

Appendix B – 2019 Rock Logs

DEFINITIONS:

TCR: Total Core Recovery
SCR: Solid Core Recovery
RQD: Rock Quality Designation
FF/m: Fracture Frequency per metre
JCR: Joint Condition Rating
RMR: Rock Mass Rating

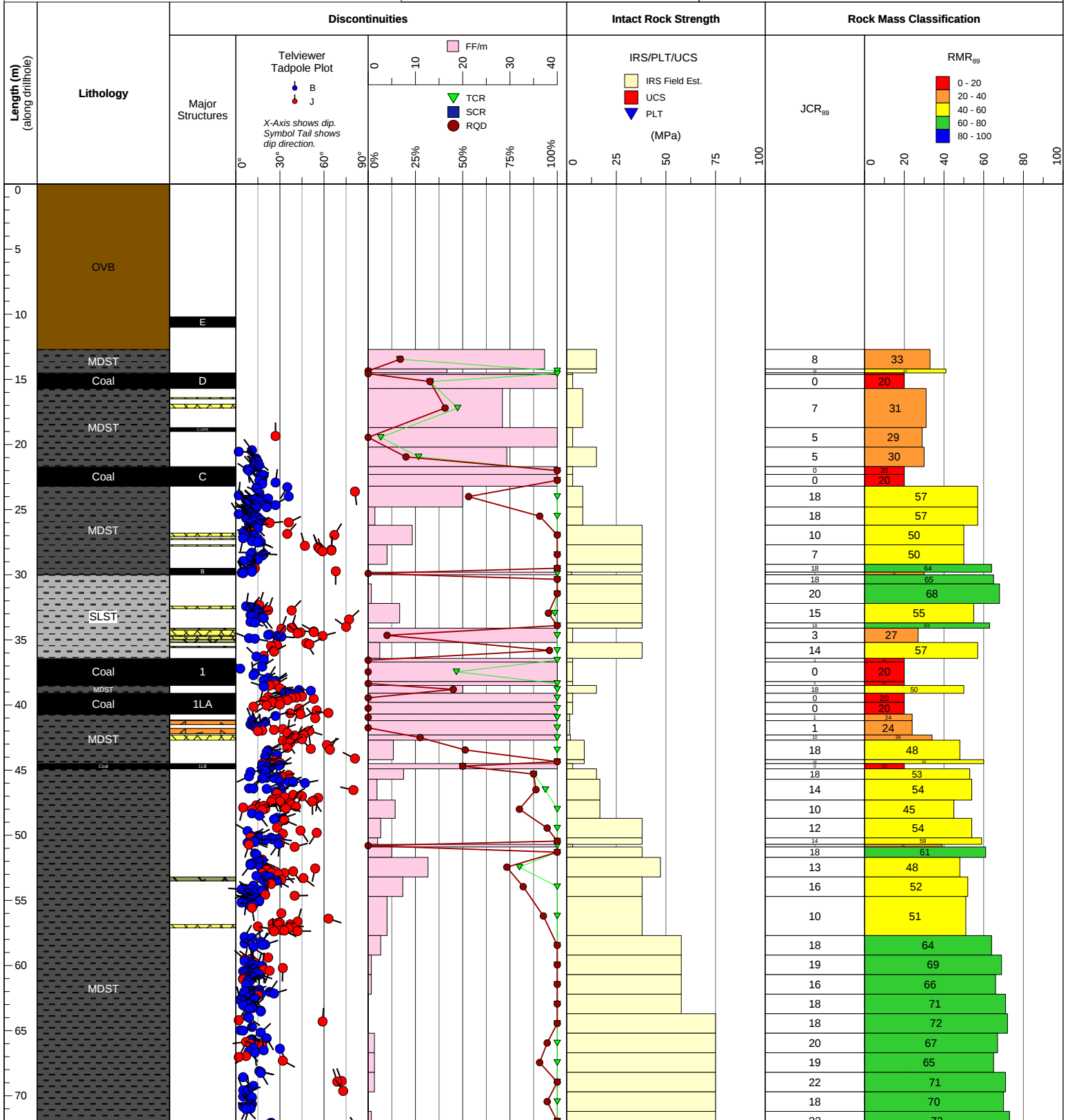
IRS: Intact Rock Strength
PLT: Point Load Test
UCS: Uniaxial Compressive Strength

MAJOR STRUCTURES LEGEND:

A - Solid or healed structure.
B - Fragmented core, fractures can be counted.
C - Fragmented core, irregular pieces, no fines.
D - Contains a mix of clay/fines with core pieces.
E - Contains mostly clay/fines or finely ground rock.
Coal

NOTES:

Lithology logs provided by Telkwa Coal.



PROJECT: Tenas Coal Project
CLIENT: Telkwa Coal Ltd.

DRILLHOLE ID: 18-01D
LOCATION: Telkwa, BC
PROJECT NO: 2CT025.006
DRILL TYPE: Diamond
CORE DIA: PQ
CONTRACTOR: Driftwood
LOGGED BY: EC

DRILLING COMPLETION DATE: 1/30/18
COORDINATES: 617841.0 m E 6050689.0 m N
DATUM: UTM NAD83, Zone 9 North
Elevation (masl): 958.0
AZIMUTH: 0° **DIP:** -90°
TOTAL LENGTH (m): 78.7
WATER LEVEL EL (masl): N/A

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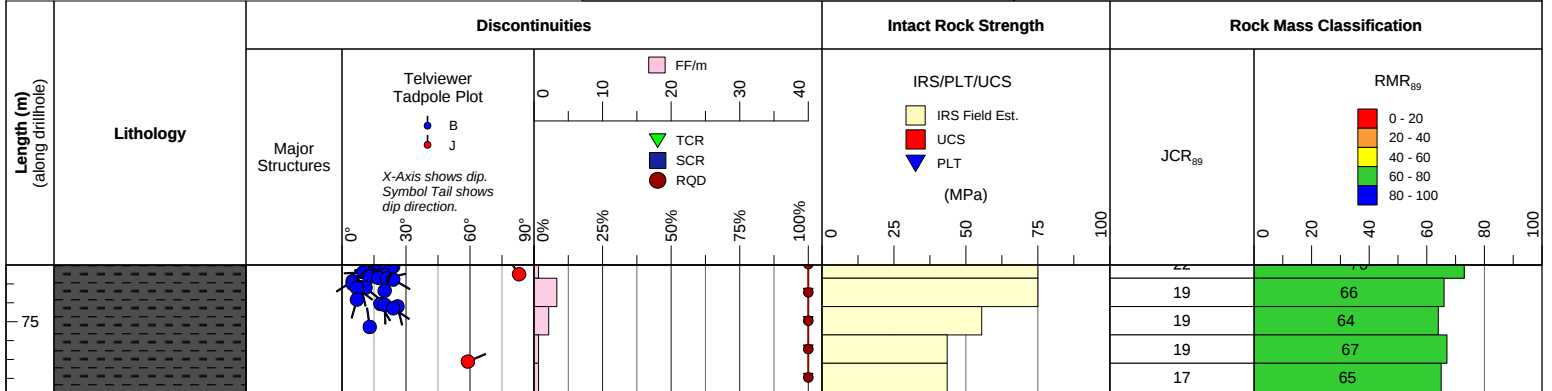
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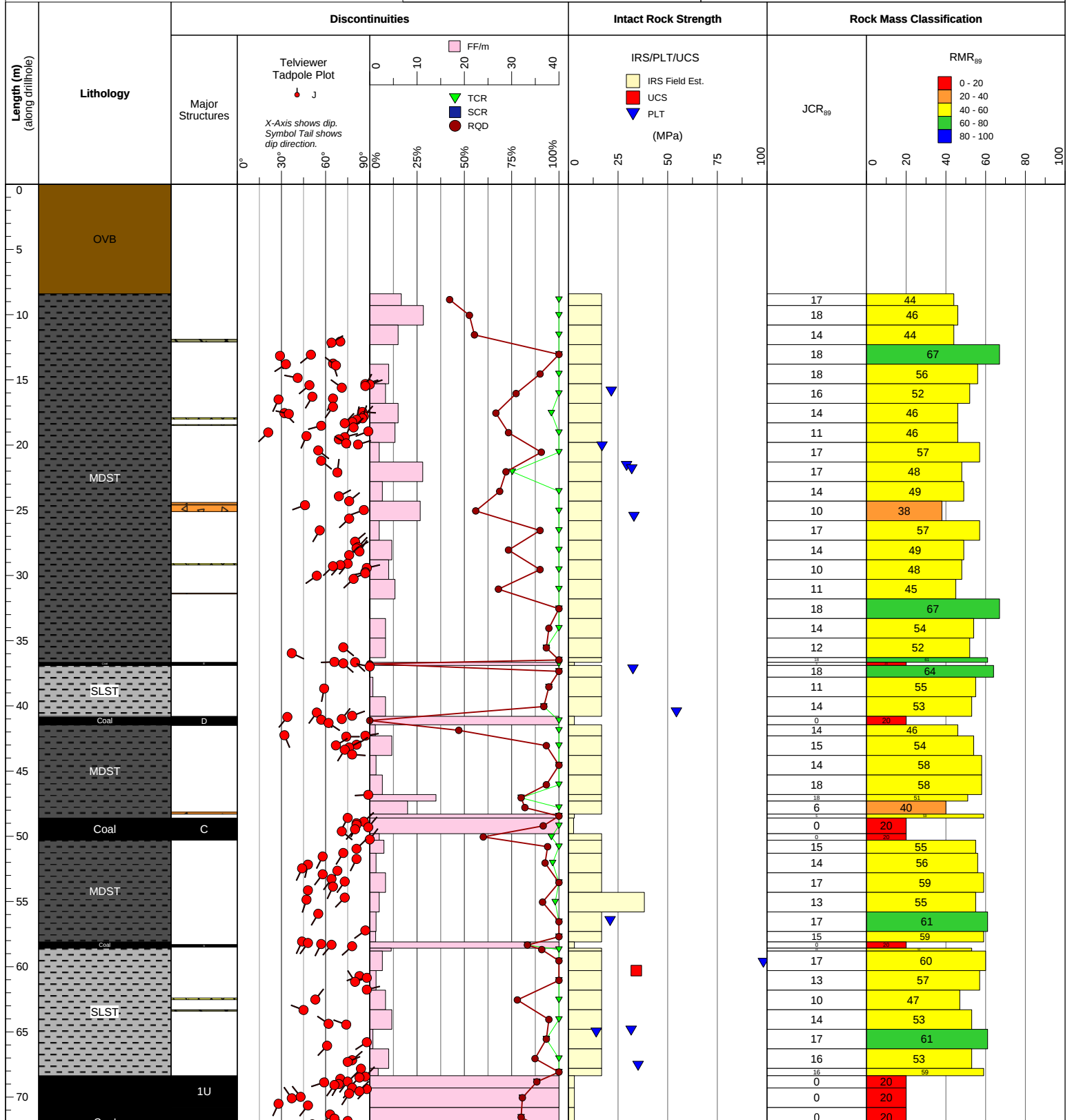
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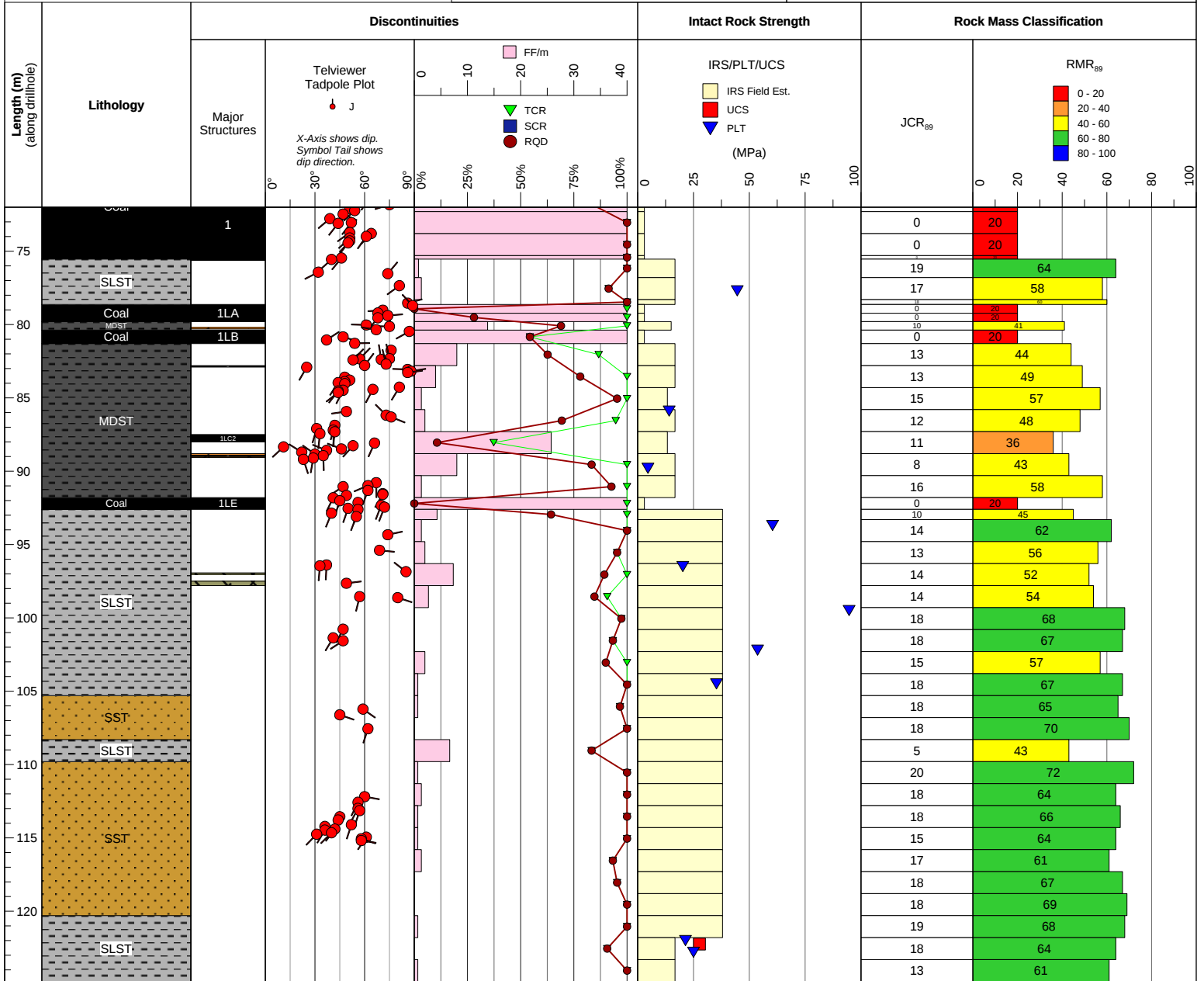
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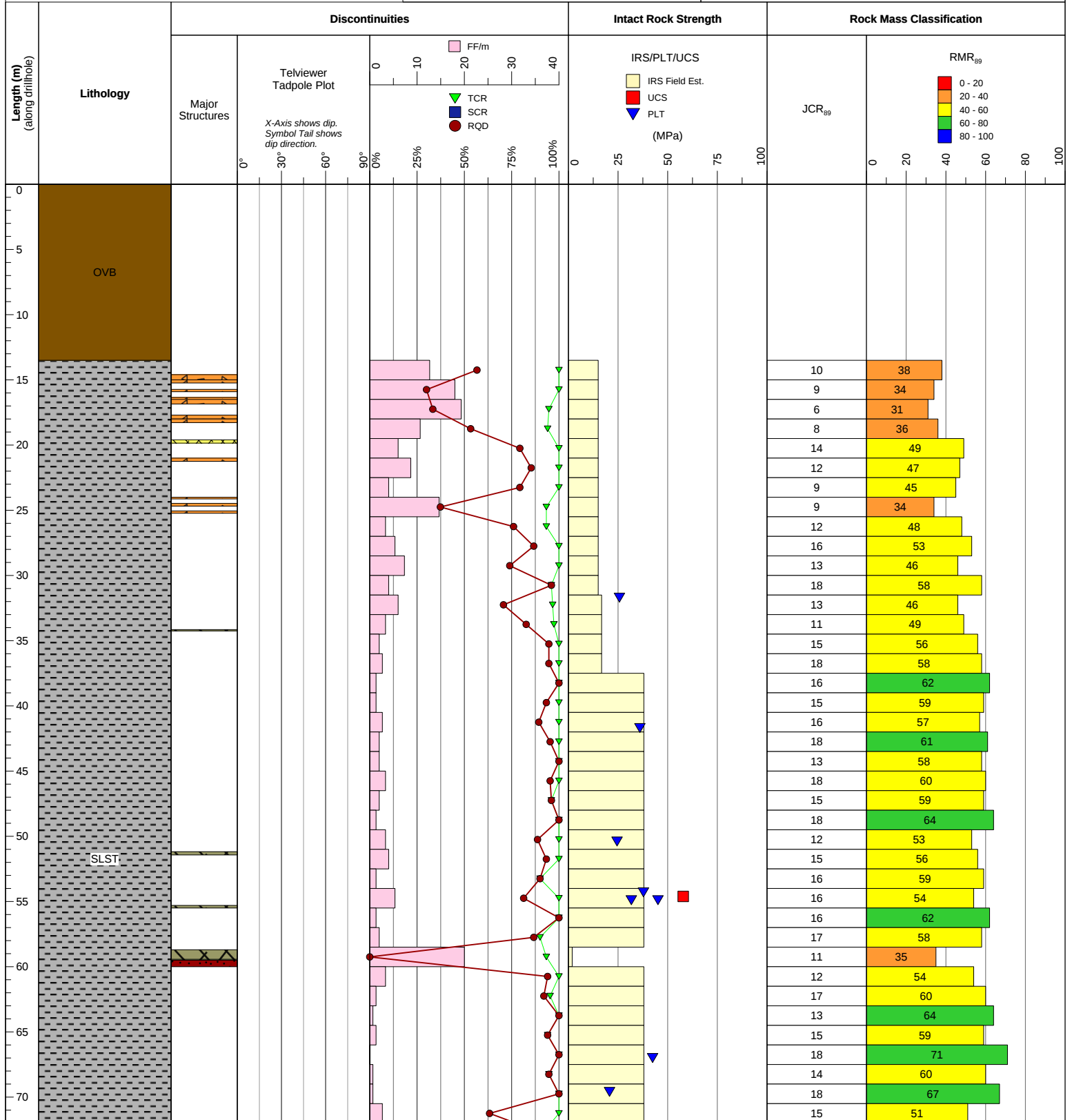
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PROJECT: Tenas Coal Project

CLIENT: Telkwa Coal Ltd.

DRILLHOLE ID: 18-05D

LOCATION: Telkwa, BC

PROJECT NO: 2CT025.006

DRILL TYPE: Diamond

CORE DIA: PQ

CONTRACTOR: Driftwood

LOGGED BY: EC

DRILLING COMPLETION DATE: 2/11/18

COORDINATES: 617988.0 m E 6051733.0 m N

DATUM: UTM NAD83, Zone 9 North

Elevation (masl): 893.0

AZIMUTH: 64° DIP: -70°

TOTAL LENGTH (m): 180.0

WATER LEVEL EL (masl): N/A

DEFINITIONS:

TCR: Total Core Recovery

SCR: Solid Core Recovery
BOD: Back-Of-Design

RQD: Rock Quality Designation
FF/m: Fracture Frequency per m

FF/m: Fracture Frequency per metre
JCB: Joint Condition Rating

RMR: Rock Mass Rating

IRS: Intact Rock Strength

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 UCS: Uniaxial Compressive

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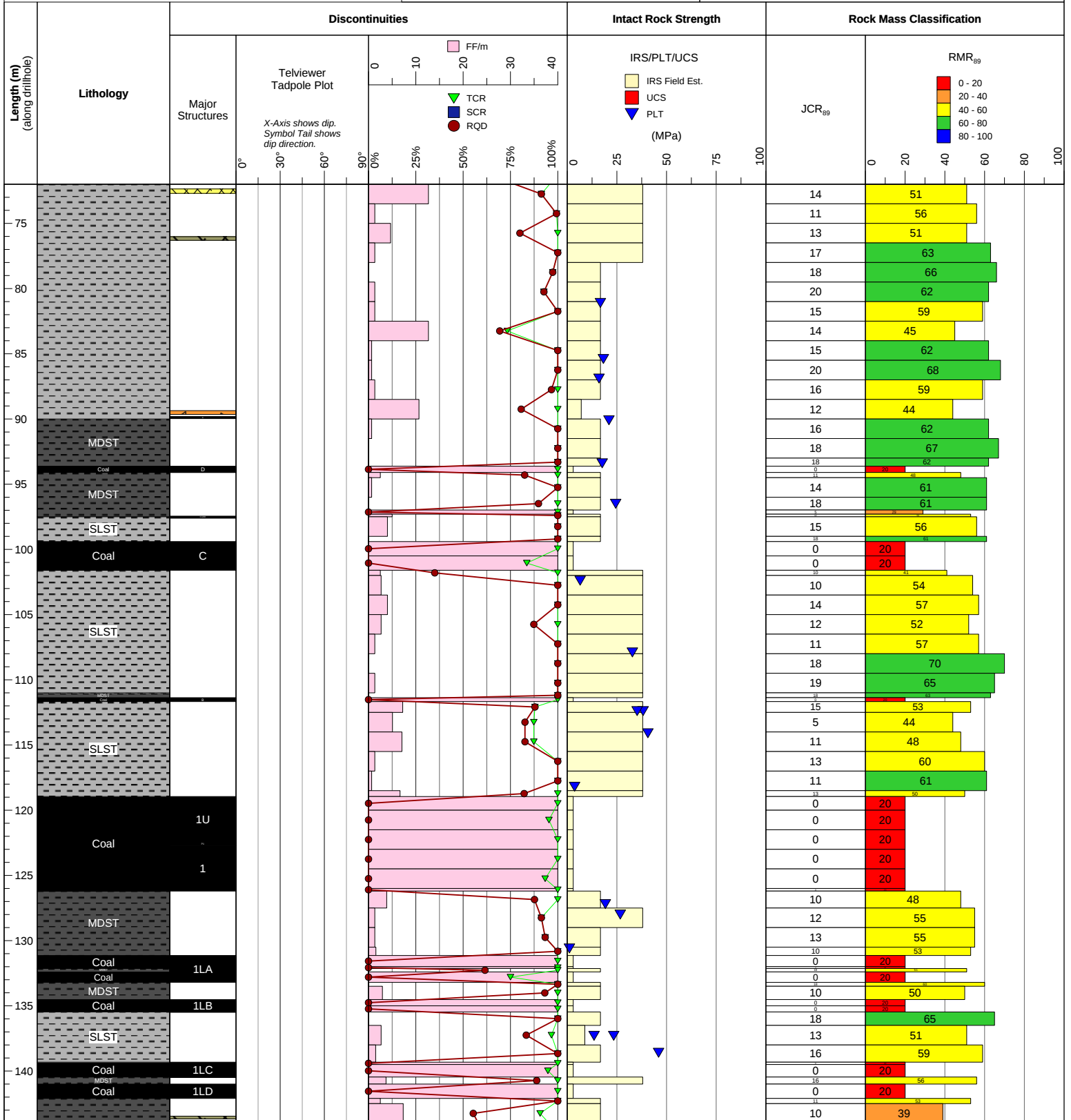
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PROJECT: Tenas Coal Project
CLIENT: Telkwa Coal Ltd.

DRILLHOLE ID: 18-05D
LOCATION: Telkwa, BC
PROJECT NO: 2CT025.006
DRILL TYPE: Diamond
CORE DIA: PQ
CONTRACTOR: Driftwood
LOGGED BY: EC

DRILLING COMPLETION DATE: 2/11/18
COORDINATES: 617988.0 m E 6051733.0 m N
DATUM: UTM NAD83, Zone 9 North
Elevation (masl): 893.0
AZIMUTH: 64° **DIP:** -70°
TOTAL LENGTH (m): 180.0
WATER LEVEL EL (masl): N/A

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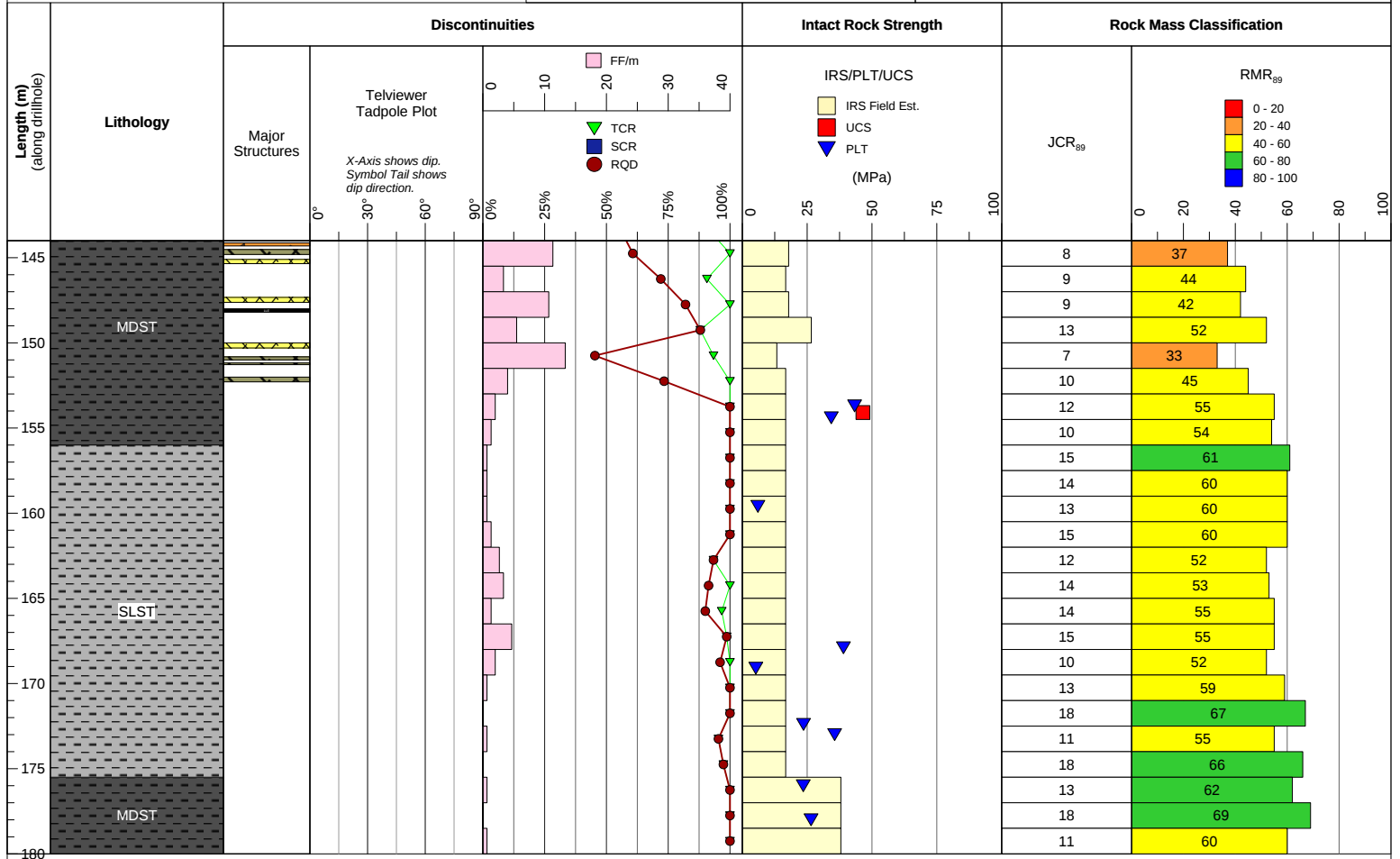
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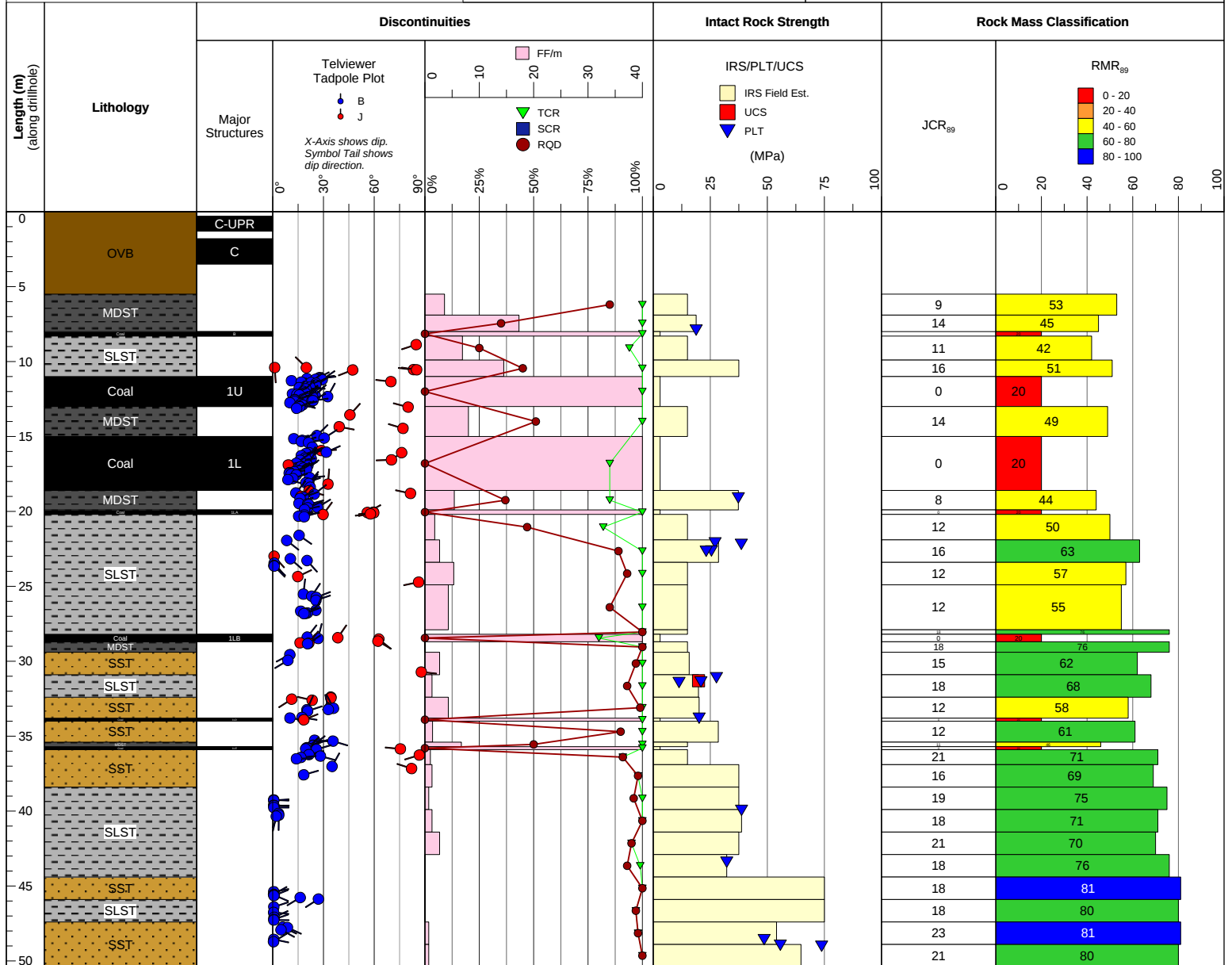
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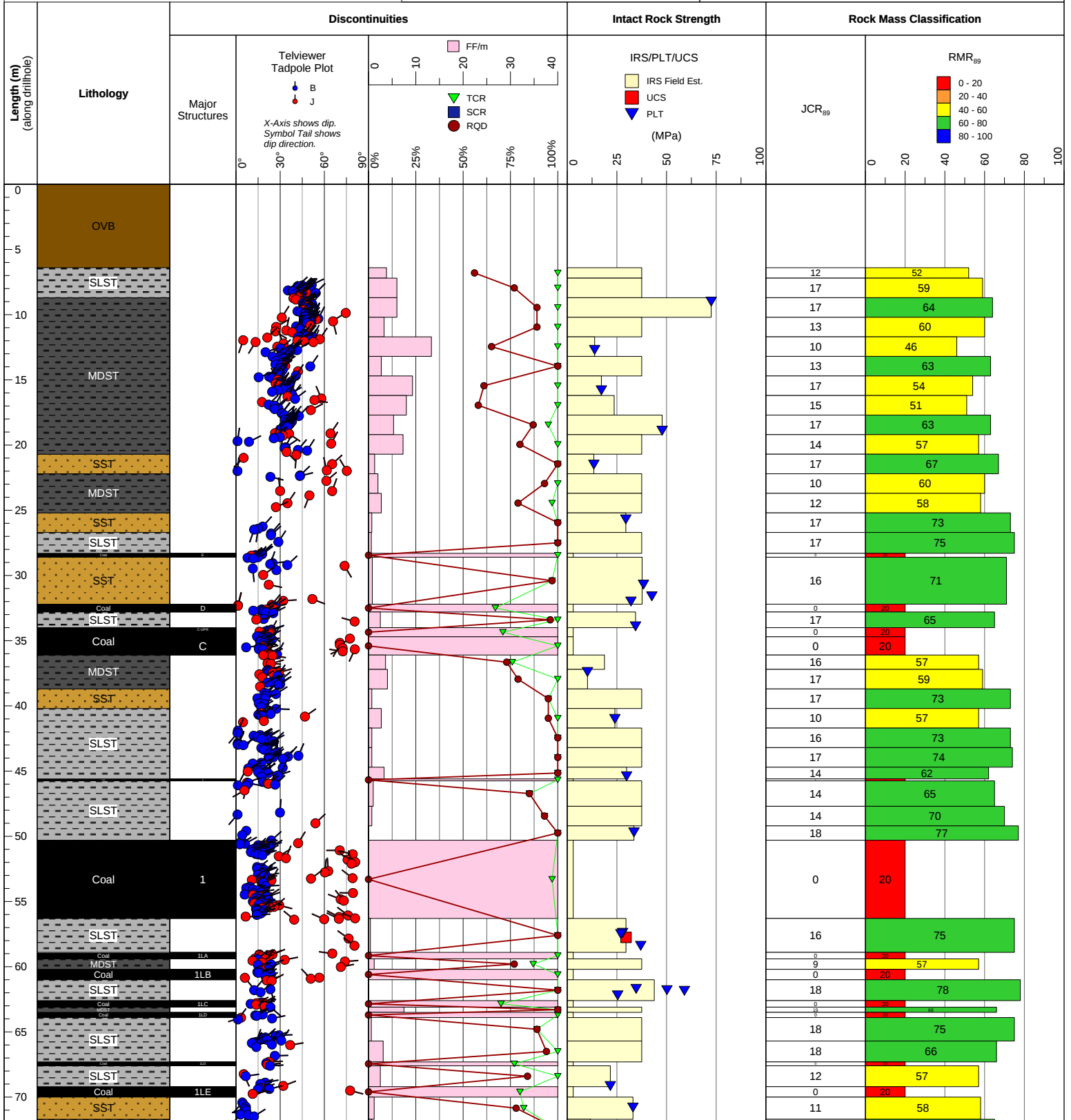
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PROJECT: Tenas Coal Project
CLIENT: Telkwa Coal Ltd.

DRILLHOLE ID: 19-16D
LOCATION: Telkwa, BC
PROJECT NO: 2CT025.006
DRILL TYPE: Diamond
CORE DIA: PQ
CONTRACTOR: Driftwood
LOGGED BY: EC

DRILLING COMPLETION DATE: 2/24/19
COORDINATES: 618128.0 m E 6050374.9 m N
DATUM: UTM NAD83, Zone 9 North
Elevation (masl): 973.0
AZIMUTH: 0° **DIP:** -90°
TOTAL LENGTH (m): 73.2
WATER LEVEL EL (masl): N/A

DEFINITIONS:

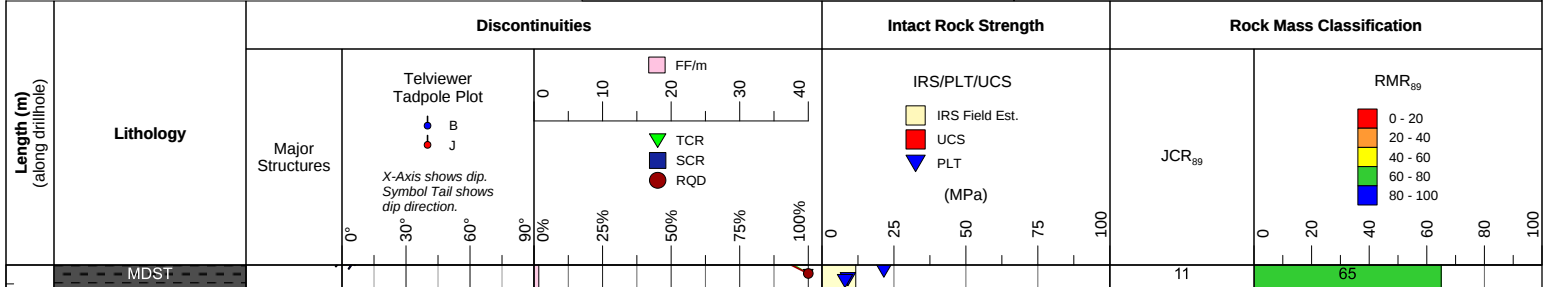
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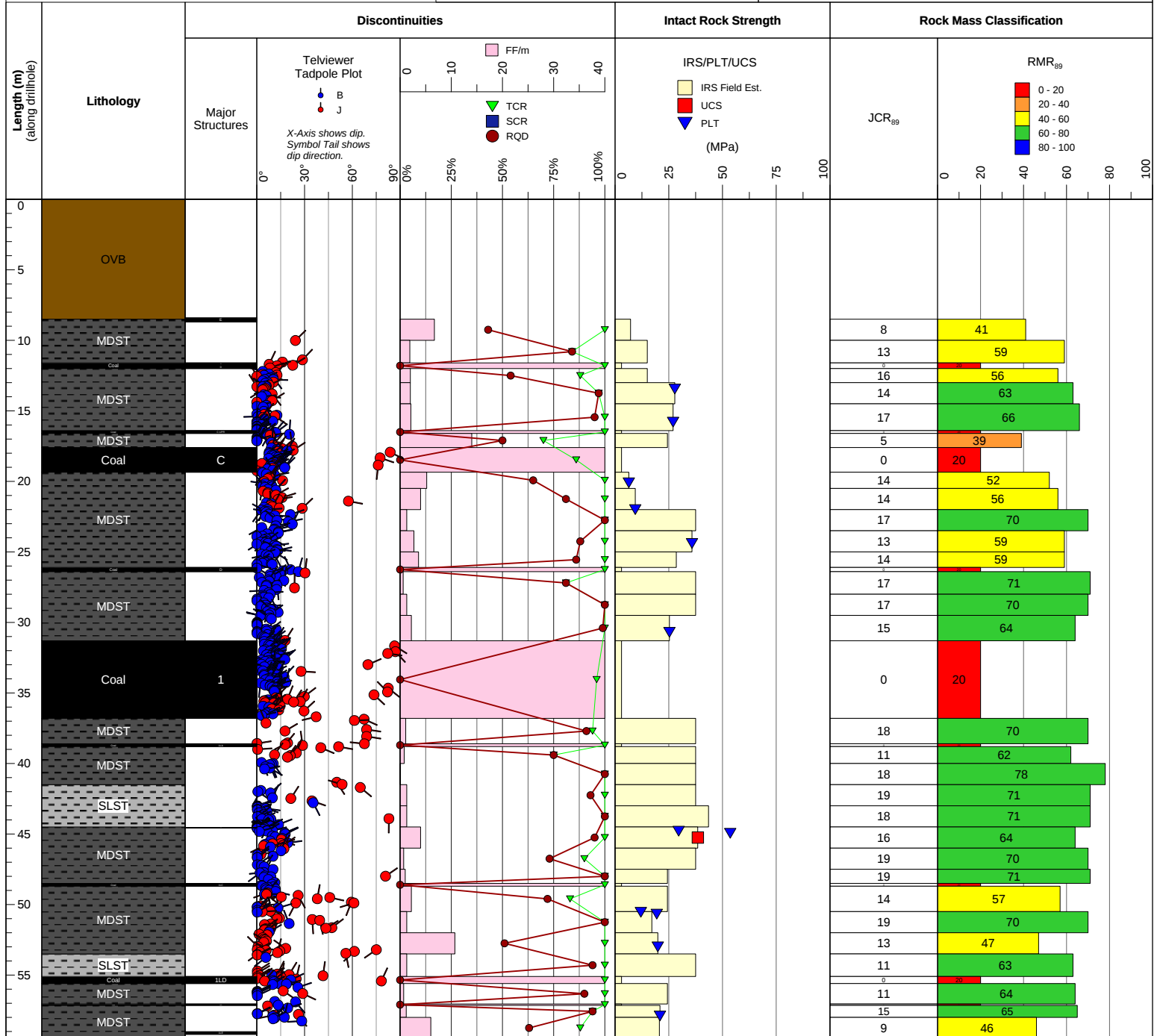
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CLIENT: Telkwa Coal Ltd.

DRILLHOLE ID: 19-18D
LOCATION: Telkwa, BC
PROJECT NO: 2CT025.006
DRILL TYPE: Diamond
CORE DIA: PQ
CONTRACTOR: Driftwood
LOGGED BY: EC

DRILLING COMPLETION DATE: 2/27/19
COORDINATES: 617292.9 m E 6050679.3 m N
DATUM: UTM NAD83, Zone 9 North
Elevation (masl): 997.3
AZIMUTH: 0° **DIP:** -90°
TOTAL LENGTH (m): 35.5
WATER LEVEL EL (masl): N/A

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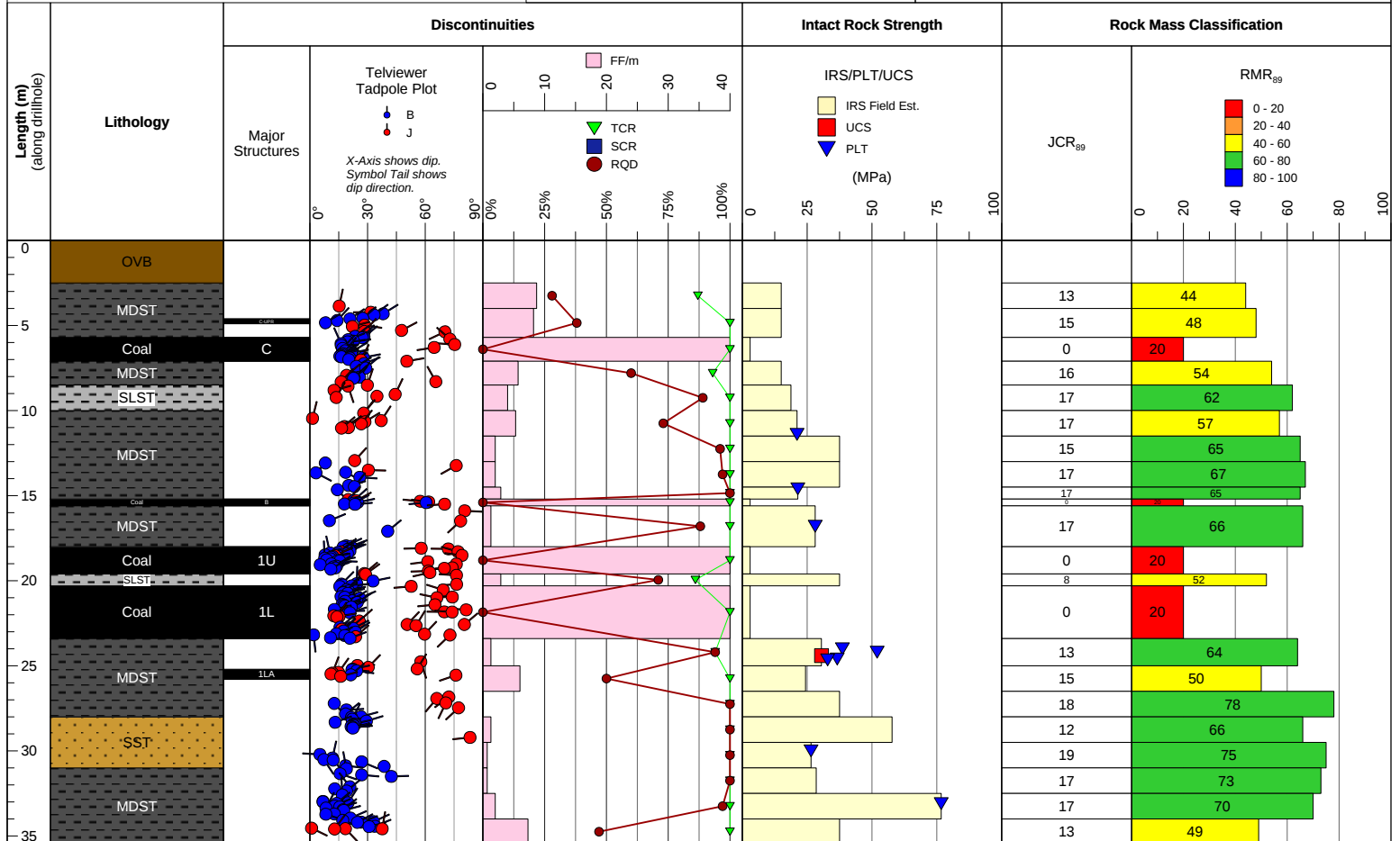
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Appendix C – 2019 Acoustic Televiewer Plots and Logs

MAIN LOG 1:20 ATV

MATRIX DENSITY : 2.85
 MAGNETIC DECL. : 18.20
 PRESENTATION : 9804AM.0 - 03/29/2018

LOG PARAMETERS

NEUTRON MATRIX : SANDSTONE
 ELECT. CUTOFF : 75000
 MATRIX DELTA T : 17
 BIT SIZE : 127
 DISPLAY7_JL50

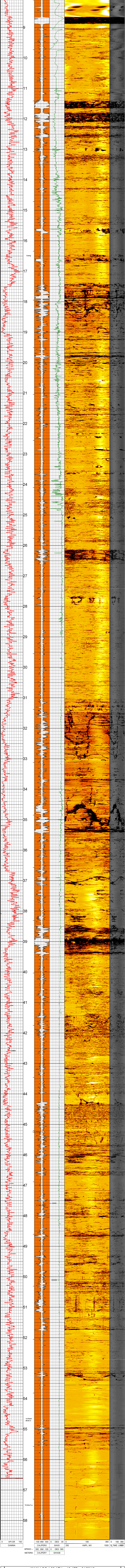
METERS

SPEED --

Caliper logs showing CALIPERX and CALIPRY scales from -100 to 300 mm. The curves are orange and blue lines respectively, showing borehole diameter variations.

SANGB and SANG log plots showing DEG scales from 0 to 360. The curves are green and blue lines respectively, showing borehole deviation angles.

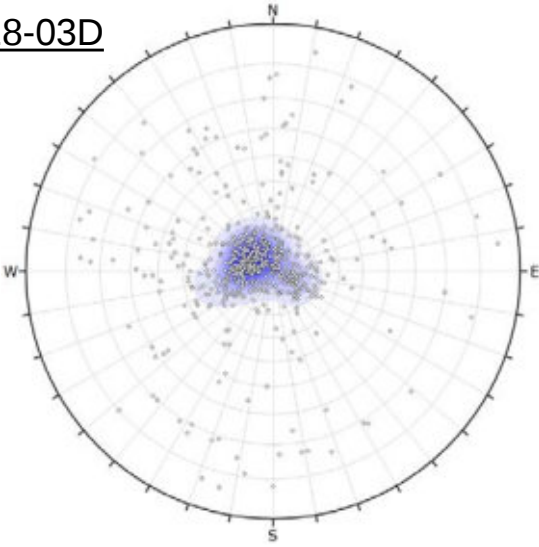
AMPL. MV



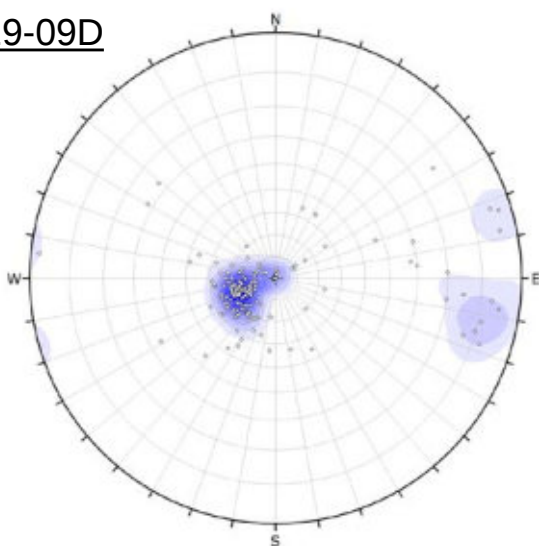
TENAS STRUCTURAL GEOLOGY

DISCONTINUITY ANALYSES

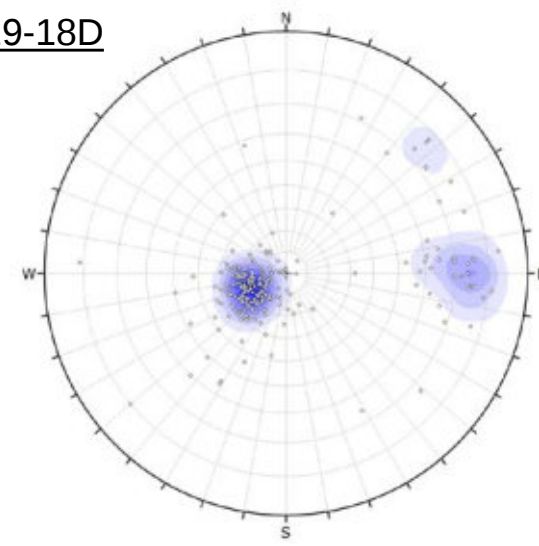
18-03D



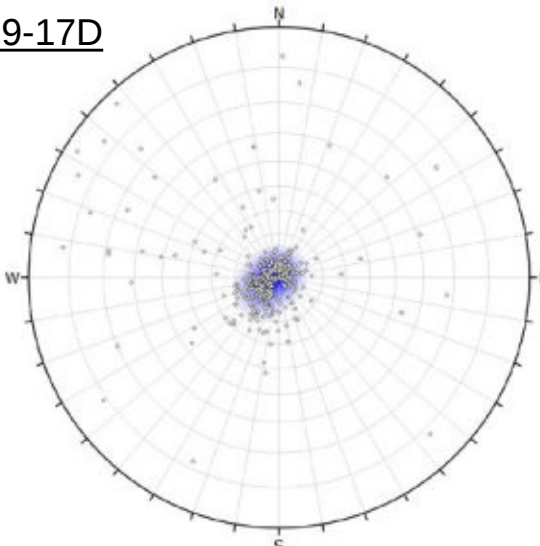
19-09D



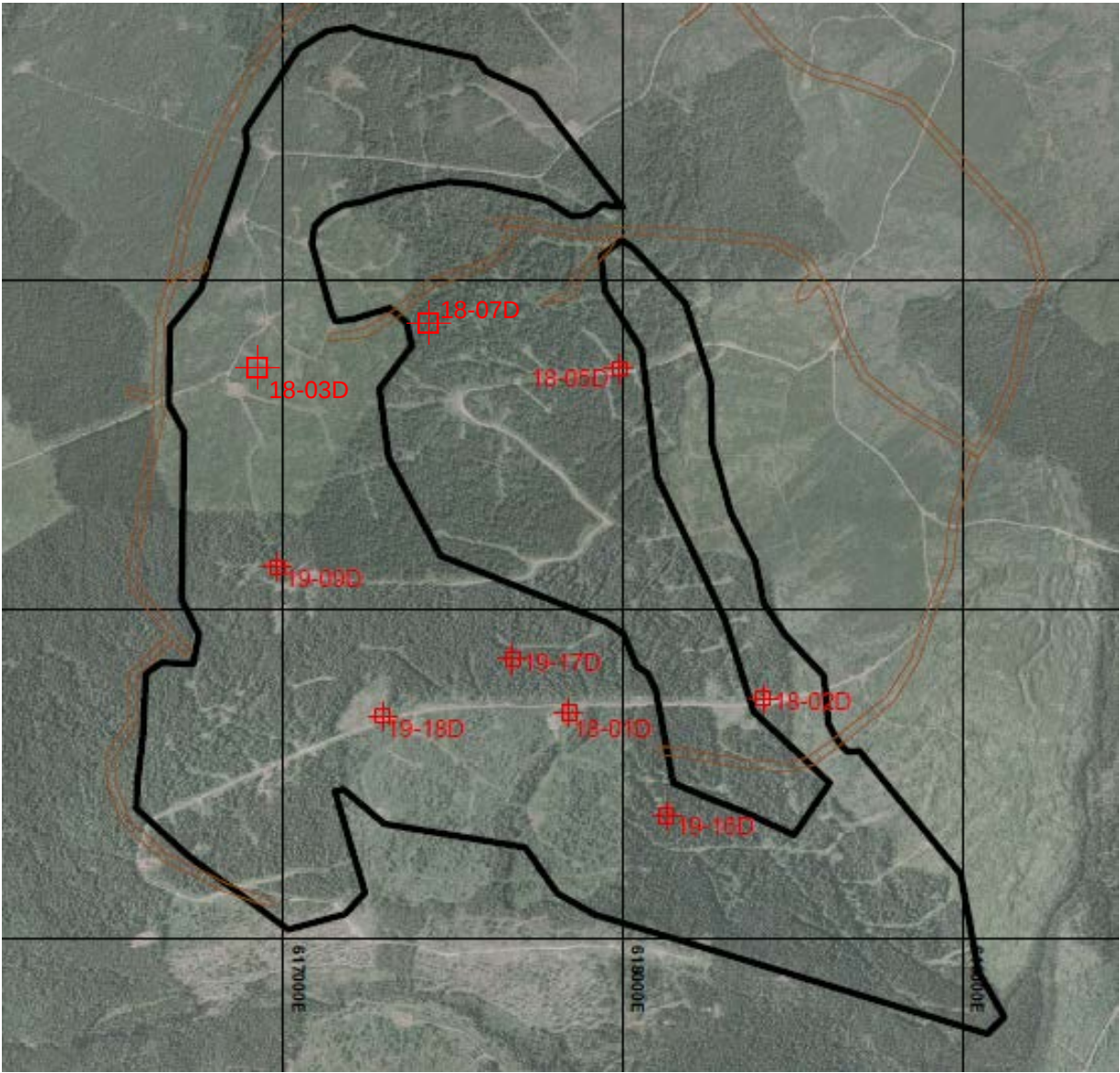
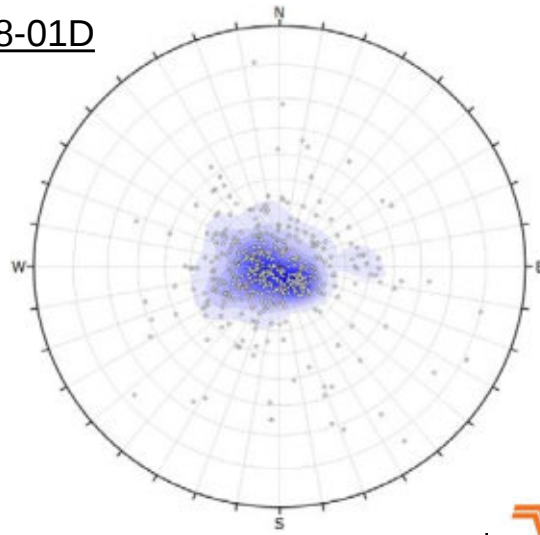
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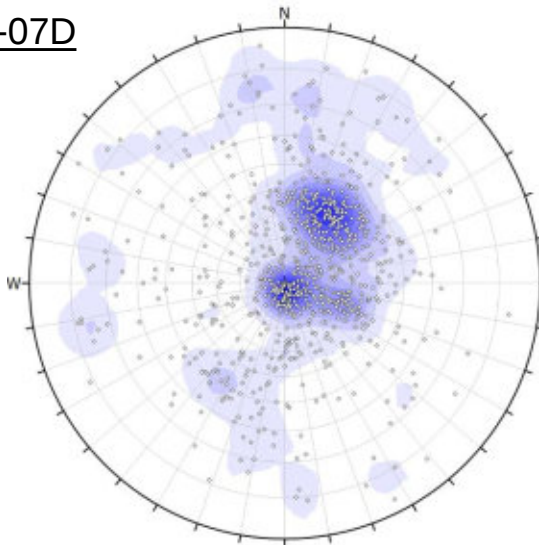
19-17D



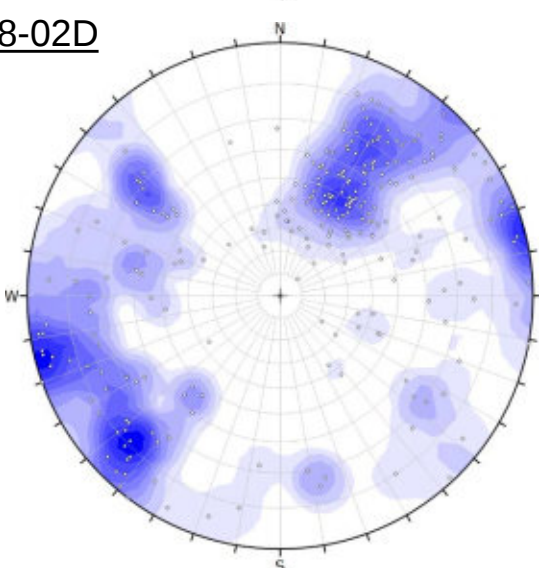
18-01D



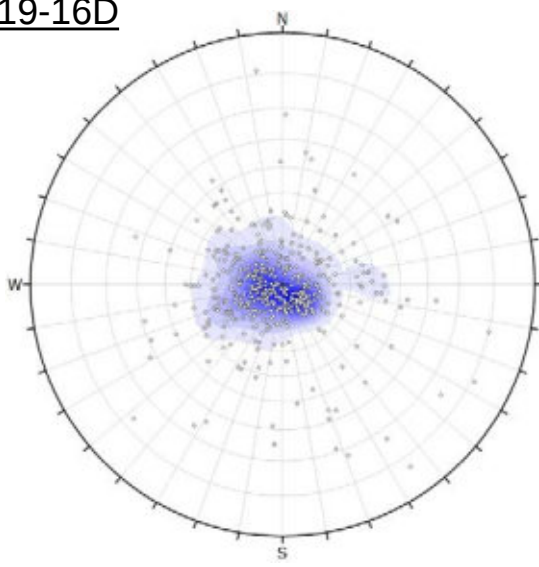
18-07D



18-02D



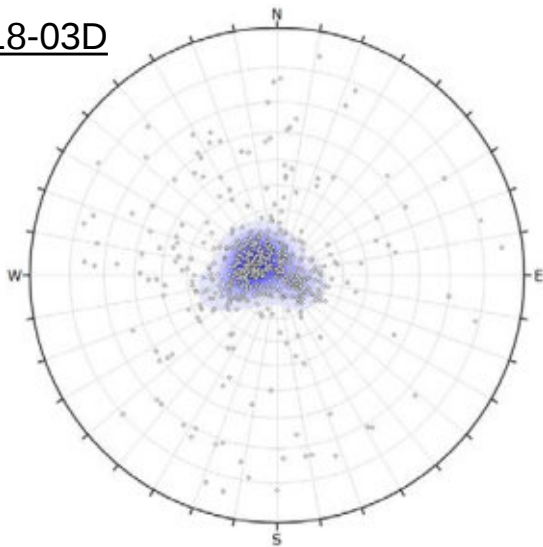
19-16D



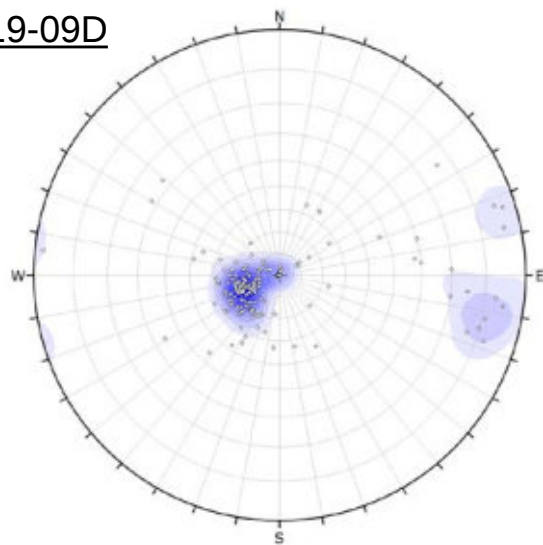
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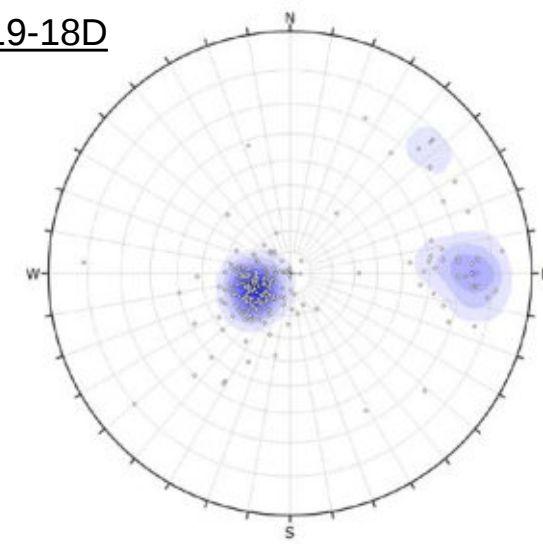
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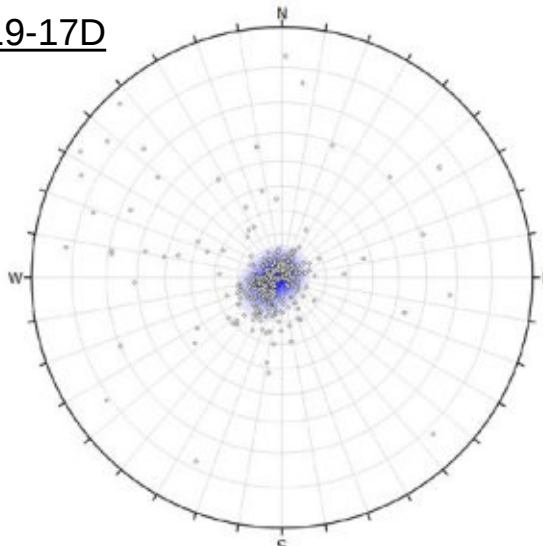
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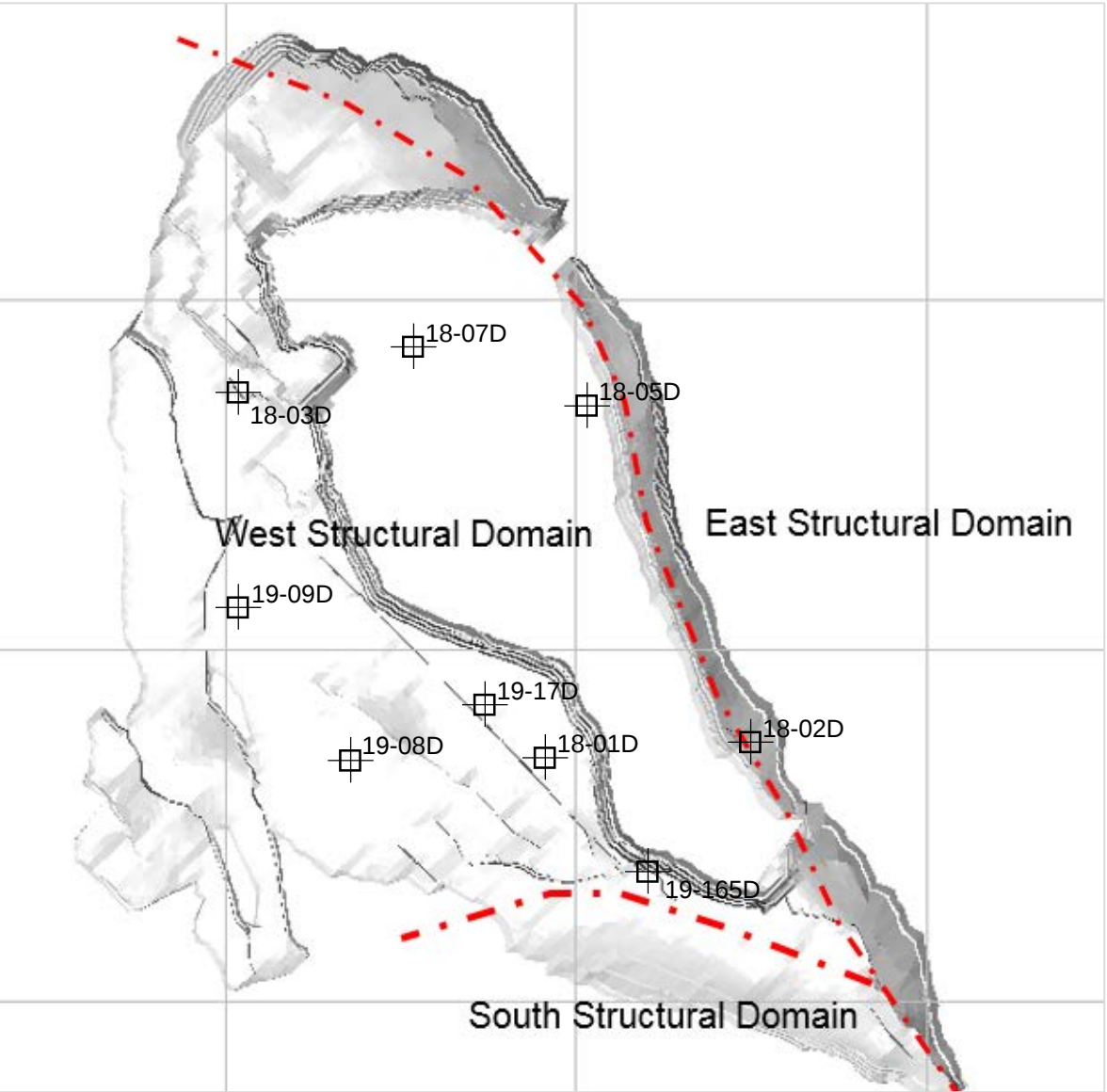
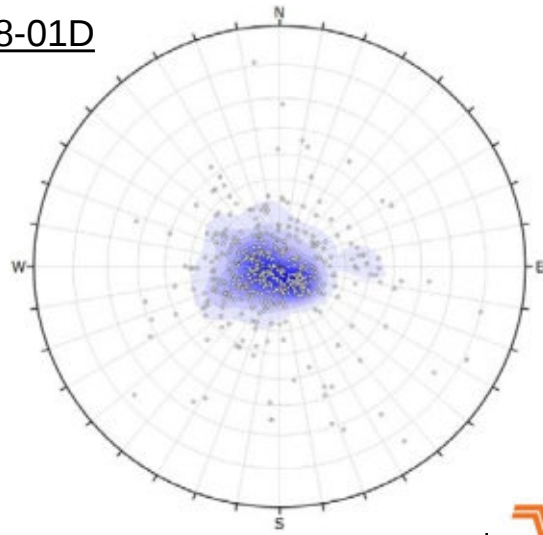
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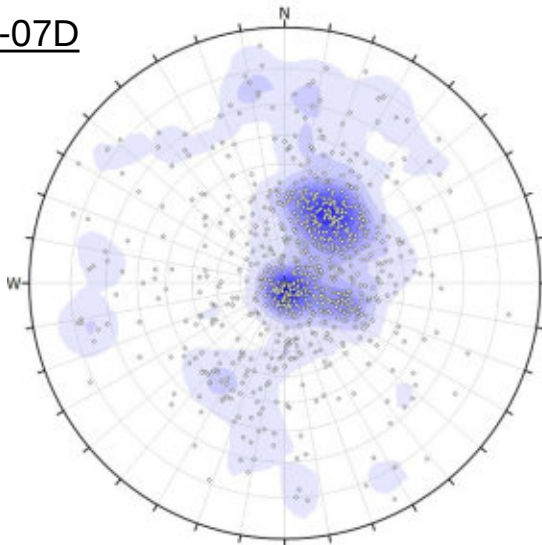
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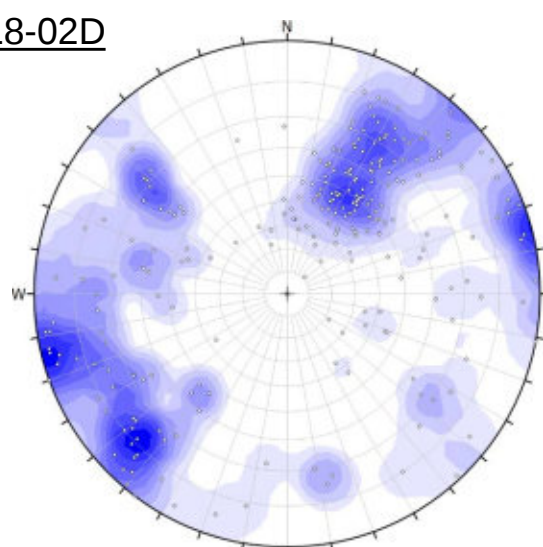
18-01D



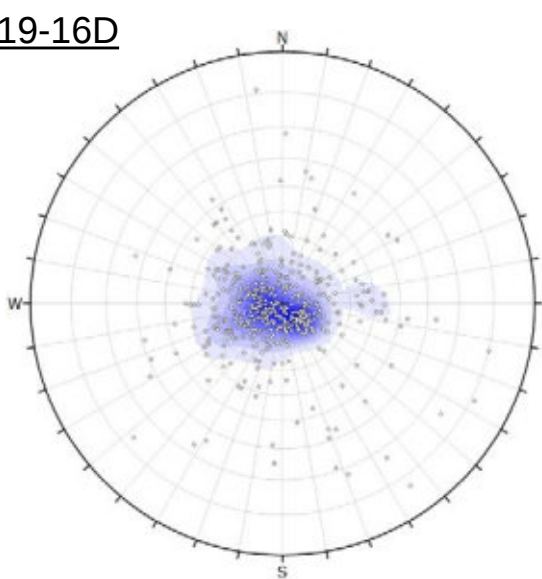
18-07D



18-02D



19-16D



Appendix D – 2019 Soil Laboratory Testing Results

Direct Shear Testing of Soils Under Consolidated Drained Conditions						Reference ASTM D3080	
Client:	Telkwa Coal Ltd.			Borehole:	19-21S		
Project:	Ref #017-318			Sample Number:	35035		
Location:	N/A			Depth (m):	15.2 - 15.8		
Project No.:	18109666/2000			Lab ID No:	B19-058		
Test Condition:	Saturated			Test parameters:	Peak and residual		
Visual Description:	SILTY CLAY, trace coarse sand, w > PL, redish brown, firm to stiff.			Soil Structure:	Intact / Reconstituted		
Remarks:	Area correction not applied to normal and shear stress calculation Test 1 and 3 were remolded based on the density of the intact Test 2 sample.						
Initial Sample Dimensions							
Test No.	1	2	3				
Shear box geometry	Circle	Circle	Circle				
Diameter (mm)	63.55	63.70	63.48				
Height (mm)	26.80	25.70	26.75				
Area (cm²)	31.72	31.87	31.65				
Volume (cm³)	85.01	81.90	84.66				
Weight Volume Relationships							
Sample Type	Bulk Sample						
Dry Mass (g)	126.9	124.7	126.7				
Initial γ_{wet} (kN/m³)	18.20	18.77	18.24				
Final γ_{wet} (kN/m³)	20.24	20.19	21.20				
Initial γ_{dry} (kN/m³)	14.64	14.93	14.68				
Final γ_{dry} (kN/m³)	17.06	16.77	17.94				
Initial water content (%)	24.3	25.7	24.3				
Final water content (%)	18.7	20.4	18.2				
Consolidation Results							
Normal Stress (kPa)	500	1000	1500				
t_{90} (Taylor Method) (min)	N/A	N/A	N/A				
Calculated t_{50} (min)	N/A	N/A	N/A				
Change in height ΔH_c (mm)	3.79	2.81	4.86				
Equipment Calibration							
Test Number	Machine Number	Normal Load Cell	Shear Load Cell	Vertical LPT			
Test -1	Digishear-1	720086	219231	LP-1138			
Test -2	Digishear-2	728499	689339	LP-567			
Test -3	Digishear-3	697437	728498	LP-985			
Test Dates							
MM/LL	March 15, 2019		DL		April 10, 2019		
TESTED BY	DATE		CHECKED BY		DATE		



GOLDER

Golder Associates Ltd. - Burnaby Laboratory

#300-3811 North Fraser Way

Burnaby, B.C. Canada V5J 5J2

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080

Client: Telkwa Coal Ltd.

