertical, 70° to 90°, streaks of very stiff, dark red, clayey silt (like gouge, possible infilled shears), ranging from 1 to 5 mm thick	902
68							901
69						Very dense (inferred), red mottled grey, angular SAND with some silt and traces of clay and angular gravel to 50 mm diameter. (Possible weathered igneous bedrock)	900
70							899

Top of WEAK
BEDROCK

LOCATION: See Fig. 209
E 595304, N 5819760

TOP OF HOLE ELEV: 968.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 23 and 24, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
70						Very dense (inferred), red mottled grey, angular SAND with some silt and traces of clay and angular gravel to 50 mm diameter. (Possible weathered igneous bedrock)	898
71						Very dense (inferred), grey, dry to moist, angular GRAVEL with a trace to some angular sand and silt and a trace of clay. (Possible brecciated volcanic bedrock) - gravel particles are meta-basalt like, to 25 mm diameter - generally clast supported	897
72							
73						End of test hole at KCB instruction. Test hole sounded through casing upon completion to 72.4 m. Vibrating wire piezometers installed at 56.4 m (Tip A), 43.6 m (Tip B) and 40.8 m (Tip C) and test hole fully grouted up to 22 m upon completion with bentonite chips and drill cuttings above.	896
74							895
75							894

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595118, N 5819985

TOP OF HOLE ELEV: 929.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

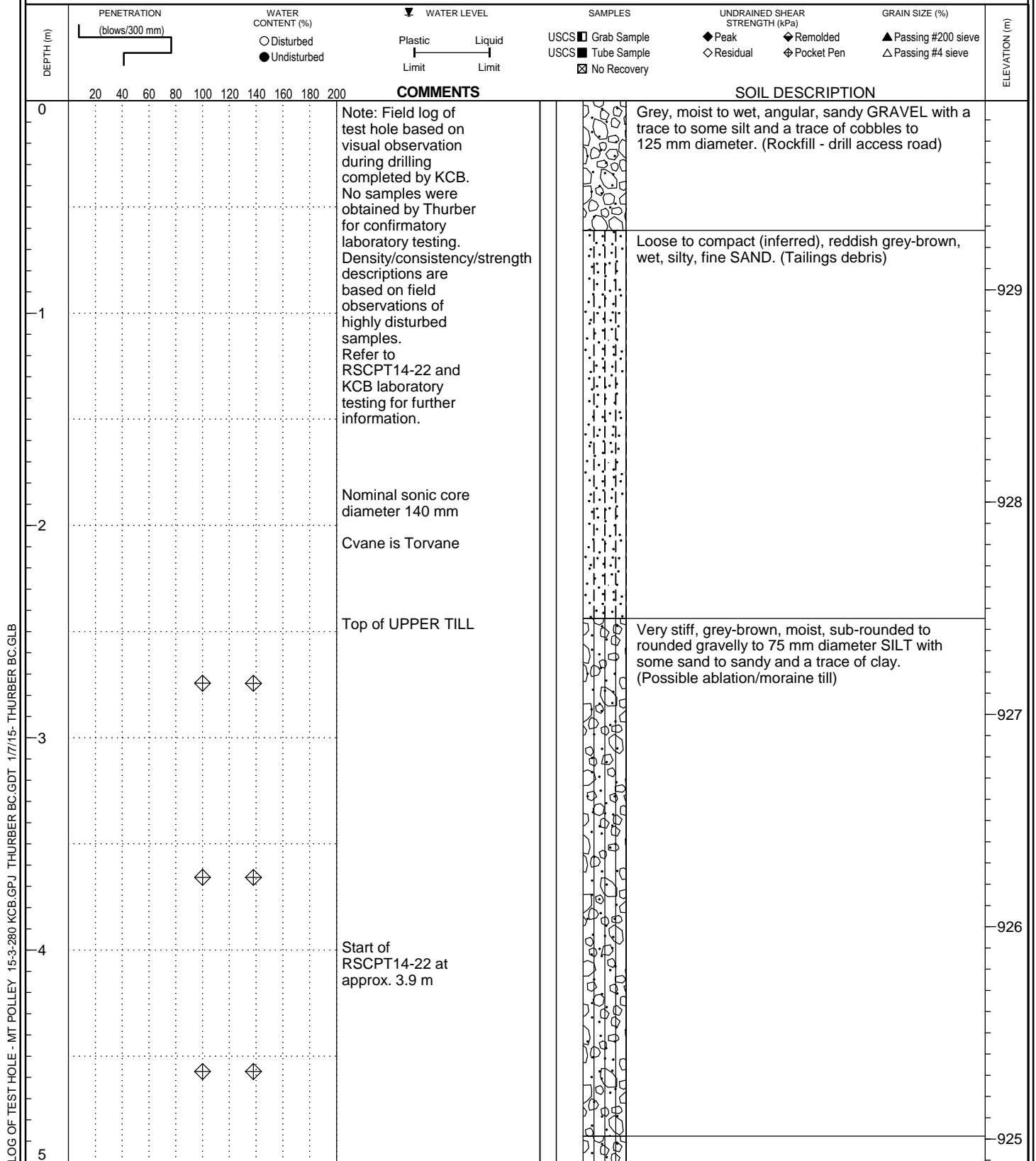


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 25, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595118, N 5819985