Project: Ref #017-318

Location: N/A

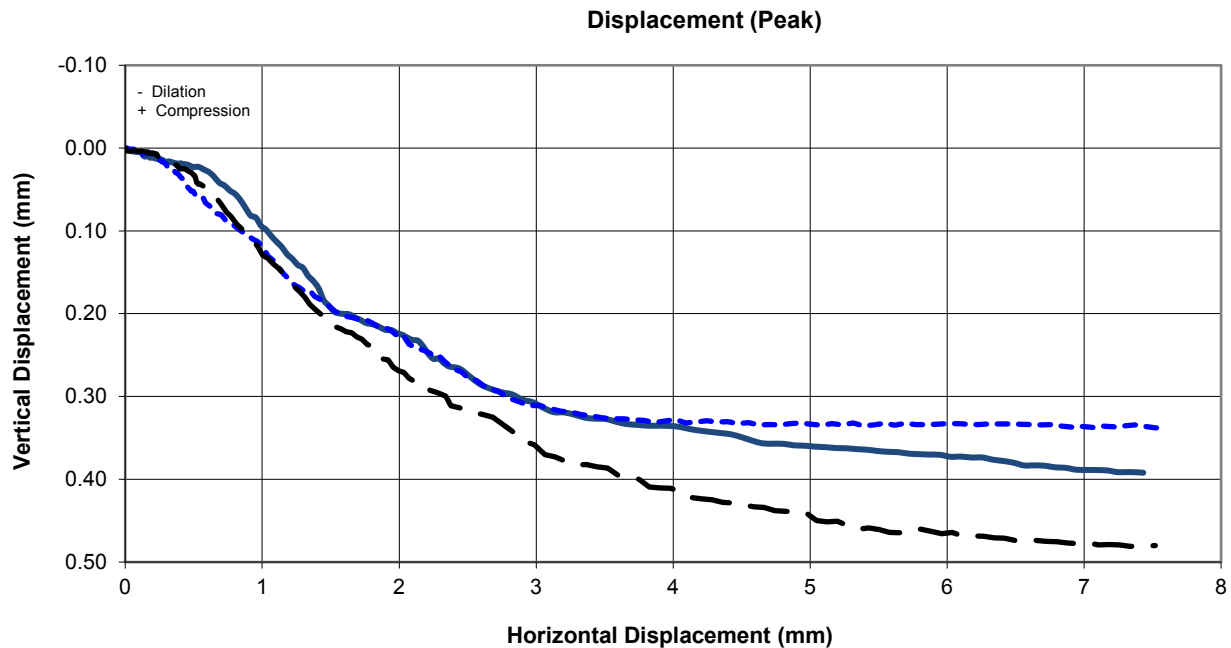
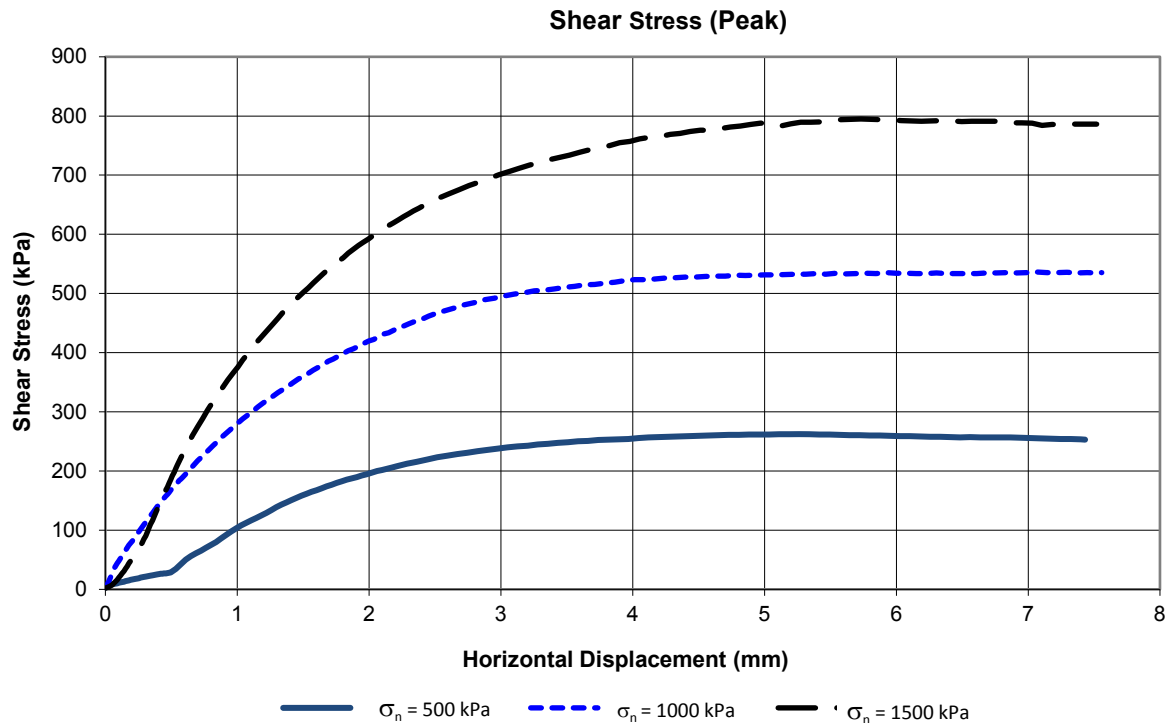
Project No.: 18109666/2000

Borehole: 19-21S

Sample Number: 35035

Depth (m): 15.2 - 15.8

Lab ID No: B19-058



MM/LL

March 15, 2019

DL

April 10, 2019

TESTED BY

DATE

CHECKED BY

DATE



GOLDER

Golder Associates Ltd. - Burnaby Laboratory

#300-3811 North Fraser Way

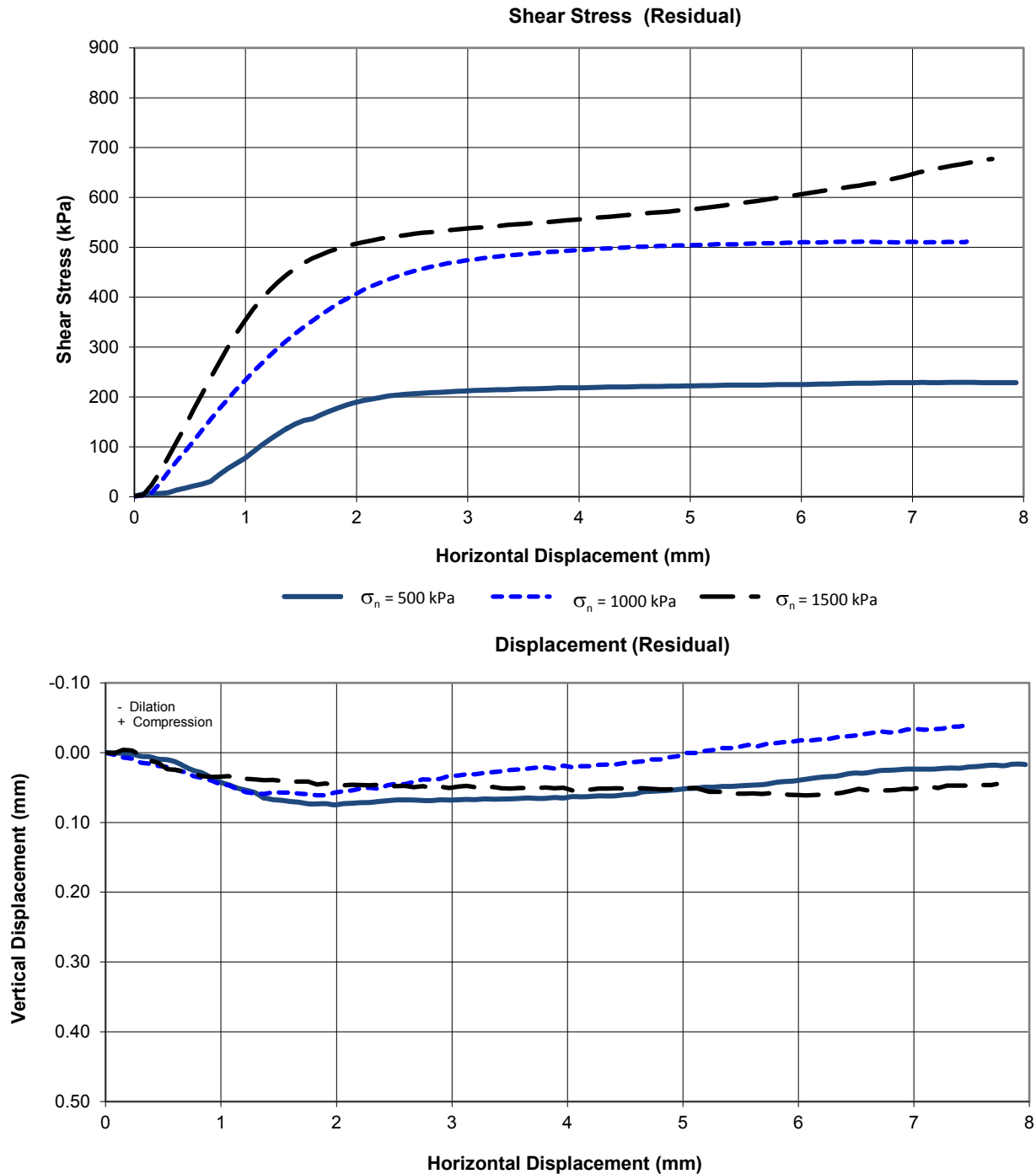
Burnaby, B.C. Canada V5J 5J2

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080

Client: Telkwa Coal Ltd.
Project: Ref #017-318
Location: N/A
Project No.: 18109666/2000

Borehole: 19-21S
Sample Number: 35035
Depth (m): 15.2 - 15.8
Lab ID No: B19-058



MM/LL

March 15, 2019

DL

April 10, 2019

TESTED BY

DATE

CHECKED BY

DATE



#300-3811 North Fraser Way

Burnaby, B.C. Canada V5J 5J2

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080

Client:	Telkwa Coal Ltd.
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Project:	Ref #017-318
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Location:	N/A
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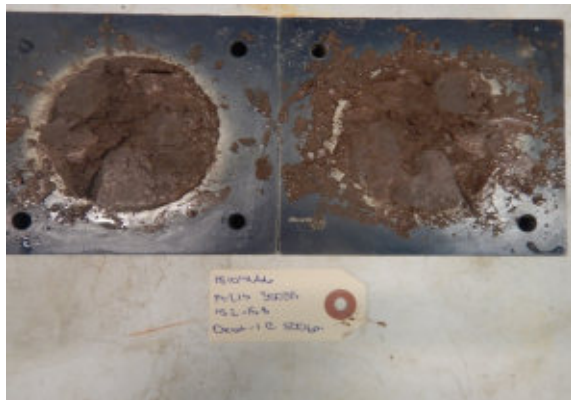
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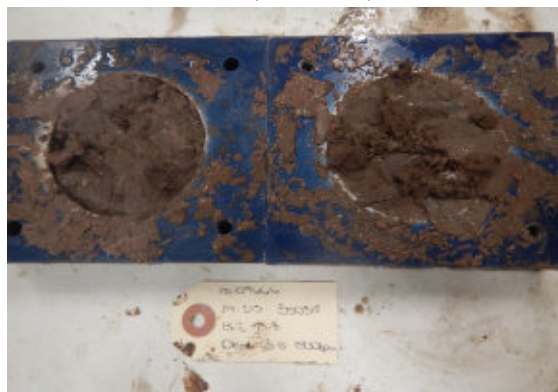
Lab ID No:	B19-058
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Test 1 (After Shear)



Test 2 (After Shear)



Test 3 (After Shear)

Remarks:

MM/LL

March 15, 2019

DL

April 10, 2019

TESTED BY

DATE _____

CHECKED BY

DATE _____

Direct Shear Testing of Soils Under Consolidated Drained Conditions
Reference
ASTM D3080

Client:	Telkwa Coal Ltd.	Borehole:	19-21S
Project:	Ref #017-318	Sample Number:	35035
Location:	N/A	Depth (m):	15.2 - 15.8
Project No.:	18109666/2000	Lab ID No:	B19-058

Peak 1		Peak 2		Peak 3			
Normal Stress , kPa	500	Normal Stress , kPa	1000	Normal Stress , kPa	1500	Normal Stress , kPa	
Disp Rate, mm/min	0.005	Disp Rate, mm/min	0.005	Disp Rate, mm/min	0.005	Disp Rate, mm/min	

Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert
Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp
mm	kPa	mm	mm	kPa	mm	mm	kPa	mm	mm	kPa	mm
0.00	2.9	0.000	0.00	5.5	0.000	0.00	2.1	0.000			
0.01	4.6	0.000	0.01	7.5	0.001	0.01	3.1	0.004			
0.03	6.2	0.002	0.03	13.0	0.001	0.03	4.4	0.004			
0.04	7.5	0.003	0.04	20.2	0.002	0.04	5.9	0.004			
0.05	8.3	0.004	0.05	27.8	0.001	0.05	7.6	0.003			
0.06	9.1	0.004	0.06	34.0	0.002	0.06	10.0	0.003			
0.08	9.7	0.004	0.08	39.1	0.003	0.08	12.8	0.004			
0.09	10.4	0.005	0.09	44.1	0.001	0.09	16.1	0.004			
0.10	11.1	0.005	0.10	47.8	0.004	0.10	19.7	0.004			
0.11	11.8	0.005	0.11	52.3	0.006	0.11	23.2	0.004			
0.13	12.5	0.008	0.13	56.8	0.008	0.13	27.2	0.004			
0.14	12.9	0.010	0.14	62.1	0.005	0.14	30.7	0.005			
0.15	13.8	0.010	0.15	66.1	0.006	0.15	34.9	0.005			
0.17	14.6	0.009	0.17	70.0	0.006	0.17	38.9	0.005			
0.18	15.1	0.011	0.18	74.3	0.005	0.18	43.5	0.007			
0.19	15.9	0.011	0.19	77.9	0.007	0.19	47.7	0.006			
0.20	16.6	0.011	0.20	81.7	0.007	0.20	51.7	0.006			
0.22	17.2	0.012	0.22	85.7	0.010	0.22	56.3	0.007			
0.23	17.9	0.012	0.23	90.1	0.010	0.23	60.3	0.007			
0.24	18.5	0.014	0.24	93.5	0.012	0.24	64.6	0.011			
0.25	19.1	0.014	0.25	97.7	0.014	0.25	68.8	0.011			
0.27	19.9	0.014	0.27	101.7	0.017	0.27	74.0	0.013			
0.28	20.5	0.015	0.28	105.2	0.017	0.28	79.0	0.013			
0.29	21.0	0.016	0.29	109.4	0.019	0.29	84.6	0.013			
0.31	21.5	0.017	0.31	113.4	0.022	0.31	90.4	0.014			
0.32	22.2	0.016	0.32	117.2	0.023	0.32	96.7	0.013			
0.33	22.7	0.017	0.33	121.0	0.025	0.33	103.6	0.015			
0.34	23.2	0.017	0.34	124.8	0.028	0.34	110.0	0.016			
0.36	23.8	0.018	0.36	128.9	0.027	0.36	116.4	0.020			
0.37	24.2	0.018	0.37	132.4	0.030	0.37	122.8	0.020			
0.38	24.6	0.019	0.38	136.3	0.030	0.38	129.3	0.022			
0.39	25.2	0.019	0.39	139.9	0.033	0.39	135.6	0.024			
0.41	25.7	0.018	0.41	143.6	0.036	0.41	141.9	0.025			
0.42	26.2	0.020	0.42	147.1	0.037	0.42	148.1	0.025			
0.43	26.5	0.019	0.43	150.6	0.041	0.43	154.3	0.025			
0.45	26.8	0.020	0.44	154.2	0.042	0.45	160.5	0.026			
0.46	27.1	0.020	0.46	157.3	0.047	0.46	166.9	0.028			

0.50	28.8	0.023	0.47	160.7	0.050	0.47	173.1	0.029			
0.53	34.7	0.023	0.48	164.0	0.052	0.48	179.3	0.029			
0.57	42.7	0.026	0.50	167.4	0.052	0.50	185.4	0.032			
0.61	50.1	0.029	0.51	170.6	0.056	0.51	191.7	0.034			
0.65	56.3	0.035	0.52	173.9	0.058	0.52	198.0	0.042			
0.69	60.8	0.042	0.53	176.7	0.058	0.53	204.1	0.044			
0.73	65.1	0.045	0.55	180.1	0.060	0.55	210.0	0.043			
0.76	70.0	0.051	0.56	183.6	0.061	0.58	228.3	0.048			
0.80	75.0	0.055	0.57	186.5	0.061	0.62	244.6	0.051			
0.84	80.0	0.062	0.58	189.2	0.066	0.66	260.0	0.059			
0.88	85.9	0.072	0.62	198.4	0.071	0.70	274.6	0.067			
0.92	92.0	0.082	0.66	207.4	0.079	0.74	288.8	0.077			
0.95	97.7	0.084	0.70	217.3	0.081	0.78	302.8	0.083			
0.99	103.0	0.094	0.74	225.4	0.088	0.81	316.5	0.092			
1.03	108.0	0.099	0.78	233.7	0.091	0.85	329.2	0.098			
1.07	112.5	0.107	0.81	242.0	0.096	0.89	341.9	0.104			
1.11	116.6	0.113	0.85	250.1	0.101	0.93	353.5	0.111			
1.14	120.3	0.120	0.89	258.3	0.104	0.97	364.8	0.119			
1.18	124.7	0.128	0.93	265.9	0.110	1.00	375.6	0.130			
1.22	129.2	0.134	0.97	273.4	0.113	1.04	387.4	0.133			
1.26	134.2	0.141	1.00	281.3	0.120	1.08	398.4	0.140			
1.30	139.2	0.145	1.04	288.0	0.130	1.12	409.4	0.145			
1.34	143.4	0.154	1.08	294.7	0.135	1.16	419.4	0.152			
1.37	147.2	0.161	1.12	301.4	0.144	1.20	429.5	0.163			
1.41	150.9	0.169	1.16	307.9	0.152	1.23	439.2	0.167			
1.45	154.6	0.184	1.19	314.8	0.158	1.27	448.7	0.173			
1.49	158.1	0.190	1.23	320.4	0.165	1.31	458.2	0.180			
1.53	161.4	0.198	1.27	326.8	0.169	1.35	468.0	0.189			
1.56	164.6	0.200	1.31	332.7	0.173	1.39	476.3	0.195			
1.60	167.7	0.200	1.35	337.8	0.172	1.42	485.0	0.200			
1.64	170.8	0.201	1.39	343.4	0.179	1.46	493.7	0.204			
1.68	173.9	0.205	1.42	349.5	0.183	1.50	501.5	0.213			
1.72	177.0	0.207	1.46	355.3	0.187	1.54	509.3	0.216			
1.75	180.0	0.211	1.50	359.9	0.193	1.58	517.4	0.218			
1.79	182.8	0.212	1.54	365.2	0.198	1.61	525.7	0.222			
1.83	185.6	0.214	1.58	370.4	0.200	1.65	533.5	0.223			
1.87	187.6	0.217	1.61	375.4	0.203	1.69	540.7	0.228			
1.91	190.0	0.220	1.65	379.6	0.205	1.73	547.4	0.231			
1.95	192.4	0.220	1.69	385.3	0.206	1.77	554.3	0.237			
1.98	194.7	0.224	1.73	389.3	0.206	1.81	560.9	0.239			
2.02	197.3	0.225	1.77	394.0	0.208	1.84	568.4	0.243			
2.06	199.8	0.229	1.81	398.4	0.211	1.88	575.0	0.255			
2.10	201.7	0.232	1.84	403.3	0.216	1.92	581.1	0.256			
2.14	203.8	0.233	1.88	406.5	0.217	1.96	586.9	0.265			
2.17	205.9	0.239	1.92	410.9	0.218	2.00	592.3	0.269			
2.21	208.3	0.249	1.96	415.4	0.223	2.03	598.5	0.271			
2.25	210.3	0.255	2.00	419.4	0.228	2.07	604.1	0.278			
2.29	212.4	0.254	2.03	422.4	0.227	2.11	609.6	0.282			
2.33	214.2	0.260	2.07	426.5	0.237	2.15	614.8	0.287			
2.37	215.9	0.264	2.11	431.3	0.240	2.19	619.4	0.287			
2.44	219.2	0.266	2.15	433.7	0.243	2.22	624.7	0.293			
2.52	223.1	0.276	2.19	438.0	0.245	2.26	630.0	0.295			
2.59	226.1	0.286	2.22	442.6	0.248	2.30	634.6	0.297			
2.67	228.7	0.291	2.26	444.9	0.253	2.34	639.6	0.299			
2.75	231.0	0.295	2.30	448.9	0.252	2.38	644.0	0.311			

2.82	233.7	0.297	2.34	452.0	0.259	2.42	648.6	0.313			
2.90	235.7	0.304	2.38	454.7	0.264	2.45	653.2	0.314			
2.98	237.6	0.307	2.42	457.9	0.268	2.53	661.1	0.319			
3.05	240.0	0.314	2.45	461.9	0.270	2.61	668.5	0.322			
3.13	241.6	0.319	2.49	464.8	0.276	2.68	675.4	0.325			
3.20	242.8	0.319	2.57	470.4	0.281	2.76	682.3	0.334			
3.28	244.6	0.322	2.64	475.1	0.290	2.83	688.2	0.343			
3.36	246.0	0.326	2.72	480.6	0.293	2.91	694.5	0.354			
3.43	247.4	0.327	2.80	484.7	0.302	2.99	700.6	0.358			
3.51	248.6	0.327	2.87	489.3	0.306	3.06	706.0	0.370			
3.59	250.2	0.331	2.95	492.3	0.311	3.14	711.6	0.373			
3.66	251.0	0.333	3.03	495.9	0.311	3.22	717.2	0.379			
3.74	252.2	0.334	3.10	498.8	0.314	3.29	721.3	0.383			
3.81	252.8	0.335	3.18	501.1	0.318	3.37	726.4	0.382			
3.89	253.5	0.335	3.25	504.4	0.319	3.44	730.0	0.385			
3.97	254.2	0.336	3.33	505.6	0.322	3.52	733.9	0.386			
4.04	255.7	0.337	3.41	507.8	0.324	3.60	738.4	0.395			
4.12	256.6	0.339	3.48	510.7	0.326	3.67	743.1	0.399			
4.20	257.3	0.341	3.56	512.2	0.327	3.75	746.2	0.400			
4.27	258.0	0.343	3.64	514.7	0.327	3.83	749.8	0.409			
4.35	258.4	0.344	3.71	515.5	0.328	3.90	754.8	0.410			
4.42	259.2	0.346	3.79	517.2	0.329	3.98	756.8	0.411			
4.50	259.7	0.349	3.86	519.3	0.331	4.05	761.4	0.415			
4.58	260.3	0.353	3.94	521.5	0.330	4.13	764.0	0.422			
4.65	260.5	0.357	4.02	523.2	0.328	4.21	765.3	0.424			
4.73	261.0	0.357	4.09	523.3	0.332	4.28	768.7	0.425			
4.81	261.3	0.357	4.17	524.5	0.331	4.36	770.6	0.428			
4.88	261.5	0.359	4.25	526.1	0.329	4.44	774.0	0.429			
4.96	261.5	0.359	4.32	526.8	0.331	4.51	775.7	0.431			
5.03	261.6	0.361	4.40	527.8	0.331	4.59	775.9	0.433			
5.11	262.0	0.361	4.47	527.7	0.333	4.66	778.9	0.434			
5.19	262.1	0.362	4.55	528.6	0.331	4.74	781.4	0.438			
5.26	262.3	0.363	4.63	529.2	0.334	4.82	782.8	0.439			
5.34	262.2	0.364	4.70	529.6	0.334	4.89	785.8	0.439			
5.42	261.6	0.364	4.78	531.1	0.334	4.97	787.8	0.441			
5.49	261.6	0.366	4.86	530.7	0.333	5.05	788.2	0.450			
5.57	261.3	0.367	4.93	531.2	0.332	5.12	783.0	0.451			
5.65	260.8	0.367	5.01	531.7	0.333	5.20	787.0	0.451			
5.72	260.3	0.369	5.08	531.4	0.335	5.28	789.3	0.456			
5.80	260.3	0.370	5.16	532.1	0.333	5.35	789.7	0.460			
5.87	259.9	0.370	5.24	532.7	0.334	5.43	790.2	0.459			
5.95	259.3	0.371	5.31	532.7	0.332	5.50	792.3	0.461			
6.03	259.0	0.373	5.39	533.6	0.335	5.58	793.5	0.464			
6.10	258.7	0.373	5.47	532.9	0.334	5.66	794.5	0.465			
6.18	258.2	0.374	5.54	534.1	0.332	5.73	794.9	0.460			
6.26	258.1	0.374	5.62	533.3	0.335	5.81	794.5	0.460			
6.33	257.8	0.376	5.69	533.7	0.332	5.89	793.9	0.463			
6.41	257.4	0.378	5.77	534.2	0.334	5.96	793.3	0.466			
6.48	257.1	0.380	5.85	534.0	0.334	6.04	792.3	0.464			
6.56	257.1	0.383	5.92	535.1	0.333	6.11	791.7	0.469			
6.64	256.7	0.383	6.00	534.2	0.333	6.19	791.1	0.469			
6.71	256.6	0.384	6.08	534.3	0.333	6.27	791.5	0.469			
6.79	256.6	0.386	6.15	533.5	0.334	6.34	792.4	0.471			
6.87	256.6	0.386	6.23	533.6	0.334	6.42	791.7	0.471			
6.94	256.2	0.388	6.30	535.0	0.333	6.50	790.6	0.474			

7.02	255.8	0.389	6.38	533.8	0.333	6.57	791.1	0.474			
7.09	255.4	0.389	6.46	533.9	0.333	6.65	790.9	0.474			
7.17	254.8	0.389	6.53	533.9	0.333	6.72	791.2	0.475			
7.25	254.0	0.391	6.61	533.8	0.334	6.80	790.9	0.476			
7.32	253.8	0.391	6.69	534.7	0.334	6.88	788.3	0.477			
7.40	253.4	0.392	6.76	534.9	0.334	6.95	788.2	0.478			
7.43	253.1	0.392	6.84	535.3	0.336	7.03	788.0	0.477			
			6.91	535.0	0.337	7.11	784.2	0.479			
			6.99	535.5	0.336	7.18	785.9	0.479			
			7.07	536.3	0.338	7.26	785.6	0.479			
			7.14	535.5	0.336	7.33	786.0	0.481			
			7.22	535.3	0.337	7.41	786.4	0.481			
			7.30	535.8	0.336	7.49	786.3	0.480			
			7.37	534.9	0.334	7.52	786.0	0.480			
			7.45	535.4	0.336						
			7.52	534.6	0.338						
			7.56	535.2	0.337						

MM/LL	March 15, 2019	DL	April 10, 2019
TESTED BY	DATE	CHECKED BY	DATE

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080

Client:	Telkwa Coal Ltd.	Borehole:	19-21S
Project:	Ref #017-318	Sample Number:	35035
Location:	N/A	Depth (m):	15.2 - 15.8
Project No.:	18109666/2000	Lab ID No:	B19-058

Residual 1			Residual 2			Residual 3					
Normal Stress , kPa	500		Normal Stress , kPa	1000		Normal Stress , kPa	1500		Normal Stress , kPa		
Disp Rate, mm/min	0.005		Disp Rate, mm/min	0.005		Disp Rate, mm/min	0.005		Disp Rate, mm/min		

Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert
Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp
mm	kPa	mm	mm	kPa	mm	mm	kPa	mm	mm	kPa	mm
0.00	0.9	0.000	0.00	0.7	0.000	0.00	1.3	0.000			
0.08	5.4	0.000	0.08	2.6	0.003	0.08	3.3	0.001			
0.15	6.3	0.001	0.15	7.0	0.007	0.15	22.6	-0.004			
0.23	6.6	0.002	0.23	27.2	0.008	0.23	49.2	-0.003			
0.31	8.1	0.005	0.31	49.8	0.014	0.31	79.4	0.003			
0.38	13.5	0.006	0.38	71.3	0.016	0.38	110.2	0.011			
0.46	17.3	0.009	0.46	91.5	0.019	0.46	141.8	0.015			
0.53	21.4	0.010	0.53	112.1	0.020	0.53	175.1	0.023			
0.61	25.5	0.013	0.61	134.1	0.025	0.61	207.2	0.025			
0.69	30.6	0.020	0.69	155.4	0.028	0.69	238.2	0.027			
0.76	44.2	0.026	0.76	176.0	0.034	0.76	269.3	0.031			
0.84	56.3	0.029	0.84	195.0	0.036	0.84	299.0	0.034			
0.92	66.3	0.036	0.92	214.7	0.040	0.92	326.5	0.035			
0.99	76.5	0.042	0.99	231.7	0.045	0.99	351.9	0.034			
1.07	89.8	0.046	1.07	250.2	0.047	1.07	375.5	0.033			
1.14	103.2	0.051	1.14	267.2	0.052	1.14	396.5	0.038			
1.22	115.1	0.054	1.22	283.5	0.057	1.22	414.9	0.038			
1.30	126.6	0.058	1.30	299.2	0.058	1.30	431.1	0.038			
1.37	137.0	0.065	1.37	313.5	0.059	1.37	445.5	0.039			
1.37	137.0	0.064	1.45	327.3	0.057	1.45	457.8	0.039			
1.45	146.0	0.067	1.53	340.8	0.057	1.53	468.8	0.041			
1.53	153.0	0.068	1.60	352.7	0.057	1.60	477.9	0.042			
1.60	156.3	0.070	1.68	365.0	0.059	1.68	485.2	0.041			
1.68	164.3	0.071	1.75	375.9	0.060	1.75	492.2	0.041			
1.75	171.3	0.073	1.83	387.1	0.061	1.83	497.5	0.046			
1.83	177.9	0.073	1.91	396.2	0.061	1.91	502.7	0.044			
1.91	183.7	0.073	1.98	405.1	0.057	1.98	506.9	0.048			
1.98	188.7	0.075	2.06	414.5	0.055	2.06	510.6	0.047			
2.06	193.1	0.073	2.14	422.2	0.054	2.14	513.7	0.046			
2.14	195.7	0.072	2.21	429.4	0.051	2.21	517.2	0.046			
2.21	199.1	0.072	2.29	435.6	0.050	2.29	520.1	0.047			
2.29	202.2	0.071	2.36	441.7	0.052	2.36	522.2	0.046			
2.36	203.9	0.070	2.44	447.8	0.047	2.44	524.5	0.048			
2.44	205.4	0.069	2.52	452.3	0.044	2.52	526.9	0.048			
2.52	206.5	0.068	2.59	457.0	0.045	2.59	529.1	0.048			
2.59	207.6	0.068	2.67	461.0	0.042	2.67	530.5	0.049			
2.67	208.5	0.068	2.75	464.3	0.038	2.75	532.3	0.048			

2.75	209.5	0.068	2.82	468.1	0.039	2.82	534.3	0.050			
2.82	210.3	0.069	2.90	470.4	0.037	2.90	535.9	0.049			
2.90	211.3	0.068	2.97	473.5	0.033	2.97	537.3	0.051			
2.97	211.9	0.068	3.05	475.3	0.033	3.05	539.0	0.049			
3.05	212.9	0.068	3.13	477.9	0.031	3.13	540.0	0.048			
3.13	213.3	0.067	3.20	480.1	0.031	3.20	541.4	0.049			
3.20	213.9	0.067	3.28	481.8	0.029	3.28	542.9	0.051			
3.28	214.6	0.066	3.36	483.8	0.028	3.36	545.0	0.049			
3.36	214.9	0.067	3.43	485.1	0.027	3.43	545.9	0.051			
3.43	215.6	0.066	3.51	486.9	0.025	3.51	547.3	0.051			
3.51	216.0	0.066	3.58	487.9	0.024	3.58	548.8	0.051			
3.58	216.5	0.066	3.66	489.3	0.023	3.66	550.1	0.051			
3.66	216.7	0.065	3.74	490.9	0.021	3.74	551.2	0.051			
3.74	217.4	0.066	3.81	491.6	0.021	3.81	552.9	0.050			
3.81	218.2	0.065	3.89	493.0	0.023	3.89	554.0	0.051			
3.89	218.5	0.064	3.97	494.3	0.019	3.97	555.3	0.050			
3.97	218.6	0.065	4.04	494.9	0.021	4.04	556.9	0.054			
4.04	218.6	0.063	4.12	496.5	0.019	4.12	558.9	0.053			
4.12	218.9	0.063	4.19	497.3	0.019	4.19	560.1	0.053			
4.20	219.5	0.063	4.27	498.1	0.018	4.27	561.2	0.052			
4.27	219.8	0.062	4.35	499.0	0.017	4.35	563.1	0.051			
4.35	220.0	0.062	4.42	499.7	0.016	4.42	564.5	0.051			
4.42	220.2	0.062	4.50	501.5	0.015	4.50	565.9	0.051			
4.50	220.6	0.060	4.58	501.5	0.014	4.58	567.7	0.051			
4.58	220.9	0.059	4.65	501.9	0.012	4.65	569.3	0.051			
4.65	220.9	0.056	4.73	502.9	0.010	4.73	570.6	0.052			
4.73	221.1	0.055	4.80	502.9	0.010	4.80	571.8	0.053			
4.81	221.4	0.055	4.88	504.0	0.006	4.88	573.7	0.052			
4.88	221.8	0.054	4.96	504.1	0.005	4.96	575.0	0.051			
4.96	222.1	0.053	5.03	504.6	0.000	5.03	576.6	0.051			
5.03	222.2	0.051	5.11	505.2	0.000	5.11	578.7	0.051			
5.11	222.7	0.051	5.19	505.7	-0.002	5.15	579.9	0.053			
5.19	222.7	0.049	5.26	506.6	-0.004	5.15	579.8	0.053			
5.26	223.3	0.050	5.34	506.2	-0.006	5.23	581.9	0.056			
5.34	224.0	0.048	5.41	506.3	-0.007	5.30	584.0	0.056			
5.42	223.9	0.048	5.49	507.0	-0.009	5.38	586.7	0.056			
5.49	223.9	0.047	5.57	507.5	-0.011	5.46	588.9	0.059			
5.57	224.0	0.047	5.64	508.3	-0.009	5.53	590.8	0.059			
5.64	224.1	0.046	5.72	508.1	-0.013	5.61	593.3	0.058			
5.72	224.6	0.045	5.80	508.2	-0.013	5.69	596.0	0.059			
5.80	224.7	0.043	5.87	509.1	-0.015	5.76	598.8	0.058			
5.87	225.0	0.041	5.95	509.4	-0.016	5.84	600.8	0.058			
5.95	225.0	0.041	6.02	510.3	-0.018	5.91	603.2	0.060			
6.03	225.2	0.039	6.10	509.8	-0.017	5.99	606.0	0.061			
6.10	225.7	0.037	6.18	510.1	-0.019	6.07	608.8	0.061			
6.18	225.8	0.035	6.25	510.8	-0.019	6.14	611.8	0.061			
6.25	226.1	0.034	6.33	510.7	-0.022	6.22	614.3	0.060			
6.33	226.7	0.034	6.41	511.6	-0.023	6.30	616.1	0.059			
6.41	226.9	0.031	6.48	511.0	-0.024	6.37	619.1	0.057			
6.48	227.4	0.029	6.56	511.4	-0.026	6.45	621.7	0.055			
6.56	227.6	0.029	6.63	511.0	-0.028	6.52	624.1	0.052			
6.64	227.9	0.028	6.71	510.7	-0.030	6.60	627.0	0.054			
6.71	228.1	0.026	6.79	510.5	-0.029	6.68	629.4	0.054			
6.79	228.4	0.025	6.86	510.1	-0.030	6.75	633.0	0.054			
6.86	228.6	0.024	6.94	511.0	-0.033	6.83	637.3	0.054			

6.94	228.5	0.024	7.02	510.7	-0.034	6.91	641.2	0.052			
7.02	228.7	0.024	7.09	509.9	-0.033	6.98	645.5	0.052			
7.09	229.0	0.024	7.17	510.3	-0.034	7.06	650.4	0.050			
7.17	228.9	0.024	7.24	510.0	-0.034	7.13	653.6	0.049			
7.25	228.8	0.023	7.32	511.1	-0.037	7.21	657.5	0.051			
7.32	229.0	0.022	7.40	510.5	-0.038	7.29	660.9	0.047			
7.40	229.2	0.022	7.47	510.6	-0.040	7.36	664.0	0.047			
7.47	229.3	0.020	7.49	511.6	-0.039	7.44	666.9	0.047			
7.55	229.2	0.020				7.52	670.1	0.047			
7.63	228.9	0.018				7.59	672.5	0.046			
7.70	228.8	0.018				7.67	675.7	0.046			
7.78	228.7	0.019				7.72	677.3	0.045			
7.86	228.7	0.017									
7.93	228.5	0.016									
7.96	228.40	0.0171									

MM/LL	March 15, 2019	DL	April 10, 2019
TESTED BY	DATE	CHECKED BY	DATE

Direct Shear Testing of Soils Under Consolidated Drained Conditions						Reference ASTM D3080									
Client:	Telkwa Coal Ltd.			Borehole:	19-19S										
Project:	Ref #017-318			Sample Number:	35096										
Location:	N/A			Depth (m):	34.4 - 35.1										
Project No.:	18109666/2000			Lab ID No:	B19-058										
Test Condition:	Saturated			Test parameters:	Peak and residual										
Visual Description:	CLAYEY SILT, some sand, some gravel, w < PL, red, very stiff.			Soil Structure:	Reconstituted										
Remarks:	Area correction not applied to normal and shear stress calculation Unit weight = 2248 kg/m3.														
Initial Sample Dimensions															
Test No.	1	2	3												
Shear box geometry	Circle	Circle	Circle												
Diameter (mm)	63.50	63.40	63.48												
Height (mm)	26.62	26.57	26.75												
Area (cm²)	31.67	31.57	31.65												
Volume (cm³)	84.30	83.88	84.66												
Weight Volume Relationships															
Sample Type	Bulk Sample														
Dry Mass (g)	170.5	169.4	170.9												
Initial γ_{wet} (kN/m³)	22.10	22.07	22.06												
Final γ_{wet} (kN/m³)	23.62	23.52	23.40												
Initial γ_{dry} (kN/m³)	19.84	19.82	19.80												
Final γ_{dry} (kN/m³)	21.31	21.26	21.24												
Initial water content (%)	11.4	11.4	11.4												
Final water content (%)	10.9	10.6	10.2												
Consolidation Results															
Normal Stress (kPa)	1000	1500	2000												
t₉₀ (Taylor Method) (min)	N/A	N/A	N/A												
Calculated t₅₀ (min)	N/A	N/A	N/A												
Change in height ΔH_c (mm)	1.83	1.81	1.81												
Equipment Calibration															
Test Number	Machine Number	Normal Load Cell	Shear Load Cell	Vertical LPT											
Test -1	Digishear-1	221643	266562	LP-567											
Test -2	Digishear-2	728499	689339	LP-567											
Test -3	Digishear-3	697437	410702	LP-985											
<table border="1"> <tr> <td>TM</td> <td>March 29, 2019</td> <td>DL</td> <td>April 10, 2019</td> </tr> <tr> <td>TESTED BY</td> <td>DATE</td> <td>CHECKED BY</td> <td>DATE</td> </tr> </table>								TM	March 29, 2019	DL	April 10, 2019	TESTED BY	DATE	CHECKED BY	DATE
TM	March 29, 2019	DL	April 10, 2019												
TESTED BY	DATE	CHECKED BY	DATE												



GOLDER

Golder Associates Ltd. - Burnaby Laboratory

#300-3811 North Fraser Way

Burnaby, B.C. Canada V5J 5J2

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080

Client: Telkwa Coal Ltd.

Project: Ref #017-318

Location: N/A

Project No.: 18109666/2000

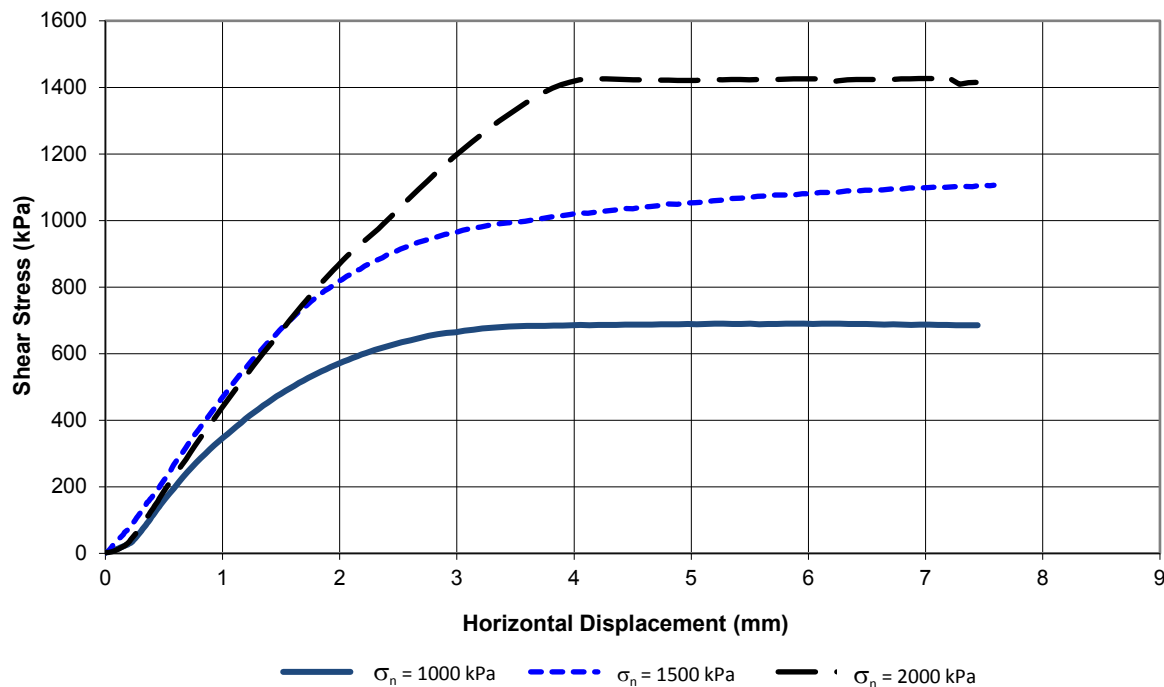
Borehole: 19-19S

Sample Number: 35096

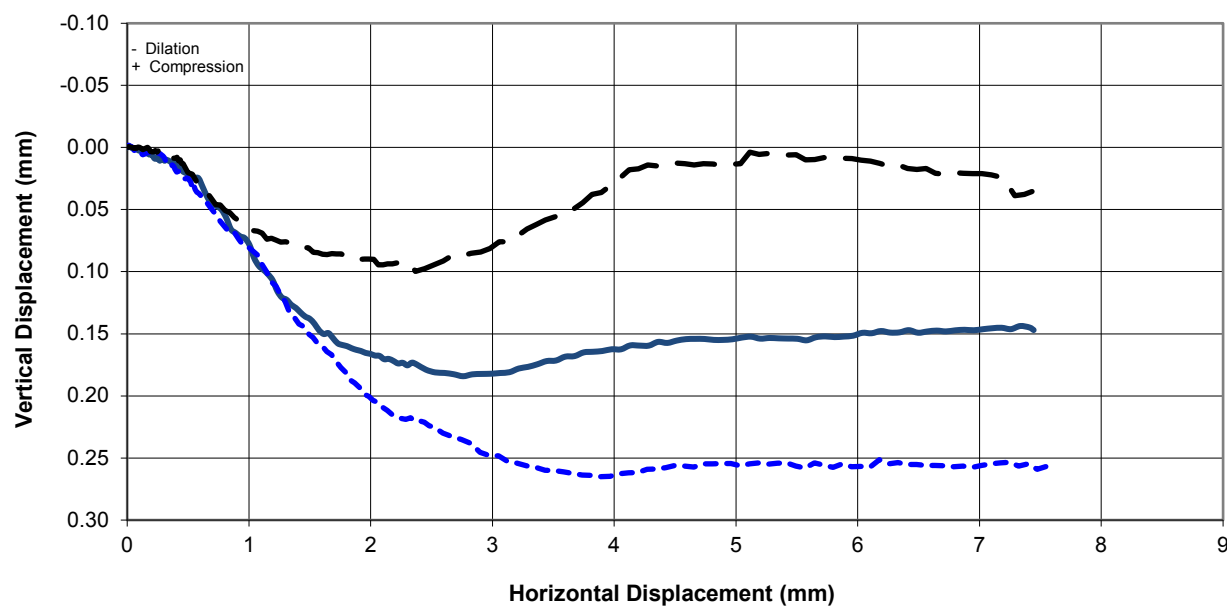
Depth (m): 34.4 - 35.1

Lab ID No: B19-058

Shear Stress (Peak)



Displacement (Peak)



TM

March 29, 2019

DL

April 10, 2019

TESTED BY

DATE

CHECKED BY

DATE



GOLDER

Golder Associates Ltd. - Burnaby Laboratory

#300-3811 North Fraser Way

Burnaby, B.C. Canada V5J 5J2

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080

Client: Telkwa Coal Ltd.

Project: Ref #017-318

Location: N/A

Project No.: 18109666/2000

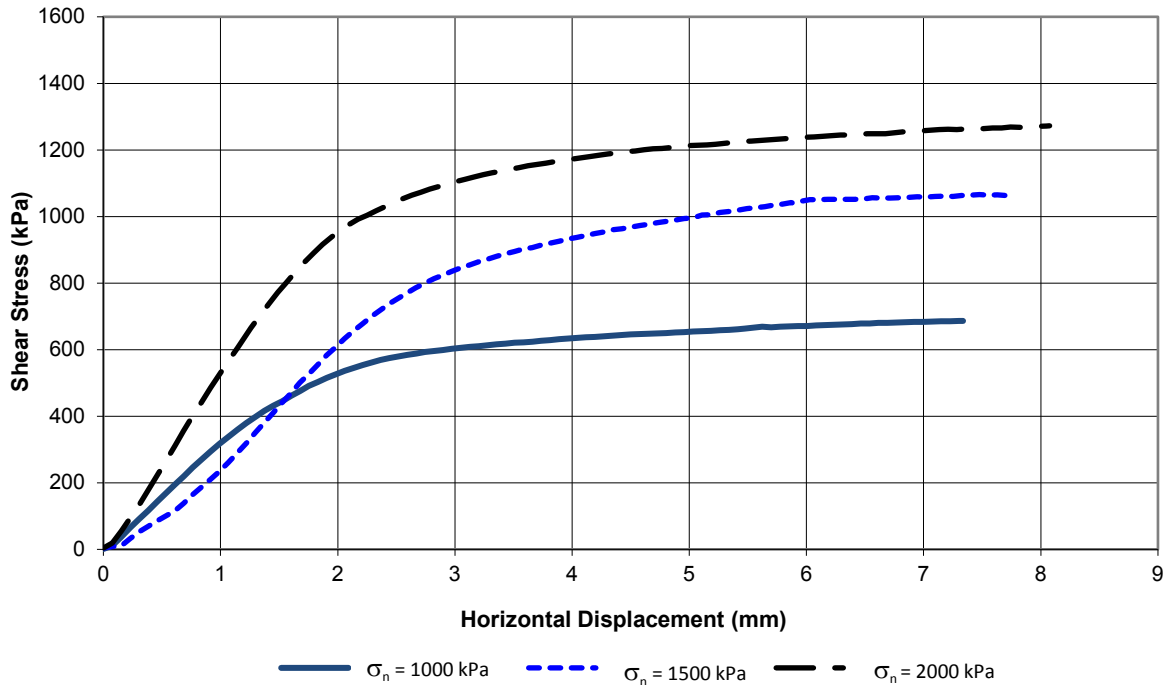
Borehole: 19-19S

Sample Number: 35096

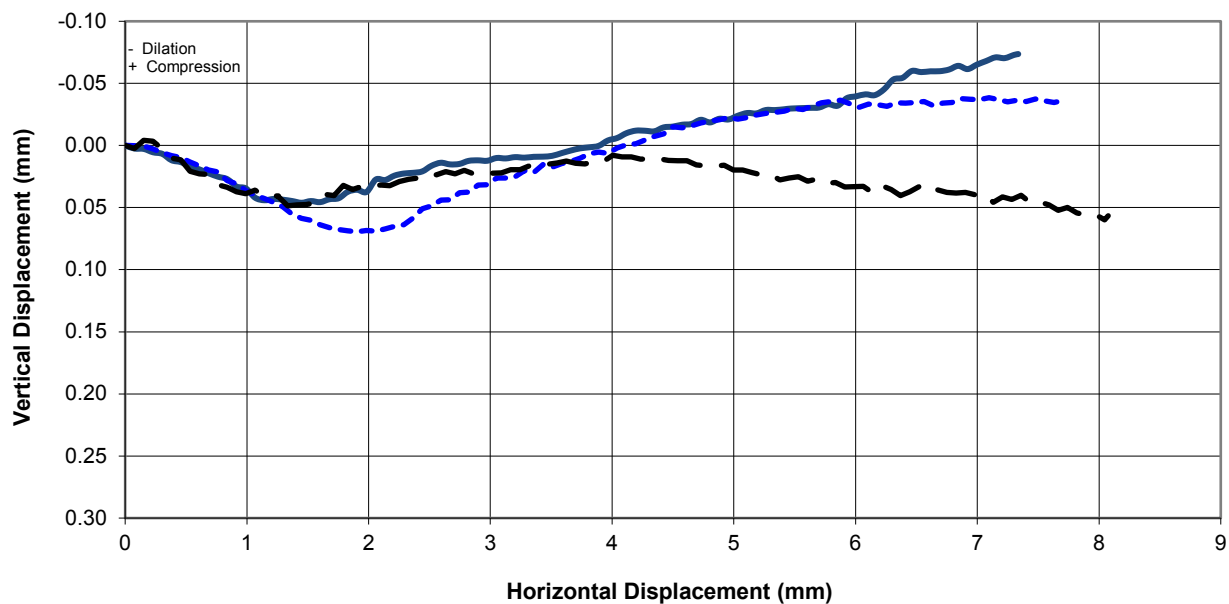
Depth (m): 34.4 - 35.1

Lab ID No: B19-058

Shear Stress (Residual)



Displacement (Residual)



TM

March 29, 2019

DL

April 10, 2019

TESTED BY

DATE

CHECKED BY

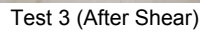
DATE



Burnaby, B.C. Canada V5J 5J2

Reference
ASTM D3080

Borehole:	19-19S
Sample Number:	35096
Depth (m):	34.4 - 35.1
Lab ID No:	B19-058

[illegible]

April 10, 2019

DATE _____

Direct Shear Testing of Soils Under Consolidated Drained Conditions
Reference
ASTM D3080

Client:	Telkwa Coal Ltd.	Borehole:	19-19S
Project:	Ref #017-318	Sample Number:	35096
Location:	N/A	Depth (m):	34.4 - 35.1
Project No.:	18109666/2000	Lab ID No:	B19-058

Peak 1		Peak 2		Peak 3			
Normal Stress , kPa	1000	Normal Stress , kPa	1500	Normal Stress , kPa	2000	Normal Stress , kPa	
Disp Rate, mm/min	0.005	Disp Rate, mm/min	0.005	Disp Rate, mm/min	0.005	Disp Rate, mm/min	

Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert
Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp
mm	kPa	mm	mm	kPa	mm	mm	kPa	mm	mm	kPa	mm
0.00	1.9	0.000	0.00	1.4	0.000	0.00	1.7	0.000			
0.01	3.8	-0.001	0.01	3.3	-0.002	0.01	2.4	-0.001			
0.03	5.8	-0.001	0.03	6.0	-0.001	0.03	3.2	0.000			
0.04	7.2	0.000	0.04	12.2	-0.001	0.04	3.7	0.000			
0.05	8.4	0.001	0.05	18.2	0.001	0.05	4.7	0.001			
0.06	9.9	0.001	0.06	24.3	0.004	0.06	6.0	0.000			
0.08	11.0	0.002	0.08	29.9	0.004	0.08	7.5	0.001			
0.09	12.2	0.002	0.09	36.2	0.004	0.09	9.4	0.000			
0.10	13.4	0.003	0.10	39.8	0.003	0.10	11.5	0.000			
0.11	15.1	0.002	0.11	43.7	0.005	0.12	13.7	0.001			
0.13	17.4	0.003	0.13	47.4	0.006	0.13	16.1	0.002			
0.14	19.5	0.002	0.14	51.7	0.005	0.14	18.5	0.001			
0.15	21.0	0.004	0.15	56.2	0.005	0.15	21.3	0.000			
0.17	22.6	0.004	0.17	63.1	0.003	0.17	22.6	0.000			
0.18	24.5	0.006	0.18	67.2	0.004	0.18	26.4	0.001			
0.19	26.9	0.006	0.19	71.4	0.003	0.19	30.7	0.003			
0.20	29.2	0.005	0.20	77.1	0.004	0.20	35.7	0.004			
0.22	31.9	0.008	0.22	81.6	0.003	0.22	41.1	0.004			
0.23	35.7	0.009	0.23	86.9	0.005	0.23	46.6	0.002			
0.24	40.3	0.009	0.24	92.8	0.004	0.24	52.6	0.004			
0.25	45.4	0.009	0.25	99.7	0.005	0.26	58.9	0.002			
0.27	50.4	0.011	0.27	107.5	0.005	0.27	64.7	0.004			
0.28	55.9	0.009	0.28	112.2	0.006	0.28	71.1	0.005			
0.29	61.3	0.008	0.29	119.2	0.007	0.29	77.5	0.007			
0.31	66.9	0.011	0.31	125.9	0.008	0.31	84.3	0.007			
0.32	72.7	0.010	0.32	132.6	0.011	0.32	90.8	0.008			
0.33	78.4	0.010	0.33	139.2	0.011	0.33	97.0	0.008			
0.34	84.4	0.011	0.34	145.1	0.014	0.35	103.7	0.008			
0.36	90.0	0.012	0.36	153.1	0.015	0.36	110.6	0.008			
0.37	96.4	0.013	0.37	156.9	0.014	0.37	116.6	0.008			
0.38	102.6	0.013	0.38	163.3	0.015	0.38	123.0	0.009			
0.39	109.1	0.013	0.39	167.5	0.018	0.40	129.9	0.009			
0.41	115.1	0.013	0.41	174.1	0.020	0.41	136.8	0.008			
0.42	121.6	0.016	0.42	178.2	0.019	0.42	143.4	0.011			
0.43	128.2	0.017	0.43	184.2	0.020	0.43	149.9	0.010			
0.44	134.3	0.018	0.45	190.6	0.021	0.45	157.0	0.013			
0.46	140.3	0.019	0.46	198.2	0.023	0.46	163.9	0.013			

0.47	146.3	0.020	0.47	204.9	0.025	0.50	185.3	0.020			
0.51	163.1	0.022	0.48	211.8	0.025	0.54	205.6	0.022			
0.55	179.3	0.025	0.50	217.4	0.024	0.57	226.0	0.028			
0.58	195.5	0.025	0.51	224.1	0.026	0.61	245.5	0.036			
0.62	212.2	0.033	0.52	231.4	0.028	0.65	264.7	0.036			
0.66	228.8	0.041	0.53	237.5	0.033	0.69	283.0	0.041			
0.70	244.4	0.046	0.55	244.1	0.030	0.73	303.5	0.046			
0.74	258.8	0.047	0.56	251.1	0.034	0.76	323.7	0.046			
0.78	272.7	0.050	0.57	258.7	0.036	0.80	343.5	0.051			
0.81	285.9	0.057	0.58	266.9	0.037	0.84	362.0	0.053			
0.85	299.3	0.066	0.60	273.5	0.038	0.88	380.1	0.056			
0.89	312.2	0.069	0.61	279.6	0.040	0.92	398.8	0.059			
0.93	324.8	0.072	0.65	297.1	0.044	0.96	417.8	0.061			
0.97	336.4	0.073	0.69	317.0	0.049	0.99	437.1	0.063			
1.00	347.7	0.079	0.72	337.9	0.054	1.03	455.4	0.067			
1.04	358.9	0.089	0.76	356.4	0.060	1.07	474.1	0.068			
1.08	370.0	0.095	0.80	374.2	0.064	1.11	491.8	0.069			
1.12	381.2	0.099	0.84	393.5	0.068	1.15	509.3	0.074			
1.16	392.5	0.102	0.88	410.1	0.068	1.19	526.8	0.073			
1.19	403.8	0.107	0.92	428.3	0.074	1.22	544.7	0.075			
1.23	413.8	0.116	0.95	446.3	0.079	1.26	562.8	0.076			
1.27	423.9	0.121	0.99	465.6	0.080	1.30	580.5	0.076			
1.31	433.9	0.123	1.03	482.5	0.083	1.34	597.7	0.077			
1.35	443.7	0.127	1.07	501.0	0.086	1.38	614.4	0.077			
1.39	453.1	0.129	1.11	518.0	0.094	1.41	630.6	0.079			
1.42	462.6	0.133	1.14	535.6	0.100	1.45	647.1	0.081			
1.46	471.5	0.136	1.18	550.2	0.108	1.49	663.8	0.081			
1.50	479.8	0.138	1.22	566.9	0.112	1.53	680.7	0.084			
1.54	487.9	0.142	1.26	583.8	0.119	1.57	697.2	0.085			
1.58	496.4	0.147	1.30	597.4	0.124	1.60	713.1	0.086			
1.61	504.1	0.150	1.33	613.2	0.133	1.64	729.2	0.086			
1.65	511.9	0.149	1.37	628.8	0.137	1.68	745.5	0.086			
1.69	519.4	0.154	1.41	642.9	0.142	1.72	761.4	0.086			
1.73	526.4	0.158	1.45	655.6	0.144	1.76	777.5	0.086			
1.77	533.2	0.159	1.49	671.0	0.150	1.80	792.6	0.088			
1.81	540.4	0.160	1.53	683.2	0.153	1.83	808.0	0.088			
1.84	546.7	0.162	1.56	695.8	0.158	1.87	822.8	0.088			
1.88	552.6	0.163	1.60	708.7	0.160	1.91	837.0	0.090			
1.92	559.5	0.164	1.64	722.0	0.164	1.95	851.7	0.090			
1.96	565.5	0.165	1.68	731.7	0.167	1.99	865.4	0.090			
2.00	570.7	0.166	1.72	743.7	0.172	2.02	879.6	0.090			
2.03	576.8	0.168	1.75	756.7	0.177	2.06	892.7	0.094			
2.07	581.8	0.168	1.79	766.6	0.181	2.10	905.3	0.094			
2.11	586.9	0.170	1.83	776.9	0.187	2.14	917.1	0.094			
2.15	592.2	0.170	1.87	788.4	0.189	2.18	928.6	0.094			
2.19	597.5	0.172	1.91	796.3	0.193	2.22	940.4	0.093			
2.22	602.0	0.174	1.94	805.1	0.198	2.25	951.8	0.093			
2.26	606.1	0.173	1.98	816.0	0.200	2.29	963.5	0.093			
2.30	611.1	0.175	2.02	823.2	0.204	2.33	975.2	0.094			
2.34	615.1	0.173	2.06	832.7	0.205	2.37	988.3	0.100			
2.38	618.9	0.175	2.10	839.3	0.209	2.44	1014.5	0.098			
2.45	627.1	0.179	2.14	848.5	0.212	2.52	1041.6	0.094			
2.53	634.1	0.181	2.17	853.9	0.215	2.60	1068.1	0.091			
2.61	640.5	0.182	2.21	863.3	0.217	2.67	1094.2	0.087			
2.68	647.2	0.183	2.25	870.0	0.218	2.75	1119.3	0.087			

2.76	653.2	0.184	2.29	876.7	0.219	2.83	1145.1	0.085			
2.83	658.0	0.183	2.33	882.5	0.218	2.90	1168.7	0.084			
2.91	662.6	0.182	2.36	888.7	0.220	2.98	1191.6	0.081			
2.99	664.5	0.182	2.40	896.7	0.220	3.05	1214.6	0.076			
3.06	668.6	0.182	2.44	901.8	0.221	3.13	1236.5	0.076			
3.14	672.3	0.181	2.48	907.3	0.224	3.21	1257.7	0.071			
3.22	675.6	0.178	2.52	914.5	0.225	3.28	1278.8	0.066			
3.29	677.6	0.177	2.59	923.9	0.230	3.36	1299.0	0.062			
3.37	679.4	0.175	2.67	933.9	0.233	3.44	1317.4	0.058			
3.44	681.1	0.172	2.75	942.3	0.235	3.51	1335.6	0.056			
3.52	682.5	0.172	2.82	949.9	0.238	3.59	1353.8	0.051			
3.60	683.1	0.168	2.90	958.2	0.246	3.66	1370.0	0.050			
3.67	683.5	0.168	2.97	962.4	0.248	3.74	1384.1	0.045			
3.75	683.2	0.165	3.05	971.3	0.248	3.82	1397.6	0.038			
3.83	683.9	0.164	3.13	976.4	0.253	3.89	1408.0	0.036			
3.90	684.5	0.164	3.20	980.7	0.254	3.97	1416.4	0.031			
3.98	685.6	0.162	3.28	986.7	0.256	4.05	1422.8	0.025			
4.05	685.9	0.163	3.36	990.1	0.258	4.12	1425.7	0.018			
4.13	685.5	0.159	3.43	993.0	0.260	4.20	1426.1	0.017			
4.21	686.6	0.160	3.51	994.6	0.260	4.27	1425.4	0.014			
4.28	686.0	0.160	3.58	997.7	0.261	4.35	1424.7	0.015			
4.36	686.7	0.157	3.66	1002.3	0.262	4.43	1423.5	0.013			
4.44	687.3	0.157	3.74	1006.7	0.264	4.50	1422.3	0.013			
4.51	687.0	0.155	3.81	1010.9	0.264	4.58	1422.3	0.013			
4.59	687.4	0.154	3.89	1013.8	0.265	4.66	1422.9	0.014			
4.66	687.6	0.154	3.97	1017.6	0.265	4.73	1422.1	0.013			
4.74	688.5	0.154	4.04	1022.5	0.263	4.81	1421.5	0.013			
4.82	688.0	0.155	4.12	1021.9	0.262	4.88	1421.0	0.014			
4.89	688.7	0.155	4.19	1026.1	0.262	4.96	1421.0	0.013			
4.97	689.0	0.154	4.27	1028.8	0.259	5.04	1421.2	0.013			
5.05	687.9	0.153	4.35	1031.3	0.259	5.11	1422.7	0.004			
5.12	689.1	0.152	4.42	1035.9	0.258	5.19	1423.2	0.005			
5.20	690.0	0.154	4.50	1035.4	0.256	5.27	1422.8	0.005			
5.28	689.7	0.153	4.58	1040.5	0.257	5.34	1423.6	0.006			
5.35	689.4	0.154	4.65	1041.6	0.257	5.42	1423.9	0.006			
5.43	689.2	0.154	4.73	1044.7	0.255	5.49	1423.1	0.006			
5.50	689.9	0.154	4.80	1049.2	0.255	5.57	1424.0	0.010			
5.58	688.5	0.155	4.88	1049.2	0.255	5.65	1424.1	0.010			
5.66	688.9	0.153	4.96	1052.8	0.255	5.72	1424.1	0.008			
5.73	689.3	0.152	5.03	1053.9	0.256	5.80	1425.0	0.009			
5.81	689.8	0.153	5.11	1055.0	0.255	5.88	1425.6	0.009			
5.89	690.0	0.152	5.19	1059.6	0.254	5.95	1425.9	0.009			
5.96	690.3	0.152	5.26	1061.7	0.255	6.03	1425.5	0.010			
6.04	689.6	0.149	5.34	1065.6	0.254	6.10	1425.2	0.011			
6.11	690.2	0.150	5.41	1067.1	0.254	6.18	1415.9	0.013			
6.19	690.0	0.148	5.49	1069.0	0.257	6.26	1420.2	0.015			
6.27	689.8	0.149	5.57	1073.2	0.258	6.33	1423.2	0.014			
6.34	689.4	0.149	5.64	1073.6	0.254	6.41	1423.4	0.017			
6.42	689.0	0.147	5.72	1076.7	0.256	6.49	1423.8	0.018			
6.50	689.6	0.149	5.80	1076.4	0.258	6.56	1423.8	0.017			
6.57	688.4	0.148	5.87	1077.1	0.255	6.64	1422.8	0.021			
6.65	687.7	0.147	5.95	1080.6	0.257	6.71	1424.0	0.022			
6.72	687.9	0.148	6.02	1080.5	0.257	6.79	1425.2	0.020			
6.80	686.9	0.147	6.10	1084.0	0.257	6.87	1425.9	0.021			
6.88	686.8	0.147	6.18	1084.2	0.251	6.94	1426.2	0.021			

6.95	687.0	0.147	6.25	1085.2	0.255	7.02	1426.8	0.021			
7.03	686.9	0.146	6.33	1089.5	0.254	7.10	1426.5	0.022			
7.11	686.4	0.146	6.41	1088.4	0.255	7.17	1427.4	0.024			
7.18	686.0	0.145	6.48	1090.8	0.255	7.21	1428.9	0.027			
7.26	685.7	0.146	6.56	1090.8	0.256	7.21	1424.9	0.027			
7.33	685.4	0.144	6.63	1091.6	0.256	7.29	1408.8	0.039			
7.41	685.6	0.145	6.71	1094.6	0.256	7.37	1413.6	0.038			
7.44	685.6	0.147	6.79	1094.1	0.257	7.43	1415.5	0.035			
			6.86	1097.9	0.256						
			6.94	1097.5	0.257						
			7.02	1098.4	0.256						
			7.09	1100.5	0.255						
			7.17	1099.6	0.254						
			7.24	1101.5	0.253						
			7.32	1102.3	0.257						
			7.40	1101.2	0.255						
			7.47	1106.0	0.259						
			7.55	1104.6	0.257						
			7.58	1106.1	0.259						

TM	March 29, 2019	DL	April 10, 2019
TESTED BY	DATE	CHECKED BY	DATE

Direct Shear Testing of Soils Under Consolidated Drained Conditions
Reference
ASTM D3080

Client:	Telkwa Coal Ltd.	Borehole:	19-19S
Project:	Ref #017-318	Sample Number:	35096
Location:	N/A	Depth (m):	34.4 - 35.1
Project No.:	18109666/2000	Lab ID No:	B19-058

Residual 1		Residual 2		Residual 3			
Normal Stress , kPa	1000	Normal Stress , kPa	1500	Normal Stress , kPa	2000	Normal Stress , kPa	
Disp Rate, mm/min	0.005	Disp Rate, mm/min	0.005	Disp Rate, mm/min	0.005	Disp Rate, mm/min	

Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert
Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp
mm	kPa	mm	mm	kPa	mm	mm	kPa	mm	mm	kPa	mm
0.00	1.2	0.000	0.00	4.1	0.000	0.00	4.0	0.000			
0.08	11.6	0.002	0.08	8.1	0.000	0.08	19.5	0.002			
0.15	37.4	0.003	0.15	10.4	0.000	0.15	54.7	-0.004			
0.23	65.1	0.005	0.23	32.9	0.003	0.23	93.7	-0.003			
0.31	90.8	0.007	0.31	52.6	0.006	0.31	133.9	0.003			
0.38	116.7	0.012	0.38	69.3	0.008	0.38	177.8	0.010			
0.46	143.5	0.013	0.46	85.2	0.010	0.46	222.2	0.012			
0.53	169.4	0.017	0.53	100.8	0.013	0.53	266.4	0.021			
0.61	195.1	0.019	0.61	116.4	0.016	0.61	310.9	0.023			
0.69	220.4	0.022	0.69	137.9	0.020	0.69	356.5	0.023			
0.76	246.2	0.025	0.76	163.8	0.021	0.76	400.4	0.031			
0.84	270.1	0.027	0.84	187.1	0.028	0.84	442.1	0.034			
0.92	293.6	0.033	0.92	210.6	0.031	0.92	485.2	0.037			
0.99	316.9	0.035	0.99	234.5	0.036	0.99	525.3	0.039			
1.07	338.5	0.042	1.07	261.7	0.040	1.07	566.2	0.036			
1.14	359.4	0.044	1.14	290.4	0.043	1.14	605.0	0.041			
1.22	379.6	0.043	1.22	319.3	0.046	1.22	645.0	0.041			
1.30	398.2	0.044	1.30	351.0	0.049	1.26	665.3	0.041			
1.37	415.8	0.045	1.37	380.5	0.055	1.26	665.2	0.041			
1.45	431.2	0.046	1.45	410.1	0.059	1.34	701.6	0.049			
1.53	445.1	0.045	1.53	441.5	0.060	1.41	737.6	0.048			
1.60	461.1	0.046	1.60	470.3	0.064	1.49	771.6	0.048			
1.68	476.0	0.043	1.68	500.7	0.066	1.56	802.8	0.046			
1.75	490.8	0.042	1.75	527.1	0.068	1.64	834.2	0.039			
1.83	503.2	0.037	1.83	554.5	0.069	1.72	863.5	0.040			
1.91	514.7	0.036	1.91	583.5	0.069	1.79	890.5	0.032			
1.98	525.9	0.037	1.98	607.8	0.069	1.87	915.7	0.035			
2.06	536.1	0.027	2.06	633.5	0.069	1.95	938.6	0.033			
2.14	545.2	0.028	2.14	656.3	0.067	2.02	959.2	0.033			
2.21	553.8	0.024	2.21	678.0	0.065	2.10	976.6	0.032			
2.29	561.8	0.023	2.29	700.1	0.064	2.17	991.9	0.032			
2.36	568.5	0.022	2.36	718.9	0.058	2.25	1003.6	0.029			
2.44	574.4	0.021	2.44	738.4	0.051	2.33	1016.6	0.027			
2.52	579.7	0.016	2.52	754.3	0.049	2.40	1029.5	0.026			
2.59	584.8	0.014	2.59	771.0	0.044	2.48	1041.7	0.023			
2.67	588.5	0.015	2.67	786.3	0.044	2.56	1053.4	0.024			
2.75	593.1	0.015	2.75	799.4	0.038	2.63	1063.8	0.021			

2.82	596.0	0.012	2.82	813.5	0.037	2.71	1073.0	0.023			
2.90	599.3	0.012	2.90	824.0	0.032	2.78	1082.6	0.020			
2.97	602.4	0.012	2.97	835.3	0.032	2.86	1090.1	0.023			
3.05	605.3	0.010	3.05	846.2	0.026	2.94	1097.9	0.021			
3.13	608.5	0.010	3.13	854.3	0.026	3.01	1105.0	0.022			
3.20	610.6	0.009	3.20	864.2	0.025	3.09	1112.2	0.022			
3.28	613.5	0.010	3.28	871.7	0.020	3.17	1119.3	0.020			
3.36	616.0	0.009	3.36	880.6	0.022	3.24	1125.4	0.019			
3.43	618.2	0.009	3.43	888.6	0.015	3.32	1131.0	0.016			
3.51	620.9	0.008	3.51	895.2	0.018	3.39	1136.5	0.015			
3.58	622.2	0.006	3.58	902.2	0.015	3.47	1142.1	0.015			
3.66	624.2	0.004	3.66	906.6	0.013	3.55	1147.2	0.014			
3.74	626.9	0.002	3.74	914.4	0.010	3.62	1152.1	0.012			
3.81	628.7	0.001	3.81	920.2	0.007	3.70	1156.4	0.014			
3.89	631.2	0.000	3.89	926.2	0.005	3.78	1160.8	0.015			
3.97	633.1	-0.004	3.97	932.8	0.006	3.85	1165.0	0.013			
4.04	635.0	-0.006	4.04	937.1	0.002	3.93	1169.3	0.013			
4.12	637.1	-0.010	4.12	943.5	-0.001	4.00	1172.6	0.008			
4.19	638.7	-0.012	4.19	948.9	-0.001	4.08	1176.3	0.009			
4.27	640.2	-0.012	4.27	953.5	-0.004	4.16	1180.1	0.009			
4.35	641.7	-0.011	4.35	960.3	-0.007	4.23	1184.6	0.011			
4.42	643.6	-0.015	4.42	963.2	-0.009	4.31	1187.7	0.011			
4.50	645.6	-0.015	4.50	967.9	-0.015	4.39	1191.1	0.011			
4.58	646.4	-0.017	4.58	972.6	-0.014	4.46	1194.5	0.012			
4.65	648.2	-0.017	4.65	976.6	-0.016	4.54	1197.2	0.012			
4.73	649.2	-0.021	4.73	981.8	-0.018	4.62	1200.5	0.012			
4.80	650.1	-0.019	4.80	984.9	-0.020	4.69	1203.3	0.016			
4.88	651.7	-0.022	4.88	989.1	-0.021	4.77	1204.8	0.016			
4.96	653.0	-0.021	4.96	993.6	-0.023	4.84	1207.3	0.017			
5.03	654.5	-0.024	5.03	995.8	-0.021	4.92	1210.3	0.016			
5.11	655.7	-0.026	5.11	1004.3	-0.023	5.00	1212.7	0.020			
5.19	656.4	-0.026	5.19	1005.9	-0.025	5.07	1213.9	0.020			
5.26	658.8	-0.029	5.26	1012.0	-0.026	5.15	1215.4	0.022			
5.34	659.0	-0.029	5.34	1015.4	-0.027	5.23	1217.2	0.024			
5.41	661.0	-0.029	5.41	1019.0	-0.028	5.30	1220.3	0.023			
5.47	663.0	-0.030	5.49	1023.6	-0.030	5.38	1222.7	0.028			
5.62	668.8	-0.030	5.57	1026.3	-0.029	5.45	1225.4	0.026			
5.70	667.4	-0.031	5.64	1030.0	-0.032	5.53	1226.9	0.025			
5.78	668.9	-0.033	5.72	1034.3	-0.034	5.61	1229.0	0.029			
5.85	670.1	-0.032	5.80	1037.5	-0.035	5.68	1230.9	0.027			
5.93	670.6	-0.038	5.87	1042.5	-0.036	5.76	1232.7	0.031			
6.01	671.4	-0.040	5.88	1041.2	-0.036	5.84	1234.8	0.030			
6.08	672.9	-0.041	6.03	1050.6	-0.031	5.91	1235.8	0.033			
6.16	673.7	-0.041	6.11	1050.5	-0.033	5.99	1238.3	0.033			
6.23	674.9	-0.045	6.18	1051.9	-0.033	6.06	1238.9	0.033			
6.31	675.6	-0.053	6.26	1051.3	-0.031	6.14	1241.2	0.038			
6.39	676.6	-0.055	6.33	1051.5	-0.034	6.22	1243.3	0.032			
6.46	678.2	-0.060	6.41	1051.8	-0.034	6.29	1245.3	0.035			
6.54	678.7	-0.059	6.49	1052.4	-0.035	6.37	1244.8	0.040			
6.62	680.3	-0.060	6.56	1056.0	-0.035	6.45	1246.4	0.037			
6.69	680.5	-0.060	6.64	1055.5	-0.032	6.52	1249.1	0.033			
6.77	681.9	-0.061	6.72	1055.5	-0.034	6.60	1248.6	0.038			
6.84	682.4	-0.064	6.79	1056.5	-0.035	6.67	1249.1	0.036			
6.92	683.5	-0.062	6.87	1057.3	-0.038	6.75	1251.5	0.038			
7.00	683.6	-0.065	6.94	1059.2	-0.037	6.83	1254.1	0.038			

7.07	684.7	-0.068	7.02	1058.8	-0.037	6.90	1255.7	0.038			
7.15	684.9	-0.071	7.10	1060.1	-0.038	6.98	1257.5	0.040			
7.23	685.3	-0.070	7.17	1061.0	-0.037	7.06	1258.9	0.039			
7.30	686.3	-0.073	7.25	1060.0	-0.035	7.13	1261.7	0.046			
7.34	686.3	-0.074	7.33	1063.3	-0.036	7.21	1262.7	0.041			
			7.40	1063.9	-0.035	7.28	1261.4	0.043			
			7.48	1066.0	-0.038	7.36	1263.3	0.040			
			7.55	1064.5	-0.036	7.44	1263.3	0.046			
			7.63	1065.0	-0.035	7.51	1264.5	0.046			
			7.70	1063.6	-0.036	7.59	1265.8	0.048			
						7.67	1266.3	0.052			
						7.74	1268.9	0.050			
						7.82	1267.7	0.054			
						7.89	1268.6	0.056			
						7.97	1271.0	0.055			
						8.05	1272.2	0.060			
						8.08	1272.6	0.057			

TM	March 29, 2019	DL	April 10, 2019
TESTED BY	DATE	CHECKED BY	DATE

Direct Shear Testing of Soils Under Consolidated Drained Conditions					Reference ASTM D3080	
Client:	Telkwa Coal Ltd.			Borehole:	19-22S	
Project:	Ref #017-318			Sample Number:	29665	
Location:	N/A			Depth (m):	16.2 - 16.8	
Project No.:	18109666/2000			Lab ID No:	B19-058	
Test Condition:	Saturated			Test parameters:	Peak and residual	
Visual Description:	CLAYEY SILT, some sand, some gravel, w < PL, red, stiff.			Soil Structure:	Reconstituted	
Remarks:	Area correction not applied to normal and shear stress calculation Unit weight = 2292 kg/m3.					
Initial Sample Dimensions						
Test No.	1	2	3			
Shear box geometry	Circle	Circle	Circle			
Diameter (mm)	63.48	63.50	63.40			
Height (mm)	26.75	26.62	26.57			
Area (cm²)	31.65	31.67	31.57			
Volume (cm³)	84.66	84.30	83.88			
Weight Volume Relationships						
Sample Type	Bulk Sample					
Dry Mass (g)	178.2	177.5	177.1			
Initial γ_{wet} (kN/m³)	22.50	22.50	22.56			
Final γ_{wet} (kN/m³)	23.12	24.32	24.61			
Initial γ_{dry} (kN/m³)	20.65	20.66	20.71			
Final γ_{dry} (kN/m³)	20.88	22.12	22.43			
Initial water content (%)	8.9	8.9	8.9			
Final water content (%)	10.7	10.0	9.7			
Consolidation Results						
Normal Stress (kPa)	500	1000	1500			
t₉₀ (Taylor Method) (min)	N/A	N/A	N/A			
Calculated t₅₀ (min)	N/A	N/A	N/A			
Change in height ΔH_c (mm)	0.29	1.76	2.03			
Equipment Calibration						
Test Number	Machine Number	Normal Load Cell	Shear Load Cell	Vertical LPT		
Test -1	Digishear-1	720086	219231	LP-1138		
Test -2	Digishear-2	221643	266562	LP-567		
Test -3	Digishear-3	728499	689339	LP-567		
TM	April 4, 2019		DL		April 16, 2019	
TESTED BY	DATE		CHECKED BY		DATE	

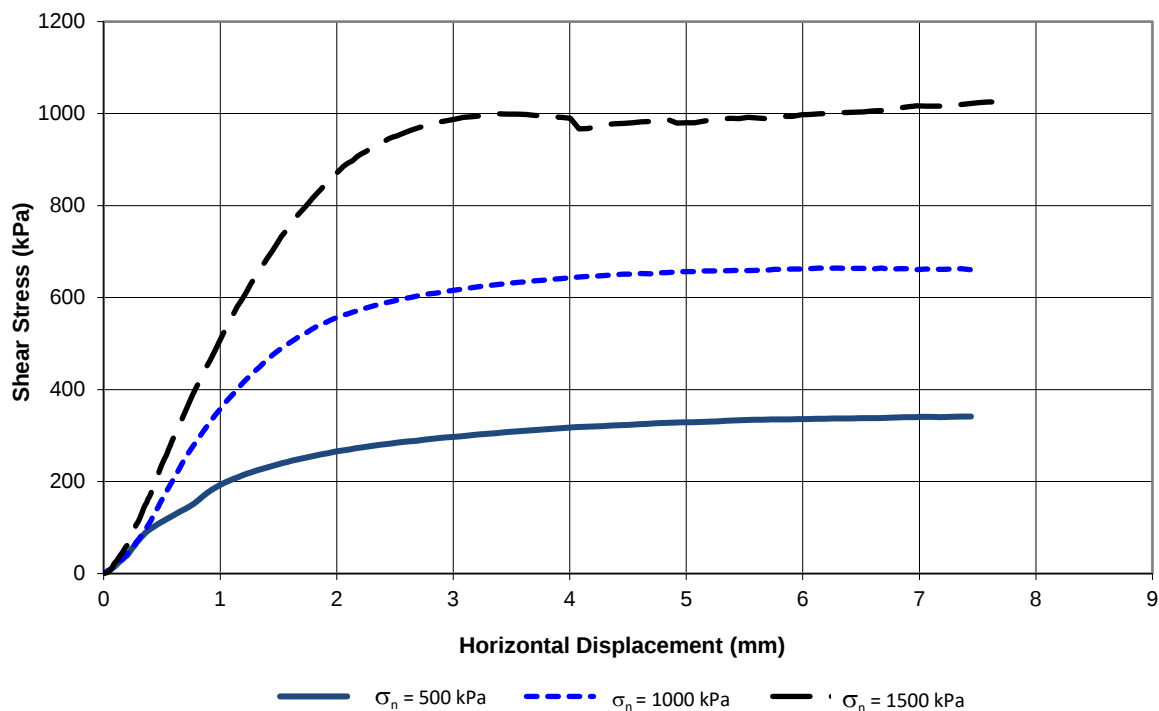
Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080

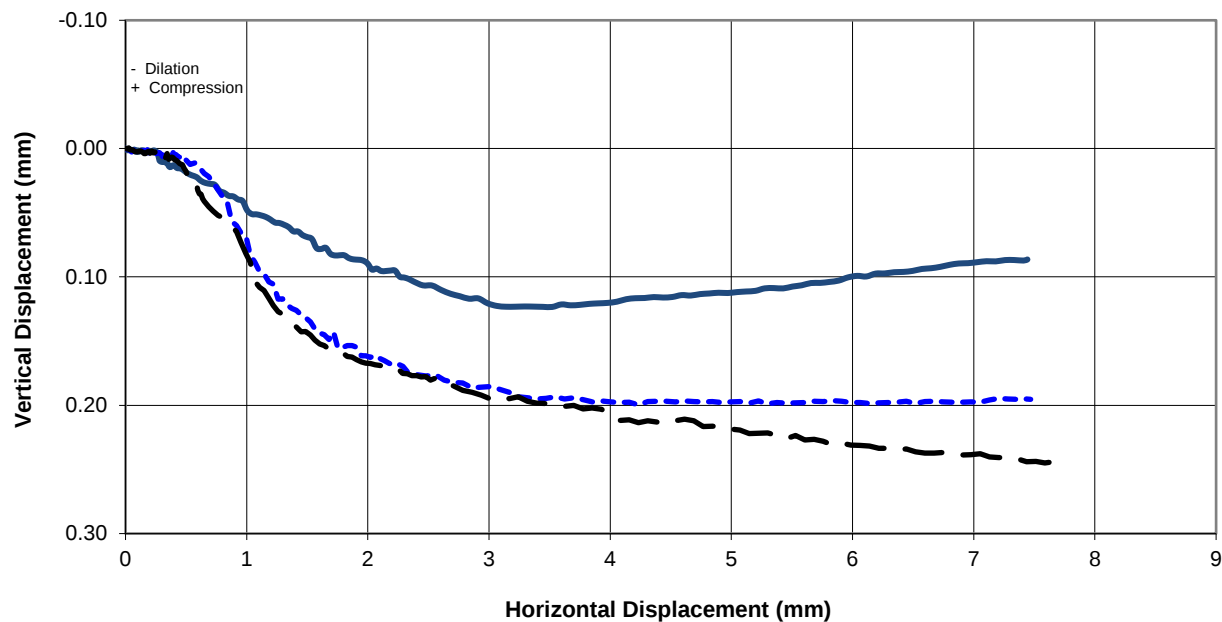
Client: Telkwa Coal Ltd.
Project: Ref #017-318
Location: N/A
Project No.: 18109666/2000

Borehole: 19-22S
Sample Number: 29665
Depth (m): 16.2 - 16.8
Lab ID No: B19-058

Shear Stress (Peak)



Displacement (Peak)



TM

April 4, 2019

DL

April 16, 2019

TESTED BY

DATE

CHECKED BY

DATE



GOLDER

Golder Associates Ltd. - Burnaby Laboratory

#300-3811 North Fraser Way

Burnaby, B.C. Canada V5J 5J2

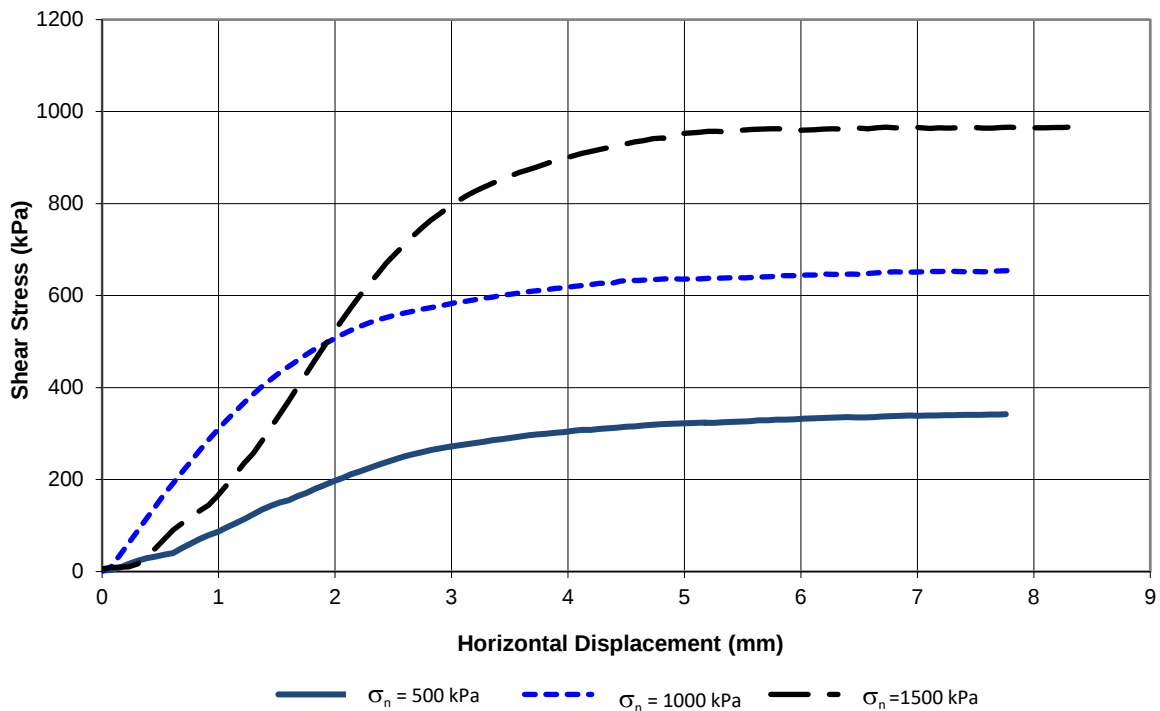
Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080

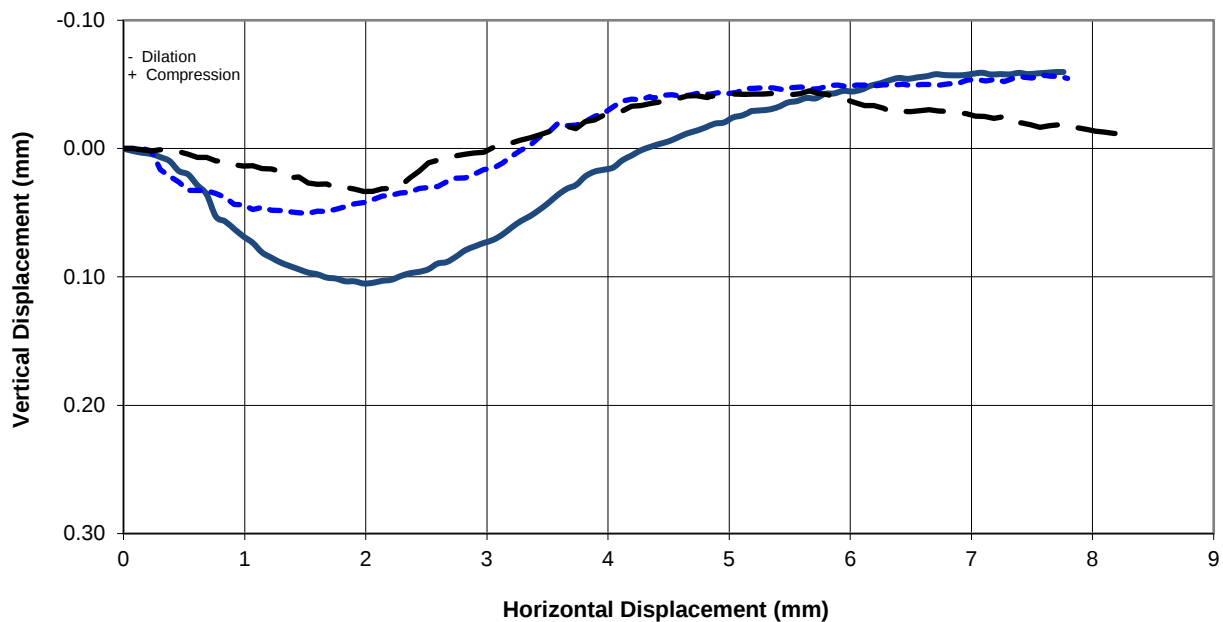
Client: Telkwa Coal Ltd.
Project: Ref #017-318
Location: N/A
Project No.: 18109666/2000

Borehole: 19-22S
Sample Number: 29665
Depth (m): 16.2 - 16.8
Lab ID No: B19-058

Shear Stress (Residual)



Displacement (Residual)



TM

April 4, 2019

DL

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DATE

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GOLDER

Golder Associates Ltd. - Burnaby Laboratory

#300-3811 North Fraser Way

Burnaby, B.C. Canada V5J 5J2

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080

Client: Telkwa Coal Ltd.

Project: Ref #017-318

Location: N/A

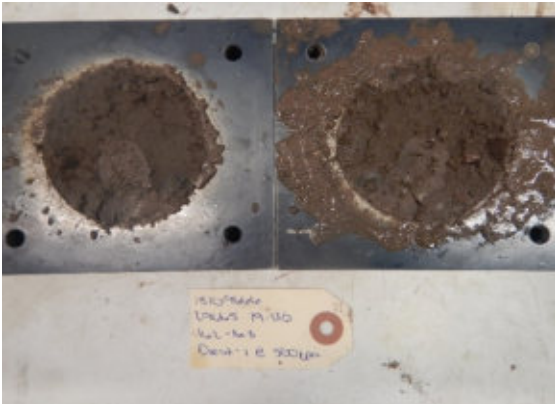
Project No.: 18109666/2000

Borehole: 19-22S

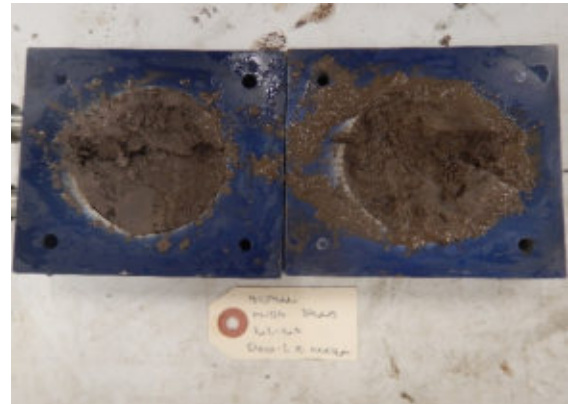
Sample Number: 29665

Depth (m): 16.2 - 16.8

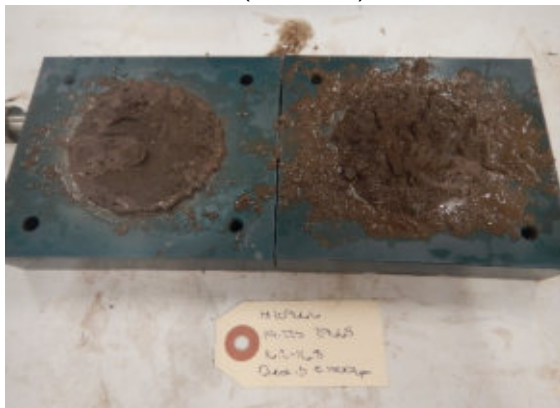
Lab ID No: B19-058



Test 1 (After Shear)



Test 2 (After Shear)



Test 3 (After Shear)

Remarks:

TM	April 4, 2019	DL	April 16, 2019
TESTED BY	DATE	CHECKED BY	DATE

TM

April 4, 2019

DL

April 16, 2019

TESTED BY

DATE

CHECKED BY

DATE

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080

Client:	Telkwa Coal Ltd.	Borehole:	19-22S
Project:	Ref #017-318	Sample Number:	29665
Location:	N/A	Depth (m):	16.2 - 16.8
Project No.:	18109666/2000	Lab ID No:	B19-058

Peak 1			Peak 2			Peak 3					
Normal Stress , kPa	500		Normal Stress , kPa	1000		Normal Stress , kPa	1500		Normal Stress , kPa		
Disp Rate, mm/min	0.005		Disp Rate, mm/min	0.005		Disp Rate, mm/min	0.005		Disp Rate, mm/min		

Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert
Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp
mm	kPa	mm	mm	kPa	mm	mm	kPa	mm	mm	kPa	mm
0.00	1.1	0.000	0.00	0.3	0.000	0.00	0.9	0.000			
0.01	2.3	0.001	0.01	2.2	0.001	0.01	1.2	0.001			
0.03	4.2	0.001	0.03	4.3	0.000	0.03	2.0	-0.001			
0.04	5.9	0.001	0.04	6.3	0.002	0.04	3.6	0.001			
0.05	7.8	0.001	0.05	8.4	0.003	0.05	6.1	0.001			
0.06	9.7	0.001	0.06	9.8	0.002	0.06	9.9	0.001			
0.08	11.9	0.001	0.08	12.1	0.000	0.08	14.8	0.002			
0.09	14.2	0.003	0.09	15.1	0.001	0.09	21.2	0.002			
0.10	17.4	0.001	0.10	18.6	0.002	0.10	25.6	0.003			
0.11	20.7	0.002	0.11	22.2	0.002	0.11	28.6	0.002			
0.13	23.6	0.001	0.13	25.5	0.001	0.13	34.1	0.002			
0.14	26.6	0.001	0.14	28.1	0.002	0.14	37.8	0.003			
0.15	29.3	0.002	0.15	30.6	0.001	0.15	42.9	0.004			
0.17	32.0	0.002	0.17	33.4	0.002	0.17	48.2	0.004			
0.18	34.5	0.002	0.18	36.6	0.001	0.18	53.1	0.003			
0.19	37.1	0.002	0.19	40.3	0.003	0.19	58.5	0.002			
0.20	40.4	0.002	0.20	44.2	0.002	0.20	62.8	0.004			
0.22	44.6	0.002	0.22	47.8	0.003	0.22	68.5	0.002			
0.23	48.9	0.001	0.23	51.7	0.005	0.23	74.6	0.003			
0.24	53.3	0.002	0.24	55.5	0.003	0.24	82.3	0.003			
0.25	57.6	0.002	0.25	58.9	0.004	0.25	90.9	0.005			
0.27	61.9	0.004	0.27	63.2	0.003	0.27	97.9	0.002			
0.28	66.0	0.009	0.28	67.7	0.003	0.28	106.0	0.005			
0.29	70.1	0.010	0.29	72.1	0.004	0.29	111.3	0.005			
0.31	74.0	0.010	0.31	76.6	0.006	0.31	118.0	0.004			
0.32	77.8	0.010	0.32	80.9	0.005	0.32	124.9	0.005			
0.33	81.5	0.011	0.33	85.4	0.005	0.33	133.1	0.007			
0.34	85.0	0.011	0.34	89.8	0.005	0.34	140.8	0.004			
0.36	88.0	0.013	0.36	94.8	0.005	0.36	148.7	0.008			
0.37	90.7	0.014	0.37	99.8	0.004	0.37	154.5	0.007			
0.38	93.4	0.014	0.38	104.9	0.005	0.38	162.2	0.007			
0.39	95.9	0.013	0.39	110.3	0.003	0.39	167.7	0.007			
0.41	98.1	0.013	0.41	116.2	0.005	0.41	175.6	0.009			
0.42	100.3	0.015	0.42	122.0	0.005	0.42	184.4	0.009			
0.43	102.3	0.015	0.43	128.0	0.007	0.43	192.8	0.010			

0.45	104.3	0.015	0.44	134.3	0.007	0.44	201.8	0.012			
0.46	106.4	0.016	0.46	140.2	0.008	0.46	208.8	0.012			
0.47	108.3	0.016	0.47	146.3	0.006	0.47	216.6	0.013			
0.51	114.1	0.019	0.48	152.4	0.006	0.48	226.1	0.015			
0.55	119.4	0.021	0.50	158.6	0.009	0.50	234.7	0.017			
0.58	124.7	0.022	0.53	176.4	0.012	0.51	242.5	0.020			
0.62	130.1	0.025	0.57	193.2	0.011	0.52	248.8	0.019			
0.66	135.4	0.027	0.61	210.4	0.015	0.53	255.4	0.022			
0.70	140.7	0.027	0.65	228.0	0.019	0.55	263.6	0.023			
0.74	146.3	0.028	0.69	244.7	0.022	0.56	271.2	0.024			
0.78	152.5	0.033	0.72	260.5	0.027	0.57	279.0	0.028			
0.81	160.1	0.034	0.76	275.1	0.032	0.58	286.3	0.028			
0.85	168.1	0.037	0.80	289.1	0.037	0.60	293.9	0.032			
0.89	175.7	0.037	0.84	303.2	0.042	0.61	301.6	0.035			
0.93	182.0	0.040	0.88	316.9	0.057	0.62	309.0	0.036			
0.97	187.7	0.041	0.92	330.4	0.060	0.64	317.3	0.039			
1.00	193.0	0.048	0.95	343.5	0.066	0.65	321.9	0.041			
1.04	197.9	0.051	0.99	355.7	0.068	0.69	343.3	0.045			
1.08	202.2	0.051	1.03	367.2	0.083	0.72	365.5	0.049			
1.12	206.3	0.052	1.07	378.4	0.088	0.76	388.3	0.052			
1.16	210.2	0.053	1.11	389.0	0.096	0.80	407.3	0.054			
1.20	213.9	0.055	1.14	399.4	0.098	0.84	426.4	0.057			
1.23	217.4	0.058	1.18	411.2	0.104	0.88	447.4	0.060			
1.27	220.5	0.058	1.22	421.1	0.106	0.92	464.7	0.065			
1.31	223.7	0.059	1.26	430.7	0.117	0.95	484.3	0.073			
1.35	226.6	0.061	1.30	439.9	0.117	0.99	503.9	0.082			
1.39	229.4	0.065	1.33	448.7	0.122	1.03	522.7	0.089			
1.42	232.2	0.065	1.37	457.5	0.125	1.07	541.8	0.103			
1.46	235.1	0.067	1.41	466.3	0.126	1.11	560.2	0.108			
1.50	237.9	0.069	1.45	474.8	0.129	1.14	579.1	0.111			
1.54	240.4	0.070	1.49	482.6	0.132	1.18	594.2	0.116			
1.58	242.9	0.078	1.53	489.6	0.135	1.22	610.2	0.122			
1.61	245.2	0.078	1.56	496.2	0.141	1.26	628.3	0.127			
1.65	247.4	0.077	1.60	503.0	0.144	1.30	644.1	0.129			
1.69	249.6	0.082	1.64	509.1	0.145	1.33	658.0	0.132			
1.73	251.8	0.083	1.68	515.9	0.149	1.37	672.7	0.136			
1.77	253.9	0.083	1.72	519.7	0.143	1.41	687.9	0.139			
1.81	256.1	0.083	1.75	525.7	0.156	1.45	701.6	0.143			
1.84	258.1	0.085	1.79	532.2	0.155	1.49	717.3	0.143			
1.88	259.8	0.086	1.83	537.4	0.153	1.53	733.1	0.145			
1.92	261.7	0.087	1.87	541.7	0.153	1.56	744.8	0.149			
1.96	263.6	0.087	1.91	545.8	0.155	1.60	757.7	0.152			
2.00	265.3	0.089	1.94	550.9	0.161	1.64	771.9	0.154			
2.03	267.2	0.094	1.98	554.8	0.161	1.68	782.2	0.156			
2.07	268.6	0.093	2.02	558.5	0.163	1.72	792.9	0.157			
2.11	270.0	0.095	2.06	562.0	0.161	1.75	804.2	0.159			
2.15	271.5	0.095	2.10	564.8	0.164	1.79	815.9	0.159			
2.19	273.0	0.095	2.14	568.2	0.165	1.83	826.3	0.162			
2.22	274.6	0.095	2.17	571.2	0.167	1.87	836.5	0.162			
2.26	276.2	0.100	2.21	574.5	0.169	1.91	848.2	0.164			
2.30	277.3	0.100	2.25	577.2	0.168	1.94	857.6	0.166			
2.34	278.7	0.102	2.29	580.1	0.170	1.98	866.4	0.167			
2.38	280.0	0.104	2.33	582.6	0.174	2.02	876.1	0.167			

2.45	282.6	0.107	2.36	584.8	0.176	2.06	885.2	0.168			
2.53	284.8	0.107	2.40	587.4	0.176	2.10	892.1	0.169			
2.61	287.0	0.110	2.48	592.2	0.177	2.14	897.4	0.170			
2.68	288.8	0.113	2.55	596.6	0.176	2.17	906.3	0.169			
2.76	291.1	0.115	2.63	599.9	0.180	2.21	912.3	0.170			
2.83	293.4	0.117	2.71	604.5	0.182	2.25	917.6	0.172			
2.91	295.2	0.117	2.78	607.9	0.183	2.29	924.4	0.175			
2.99	297.1	0.121	2.86	610.3	0.186	2.33	930.2	0.175			
3.06	298.6	0.123	2.94	613.4	0.186	2.36	934.5	0.177			
3.14	300.3	0.123	3.01	616.4	0.185	2.40	938.6	0.177			
3.22	302.3	0.123	3.09	619.1	0.188	2.44	944.3	0.178			
3.29	303.6	0.123	3.17	621.7	0.190	2.48	948.7	0.178			
3.37	305.1	0.123	3.24	624.3	0.193	2.52	951.7	0.180			
3.44	307.0	0.123	3.32	626.6	0.194	2.55	955.8	0.179			
3.52	308.9	0.123	3.39	628.5	0.195	2.63	963.2	0.184			
3.60	310.3	0.121	3.47	630.9	0.195	2.71	969.6	0.185			
3.67	311.4	0.122	3.55	632.6	0.193	2.78	974.9	0.188			
3.75	313.1	0.122	3.62	634.3	0.195	2.86	980.6	0.190			
3.83	314.5	0.121	3.70	636.6	0.194	2.94	984.2	0.192			
3.90	315.4	0.121	3.78	638.0	0.196	3.01	987.4	0.195			
3.98	317.0	0.120	3.85	639.9	0.197	3.09	991.9	0.193			
4.06	318.2	0.119	3.93	641.5	0.197	3.16	993.0	0.195			
4.13	318.9	0.117	4.00	643.1	0.197	3.24	995.7	0.193			
4.21	319.8	0.117	4.08	644.6	0.198	3.32	998.4	0.197			
4.28	320.9	0.116	4.16	645.8	0.198	3.39	999.8	0.198			
4.36	321.7	0.116	4.23	647.2	0.200	3.47	999.0	0.199			
4.44	322.7	0.116	4.31	648.5	0.197	3.55	998.6	0.199			
4.51	323.4	0.116	4.39	649.5	0.197	3.62	998.5	0.201			
4.59	325.1	0.114	4.46	651.0	0.197	3.70	996.0	0.200			
4.67	325.3	0.114	4.54	651.0	0.197	3.77	995.5	0.203			
4.74	326.8	0.113	4.61	652.5	0.197	3.85	992.5	0.202			
4.82	327.7	0.113	4.69	651.7	0.197	3.93	991.6	0.203			
4.89	328.1	0.112	4.77	653.7	0.197	4.00	989.5	0.207			
4.97	328.7	0.113	4.84	654.3	0.197	4.08	967.1	0.212			
5.05	329.2	0.112	4.92	655.5	0.198	4.16	967.3	0.211			
5.12	329.7	0.111	5.00	656.6	0.197	4.23	972.7	0.214			
5.20	330.2	0.111	5.07	656.8	0.197	4.31	976.0	0.212			
5.28	331.3	0.109	5.15	658.0	0.198	4.39	978.2	0.213			
5.35	332.3	0.109	5.22	657.7	0.197	4.46	978.9	0.211			
5.43	332.9	0.109	5.30	658.1	0.199	4.54	979.9	0.212			
5.50	334.0	0.107	5.38	658.7	0.198	4.61	982.2	0.211			
5.58	334.6	0.107	5.45	659.5	0.198	4.69	982.9	0.212			
5.66	334.2	0.105	5.53	658.6	0.198	4.77	985.0	0.216			
5.73	334.9	0.105	5.61	659.3	0.198	4.84	987.0	0.216			
5.81	335.0	0.104	5.68	659.5	0.197	4.92	979.3	0.216			
5.89	335.4	0.103	5.76	661.5	0.197	5.00	979.8	0.218			
5.96	335.7	0.100	5.83	661.7	0.196	5.07	980.0	0.219			
6.04	336.0	0.099	5.91	662.4	0.197	5.15	983.5	0.222			
6.11	336.3	0.100	5.99	662.5	0.198	5.22	986.7	0.222			
6.19	336.6	0.097	6.06	662.8	0.198	5.30	987.8	0.222			
6.27	337.0	0.097	6.14	664.2	0.199	5.38	989.9	0.224			
6.34	337.5	0.096	6.22	663.8	0.198	5.45	989.4	0.226			
6.42	337.3	0.096	6.29	664.2	0.198	5.53	991.8	0.224			

6.50	337.7	0.095	6.37	663.5	0.198	5.61	990.3	0.227			
6.57	338.2	0.094	6.44	663.7	0.197	5.68	988.9	0.227			
6.65	338.2	0.093	6.52	663.8	0.199	5.76	990.8	0.228			
6.72	338.3	0.092	6.60	662.2	0.197	5.83	994.0	0.231			
6.80	339.0	0.091	6.67	663.9	0.197	5.91	994.1	0.230			
6.88	339.9	0.090	6.75	661.4	0.197	5.99	997.2	0.231			
6.95	340.2	0.089	6.83	662.8	0.198	6.06	998.5	0.231			
7.03	340.8	0.089	6.90	663.0	0.198	6.14	999.6	0.232			
7.11	340.7	0.088	6.98	660.9	0.197	6.22	1000.0	0.233			
7.18	340.1	0.088	7.05	661.9	0.198	6.29	1002.1	0.234			
7.26	340.9	0.087	7.13	661.2	0.196	6.37	1002.1	0.235			
7.33	341.3	0.087	7.21	661.5	0.195	6.44	1003.1	0.234			
7.41	341.1	0.087	7.28	662.0	0.195	6.52	1003.6	0.236			
7.44	341.1	0.086	7.36	662.6	0.195	6.60	1005.8	0.237			
			7.44	661.0	0.195	6.67	1006.8	0.237			
			7.47	661.4	0.195	6.75	1009.2	0.237			
						6.83	1011.7	0.237			
						6.90	1014.8	0.239			
						6.98	1017.2	0.238			
						7.05	1016.0	0.238			
						7.13	1016.4	0.240			
						7.21	1016.2	0.241			
						7.28	1019.2	0.240			
						7.36	1019.9	0.242			
						7.44	1022.1	0.244			
						7.51	1024.0	0.244			
						7.59	1025.2	0.245			
						7.62	1025.3	0.245			

TM	April 4, 2019	DL	April 16, 2019
TESTED BY	DATE	CHECKED BY	DATE

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080

Client:	Telkwa Coal Ltd.	Borehole:	19-22S
Project:	Ref #017-318	Sample Number:	29665
Location:	N/A	Depth (m):	16.2 - 16.8
Project No.:	18109666/2000	Lab ID No:	B19-058

Residual 1		Residual 2		Residual 3			
Normal Stress , kPa	500	Normal Stress , kPa	1000	Normal Stress , kPa	1500	Normal Stress , kPa	
Disp Rate, mm/min	0.005	Disp Rate, mm/min	0.005	Disp Rate, mm/min	0.005	Disp Rate, mm/min	

Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert
Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp
mm	kPa	mm	mm	kPa	mm	mm	kPa	mm	mm	kPa	mm
0.00	2.5	0.000	0.00	0.6	0.000	0.00	6.1	0.000			
0.08	3.0	0.002	0.08	10.6	0.000	0.08	9.0	0.000			
0.15	8.7	0.003	0.15	36.3	0.000	0.15	9.7	0.001			
0.23	16.5	0.004	0.23	61.9	0.002	0.23	10.1	0.002			
0.31	23.6	0.007	0.31	88.2	0.016	0.31	16.8	0.001			
0.38	28.9	0.010	0.38	115.2	0.022	0.38	34.2	0.001			
0.46	32.6	0.017	0.46	141.4	0.026	0.46	50.9	0.002			
0.53	36.9	0.020	0.53	168.1	0.032	0.53	69.9	0.004			
0.61	40.2	0.029	0.61	192.2	0.033	0.61	90.0	0.007			
0.69	51.6	0.036	0.69	216.4	0.033	0.69	105.2	0.007			
0.76	61.1	0.053	0.76	240.1	0.035	0.76	119.5	0.010			
0.84	71.0	0.057	0.84	263.6	0.038	0.84	131.8	0.010			
0.92	78.9	0.063	0.92	286.7	0.043	0.92	144.4	0.013			
0.99	86.3	0.069	0.99	308.0	0.044	0.99	164.4	0.014			
1.07	95.7	0.073	1.07	328.8	0.048	1.07	187.9	0.013			
1.14	104.6	0.081	1.14	348.3	0.046	1.14	210.7	0.016			
1.22	113.7	0.085	1.22	367.5	0.048	1.22	235.5	0.016			
1.30	124.4	0.089	1.30	385.2	0.048	1.30	256.6	0.018			
1.37	134.6	0.092	1.37	402.5	0.049	1.37	284.5	0.023			
1.45	143.4	0.094	1.45	418.2	0.050	1.45	313.3	0.022			
1.53	150.0	0.097	1.53	432.7	0.050	1.53	341.3	0.027			
1.60	155.0	0.098	1.60	446.0	0.049	1.60	370.8	0.028			
1.68	163.9	0.101	1.68	459.2	0.049	1.68	401.4	0.027			
1.75	171.2	0.101	1.75	471.9	0.047	1.75	431.2	0.031			
1.83	179.8	0.103	1.83	483.8	0.045	1.83	460.2	0.030			
1.91	187.8	0.103	1.91	494.8	0.043	1.91	489.7	0.031			
1.98	195.8	0.105	1.98	505.2	0.042	1.98	518.6	0.033			
2.06	203.1	0.105	2.06	515.4	0.040	2.06	546.7	0.033			
2.14	211.1	0.103	2.14	524.6	0.037	2.14	573.2	0.031			
2.21	217.8	0.102	2.21	532.7	0.036	2.21	599.6	0.031			
2.29	224.8	0.099	2.29	540.7	0.035	2.29	623.6	0.029			
2.36	231.9	0.097	2.36	547.5	0.034	2.36	646.7	0.023			
2.44	238.1	0.096	2.44	552.6	0.031	2.44	670.2	0.018			
2.52	244.1	0.094	2.52	557.6	0.030	2.52	690.5	0.011			
2.59	250.4	0.090	2.59	562.0	0.030	2.59	710.3	0.009			

2.67	255.3	0.088	2.67	566.2	0.026	2.67	729.4	0.007			
2.75	259.6	0.084	2.75	570.1	0.023	2.75	746.9	0.006			
2.82	264.1	0.079	2.82	573.8	0.023	2.82	763.6	0.004			
2.90	267.7	0.076	2.90	577.6	0.020	2.90	777.8	0.003			
2.97	270.9	0.074	2.97	581.3	0.016	2.97	792.5	0.003			
3.05	274.1	0.071	3.05	585.3	0.015	3.05	804.8	-0.001			
3.13	277.1	0.067	3.13	588.0	0.011	3.13	816.5	-0.001			
3.20	279.6	0.062	3.20	591.1	0.006	3.20	827.0	-0.004			
3.28	282.6	0.057	3.28	594.5	0.001	3.28	836.0	-0.007			
3.36	285.4	0.053	3.36	597.0	-0.002	3.36	844.7	-0.008			
3.43	287.9	0.048	3.43	600.8	-0.009	3.43	853.4	-0.011			
3.51	290.6	0.042	3.51	603.0	-0.013	3.51	860.6	-0.013			
3.58	293.5	0.036	3.58	605.9	-0.020	3.58	868.0	-0.016			
3.66	296.0	0.031	3.66	608.5	-0.018	3.66	873.6	-0.017			
3.74	298.0	0.028	3.74	610.8	-0.018	3.74	880.2	-0.016			
3.81	299.9	0.022	3.81	612.9	-0.021	3.81	887.2	-0.021			
3.89	301.8	0.018	3.89	615.5	-0.025	3.89	892.8	-0.022			
3.97	303.2	0.016	3.97	616.8	-0.027	3.97	898.2	-0.026			
4.04	305.9	0.015	4.04	619.4	-0.033	4.04	903.4	-0.029			
4.12	307.7	0.009	4.12	621.9	-0.037	4.12	909.3	-0.029			
4.19	308.1	0.005	4.19	624.1	-0.039	4.19	913.5	-0.033			
4.27	310.0	0.001	4.27	626.4	-0.038	4.27	917.6	-0.033			
4.35	311.4	-0.001	4.35	626.8	-0.041	4.35	921.9	-0.035			
4.42	313.1	-0.004	4.38	627.0	-0.039	4.42	925.4	-0.036			
4.50	314.8	-0.006	4.38	626.4	-0.039	4.50	930.3	-0.036			
4.58	315.8	-0.009	4.45	631.8	-0.042	4.58	933.9	-0.039			
4.65	317.6	-0.012	4.53	633.1	-0.042	4.65	937.1	-0.041			
4.73	319.1	-0.014	4.60	633.1	-0.041	4.73	940.9	-0.041			
4.80	320.3	-0.016	4.68	634.1	-0.042	4.80	942.4	-0.040			
4.88	321.3	-0.019	4.76	634.8	-0.043	4.82	942.7	-0.040			
4.96	322.0	-0.020	4.83	636.1	-0.042	4.82	942.3	-0.041			
5.03	322.7	-0.024	4.91	636.3	-0.044	4.82	942.1	-0.042			
5.11	323.6	-0.026	4.99	635.9	-0.043	4.82	942.1	-0.040			
5.18	323.7	-0.029	5.06	636.6	-0.044	4.90	952.3	-0.042			
5.18	323.7	-0.029	5.14	636.1	-0.047	4.98	952.2	-0.042			
5.26	323.3	-0.030	5.21	637.6	-0.047	5.05	953.5	-0.042			
5.33	324.4	-0.030	5.29	637.9	-0.047	5.13	955.3	-0.042			
5.41	325.5	-0.033	5.37	638.6	-0.047	5.20	957.0	-0.042			
5.48	326.0	-0.036	5.44	639.5	-0.046	5.28	957.0	-0.043			
5.56	327.0	-0.037	5.52	638.8	-0.048	5.36	955.6	-0.043			
5.64	328.7	-0.039	5.59	639.8	-0.048	5.43	957.8	-0.042			
5.71	328.8	-0.039	5.67	640.5	-0.046	5.51	959.8	-0.042			
5.79	330.3	-0.043	5.75	641.3	-0.047	5.59	960.9	-0.043			
5.87	330.5	-0.043	5.82	643.3	-0.049	5.66	961.7	-0.045			
5.94	331.2	-0.045	5.90	643.0	-0.049	5.74	962.5	-0.043			
6.02	332.3	-0.044	5.98	643.7	-0.048	5.81	963.0	-0.042			
6.09	333.3	-0.046	6.05	644.8	-0.050	5.89	958.4	-0.039			
6.17	333.8	-0.049	6.13	644.9	-0.049	5.97	959.3	-0.038			
6.25	334.2	-0.051	6.20	646.5	-0.049	6.04	959.9	-0.036			
6.32	335.3	-0.053	6.28	646.2	-0.050	6.12	960.3	-0.034			
6.40	335.6	-0.055	6.36	645.9	-0.050	6.19	961.8	-0.034			
6.48	334.9	-0.054	6.43	646.5	-0.050	6.27	962.6	-0.032			
6.55	335.0	-0.056	6.51	646.2	-0.049	6.35	962.2	-0.028			

Direct Shear Testing of Soils Under Consolidated Drained Conditions					Reference ASTM D3080	
Client:	Telkwa Coal Ltd.			Borehole:	19-34S	
Project:	Ref #017-318			Sample Number:	29622	
Location:	N/A			Depth (m):	29.9 - 33.5	
Project No.:	18109666/2000			Lab ID No:	B19-058	
Test Condition:	Saturated			Test parameters:	Peak and residual	
Visual Description:	CLAYEY SILT, some sand, some gravel, w < PL, red, very stiff.			Soil Structure:	Reconstituted	
Remarks:	Area correction not applied to normal and shear stress calculation Unit weight = 2204 kg/m ³ . Sample was scalped over the #4 sieve.					
Initial Sample Dimensions						
Test No.	1	2	3			
Shear box geometry	Circle	Circle	Circle			
Diameter (mm)	63.50	63.40	63.48			
Height (mm)	26.52	26.57	26.75			
Area (cm²)	31.67	31.57	31.65			
Volume (cm³)	83.99	83.88	84.66			
Weight Volume Relationships						
Sample Type	Bulk Sample					
Dry Mass (g)	168.9	168.2	170.3			
Initial γ_{wet} (kN/m³)	21.70	21.63	21.69			
Final γ_{wet} (kN/m³)	22.97	23.80	23.21			
Initial γ_{dry} (kN/m³)	19.73	19.67	19.73			
Final γ_{dry} (kN/m³)	20.55	21.23	20.86			
Initial water content (%)	10.0	10.0	10.0			
Final water content (%)	11.8	12.1	11.3			
Consolidation Results						
Normal Stress (kPa)	1000	1500	2000			
t₉₀ (Taylor Method) (min)	N/A	N/A	N/A			
Calculated t₅₀ (min)	N/A	N/A	N/A			
Change in height ΔH_c (mm)	1.05	1.95	1.45			
Equipment Calibration						
Test Number	Machine Number	Normal Load Cell	Shear Load Cell	Vertical LPT		
Test -1	Digishear-1	221643	266562	LP-567		
Test -2	Digishear-2	728499	689339	LP-567		
Test -3	Digishear-3	697437	728498	LP-985		
TM	April 11, 2019		DL		April 17, 2019	
TESTED BY	DATE		CHECKED BY		DATE	

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080

Client: Telkwa Coal Ltd.

Project: Ref #017-318

Location: N/A

Project No.: 18109666/2000

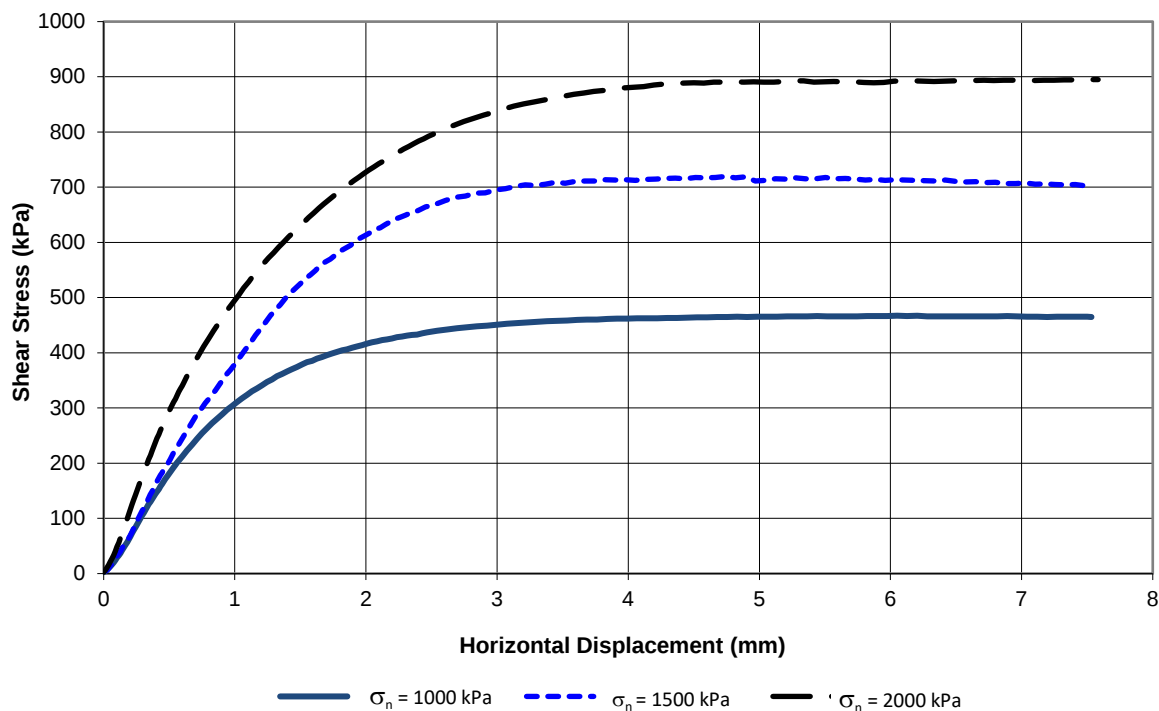
Borehole: 19-34S

Sample Number: 29622

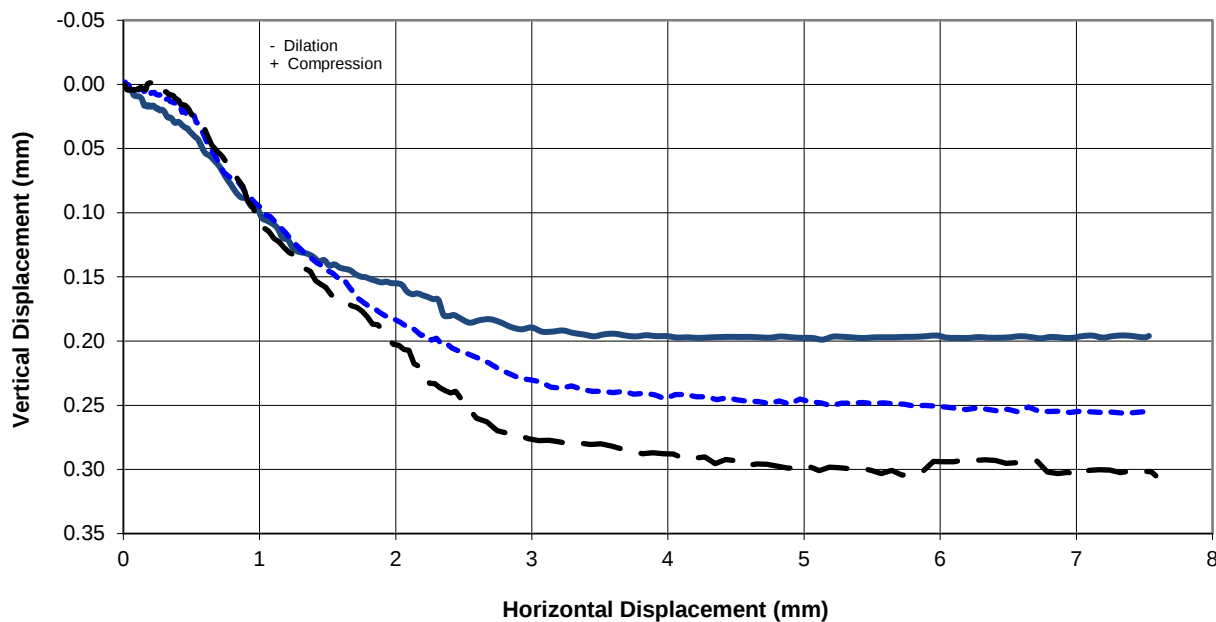
Depth (m): 29.9 - 33.5

Lab ID No: B19-058

Shear Stress (Peak)



Displacement (Peak)



TM

April 11, 2019

DL

April 17, 2019

TESTED BY

DATE

CHECKED BY

DATE



GOLDER

Golder Associates Ltd. - Burnaby Laboratory

#300-3811 North Fraser Way

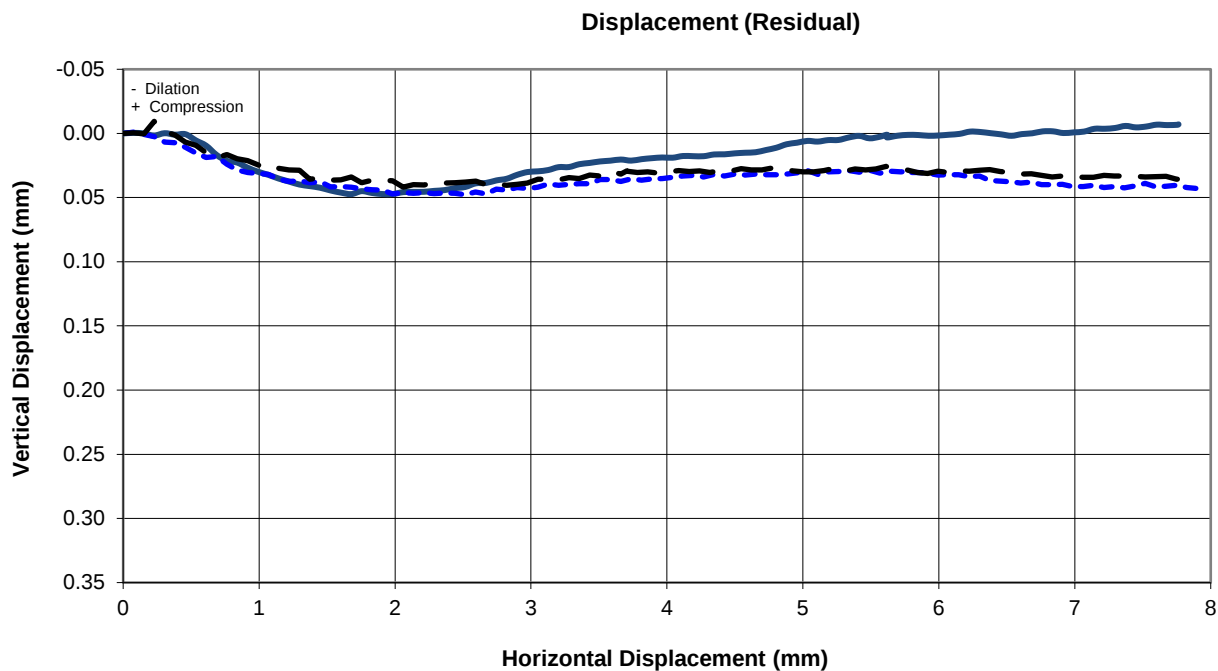
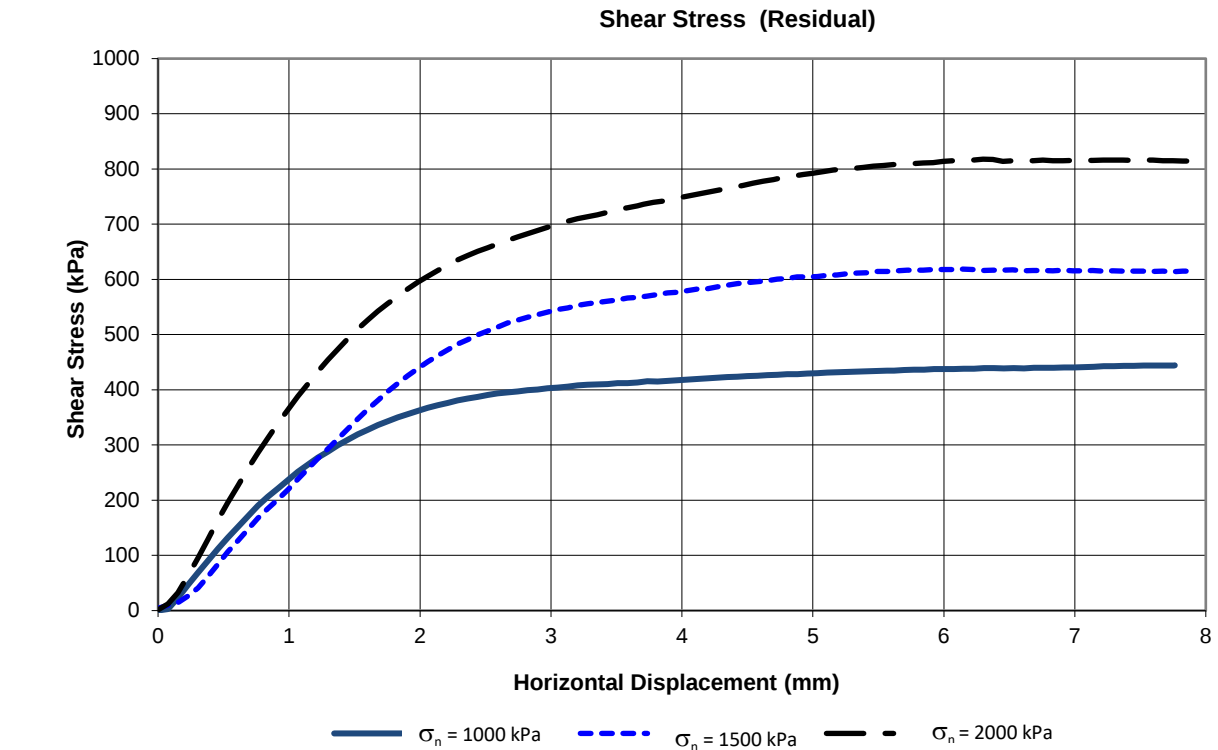
Burnaby, B.C. Canada V5J 5J2

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080

Client: Telkwa Coal Ltd.
Project: Ref #017-318
Location: N/A
Project No.: 18109666/2000

Borehole: 19-34S
Sample Number: 29622
Depth (m): 29.9 - 33.5
Lab ID No: B19-058



TM

April 11, 2019

DL

April 17, 2019

TESTED BY

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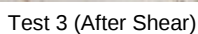
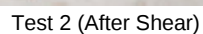


Burnaby, B.C. Canada V5J 5J2

Reference
ASTM D3080

Project No.:	18109666/2000
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Lab ID No:	B19-058
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[illegible]

April 17, 2019

DATE _____

Direct Shear Testing of Soils Under Consolidated Drained Conditions							Reference ASTM D3080				
Client:		Telkwa Coal Ltd.			Borehole:		19-34S				
Project:		Ref #017-318			Sample Number:		29622				
Location:		N/A			Depth (m):		29.9 - 33.5				
Project No.:		18109666/2000			Lab ID No:		B19-058				
Peak 1			Peak 2			Peak 3					
Normal Stress , kPa		1000	Normal Stress , kPa		1500	Normal Stress , kPa		2000	Normal Stress , kPa		
Disp Rate, mm/min		0.005	Disp Rate, mm/min		0.005	Disp Rate, mm/min		0.005	Disp Rate, mm/min		
Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert
Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp
mm	kPa	mm	mm	kPa	mm	mm	kPa	mm	mm	kPa	mm
0.00	2.6	0.000	0.00	3.7	0.000	0.00	2.5	0.000			
0.01	4.5	0.002	0.01	4.4	-0.002	0.01	6.4	0.001			
0.03	6.7	0.003	0.03	6.3	0.001	0.03	11.0	0.004			
0.04	9.5	0.004	0.04	8.9	0.000	0.04	15.8	0.004			
0.05	12.8	0.004	0.05	14.1	0.003	0.05	21.3	0.004			
0.06	16.4	0.005	0.06	17.3	0.003	0.06	27.5	0.004			
0.08	20.2	0.008	0.08	23.2	0.004	0.08	33.8	0.004			
0.09	24.3	0.009	0.09	29.3	0.002	0.09	40.6	0.004			
0.10	28.6	0.009	0.10	31.8	0.003	0.10	48.5	0.004			
0.11	32.7	0.009	0.11	36.3	0.004	0.11	56.3	0.003			
0.13	37.0	0.010	0.13	40.7	0.002	0.13	64.6	0.002			
0.14	42.0	0.012	0.14	46.0	0.004	0.14	73.3	0.003			
0.15	46.6	0.016	0.15	50.7	0.005	0.15	81.9	0.004			
0.17	51.5	0.016	0.17	54.2	0.005	0.17	90.4	0.004			
0.18	56.8	0.017	0.18	58.8	0.005	0.18	98.9	-0.001			
0.19	61.9	0.016	0.19	64.5	0.003	0.19	107.7	-0.001			
0.20	67.4	0.017	0.20	69.3	0.007	0.20	116.4	-0.001			
0.22	73.2	0.016	0.22	75.4	0.006	0.22	125.0	-0.001			
0.23	78.2	0.017	0.23	81.8	0.006	0.23	133.4	-0.001			
0.24	83.7	0.019	0.24	89.2	0.008	0.24	142.3	0.001			
0.25	89.2	0.019	0.25	94.9	0.008	0.25	150.7	0.000			
0.27	94.5	0.020	0.27	101.1	0.008	0.27	158.9	0.000			
0.28	99.8	0.020	0.28	107.3	0.007	0.28	167.2	0.003			
0.29	104.9	0.020	0.29	112.8	0.009	0.29	175.1	0.002			
0.31	110.2	0.022	0.31	118.8	0.012	0.31	183.1	0.006			
0.32	115.4	0.025	0.32	124.6	0.012	0.32	190.7	0.006			
0.33	120.6	0.026	0.33	130.6	0.011	0.33	198.8	0.007			
0.34	125.6	0.026	0.34	136.9	0.013	0.34	206.6	0.008			
0.36	130.0	0.027	0.36	142.9	0.014	0.36	214.2	0.008			
0.37	134.9	0.029	0.37	149.0	0.014	0.37	222.3	0.009			
0.38	139.6	0.030	0.38	156.1	0.015	0.38	230.2	0.011			
0.39	144.0	0.029	0.39	161.0	0.016	0.39	237.8	0.012			
0.41	148.5	0.029	0.41	166.8	0.018	0.41	244.9	0.012			
0.42	153.1	0.030	0.42	173.2	0.017	0.42	252.3	0.015			
0.43	157.9	0.032	0.43	178.3	0.022	0.43	259.4	0.016			

0.45	162.4	0.033	0.44	182.6	0.020	0.45	266.2	0.016			
0.46	166.7	0.034	0.46	188.6	0.022	0.46	273.1	0.017			
0.47	171.2	0.034	0.47	192.6	0.026	0.47	279.5	0.018			
0.48	176.0	0.036	0.48	197.0	0.025	0.48	285.9	0.020			
0.50	180.1	0.037	0.50	202.5	0.023	0.50	292.4	0.023			
0.51	184.4	0.039	0.51	207.7	0.024	0.51	298.8	0.025			
0.52	188.5	0.040	0.52	213.3	0.024	0.52	305.0	0.027			
0.53	192.6	0.041	0.53	219.1	0.029	0.53	310.9	0.028			
0.55	196.8	0.043	0.55	224.2	0.030	0.55	316.7	0.028			
0.56	200.9	0.045	0.58	238.6	0.038	0.56	322.9	0.029			
0.60	212.2	0.053	0.62	254.5	0.047	0.57	329.0	0.029			
0.64	223.0	0.056	0.66	269.4	0.053	0.58	334.5	0.031			
0.67	233.6	0.060	0.70	284.2	0.061	0.60	340.3	0.035			
0.71	244.1	0.065	0.74	296.0	0.068	0.61	346.1	0.038			
0.75	254.1	0.072	0.78	308.9	0.072	0.65	363.9	0.047			
0.79	263.5	0.078	0.81	320.0	0.073	0.69	380.5	0.052			
0.83	272.4	0.084	0.85	332.2	0.077	0.72	396.4	0.056			
0.86	280.2	0.088	0.89	344.9	0.083	0.76	411.4	0.062			
0.90	288.4	0.089	0.93	358.8	0.087	0.80	425.8	0.068			
0.94	296.4	0.095	0.97	369.1	0.092	0.84	440.1	0.074			
0.98	303.6	0.095	1.00	380.5	0.095	0.88	454.1	0.079			
1.02	310.8	0.104	1.04	393.7	0.101	0.92	468.0	0.091			
1.06	317.4	0.106	1.08	405.5	0.103	0.95	480.5	0.096			
1.09	323.7	0.108	1.12	418.1	0.108	0.99	492.7	0.107			
1.13	330.2	0.112	1.16	431.6	0.112	1.03	505.1	0.112			
1.17	335.6	0.120	1.19	442.8	0.116	1.07	517.5	0.114			
1.21	341.4	0.121	1.23	455.0	0.121	1.11	528.7	0.120			
1.25	347.0	0.128	1.27	467.5	0.125	1.14	540.7	0.123			
1.28	352.0	0.130	1.31	477.7	0.129	1.18	551.5	0.127			
1.32	357.3	0.131	1.35	487.6	0.133	1.22	562.0	0.131			
1.36	361.7	0.132	1.39	498.3	0.136	1.26	572.0	0.133			
1.40	366.3	0.135	1.42	508.6	0.139	1.30	581.5	0.138			
1.44	370.4	0.138	1.46	516.8	0.141	1.33	591.5	0.144			
1.47	374.6	0.137	1.50	525.4	0.145	1.37	600.3	0.146			
1.51	378.9	0.141	1.54	534.2	0.147	1.41	610.1	0.153			
1.55	382.8	0.140	1.58	541.6	0.151	1.45	619.0	0.156			
1.59	385.6	0.143	1.61	549.0	0.151	1.49	627.6	0.158			
1.63	389.4	0.144	1.65	558.5	0.157	1.53	636.3	0.164			
1.67	392.2	0.145	1.69	564.8	0.162	1.56	644.9	0.167			
1.70	395.8	0.148	1.73	570.0	0.167	1.60	653.2	0.168			
1.74	398.7	0.150	1.77	577.3	0.170	1.64	661.7	0.170			
1.78	401.5	0.150	1.80	584.2	0.173	1.68	669.6	0.173			
1.82	404.3	0.152	1.84	589.7	0.175	1.72	677.1	0.174			
1.86	406.5	0.153	1.88	594.9	0.178	1.75	684.3	0.177			
1.89	409.1	0.154	1.92	602.4	0.180	1.79	691.4	0.181			
1.93	411.6	0.154	1.96	607.8	0.182	1.83	698.5	0.187			
1.97	413.7	0.155	2.00	612.6	0.183	1.87	705.0	0.187			
2.01	416.8	0.155	2.03	617.6	0.185	1.91	712.0	0.192			
2.05	418.9	0.156	2.07	623.8	0.188	1.95	718.4	0.198			
2.08	420.9	0.162	2.11	626.6	0.189	1.98	724.6	0.202			
2.12	422.9	0.163	2.15	632.3	0.192	2.02	730.8	0.203			
2.16	424.3	0.163	2.19	637.5	0.196	2.06	736.9	0.206			
2.20	426.0	0.164	2.22	641.9	0.195	2.10	742.4	0.207			

2.24	428.1	0.166	2.26	645.5	0.199	2.14	747.6	0.218			
2.28	429.7	0.167	2.30	648.9	0.198	2.17	753.5	0.220			
2.31	431.5	0.168	2.34	653.5	0.203	2.21	758.5	0.229			
2.35	432.6	0.180	2.38	655.4	0.202	2.25	763.7	0.233			
2.39	433.1	0.180	2.42	659.3	0.205	2.29	769.3	0.233			
2.43	435.2	0.180	2.45	664.3	0.207	2.33	774.1	0.236			
2.47	436.7	0.182	2.53	669.2	0.210	2.36	778.9	0.239			
2.54	439.8	0.186	2.61	675.9	0.213	2.40	783.7	0.240			
2.62	442.1	0.184	2.68	681.4	0.217	2.44	787.5	0.239			
2.69	444.3	0.183	2.76	683.9	0.222	2.48	792.1	0.245			
2.77	446.3	0.185	2.83	688.9	0.226	2.52	796.3	0.250			
2.85	447.9	0.189	2.91	690.0	0.229	2.59	805.1	0.260			
2.92	449.0	0.191	2.99	694.7	0.230	2.67	812.2	0.263			
3.00	451.0	0.189	3.06	697.5	0.232	2.75	818.9	0.270			
3.08	452.7	0.193	3.14	701.2	0.236	2.82	824.7	0.272			
3.15	453.7	0.193	3.22	704.3	0.237	2.90	830.9	0.273			
3.23	454.9	0.192	3.29	703.3	0.235	2.97	836.0	0.276			
3.30	456.4	0.194	3.37	705.4	0.238	3.05	841.9	0.278			
3.38	457.2	0.195	3.44	708.6	0.239	3.13	846.8	0.277			
3.46	457.8	0.196	3.52	707.1	0.239	3.20	851.1	0.279			
3.53	458.7	0.195	3.60	710.4	0.240	3.28	854.3	0.280			
3.61	459.5	0.194	3.67	710.9	0.239	3.36	857.8	0.279			
3.69	460.0	0.196	3.75	711.4	0.241	3.43	861.4	0.281			
3.76	460.5	0.196	3.83	713.5	0.241	3.51	864.8	0.280			
3.84	461.1	0.195	3.90	712.9	0.242	3.58	868.0	0.282			
3.92	462.1	0.196	3.98	713.6	0.245	3.66	870.8	0.284			
3.99	461.9	0.196	4.05	712.2	0.242	3.74	873.6	0.286			
4.07	462.3	0.197	4.13	713.8	0.242	3.81	875.4	0.288			
4.14	462.3	0.197	4.21	714.4	0.243	3.89	877.8	0.287			
4.22	462.5	0.198	4.28	715.6	0.243	3.97	880.0	0.288			
4.30	463.1	0.197	4.36	716.6	0.246	4.04	881.1	0.288			
4.37	462.9	0.197	4.44	715.2	0.244	4.12	882.3	0.292			
4.45	463.6	0.197	4.51	717.6	0.246	4.19	885.0	0.291			
4.53	464.4	0.197	4.59	717.0	0.247	4.27	886.6	0.290			
4.60	464.2	0.197	4.66	717.7	0.247	4.35	887.6	0.295			
4.68	464.9	0.197	4.74	719.4	0.249	4.42	888.4	0.292			
4.75	464.9	0.197	4.82	717.1	0.247	4.50	888.9	0.293			
4.83	465.4	0.196	4.89	718.8	0.249	4.58	888.9	0.297			
4.91	465.1	0.197	4.97	711.3	0.245	4.65	890.3	0.296			
4.98	465.3	0.198	5.05	712.6	0.247	4.73	890.3	0.296			
5.06	465.6	0.198	5.12	715.1	0.248	4.80	891.0	0.298			
5.14	465.6	0.199	5.20	714.6	0.250	4.88	890.4	0.299			
5.21	466.1	0.197	5.27	717.3	0.248	4.96	891.0	0.298			
5.29	466.0	0.197	5.35	715.5	0.248	5.03	890.2	0.298			
5.36	465.8	0.197	5.43	715.2	0.248	5.11	890.4	0.301			
5.44	466.3	0.198	5.50	717.4	0.249	5.19	891.7	0.298			
5.52	465.9	0.197	5.58	715.4	0.248	5.26	892.5	0.299			
5.59	466.0	0.197	5.66	716.1	0.249	5.34	892.6	0.300			
5.67	466.1	0.197	5.73	714.8	0.249	5.41	890.6	0.299			
5.75	466.0	0.197	5.81	712.8	0.251	5.49	890.9	0.301			
5.82	466.8	0.197	5.88	714.0	0.250	5.57	891.5	0.303			
5.90	466.6	0.196	5.96	712.4	0.251	5.64	890.8	0.301			
5.97	466.7	0.196	6.04	713.4	0.251	5.72	890.9	0.305			

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080

Client:	Telkwa Coal Ltd.	Borehole:	19-34S
Project:	Ref #017-318	Sample Number:	29622
Location:	N/A	Depth (m):	29.9 - 33.5
Project No.:	18109666/2000	Lab ID No:	B19-058

Residual 1		Residual 2		Residual 3			
Normal Stress , kPa	1000	Normal Stress , kPa	1500	Normal Stress , kPa	2000	Normal Stress , kPa	
Disp Rate, mm/min	0.005	Disp Rate, mm/min	0.005	Disp Rate, mm/min	0.005	Disp Rate, mm/min	

Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert
Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp
mm	kPa	mm	mm	kPa	mm	mm	kPa	mm	mm	kPa	mm
0.00	0.1	0.000	0.00	4.1	0.000	0.00	1.3	0.000			
0.08	3.0	0.000	0.08	9.9	-0.001	0.08	12.0	-0.001			
0.15	23.1	0.000	0.15	14.2	0.001	0.15	32.3	0.000			
0.23	46.9	0.002	0.23	26.3	0.003	0.23	63.9	-0.009			
0.31	68.7	0.000	0.31	40.8	0.007	0.30	95.4	-0.001			
0.38	90.6	0.001	0.38	61.7	0.007	0.38	129.2	0.001			
0.46	112.0	0.001	0.46	83.9	0.011	0.46	163.7	0.007			
0.53	132.0	0.005	0.53	106.5	0.015	0.53	195.7	0.009			
0.61	151.6	0.010	0.61	127.1	0.019	0.61	226.8	0.015			
0.69	171.1	0.017	0.69	147.2	0.018	0.69	257.1	0.019			
0.76	189.8	0.021	0.76	167.1	0.024	0.76	285.6	0.016			
0.84	206.0	0.023	0.84	184.8	0.028	0.84	312.5	0.020			
0.92	221.3	0.027	0.92	201.5	0.030	0.92	339.4	0.021			
0.99	236.5	0.030	0.99	219.2	0.031	0.99	364.1	0.025			
1.07	251.2	0.032	1.07	238.4	0.032	1.07	388.3	0.028			
1.14	264.5	0.035	1.14	256.9	0.036	1.14	410.4	0.027			
1.22	276.9	0.037	1.22	275.5	0.037	1.22	433.1	0.028			
1.30	288.3	0.040	1.30	293.4	0.037	1.30	454.2	0.029			
1.37	299.4	0.041	1.37	311.3	0.039	1.37	473.6	0.036			
1.45	309.3	0.042	1.45	329.0	0.038	1.45	492.4	0.035			
1.53	319.5	0.044	1.53	347.4	0.042	1.53	510.1	0.036			
1.60	327.7	0.046	1.60	364.3	0.041	1.60	526.4	0.036			
1.68	335.9	0.047	1.68	380.8	0.042	1.68	542.3	0.034			
1.75	343.1	0.045	1.75	396.8	0.043	1.75	556.6	0.038			
1.83	349.9	0.046	1.83	411.4	0.044	1.83	569.4	0.036			
1.91	355.9	0.047	1.91	425.4	0.044	1.91	582.4	0.036			
1.98	361.8	0.047	1.98	438.0	0.047	1.98	594.6	0.037			
2.06	367.4	0.046	2.06	451.2	0.046	2.06	605.6	0.042			
2.14	372.2	0.046	2.14	461.9	0.047	2.14	616.0	0.040			
2.21	376.4	0.045	2.21	472.1	0.046	2.21	625.8	0.040			
2.29	380.6	0.045	2.29	482.8	0.047	2.29	635.0	0.038			
2.36	384.3	0.044	2.36	491.1	0.046	2.36	643.6	0.039			
2.44	387.2	0.043	2.44	499.6	0.047	2.44	650.6	0.038			
2.52	390.4	0.042	2.52	506.8	0.048	2.52	657.5	0.038			
2.59	393.2	0.039	2.59	513.8	0.046	2.59	664.1	0.037			

2.67	395.3	0.039	2.67	520.8	0.047	2.67	670.4	0.040			
2.75	397.3	0.037	2.75	526.5	0.044	2.75	677.1	0.040			
2.82	399.5	0.035	2.82	531.8	0.044	2.82	683.0	0.040			
2.90	400.6	0.032	2.90	536.2	0.042	2.90	688.8	0.040			
2.97	403.0	0.030	2.97	541.0	0.043	2.97	694.6	0.039			
3.05	404.2	0.030	3.05	545.1	0.042	3.05	700.0	0.036			
3.13	405.7	0.029	3.13	548.1	0.040	3.13	705.2	0.036			
3.20	407.8	0.026	3.20	552.7	0.040	3.20	709.9	0.036			
3.28	409.0	0.026	3.28	555.6	0.040	3.28	713.7	0.035			
3.36	409.5	0.024	3.36	558.3	0.039	3.36	717.2	0.035			
3.43	410.2	0.023	3.43	560.7	0.039	3.43	721.9	0.032			
3.51	412.2	0.022	3.51	562.9	0.036	3.51	726.6	0.033			
3.58	411.9	0.021	3.58	566.3	0.036	3.58	729.8	0.029			
3.66	413.2	0.020	3.66	567.5	0.037	3.66	733.4	0.032			
3.74	415.4	0.021	3.74	569.9	0.036	3.71	735.9	0.029			
3.81	415.1	0.020	3.81	572.5	0.036	3.71	735.9	0.029			
3.89	416.0	0.019	3.89	575.5	0.035	3.78	739.3	0.030			
3.97	417.2	0.019	3.97	576.7	0.035	3.86	742.2	0.030			
4.04	418.7	0.019	4.04	579.5	0.034	3.93	745.5	0.031			
4.12	419.7	0.018	4.12	582.5	0.033	4.01	749.5	0.030			
4.19	420.8	0.018	4.19	583.3	0.033	4.09	752.8	0.029			
4.27	422.1	0.018	4.27	586.4	0.034	4.16	756.5	0.030			
4.35	423.1	0.016	4.35	589.3	0.032	4.24	760.1	0.029			
4.42	423.5	0.016	4.42	592.2	0.033	4.32	763.6	0.030			
4.50	425.0	0.016	4.50	594.2	0.032	4.39	767.1	0.029			
4.58	425.7	0.015	4.58	596.0	0.033	4.47	770.5	0.029			
4.65	426.4	0.015	4.65	597.9	0.032	4.54	774.5	0.027			
4.73	426.9	0.013	4.73	600.3	0.032	4.62	777.6	0.028			
4.80	428.2	0.011	4.80	601.5	0.032	4.70	781.0	0.028			
4.88	428.2	0.008	4.88	604.4	0.032	4.77	784.6	0.027			
4.96	429.3	0.007	4.96	604.5	0.031	4.85	787.3	0.028			
5.03	430.3	0.006	5.03	605.2	0.029	4.93	790.1	0.029			
5.11	431.0	0.006	5.11	607.6	0.032	5.00	792.6	0.030			
5.19	432.0	0.005	5.19	608.3	0.030	5.08	795.3	0.030			
5.26	432.4	0.005	5.26	610.3	0.030	5.15	798.0	0.029			
5.34	432.8	0.003	5.34	611.5	0.029	5.23	799.8	0.027			
5.41	433.4	0.002	5.41	612.4	0.030	5.31	801.0	0.029			
5.49	433.9	0.004	5.49	614.7	0.029	5.38	803.0	0.028			
5.57	434.7	0.003	5.57	614.6	0.031	5.46	805.0	0.029			
5.62	434.9	0.001	5.64	615.4	0.029	5.54	806.5	0.028			
5.62	434.4	0.003	5.72	616.5	0.030	5.61	808.0	0.026			
5.70	435.8	0.002	5.76	616.5	0.030	5.69	808.8	0.027			
5.77	436.4	0.001	5.76	616.5	0.030	5.77	809.9	0.028			
5.85	436.5	0.001	5.84	616.9	0.030	5.84	810.7	0.030			
5.92	437.5	0.002	5.92	617.7	0.031	5.92	811.4	0.031			
6.00	437.3	0.002	5.99	618.0	0.032	5.99	813.6	0.030			
6.08	437.7	0.001	6.07	617.9	0.032	6.07	814.8	0.030			
6.15	437.9	0.000	6.15	618.6	0.032	6.15	815.9	0.029			
6.23	438.2	-0.001	6.22	617.9	0.034	6.22	816.4	0.029			
6.31	439.2	-0.001	6.30	616.3	0.033	6.30	817.8	0.029			
6.38	439.3	0.000	6.37	616.9	0.037	6.38	817.4	0.028			
6.46	438.8	0.001	6.45	617.0	0.037	6.45	813.8	0.030			
6.53	439.4	0.002	6.53	617.4	0.038	6.53	814.7	0.031			

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Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080

Client:	Telkwa Coal Ltd.	Borehole:	19-35S
Project:	Ref #017-318	Sample Number:	29624
Location:	N/A	Depth (m):	5.5 - 6.1
Project No.:	18109666/2000	Lab ID No:	B19-058

Test Condition:	Saturated	Test parameters:	Peak and residual
Visual Description:	SILTY CLAY, some sand, some gravel, w > PL, red, very stiff.	Soil Structure:	Reconstituted

Remarks:	Area correction not applied to normal and shear stress calculation Unit weight = 2257 kg/m3. Sample was scalped over the #4 sieve.
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Initial Sample Dimensions

Test No.	1	2	3			
Shear box geometry	Circle	Circle	Circle			
Diameter (mm)	63.48	63.50	63.40			
Height (mm)	26.75	26.52	26.57			
Area (cm²)	31.65	31.67	31.57			
Volume (cm³)	84.66	83.99	83.88			

Weight Volume Relationships

Sample Type	Bulk Sample					
Dry Mass (g)	170.9	170.3	169.8			
Initial γ_{wet} (kN/m³)	22.13	22.24	22.19			
Final γ_{wet} (kN/m³)	22.97	23.46	23.91			
Initial γ_{dry} (kN/m³)	19.80	19.90	19.85			
Final γ_{dry} (kN/m³)	20.34	21.06	21.57			
Initial water content (%)	11.8	11.8	11.8			
Final water content (%)	12.9	11.4	10.8			

Consolidation Results

Normal Stress (kPa)	300	800	1500			
t₉₀ (Taylor Method) (min)	N/A	N/A	N/A			
Calculated t₅₀ (min)	N/A	N/A	N/A			
Change in height ΔH_c (mm)	0.72	1.46	2.11			

Equipment Calibration

Test Number	Machine Number	Normal Load Cell	Shear Load Cell	Vertical LPT
Test -1	Digishear-1	720086	219231	LP-1138
Test -2	Digishear-2	221643	266562	LP-567
Test -3	Digishear-3	728499	689339	LP-567

TM	April 7, 2019	DL	April 17, 2019
TESTED BY	DATE	CHECKED BY	DATE

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080

Client: Telkwa Coal Ltd.

Project: Ref #017-318

Location: N/A

Project No.: 18109666/2000

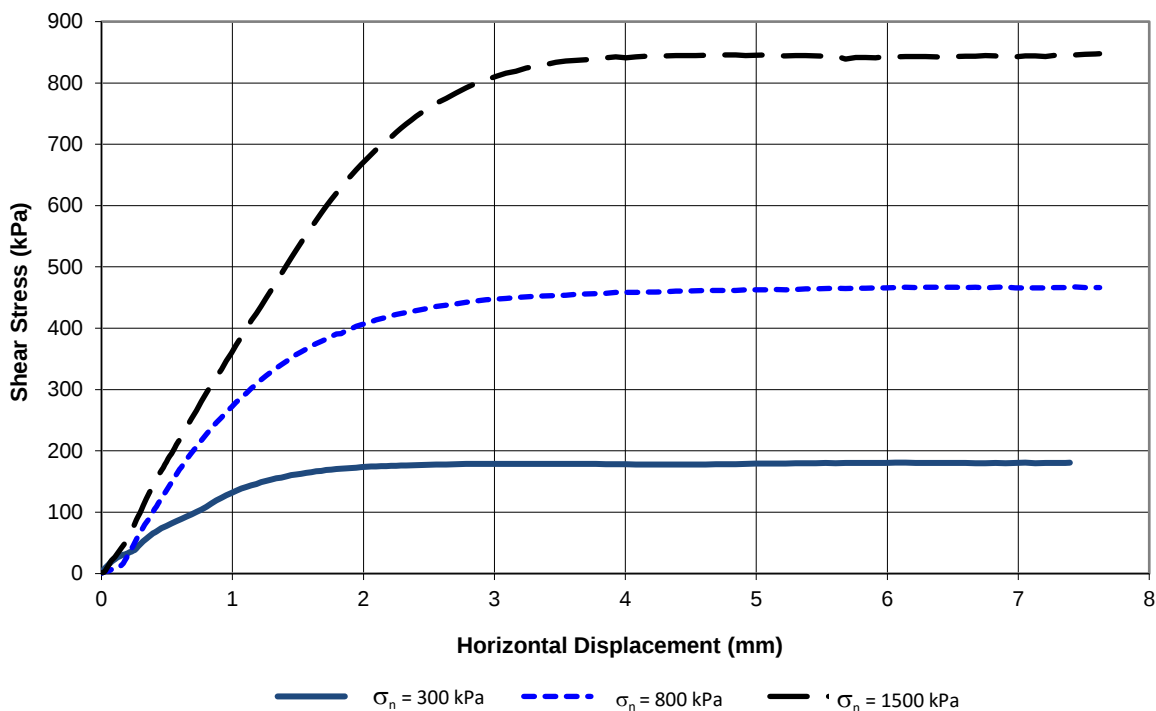
Borehole: 19-35S

Sample Number: 29624

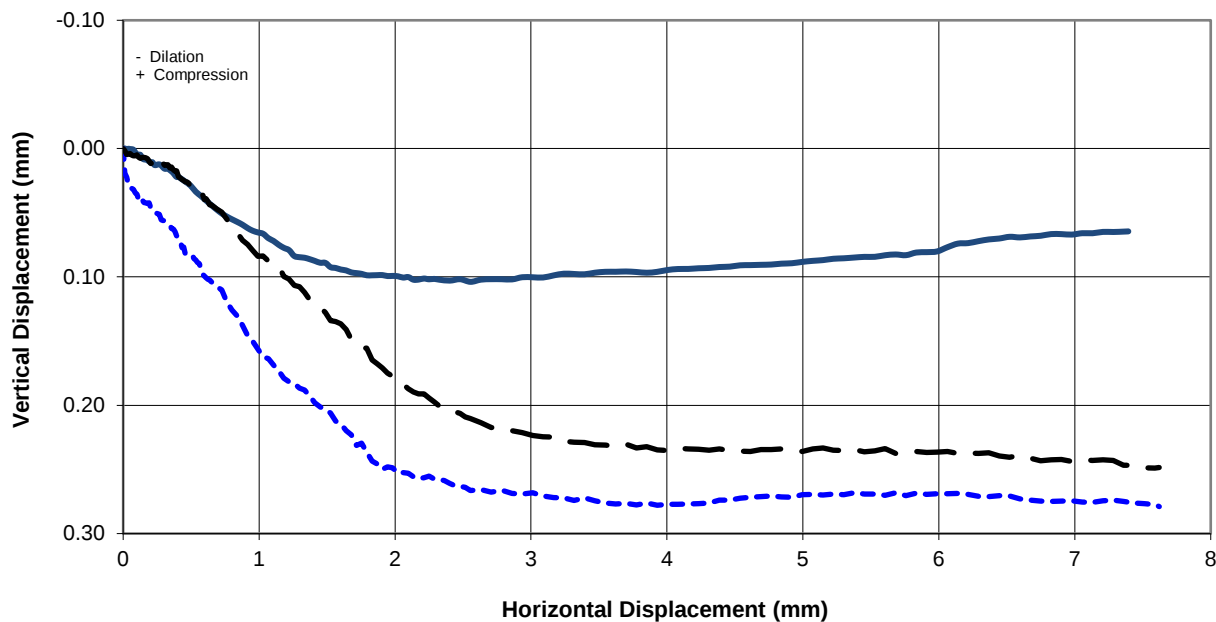
Depth (m): 5.5 - 6.1

Lab ID No: B19-058

Shear Stress (Peak)



Displacement (Peak)



TM

April 7, 2019

DL

April 17, 2019

TESTED BY

DATE

CHECKED BY

DATE



GOLDER

Golder Associates Ltd. - Burnaby Laboratory

#300-3811 North Fraser Way

Burnaby, B.C. Canada V5J 5J2

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080

Client: Telkwa Coal Ltd.

Project: Ref #017-318

Location: N/A

Project No.: 18109666/2000

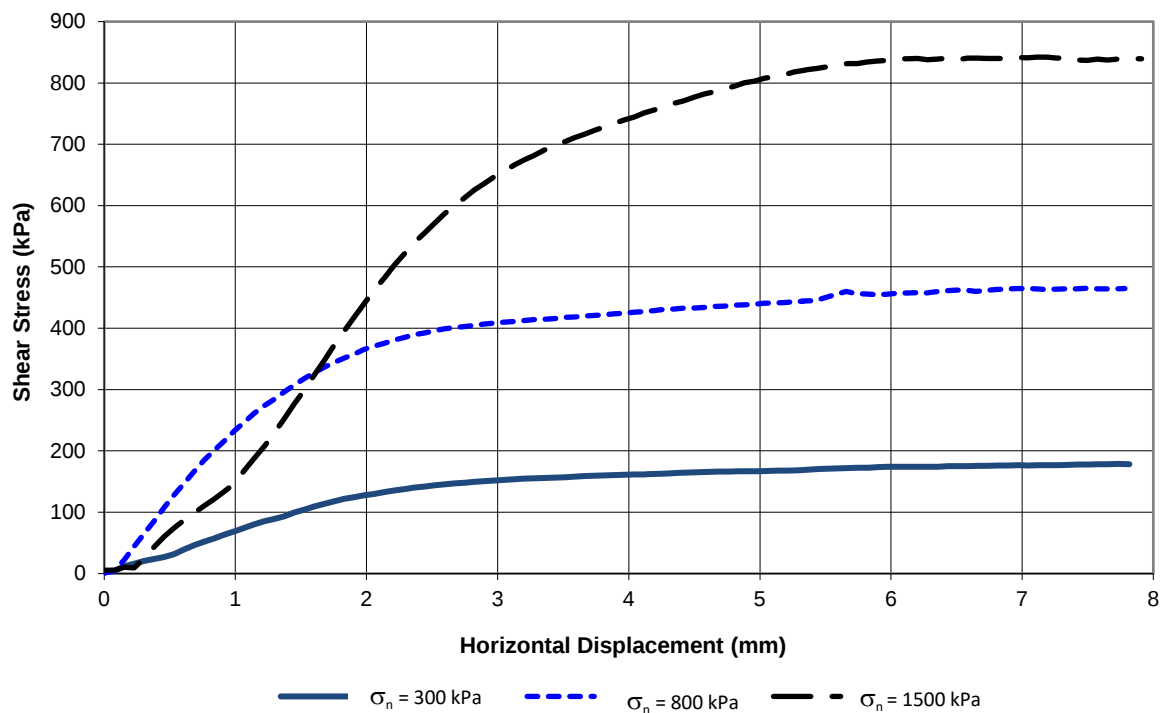
Borehole: 19-35S

Sample Number: 29624

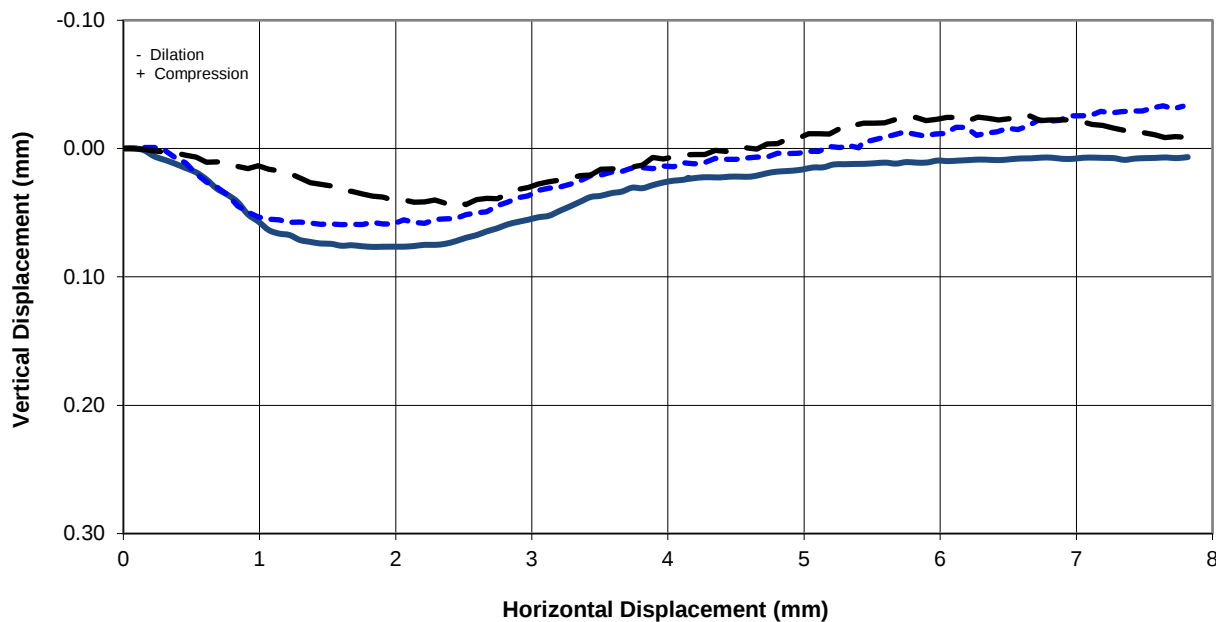
Depth (m): 5.5 - 6.1

Lab ID No: B19-058

Shear Stress (Residual)



Displacement (Residual)



TM

April 7, 2019

DL

April 17, 2019

TESTED BY

DATE

CHECKED BY

DATE



Burnaby, B.C. Canada V5J 5J2

Reference
ASTM D3080

Lab ID No:	B19-058
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DATE _____

Direct Shear Testing of Soils Under Consolidated Drained Conditions

Reference
ASTM D3080

Client:	Telkwa Coal Ltd.	Borehole:	19-35S
Project:	Ref #017-318	Sample Number:	29624
Location:	N/A	Depth (m):	5.5 - 6.1
Project No.:	18109666/2000	Lab ID No:	B19-058

Peak 1		Peak 2		Peak 3			
Normal Stress , kPa	300	Normal Stress , kPa	800	Normal Stress , kPa	1500	Normal Stress , kPa	
Disp Rate, mm/min	0.005	Disp Rate, mm/min	0.005	Disp Rate, mm/min	0.005	Disp Rate, mm/min	

Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert
Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp
mm	kPa	mm	mm	kPa	mm	mm	kPa	mm	mm	kPa	mm
0.00	3.7	0.000	0.00	0.4	0.000	0.00	1.7	0.000			
0.01	5.6	0.000	0.01	1.8	0.019	0.01	1.6	0.002			
0.03	8.4	0.001	0.03	3.1	0.022	0.03	2.9	0.005			
0.04	11.3	0.000	0.04	4.0	0.028	0.04	8.1	0.004			
0.05	14.2	0.000	0.05	4.2	0.031	0.05	12.3	0.004			
0.06	16.8	0.000	0.06	5.2	0.031	0.06	16.9	0.005			
0.08	19.2	0.001	0.08	6.9	0.032	0.08	21.1	0.006			
0.09	21.4	0.003	0.09	8.3	0.034	0.09	24.1	0.006			
0.10	23.4	0.004	0.10	9.3	0.036	0.10	26.9	0.005			
0.11	25.3	0.005	0.11	10.9	0.040	0.11	30.8	0.007			
0.13	26.8	0.005	0.13	10.8	0.038	0.13	34.4	0.008			
0.14	28.2	0.007	0.14	11.6	0.040	0.14	37.9	0.007			
0.15	29.4	0.008	0.15	13.5	0.042	0.15	41.7	0.007			
0.17	30.4	0.009	0.17	16.8	0.042	0.17	45.7	0.007			
0.18	31.3	0.009	0.18	21.2	0.043	0.18	49.6	0.008			
0.19	32.0	0.010	0.19	25.5	0.042	0.19	54.4	0.010			
0.20	33.4	0.011	0.20	30.6	0.046	0.20	58.7	0.012			
0.22	34.7	0.011	0.22	35.5	0.049	0.22	63.7	0.011			
0.23	36.0	0.013	0.23	40.4	0.049	0.23	69.3	0.010			
0.24	37.4	0.013	0.24	45.4	0.050	0.24	75.0	0.011			
0.25	38.7	0.012	0.25	50.5	0.051	0.25	81.3	0.014			
0.27	41.2	0.012	0.27	55.8	0.051	0.27	87.4	0.012			
0.28	44.3	0.013	0.28	60.9	0.055	0.28	92.6	0.013			
0.29	47.2	0.015	0.29	66.0	0.056	0.29	98.4	0.011			
0.31	50.0	0.016	0.30	70.6	0.056	0.31	104.0	0.013			
0.32	52.6	0.016	0.32	75.1	0.057	0.32	110.6	0.013			
0.33	54.9	0.016	0.33	79.5	0.058	0.33	116.1	0.013			
0.34	56.9	0.017	0.34	83.6	0.059	0.34	121.8	0.015			
0.36	59.1	0.018	0.36	87.8	0.062	0.36	128.1	0.014			
0.37	61.2	0.019	0.37	92.1	0.063	0.37	133.3	0.016			
0.38	63.5	0.021	0.38	96.5	0.065	0.38	138.4	0.018			
0.39	65.5	0.022	0.39	100.8	0.068	0.39	143.1	0.017			
0.41	67.5	0.022	0.41	105.2	0.069	0.41	148.0	0.022			
0.42	68.9	0.023	0.42	109.6	0.072	0.42	153.1	0.023			
0.46	73.9	0.026	0.43	114.1	0.077	0.43	157.9	0.024			

0.50	77.5	0.029	0.44	118.2	0.077	0.44	163.7	0.025			
0.53	81.6	0.034	0.46	122.5	0.082	0.46	167.7	0.026			
0.57	85.3	0.037	0.47	127.0	0.082	0.47	172.4	0.026			
0.61	89.2	0.041	0.48	131.3	0.082	0.48	177.6	0.027			
0.65	92.6	0.044	0.50	135.7	0.082	0.50	181.9	0.030			
0.69	96.6	0.047	0.51	139.8	0.083	0.51	187.0	0.030			
0.72	100.8	0.050	0.52	144.1	0.086	0.52	191.3	0.031			
0.76	104.3	0.053	0.53	148.3	0.087	0.53	195.7	0.033			
0.80	109.0	0.055	0.55	152.7	0.089	0.55	200.1	0.034			
0.84	114.1	0.057	0.56	157.2	0.090	0.56	205.1	0.036			
0.88	119.2	0.059	0.57	161.8	0.094	0.57	210.4	0.036			
0.92	123.6	0.062	0.58	166.0	0.098	0.58	214.5	0.036			
0.95	127.8	0.064	0.60	170.0	0.099	0.60	219.0	0.040			
0.99	131.5	0.065	0.61	173.8	0.101	0.61	223.9	0.039			
1.03	135.2	0.066	0.62	178.0	0.102	0.62	229.5	0.041			
1.07	138.4	0.070	0.64	181.6	0.102	0.64	233.1	0.044			
1.11	141.2	0.072	0.65	185.4	0.104	0.65	238.0	0.044			
1.14	143.8	0.075	0.69	196.5	0.108	0.69	252.3	0.047			
1.18	146.2	0.077	0.72	206.9	0.110	0.72	266.0	0.050			
1.22	148.9	0.079	0.76	217.2	0.120	0.76	280.5	0.055			
1.26	151.0	0.084	0.80	227.5	0.126	0.80	294.5	0.061			
1.30	153.3	0.085	0.84	236.8	0.130	0.84	307.8	0.065			
1.33	155.2	0.085	0.88	246.0	0.138	0.88	320.5	0.071			
1.37	156.7	0.086	0.92	254.6	0.146	0.92	333.0	0.075			
1.41	158.6	0.088	0.95	263.3	0.150	0.95	346.9	0.080			
1.45	160.4	0.089	0.99	271.3	0.156	0.99	359.5	0.084			
1.49	161.6	0.089	1.03	279.4	0.162	1.03	373.0	0.084			
1.53	162.6	0.092	1.07	286.8	0.164	1.07	385.9	0.088			
1.56	164.0	0.093	1.11	294.3	0.169	1.11	398.3	0.089			
1.60	165.5	0.094	1.14	301.8	0.173	1.14	412.4	0.091			
1.64	166.6	0.095	1.18	308.7	0.179	1.18	424.1	0.100			
1.68	167.5	0.096	1.22	315.9	0.182	1.22	436.2	0.102			
1.72	168.9	0.097	1.26	323.0	0.183	1.26	449.5	0.107			
1.75	169.7	0.098	1.30	329.1	0.187	1.30	462.5	0.107			
1.79	170.5	0.099	1.33	334.8	0.188	1.33	475.9	0.112			
1.83	171.0	0.099	1.37	340.4	0.193	1.37	488.7	0.118			
1.87	171.4	0.099	1.41	345.6	0.198	1.41	502.2	0.120			
1.91	172.0	0.099	1.45	351.4	0.201	1.45	515.1	0.123			
1.94	172.7	0.099	1.49	357.1	0.203	1.49	528.1	0.128			
1.98	173.5	0.099	1.53	361.7	0.206	1.53	539.9	0.134			
2.02	174.2	0.099	1.56	366.3	0.212	1.56	552.9	0.135			
2.06	174.5	0.101	1.60	370.7	0.214	1.60	564.4	0.137			
2.10	174.5	0.100	1.64	374.8	0.220	1.64	576.0	0.141			
2.14	175.0	0.102	1.68	378.5	0.223	1.68	588.0	0.149			
2.17	175.2	0.102	1.72	382.2	0.231	1.72	598.9	0.152			
2.21	175.6	0.101	1.75	386.5	0.229	1.75	609.8	0.155			
2.25	175.8	0.102	1.79	390.5	0.236	1.79	620.2	0.156			
2.29	176.1	0.102	1.83	391.3	0.244	1.83	630.4	0.165			
2.33	176.5	0.102	1.87	396.5	0.246	1.87	640.8	0.168			
2.40	176.8	0.103	1.91	399.0	0.250	1.91	649.1	0.171			
2.48	177.3	0.102	1.94	403.1	0.248	1.94	658.5	0.175			
2.55	177.8	0.104	1.98	406.0	0.249	1.98	667.1	0.177			
2.63	178.0	0.102	2.02	408.2	0.253	2.02	674.9	0.183			