TOP OF HOLE ELEV: 929.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

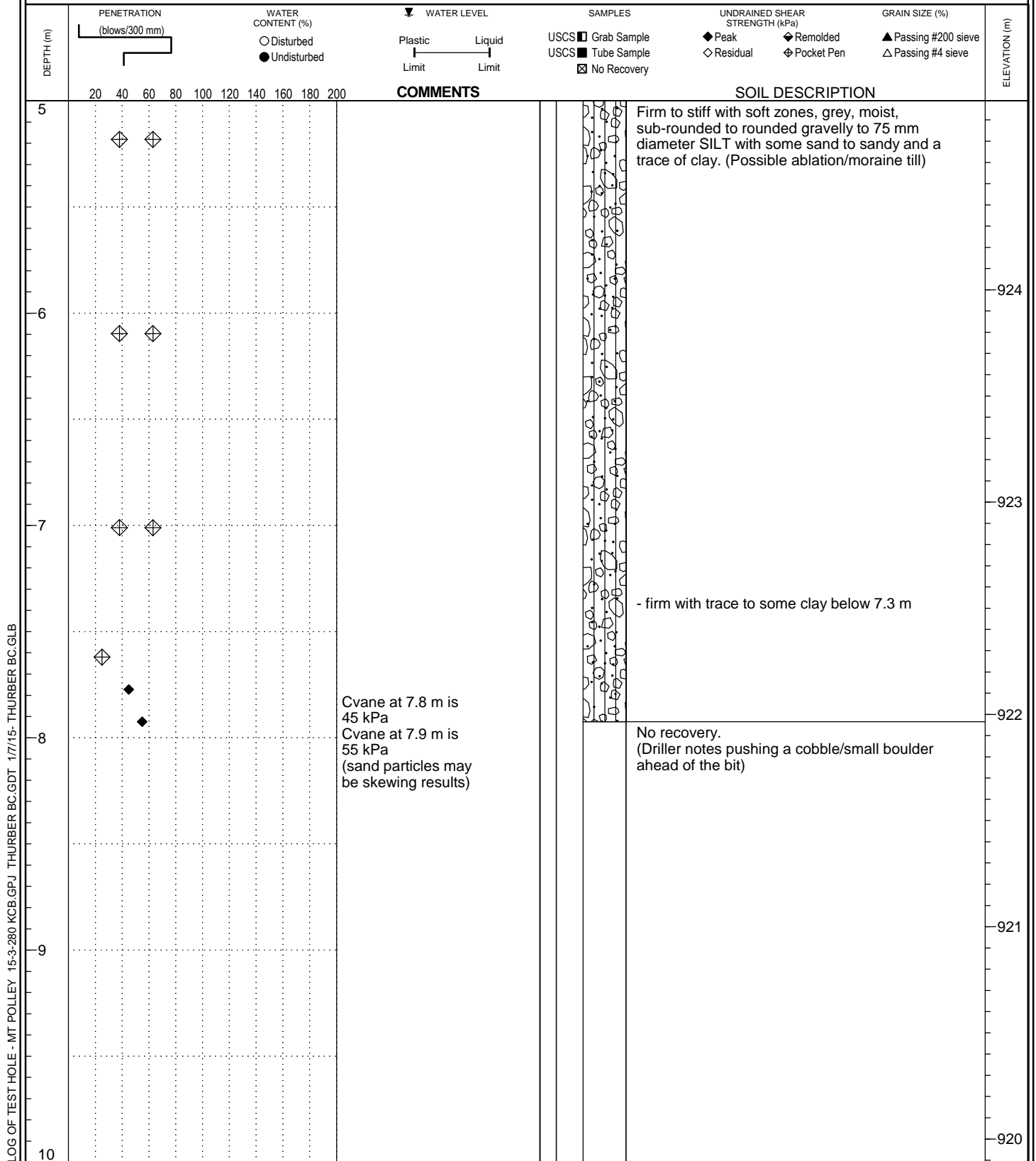


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 25, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595118, N 5819985

TOP OF HOLE ELEV: 929.9 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 25, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)	COMMENTS	SOIL DESCRIPTION
10									No recovery. (Driller notes pushing a cobble/small boulder ahead of the bit)
11									
12									
13									
14									End of hole due to poor recovery. Test hole grouted upon completion. Continued drilling at SH14-22A.
15									

LOCATION: See Fig. 209
E 595120, N 5819984

TOP OF HOLE ELEV: 930.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 25, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS ■ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
0							
1							929
2							928
3							927
4							926
5							925

Note: Field log of test hole based on visual observation during drilling completed by KCB. No samples were obtained by Thurber for confirmatory laboratory testing. Density/consistency/strength descriptions are based on field observations of highly disturbed samples. Refer to RSCPT14-22 and KCB laboratory testing for further information.

KCB instructed driller to quickly drill to 4.9 m, discarding any heavily washed/disturbed recovery. Re-drill to sample interval which was not recovered at SH14-22.

Nominal sonic core diameter 140 mm

Cvane is Torvane

Start of RSCPT14-22 at approx. 3.9 m

Drilled out. (No recovery)