2.71	178.2	0.102	2.06	410.3	0.252	2.06	683.5	0.184			
2.78	179.0	0.102	2.10	413.5	0.253	2.10	691.1	0.187			
2.86	178.8	0.102	2.14	415.8	0.256	2.14	698.9	0.190			
2.94	178.7	0.100	2.17	417.8	0.257	2.17	705.1	0.191			
3.01	179.0	0.100	2.21	420.4	0.256	2.21	711.4	0.191			
3.09	178.6	0.100	2.25	422.3	0.255	2.25	719.2	0.194			
3.17	179.0	0.099	2.29	424.2	0.257	2.29	726.0	0.197			
3.24	179.0	0.097	2.33	425.9	0.258	2.33	732.8	0.201			
3.32	178.9	0.098	2.36	427.4	0.259	2.36	739.1	0.203			
3.39	178.7	0.098	2.40	428.8	0.261	2.40	745.5	0.204			
3.47	178.9	0.097	2.44	430.2	0.263	2.44	751.1	0.205			
3.55	179.0	0.096	2.48	432.0	0.263	2.48	756.4	0.206			
3.62	178.6	0.096	2.52	433.6	0.264	2.52	762.0	0.209			
3.70	178.8	0.096	2.55	435.4	0.267	2.55	766.9	0.210			
3.78	178.6	0.096	2.63	437.4	0.266	2.63	774.6	0.213			
3.85	178.4	0.097	2.71	439.8	0.268	2.71	783.7	0.217			
3.93	178.1	0.096	2.78	442.1	0.266	2.78	791.9	0.218			
4.00	178.1	0.095	2.86	444.7	0.269	2.86	799.7	0.220			
4.08	177.9	0.094	2.94	446.3	0.269	2.94	804.9	0.221			
4.16	177.8	0.094	3.01	447.7	0.268	3.01	810.7	0.224			
4.23	178.0	0.093	3.09	448.8	0.271	3.09	816.1	0.224			
4.31	177.9	0.093	3.16	450.1	0.272	3.16	819.2	0.225			
4.39	177.7	0.092	3.24	451.3	0.272	3.24	824.5	0.228			
4.46	178.0	0.092	3.32	452.3	0.274	3.32	827.1	0.229			
4.54	177.9	0.091	3.39	453.0	0.272	3.39	830.1	0.229			
4.61	177.9	0.091	3.47	453.4	0.274	3.47	833.5	0.231			
4.69	178.3	0.091	3.55	453.9	0.276	3.55	835.8	0.231			
4.77	178.5	0.090	3.62	455.4	0.277	3.62	836.9	0.232			
4.84	178.6	0.090	3.70	455.8	0.276	3.70	837.7	0.230			
4.92	178.7	0.089	3.78	456.6	0.278	3.78	839.7	0.233			
5.00	179.1	0.088	3.85	457.2	0.276	3.85	841.1	0.232			
5.07	179.3	0.087	3.93	458.3	0.278	3.93	842.8	0.235			
5.15	179.3	0.087	4.00	458.4	0.277	4.00	841.1	0.235			
5.22	179.4	0.086	4.08	458.6	0.277	4.08	842.7	0.234			
5.30	179.7	0.085	4.16	459.1	0.277	4.16	843.4	0.234			
5.38	179.9	0.085	4.23	459.2	0.277	4.23	843.6	0.234			
5.45	180.0	0.084	4.31	459.4	0.276	4.31	844.2	0.235			
5.53	180.4	0.084	4.39	460.7	0.274	4.39	844.6	0.234			
5.61	180.1	0.083	4.46	460.4	0.274	4.46	844.8	0.235			
5.68	180.2	0.083	4.54	461.0	0.273	4.54	844.5	0.236			
5.76	180.3	0.083	4.61	461.7	0.272	4.61	845.1	0.236			
5.83	180.5	0.081	4.69	461.5	0.271	4.69	845.1	0.235			
5.91	180.7	0.081	4.77	461.5	0.271	4.77	845.5	0.234			
5.99	180.6	0.080	4.84	461.8	0.271	4.84	845.7	0.234			
6.06	180.7	0.077	4.92	462.5	0.272	4.92	844.5	0.235			
6.14	180.8	0.074	5.00	462.6	0.270	5.00	844.9	0.236			
6.22	180.6	0.074	5.07	462.9	0.270	5.07	845.5	0.234			
6.29	180.6	0.072	5.15	463.4	0.270	5.15	844.3	0.233			
6.37	180.3	0.071	5.22	462.7	0.269	5.22	843.9	0.235			
6.44	180.4	0.070	5.30	463.5	0.270	5.30	844.5	0.235			
6.52	180.6	0.069	5.38	464.4	0.268	5.38	844.6	0.235			
6.60	180.3	0.069	5.45	464.1	0.269	5.45	844.0	0.236			
6.67	179.9	0.068	5.53	464.6	0.269	5.53	843.5	0.236			

6.75	180.0	0.068	5.61	465.1	0.270	5.61	844.2	0.234			
6.83	180.3	0.067	5.68	464.9	0.268	5.68	838.9	0.238			
6.90	180.1	0.067	5.76	465.2	0.270	5.76	841.2	0.236			
6.98	180.3	0.067	5.83	465.5	0.268	5.83	841.6	0.236			
7.05	180.7	0.066	5.91	465.9	0.269	5.91	840.8	0.237			
7.13	180.0	0.066	5.99	466.1	0.269	5.99	842.9	0.237			
7.21	180.4	0.065	6.06	466.4	0.269	6.06	842.3	0.236			
7.28	180.6	0.065	6.14	466.8	0.269	6.14	842.9	0.238			
7.36	180.6	0.065	6.22	466.5	0.270	6.22	843.0	0.237			
7.39	180.8	0.065	6.29	466.7	0.271	6.29	842.8	0.238			
			6.37	466.7	0.271	6.37	842.6	0.237			
			6.44	466.8	0.271	6.44	841.9	0.240			
			6.52	466.7	0.271	6.52	843.1	0.241			
			6.60	466.2	0.273	6.60	843.5	0.239			
			6.67	466.7	0.274	6.67	843.6	0.241			
			6.75	466.1	0.275	6.75	844.5	0.243			
			6.83	466.8	0.275	6.83	843.9	0.243			
			6.90	467.2	0.275	6.90	841.6	0.242			
			6.98	465.7	0.274	6.98	842.6	0.244			
			7.05	465.7	0.275	7.05	843.9	0.242			
			7.13	465.8	0.276	7.13	844.3	0.243			
			7.21	466.0	0.274	7.21	843.3	0.243			
			7.28	466.3	0.274	7.28	845.0	0.243			
			7.36	466.6	0.275	7.36	846.1	0.247			
			7.44	467.2	0.276	7.44	845.5	0.247			
			7.51	466.4	0.277	7.51	846.8	0.249			
			7.59	466.6	0.277	7.59	847.3	0.249			
			7.62	466.2	0.279	7.62	847.7	0.249			

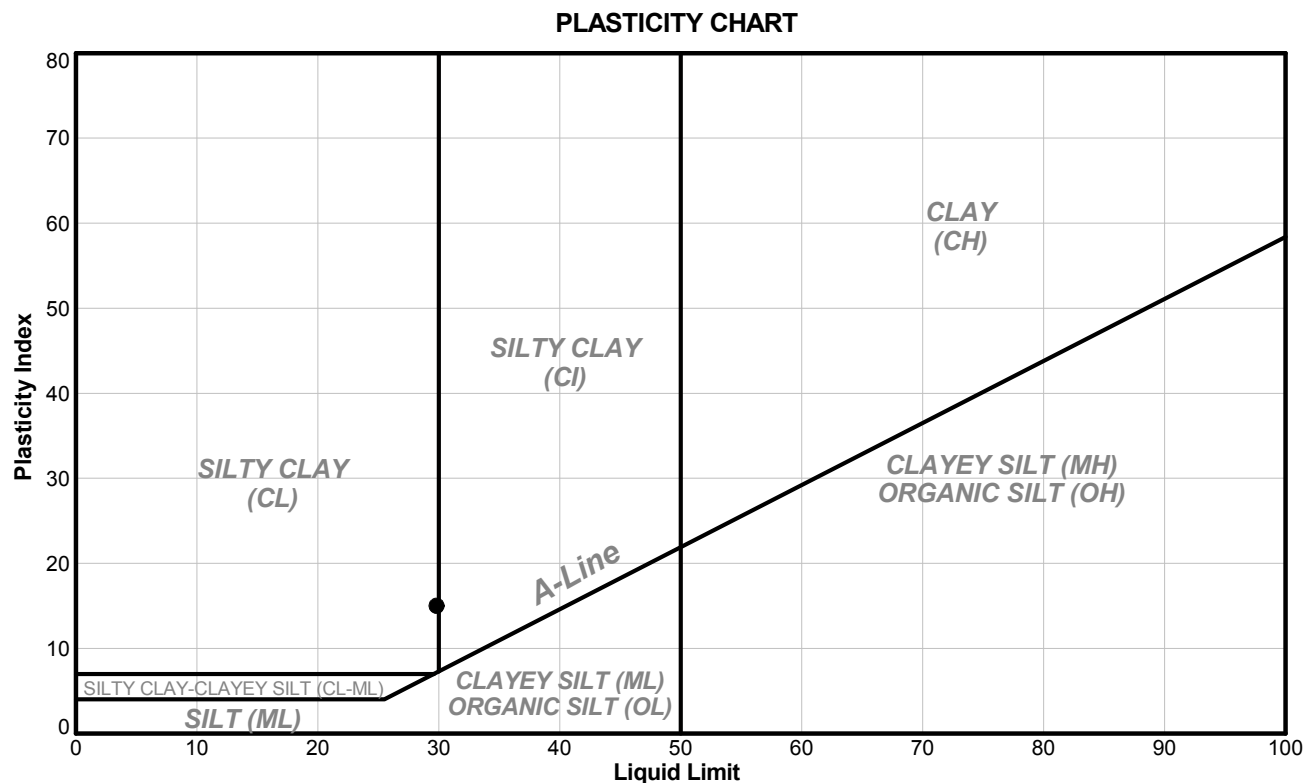
TM	April 7, 2019	DL	April 17, 2019
TESTED BY	DATE	CHECKED BY	DATE

Direct Shear Testing of Soils Under Consolidated Drained Conditions							Reference ASTM D3080				
Client:		Telkwa Coal Ltd.			Borehole:		19-35S				
Project:		Ref #017-318			Sample Number:		29624				
Location:		N/A			Depth (m):		5.5 - 6.1				
Project No.:		18109666/2000			Lab ID No:		B19-058				
Residual 1			Residual 2			Residual 3					
Normal Stress , kPa		300	Normal Stress , kPa		800	Normal Stress , kPa		1500	Normal Stress , kPa		
Disp Rate, mm/min		0.005	Disp Rate, mm/min		0.005	Disp Rate, mm/min		0.005	Disp Rate, mm/min		
Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert
Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp
mm	kPa	mm	mm	kPa	mm	mm	kPa	mm	mm	kPa	mm
0.00	2.2	0.000	0.00	0.7	0.000	0.00	5.4	0.000			
0.08	3.9	0.000	0.08	4.5	0.000	0.08	5.8	0.000			
0.15	11.6	0.001	0.15	22.4	-0.001	0.15	10.4	0.001			
0.23	16.3	0.006	0.23	44.1	-0.001	0.23	9.4	0.002			
0.31	20.8	0.009	0.31	65.5	0.001	0.31	25.4	0.003			
0.38	24.0	0.012	0.38	86.1	0.007	0.38	43.5	0.003			
0.46	27.0	0.015	0.46	107.9	0.011	0.46	60.2	0.005			
0.53	31.7	0.018	0.53	128.3	0.020	0.53	74.8	0.007			
0.61	39.6	0.024	0.61	147.5	0.026	0.61	87.7	0.011			
0.69	46.2	0.031	0.69	166.8	0.030	0.69	99.1	0.010			
0.76	52.1	0.036	0.76	184.9	0.036	0.76	110.6	0.011			
0.84	57.5	0.042	0.84	200.7	0.045	0.84	121.4	0.014			
0.92	63.5	0.051	0.92	216.7	0.050	0.92	133.8	0.016			
0.99	69.0	0.057	0.99	232.4	0.053	0.99	146.4	0.013			
1.07	74.4	0.063	1.07	246.7	0.055	1.07	167.9	0.016			
1.14	80.3	0.066	1.14	261.1	0.055	1.14	187.7	0.017			
1.22	85.4	0.067	1.22	273.9	0.057	1.22	207.7	0.019			
1.30	89.2	0.071	1.30	284.4	0.057	1.30	229.6	0.023			
1.37	93.5	0.073	1.37	296.2	0.058	1.37	252.7	0.027			
1.45	99.4	0.074	1.45	307.3	0.059	1.45	276.3	0.028			
1.53	104.1	0.074	1.53	318.3	0.059	1.53	299.6	0.029			
1.60	109.3	0.076	1.60	327.4	0.059	1.60	323.9	0.033			
1.68	113.7	0.075	1.68	336.3	0.059	1.68	347.5	0.033			
1.75	118.0	0.076	1.75	344.4	0.059	1.75	372.3	0.035			
1.83	121.8	0.077	1.83	351.4	0.058	1.83	395.8	0.037			
1.91	124.4	0.076	1.91	357.6	0.059	1.91	418.3	0.038			
1.98	127.6	0.076	1.98	365.5	0.059	1.98	440.3	0.040			
2.06	129.8	0.076	2.06	370.8	0.056	2.06	462.0	0.040			
2.14	132.8	0.076	2.14	375.7	0.057	2.14	482.1	0.042			
2.21	135.3	0.075	2.21	380.7	0.058	2.21	502.9	0.041			
2.29	137.9	0.075	2.29	385.1	0.055	2.29	521.0	0.040			
2.36	140.1	0.074	2.36	389.4	0.055	2.36	539.1	0.042			
2.44	142.0	0.072	2.44	392.5	0.055	2.44	555.1	0.041			
2.52	143.8	0.069	2.52	396.1	0.051	2.52	570.7	0.044			
2.59	145.4	0.067	2.59	399.0	0.050	2.59	586.5	0.040			

2.67	147.0	0.064	2.67	401.2	0.049	2.67	599.6	0.039			
2.75	148.2	0.062	2.75	402.6	0.045	2.75	612.6	0.039			
2.82	149.4	0.059	2.82	404.8	0.042	2.82	625.4	0.036			
2.90	150.8	0.057	2.90	406.7	0.038	2.90	635.7	0.032			
2.97	151.9	0.055	2.97	408.4	0.037	2.97	646.9	0.030			
3.05	152.8	0.053	3.05	410.1	0.033	3.05	656.5	0.027			
3.13	153.8	0.052	3.13	411.2	0.031	3.13	666.3	0.026			
3.20	154.6	0.049	3.20	412.4	0.030	3.20	674.6	0.025			
3.28	155.1	0.045	3.28	414.1	0.028	3.28	682.1	0.023			
3.36	156.1	0.041	3.36	414.9	0.025	3.36	690.9	0.021			
3.43	156.5	0.038	3.43	415.7	0.021	3.43	696.6	0.021			
3.51	157.2	0.037	3.51	418.0	0.021	3.51	703.6	0.016			
3.58	157.9	0.035	3.58	418.5	0.018	3.58	710.8	0.016			
3.66	159.0	0.034	3.66	419.8	0.018	3.66	716.5	0.015			
3.74	159.7	0.030	3.74	420.7	0.015	3.74	722.3	0.014			
3.81	160.3	0.031	3.81	422.1	0.015	3.81	728.4	0.013			
3.89	160.6	0.028	3.89	423.6	0.015	3.89	734.1	0.007			
3.97	161.2	0.026	3.97	424.5	0.014	3.97	739.8	0.008			
4.04	161.4	0.025	4.04	426.1	0.014	4.04	744.7	0.006			
4.12	161.8	0.024	4.12	427.2	0.011	4.12	751.2	0.005			
4.15	162.3	0.023	4.19	428.7	0.012	4.19	755.8	0.005			
4.15	162.2	0.024	4.27	430.7	0.011	4.27	761.7	0.005			
4.23	162.6	0.023	4.35	431.6	0.008	4.35	767.0	0.001			
4.30	163.4	0.022	4.42	432.8	0.008	4.42	771.1	0.002			
4.38	164.2	0.022	4.50	433.0	0.008	4.50	776.9	0.003			
4.45	164.8	0.022	4.58	434.1	0.007	4.58	782.0	-0.001			
4.53	165.2	0.022	4.65	435.3	0.006	4.65	785.8	0.000			
4.61	165.8	0.022	4.73	436.2	0.006	4.73	790.4	-0.004			
4.68	166.4	0.020	4.80	437.6	0.004	4.80	794.5	-0.004			
4.76	166.4	0.019	4.88	438.2	0.004	4.88	800.2	-0.008			
4.84	166.9	0.018	4.96	439.3	0.004	4.96	802.7	-0.008			
4.91	167.1	0.017	5.03	440.8	0.002	5.03	807.3	-0.011			
4.99	167.0	0.016	5.11	441.4	0.002	5.11	810.3	-0.012			
5.06	167.2	0.015	5.19	441.9	-0.002	5.19	813.2	-0.011			
5.14	167.7	0.015	5.26	443.3	-0.001	5.26	817.8	-0.016			
5.22	167.8	0.012	5.33	444.0	-0.002	5.34	820.6	-0.016			
5.29	168.4	0.012	5.33	444.3	-0.002	5.36	821.8	-0.017			
5.37	169.4	0.012	5.40	445.0	-0.001	5.36	821.8	-0.018			
5.45	170.3	0.012	5.43	445.5	-0.005	5.44	823.6	-0.020			
5.52	170.9	0.011	5.66	460.1	-0.010	5.51	826.5	-0.020			
5.60	171.6	0.011	5.73	456.4	-0.013	5.59	828.1	-0.020			
5.67	171.9	0.012	5.81	455.8	-0.011	5.67	831.3	-0.023			
5.75	172.5	0.011	5.89	454.8	-0.010	5.74	831.4	-0.022			
5.83	172.7	0.011	5.96	455.5	-0.011	5.82	833.9	-0.024			
5.90	173.4	0.011	6.04	456.9	-0.012	5.90	835.7	-0.022			
5.98	173.9	0.009	6.11	457.5	-0.016	5.97	836.7	-0.023			
6.06	173.9	0.010	6.19	457.9	-0.017	6.05	839.4	-0.024			
6.13	174.0	0.009	6.27	457.7	-0.010	6.12	839.5	-0.024			
6.21	174.3	0.009	6.34	459.6	-0.012	6.20	839.9	-0.021			
6.28	174.2	0.009	6.42	461.1	-0.013	6.28	837.8	-0.025			
6.36	174.4	0.009	6.49	462.3	-0.016	6.35	838.7	-0.024			
6.44	175.0	0.009	6.57	462.1	-0.015	6.43	840.4	-0.022			
6.51	175.0	0.008	6.65	460.0	-0.018	6.51	837.7	-0.023			

6.59	175.3	0.008	6.72	461.9	-0.022	6.58	840.6	-0.023			
6.67	175.6	0.008	6.80	463.1	-0.021	6.66	840.6	-0.025			
6.74	175.9	0.007	6.88	463.9	-0.022	6.73	840.0	-0.022			
6.82	176.3	0.007	6.95	464.7	-0.026	6.81	840.0	-0.022			
6.89	176.4	0.008	7.03	464.9	-0.026	6.89	840.0	-0.022			
6.97	176.5	0.008	7.10	464.2	-0.026	6.96	841.3	-0.022			
7.05	176.5	0.007	7.18	463.3	-0.029	7.04	840.7	-0.021			
7.12	176.7	0.007	7.26	463.7	-0.028	7.12	842.1	-0.019			
7.20	176.8	0.007	7.33	464.3	-0.029	7.19	841.8	-0.018			
7.28	176.9	0.007	7.41	464.3	-0.029	7.27	840.6	-0.016			
7.35	177.1	0.009	7.49	465.2	-0.029	7.34	841.7	-0.014			
7.43	177.7	0.008	7.56	464.2	-0.032	7.42	837.4	-0.012			
7.50	177.9	0.007	7.64	464.0	-0.033	7.50	836.7	-0.012			
7.58	178.1	0.007	7.71	464.3	-0.031	7.57	839.0	-0.011			
7.66	178.3	0.007	7.78	464.9	-0.033	7.65	837.3	-0.009			
7.73	178.9	0.007				7.73	838.8	-0.009			
7.81	178.3	0.007				7.80	839.5	-0.009			
7.82	178.5	0.007				7.88	839.6	-0.009			
						7.91	839.3	-0.009			
TM			April 7, 2019			DL			April 17, 2019		
TESTED BY			DATE			CHECKED BY			DATE		

Client:	Telkwa Coal Ltd.	ID:	19-18S
Project:	Explore 0112	Sample No.:	35077
Location:		Depth Interval (m):	6.30 to 6.50
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried



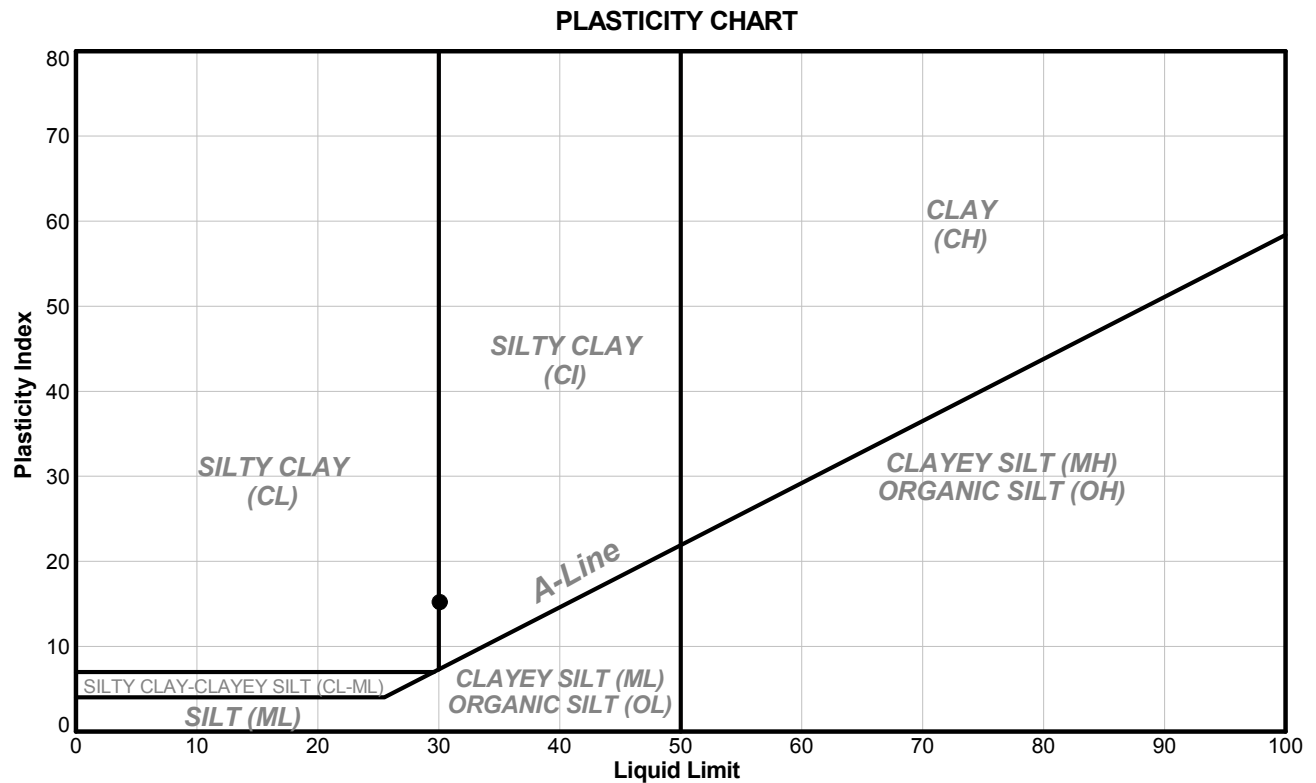
Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-18S	35077	6.30	6.50	80	30	15	15.0	13.9	-0.1

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

BJ	3/21/2019	LP	3/27/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-18S
Project:	Explore 0112	Sample No.:	35080
Location:		Depth Interval (m):	15.40 to 15.80
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried



Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-18S	35080	15.40	15.80	78	30	15	15.0	13.3	-0.1

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

BJ	3/21/2019	LP	3/27/2019
Tech	Date	Checked	Date

Client: Telkwa Coal Ltd.
 Project: Explore 0112
 Location:
 Project No.: 18109666 Phase: 2000

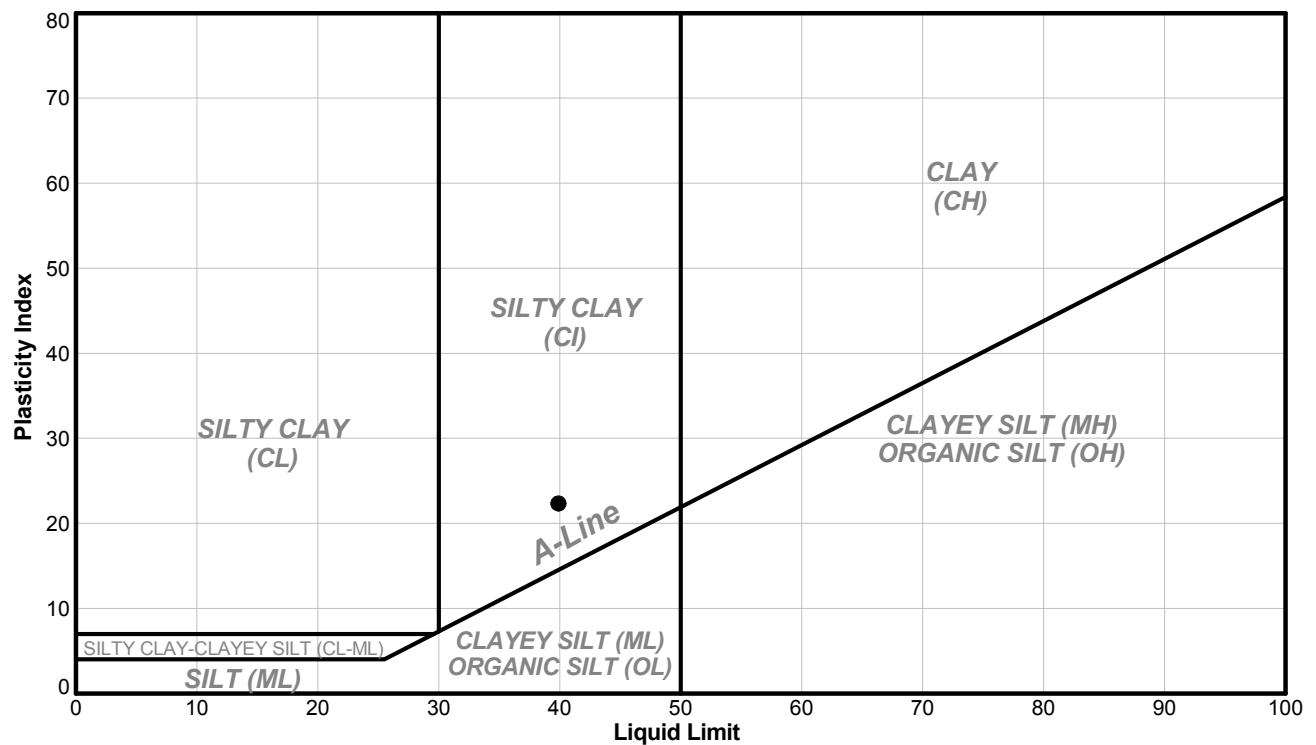
ID: 19-18S
 Sample No.: 35086
 Depth Interval (m): 42.20 to 42.70
 Lab Schedule No.:

Other Remarks: N/A

Test Method: A-Multi Point

Preparation Method: Air Dried

PLASTICITY CHART



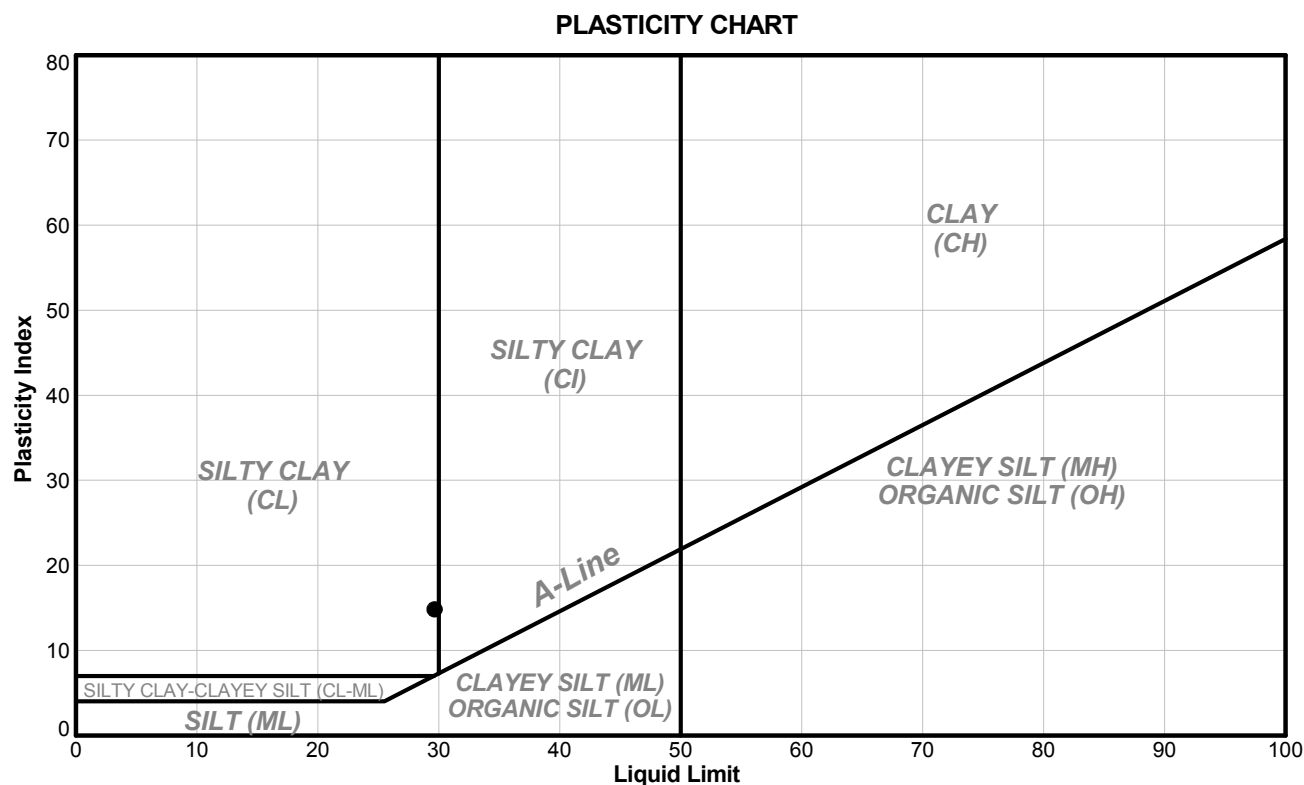
Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-18S	35086	42.20	42.70	76	40	18	22.0	14.2	-0.2

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

FF	3/21/2019	LP	3/27/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-19S
Project:	Explore 0112	Sample No.:	35087
Location:		Depth Interval (m):	3.00 to 3.50
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried



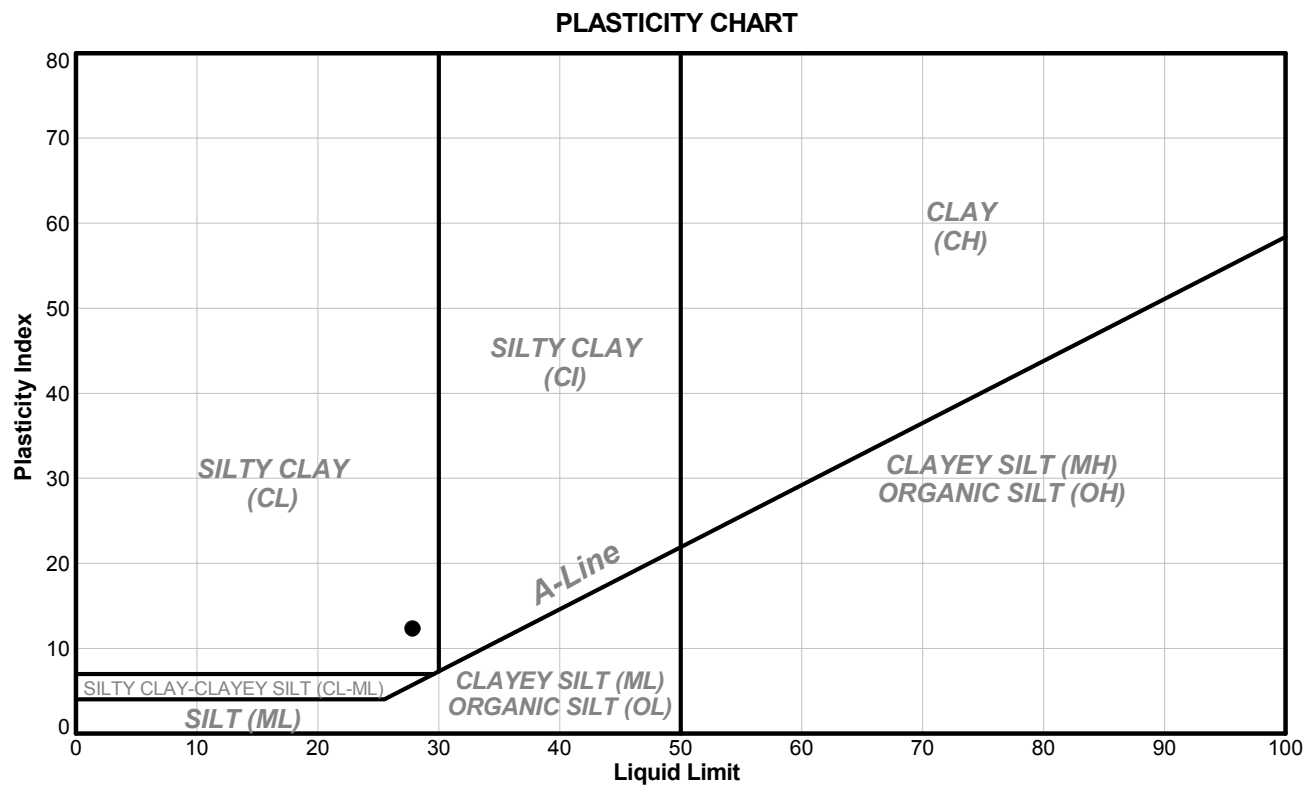
Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-19S	35087	3.00	3.50	63	30	15	15.0	8.7	-0.4

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

FF	3/13/2019	LP	3/27/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-19S
Project:	Explore 0112	Sample No.:	35096
Location:		Depth Interval (m):	34.40 to 35.10
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried



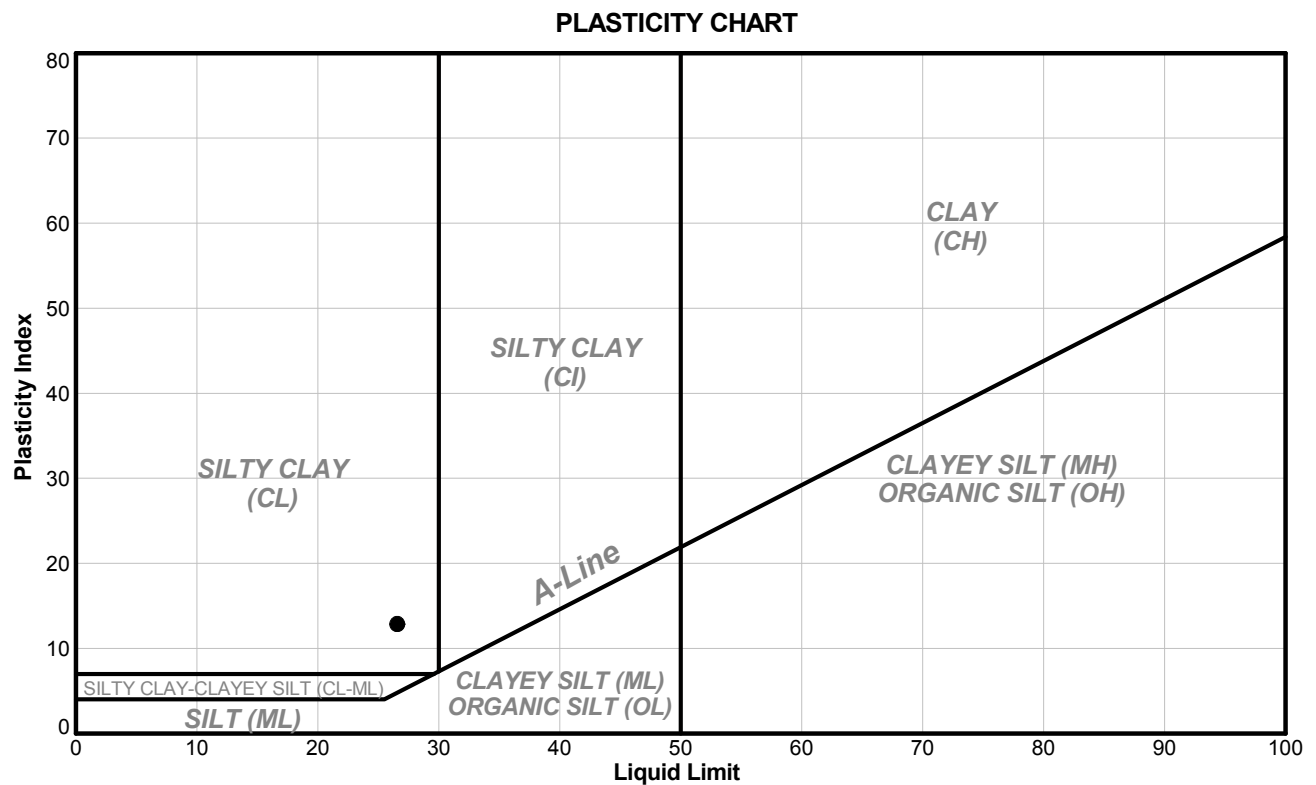
Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-19S	35096	34.40	35.10	75	28	15	13.0	11.0	-0.3

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

FF	3/13/2019	LP	3/27/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-19S
Project:	Explore 0112	Sample No.:	35097
Location:		Depth Interval (m):	41.80 to 42.40
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried



Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-19S	35097	41.80	42.40	65	27	14	13.0	8.1	-0.5

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

FF	3/13/2019	LP	3/27/2019
Tech	Date	Checked	Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

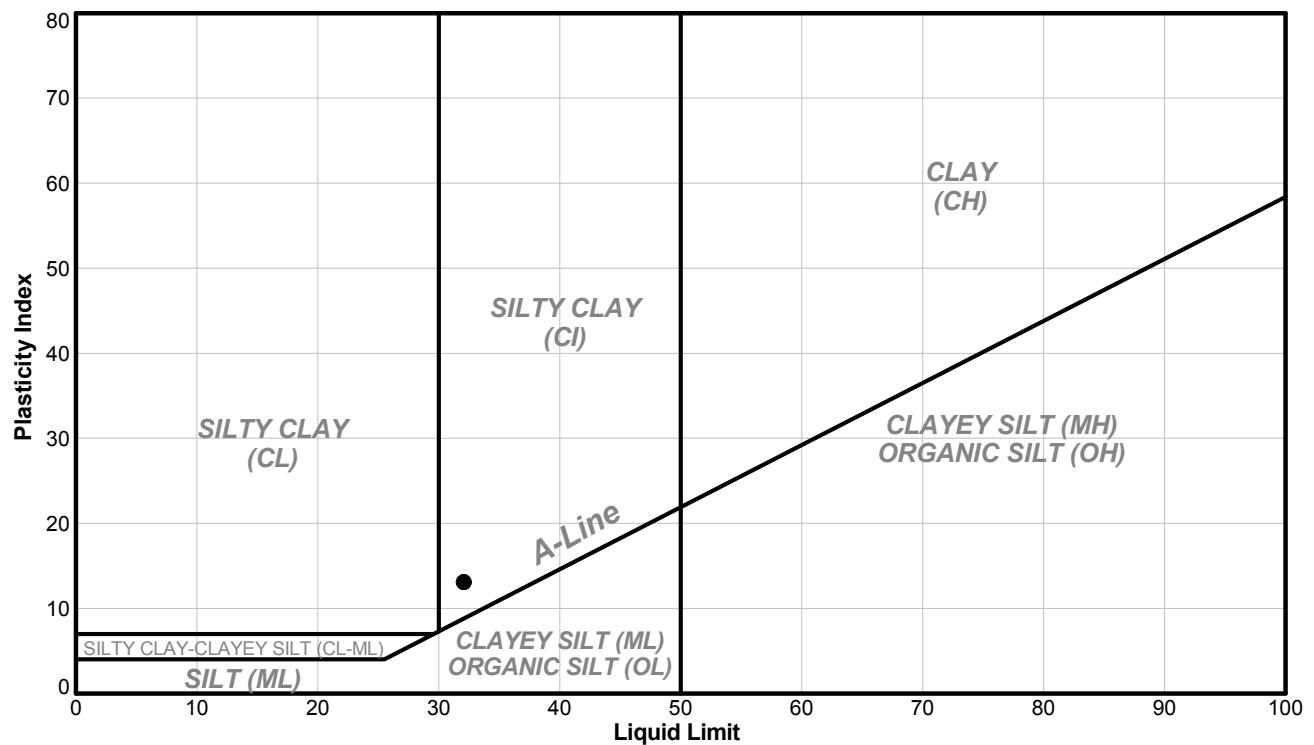
ID: 19-21S
Sample No.: 35034
Depth Interval (m): 10.70 to 11.30
Lab Schedule No.:

Other Remarks: N/A

Test Method: A-Multi Point

Preparation Method: Air Dried

PLASTICITY CHART



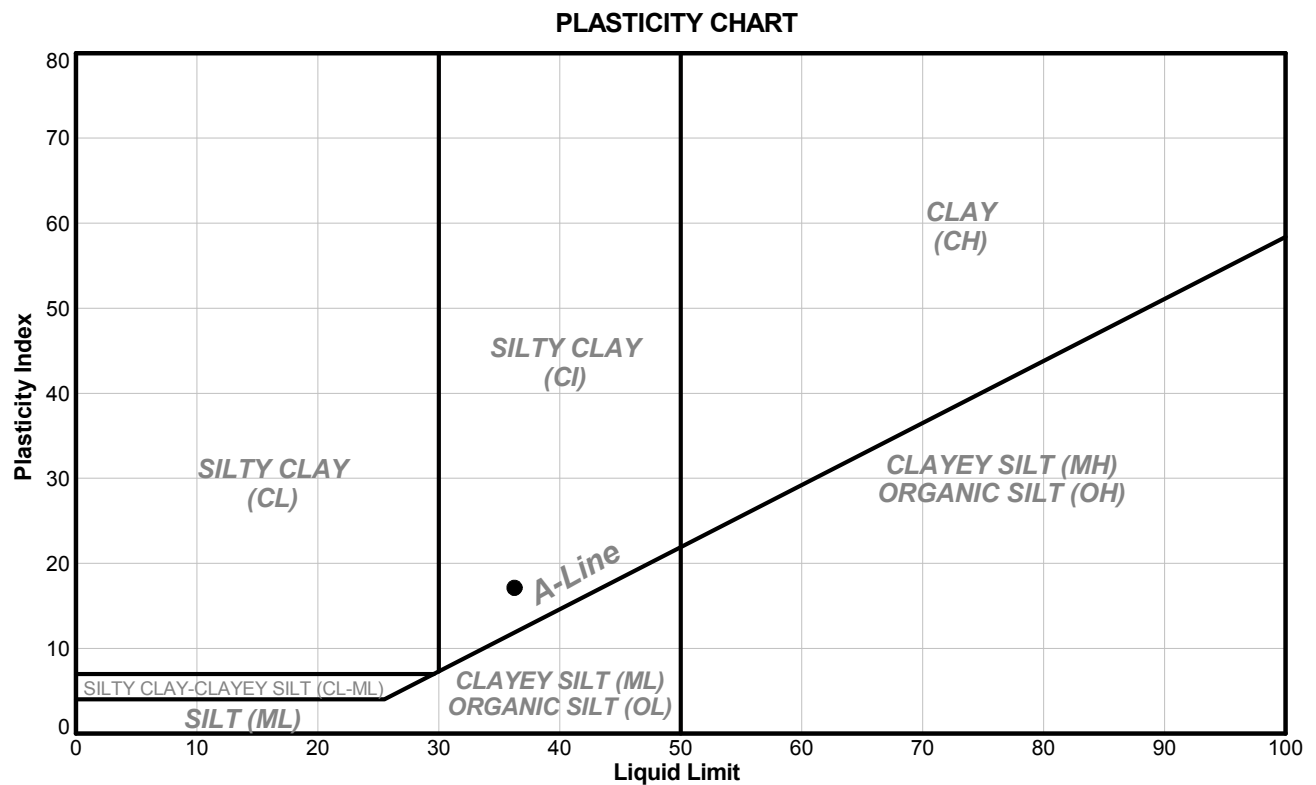
Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-21S	35034	10.70	11.30	99	32	19	13.0	22.1	0.2

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

RG	3/8/2019	LP	3/27/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-21S
Project:	Explore 0112	Sample No.:	35035
Location:		Depth Interval (m):	15.20 to 15.80
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried



Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-21S	35035	15.20	15.80	83	36	19	17.0	20.8	0.1

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

FF	3/19/2019	LP	3/27/2019
Tech	Date	Checked	Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

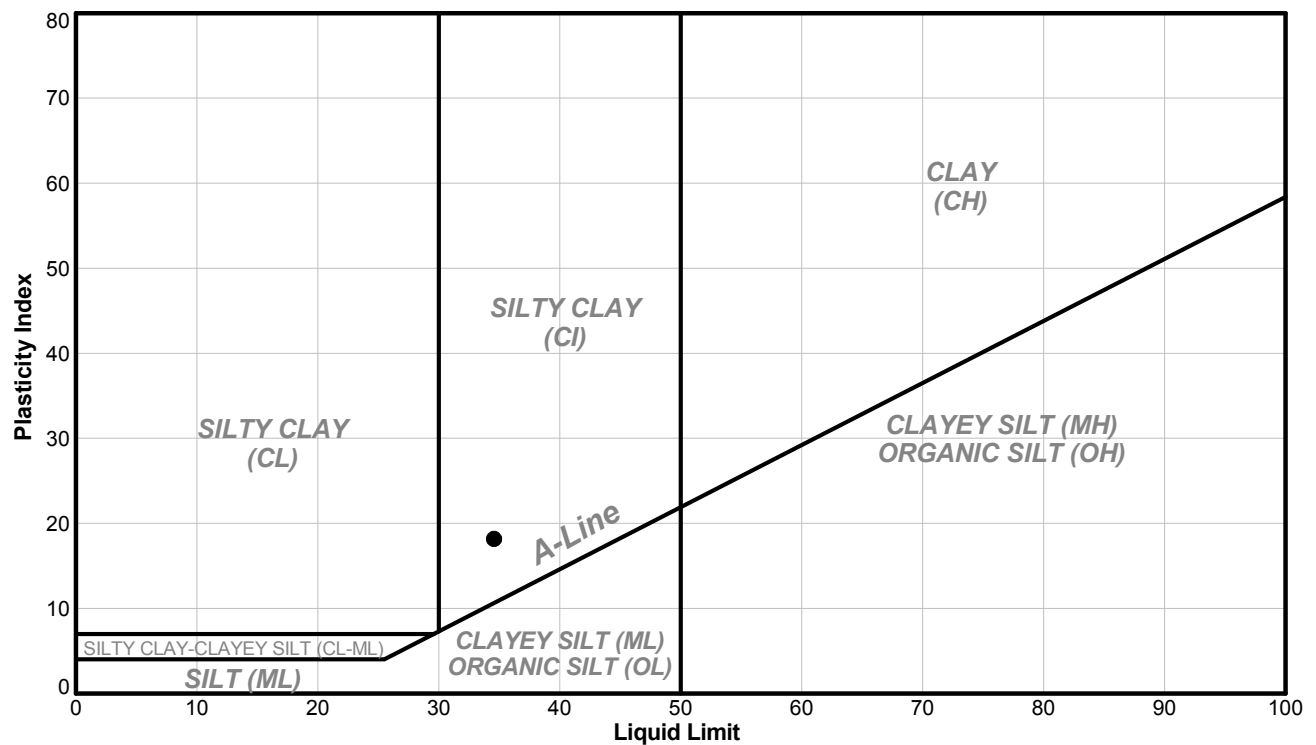
ID: 19-21S
Sample No.: 35041
Depth Interval (m): 30.00 to 30.50
Lab Schedule No.:

Other Remarks: N/A

Test Method: A-Multi Point

Preparation Method: Air Dried

PLASTICITY CHART



Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-21S	35041	30.00	30.50	82	35	16	19.0	14.9	-0.1

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

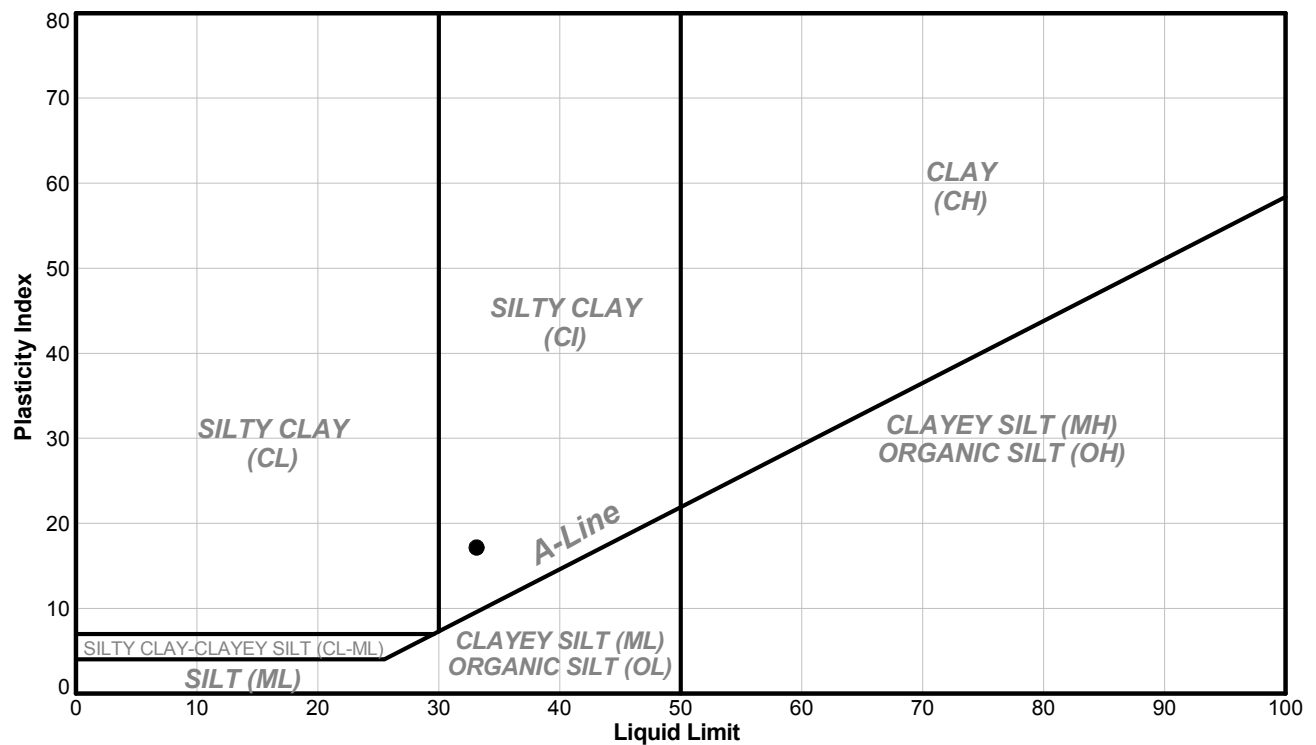
FF	3/13/2019	LP	3/27/2019
Tech	Date	Checked	Date

Client: Telkwa Coal Ltd. Project: Explore 0112 Location: Project No.: 18109666 Phase: 2000	ID: 19-21S Sample No.: 35043 Depth Interval (m): 38.70 to 39.30 Lab Schedule No.:
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Other Remarks: N/A

Test Method: A-Multi Point

Preparation Method: Air Dried

PLASTICITY CHART


Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-21S	35043	38.70	39.30	72	33	16	17.0	10.5	-0.3

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

FF	3/14/2019	LP	3/27/2019
Tech	Date	Checked	Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

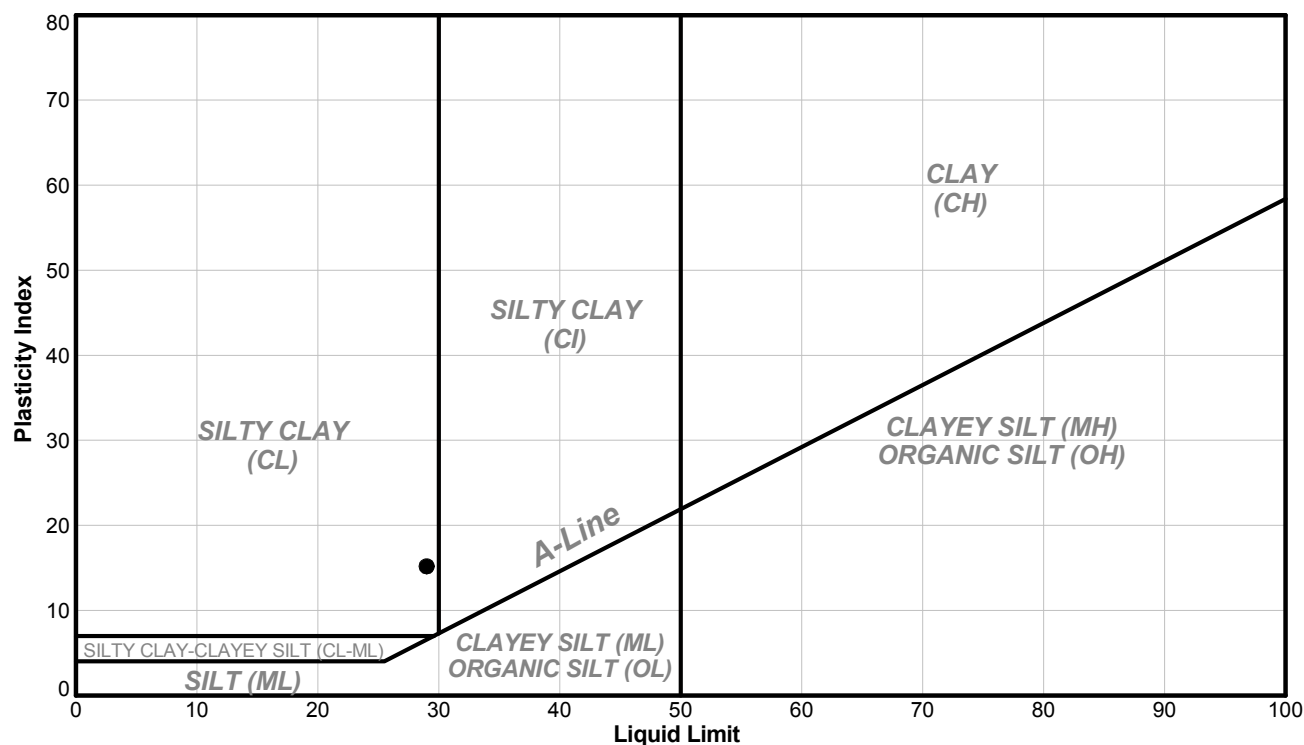
ID: 19-21S
Sample No.: 35045
Depth Interval (m): 50.00 to 50.90
Lab Schedule No.:

Other Remarks: N/A

Test Method: A-Multi Point

Preparation Method: Air Dried

PLASTICITY CHART



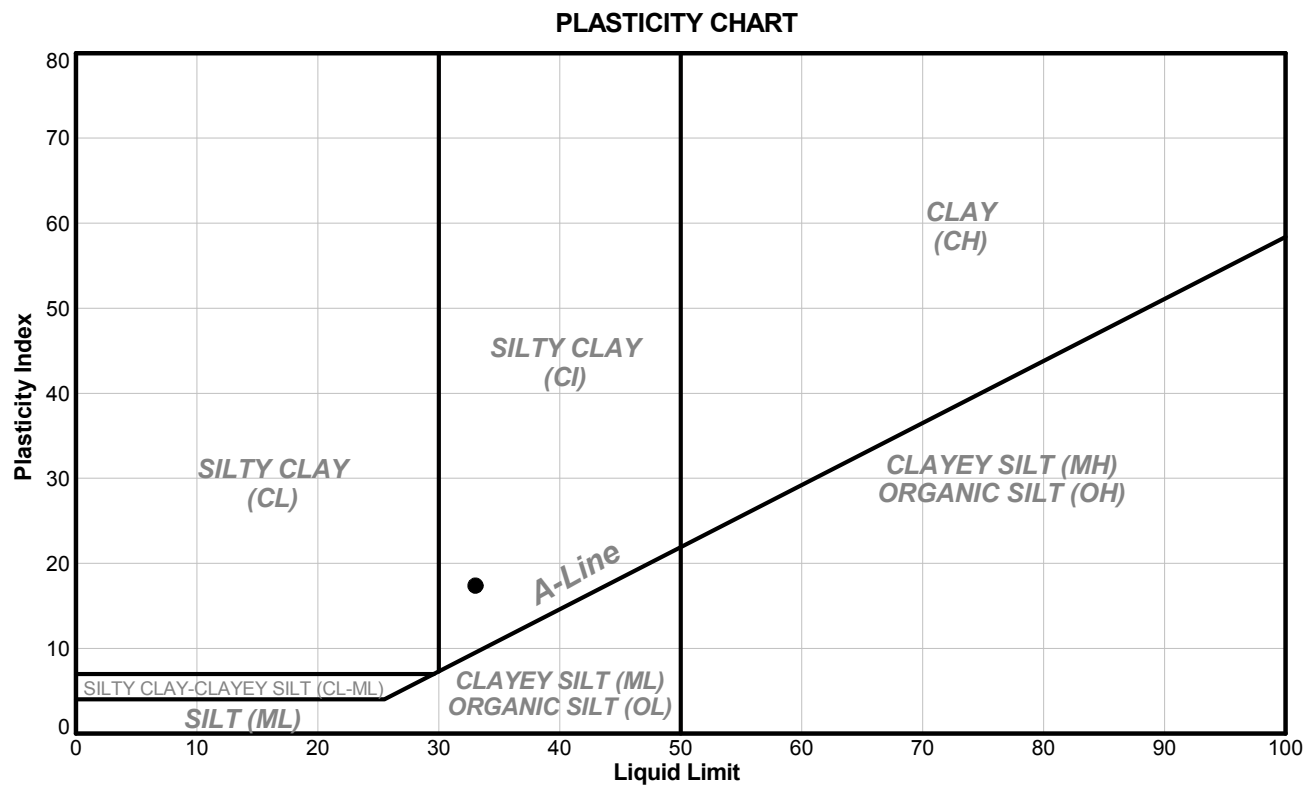
Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-21S	35045	50.00	50.90	58	29	14	15.0	6.4	-0.5

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

FF	3/13/2019	LP	3/27/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-22S
Project:	Explore 0112	Sample No.:	29661
Location:		Depth Interval (m):	3.00 to 3.70
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried



Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-22S	29661	3.00	3.70	72	33	16	17.0	12.2	-0.2

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

FF	3/14/2019	LP	3/27/2019
Tech	Date	Checked	Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

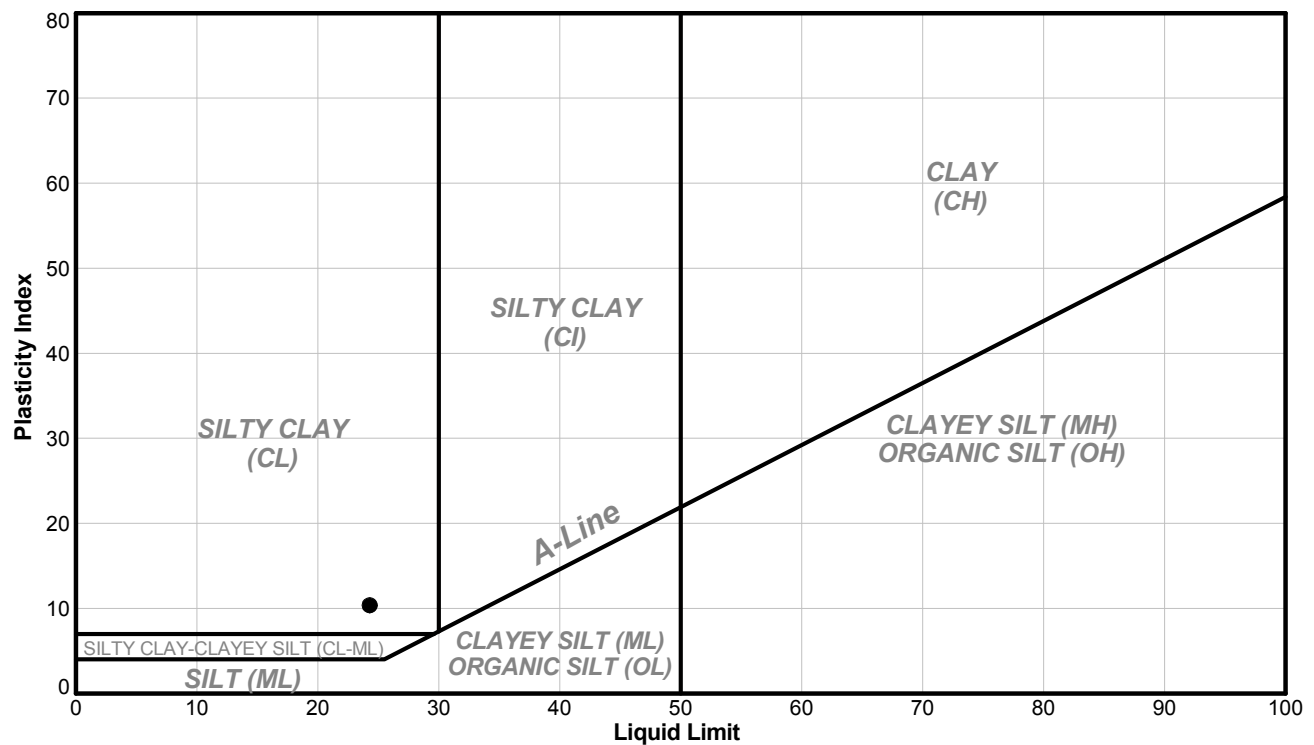
ID: 19-22S
Sample No.: 29665
Depth Interval (m): 16.20 to 16.80
Lab Schedule No.:

Other Remarks: N/A

Test Method: A-Multi Point

Preparation Method: Air Dried

PLASTICITY CHART



Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-22S	29665	16.20	16.80	68	24	14	10.0	8.8	-0.5

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

FF	3/14/2019	LP	3/27/2019
Tech	Date	Checked	Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

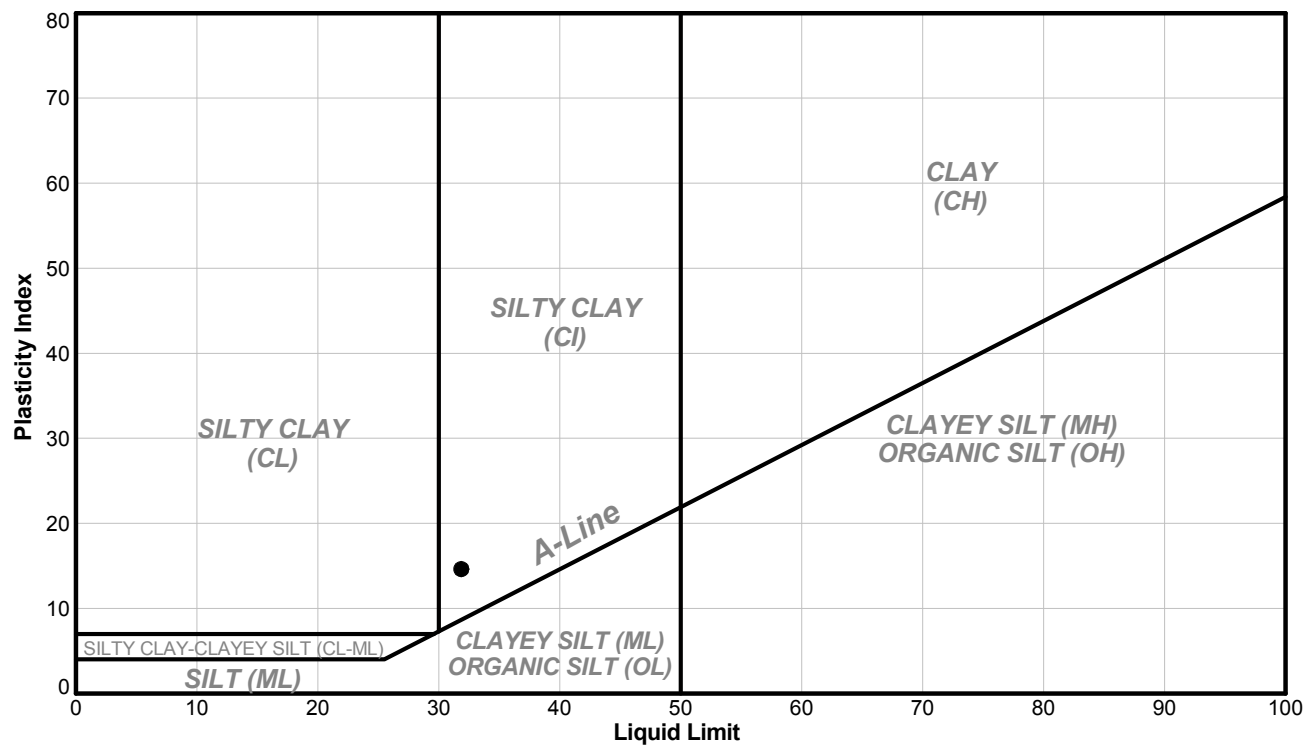
ID: 19-22S
Sample No.: 29668
Depth Interval (m): 26.20 to 26.80
Lab Schedule No.:

Other Remarks: N/A

Test Method: A-Multi Point

Preparation Method: Air Dried

PLASTICITY CHART



Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-22S	29668	26.20	26.80	97	32	17	15.0	11.7	-0.4

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

FF	3/14/2019	LP	3/27/2019
Tech	Date	Checked	Date

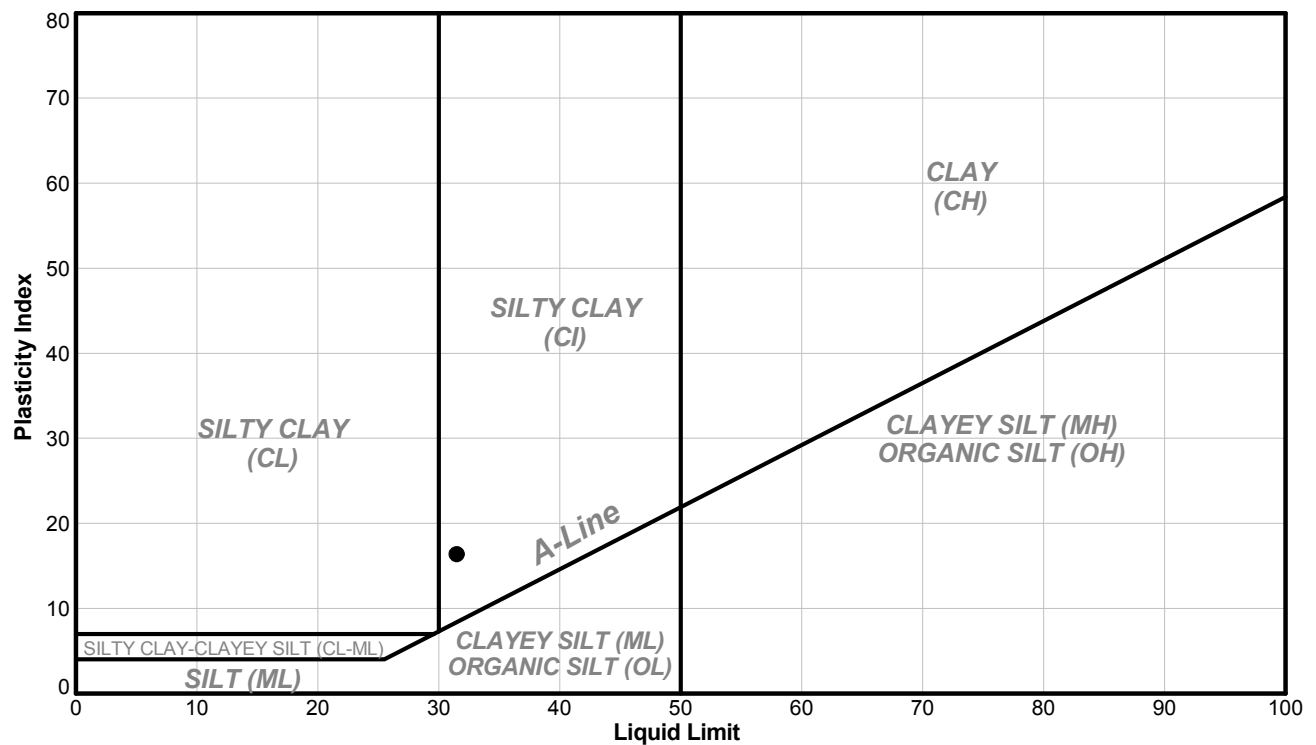
Client: Telkwa Coal Ltd.	ID: 19-34S
Project: Explore 0112	Sample No.: 29612
Location:	Depth Interval (m): 4.00 to 4.60
Project No.: 18109666 Phase: 2000	Lab Schedule No.:

Other Remarks: N/A

Test Method: A-Multi Point

Preparation Method: Air Dried

PLASTICITY CHART



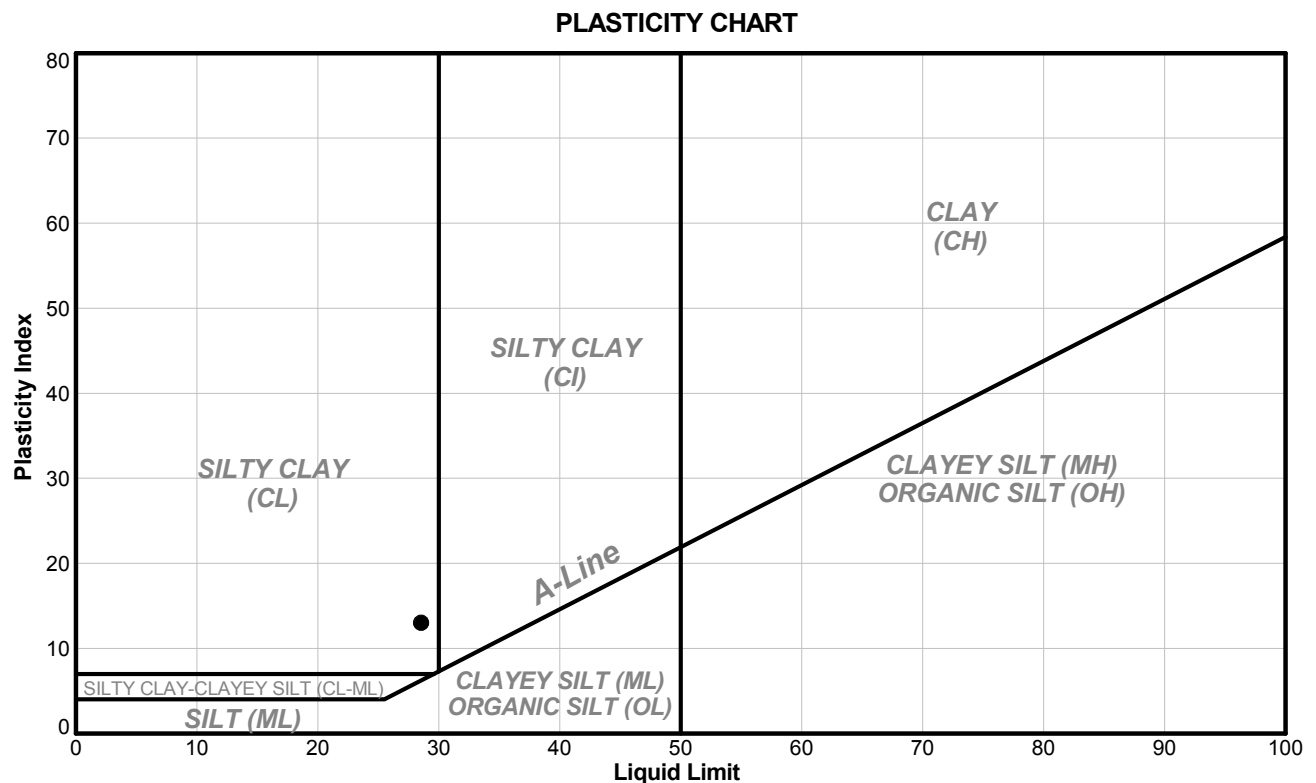
Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-34S	29612	4.00	4.60	65	31	15	16.0	12.1	-0.2

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

FF	3/19/2019	LP	3/27/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-34S
Project:	Explore 0112	Sample No.:	29613
Location:		Depth Interval (m):	8.70 to 9.10
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried



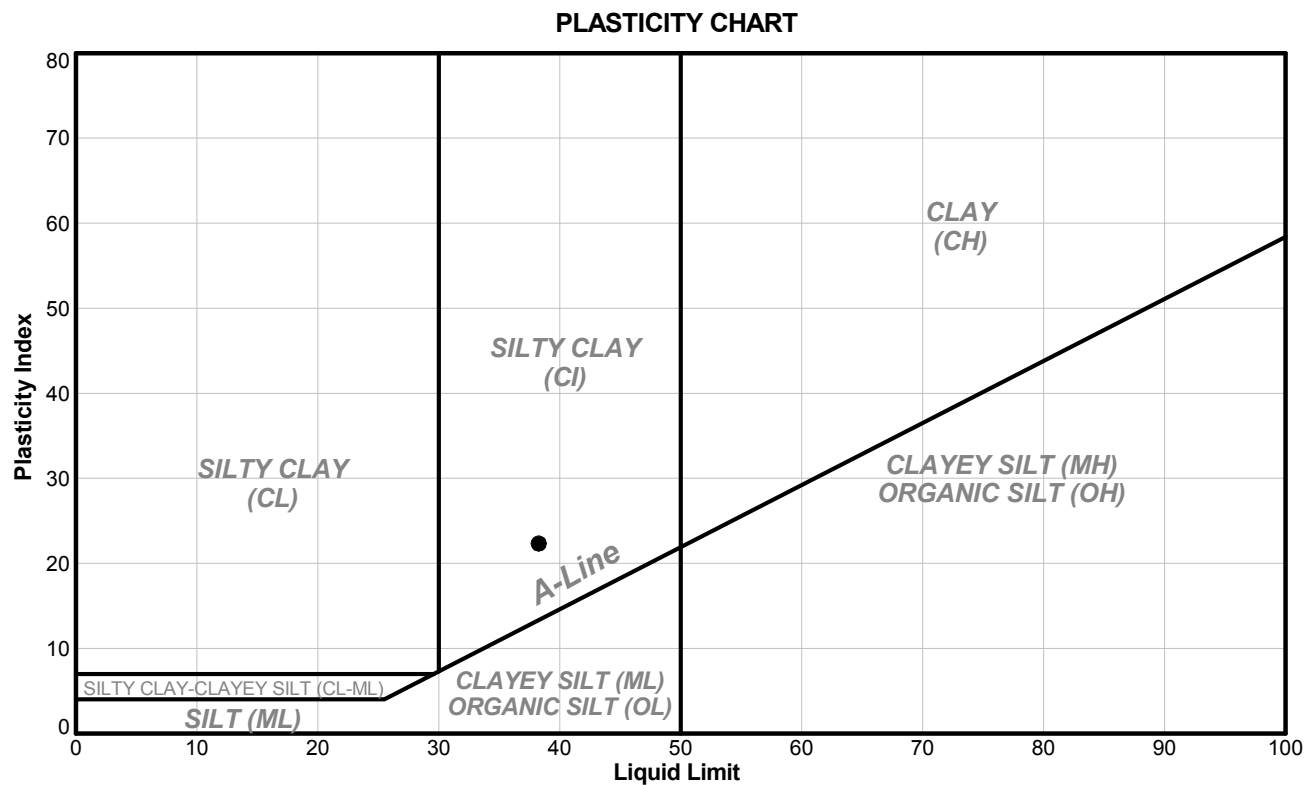
Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-34S	29613	8.70	9.10	82	29	16	13.0	11.4	-0.4

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

FF	3/20/2019	LP	3/27/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-34S
Project:	Explore 0112	Sample No.:	29622
Location:		Depth Interval (m):	29.90 to 33.50
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried



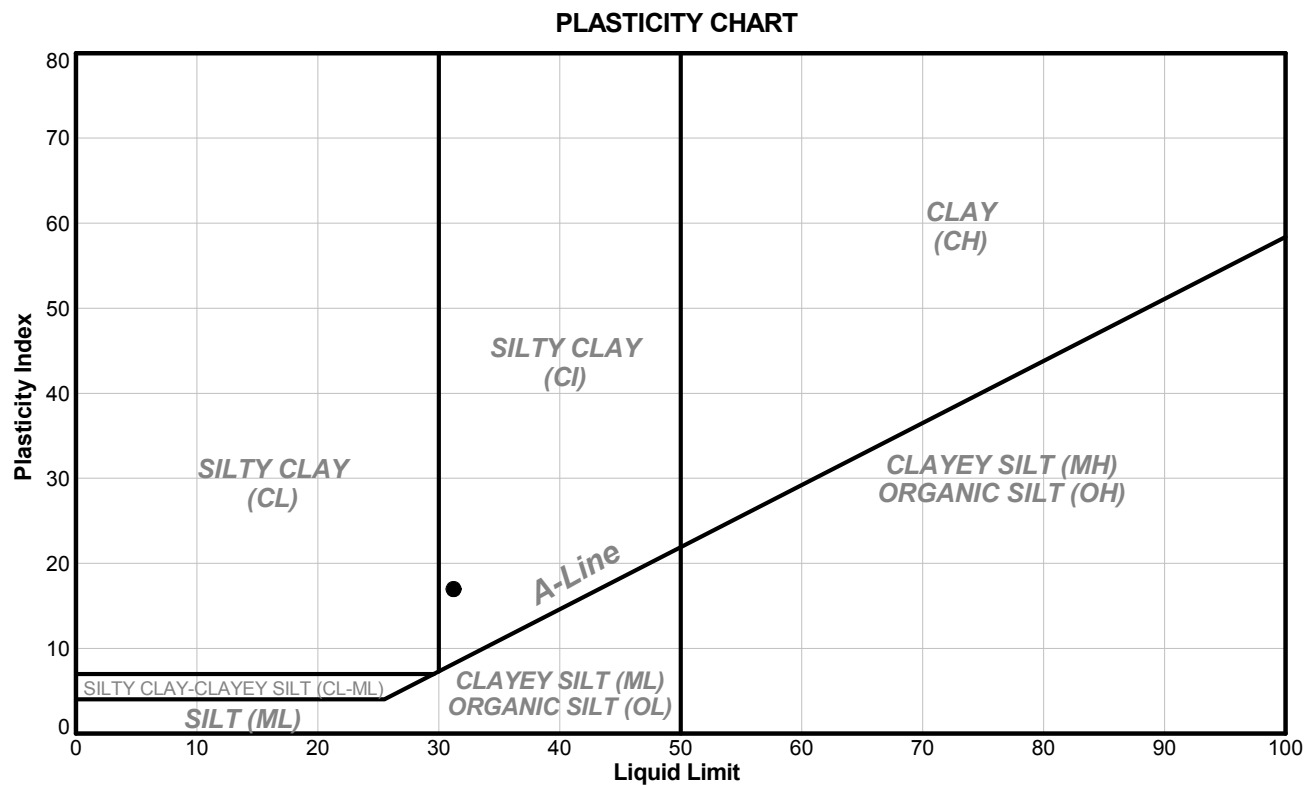
Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-34S	29622	29.90	33.50	75	38	16	22.0	10.4	-0.3

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

BJ	3/19/2019	LP	3/27/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-35S
Project:	Explore 0112	Sample No.:	29624
Location:		Depth Interval (m):	5.50 to 6.10
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried



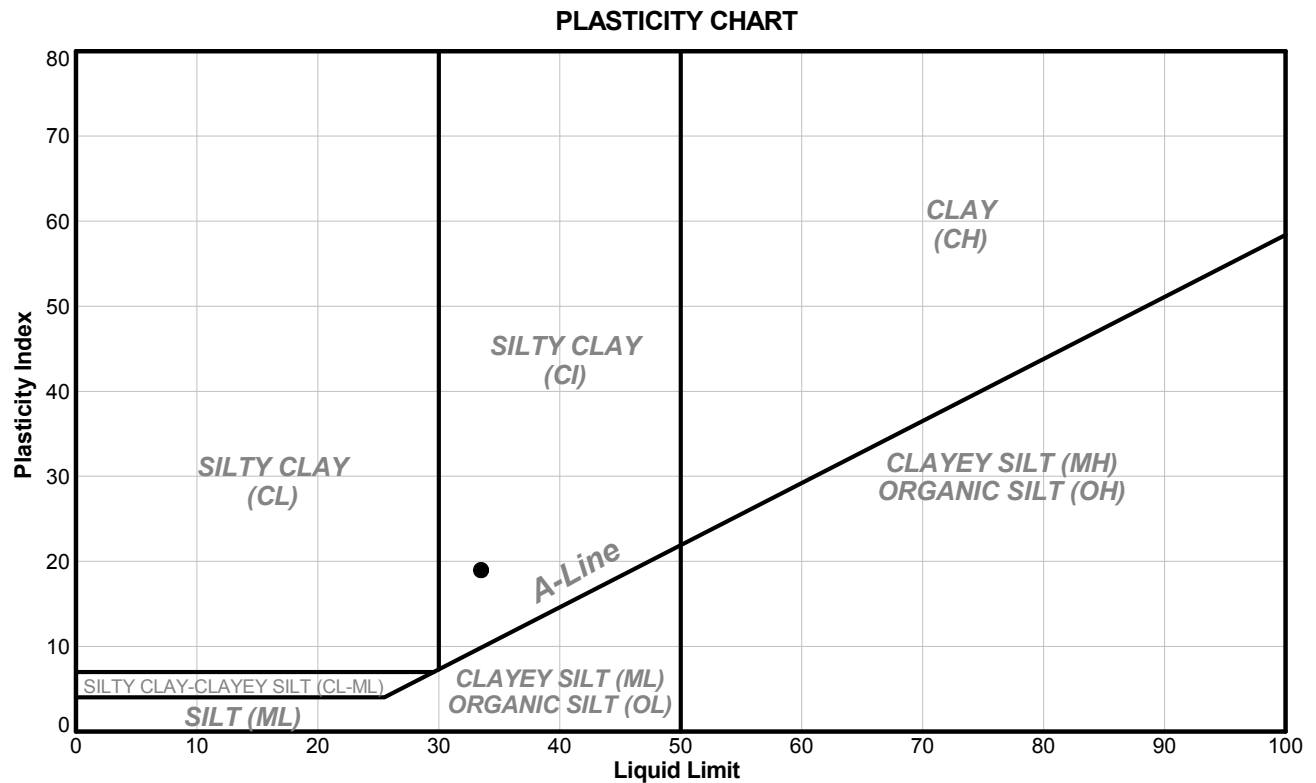
Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-35S	29624	5.50	6.10	75	31	14	17.0	12.4	-0.1

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

RZ	3/20/2019	LP	3/28/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-35S
Project:	Explore 0112	Sample No.:	35143
Location:		Depth Interval (m):	22.30 to 22.90
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried



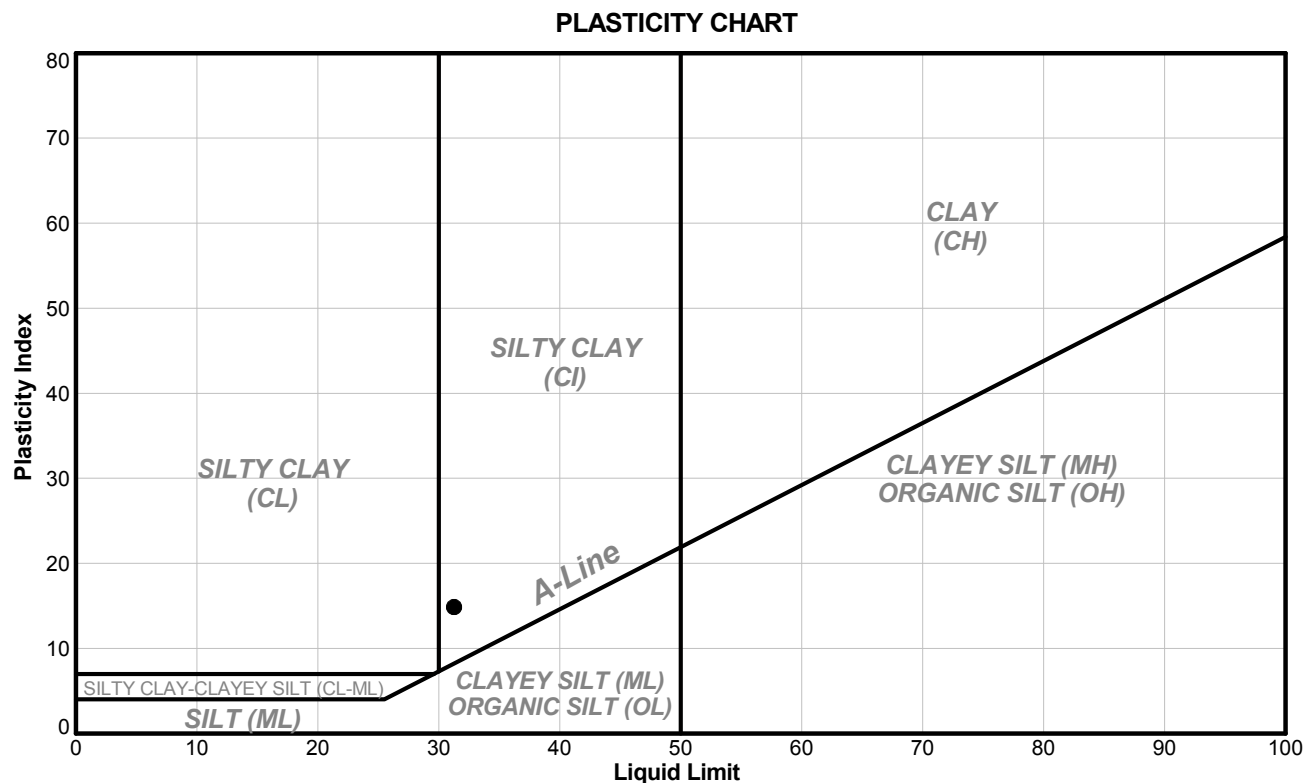
Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-35S	35143	22.30	22.90	75	33	15	18.0	10.2	-0.3

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

RZ	3/20/2019	LP	3/28/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-20S
Project:	Explore 0112	Sample No.:	35057
Location:		Depth Interval (m):	19.80 to 20.40
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried



Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-20S	35057	19.80	20.40	70	31	16	15.0	12.8	-0.2

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

RG	4/29/2019	LP	5/1/2019
Tech	Date	Checked	Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 Phase: 2000

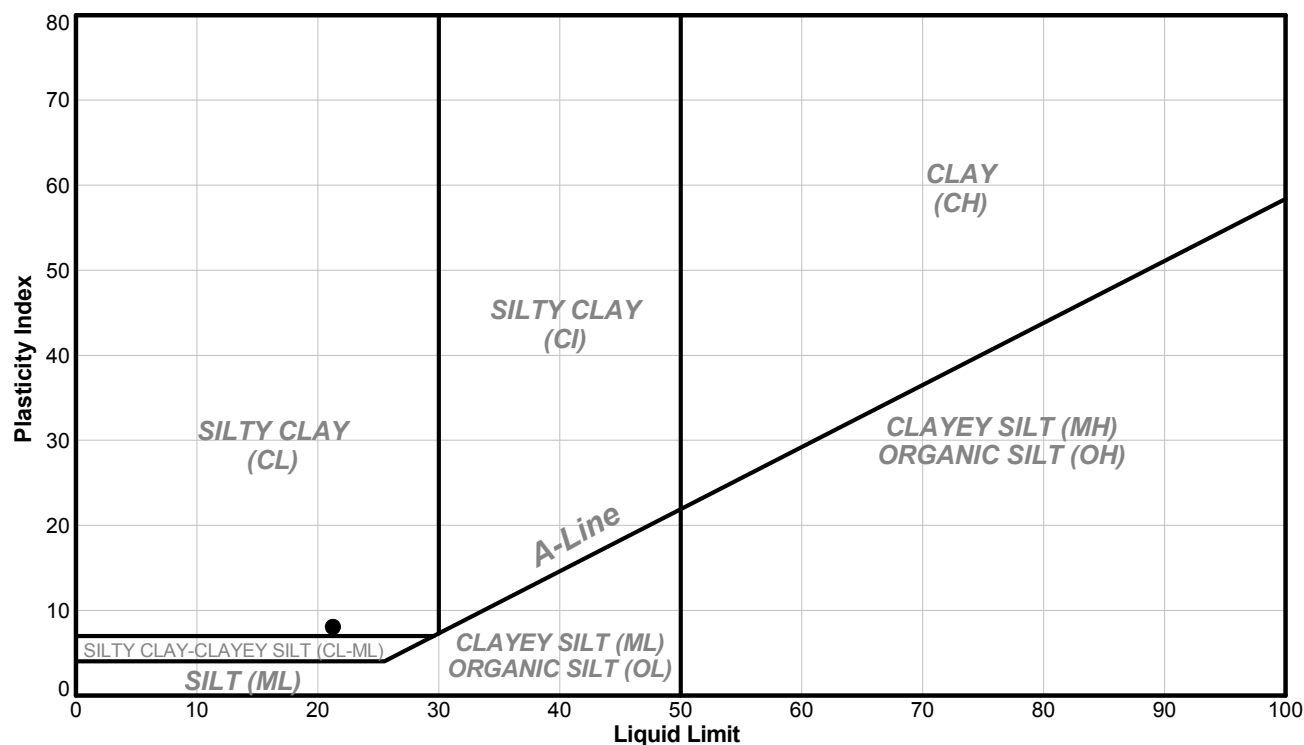
ID: 19-20S
Sample No.: 35059
Depth Interval (m): 24.40 to 25.00
Lab Schedule No.:

Other Remarks: N/A

Test Method: A-Multi Point

Preparation Method: Air Dried

PLASTICITY CHART



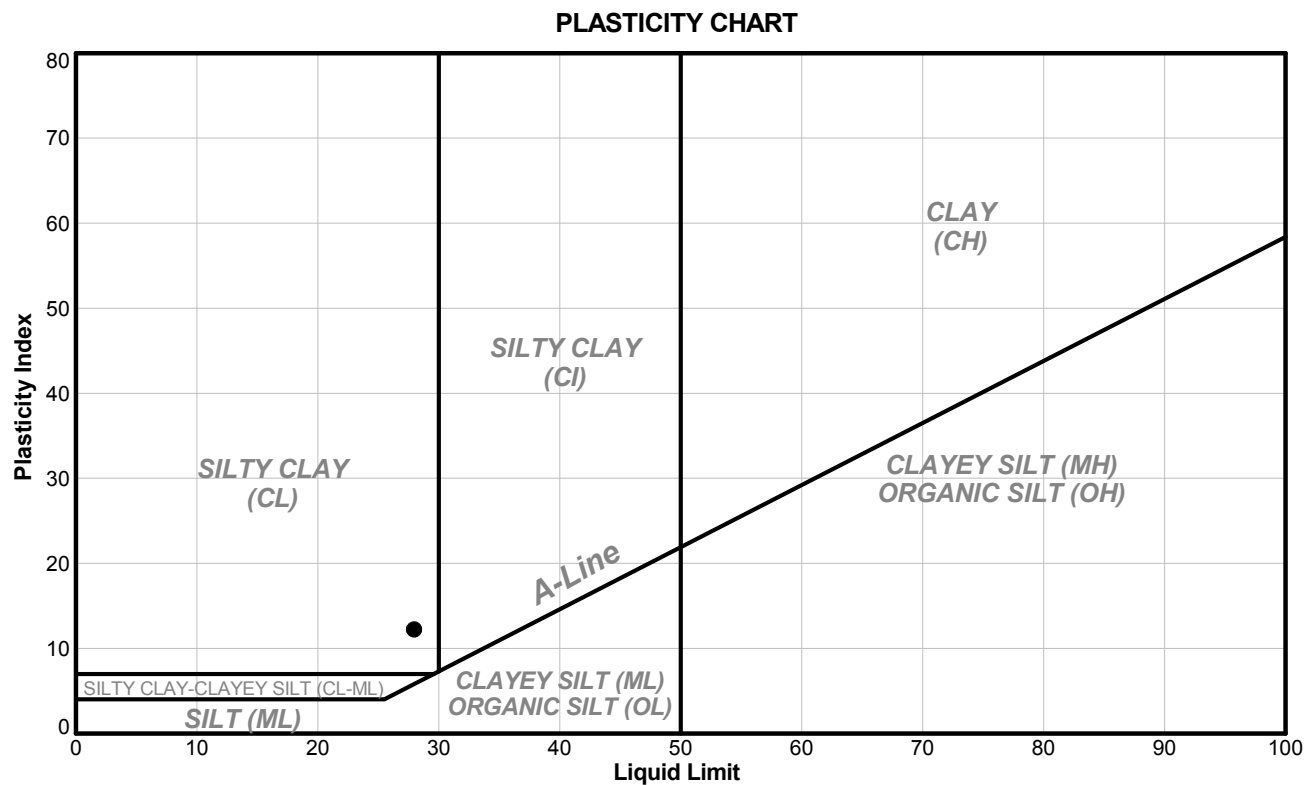
Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-20S	35059	24.40	25.00	94	21	13	8.0	16.9	0.5

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

RG	4/29/2019	LP	5/1/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-20S
Project:	Explore 0112	Sample No.:	35063
Location:		Depth Interval (m):	42.10 to 42.70
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried



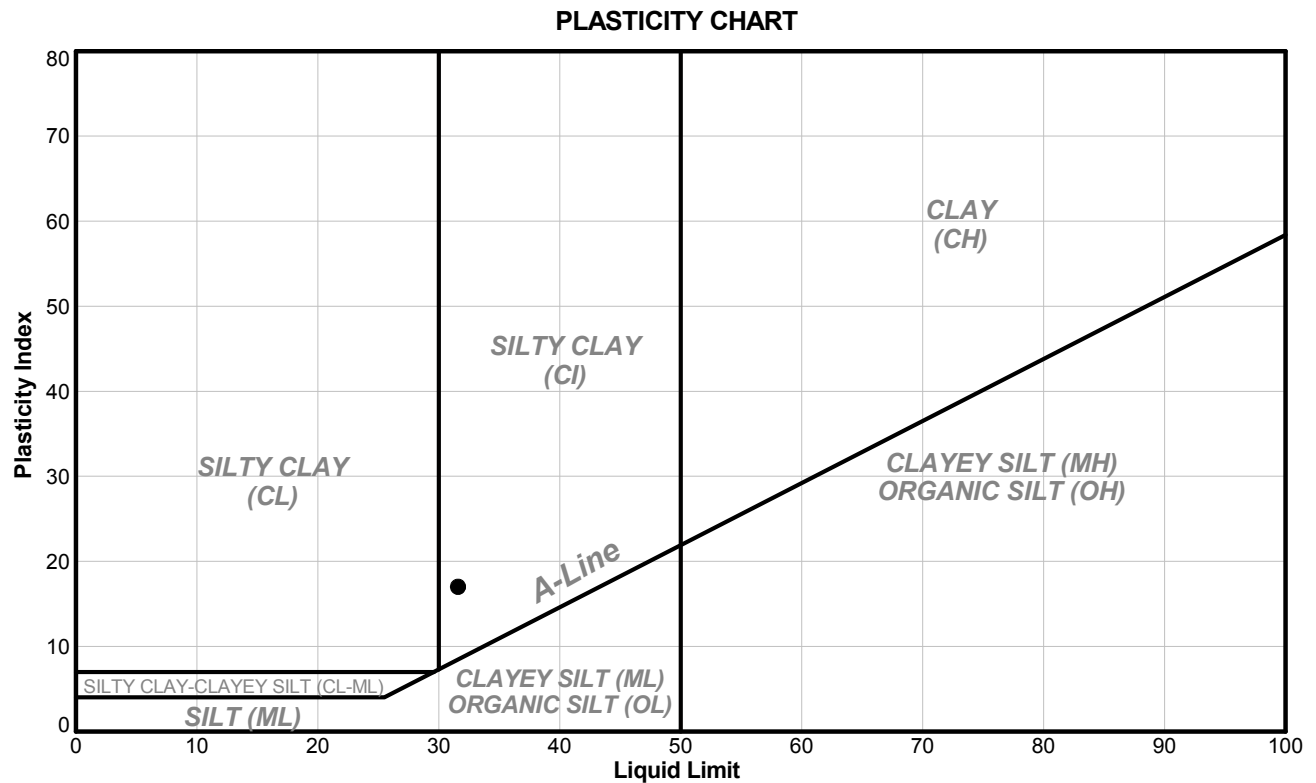
Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-20S	35063	42.10	42.70	30	28	16	12.0	12.5	-0.3

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

RG	4/30/2019	LP	5/1/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-23S
Project:	Explore 0112	Sample No.:	29676
Location:		Depth Interval (m):	1.10 to 1.50
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried



Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-23S	29676	1.10	1.50	65	32	15	17.0	12.5	-0.1

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

BJ	5/1/2019	LP	5/3/2019
Tech	Date	Checked	Date

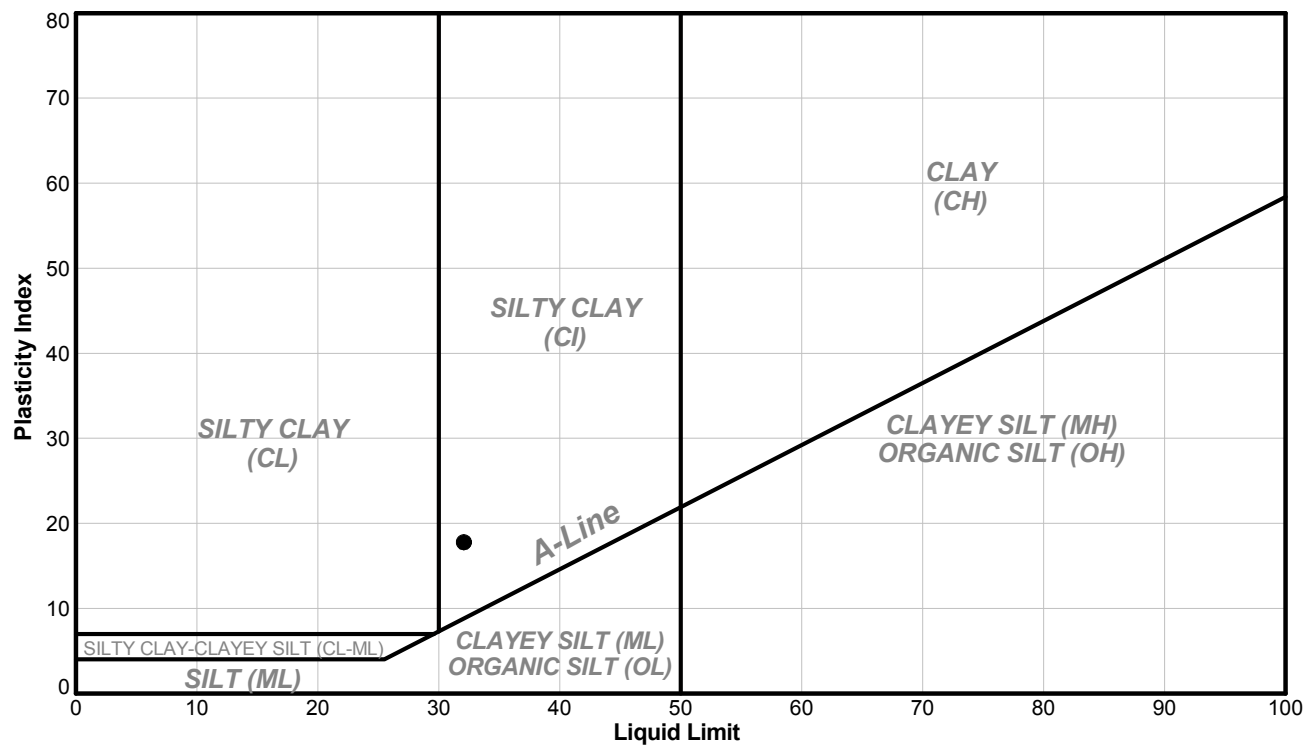
Client: Telkwa Coal Ltd.	ID: 19-24S
Project: Explore 0112	Sample No.: 29682
Location:	Depth Interval (m): 7.00 to 7.60
Project No.: 18109666 Phase: 2000	Lab Schedule No.:

Other Remarks: N/A

Test Method: A-Multi Point

Preparation Method: Air Dried

PLASTICITY CHART



Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-24S	29682	7.00	7.60	65	32	14	18.0	12.5	-0.1

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

BJ	5/1/2019	LP	5/3/2019
Tech	Date	Checked	Date

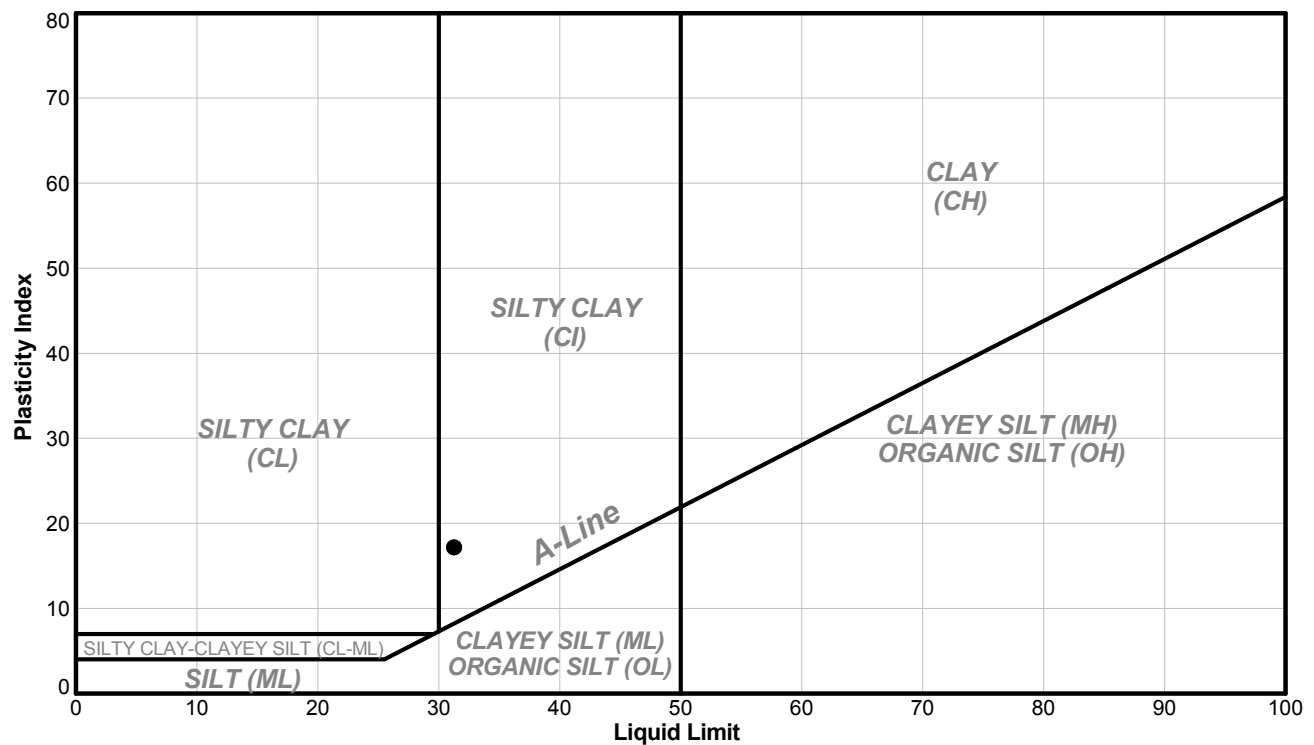
Client: Telkwa Coal Ltd.	ID: 19-24S
Project: Explore 0112	Sample No.: 29685
Location:	Depth Interval (m): 16.20 to 16.80
Project No.: 18109666 Phase: 2000	Lab Schedule No.:

Other Remarks: N/A

Test Method: A-Multi Point

Preparation Method: Air Dried

PLASTICITY CHART



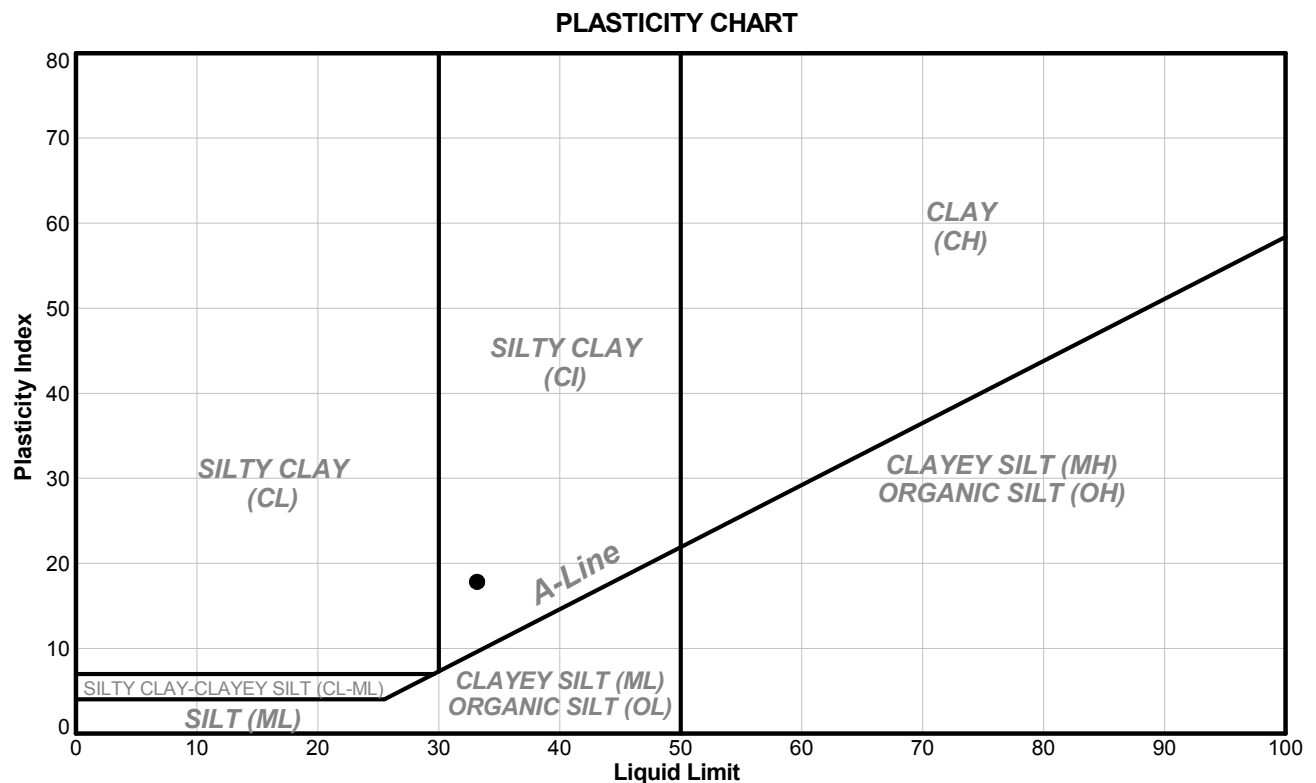
Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-24S	29685	16.20	16.80	68	31	14	17.0	11.3	-0.2

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

BJ	5/1/2019	LP	5/3/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-25S
Project:	Explore 0112	Sample No.:	29689
Location:		Depth Interval (m):	8.20 to 8.80
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried



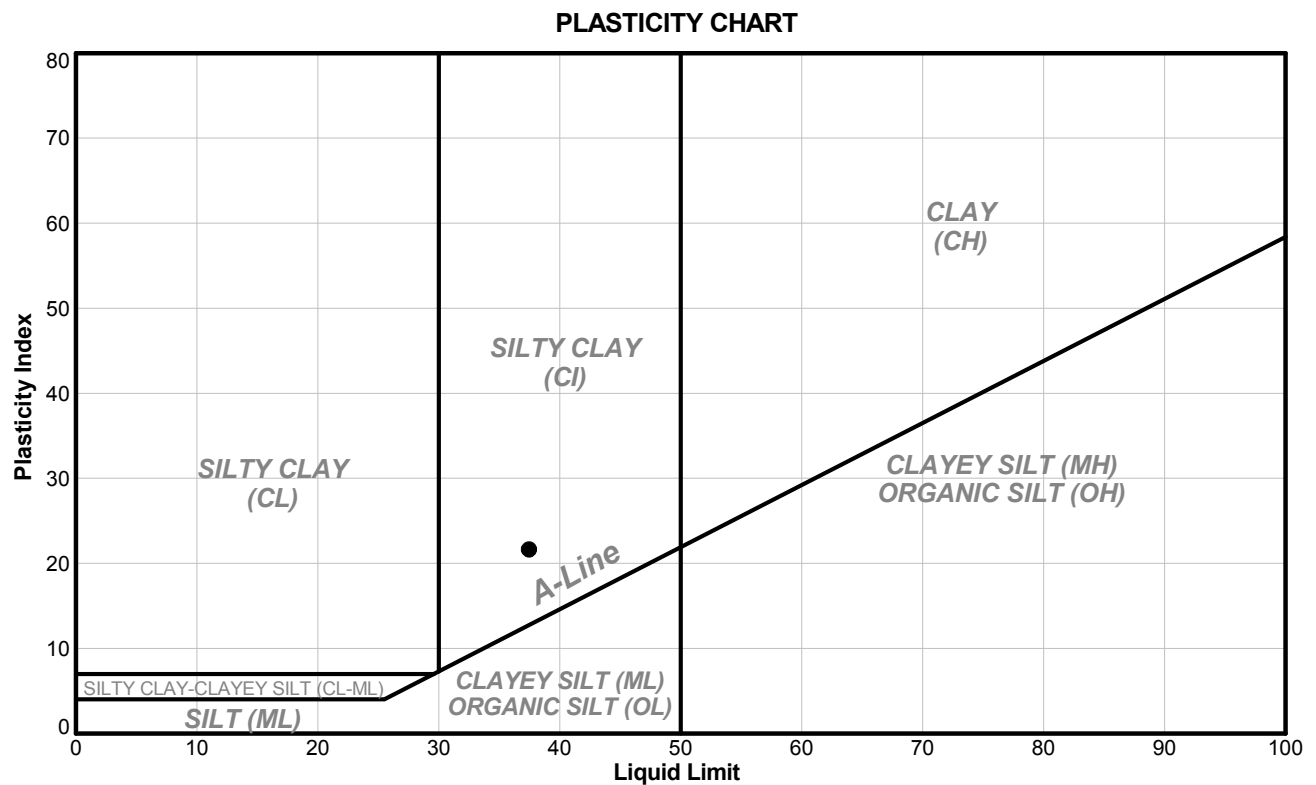
Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-25S	29689	8.20	8.80	65	33	15	18.0	11.7	-0.2

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

BJ	5/2/2019	LP	5/3/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-49TP
Project:	Explore 0112	Sample No.:	29674
Location:		Depth Interval (m):	2.90 to 3.10
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried



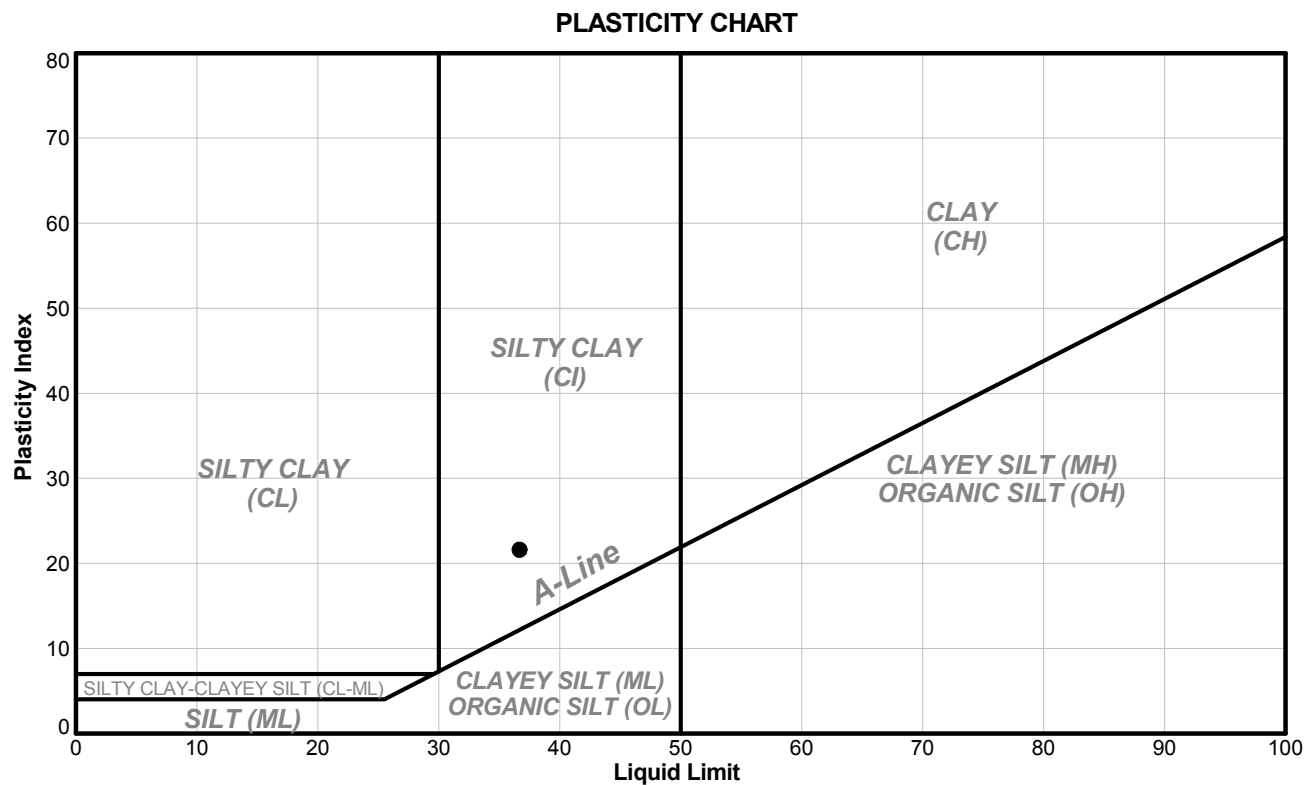
Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-49TP	29674	2.90	3.10	68	37	16	21.0	12.6	-0.2

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

BJ	5/1/2019	LP	5/3/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-50TP
Project:	Explore 0112	Sample No.:	35047
Location:		Depth Interval (m):	3.50 to 3.70
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried



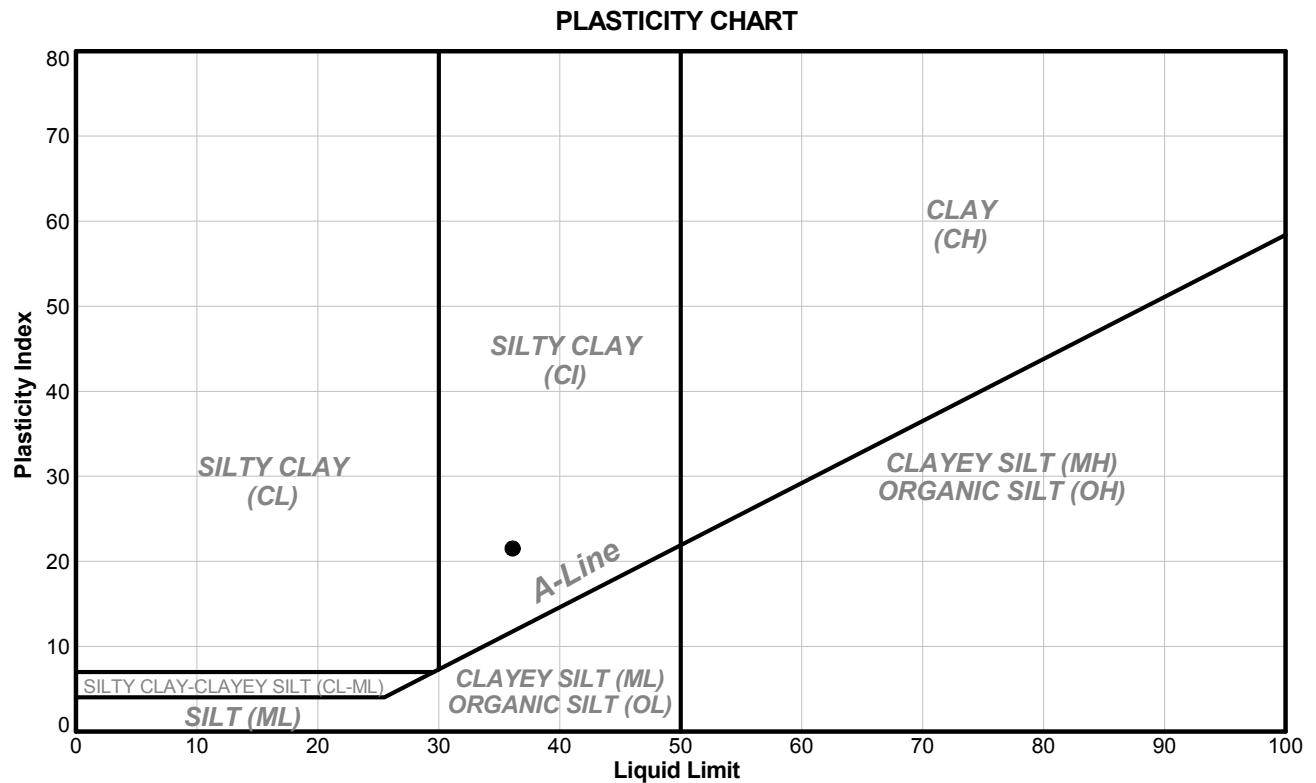
Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-50TP	35047	3.50	3.70	ND	37	15	22.0	11.4	-0.2

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

BJ	5/1/2019	LP	5/3/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-51TP
Project:	Explore 0112	Sample No.:	35049
Location:		Depth Interval (m):	2.30 to 2.50
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried



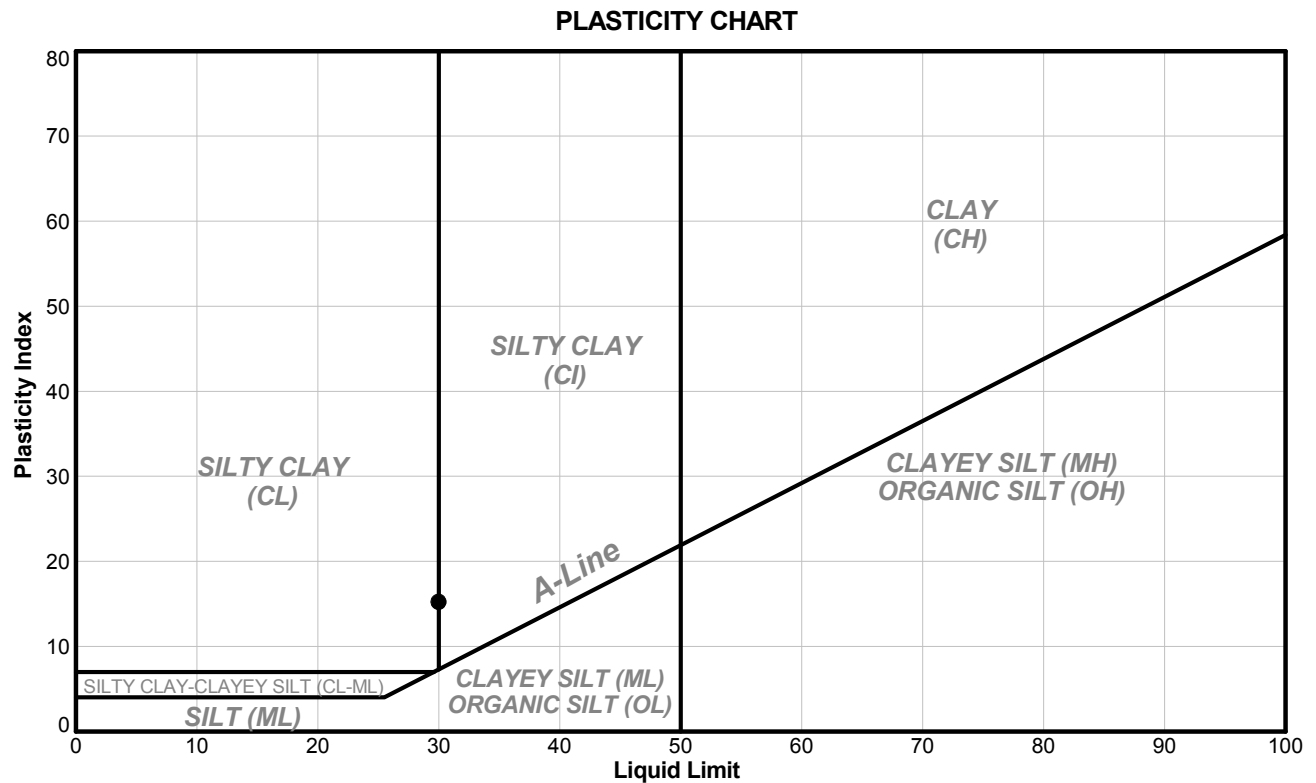
Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-51TP	35049	2.30	2.50	ND	36	15	21.0	10.3	-0.2

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

BJ	5/1/2019	LP	5/3/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-52TP
Project:	Explore 0112	Sample No.:	29690
Location:		Depth Interval (m):	1.10 to 1.30
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried



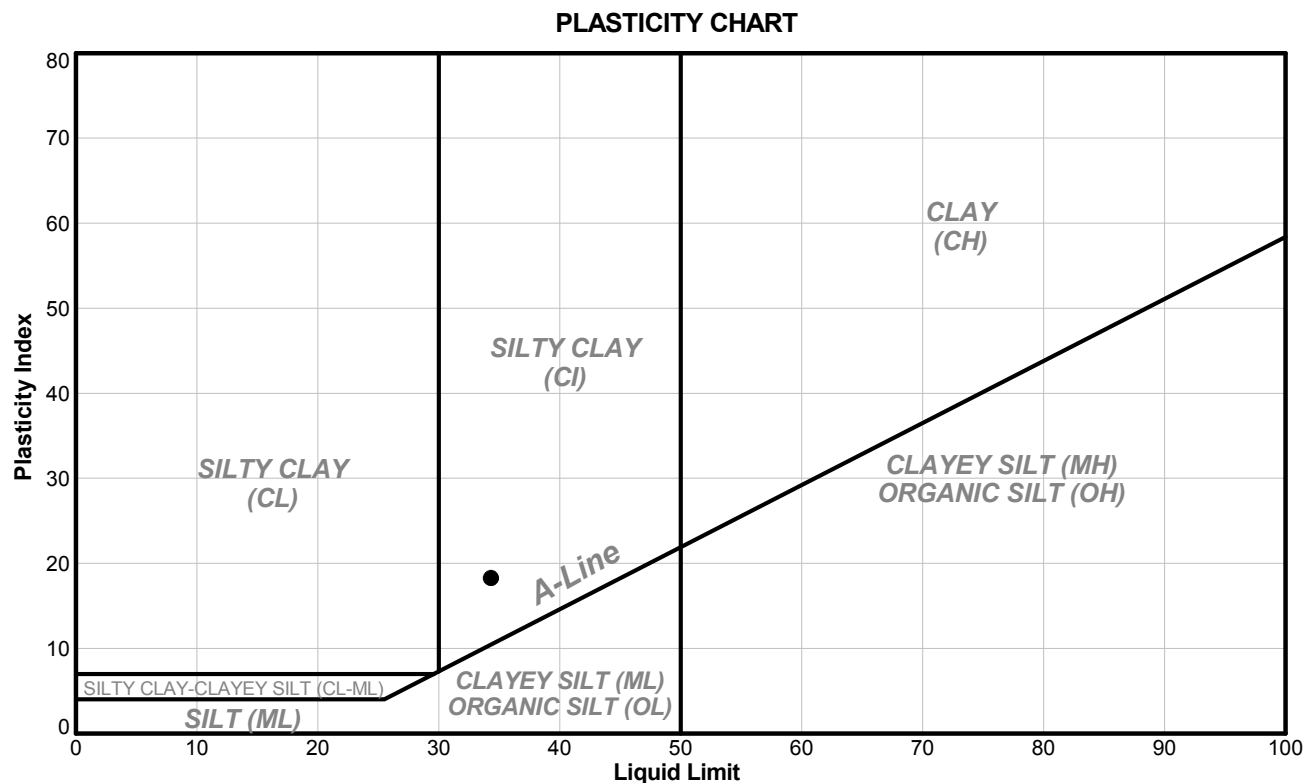
Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-52TP	29690	1.10	1.30	56	30	15	15.0	12.6	-0.2

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

BJ	5/1/2019	LP	5/3/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-53TP
Project:	Explore 0112	Sample No.:	29692
Location:		Depth Interval (m):	0.50 to 0.70
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried



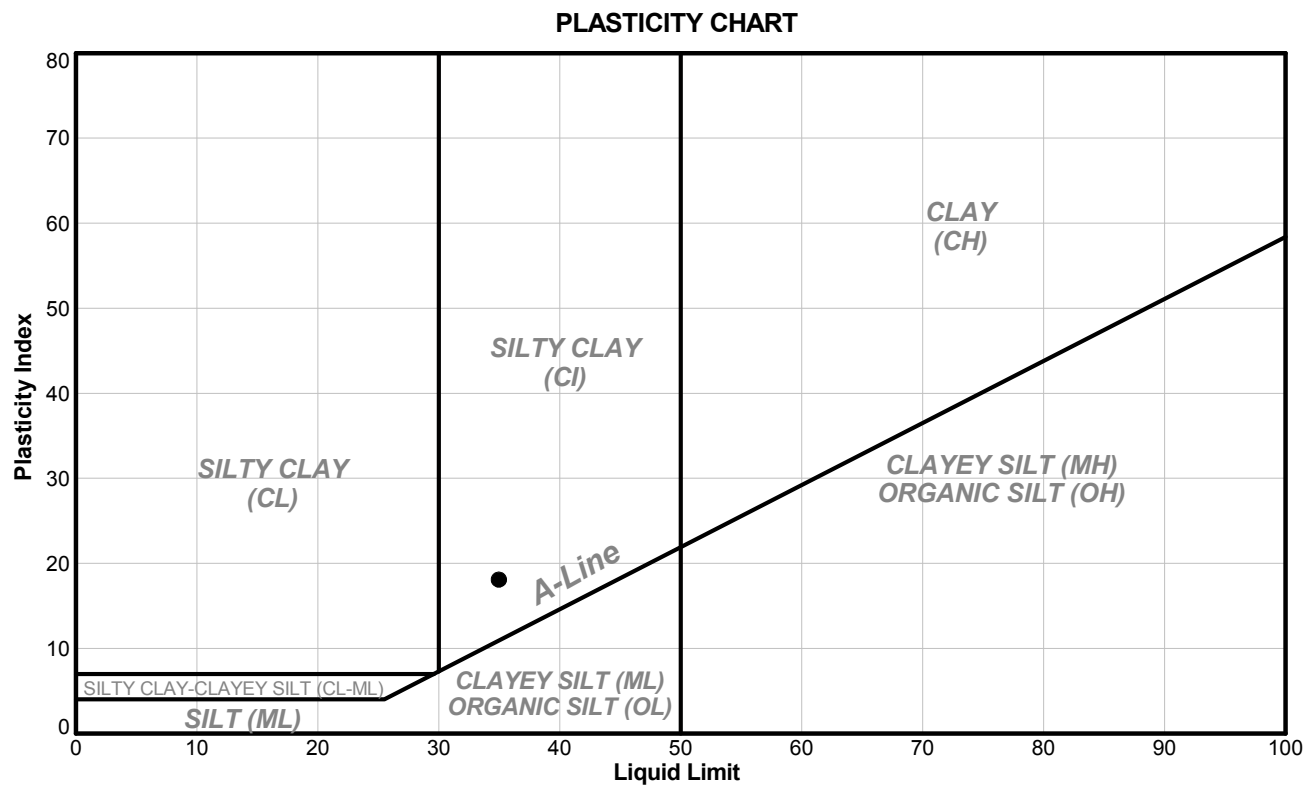
Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-53TP	29692	0.50	0.70	49	34	16	18.0	10.1	-0.3

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

BJ	5/2/2019	LP	5/3/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-53TP
Project:	Explore 0112	Sample No.:	29693
Location:		Depth Interval (m):	1.70 to 1.90
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried



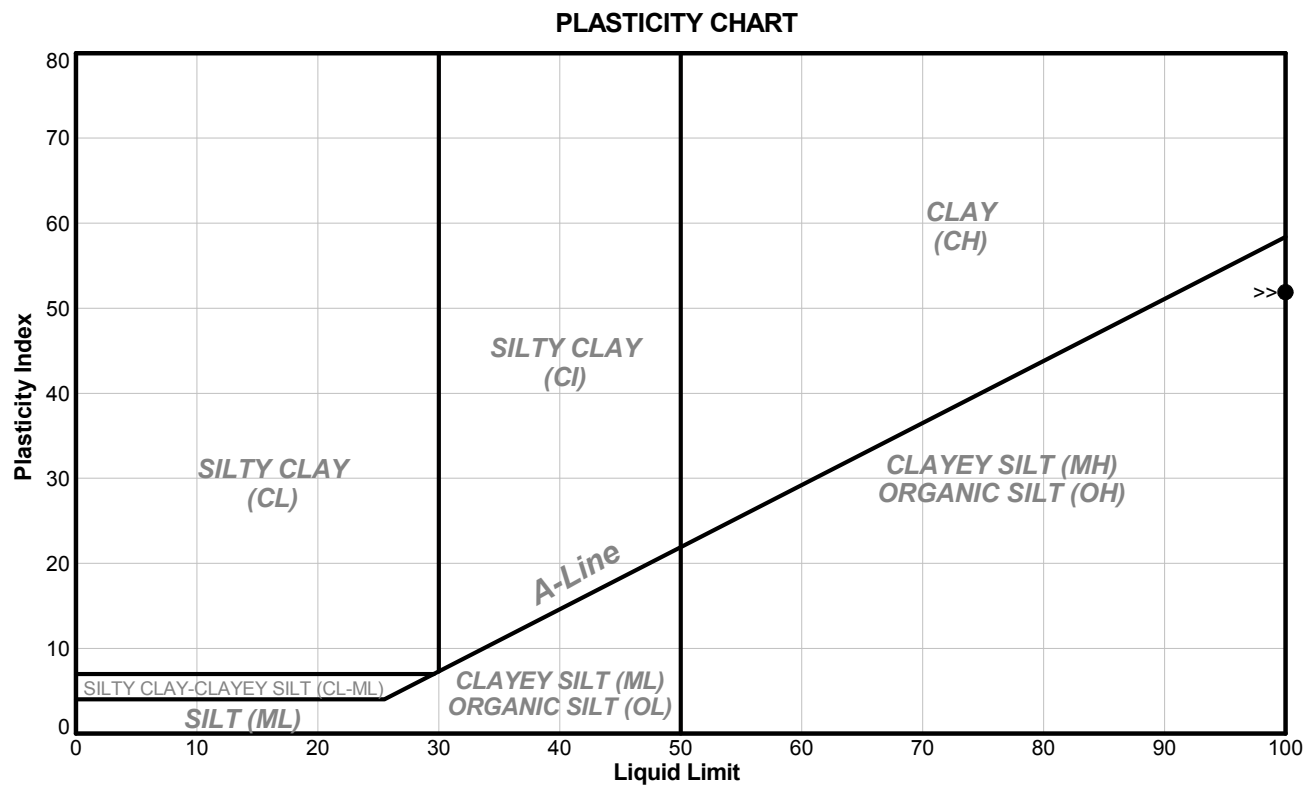
Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-53TP	29693	1.70	1.90	60	35	17	18.0	14.1	-0.2

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

FF	5/2/2019	LP	5/3/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-55TP
Project:	Explore 0112	Sample No.:	29696
Location:		Depth Interval (m):	0.00 to 0.20
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Wet



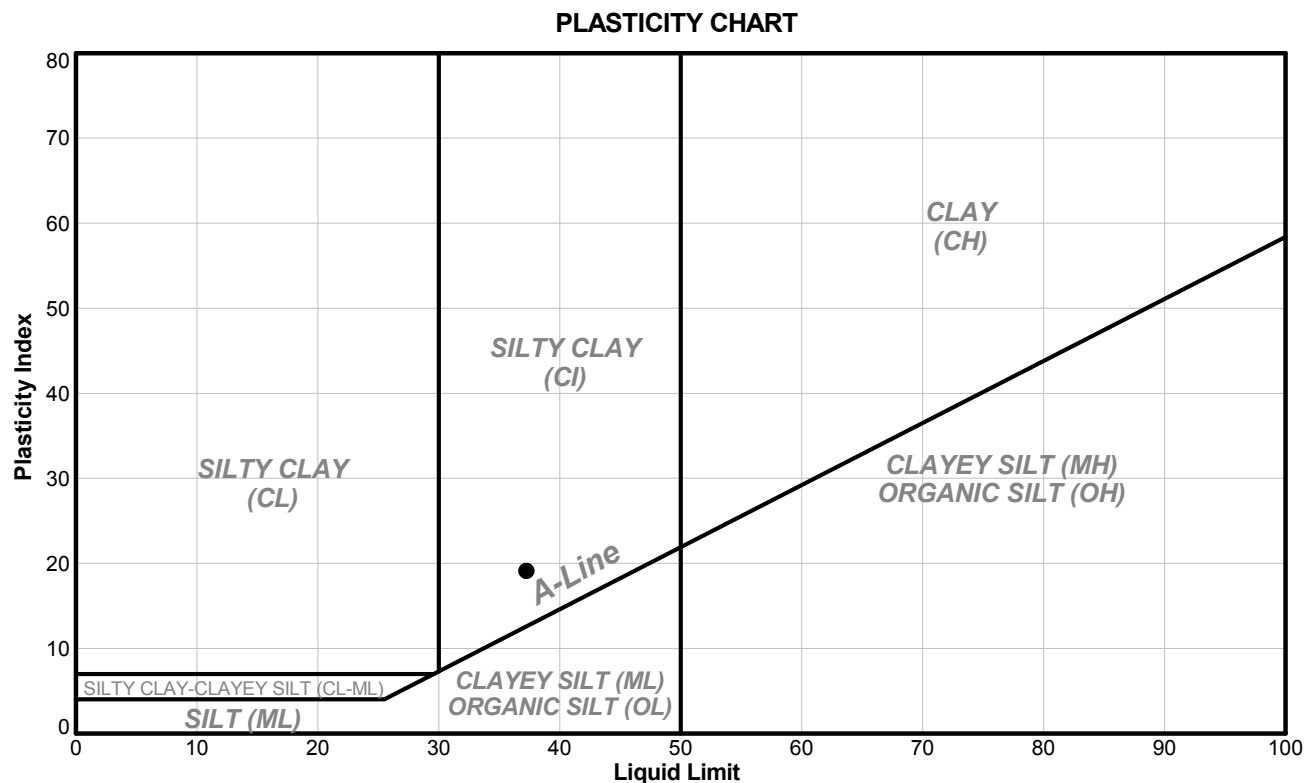
Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-55TP	29696	0.00	0.20	ND	180	128	52.0	157.3	0.6

NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

RG	4/30/2019	LP	5/1/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-55TP
Project:	Explore 0112	Sample No.:	29697
Location:		Depth Interval (m):	1.10 to 1.30
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried



Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-55TP	29697	1.10	1.30	49	37	18	19.0	15.6	-0.1

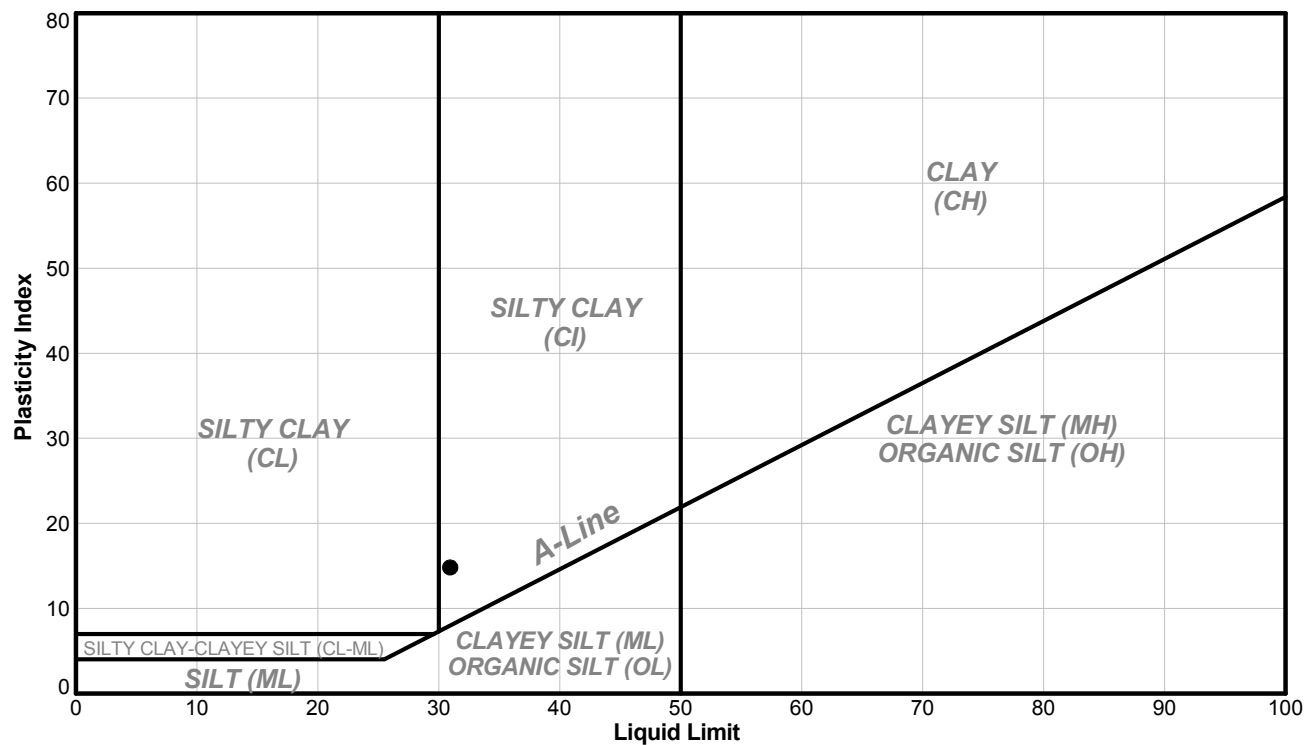
NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

BJ	5/2/2019	LP	5/3/2019
Tech	Date	Checked	Date

Client:	Telkwa Coal Ltd.	ID:	19-57TP
Project:	Explore 0112	Sample No.:	35023
Location:		Depth Interval (m):	1.10 to 1.30
Project No.:	18109666 Phase: 2000	Lab Schedule No.:	
Other Remarks:	N/A		
Test Method:	A-Multi Point	Preparation Method:	Air Dried

PLASTICITY CHART



Sym.	Sample Location	Sample / Specimen Number	Depth (m)	Bottom (m)	Percent Passing #40 Sieve (%)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)	Liquidity Index
●	19-57TP	35023	1.10	1.30	58	31	16	15.0	11.5	-0.3

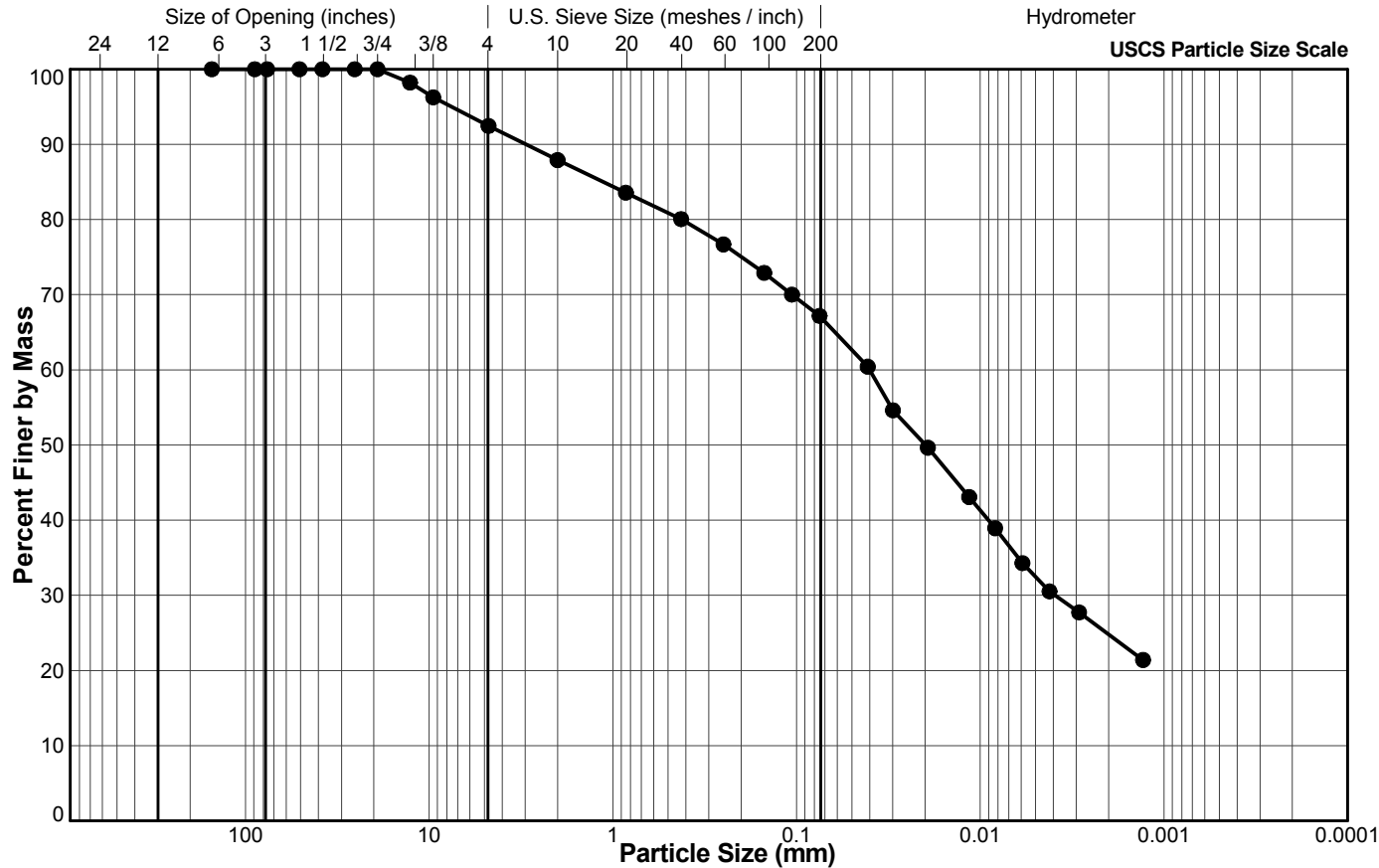
NP - NON-PLASTIC RESULT ND - NOT DETERMINED

Note: The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

BJ	5/2/2019	LP	5/3/2019
Tech	Date	Checked	Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-18S
Sample No.: 35077
Depth Interval (m): 6.30 to 6.50
Lab Schedule No.:



Legend

Sieve Size (USC)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	98.2
3/8"	9.5	96.3
#4 US MESH	4.75	92.5
#10 US MESH	2	87.9
#20 US MESH	0.85	83.6
#40 US MESH	0.425	80.1
#60 US MESH	0.25	76.7
#100 US MESH	0.15	72.9
#140 US MESH	0.106	70.0
#200 US MESH	0.075	67.2
	0.0410	60.4
	0.0299	54.6
	0.0193	49.6
	0.0115	43.1
	0.0083	38.9
	0.0059	34.3
	0.0042	30.5
	0.0029	27.7
	0.0013	21.4

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/21/2019

LP

3/27/2019

Tech

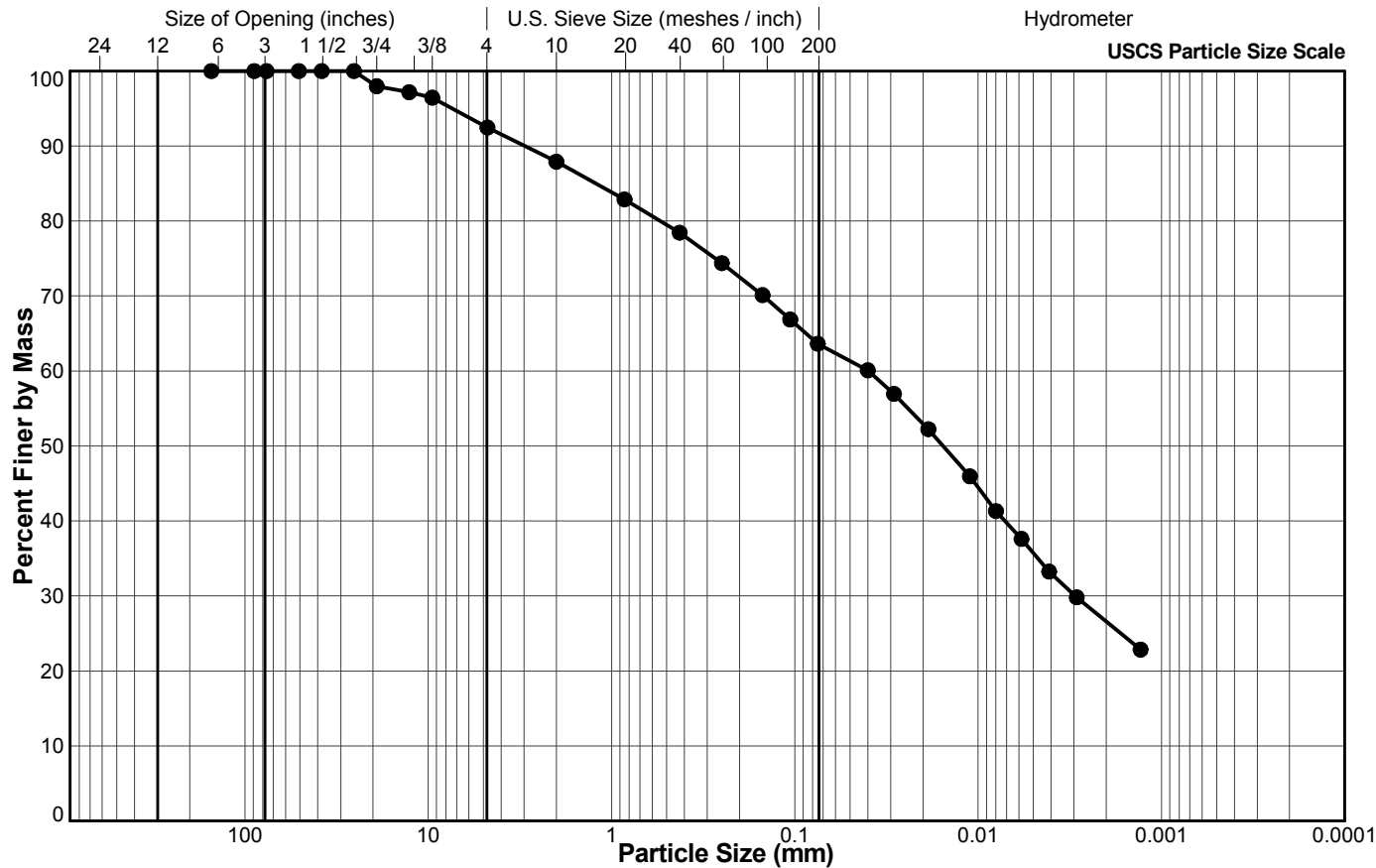
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-18S
Sample No.: 35080
Depth Interval (m): 15.40 to 15.80
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	98.0
1/2"	12.7	97.2
3/8"	9.5	96.5
#4 US MESH	4.75	92.5
#10 US MESH	2	87.9
#20 US MESH	0.85	82.9
#40 US MESH	0.425	78.4
#60 US MESH	0.25	74.4
#100 US MESH	0.15	70.1
#140 US MESH	0.106	66.9
#200 US MESH	0.075	63.6
	0.0400	60.1
	0.0288	56.9
	0.0187	52.2
	0.0111	46.0
	0.0080	41.3
	0.0058	37.6
	0.0041	33.2
	0.0029	29.8
	0.0013	22.8

BOULDER		COBBLE		GRAVEL		SAND			FINES (Silt, Clay)
				Coarse	Fine	Coarse	Medium	Fine	

DC

3/21/2019

LP

3/27/2019

Tech

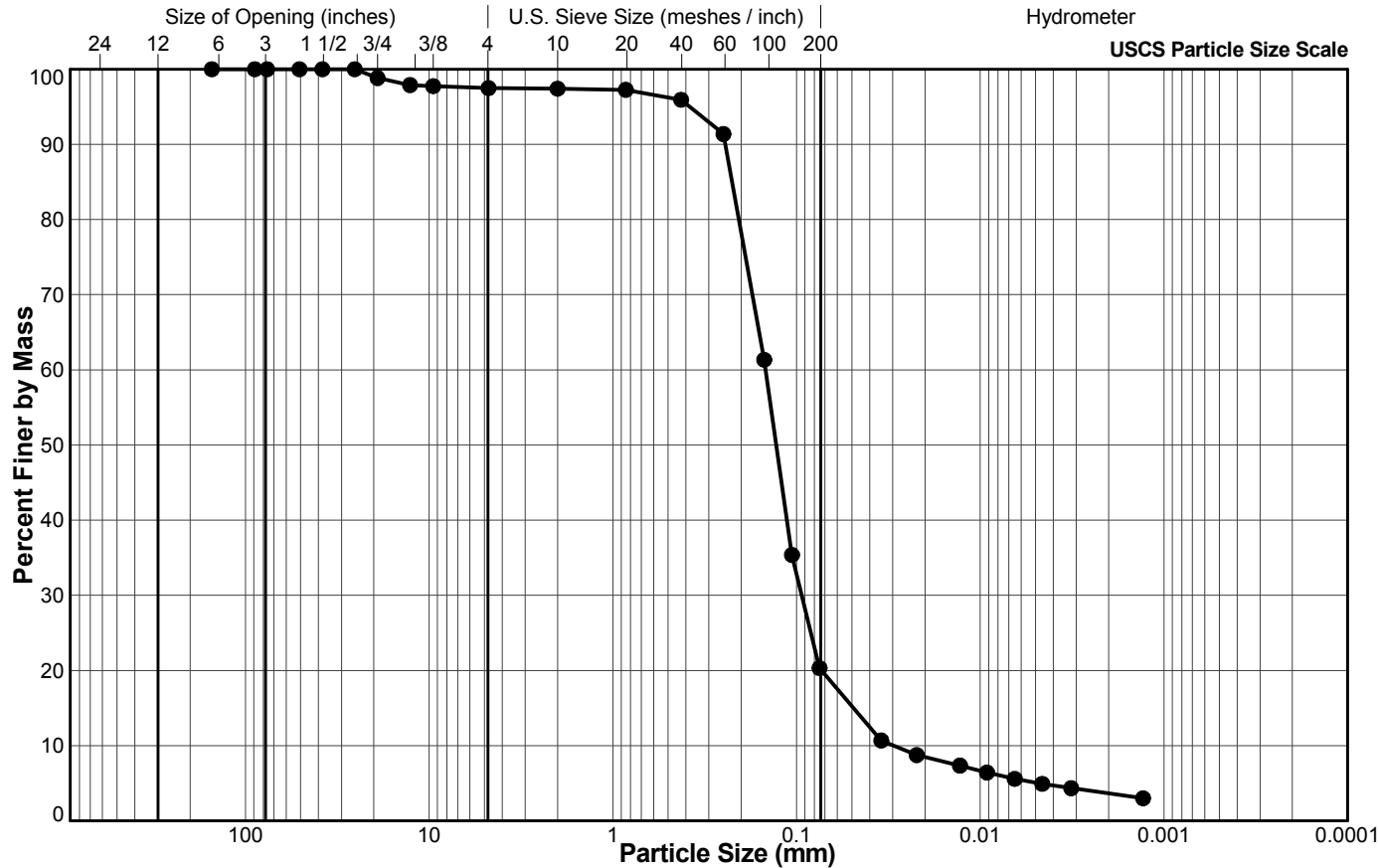
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-18S
Sample No.: 35084
Depth Interval (m): 29.00 to 29.60
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	98.8
1/2"	12.7	97.9
3/8"	9.5	97.7
#4 US MESH	4.75	97.5
#10 US MESH	2	97.4
#20 US MESH	0.85	97.3
#40 US MESH	0.425	95.9
#60 US MESH	0.25	91.4
#100 US MESH	0.15	61.3
#140 US MESH	0.106	35.4
#200 US MESH	0.075	20.3
	0.0346	10.7
	0.0222	8.7
	0.0129	7.3
	0.0092	6.4
	0.0065	5.6
	0.0046	4.9
	0.0032	4.3
	0.0013	3.0

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/21/2019

LH

3/27/2019

Tech

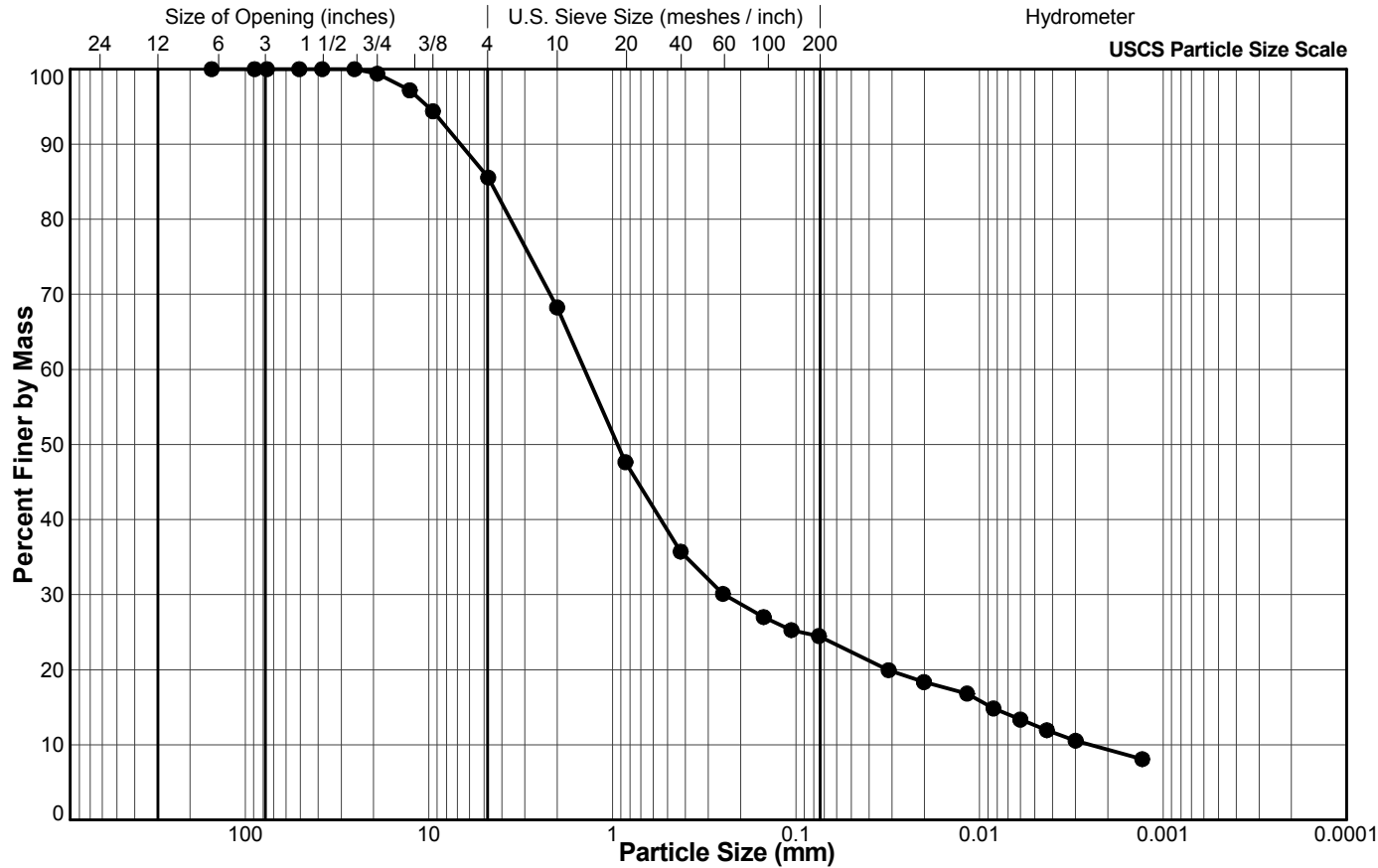
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-18S
Sample No.: 35085
Depth Interval (m): 34.70 to 35.40
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	99.4
1/2"	12.7	97.2
3/8"	9.5	94.4
#4 US MESH	4.75	85.6
#10 US MESH	2	68.3
#20 US MESH	0.85	47.7
#40 US MESH	0.425	35.7
#60 US MESH	0.25	30.1
#100 US MESH	0.15	27.0
#140 US MESH	0.106	25.3
#200 US MESH	0.075	24.5
	0.0313	19.9
	0.0201	18.4
	0.0117	16.8
	0.0084	14.8
	0.0060	13.4
	0.0043	11.9
	0.0030	10.5
	0.0013	8.1

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/21/2019

LP

3/27/2019

Tech

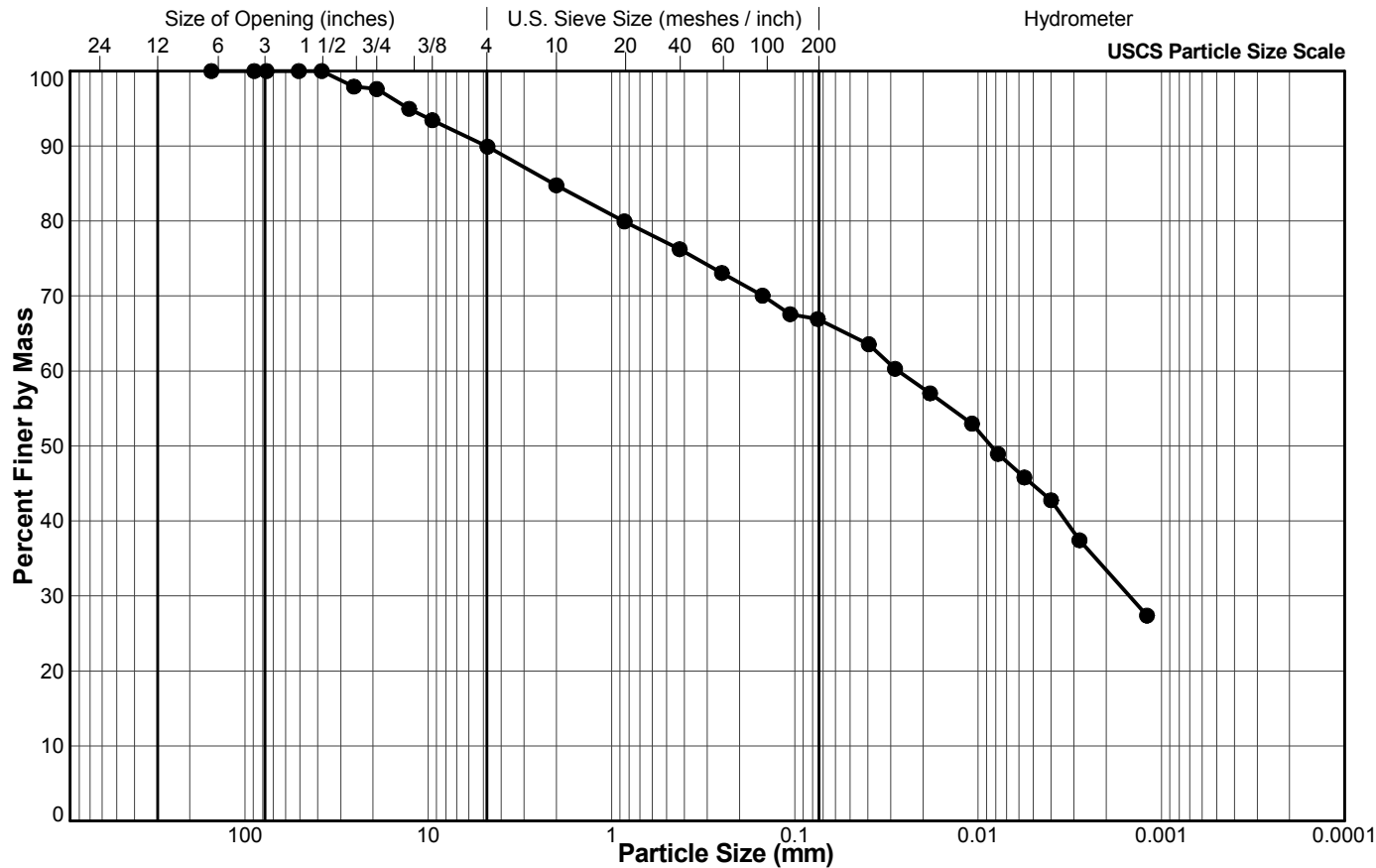
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-18S
Sample No.: 35086
Depth Interval (m): 42.20 to 42.70
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	97.9
3/4"	19.1	97.6
1/2"	12.7	95.0
3/8"	9.5	93.4
#4 US MESH	4.75	89.9
#10 US MESH	2	84.8
#20 US MESH	0.85	79.9
#40 US MESH	0.425	76.2
#60 US MESH	0.25	73.1
#100 US MESH	0.15	70.0
#140 US MESH	0.106	67.6
#200 US MESH	0.075	66.9
	0.0395	63.6
	0.0284	60.3
	0.0183	57.0
	0.0108	53.0
	0.0078	48.9
	0.0056	45.8
	0.0040	42.8
	0.0028	37.4
	0.0012	27.4

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/21/2019

LP

3/27/2019

Tech

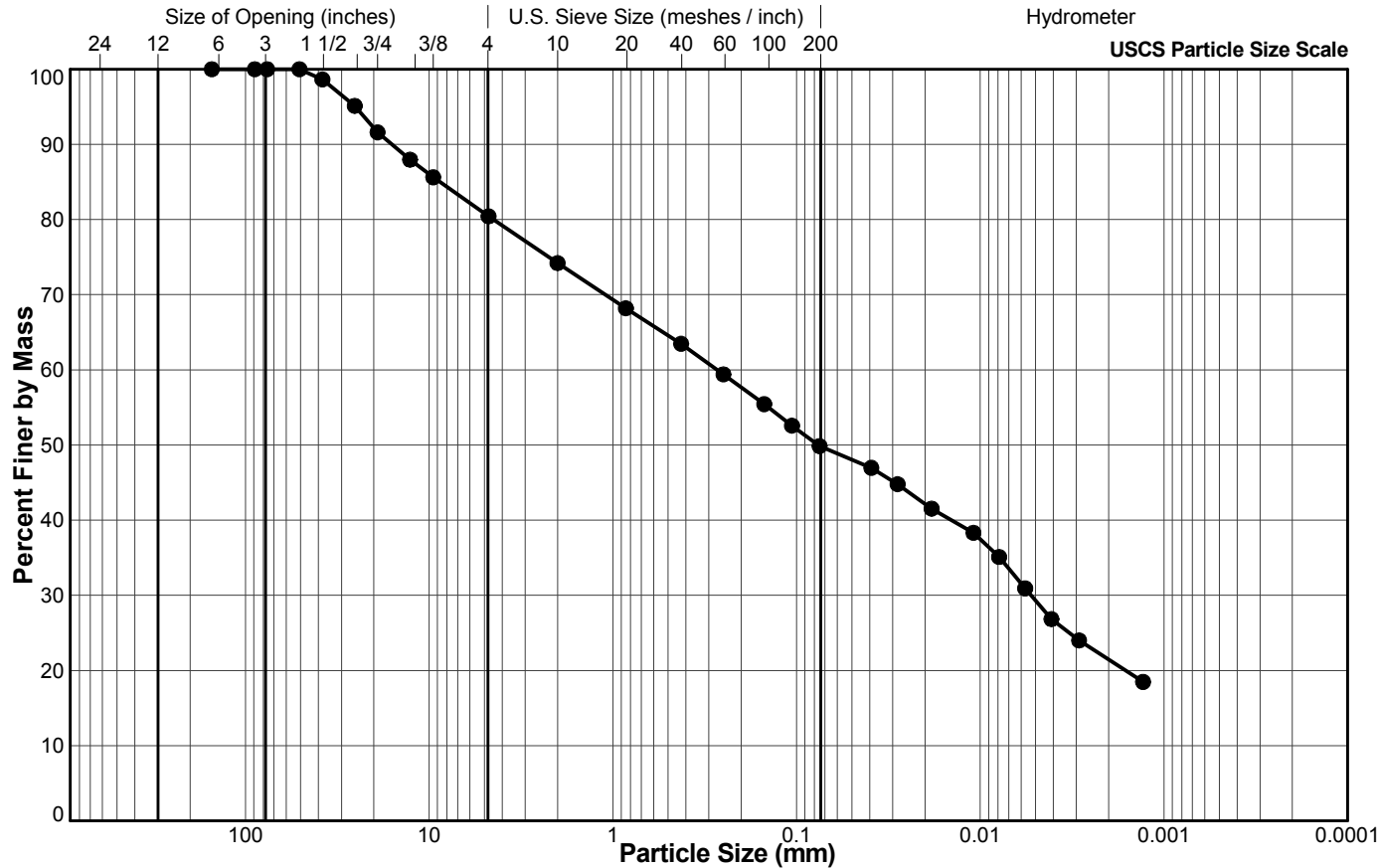
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-19S
Sample No.: 35087
Depth Interval (m): 3.00 to 3.50
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	98.6
1"	25.4	95.1
3/4"	19.1	91.6
1/2"	12.7	88.0
3/8"	9.5	85.6
#4 US MESH	4.75	80.4
#10 US MESH	2	74.2
#20 US MESH	0.85	68.2
#40 US MESH	0.425	63.5
#60 US MESH	0.25	59.4
#100 US MESH	0.15	55.4
#140 US MESH	0.106	52.6
#200 US MESH	0.075	49.9
	0.0392	47.0
	0.0282	44.8
	0.0184	41.5
	0.0109	38.3
	0.0079	35.1
	0.0057	30.9
	0.0041	26.8
	0.0029	24.0
	0.0013	18.5