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

LOCATION: See Fig. 209
E 595120, N 5819984

TOP OF HOLE ELEV: 930.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

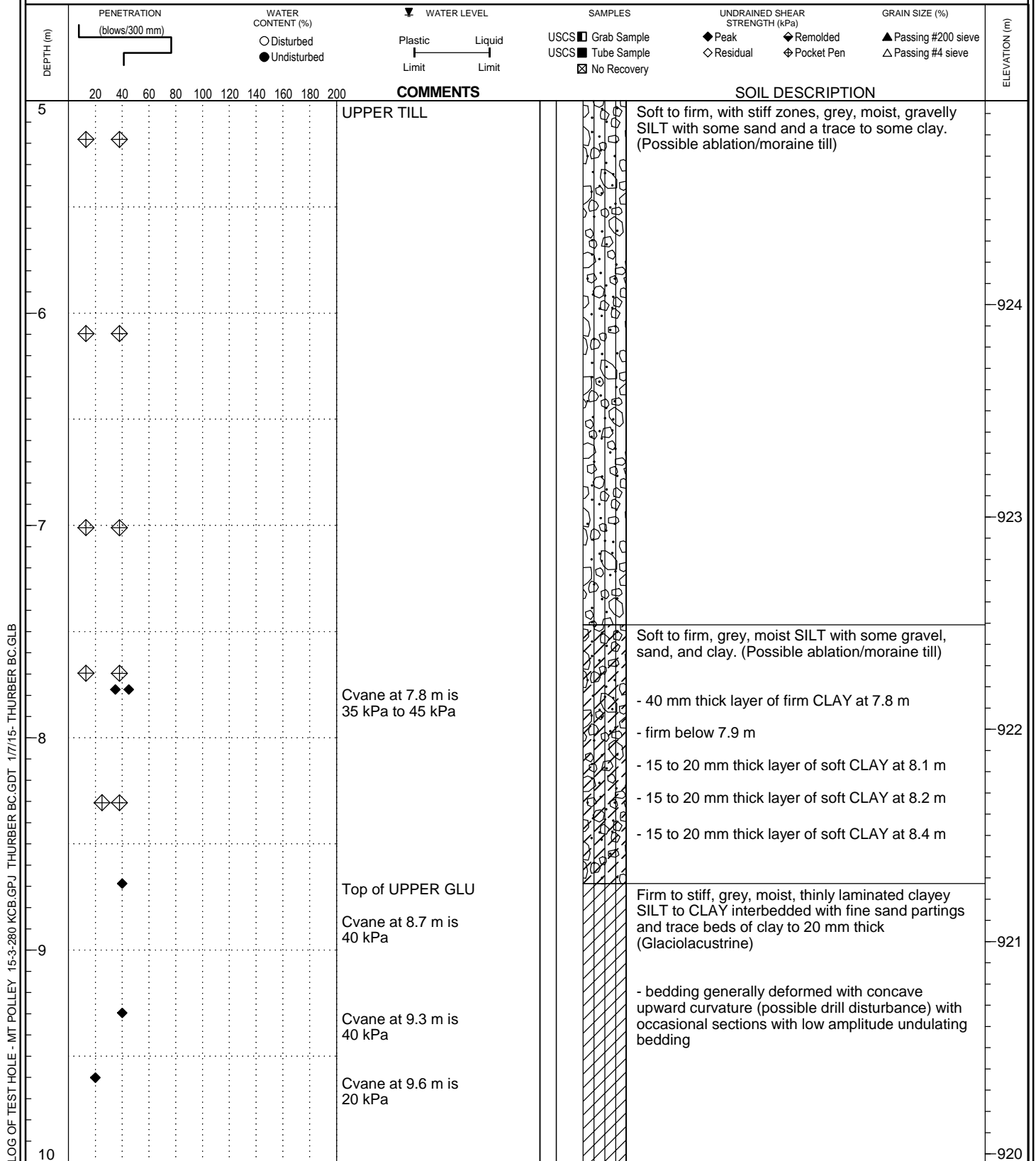


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 25, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595120, N 5819984