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/12/2019

LP

3/27/2019

Tech

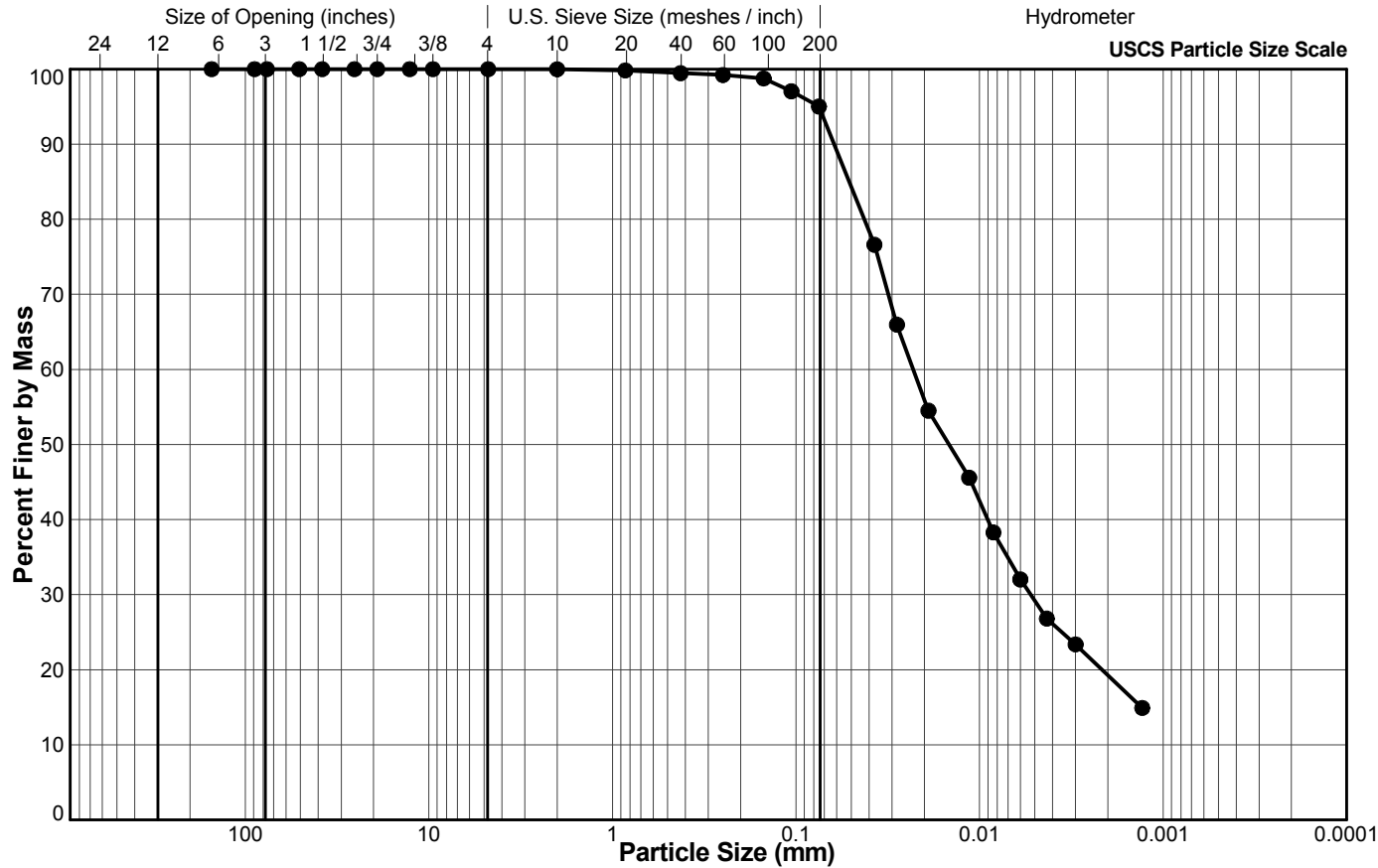
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-19S
Sample No.: 35089
Depth Interval (m): 11.60 to 12.20
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	100.0
3/8"	9.5	100.0
#4 US MESH	4.75	100.0
#10 US MESH	2	100.0
#20 US MESH	0.85	99.8
#40 US MESH	0.425	99.5
#60 US MESH	0.25	99.2
#100 US MESH	0.15	98.8
#140 US MESH	0.106	97.1
#200 US MESH	0.075	95.0
	0.0374	76.6
	0.0282	66.0
	0.0190	54.5
	0.0114	45.6
	0.0084	38.3
	0.0060	32.0
	0.0043	26.8
	0.0030	23.4
	0.0013	14.9

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/12/2019

LP

3/27/2019

Tech

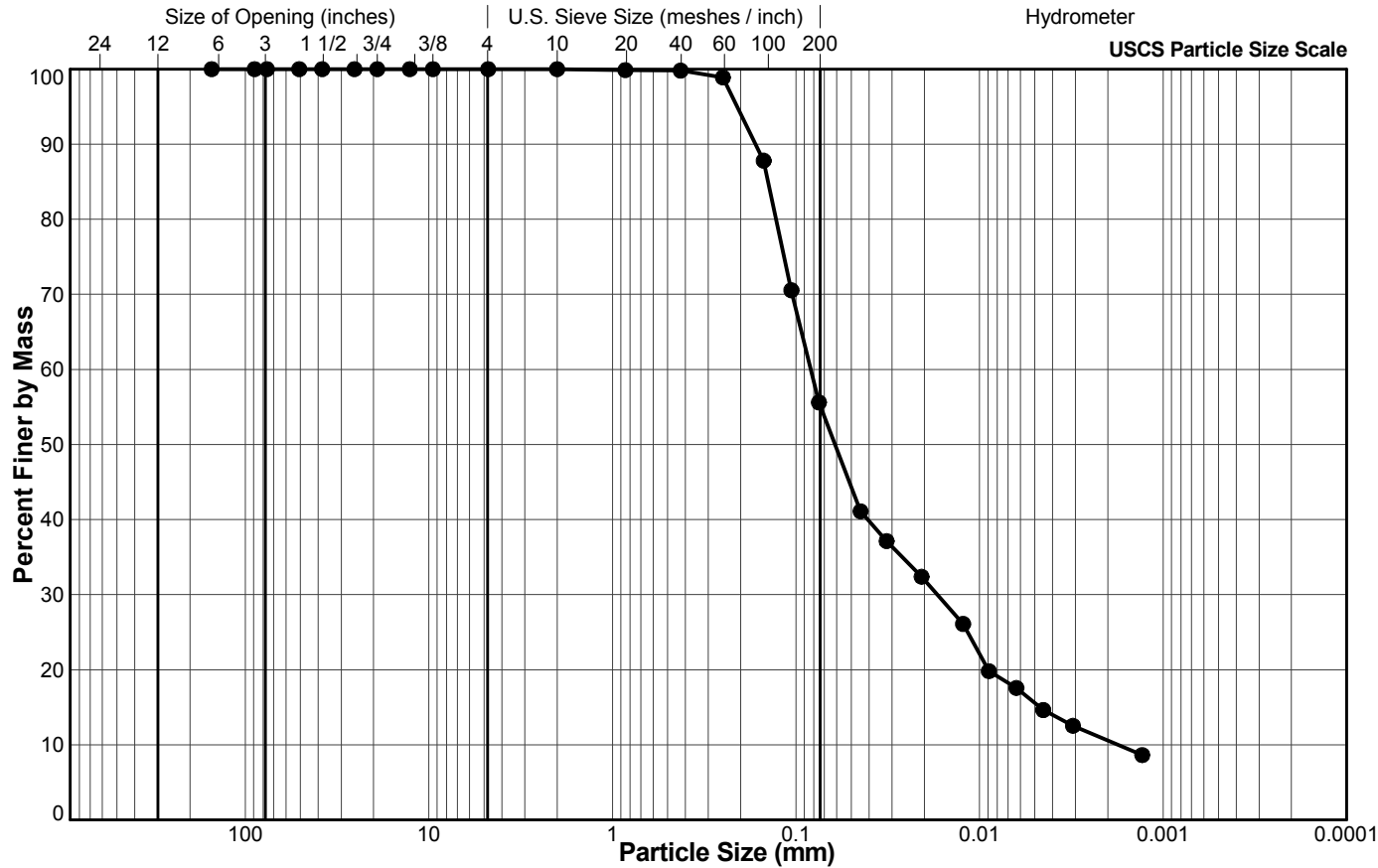
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-19S
Sample No.: 35090
Depth Interval (m): 14.30 to 14.90
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	100.0
3/8"	9.5	100.0
#4 US MESH	4.75	100.0
#10 US MESH	2	100.0
#20 US MESH	0.85	99.9
#40 US MESH	0.425	99.8
#60 US MESH	0.25	98.9
#100 US MESH	0.15	87.8
#140 US MESH	0.106	70.5
#200 US MESH	0.075	55.6
	0.0445	41.1
	0.0321	37.1
	0.0207	32.4
	0.0123	26.1
	0.0089	19.8
	0.0063	17.6
	0.0045	14.6
	0.0031	12.5
	0.0013	8.6

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/12/2019

LP

3/27/2019

Tech

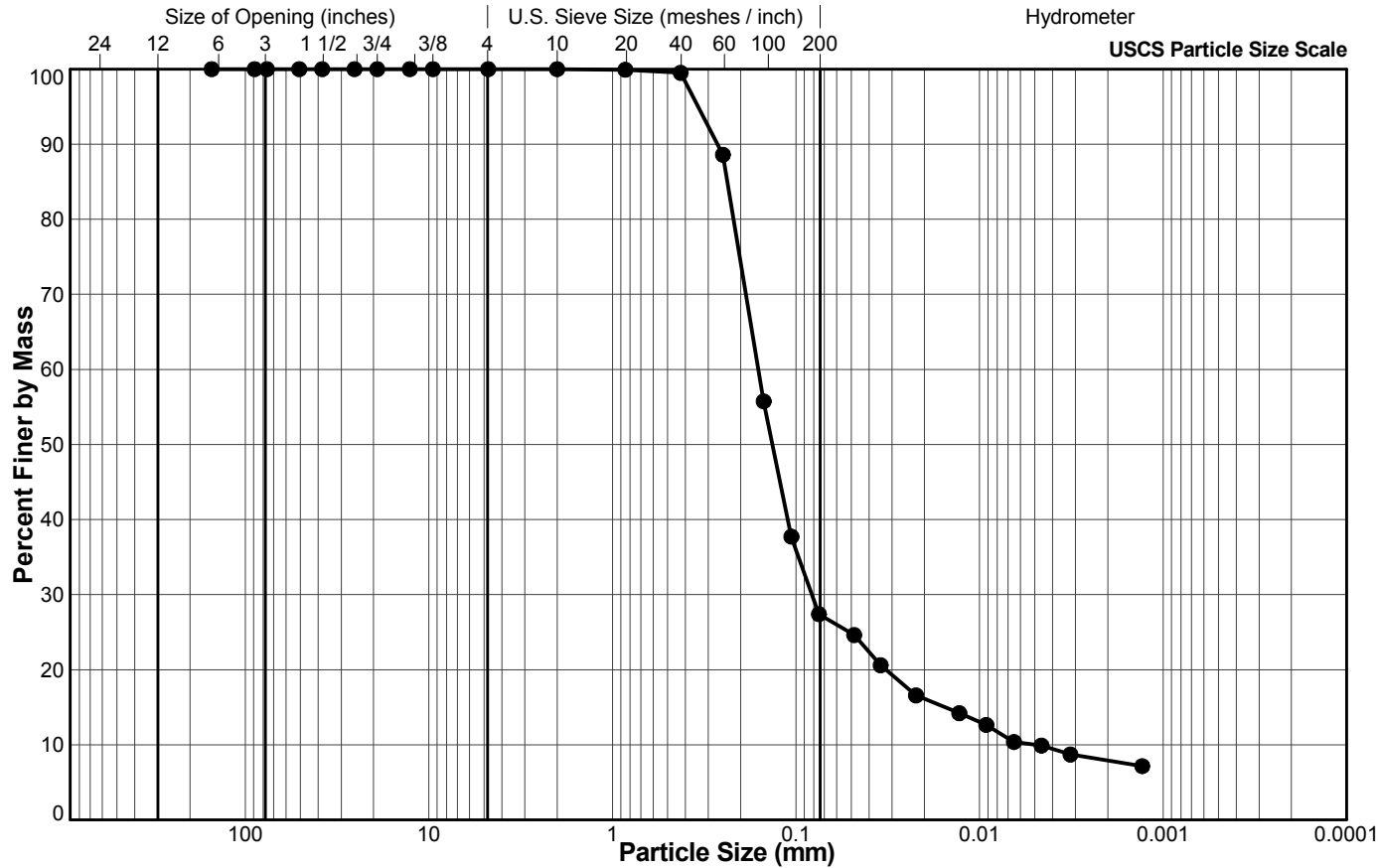
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-19S
Sample No.: 35091
Depth Interval (m): 18.30 to 18.70
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	100.0
3/8"	9.5	100.0
#4 US MESH	4.75	100.0
#10 US MESH	2	100.0
#20 US MESH	0.85	99.9
#40 US MESH	0.425	99.5
#60 US MESH	0.25	88.6
#100 US MESH	0.15	55.8
#140 US MESH	0.106	37.7
#200 US MESH	0.075	27.4
	0.0482	24.6
	0.0346	20.6
	0.0222	16.6
	0.0129	14.2
	0.0092	12.6
	0.0065	10.4
	0.0046	9.9
	0.0032	8.7
	0.0013	7.2

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/12/2019

LP

3/27/2019

Tech

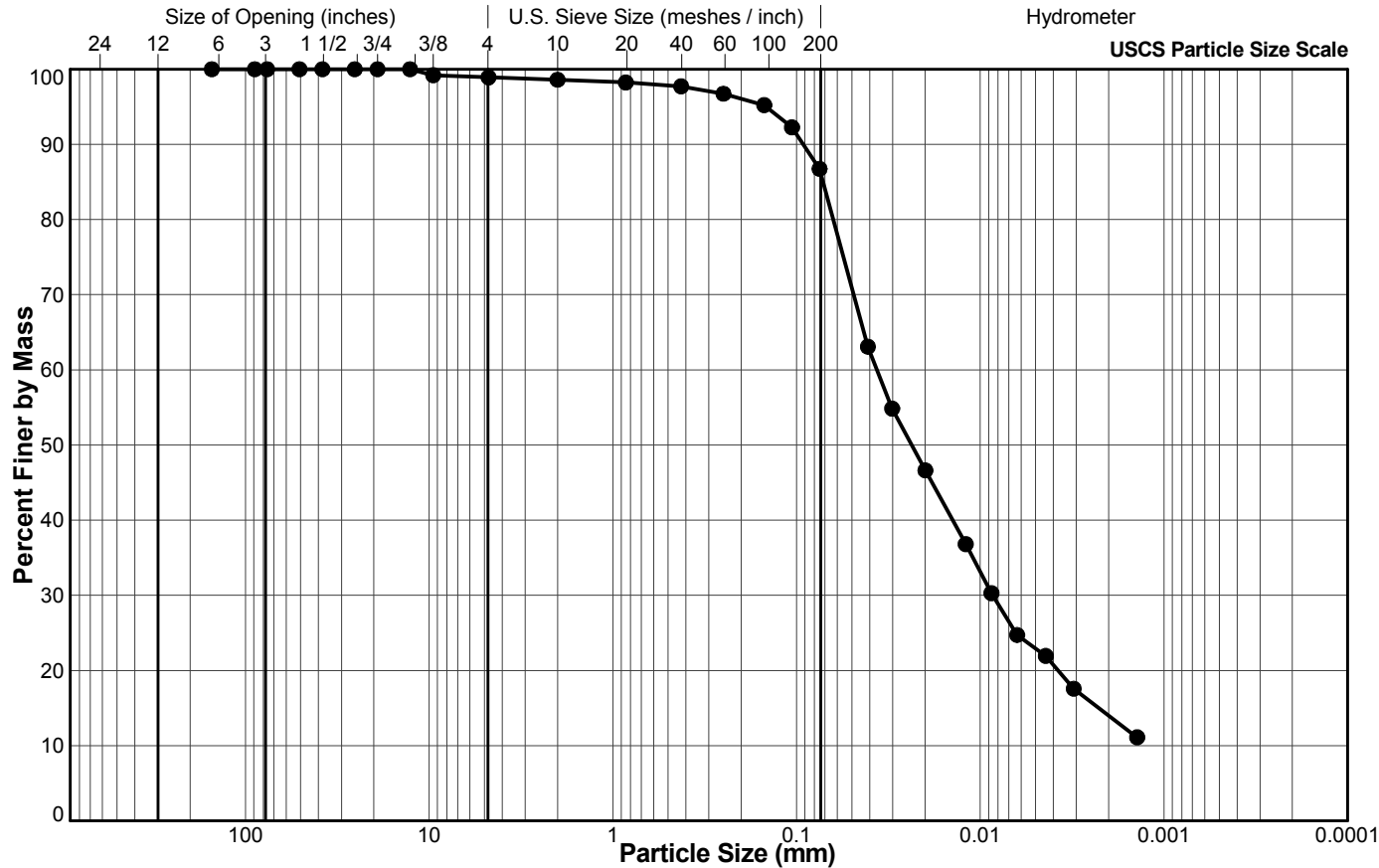
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-19S
Sample No.: 35093
Depth Interval (m): 21.30 to 21.80
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	100.0
3/8"	9.5	99.2
#4 US MESH	4.75	98.9
#10 US MESH	2	98.6
#20 US MESH	0.85	98.2
#40 US MESH	0.425	97.7
#60 US MESH	0.25	96.7
#100 US MESH	0.15	95.2
#140 US MESH	0.106	92.3
#200 US MESH	0.075	86.7
	0.0409	63.1
	0.0302	54.9
	0.0199	46.6
	0.0120	36.8
	0.0087	30.3
	0.0063	24.7
	0.0044	21.9
	0.0031	17.6
	0.0014	11.1

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/12/2019

LP

3/27/2019

Tech

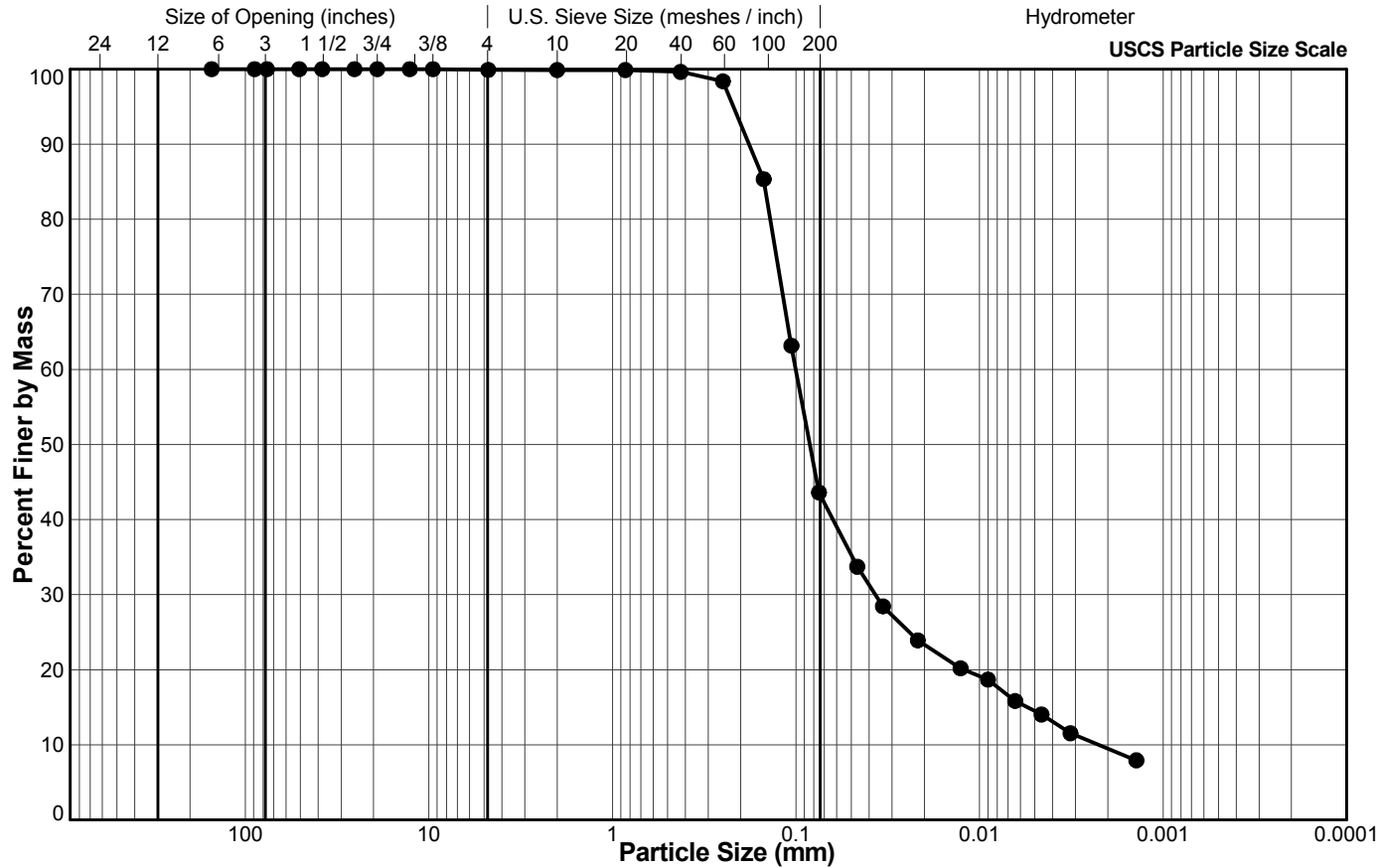
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-19S
Sample No.: 35094
Depth Interval (m): 25.90 to 26.50
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	100.0
3/8"	9.5	100.0
#4 US MESH	4.75	99.9
#10 US MESH	2	99.9
#20 US MESH	0.85	99.9
#40 US MESH	0.425	99.6
#60 US MESH	0.25	98.4
#100 US MESH	0.15	85.4
#140 US MESH	0.106	63.2
#200 US MESH	0.075	43.6
	0.0464	33.7
	0.0336	28.4
	0.0217	23.9
	0.0127	20.2
	0.0090	18.7
	0.0064	15.8
	0.0046	14.0
	0.0032	11.5
	0.0014	7.9

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/12/2019

LP

3/27/2019

Tech

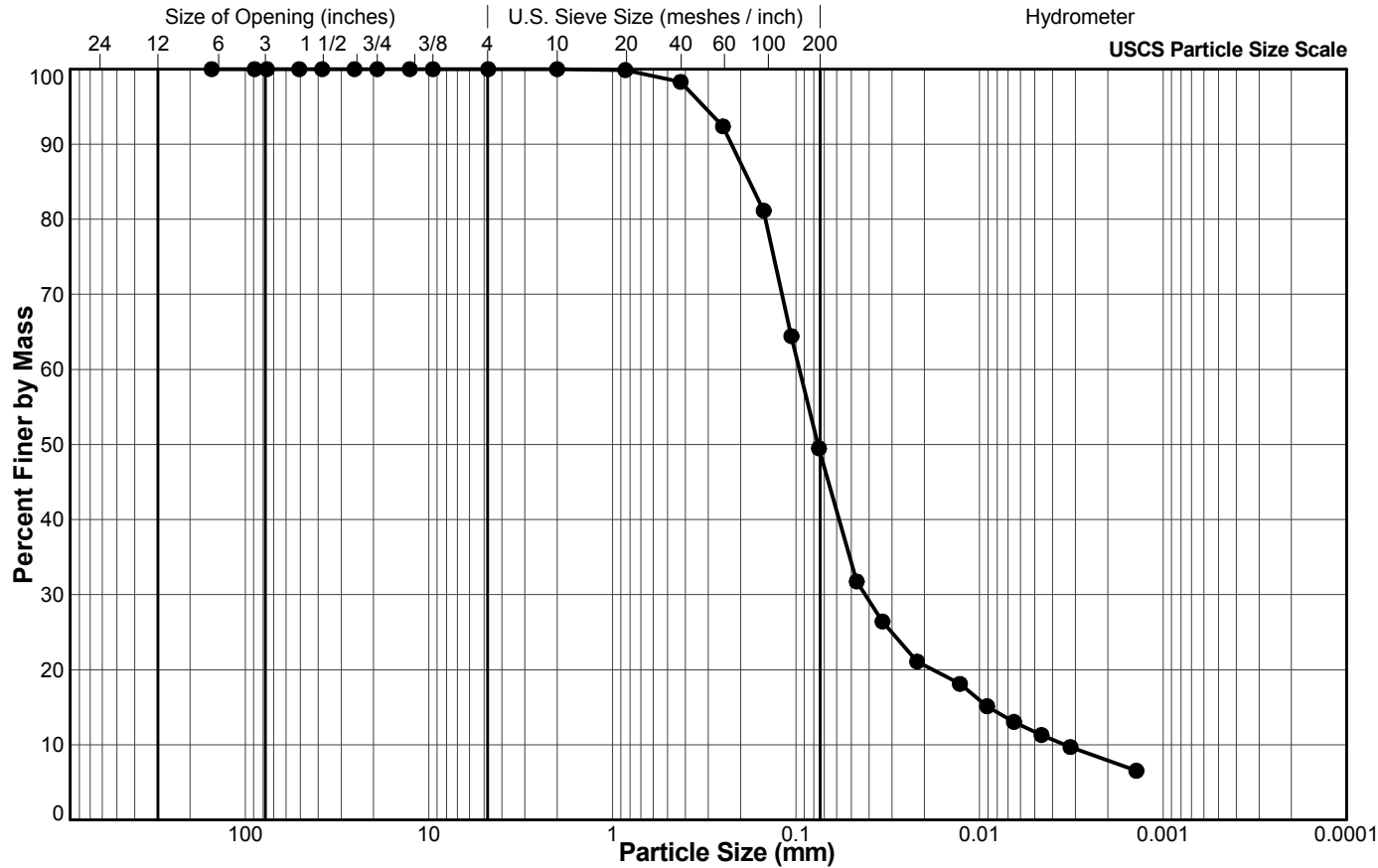
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-19S
Sample No.: 35095
Depth Interval (m): 29.90 to 30.50
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	100.0
3/8"	9.5	100.0
#4 US MESH	4.75	100.0
#10 US MESH	2	100.0
#20 US MESH	0.85	99.9
#40 US MESH	0.425	98.3
#60 US MESH	0.25	92.4
#100 US MESH	0.15	81.2
#140 US MESH	0.106	64.4
#200 US MESH	0.075	49.5
	0.0467	31.8
	0.0338	26.4
	0.0219	21.1
	0.0128	18.1
	0.0091	15.1
	0.0065	13.0
	0.0046	11.3
	0.0032	9.7
	0.0014	6.5

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/12/2019

LP

3/27/2019

Tech

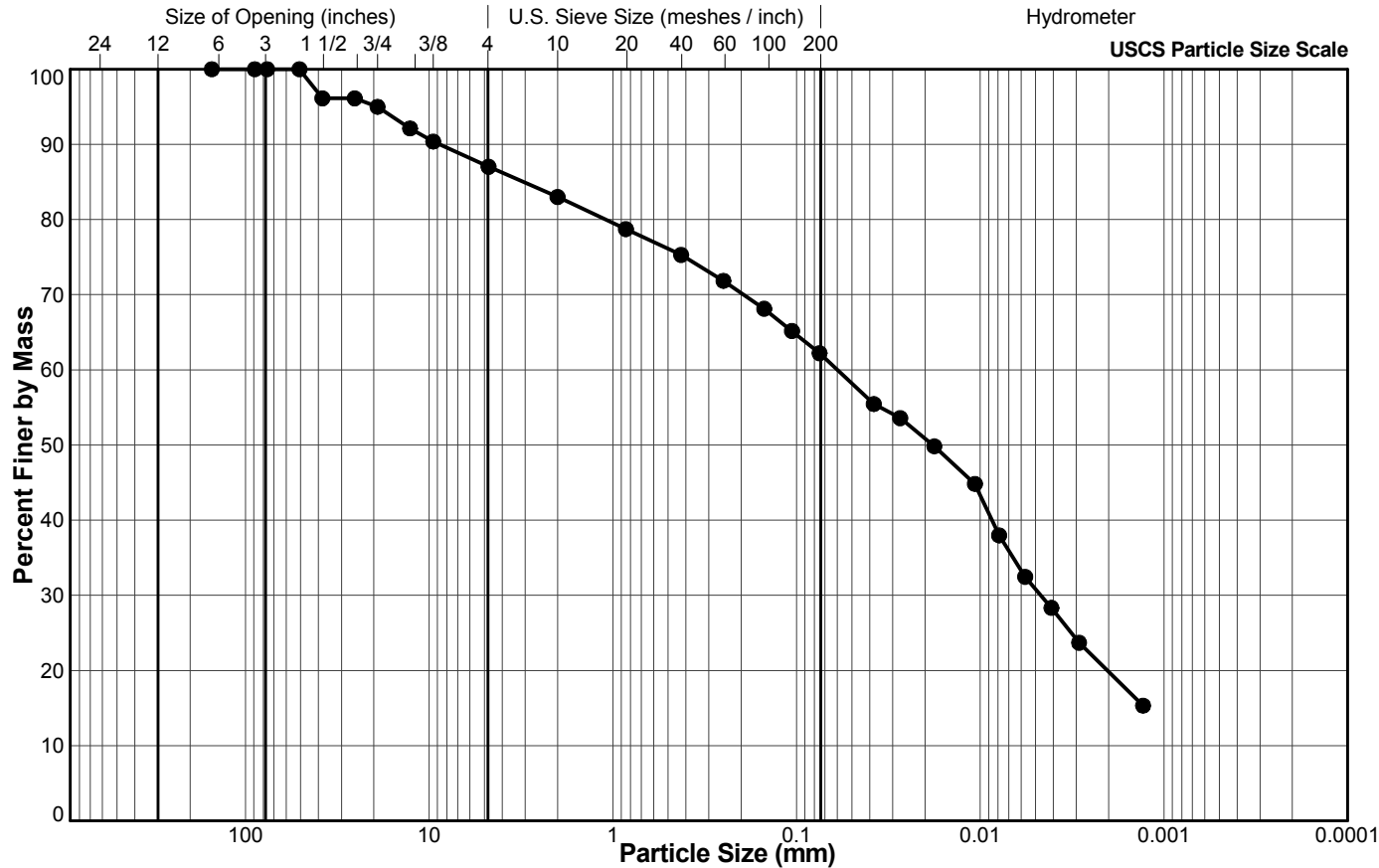
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-19S
Sample No.: 35096
Depth Interval (m): 34.40 to 35.10
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	96.1
1"	25.4	96.1
3/4"	19.1	95.0
1/2"	12.7	92.1
3/8"	9.5	90.4
#4 US MESH	4.75	87.0
#10 US MESH	2	83.0
#20 US MESH	0.85	78.7
#40 US MESH	0.425	75.3
#60 US MESH	0.25	71.8
#100 US MESH	0.15	68.1
#140 US MESH	0.106	65.2
#200 US MESH	0.075	62.2
	0.0380	55.5
	0.0273	53.6
	0.0178	49.8
	0.0107	44.8
	0.0079	38.0
	0.0057	32.5
	0.0041	28.3
	0.0029	23.7
	0.0013	15.3

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/12/2019

LP

3/27/2019

Tech

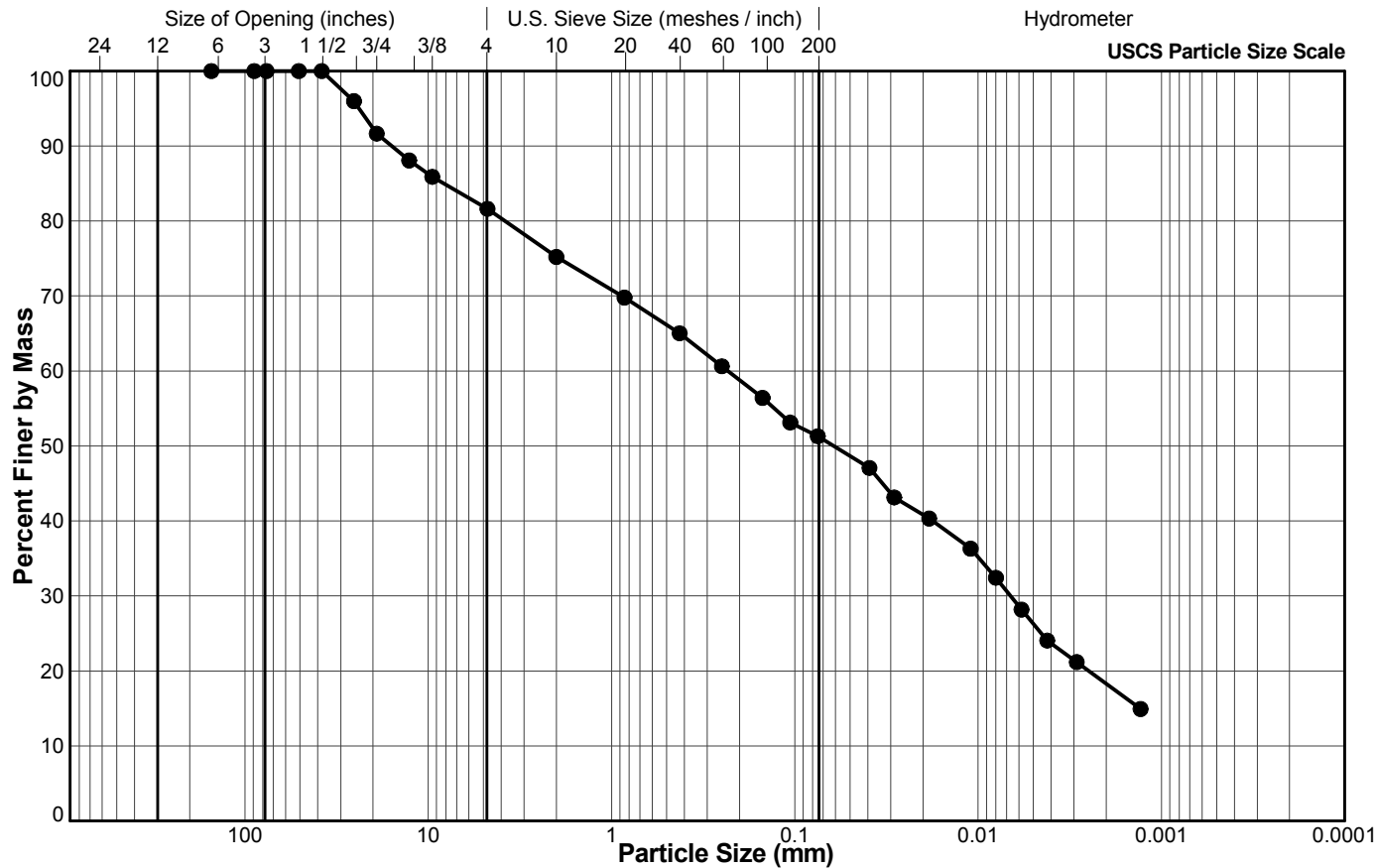
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-19S
Sample No.: 35097
Depth Interval (m): 41.80 to 42.40
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	96.0
3/4"	19.1	91.7
1/2"	12.7	88.1
3/8"	9.5	85.9
#4 US MESH	4.75	81.6
#10 US MESH	2	75.2
#20 US MESH	0.85	69.8
#40 US MESH	0.425	65.0
#60 US MESH	0.25	60.6
#100 US MESH	0.15	56.4
#140 US MESH	0.106	53.1
#200 US MESH	0.075	51.3
	0.0392	47.1
	0.0287	43.1
	0.0185	40.3
	0.0110	36.3
	0.0080	32.4
	0.0058	28.2
	0.0042	24.0
	0.0029	21.2
	0.0013	14.9

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/12/2019

LP

3/27/2019

Tech

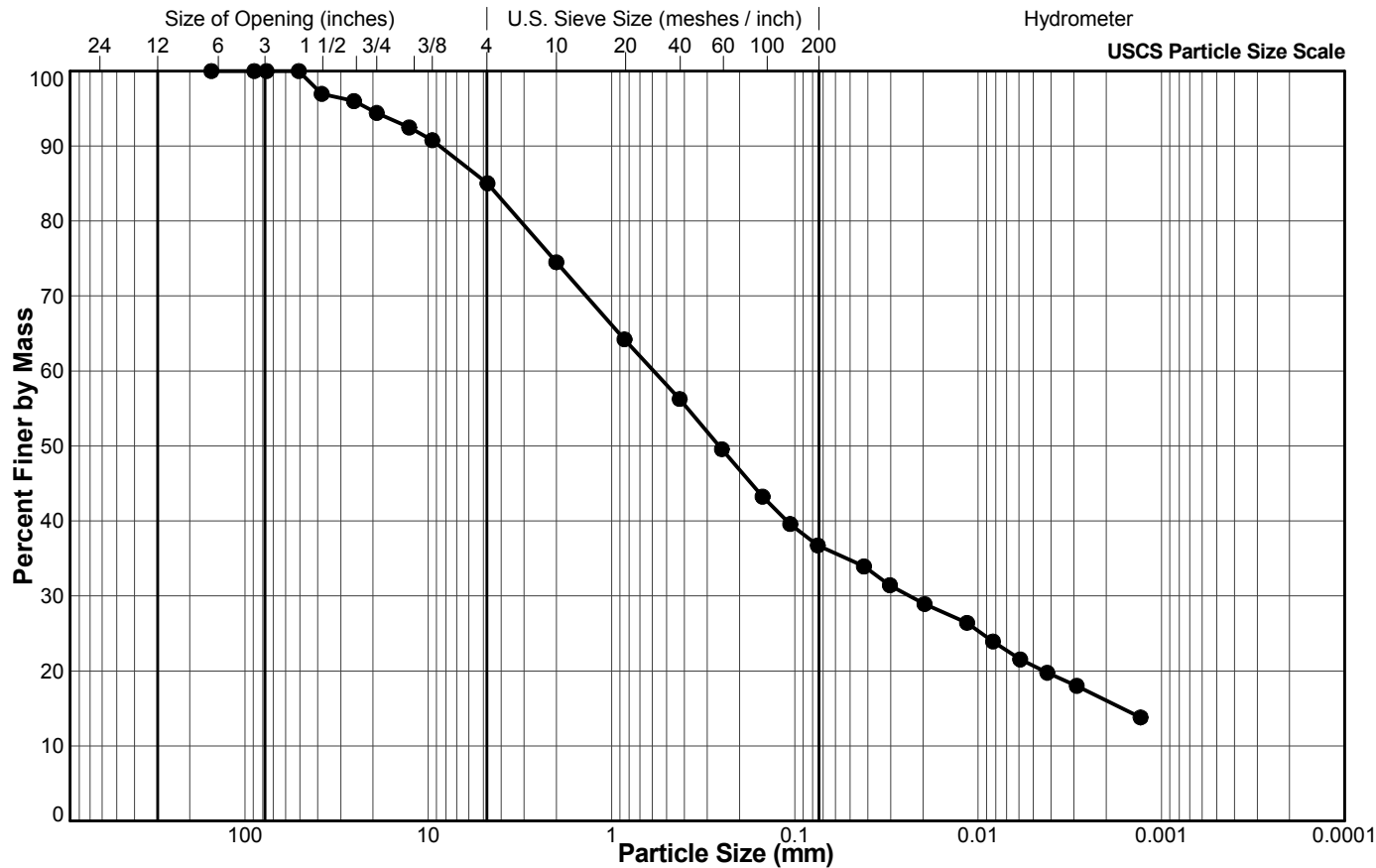
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-19S
Sample No.: 35098
Depth Interval (m): 44.00 to 44.50
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	97.0
1"	25.4	96.0
3/4"	19.1	94.4
1/2"	12.7	92.5
3/8"	9.5	90.8
#4 US MESH	4.75	85.0
#10 US MESH	2	74.5
#20 US MESH	0.85	64.2
#40 US MESH	0.425	56.3
#60 US MESH	0.25	49.6
#100 US MESH	0.15	43.2
#140 US MESH	0.106	39.6
#200 US MESH	0.075	36.7
	0.0420	33.9
	0.0303	31.4
	0.0196	28.9
	0.0115	26.4
	0.0083	23.9
	0.0059	21.5
	0.0042	19.8
	0.0029	18.0
	0.0013	13.8

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/12/2019

LP

3/27/2019

Tech

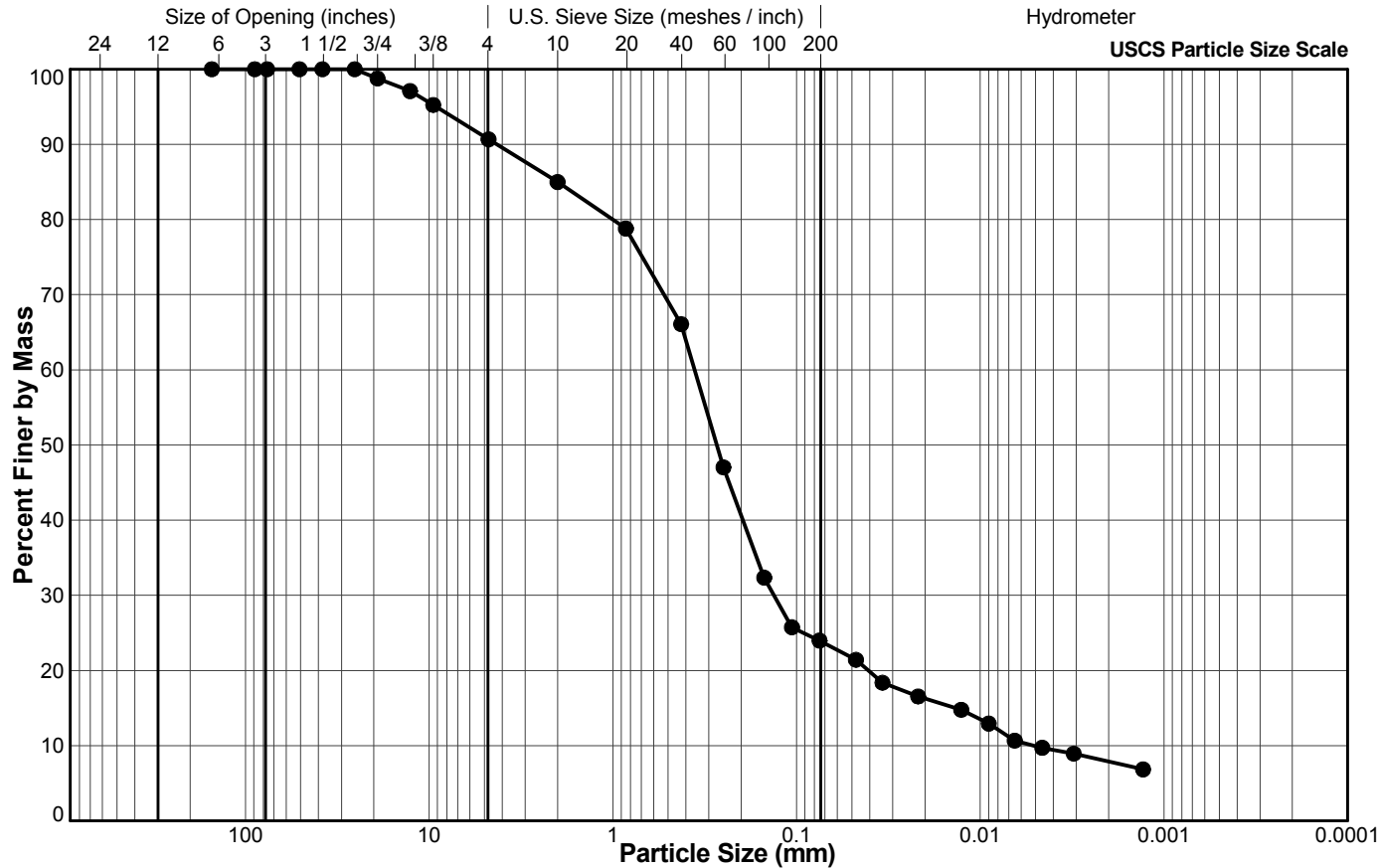
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-21S
Sample No.: 35032
Depth Interval (m): 2.40 to 3.00
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	98.8
1/2"	12.7	97.1
3/8"	9.5	95.2
#4 US MESH	4.75	90.7
#10 US MESH	2	85.0
#20 US MESH	0.85	78.8
#40 US MESH	0.425	66.1
#60 US MESH	0.25	47.0
#100 US MESH	0.15	32.4
#140 US MESH	0.106	25.8
#200 US MESH	0.075	24.0
	0.0475	21.4
	0.0341	18.4
	0.0218	16.5
	0.0127	14.8
	0.0090	12.9
	0.0065	10.7
	0.0046	9.7
	0.0031	8.9
	0.0013	6.8

BOULDER		COBBLE		GRAVEL		SAND			FINES (Silt, Clay)
				Coarse	Fine	Coarse	Medium	Fine	

DC

3/11/2019

LP

3/27/2019

Tech

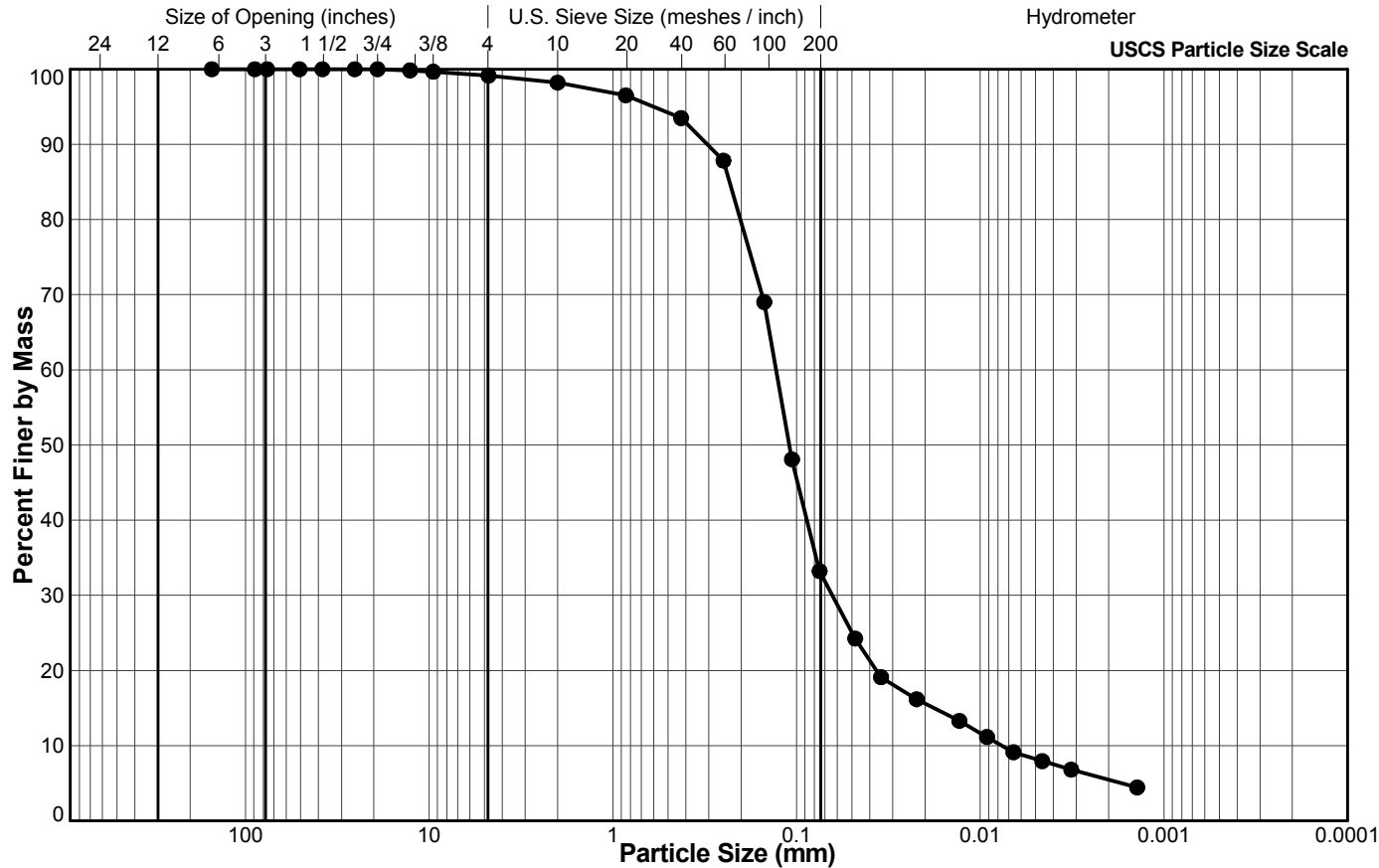
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-21S
Sample No.: 35033
Depth Interval (m): 6.10 to 6.70
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	99.8
3/8"	9.5	99.7
#4 US MESH	4.75	99.1
#10 US MESH	2	98.2
#20 US MESH	0.85	96.5
#40 US MESH	0.425	93.5
#60 US MESH	0.25	87.8
#100 US MESH	0.15	69.0
#140 US MESH	0.106	48.1
#200 US MESH	0.075	33.2
	0.0480	24.2
	0.0347	19.1
	0.0222	16.2
	0.0130	13.3
	0.0092	11.2
	0.0066	9.1
	0.0046	7.9
	0.0032	6.8
	0.0014	4.4

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/11/2019

LP

3/27/2019

Tech

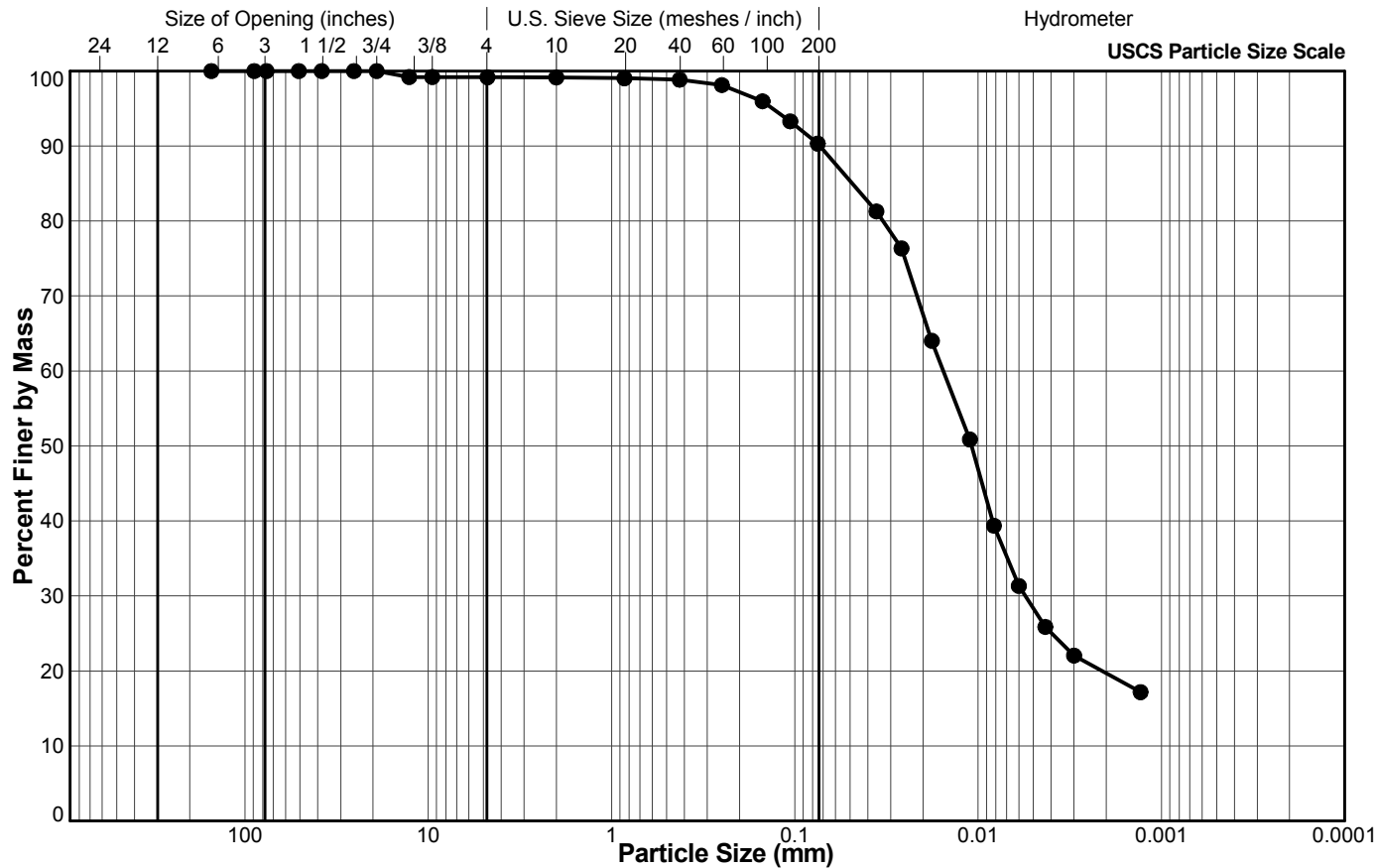
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-21S
Sample No.: 35034
Depth Interval (m): 10.70 to 11.30
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	99.2
3/8"	9.5	99.2
#4 US MESH	4.75	99.2
#10 US MESH	2	99.1
#20 US MESH	0.85	99.0
#40 US MESH	0.425	98.8
#60 US MESH	0.25	98.1
#100 US MESH	0.15	96.0
#140 US MESH	0.106	93.3
#200 US MESH	0.075	90.3
	0.0359	81.3
	0.0262	76.3
	0.0179	64.0
	0.0111	50.9
	0.0082	39.4
	0.0060	31.3
	0.0043	25.9
	0.0030	22.0
	0.0013	17.2

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/11/2019

LP

3/27/2019

Tech

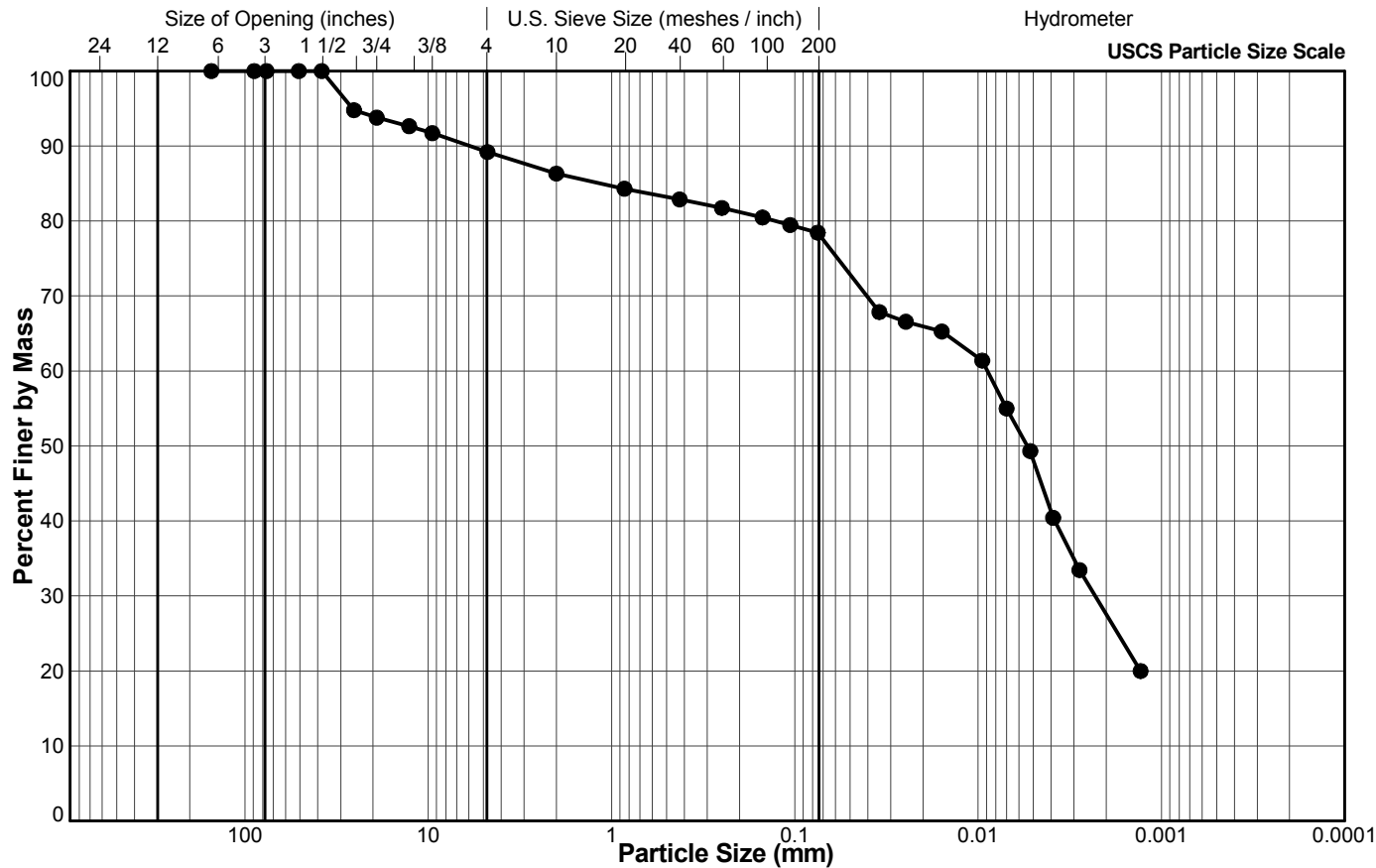
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-21S
Sample No.: 35035
Depth Interval (m): 15.20 to 15.80
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	94.8
3/4"	19.1	93.8
1/2"	12.7	92.6
3/8"	9.5	91.7
#4 US MESH	4.75	89.2
#10 US MESH	2	86.3
#20 US MESH	0.85	84.3
#40 US MESH	0.425	82.9
#60 US MESH	0.25	81.7
#100 US MESH	0.15	80.5
#140 US MESH	0.106	79.5
#200 US MESH	0.075	78.4
	0.0346	67.9
	0.0248	66.6
	0.0158	65.3
	0.0095	61.4
	0.0070	55.0
	0.0052	49.3
	0.0039	40.4
	0.0028	33.4
	0.0013	20.0

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/11/2019

LP

3/27/2019

Tech

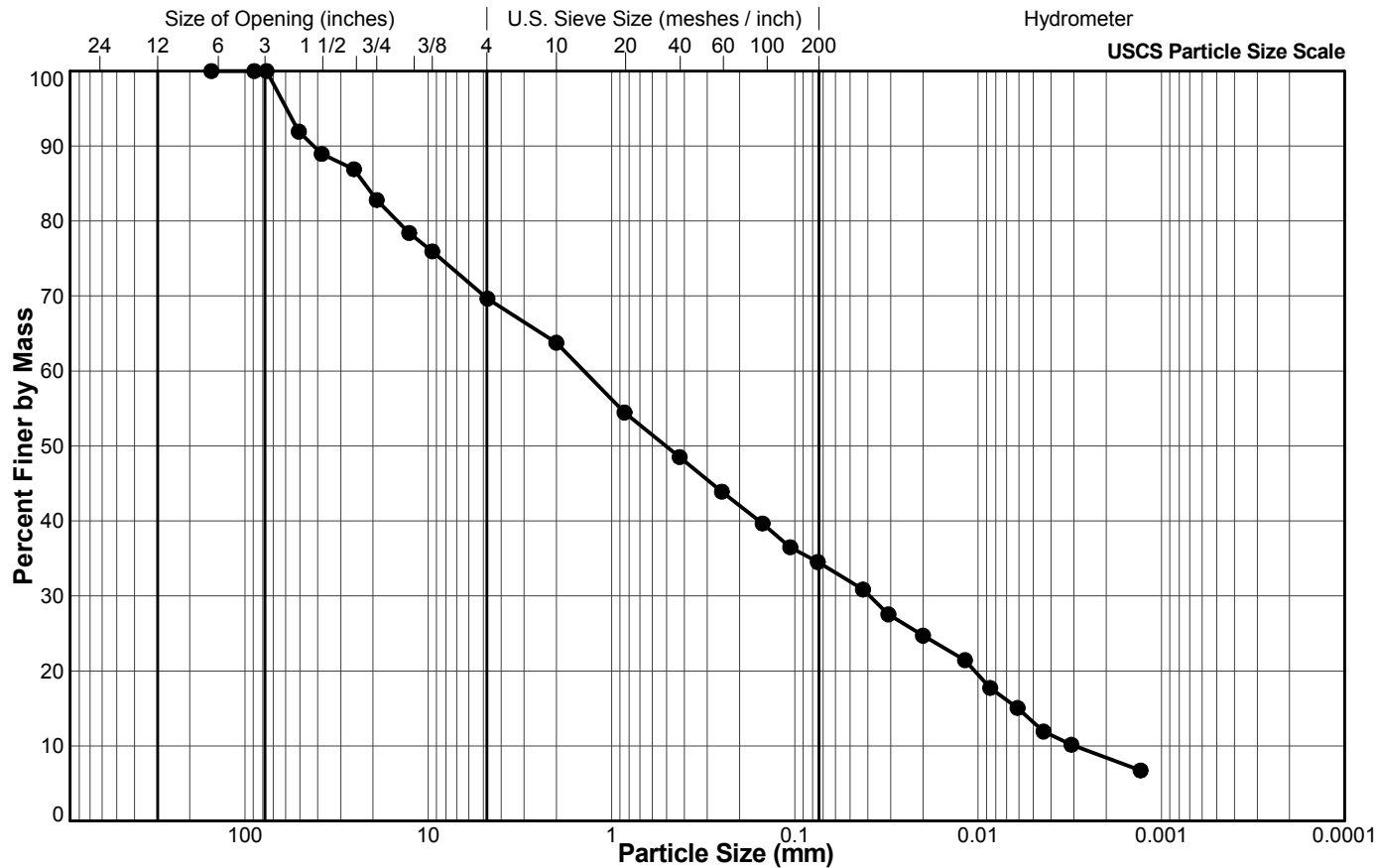
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-21S
Sample No.: 35039
Depth Interval (m): 23.70 to 24.20
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	91.9
1 1/2"	38.1	89.0
1"	25.4	86.9
3/4"	19.1	82.8
1/2"	12.7	78.4
3/8"	9.5	76.0
#4 US MESH	4.75	69.6
#10 US MESH	2	63.8
#20 US MESH	0.85	54.5
#40 US MESH	0.425	48.5
#60 US MESH	0.25	43.9
#100 US MESH	0.15	39.7
#140 US MESH	0.106	36.5
#200 US MESH	0.075	34.5
	0.0425	30.9
	0.0309	27.5
	0.0200	24.7
	0.0118	21.4
	0.0086	17.7
	0.0061	15.1
	0.0044	11.9
	0.0031	10.2
	0.0013	6.7

BOULDER		COBBLE		GRAVEL		SAND			FINES (Silt, Clay)
				Coarse	Fine	Coarse	Medium	Fine	

DC

3/11/2019

LP

3/27/2019

Tech

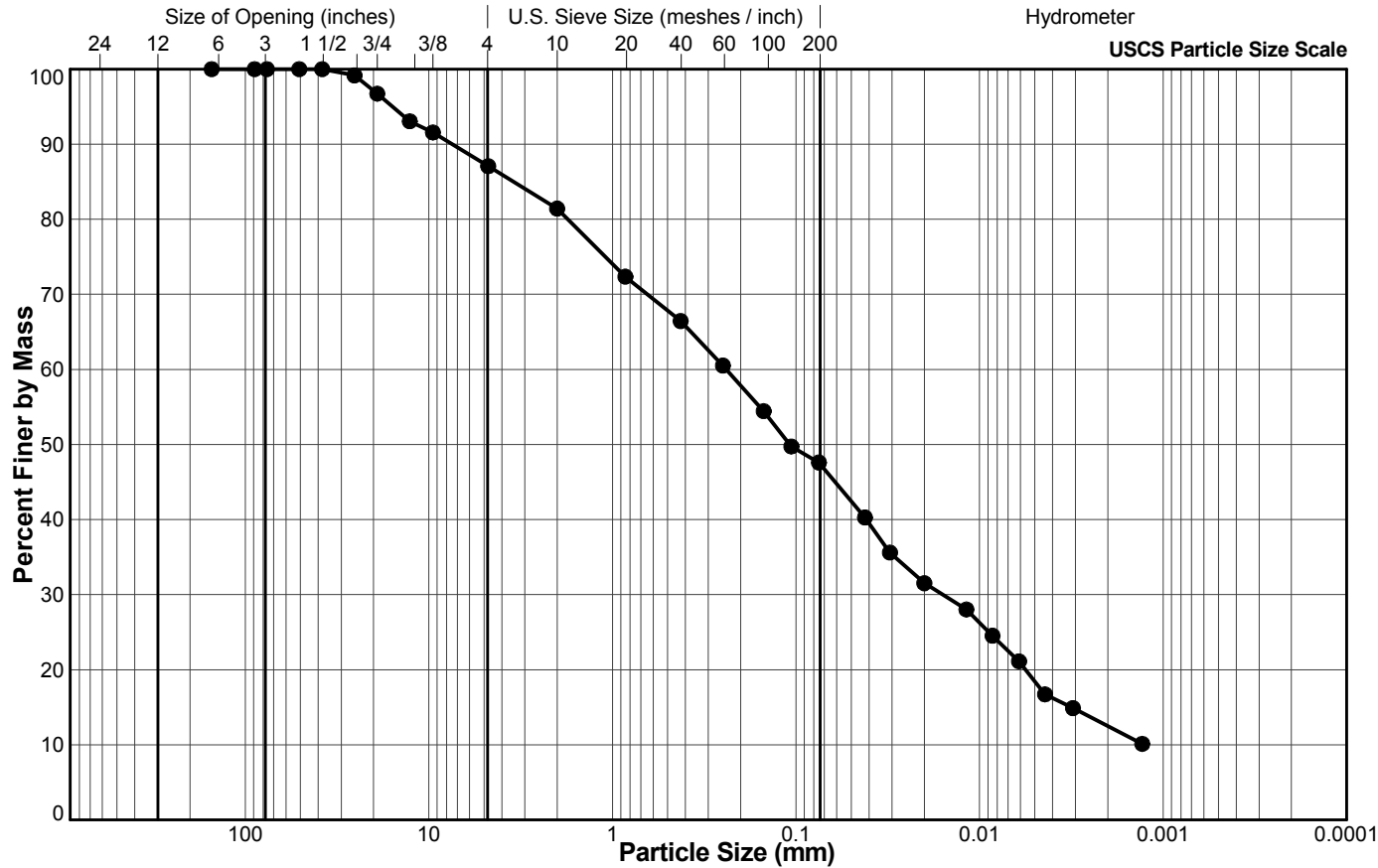
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-21S
Sample No.: 35040
Depth Interval (m): 26.50 to 27.10
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	99.2
3/4"	19.1	96.7
1/2"	12.7	93.1
3/8"	9.5	91.6
#4 US MESH	4.75	87.1
#10 US MESH	2	81.4
#20 US MESH	0.85	72.4
#40 US MESH	0.425	66.4
#60 US MESH	0.25	60.5
#100 US MESH	0.15	54.4
#140 US MESH	0.106	49.7
#200 US MESH	0.075	47.6
	0.0421	40.3
	0.0308	35.6
	0.0200	31.5
	0.0118	28.0
	0.0085	24.5
	0.0061	21.1
	0.0044	16.7
	0.0031	14.9
	0.0013	10.1

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/11/2019

LP

3/27/2019

Tech

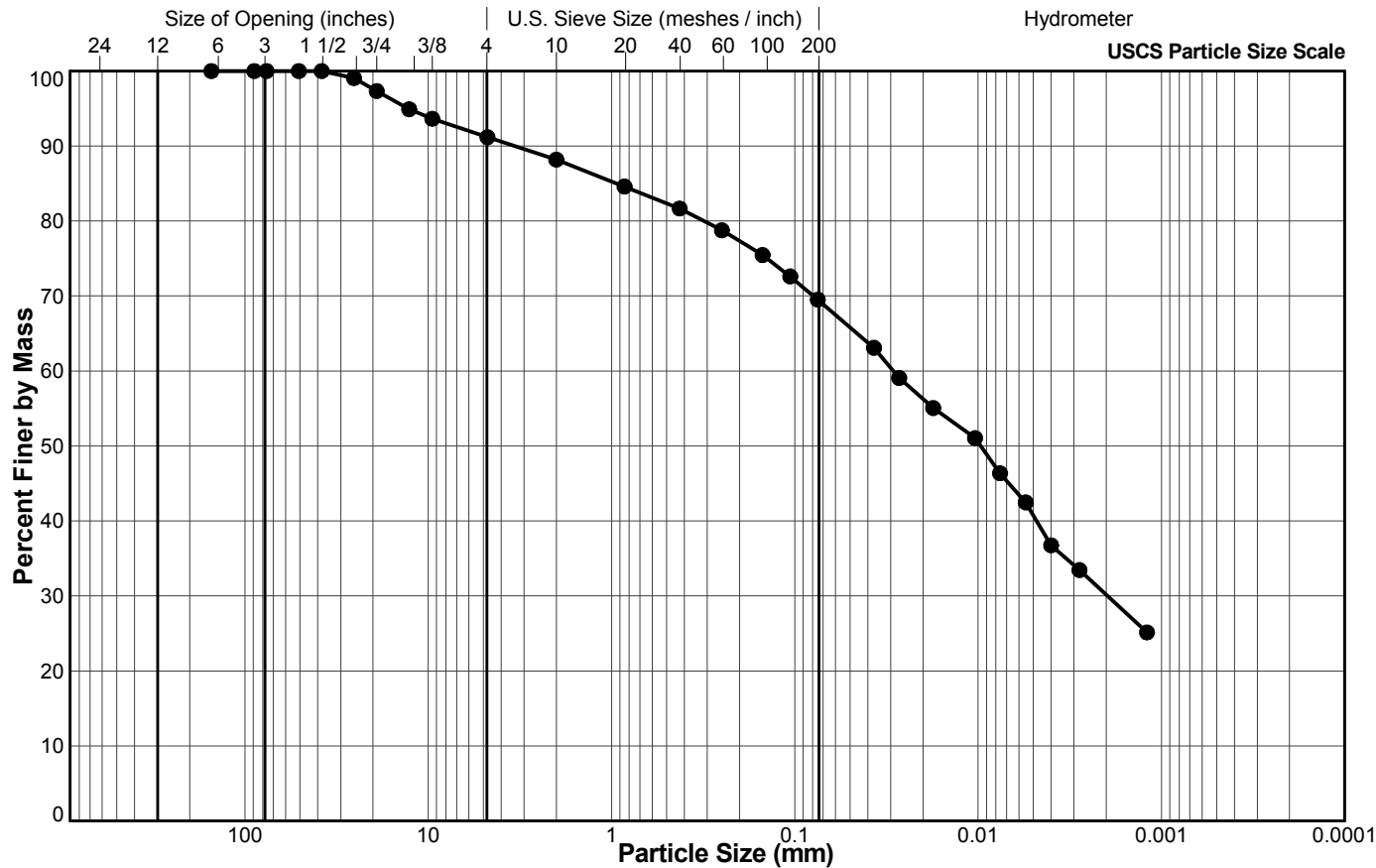
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-21S
Sample No.: 35041
Depth Interval (m): 30.00 to 30.50
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	99.1
3/4"	19.1	97.3
1/2"	12.7	94.9
3/8"	9.5	93.6
#4 US MESH	4.75	91.2
#10 US MESH	2	88.2
#20 US MESH	0.85	84.6
#40 US MESH	0.425	81.7
#60 US MESH	0.25	78.8
#100 US MESH	0.15	75.5
#140 US MESH	0.106	72.6
#200 US MESH	0.075	69.5
	0.0370	63.1
	0.0270	59.1
	0.0176	55.1
	0.0104	51.1
	0.0076	46.4
	0.0055	42.5
	0.0040	36.8
	0.0028	33.5
	0.0012	25.1

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/11/2019

LP

3/27/2019

Tech

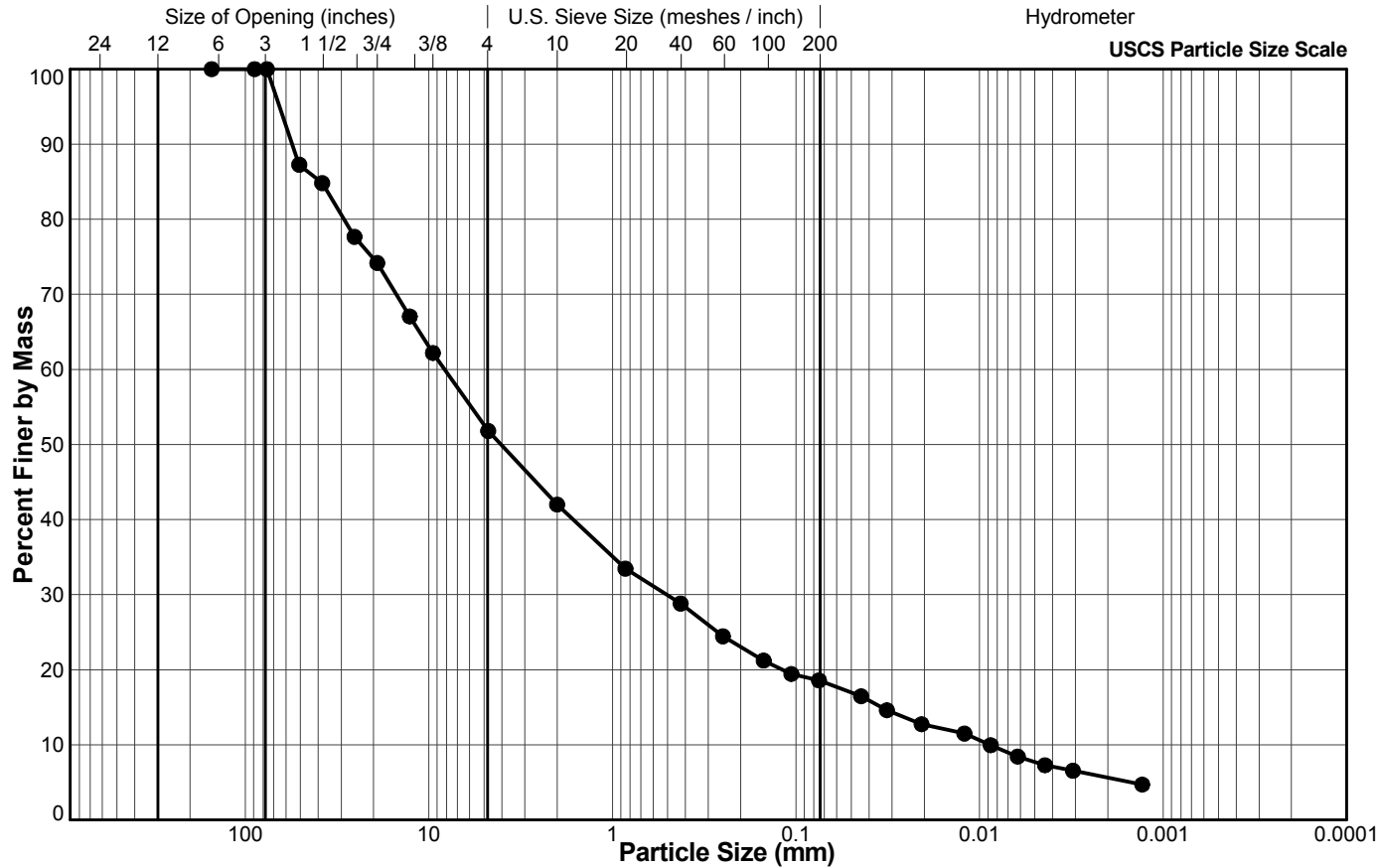
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-21S
Sample No.: 35042
Depth Interval (m): 31.40 to 32.00
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	87.3
1 1/2"	38.1	84.8
1"	25.4	77.7
3/4"	19.1	74.2
1/2"	12.7	67.1
3/8"	9.5	62.2
#4 US MESH	4.75	51.8
#10 US MESH	2	42.0
#20 US MESH	0.85	33.5
#40 US MESH	0.425	28.8
#60 US MESH	0.25	24.5
#100 US MESH	0.15	21.2
#140 US MESH	0.106	19.4
#200 US MESH	0.075	18.6
	0.0442	16.5
	0.0320	14.6
	0.0207	12.7
	0.0121	11.5
	0.0087	9.9
	0.0062	8.4
	0.0044	7.3
	0.0031	6.5
	0.0013	4.7

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/11/2019

LP

3/27/2019

Tech

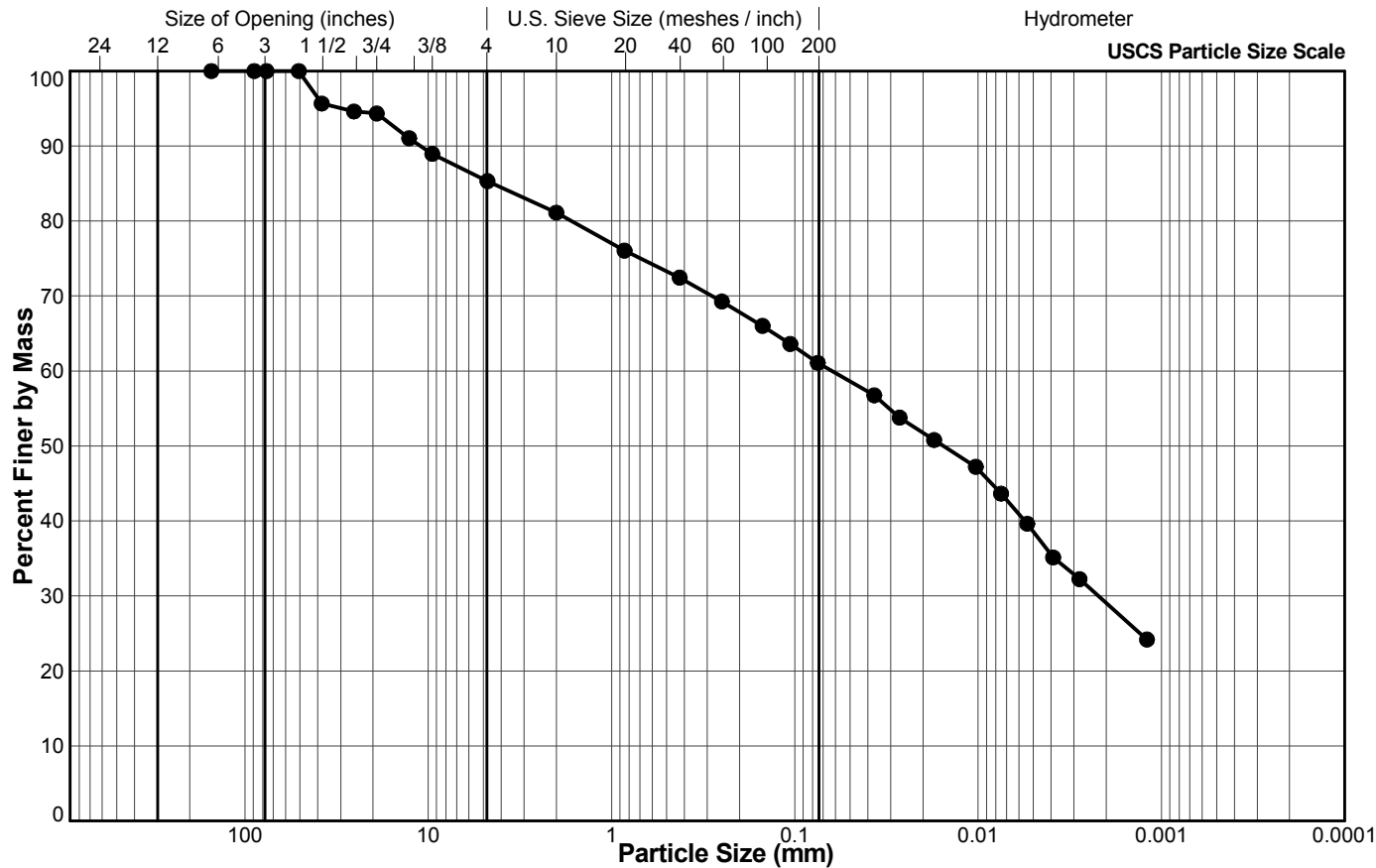
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-21S
Sample No.: 35043
Depth Interval (m): 38.70 to 39.30
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	95.7
1"	25.4	94.6
3/4"	19.1	94.3
1/2"	12.7	91.0
3/8"	9.5	89.0
#4 US MESH	4.75	85.3
#10 US MESH	2	81.1
#20 US MESH	0.85	76.1
#40 US MESH	0.425	72.4
#60 US MESH	0.25	69.3
#100 US MESH	0.15	66.0
#140 US MESH	0.106	63.6
#200 US MESH	0.075	61.1
	0.0369	56.8
	0.0268	53.8
	0.0174	50.8
	0.0103	47.2
	0.0075	43.6
	0.0054	39.6
	0.0039	35.1
	0.0028	32.2
	0.0012	24.2