TOP OF HOLE ELEV: 930.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS

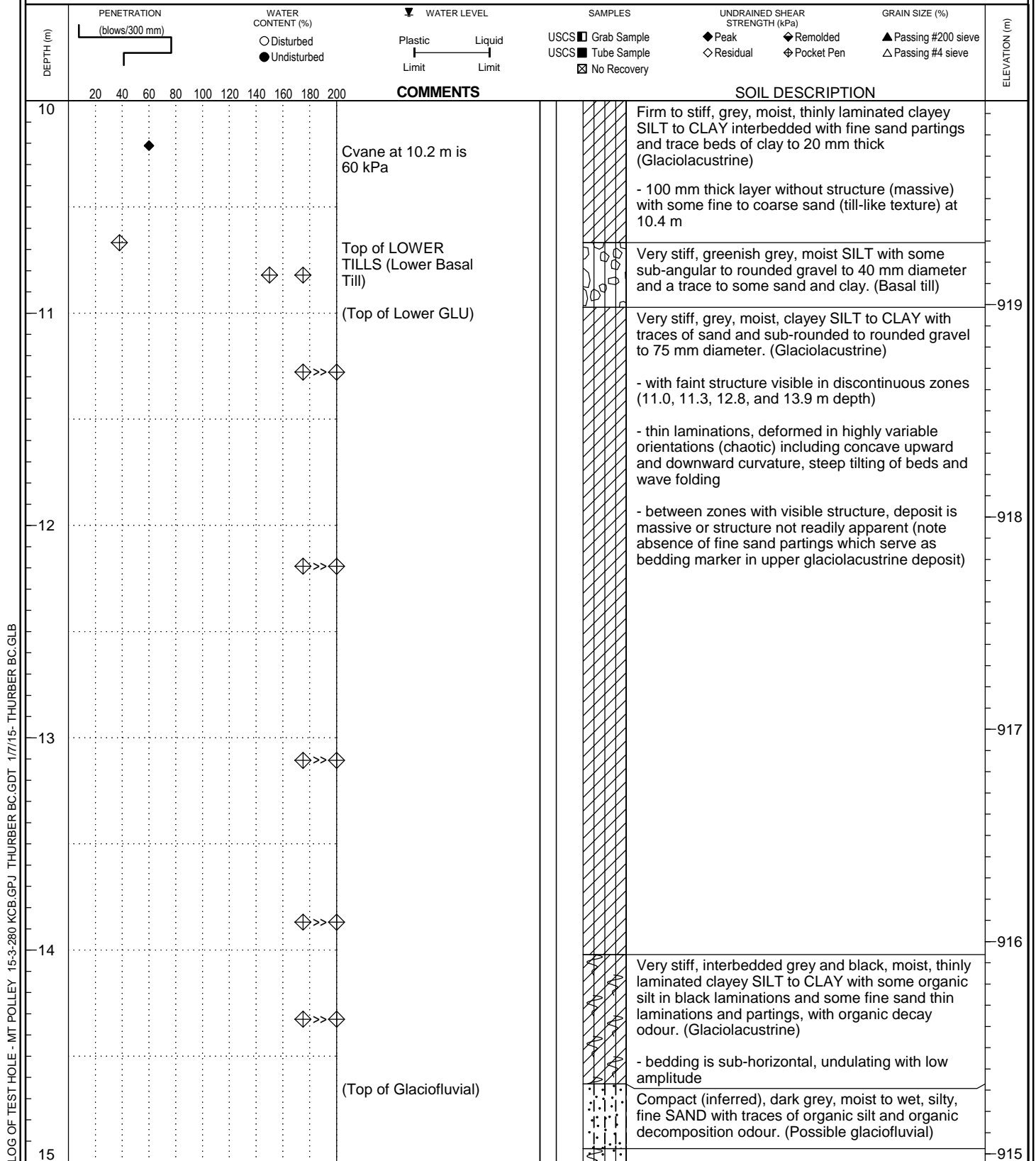


CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 25, 2014

FILE NO.: 15-3-280



LOCATION: See Fig. 209
E 595120, N 5819984

TOP OF HOLE ELEV: 930.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 25, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼	Plastic Limit	Liquid Limit	SAMPLES USCS Grab Sample USCS Tube Sample ☑ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◇ Residual ◆ Remolded ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
COMMENTS						SOIL DESCRIPTION			
15									
							- bedding is deformed with overall curvature concave downward (possible drill disturbance) and also undulating		
16									914
17						Sample fell out of core barrel during retrieval from 16.8 to 17.4 m. Recovered during next run with significant disturbance.			
									913
18									912
						Refusal of RSCPT14-22 at approx. 18.4 m			
19						Top of WEAK BEDROCK			911
20									910

Sample fell out of core barrel during retrieval from 16.8 to 17.4 m. Recovered during next run with significant disturbance.

Refusal of RSCPT14-22 at approx. 18.4 m

Top of WEAK BEDROCK

LOCATION: See Fig. 209
E 595120, N 5819984

TOP OF HOLE ELEV: 930.0 m

METHOD: Sonic

DRILLING CO.: Mud Bay Drilling Ltd.

INSPECTOR: CHS



CLIENT: Mount Polley Independent Expert
Engineering Investigation and
Review Panel

PROJECT: Mount Polley Tailings Dam Breach

DATE: October 25, 2014

FILE NO.: 15-3-280

DEPTH (m)	PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES USCS □ Grab Sample USCS ■ Tube Sample ☒ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◆ Remolded ◇ Residual ◇ Pocket Pen	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	ELEVATION (m)
20							909
21							908
22							907
23							906
24							905
25							

LOG OF TEST HOLE - MT POLLEY 15-3-280 KCB.GPJ THURBER BC.GDT 17/15- THURBER BC.GLB

Drill is rattling, as with weak rock

Hard/very dense, dark grey, dry to moist, silty angular SAND to SAND and SILT with a trace to some fine gravel. (Possible brecciated volcanic bedrock)

- angular gravelly SAND with some silt and a trace of clay, clast supported with interlocking angular particles (possible un-brecciated zone) from 20.4 m to 22.6 m

End of test hole at KCB instruction.
Test hole grouted to surface upon completion.