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/11/2019

LP

3/27/2019

Tech

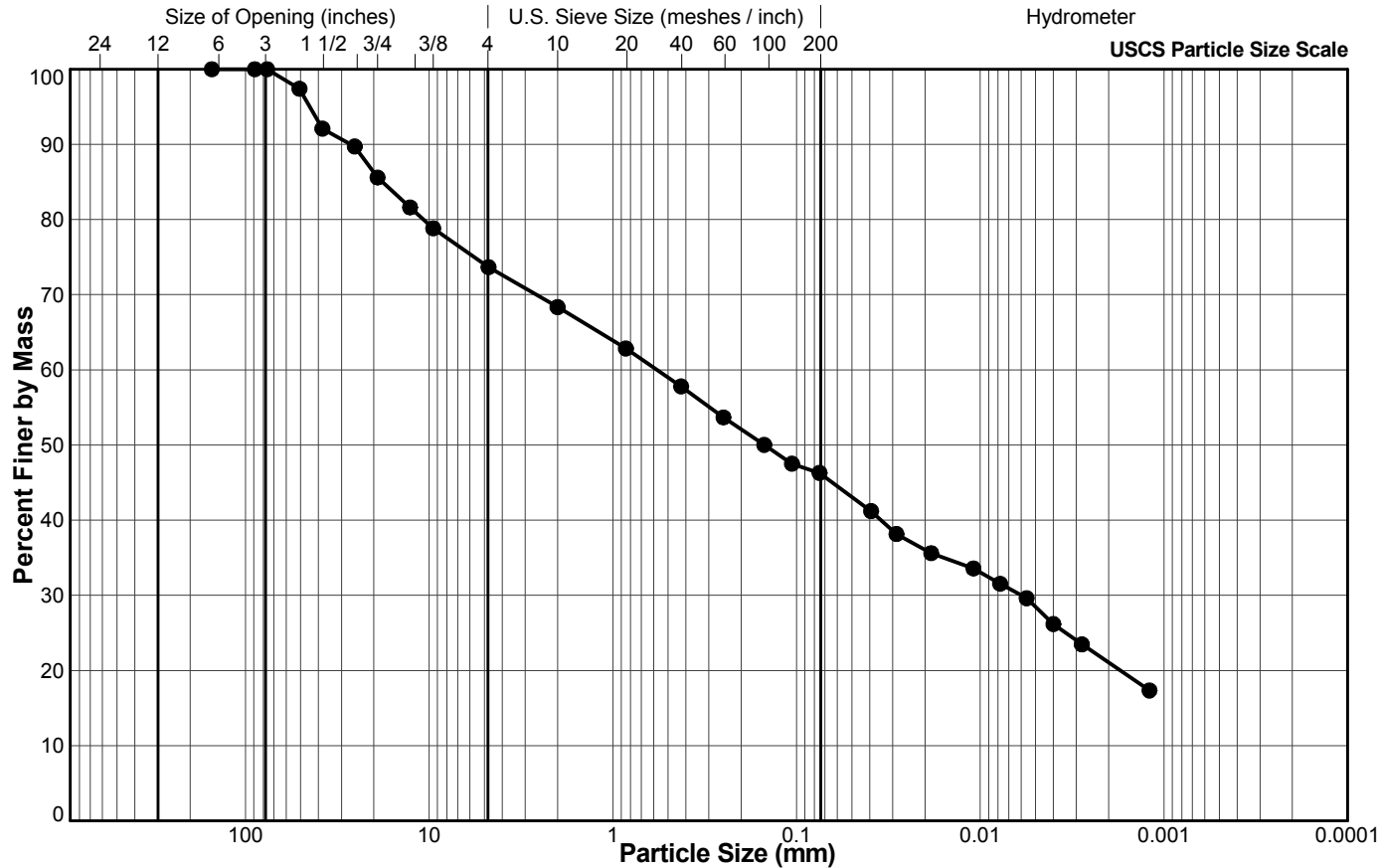
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-21S
Sample No.: 35045
Depth Interval (m): 50.00 to 50.90
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	97.4
1 1/2"	38.1	92.1
1"	25.4	89.7
3/4"	19.1	85.6
1/2"	12.7	81.6
3/8"	9.5	78.8
#4 US MESH	4.75	73.7
#10 US MESH	2	68.3
#20 US MESH	0.85	62.8
#40 US MESH	0.425	57.8
#60 US MESH	0.25	53.7
#100 US MESH	0.15	50.0
#140 US MESH	0.106	47.5
#200 US MESH	0.075	46.3
	0.0393	41.2
	0.0286	38.2
	0.0185	35.6
	0.0109	33.6
	0.0078	31.5
	0.0056	29.6
	0.0040	26.2
	0.0028	23.5
	0.0012	17.3

BOULDER		COBBLE		GRAVEL		SAND			FINES (Silt, Clay)
				Coarse	Fine	Coarse	Medium	Fine	

DC

3/11/2019

LP

3/27/2019

Tech

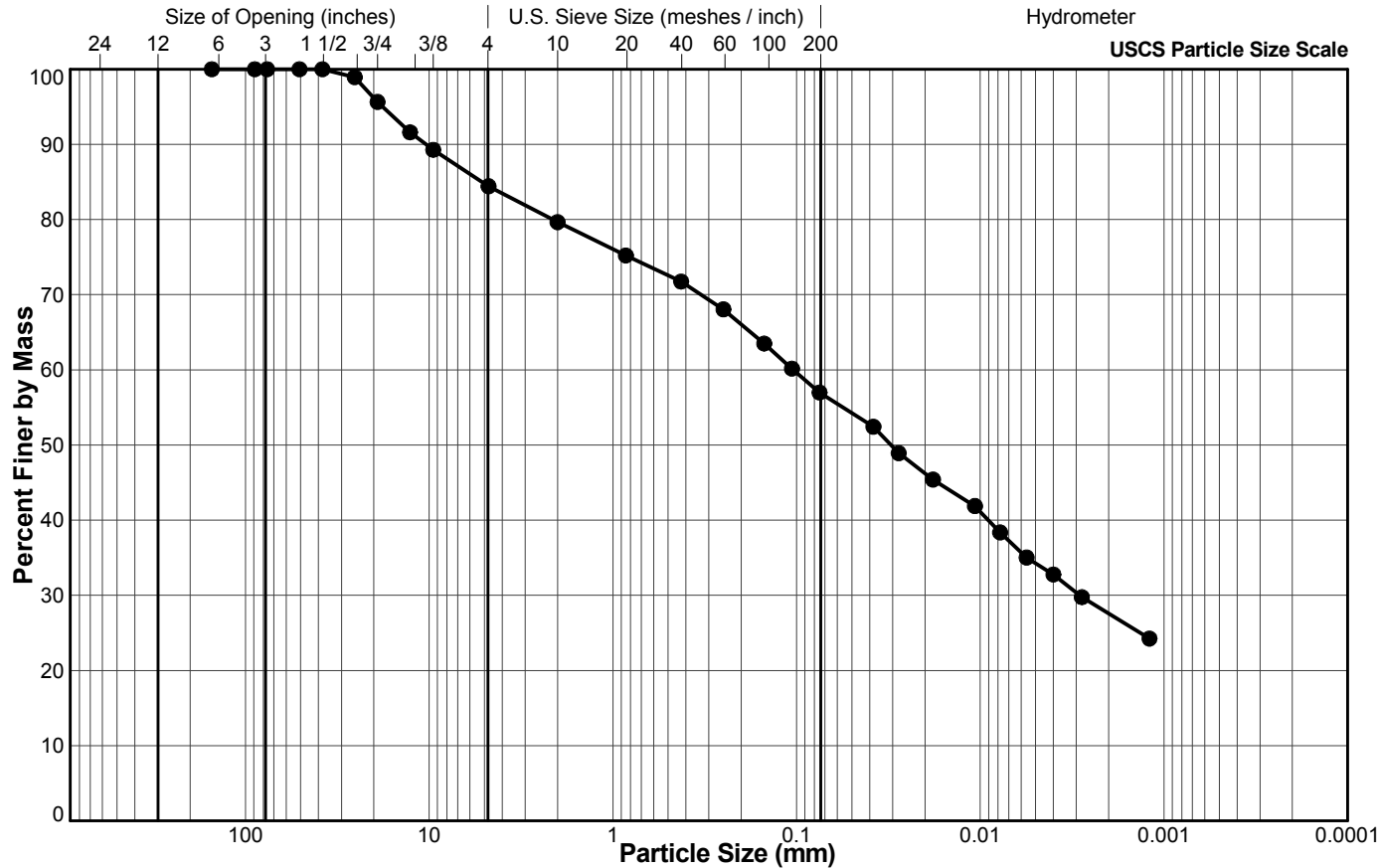
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-22S
Sample No.: 29661
Depth Interval (m): 3.00 to 3.70
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	98.9
3/4"	19.1	95.6
1/2"	12.7	91.6
3/8"	9.5	89.3
#4 US MESH	4.75	84.4
#10 US MESH	2	79.7
#20 US MESH	0.85	75.2
#40 US MESH	0.425	71.7
#60 US MESH	0.25	68.1
#100 US MESH	0.15	63.5
#140 US MESH	0.106	60.2
#200 US MESH	0.075	57.0
	0.0382	52.4
	0.0278	48.9
	0.0181	45.4
	0.0107	41.9
	0.0078	38.4
	0.0056	35.0
	0.0040	32.8
	0.0028	29.8
	0.0012	24.2

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/13/2019

LP

3/27/2019

Tech

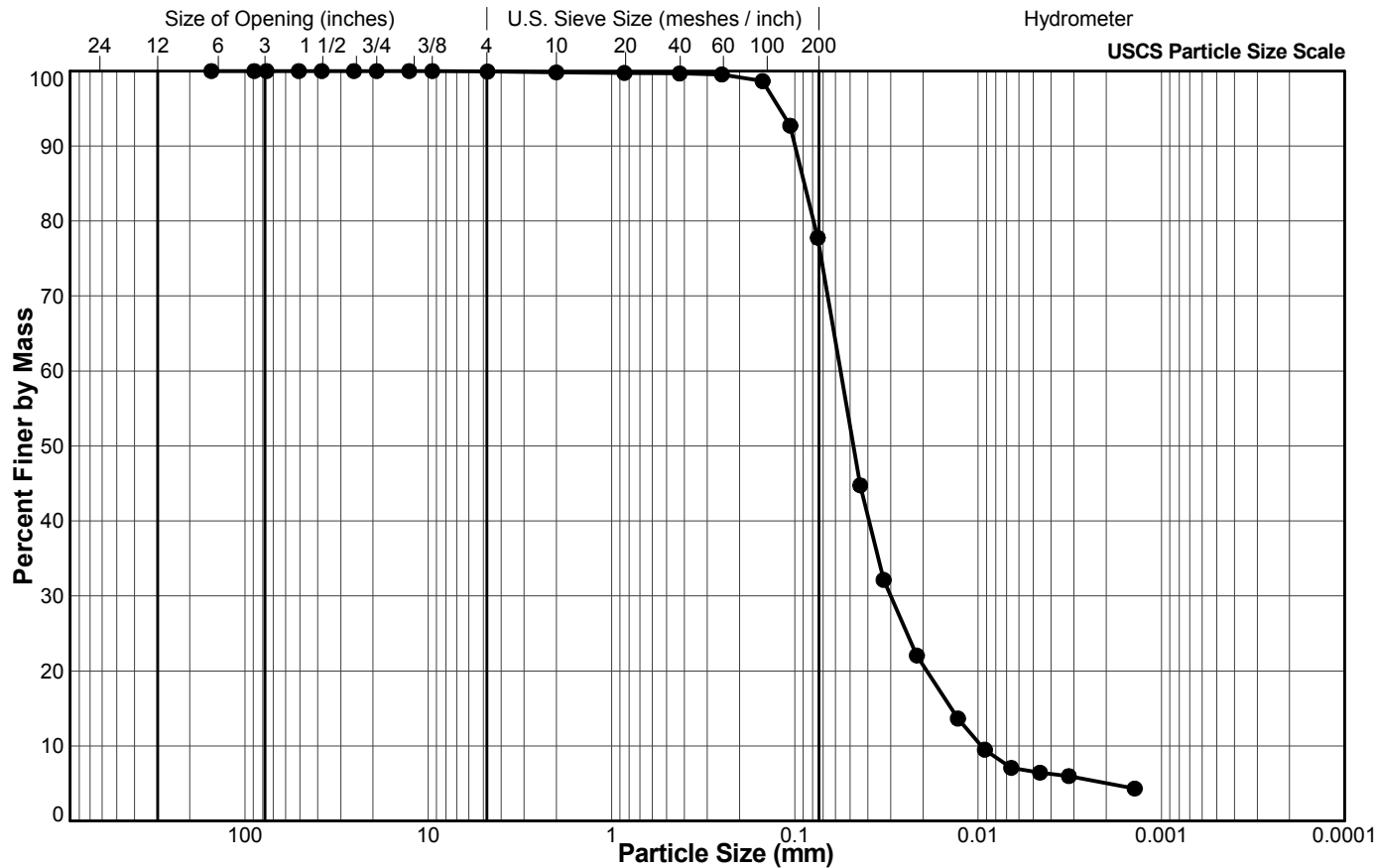
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-22S
Sample No.: 29663
Depth Interval (m): 10.70 to 11.30
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	100.0
3/8"	9.5	100.0
#4 US MESH	4.75	99.9
#10 US MESH	2	99.8
#20 US MESH	0.85	99.7
#40 US MESH	0.425	99.7
#60 US MESH	0.25	99.5
#100 US MESH	0.15	98.7
#140 US MESH	0.106	92.7
#200 US MESH	0.075	77.8
	0.0440	44.7
	0.0328	32.1
	0.0216	22.1
	0.0129	13.7
	0.0092	9.5
	0.0066	7.1
	0.0046	6.4
	0.0032	6.0
	0.0014	4.3

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/13/2019

LP

3/27/2019

Tech

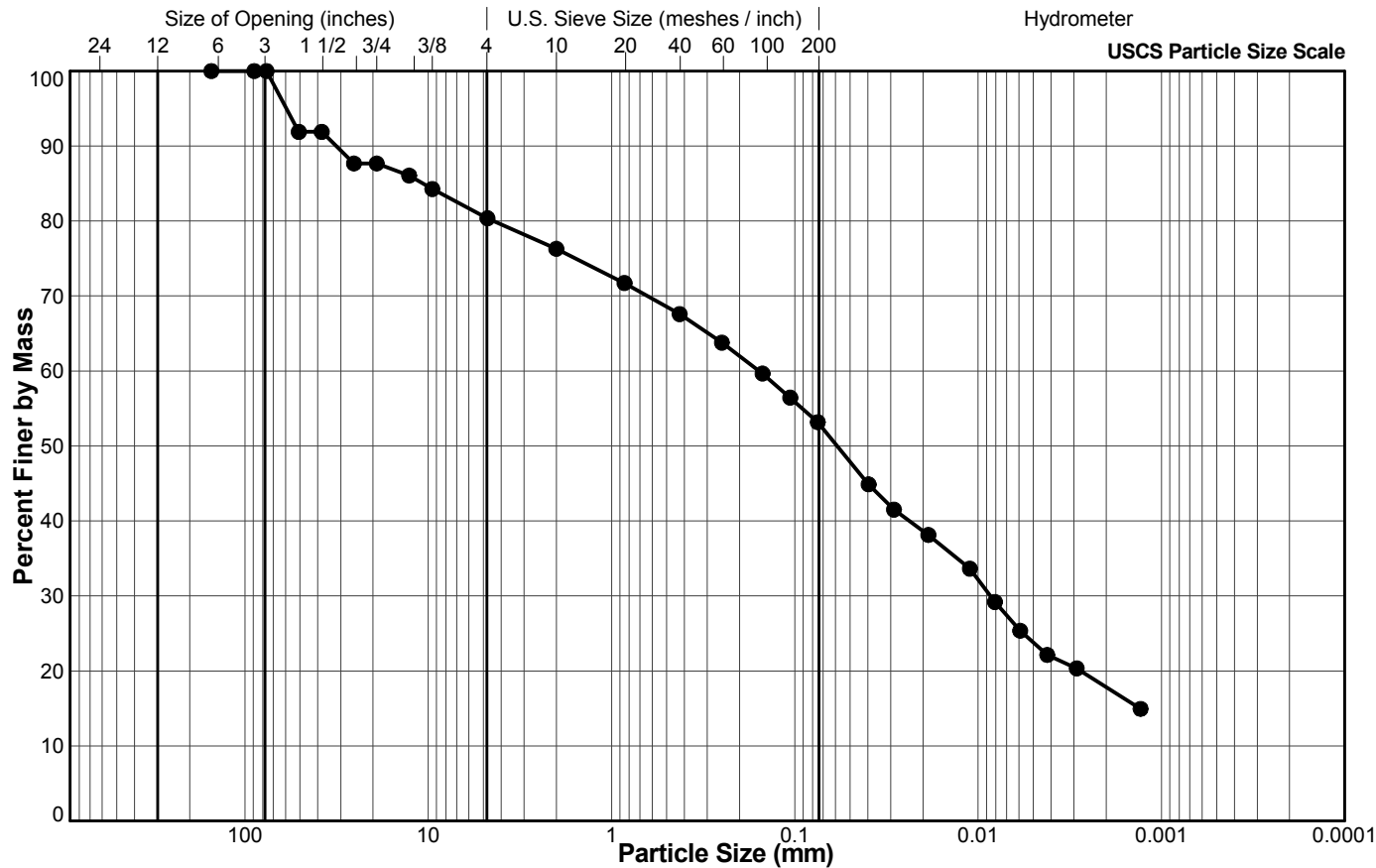
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-22S
Sample No.: 29665
Depth Interval (m): 16.20 to 16.80
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	91.9
1 1/2"	38.1	91.9
1"	25.4	87.7
3/4"	19.1	87.7
1/2"	12.7	86.1
3/8"	9.5	84.3
#4 US MESH	4.75	80.4
#10 US MESH	2	76.3
#20 US MESH	0.85	71.7
#40 US MESH	0.425	67.6
#60 US MESH	0.25	63.8
#100 US MESH	0.15	59.7
#140 US MESH	0.106	56.4
#200 US MESH	0.075	53.2
	0.0396	44.9
	0.0288	41.5
	0.0187	38.1
	0.0111	33.6
	0.0081	29.2
	0.0059	25.4
	0.0042	22.1
	0.0029	20.3
	0.0013	14.9

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/13/2019

LP

3/27/2019

Tech

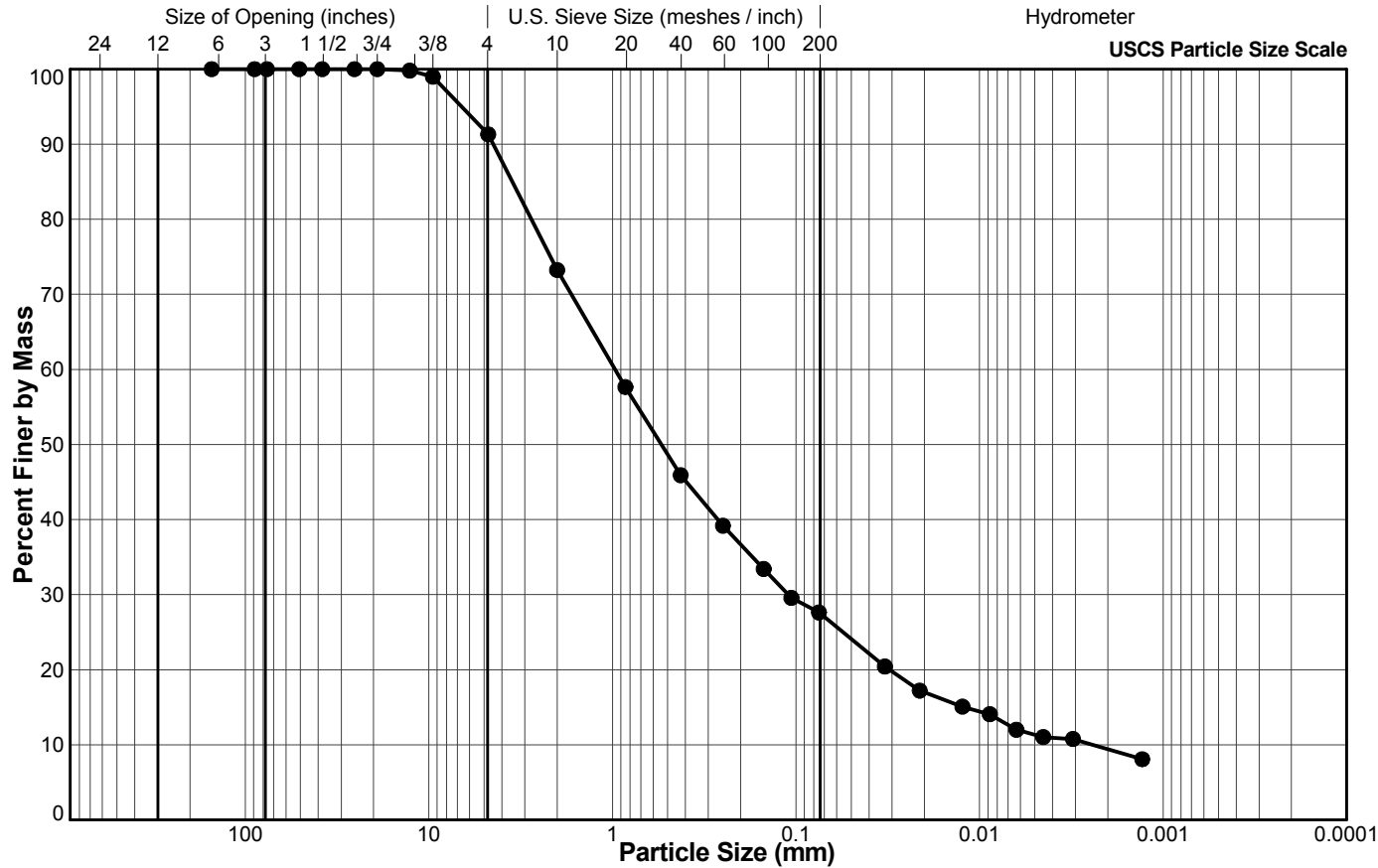
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-22S
Sample No.: 29666
Depth Interval (m): 18.90 to 19.50
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	99.8
3/8"	9.5	99.0
#4 US MESH	4.75	91.3
#10 US MESH	2	73.2
#20 US MESH	0.85	57.7
#40 US MESH	0.425	45.9
#60 US MESH	0.25	39.2
#100 US MESH	0.15	33.4
#140 US MESH	0.106	29.6
#200 US MESH	0.075	27.6
	0.0328	20.4
	0.0212	17.2
	0.0124	15.1
	0.0088	14.1
	0.0063	12.0
	0.0045	11.0
	0.0031	10.8
	0.0013	8.1

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/13/2019

LP

3/27/2019

Tech

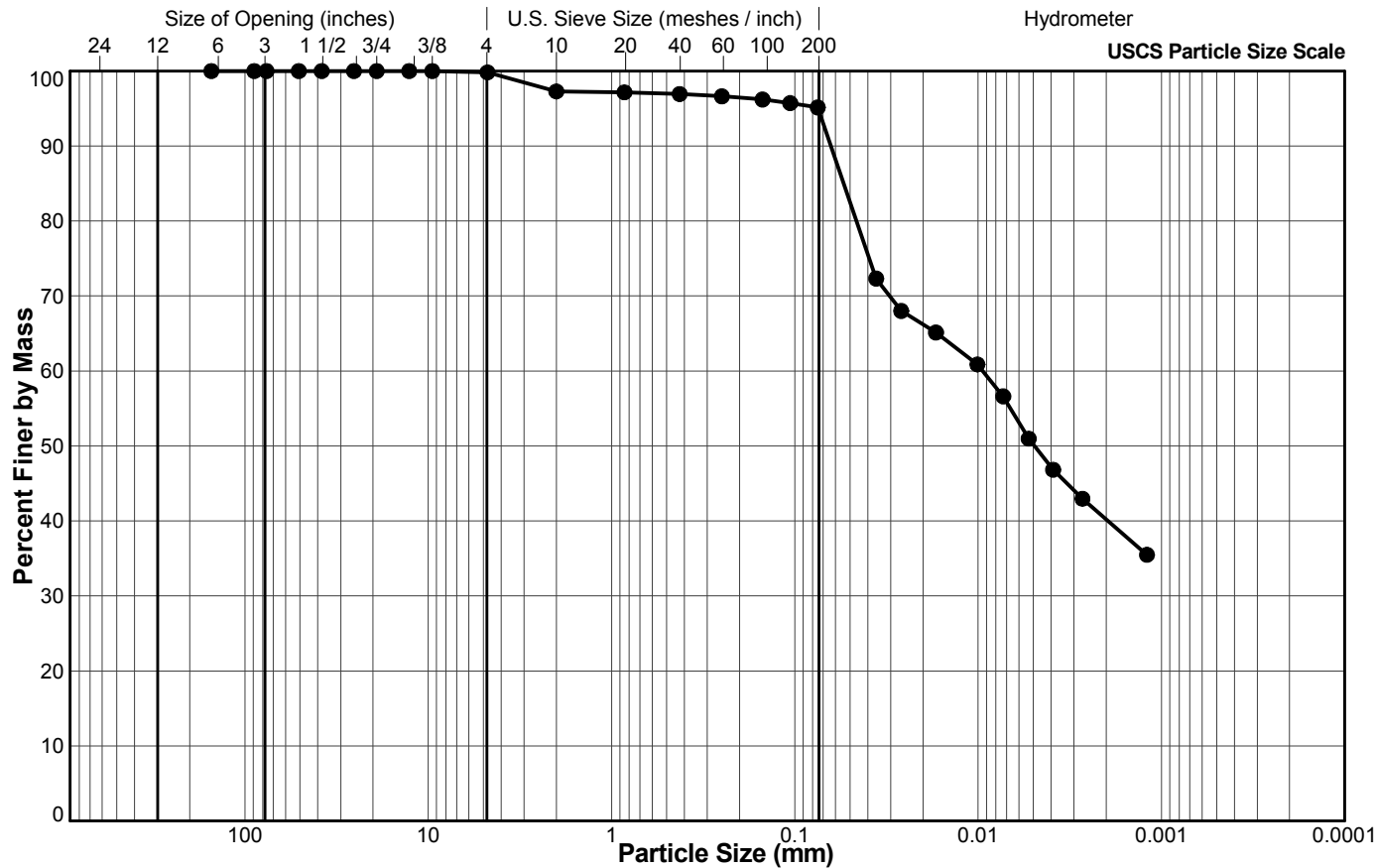
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-22S
Sample No.: 29668
Depth Interval (m): 26.20 to 26.80
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	100.0
3/8"	9.5	100.0
#4 US MESH	4.75	99.8
#10 US MESH	2	97.3
#20 US MESH	0.85	97.2
#40 US MESH	0.425	96.9
#60 US MESH	0.25	96.6
#100 US MESH	0.15	96.2
#140 US MESH	0.106	95.7
#200 US MESH	0.075	95.1
	0.0360	72.3
	0.0263	68.0
	0.0170	65.1
	0.0101	60.9
	0.0073	56.6
	0.0053	51.0
	0.0039	46.8
	0.0027	43.0
	0.0012	35.5

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC

3/13/2019

LP

3/27/2019

Tech

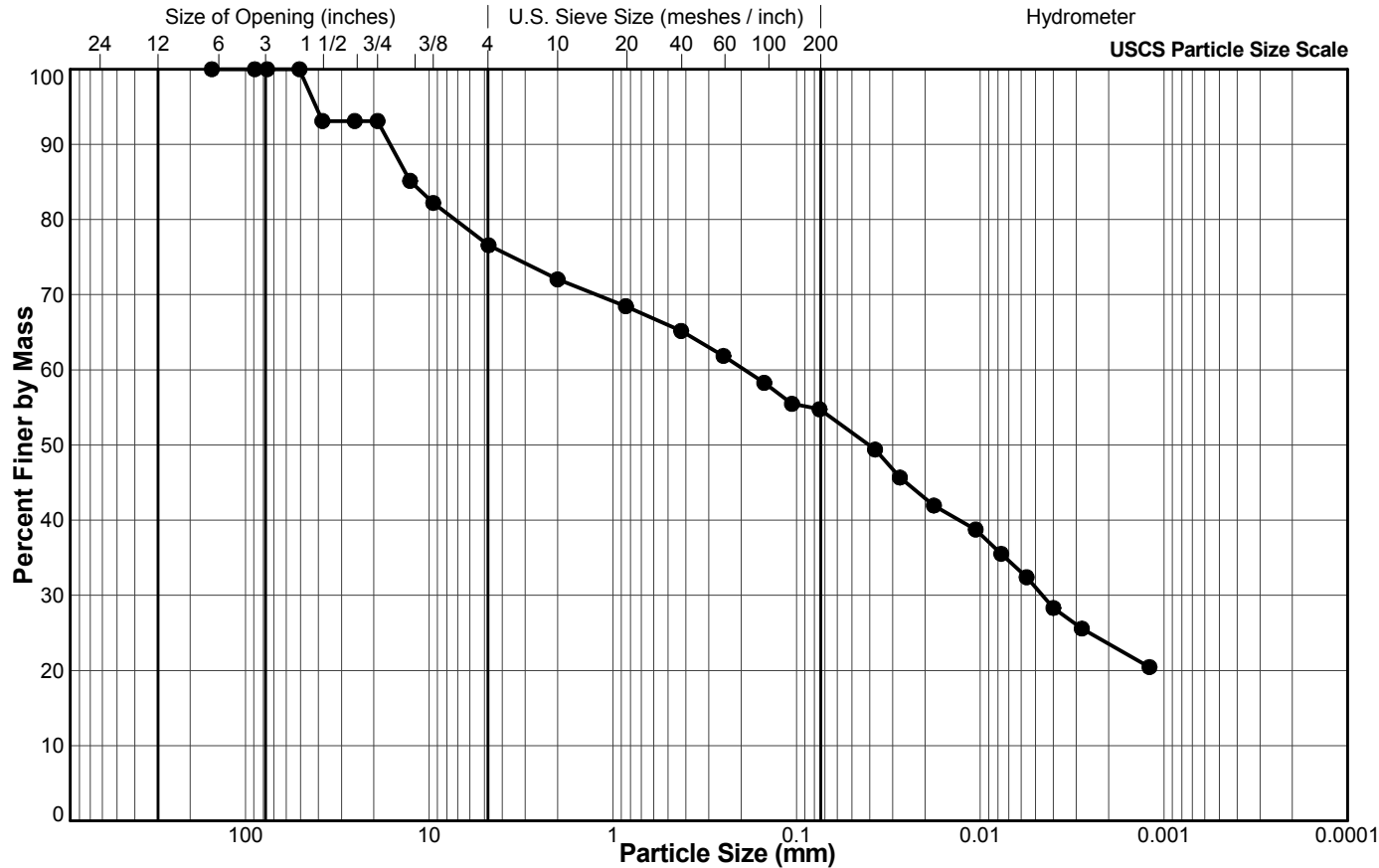
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-34S
Sample No.: 29612
Depth Interval (m): 4.00 to 4.60
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	93.1
1"	25.4	93.1
3/4"	19.1	93.1
1/2"	12.7	85.1
3/8"	9.5	82.2
#4 US MESH	4.75	76.6
#10 US MESH	2	72.0
#20 US MESH	0.85	68.5
#40 US MESH	0.425	65.2
#60 US MESH	0.25	61.9
#100 US MESH	0.15	58.3
#140 US MESH	0.106	55.5
#200 US MESH	0.075	54.8
	0.0374	49.4
	0.0274	45.7
	0.0179	41.9
	0.0106	38.8
	0.0077	35.5
	0.0056	32.4
	0.0040	28.3
	0.0028	25.6
	0.0012	20.5

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

BJ/DC

3/18/2019

LP

3/28/2019

Tech

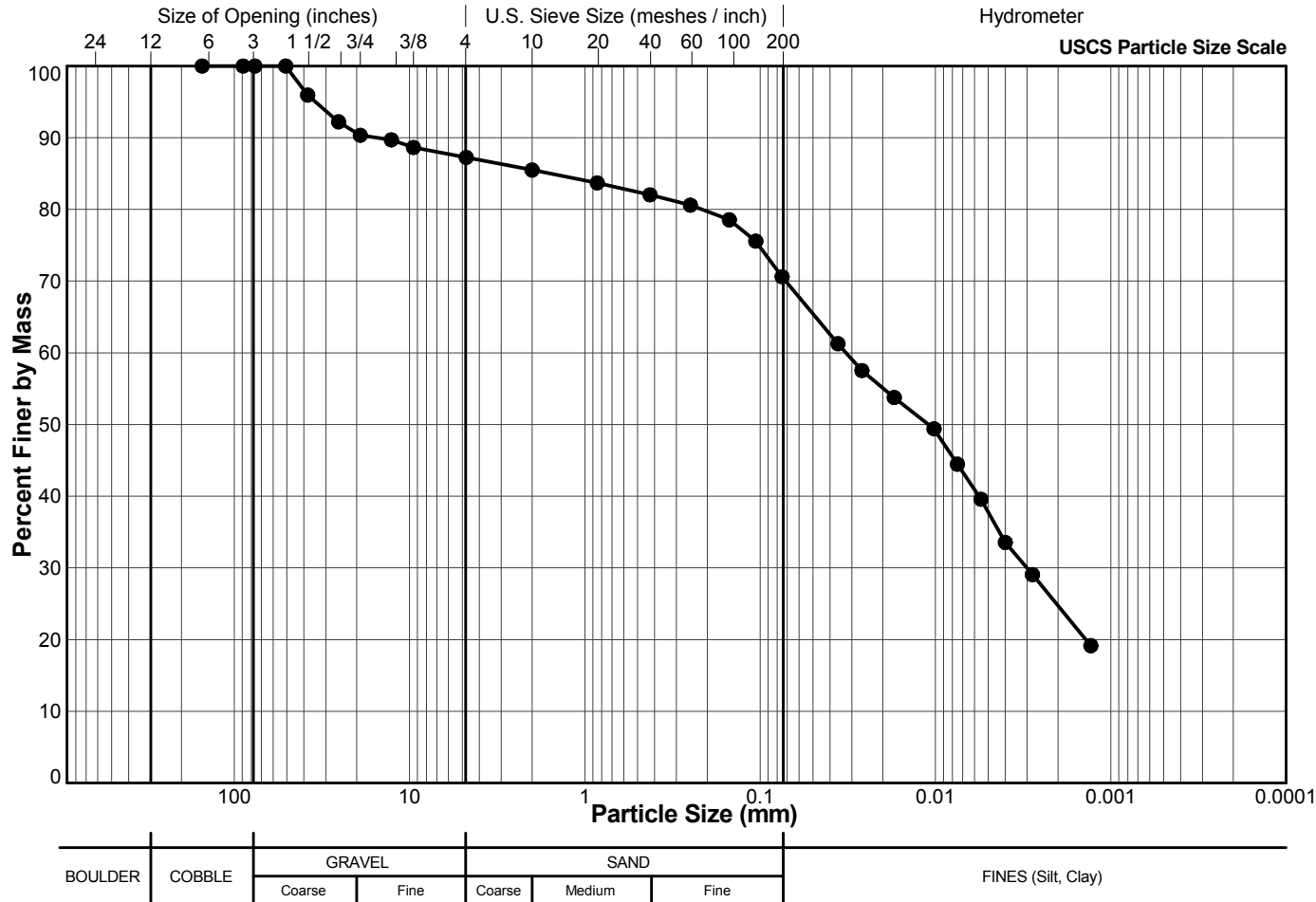
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-34S
Sample No.: 29613
Depth Interval (m): 8.70 to 9.10
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	95.9
1"	25.4	92.2
3/4"	19.1	90.3
1/2"	12.7	89.7
3/8"	9.5	88.6
#4 US MESH	4.75	87.3
#10 US MESH	2	85.5
#20 US MESH	0.85	83.7
#40 US MESH	0.425	82.0
#60 US MESH	0.25	80.6
#100 US MESH	0.15	78.6
#140 US MESH	0.106	75.6
#200 US MESH	0.075	70.6
	0.0360	61.3
	0.0263	57.5
	0.0172	53.8
	0.0102	49.4
	0.0075	44.5
	0.0055	39.6
	0.0040	33.6
	0.0028	29.1
	0.0013	19.1

BJ/DC

3/18/2019

LP

3/28/2019

Tech

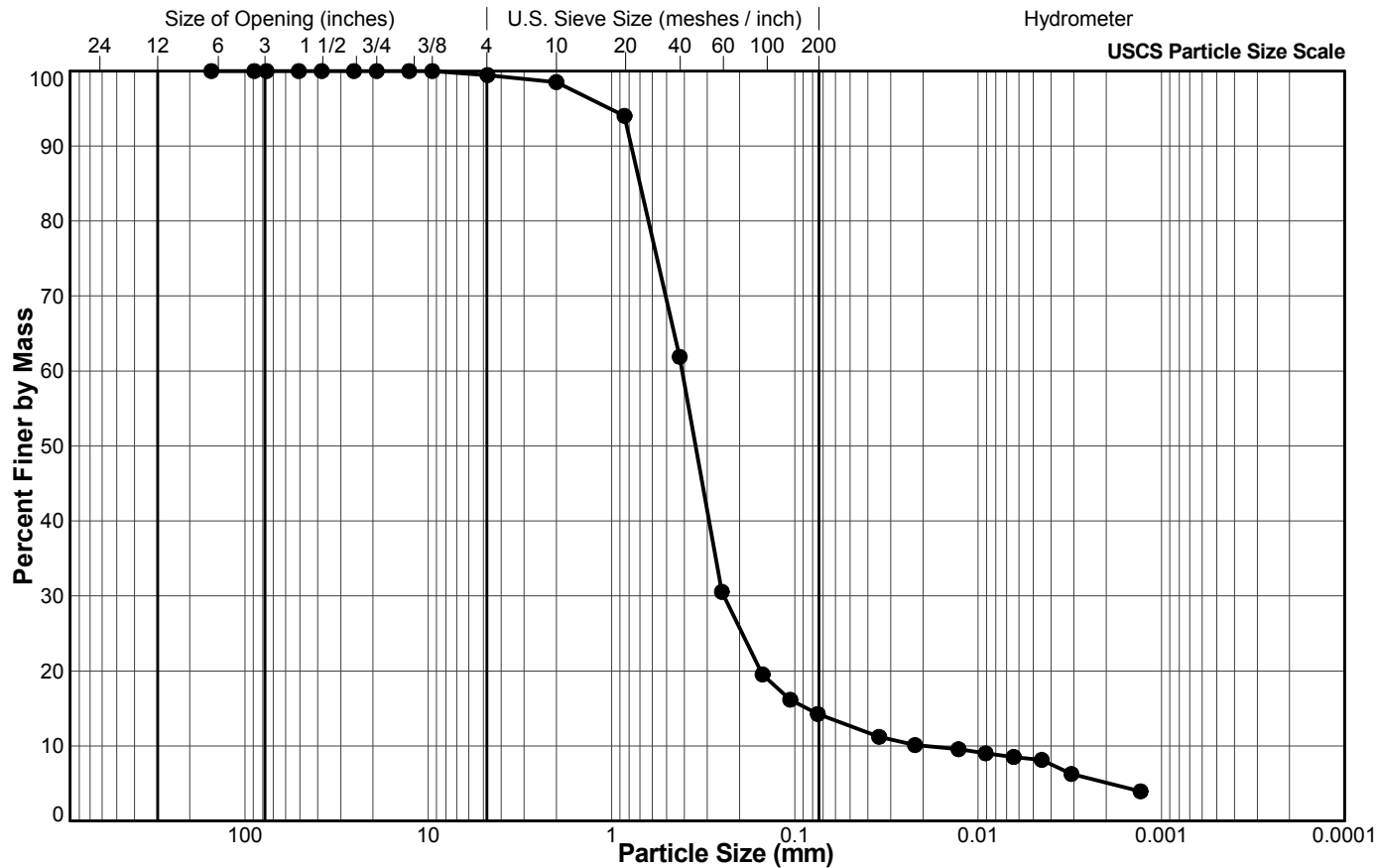
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-34S
Sample No.: 29615
Depth Interval (m): 13.40 to 14.00
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	100.0
3/8"	9.5	100.0
#4 US MESH	4.75	99.5
#10 US MESH	2	98.5
#20 US MESH	0.85	94.0
#40 US MESH	0.425	61.9
#60 US MESH	0.25	30.6
#100 US MESH	0.15	19.5
#140 US MESH	0.106	16.2
#200 US MESH	0.075	14.3
	0.0347	11.2
	0.0221	10.1
	0.0128	9.6
	0.0091	9.0
	0.0064	8.5
	0.0045	8.1
	0.0031	6.3
	0.0013	3.9

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

FF/DC

3/18/2019

LP

3/28/2019

Tech

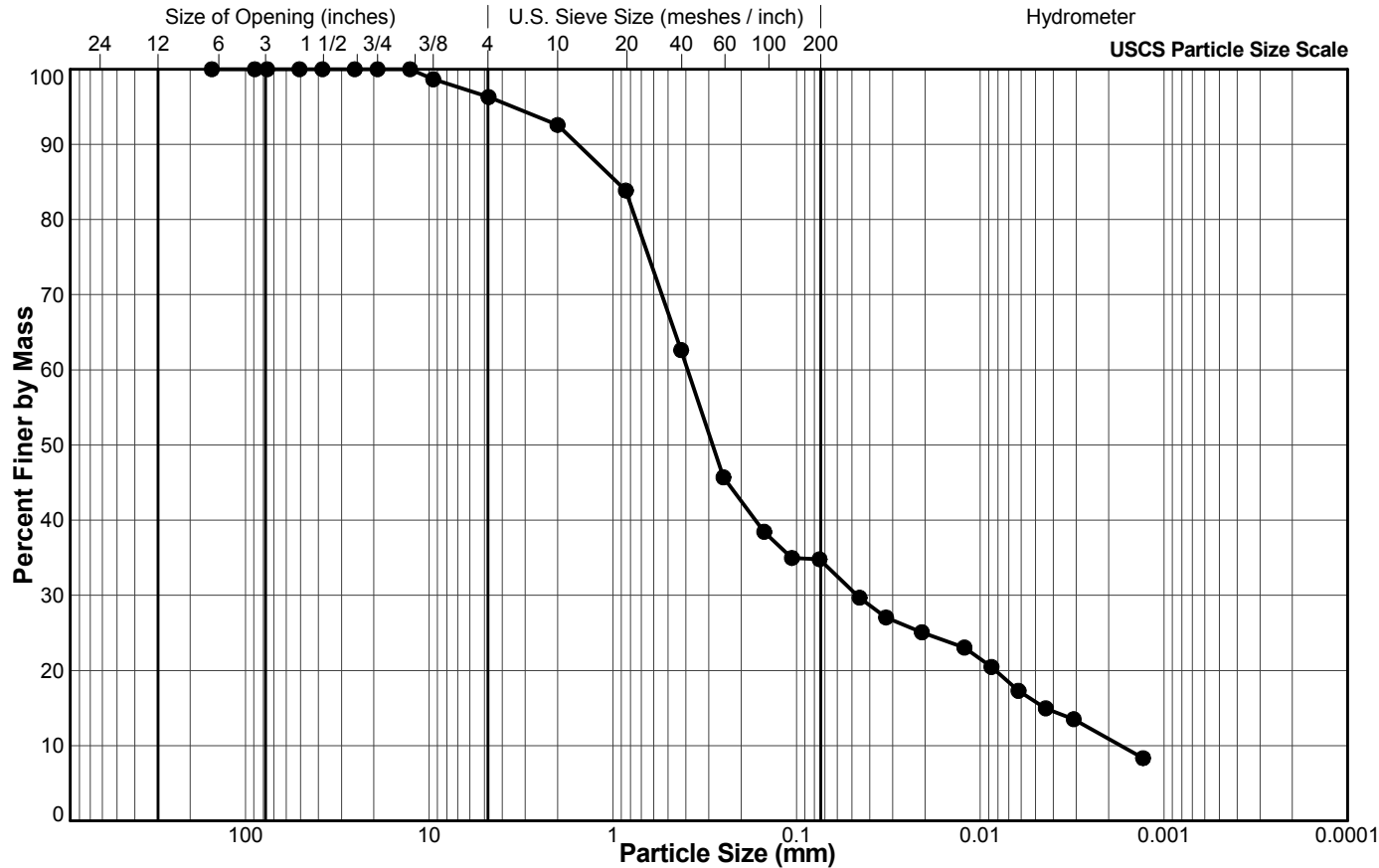
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-34S
Sample No.: 29616
Depth Interval (m): 14.60 to 15.20
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	100.0
3/8"	9.5	98.7
#4 US MESH	4.75	96.3
#10 US MESH	2	92.6
#20 US MESH	0.85	83.9
#40 US MESH	0.425	62.6
#60 US MESH	0.25	45.7
#100 US MESH	0.15	38.5
#140 US MESH	0.106	35.0
#200 US MESH	0.075	34.8
	0.0454	29.7
	0.0326	27.1
	0.0208	25.1
	0.0122	23.0
	0.0087	20.5
	0.0062	17.3
	0.0044	15.0
	0.0031	13.5
	0.0013	8.3

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

FF/DC

3/18/2019

LP

3/28/2019

Tech

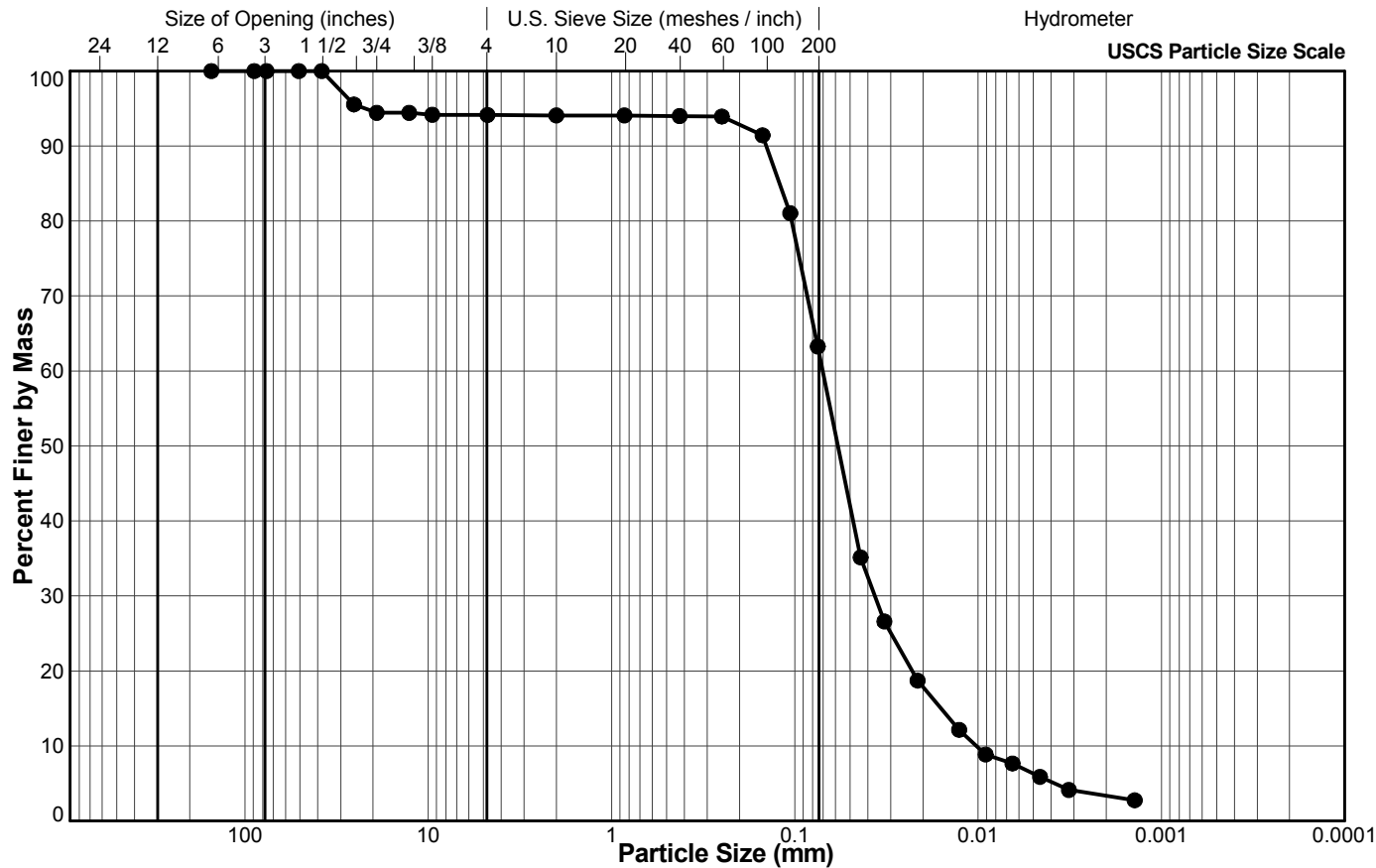
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-34S
Sample No.: 29617
Depth Interval (m): 17.40 to 18.00
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	95.5
3/4"	19.1	94.4
1/2"	12.7	94.4
3/8"	9.5	94.2
#4 US MESH	4.75	94.1
#10 US MESH	2	94.1
#20 US MESH	0.85	94.1
#40 US MESH	0.425	94.0
#60 US MESH	0.25	93.9
#100 US MESH	0.15	91.4
#140 US MESH	0.106	81.0
#200 US MESH	0.075	63.3
	0.0438	35.1
	0.0325	26.6
	0.0214	18.7
	0.0127	12.1
	0.0091	8.9
	0.0065	7.7
	0.0046	5.9
	0.0032	4.1
	0.0014	2.8

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

BJ/DC

3/18/2019

LP

3/28/2019

Tech

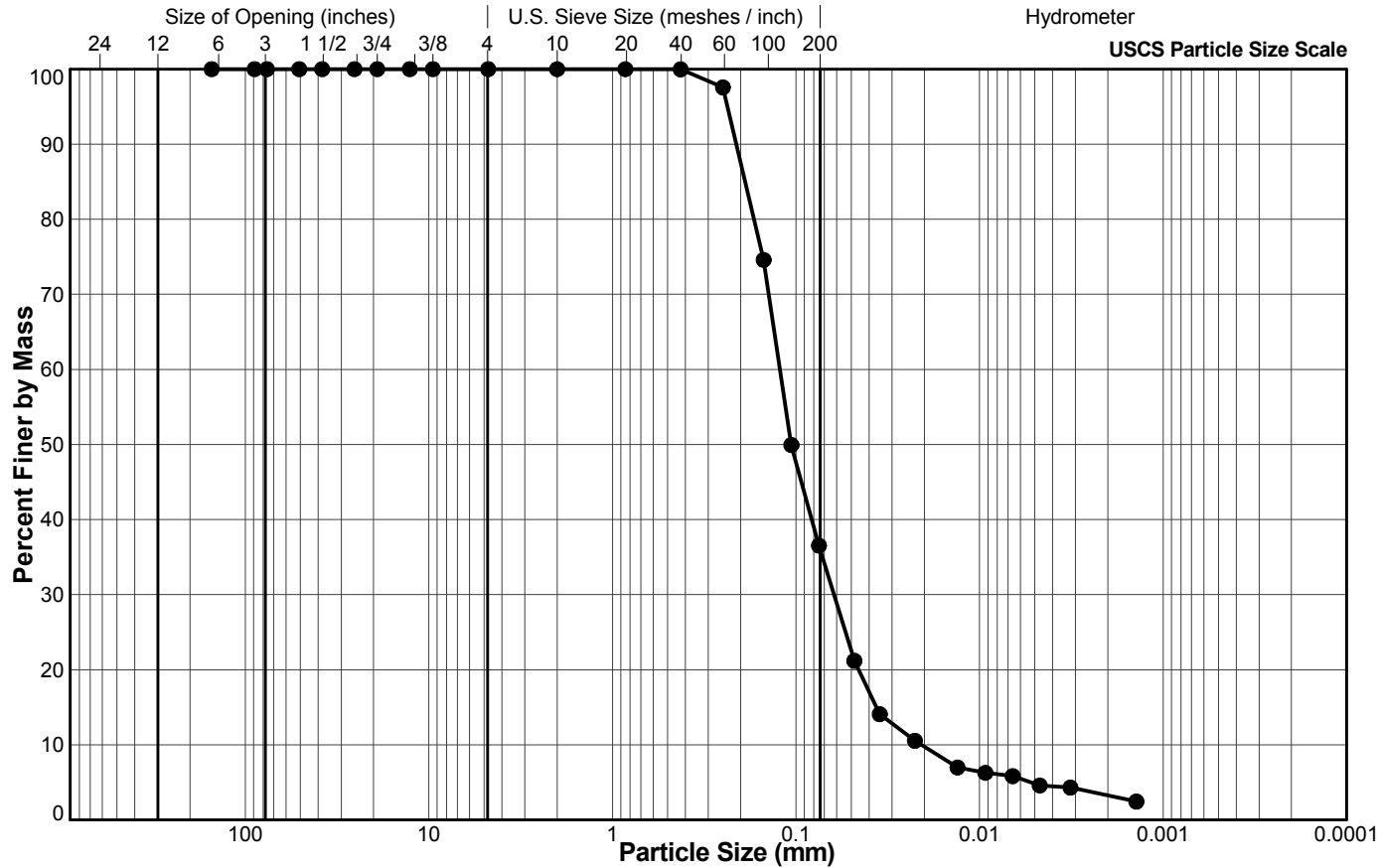
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-34S
Sample No.: 29618
Depth Interval (m): 19.80 to 20.40
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	100.0
3/8"	9.5	100.0
#4 US MESH	4.75	100.0
#10 US MESH	2	100.0
#20 US MESH	0.85	100.0
#40 US MESH	0.425	100.0
#60 US MESH	0.25	97.6
#100 US MESH	0.15	74.6
#140 US MESH	0.106	49.9
#200 US MESH	0.075	36.5
	0.0481	21.2
	0.0350	14.1
	0.0225	10.5
	0.0132	7.0
	0.0093	6.3
	0.0066	5.8
	0.0047	4.6
	0.0032	4.3
	0.0014	2.4

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/BJ

3/18/2019

LP

3/28/2019

Tech

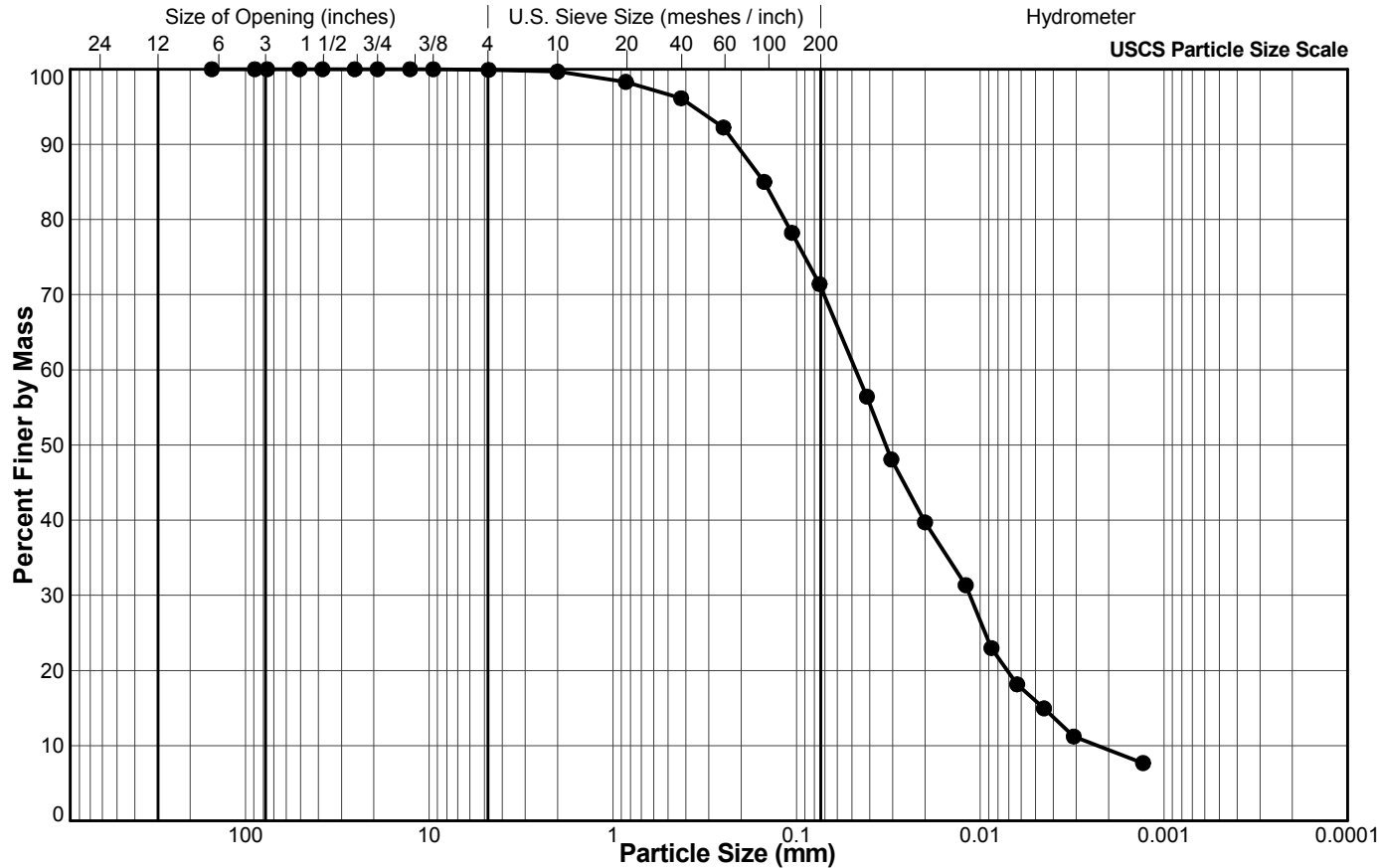
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-34S
Sample No.: 29619
Depth Interval (m): 23.80 to 24.40
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	100.0
3/8"	9.5	100.0
#4 US MESH	4.75	99.9
#10 US MESH	2	99.7
#20 US MESH	0.85	98.3
#40 US MESH	0.425	96.1
#60 US MESH	0.25	92.2
#100 US MESH	0.15	85.0
#140 US MESH	0.106	78.2
#200 US MESH	0.075	71.4
	0.0475	56.4
	0.03	48.1
	0.02	39.7
	0.015	31.3
	0.01	23.0
	0.0075	18.2
	0.006	15.0
	0.00425	11.2
	0.003	7.7

BOULDER	COBBLE	GRAVEL	SAND	FINES (Silt, Clay)
		Coarse	Coarse	
		Fine	Medium	
			Fine	

DC/BJ

3/18/2019

LP

3/28/2019

Tech

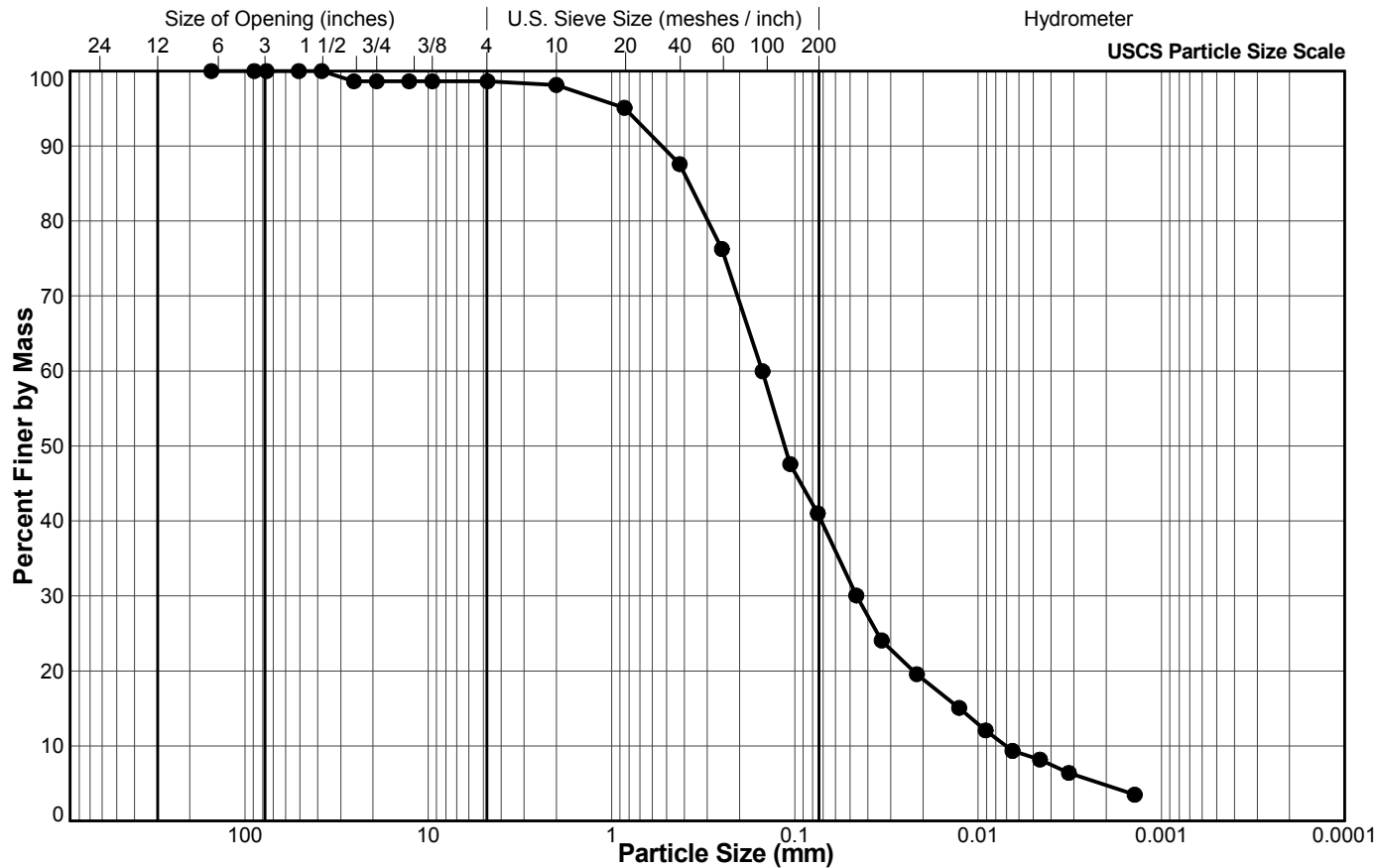
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-34S
Sample No.: 29620
Depth Interval (m): 25.90 to 26.50
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	98.6
3/4"	19.1	98.6
1/2"	12.7	98.6
3/8"	9.5	98.6
#4 US MESH	4.75	98.6
#10 US MESH	2	98.1
#20 US MESH	0.85	95.1
#40 US MESH	0.425	87.6
#60 US MESH	0.25	76.3
#100 US MESH	0.15	60.0
#140 US MESH	0.106	47.6
#200 US MESH	0.075	41.0
	0.0462	30.1
	0.0336	24.1
	0.0216	19.6
	0.0127	15.1
	0.0091	12.1
	0.0065	9.3
	0.0046	8.2
	0.0032	6.4
	0.0014	3.5

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/BJ

3/18/2019

LP

3/28/2019

Tech

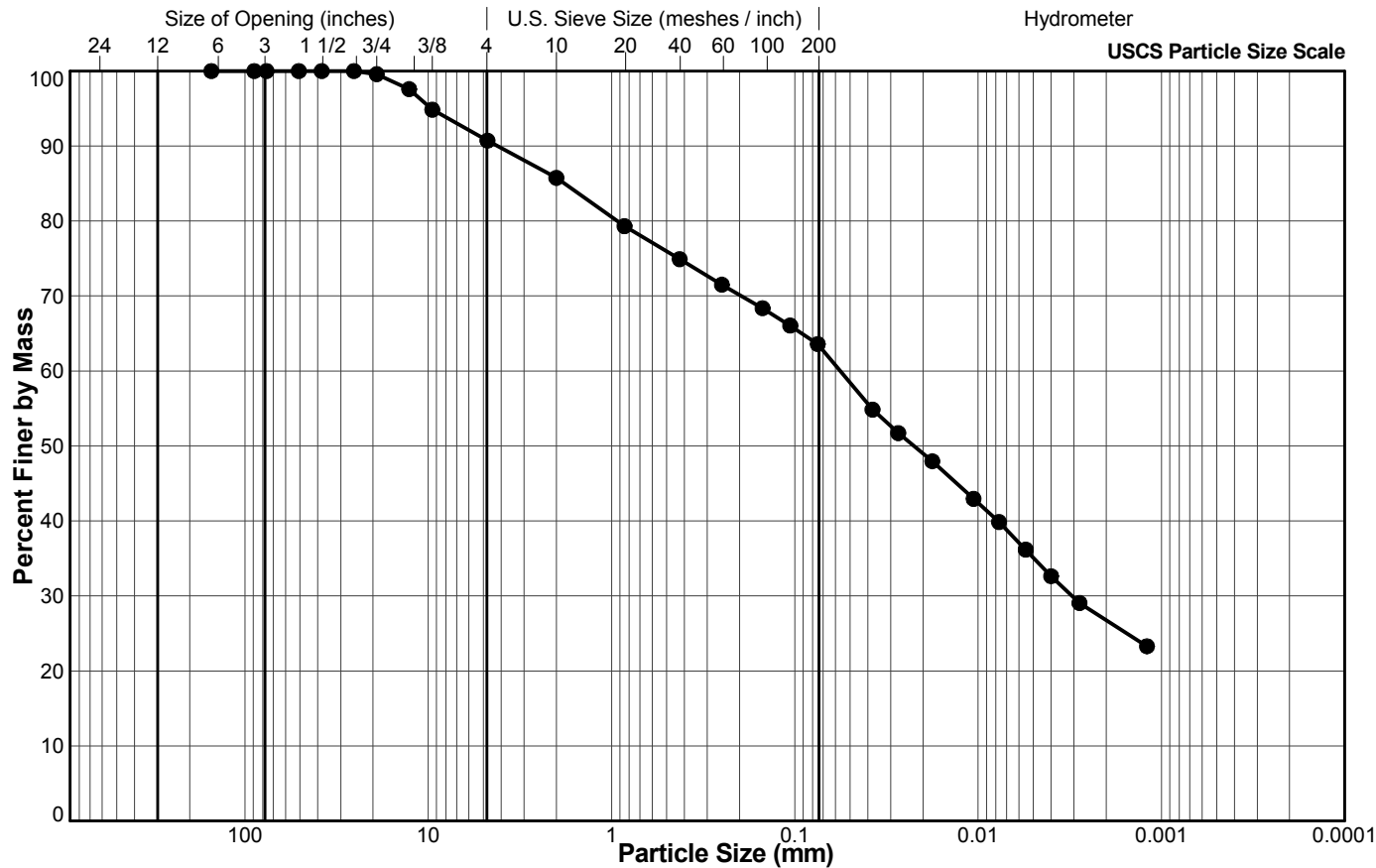
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-34S
Sample No.: 29622
Depth Interval (m): 29.90 to 33.50
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	99.6
1/2"	12.7	97.6
3/8"	9.5	94.8
#4 US MESH	4.75	90.7
#10 US MESH	2	85.8
#20 US MESH	0.85	79.3
#40 US MESH	0.425	74.9
#60 US MESH	0.25	71.5
#100 US MESH	0.15	68.4
#140 US MESH	0.106	66.1
#200 US MESH	0.075	63.6
	0.0377	54.9
	0.0273	51.7
	0.0178	48.0
	0.0106	43.0
	0.0077	39.9
	0.0055	36.2
	0.0040	32.6
	0.0028	29.1
	0.0012	23.3

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

BJ/DC

3/18/2019

LP

3/28/2019

Tech

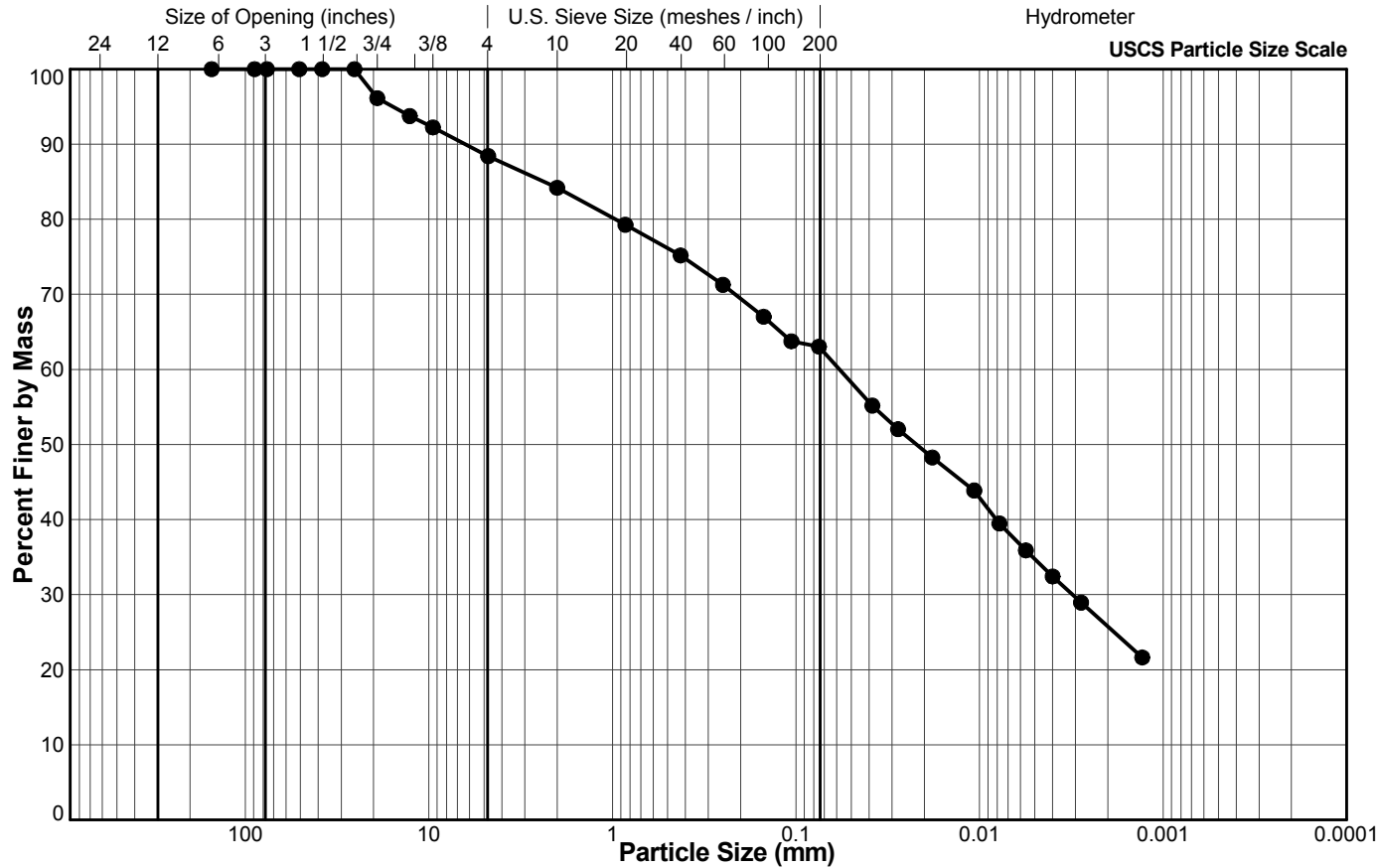
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-35S
Sample No.: 29624
Depth Interval (m): 5.50 to 6.10
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	96.1
1/2"	12.7	93.8
3/8"	9.5	92.2
#4 US MESH	4.75	88.4
#10 US MESH	2	84.2
#20 US MESH	0.85	79.3
#40 US MESH	0.425	75.2
#60 US MESH	0.25	71.3
#100 US MESH	0.15	67.0
#140 US MESH	0.106	63.7
#200 US MESH	0.075	63.0
	0.0384	55.2
	0.0278	52.0
	0.0181	48.3
	0.0107	43.9
	0.0078	39.5
	0.0056	35.9
	0.0040	32.4
	0.0028	28.9
	0.0013	21.6

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

BJ/DC

3/18/2019

LP

3/29/2019

Tech

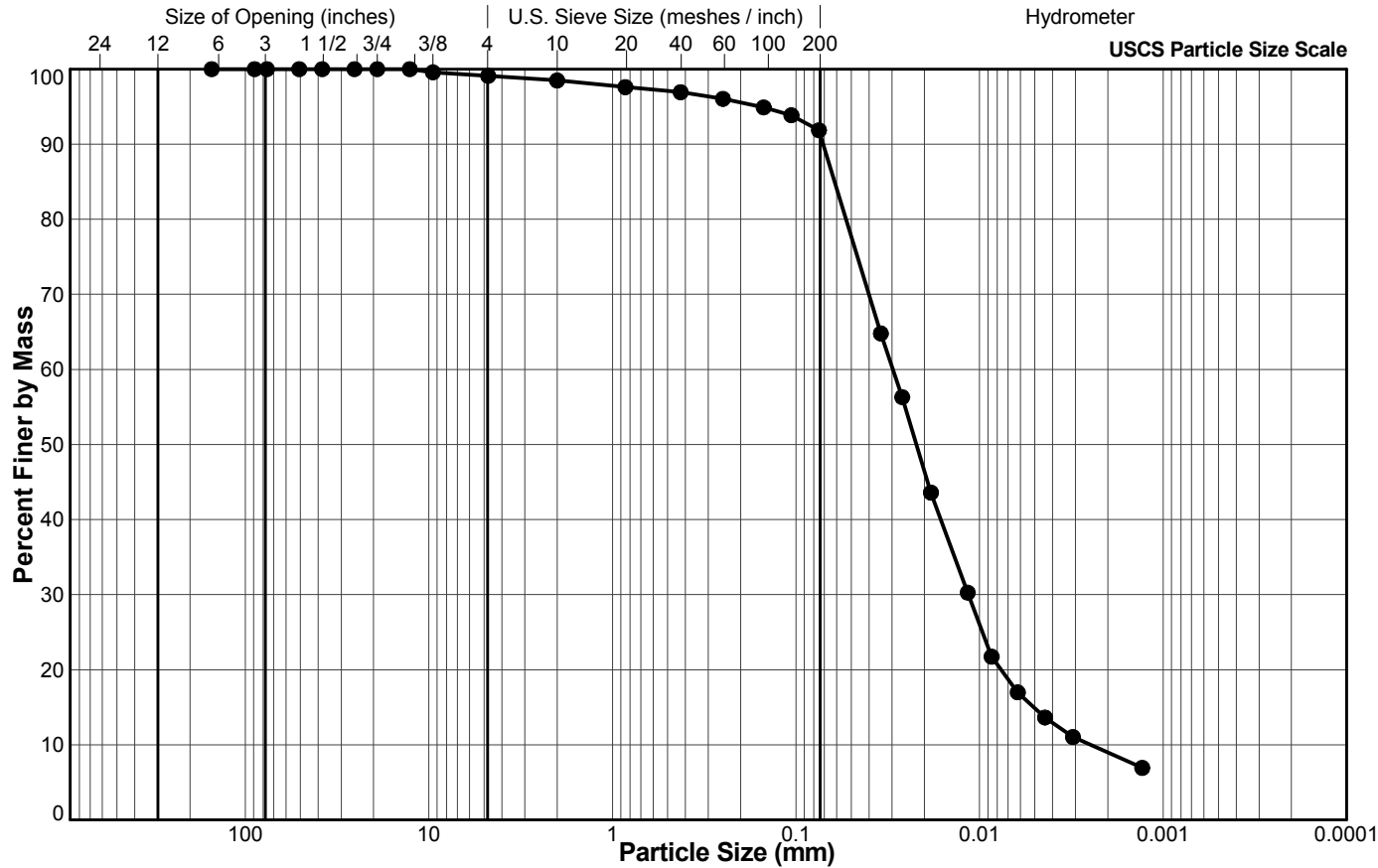
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-35S
Sample No.: 35139
Depth Interval (m): 14.60 to 15.20
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	100.0
3/8"	9.5	99.6
#4 US MESH	4.75	99.1
#10 US MESH	2	98.5
#20 US MESH	0.85	97.6
#40 US MESH	0.425	96.9
#60 US MESH	0.25	96.0
#100 US MESH	0.15	94.9
#140 US MESH	0.106	93.9
#200 US MESH	0.075	91.9
	0.0345	64.8
	0.0264	56.3
	0.0184	43.6
	0.0116	30.3
	0.0086	21.7
	0.0062	17.0
	0.0044	13.6
	0.0031	11.0
	0.0013	6.9

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/BJ

3/21/2019

LP

3/29/2019

Tech

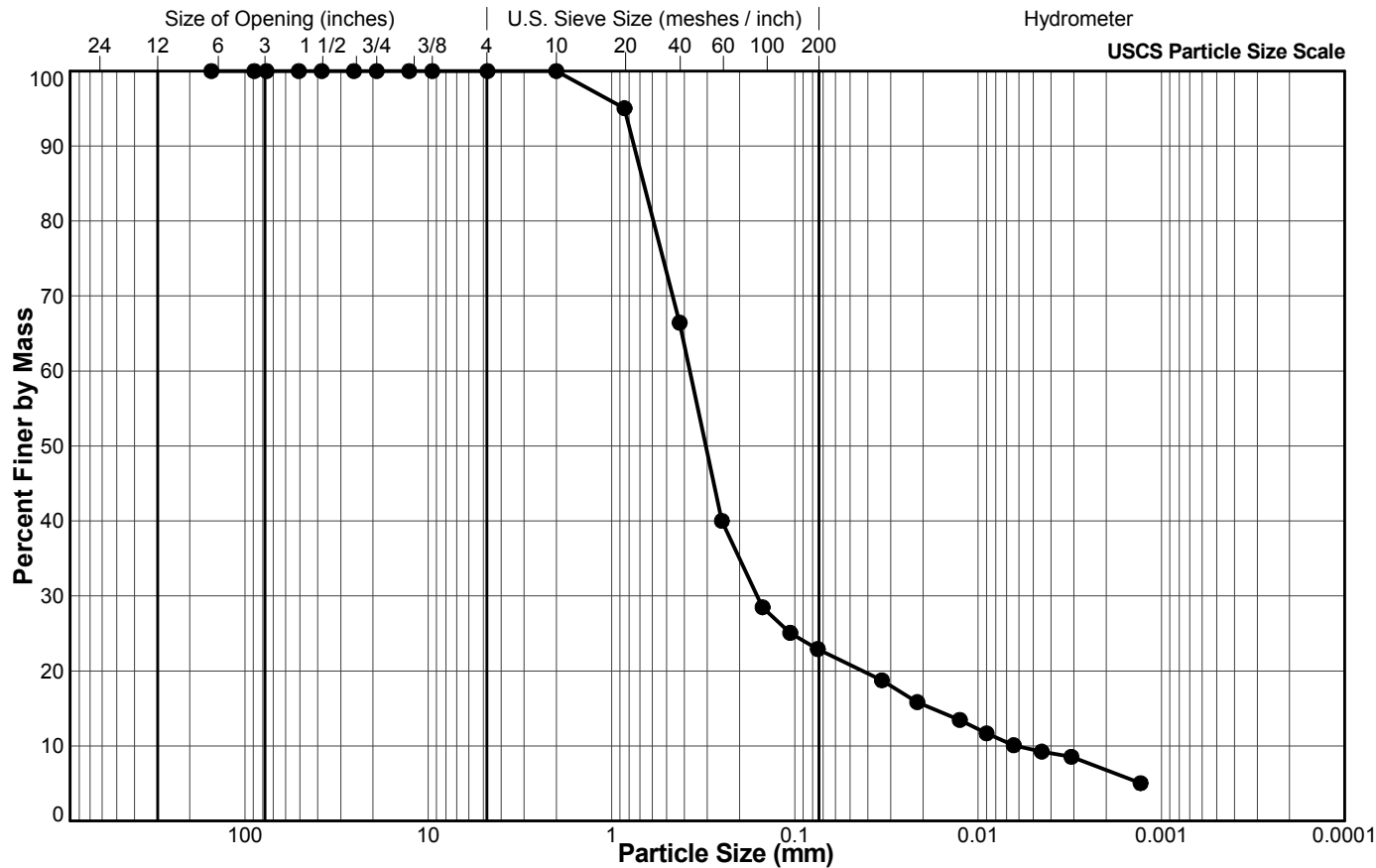
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-35S
Sample No.: 35140
Depth Interval (m): 16.80 to 17.40
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	100.0
3/8"	9.5	100.0
#4 US MESH	4.75	100.0
#10 US MESH	2	100.0
#20 US MESH	0.85	95.0
#40 US MESH	0.425	66.4
#60 US MESH	0.25	40.0
#100 US MESH	0.15	28.5
#140 US MESH	0.106	25.1
#200 US MESH	0.075	22.9
	0.0335	18.7
	0.0215	15.8
	0.0126	13.5
	0.0090	11.7
	0.0064	10.1
	0.0045	9.2
	0.0031	8.5
	0.0013	5.0

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/BJ

3/21/2019

LP

3/29/2019

Tech

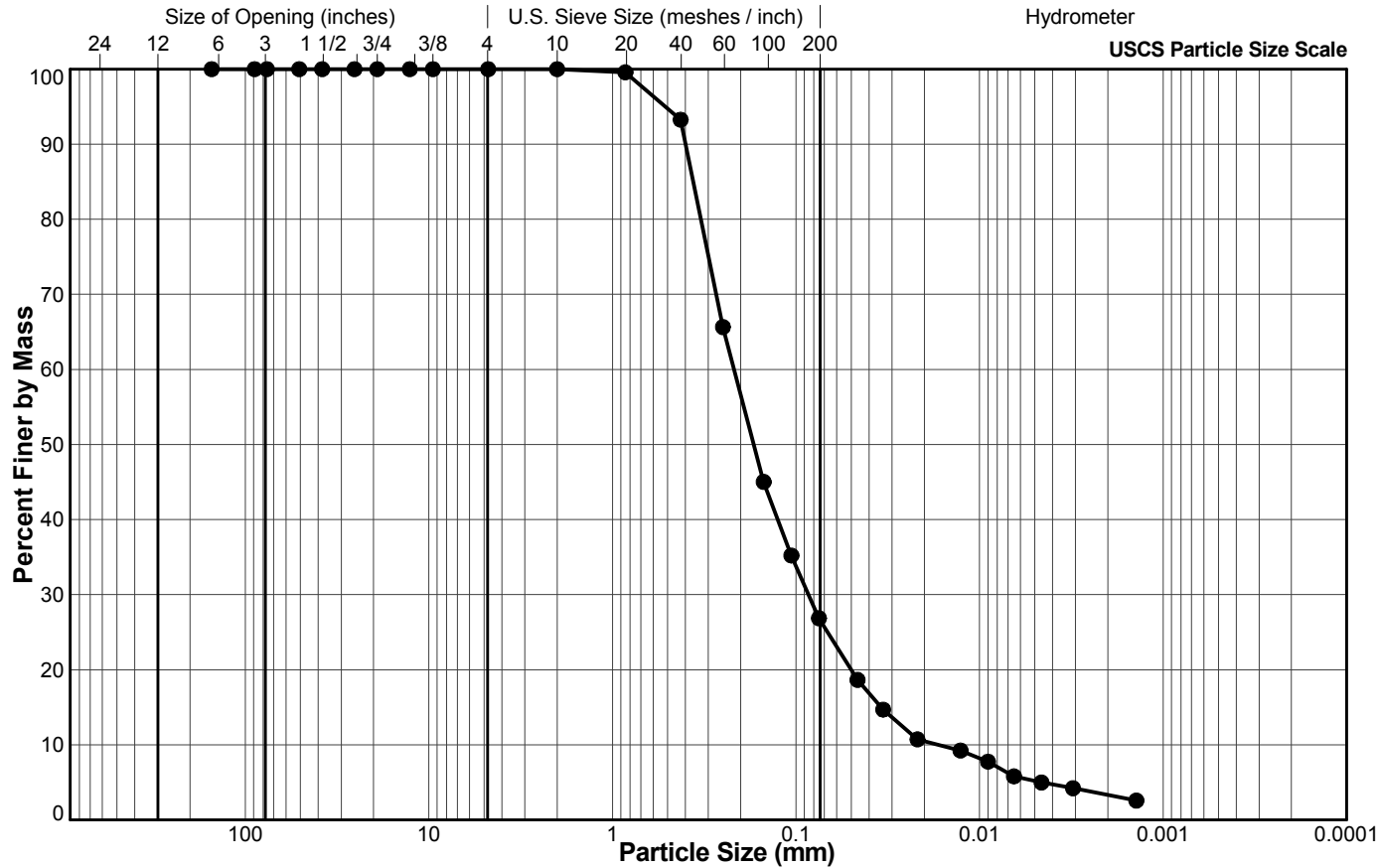
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-35S
Sample No.: 35141
Depth Interval (m): 18.00 to 18.30
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	100.0
3/8"	9.5	100.0
#4 US MESH	4.75	100.0
#10 US MESH	2	100.0
#20 US MESH	0.85	99.6
#40 US MESH	0.425	93.3
#60 US MESH	0.25	65.6
#100 US MESH	0.15	45.0
#140 US MESH	0.106	35.2
#200 US MESH	0.075	26.9
	0.0462	18.6
	0.0335	14.7
	0.0218	10.7
	0.0127	9.2
	0.0090	7.7
	0.0065	5.8
	0.0046	5.0
	0.0031	4.2
	0.0014	2.6

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/BJ

3/21/2019

LP

3/29/2019

Tech

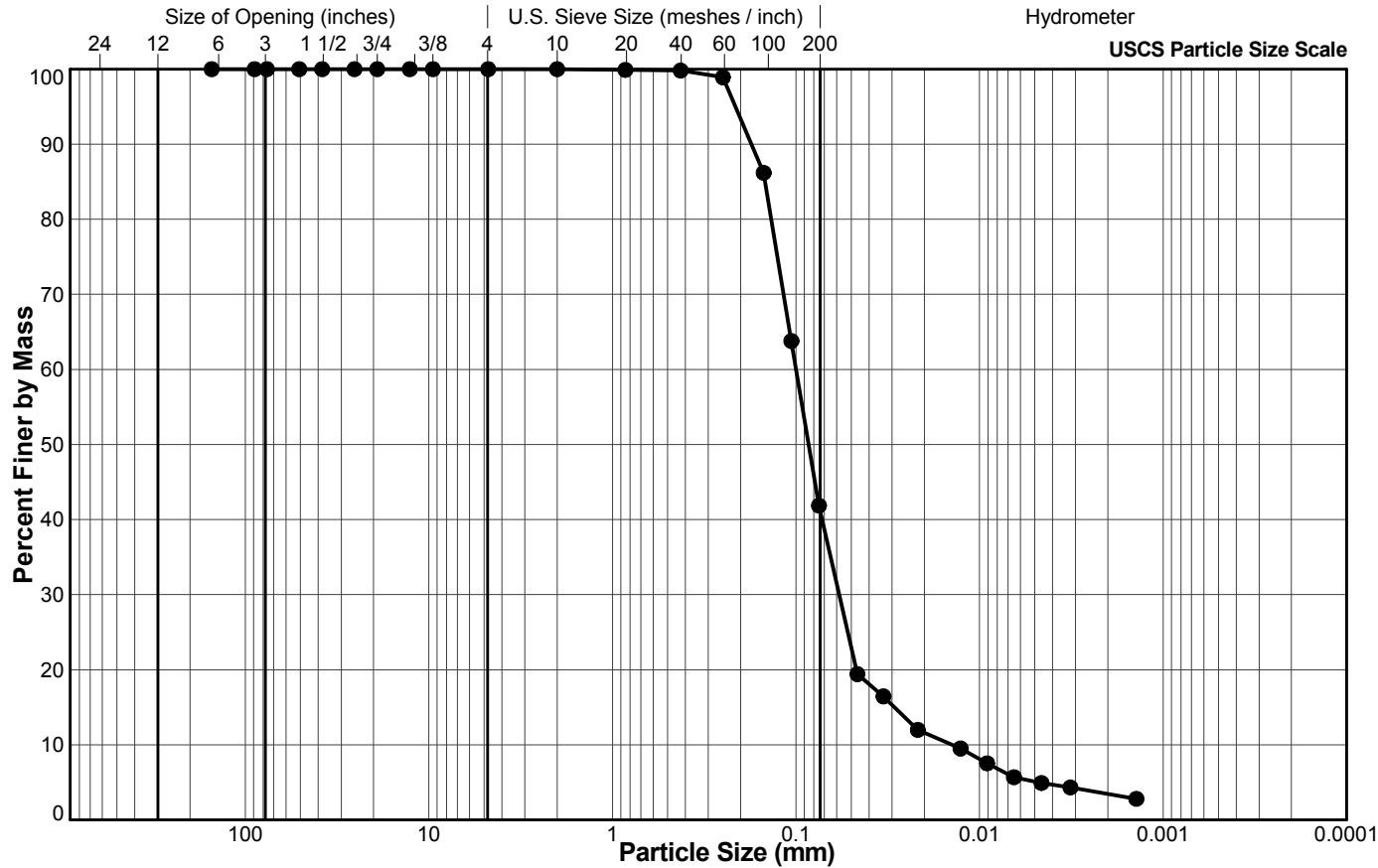
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-35S
Sample No.: 35142
Depth Interval (m): 19.20 to 19.80
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	100.0
3/8"	9.5	100.0
#4 US MESH	4.75	100.0
#10 US MESH	2	100.0
#20 US MESH	0.85	99.9
#40 US MESH	0.425	99.8
#60 US MESH	0.25	98.9
#100 US MESH	0.15	86.2
#140 US MESH	0.106	63.8
#200 US MESH	0.075	41.9
	0.0463	19.4
	0.0334	16.4
	0.0217	12.0
	0.0127	9.5
	0.0091	7.5
	0.0065	5.7
	0.0046	4.9
	0.0032	4.3
	0.0014	2.8

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/BJ

3/21/2019

LP

3/29/2019

Tech

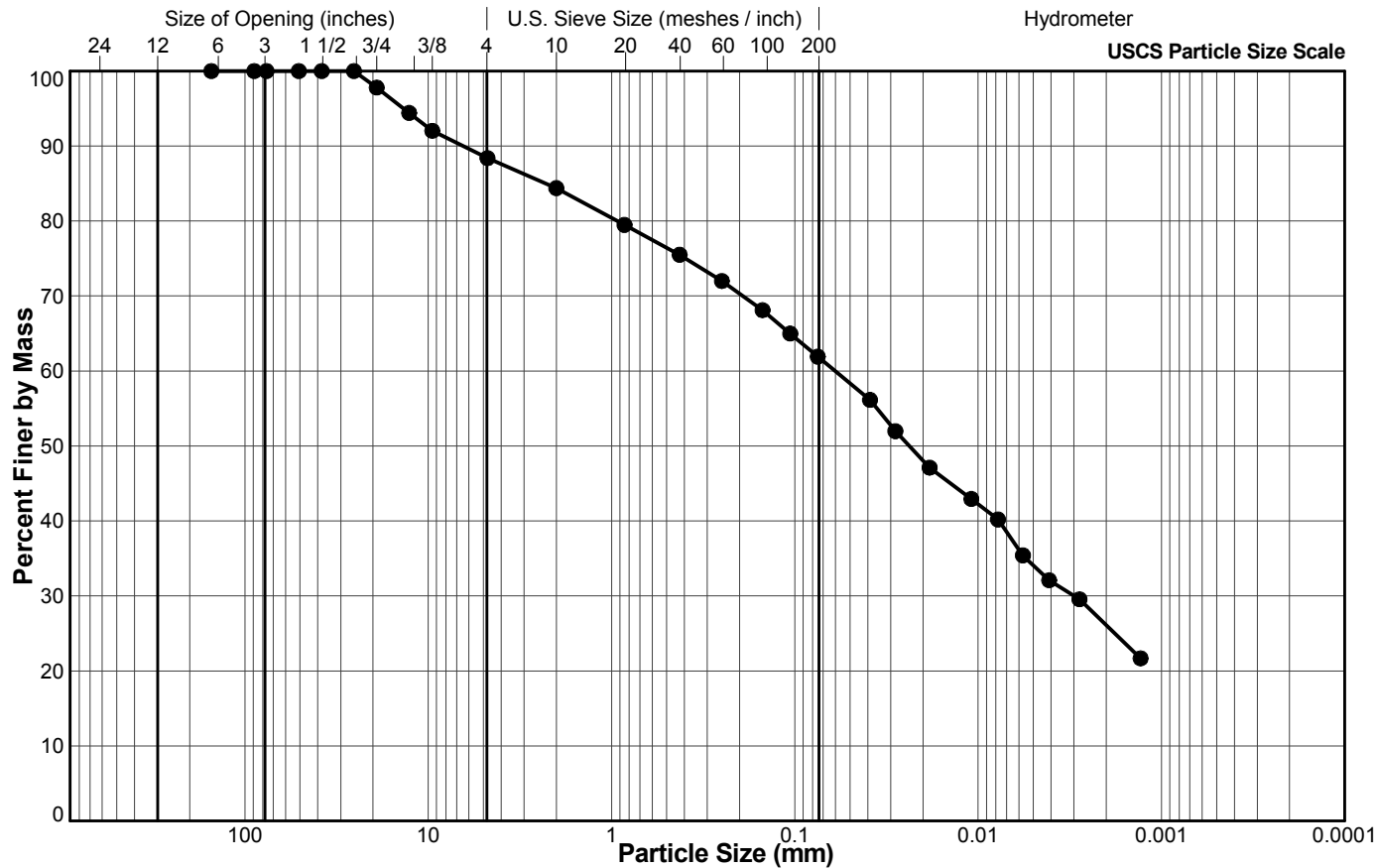
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-35S
Sample No.: 35143
Depth Interval (m): 22.30 to 22.90
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	97.8
1/2"	12.7	94.4
3/8"	9.5	92.0
#4 US MESH	4.75	88.4
#10 US MESH	2	84.4
#20 US MESH	0.85	79.5
#40 US MESH	0.425	75.5
#60 US MESH	0.25	72.0
#100 US MESH	0.15	68.1
#140 US MESH	0.106	65.0
#200 US MESH	0.075	61.9
	0.039	56.1
	0.028	52.0
	0.018	47.1
	0.010	42.9
	0.007	40.2
	0.005	35.4
	0.004	32.1
	0.002	29.6
	0.001	21.7

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/BJ

3/21/2019

LP

3/29/2019

Tech

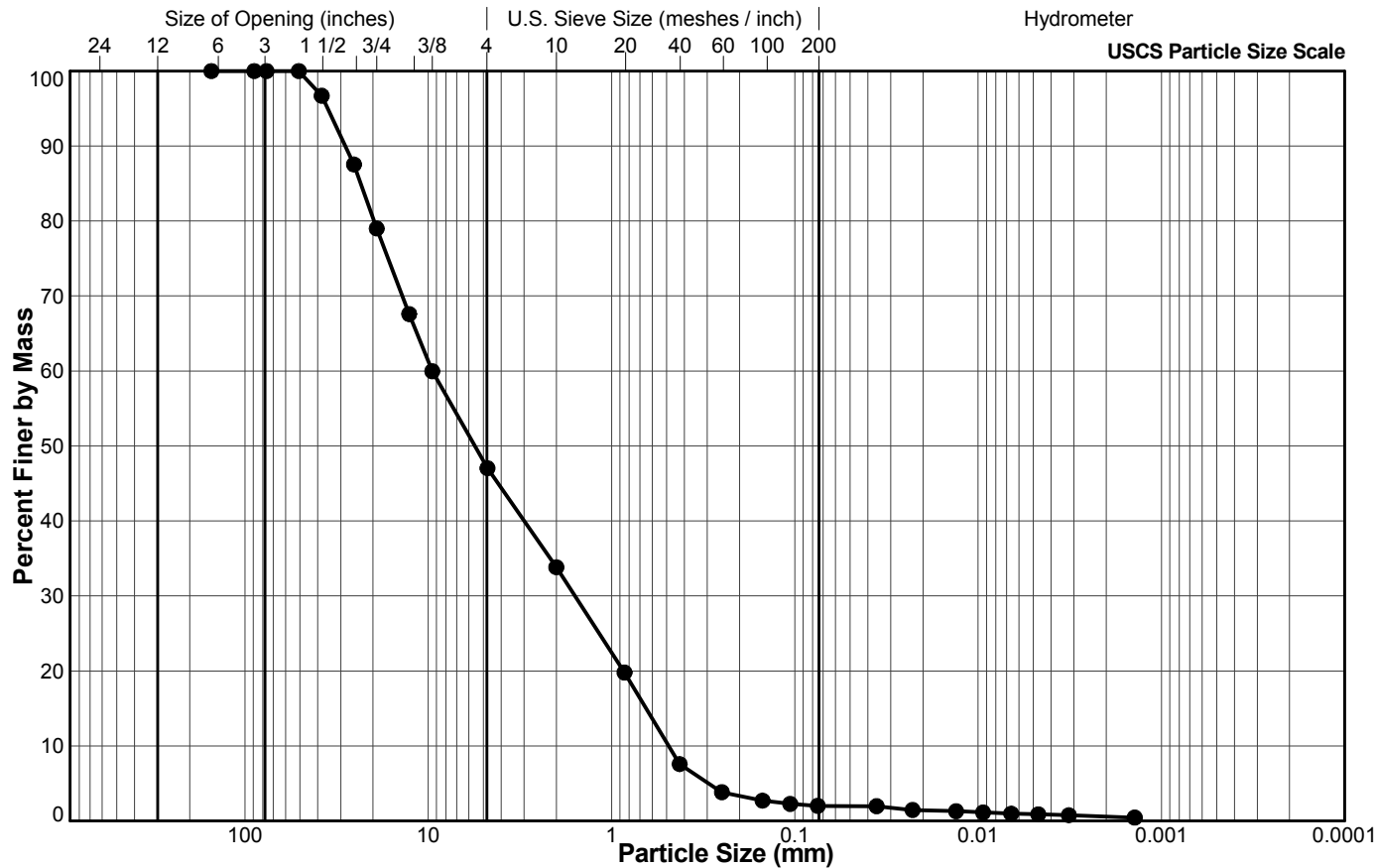
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-36S
Sample No.: 23628
Depth Interval (m): 1.37 to 1.60
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	96.7
1"	25.4	87.5
3/4"	19.1	79.0
1/2"	12.7	67.6
3/8"	9.5	60.0
#4 US MESH	4.75	47.0
#10 US MESH	2	33.8
#20 US MESH	0.85	19.8
#40 US MESH	0.425	7.6
#60 US MESH	0.25	3.8
#100 US MESH	0.15	2.7
#140 US MESH	0.106	2.3
#200 US MESH	0.075	2.0
	0.0358	2.0
	0.0228	1.5
	0.0132	1.3
	0.0094	1.1
	0.0066	1.0
	0.0047	0.9
	0.0032	0.8
	0.0014	0.4

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/KS

3/26/2019

LP

3/28/2019

Tech

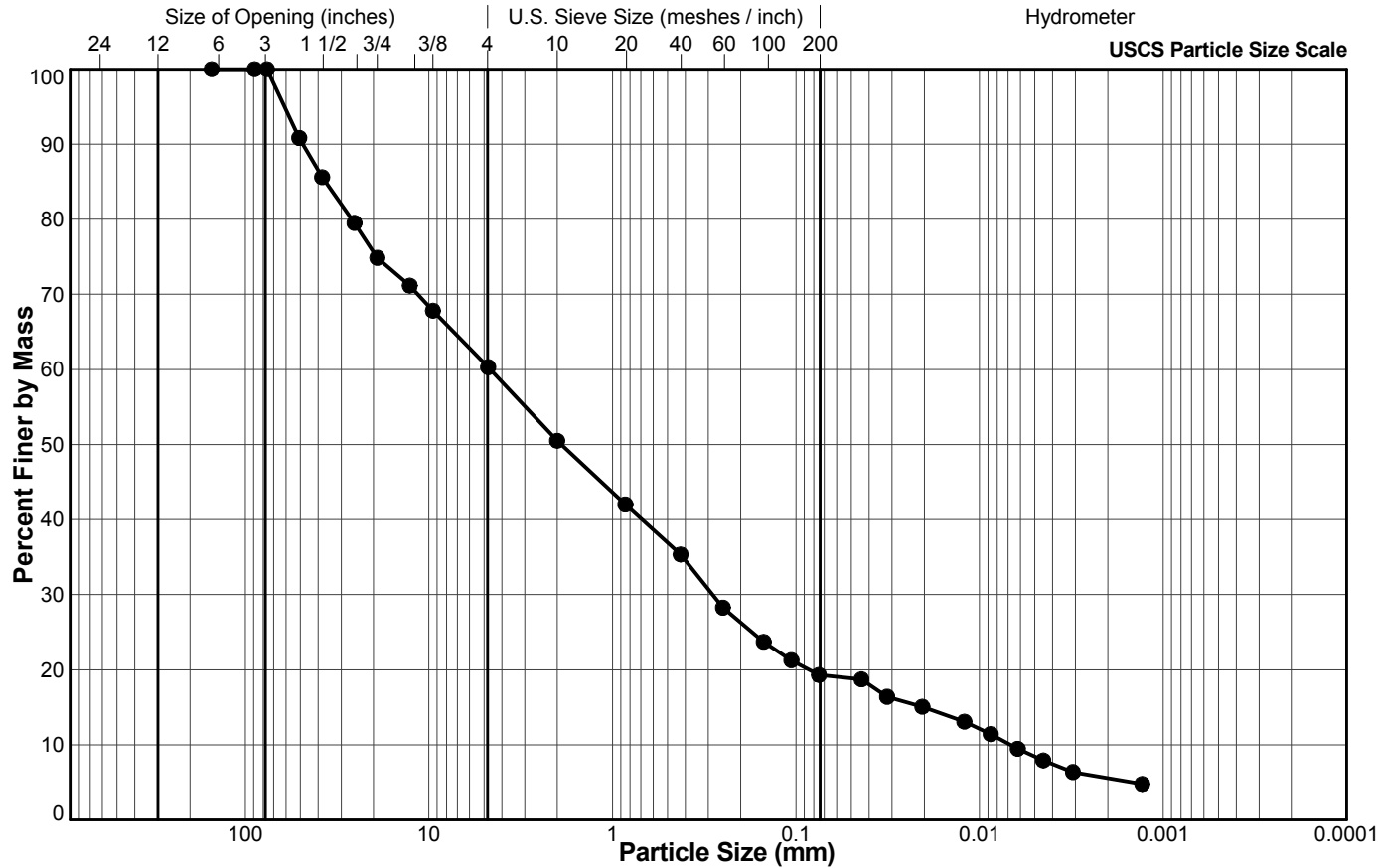
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-36S
Sample No.: 23627
Depth Interval (m): 2.44 to 3.05
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	90.8
1 1/2"	38.1	85.6
1"	25.4	79.5
3/4"	19.1	74.9
1/2"	12.7	71.2
3/8"	9.5	67.8
#4 US MESH	4.75	60.3
#10 US MESH	2	50.5
#20 US MESH	0.85	42.0
#40 US MESH	0.425	35.4
#60 US MESH	0.25	28.3
#100 US MESH	0.15	23.7
#140 US MESH	0.106	21.3
#200 US MESH	0.075	19.3
	0.0440	18.7
	0.0319	16.4
	0.0205	15.1
	0.0121	13.1
	0.0087	11.4
	0.0062	9.5
	0.0045	7.9
	0.0031	6.4
	0.0013	4.8

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/KS

3/26/2019

LP

3/28/2019

Tech

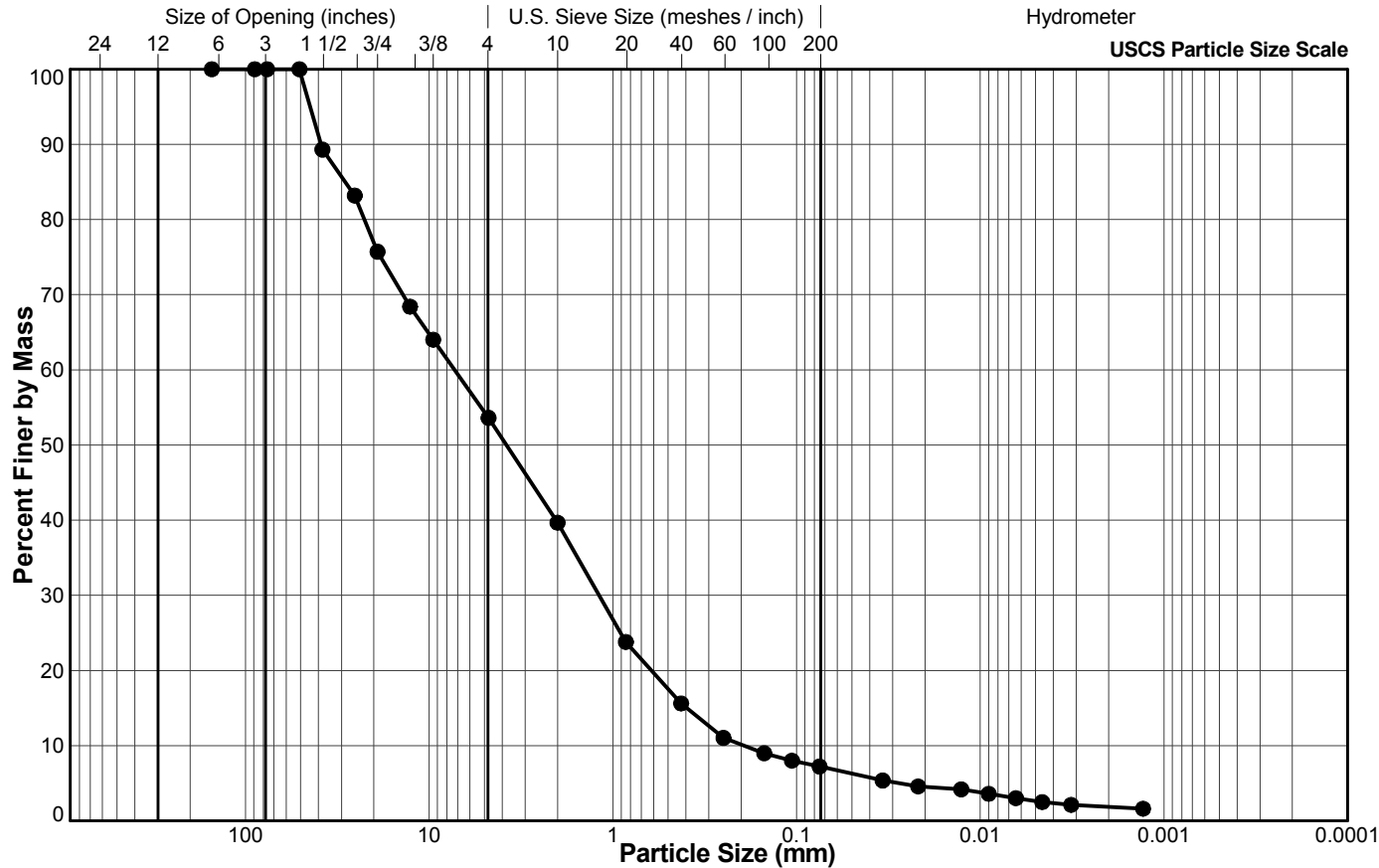
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-37S
Sample No.: 23634
Depth Interval (m): 3.96 to 4.57
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	89.3
1"	25.4	83.2
3/4"	19.1	75.7
1/2"	12.7	68.4
3/8"	9.5	64.0
#4 US MESH	4.75	53.6
#10 US MESH	2	39.7
#20 US MESH	0.85	23.8
#40 US MESH	0.425	15.6
#60 US MESH	0.25	11.0
#100 US MESH	0.15	9.0
#140 US MESH	0.106	8.0
#200 US MESH	0.075	7.2
	0.0340	5.4
	0.0218	4.6
	0.0127	4.2
	0.0090	3.6
	0.0064	3.0
	0.0046	2.5
	0.0032	2.1
	0.0013	1.6

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/KS

3/26/2019

LP

3/28/2019

Tech

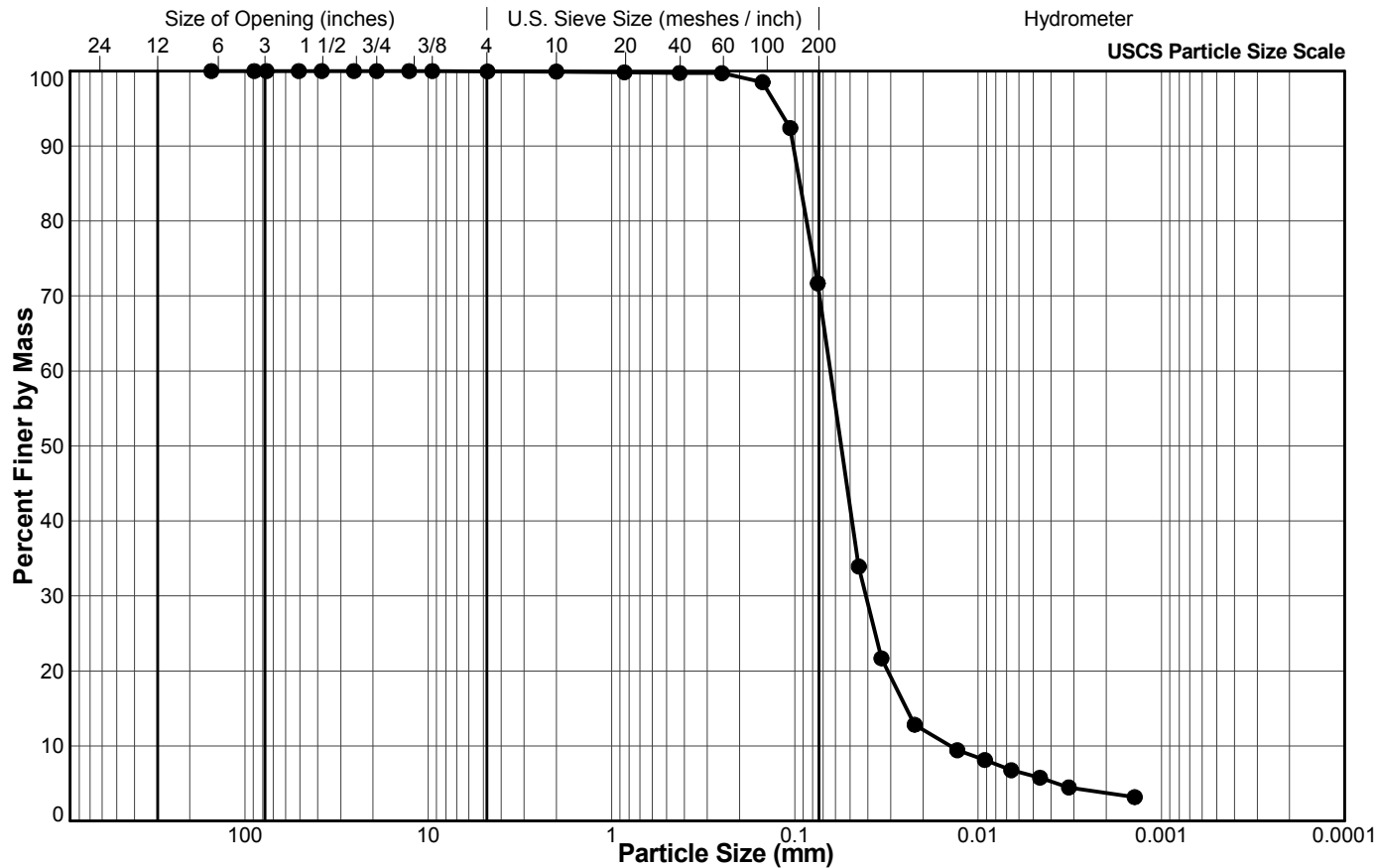
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-37S
Sample No.: 23635
Depth Interval (m): 4.57 to 5.18
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	100.0
3/8"	9.5	100.0
#4 US MESH	4.75	100.0
#10 US MESH	2	99.9
#20 US MESH	0.85	99.8
#40 US MESH	0.425	99.7
#60 US MESH	0.25	99.7
#100 US MESH	0.15	98.5
#140 US MESH	0.106	92.4
#200 US MESH	0.075	71.7
	0.0448	33.9
	0.0337	21.7
	0.0222	12.8
	0.0130	9.4
	0.0092	8.1
	0.0066	6.8
	0.0046	5.8
	0.0032	4.5
	0.0014	3.2

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/KS

3/26/2019

LP

3/28/2019

Tech

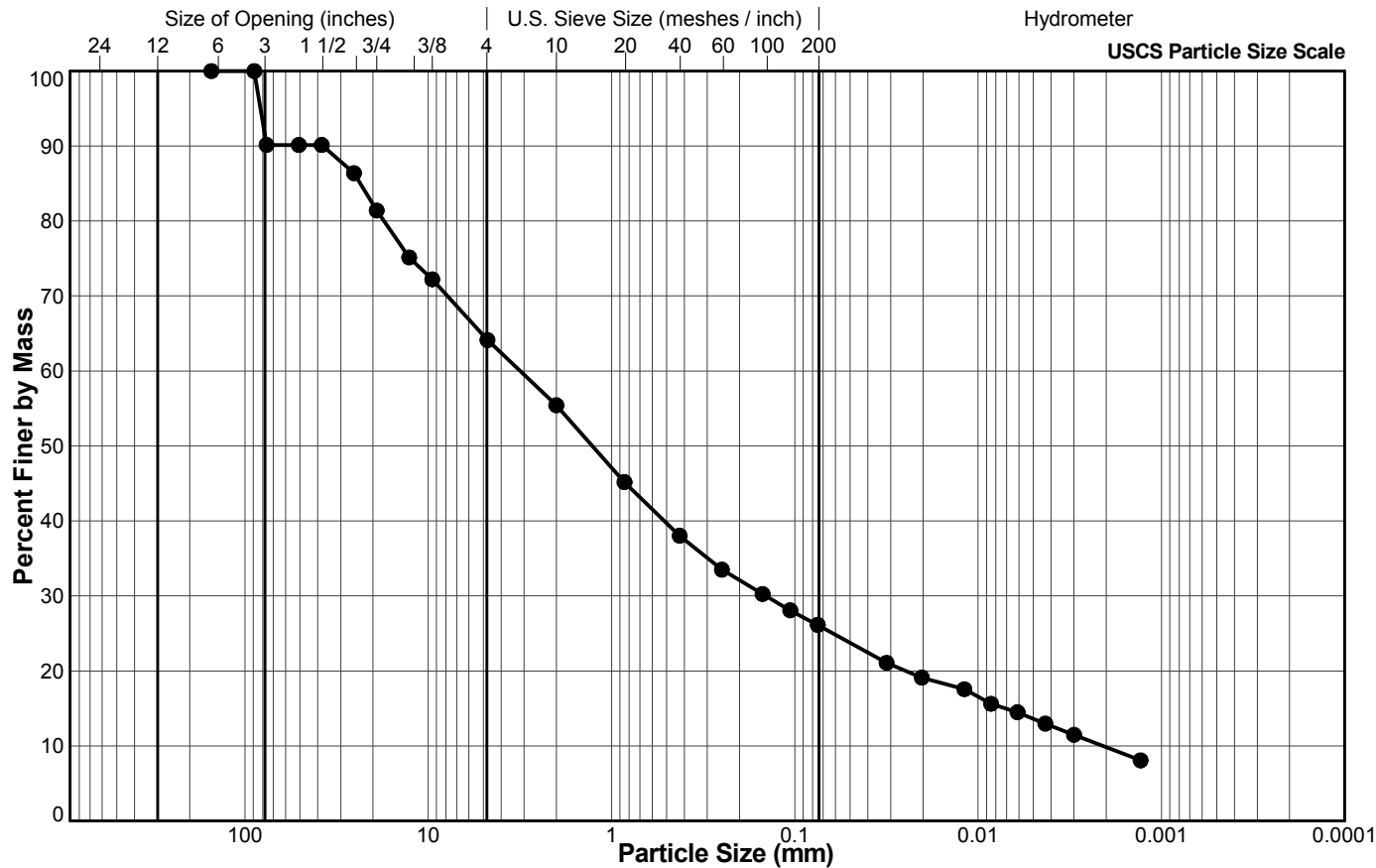
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-20S
Sample No.: 35052
Depth Interval (m): 5.60 to 6.10
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	90.1
2"	50.8	90.1
1 1/2"	38.1	90.1
1"	25.4	86.4
3/4"	19.1	81.4
1/2"	12.7	75.2
3/8"	9.5	72.2
#4 US MESH	4.75	64.1
#10 US MESH	2	55.4
#20 US MESH	0.85	45.2
#40 US MESH	0.425	38.0
#60 US MESH	0.25	33.5
#100 US MESH	0.15	30.3
#140 US MESH	0.106	28.1
#200 US MESH	0.075	26.1
	0.0316	21.1
	0.0203	19.1
	0.0119	17.6
	0.0085	15.6
	0.0061	14.5
	0.0043	13.0
	0.0030	11.5
	0.0013	8.1

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/RG

4/26/2019

LP

5/1/2019

Tech

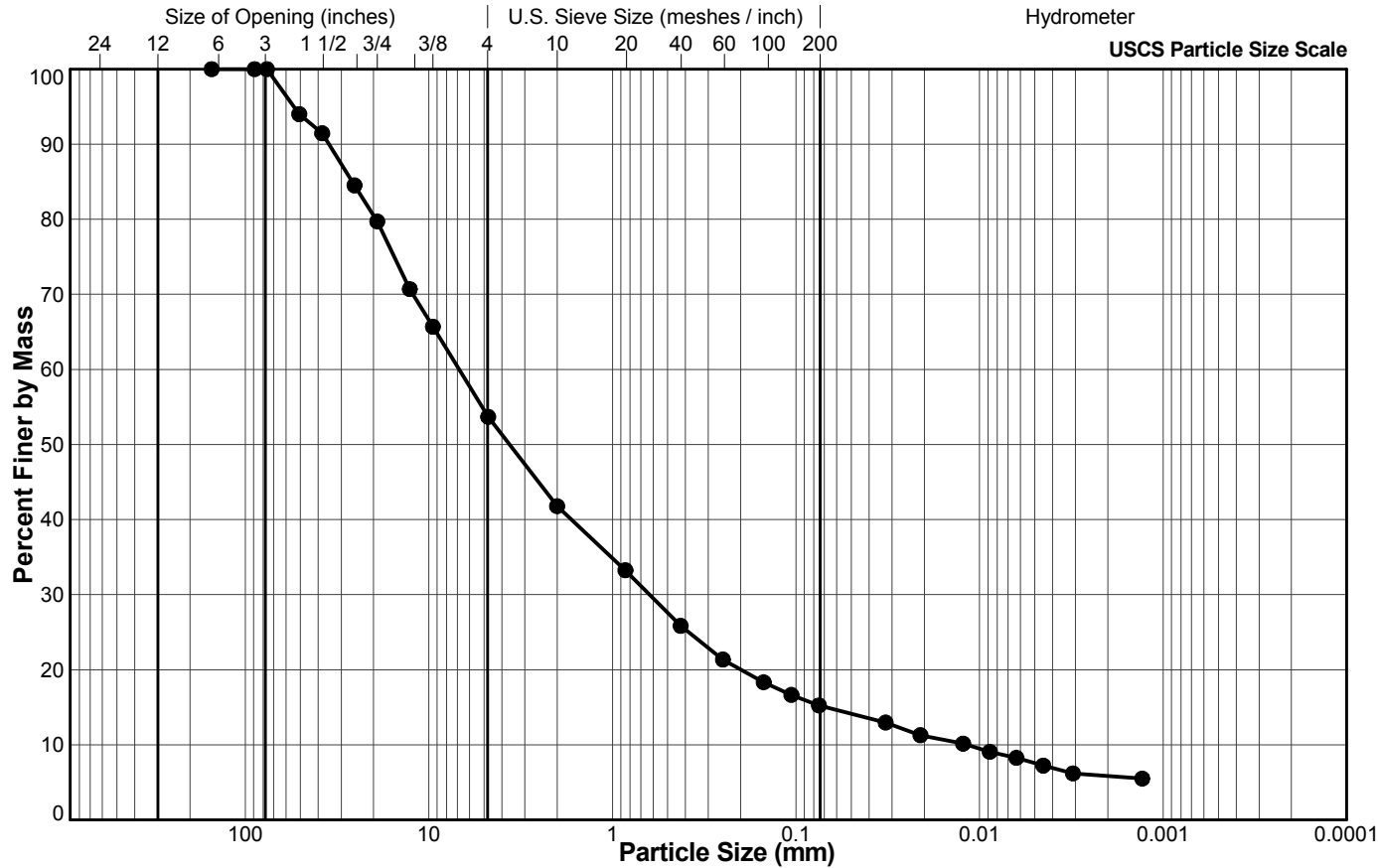
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Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-20S
Sample No.: 35053
Depth Interval (m): 8.50 to 9.10
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	94.0
1 1/2"	38.1	91.5
1"	25.4	84.5
3/4"	19.1	79.7
1/2"	12.7	70.7
3/8"	9.5	65.7
#4 US MESH	4.75	53.7
#10 US MESH	2	41.8
#20 US MESH	0.85	33.2
#40 US MESH	0.425	25.8
#60 US MESH	0.25	21.4
#100 US MESH	0.15	18.3
#140 US MESH	0.106	16.6
#200 US MESH	0.075	15.2
	0.0325	13.0
	0.0210	11.3
	0.0123	10.1
	0.0088	9.1
	0.0063	8.3
	0.0045	7.2
	0.0031	6.2
	0.0013	5.5

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/PE

4/29/2019

LP

5/1/2019

Tech

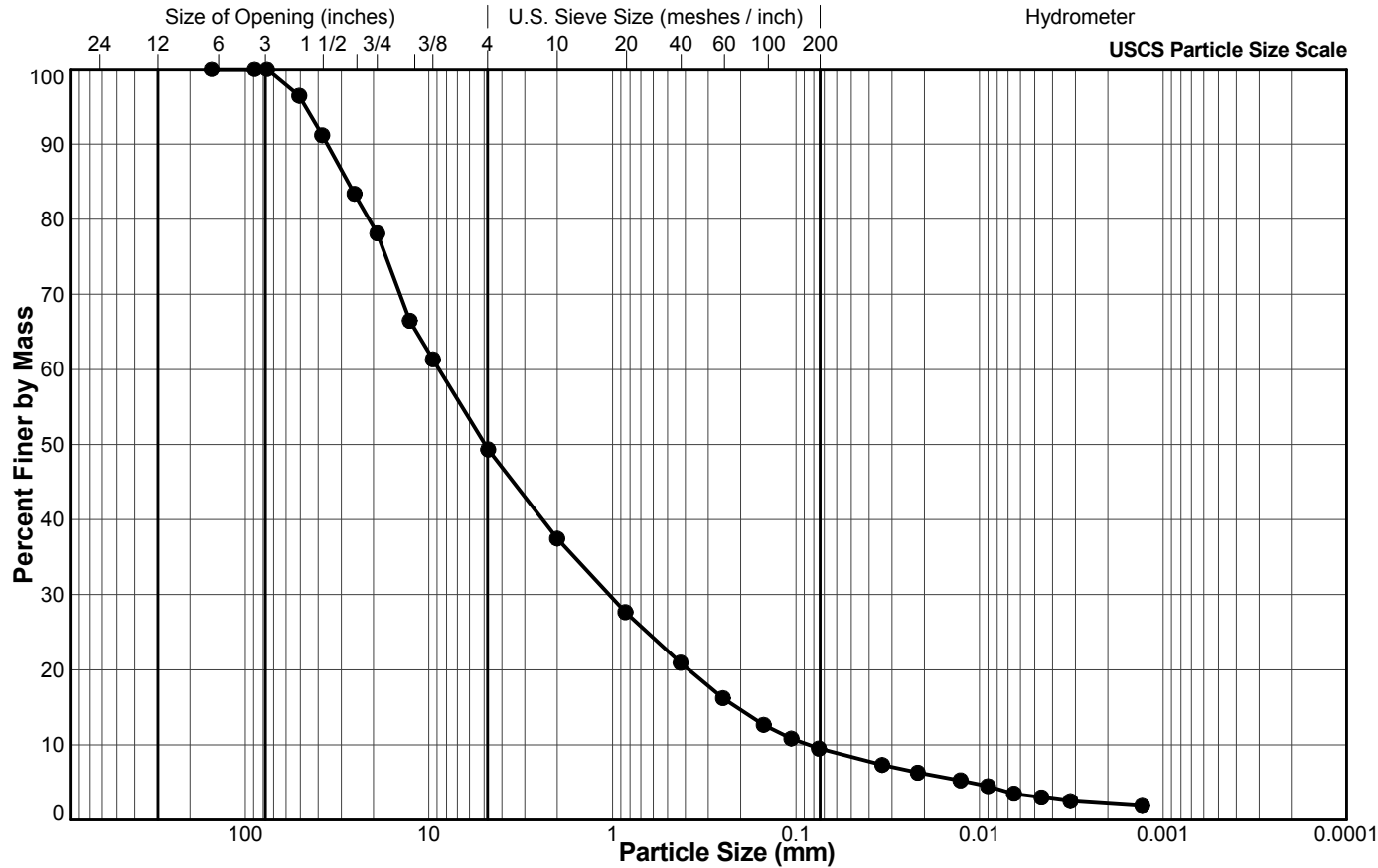
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-20S
Sample No.: 35054
Depth Interval (m): 11.60 to 12.20
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	96.4
1 1/2"	38.1	91.2
1"	25.4	83.4
3/4"	19.1	78.1
1/2"	12.7	66.5
3/8"	9.5	61.3
#4 US MESH	4.75	49.3
#10 US MESH	2	37.5
#20 US MESH	0.85	27.7
#40 US MESH	0.425	20.9
#60 US MESH	0.25	16.2
#100 US MESH	0.15	12.7
#140 US MESH	0.106	10.8
#200 US MESH	0.075	9.5
	0.0339	7.3
	0.0217	6.3
	0.0127	5.3
	0.0090	4.5
	0.0065	3.5
	0.0046	3.0
	0.0032	2.5
	0.0013	1.9

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/PE

4/26/2019

LP

5/1/2019

Tech

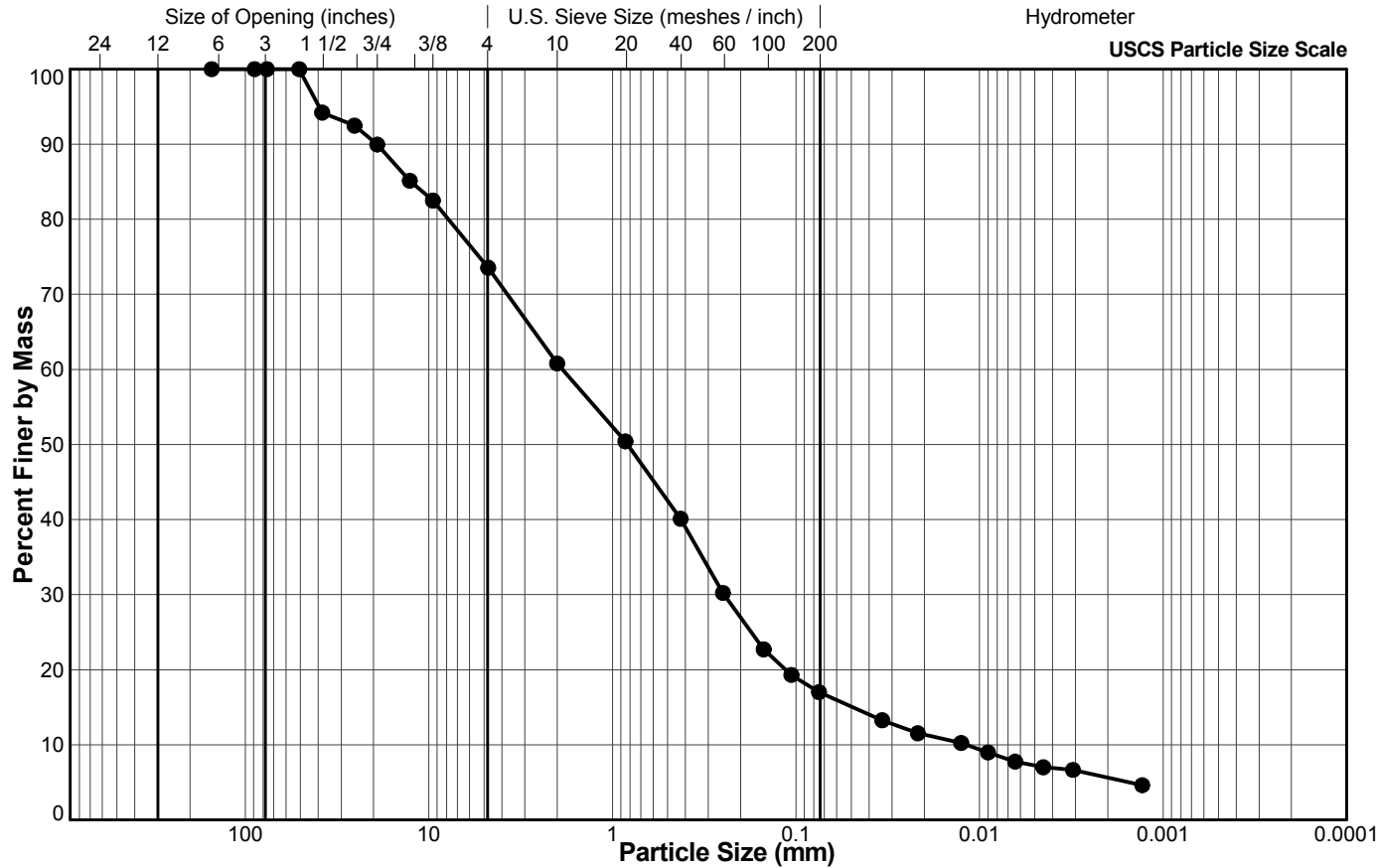
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-20S
Sample No.: 35055
Depth Interval (m): 14.30 to 14.60
Lab Schedule No.:



BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/PE

4/26/2019

LP

5/1/2019

Tech

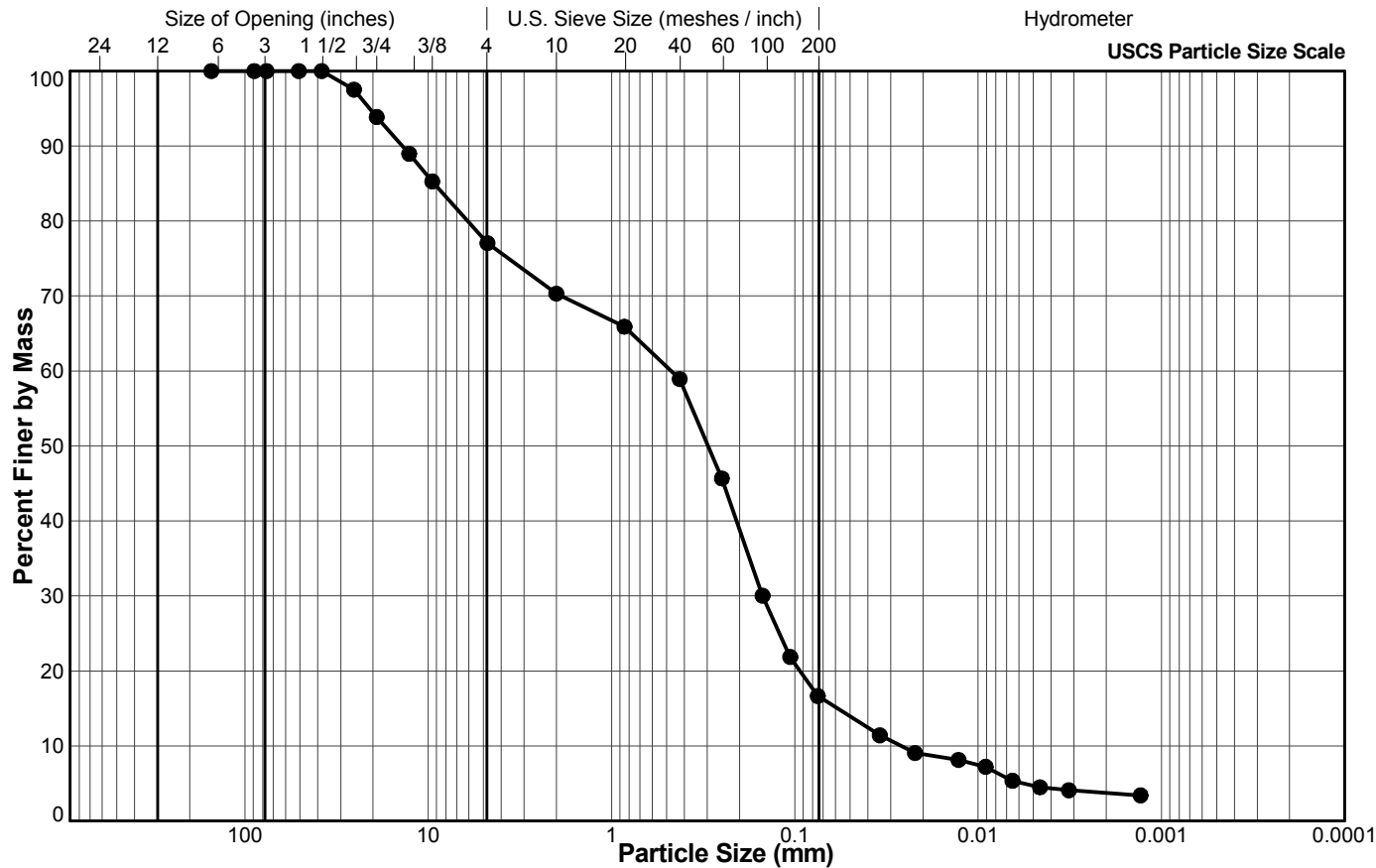
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-20S
Sample No.: 35056
Depth Interval (m): 16.80 to 17.40
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	97.5
3/4"	19.1	93.9
1/2"	12.7	89.0
3/8"	9.5	85.3
#4 US MESH	4.75	77.0
#10 US MESH	2	70.3
#20 US MESH	0.85	65.9
#40 US MESH	0.425	58.9
#60 US MESH	0.25	45.7
#100 US MESH	0.15	30.0
#140 US MESH	0.106	21.9
#200 US MESH	0.075	16.7
	0.0344	11.4
	0.0221	9.1
	0.0128	8.1
	0.0091	7.2
	0.0065	5.3
	0.0046	4.5
	0.0032	4.1
	0.0013	3.4

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/FF

4/26/2019

LP

5/1/2019

Tech

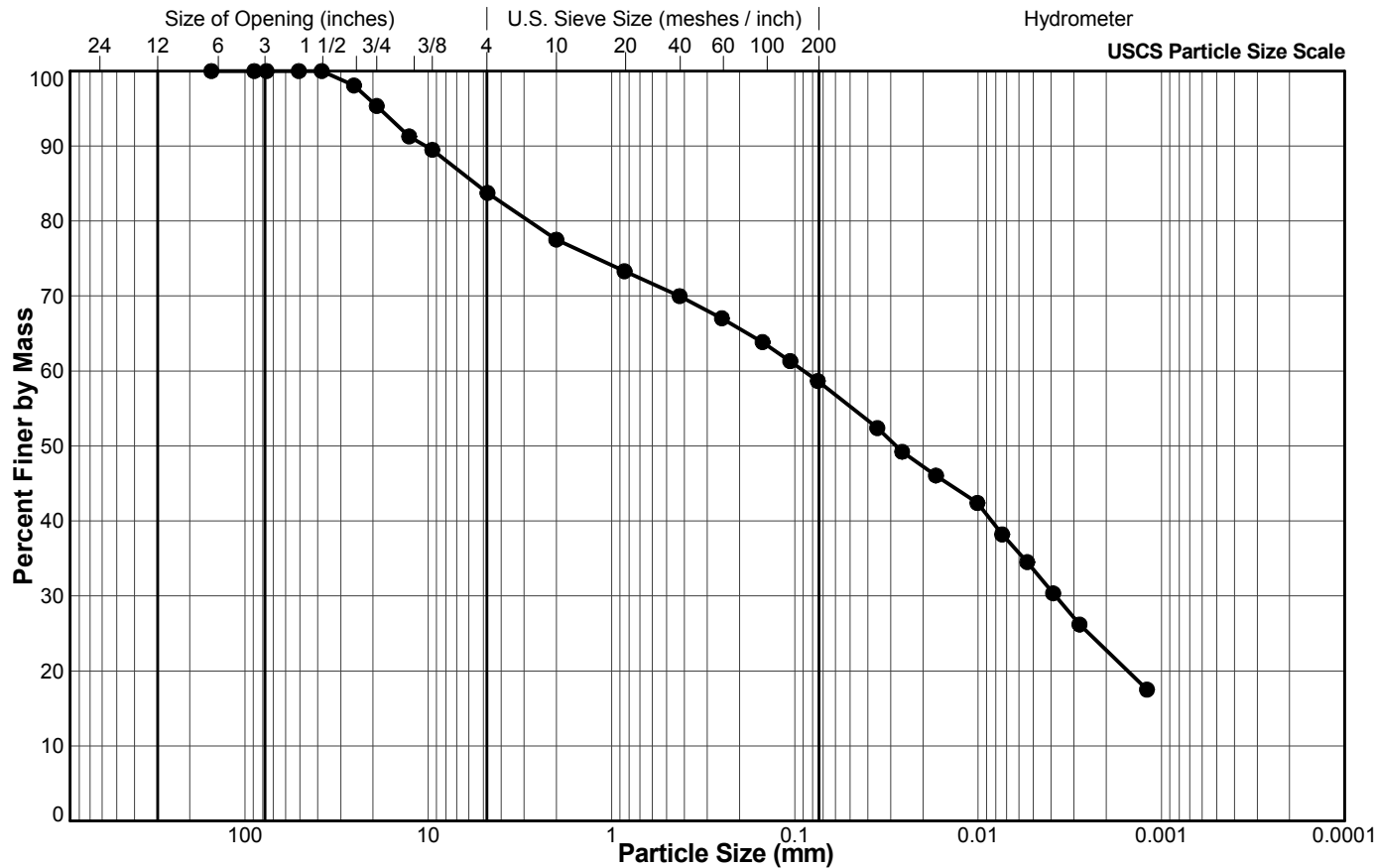
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-20S
Sample No.: 35057
Depth Interval (m): 19.80 to 20.40
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	98.1
3/4"	19.1	95.3
1/2"	12.7	91.3
3/8"	9.5	89.5
#4 US MESH	4.75	83.7
#10 US MESH	2	77.5
#20 US MESH	0.85	73.3
#40 US MESH	0.425	70.0
#60 US MESH	0.25	67.0
#100 US MESH	0.15	63.9
#140 US MESH	0.106	61.3
#200 US MESH	0.075	58.7
	0.0355	52.4
	0.0260	49.2
	0.0170	46.1
	0.0101	42.4
	0.0074	38.2
	0.0054	34.5
	0.0039	30.4
	0.0028	26.2
	0.0012	17.5

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/PE

4/26/2019

LP

5/1/2019

Tech

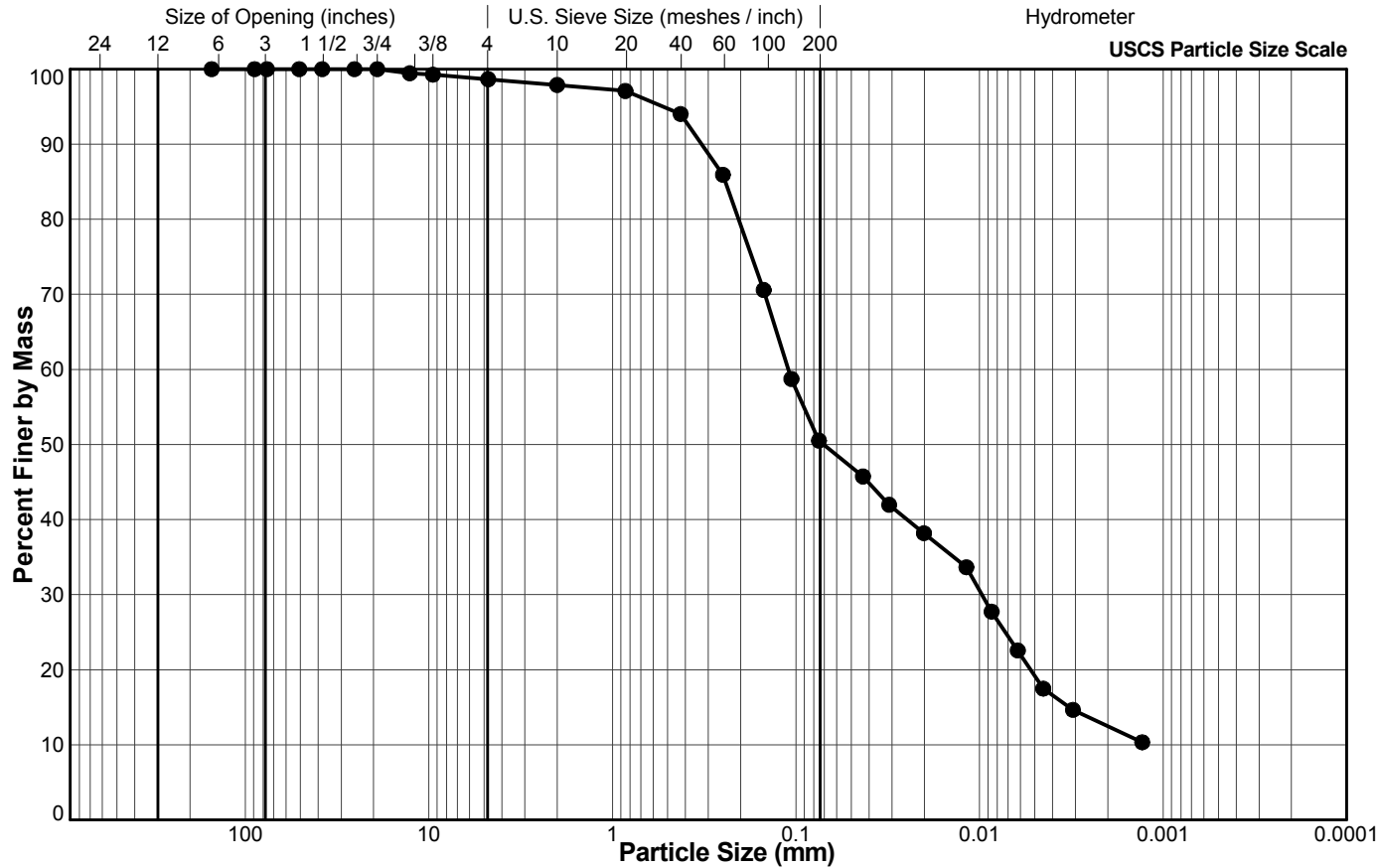
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-20S
Sample No.: 35059
Depth Interval (m): 24.40 to 25.00
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	99.5
3/8"	9.5	99.3
#4 US MESH	4.75	98.7
#10 US MESH	2	97.9
#20 US MESH	0.85	97.1
#40 US MESH	0.425	94.0
#60 US MESH	0.25	85.9
#100 US MESH	0.15	70.6
#140 US MESH	0.106	58.7
#200 US MESH	0.075	50.5
	0.0432	45.7
	0.0311	42.0
	0.0201	38.2
	0.0118	33.6
	0.0086	27.7
	0.0062	22.6
	0.0045	17.5
	0.0031	14.7
	0.0013	10.3

BOULDER		COBBLE		GRAVEL		SAND			FINES (Silt, Clay)
				Coarse	Fine	Coarse	Medium	Fine	

DC/RG

4/26/2019

LP

5/1/2019

Tech

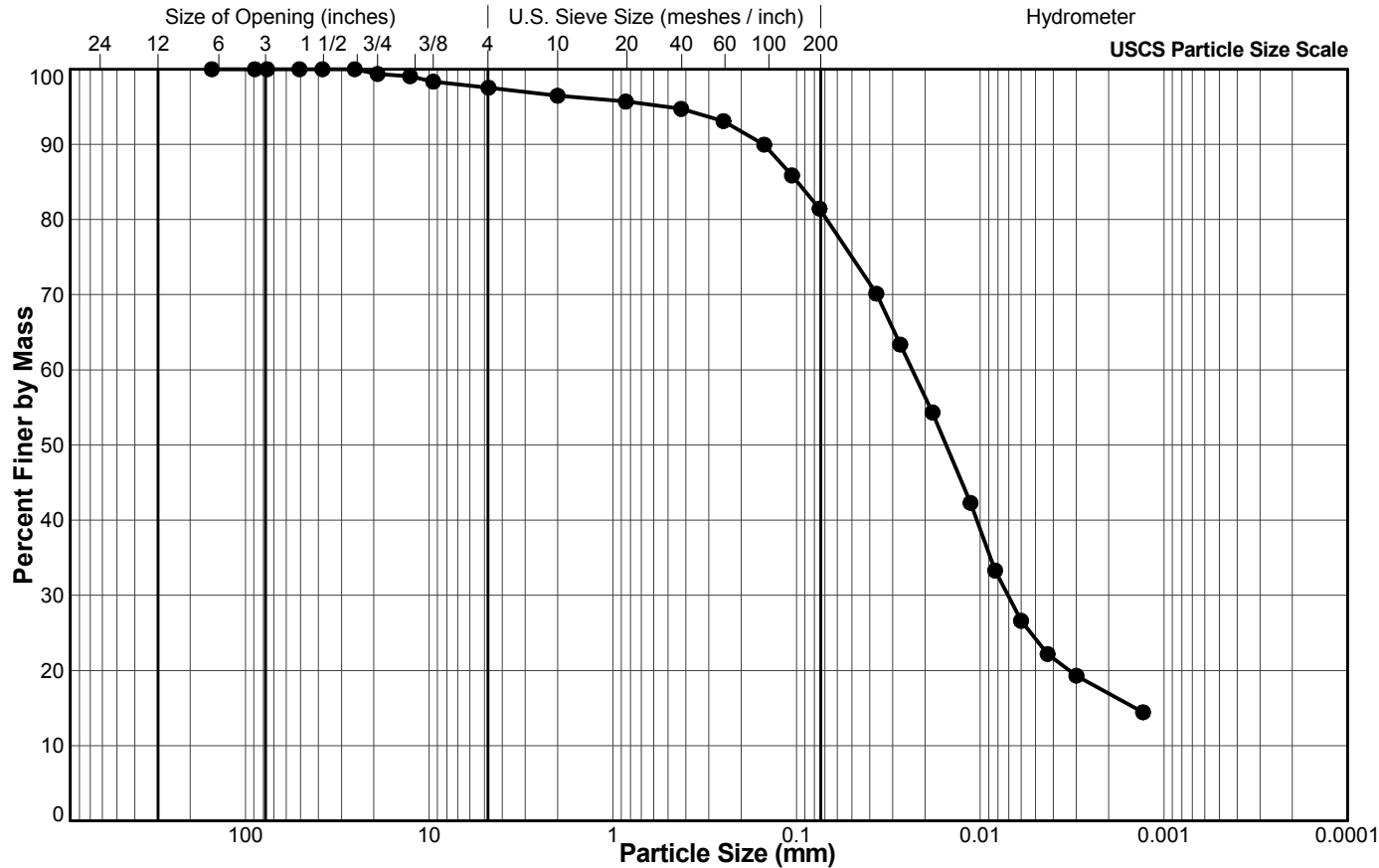
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-20S
Sample No.: 35060
Depth Interval (m): 27.40 to 28.00
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	99.4
1/2"	12.7	99.1
3/8"	9.5	98.4
#4 US MESH	4.75	97.5
#10 US MESH	2	96.5
#20 US MESH	0.85	95.7
#40 US MESH	0.425	94.7
#60 US MESH	0.25	93.1
#100 US MESH	0.15	90.0
#140 US MESH	0.106	85.9
#200 US MESH	0.075	81.5
	0.0368	70.1
	0.0273	63.4
	0.0182	54.3
	0.0113	42.3
	0.0083	33.3
	0.0060	26.6
	0.0043	22.2
	0.0030	19.3
	0.0013	14.4

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/FF

4/26/2019

LP

5/1/2019

Tech

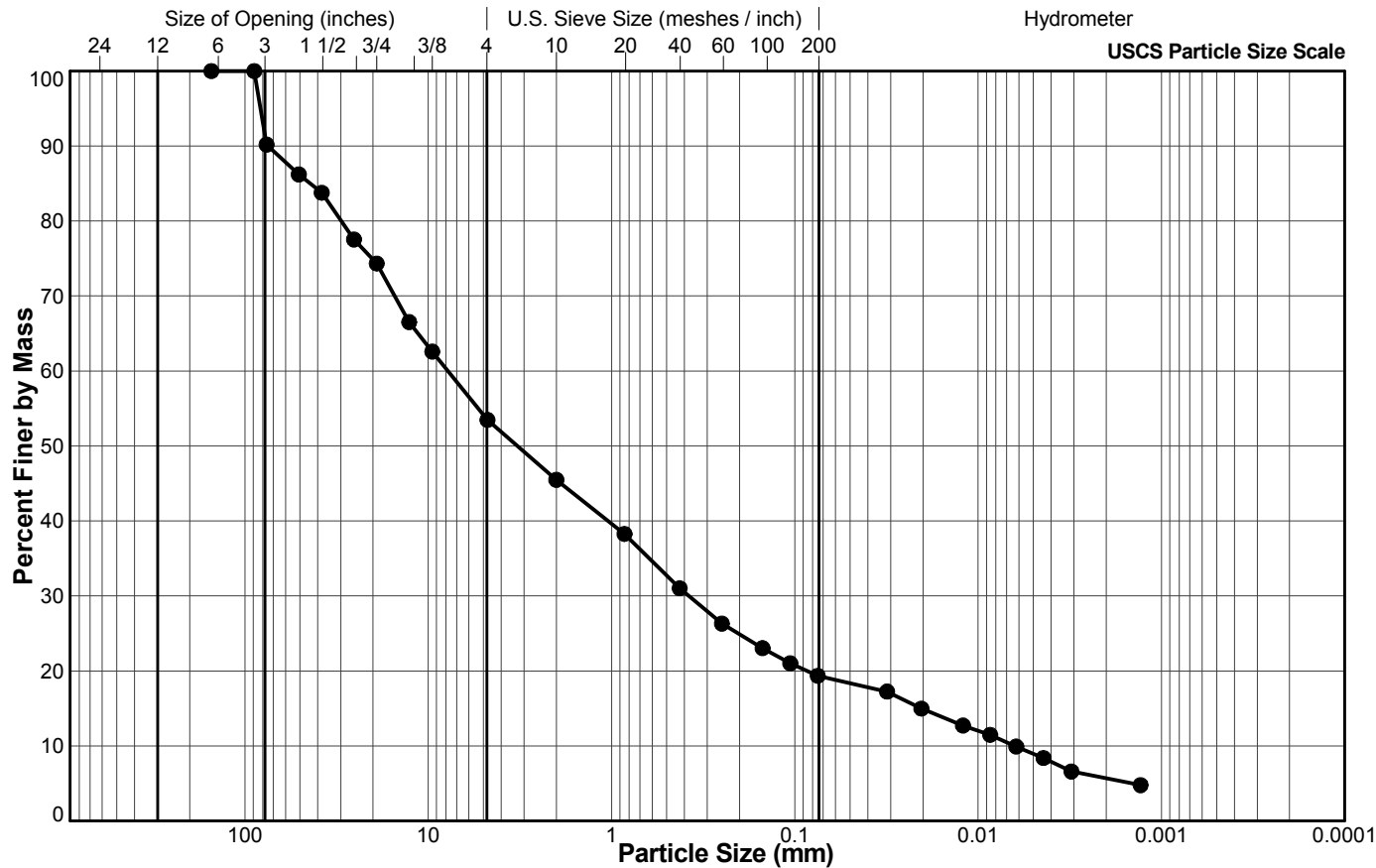
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-20S
Sample No.: 35061
Depth Interval (m): 32.60 to 33.20
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	90.2
2"	50.8	86.2
1 1/2"	38.1	83.8
1"	25.4	77.5
3/4"	19.1	74.3
1/2"	12.7	66.5
3/8"	9.5	62.6
#4 US MESH	4.75	53.5
#10 US MESH	2	45.5
#20 US MESH	0.85	38.3
#40 US MESH	0.425	31.0
#60 US MESH	0.25	26.3
#100 US MESH	0.15	23.0
#140 US MESH	0.106	21.0
#200 US MESH	0.075	19.3
	0.0314	17.2
	0.0204	15.0
	0.0121	12.7
	0.0086	11.5
	0.0062	9.9
	0.0044	8.4
	0.0031	6.6
	0.0013	4.8

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/PE

4/29/2019

LP

5/1/2019

Tech

Date

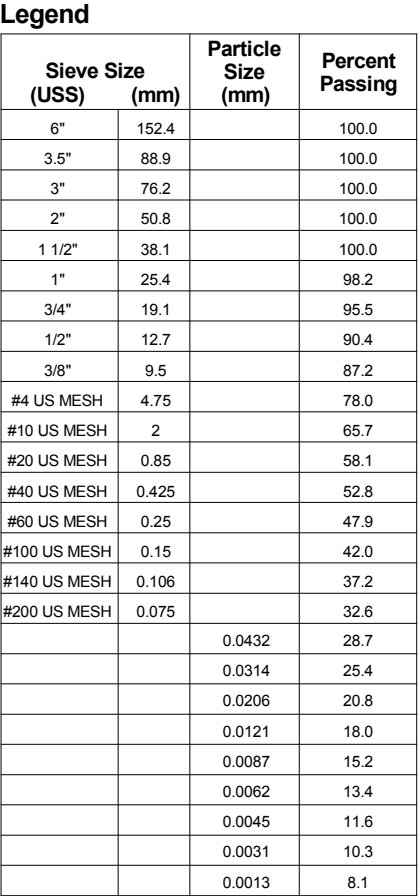
Checked

Date



Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

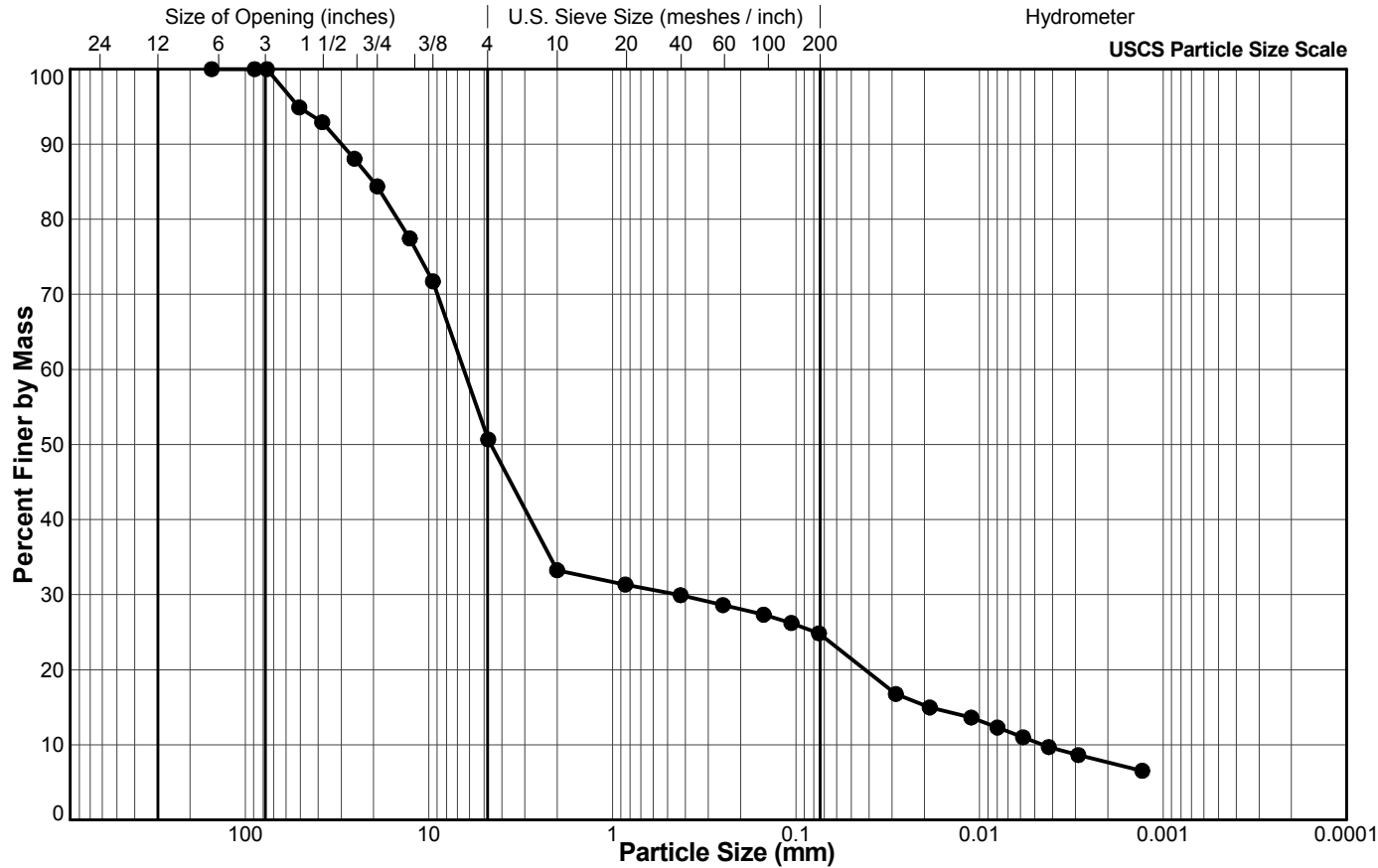
Sample Location: 19-20S
Sample No.: 35062
Depth Interval (m): 35.70 to 36.30
Lab Schedule No.:



DC/FF	4/26/2019	LP	5/1/2019
Tech	Date	Checked	Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-20S
Sample No.: 35063
Depth Interval (m): 42.10 to 42.70
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	94.9
1 1/2"	38.1	92.9
1"	25.4	88.1
3/4"	19.1	84.4
1/2"	12.7	77.4
3/8"	9.5	71.7
#4 US MESH	4.75	50.7
#10 US MESH	2	33.2
#20 US MESH	0.85	31.3
#40 US MESH	0.425	29.9
#60 US MESH	0.25	28.6
#100 US MESH	0.15	27.3
#140 US MESH	0.106	26.2
#200 US MESH	0.075	24.8
	0.0286	16.8
	0.0187	15.0
	0.0111	13.6
	0.0080	12.3
	0.0058	11.0
	0.0042	9.7
	0.0029	8.6
	0.0013	6.5

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/PE

4/29/2019

LP

5/1/2019

Tech

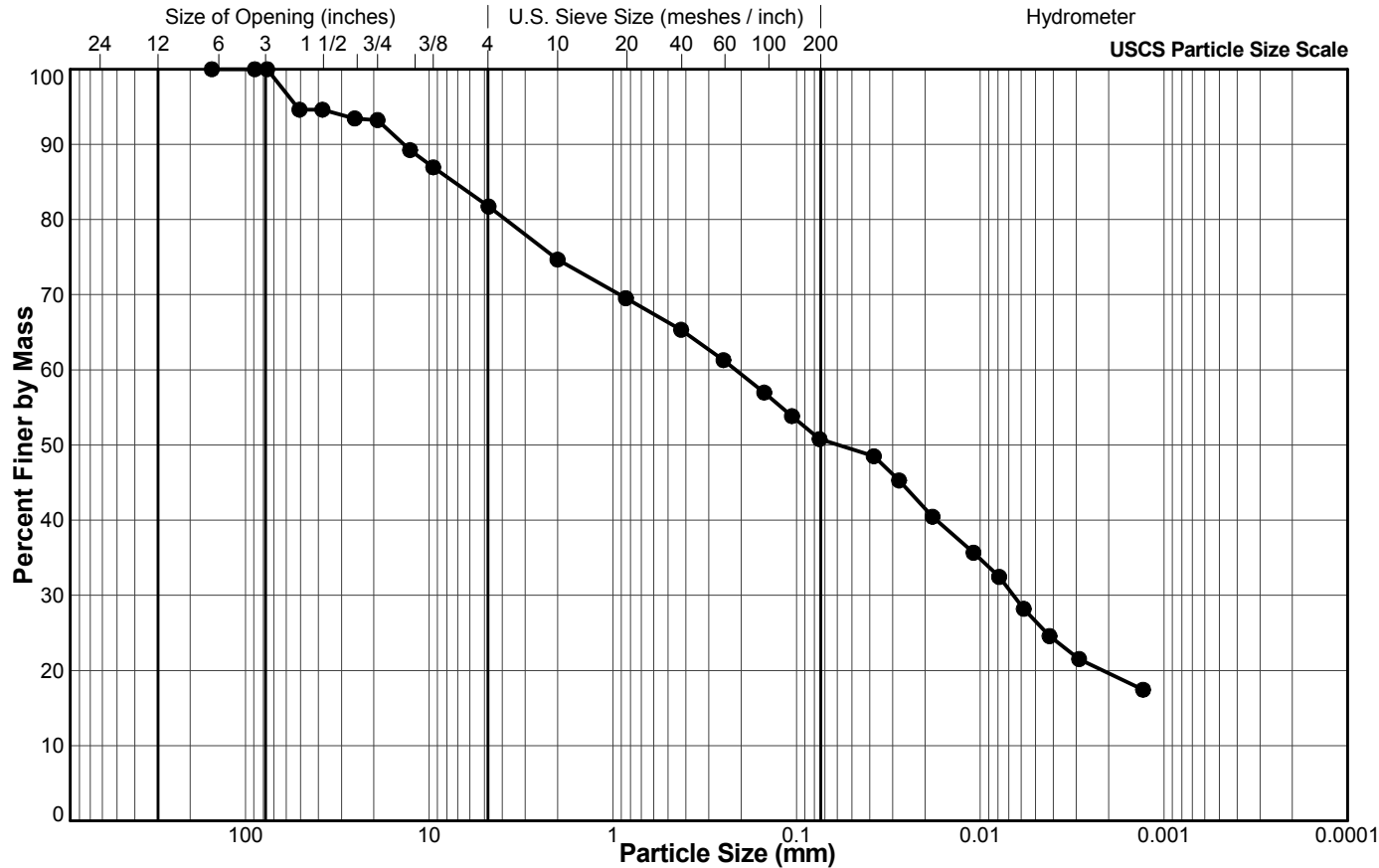
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-23S
Sample No.: 29676
Depth Interval (m): 1.10 to 1.50
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	94.6
1 1/2"	38.1	94.6
1"	25.4	93.5
3/4"	19.1	93.2
1/2"	12.7	89.2
3/8"	9.5	86.9
#4 US MESH	4.75	81.7
#10 US MESH	2	74.7
#20 US MESH	0.85	69.5
#40 US MESH	0.425	65.3
#60 US MESH	0.25	61.3
#100 US MESH	0.15	57.0
#140 US MESH	0.106	53.8
#200 US MESH	0.075	50.8
	0.0380	48.5
	0.0277	45.3
	0.0182	40.5
	0.0109	35.7
	0.0079	32.5
	0.0058	28.2
	0.0042	24.6
	0.0029	21.5
	0.0013	17.4

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/PE

4/30/2019

LP

5/1/2019

Tech

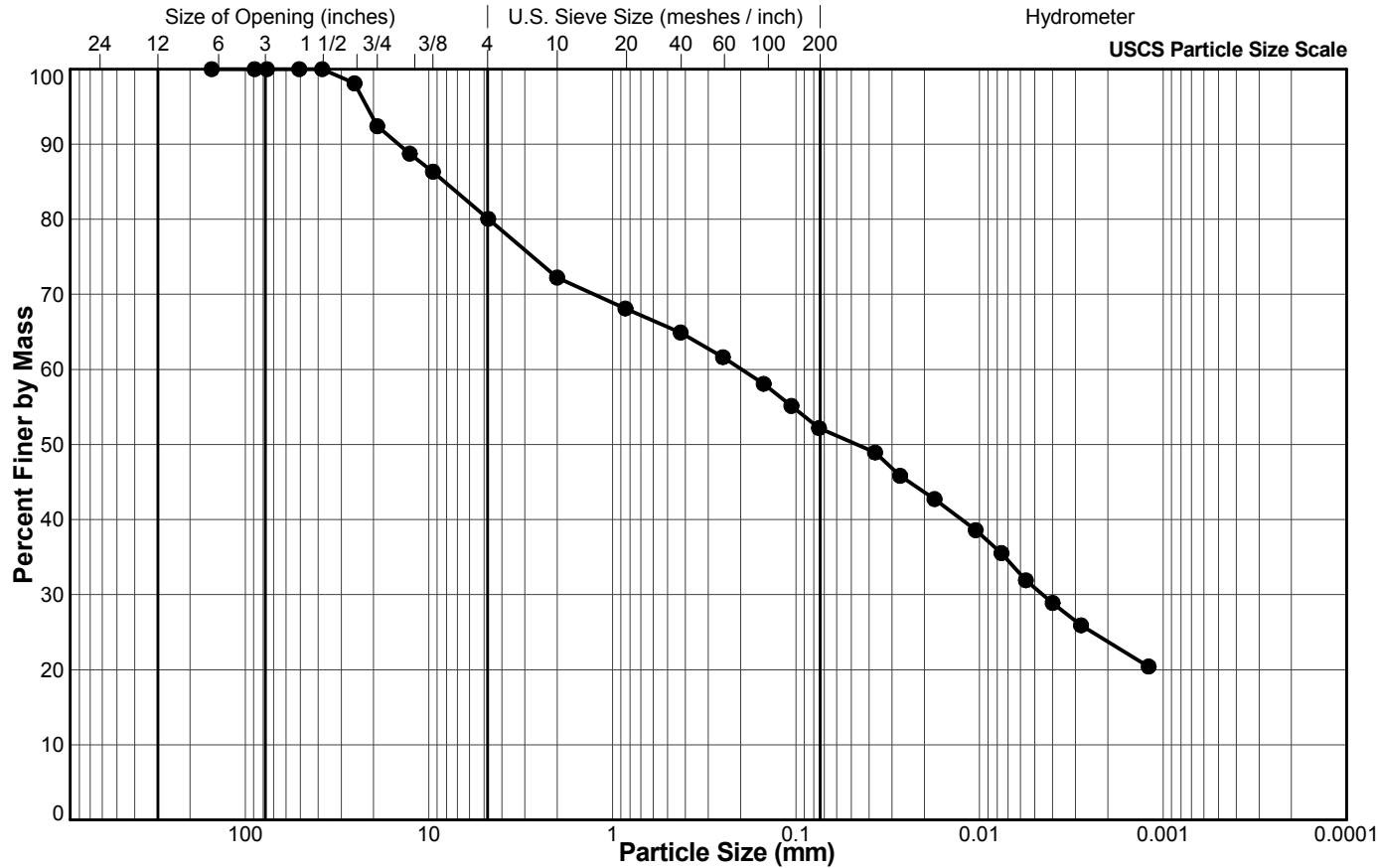
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-24S
Sample No.: 29682
Depth Interval (m): 7.00 to 7.60
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	98.1
3/4"	19.1	92.4
1/2"	12.7	88.7
3/8"	9.5	86.3
#4 US MESH	4.75	80.1
#10 US MESH	2	72.2
#20 US MESH	0.85	68.1
#40 US MESH	0.425	64.9
#60 US MESH	0.25	61.6
#100 US MESH	0.15	58.1
#140 US MESH	0.106	55.1
#200 US MESH	0.075	52.2
	0.0371	48.9
	0.0271	45.8
	0.0176	42.7
	0.0105	38.6
	0.0076	35.5
	0.0056	31.9
	0.0040	28.9
	0.0028	25.9
	0.0012	20.4

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/PE

4/30/2019

LP

5/1/2019

Tech

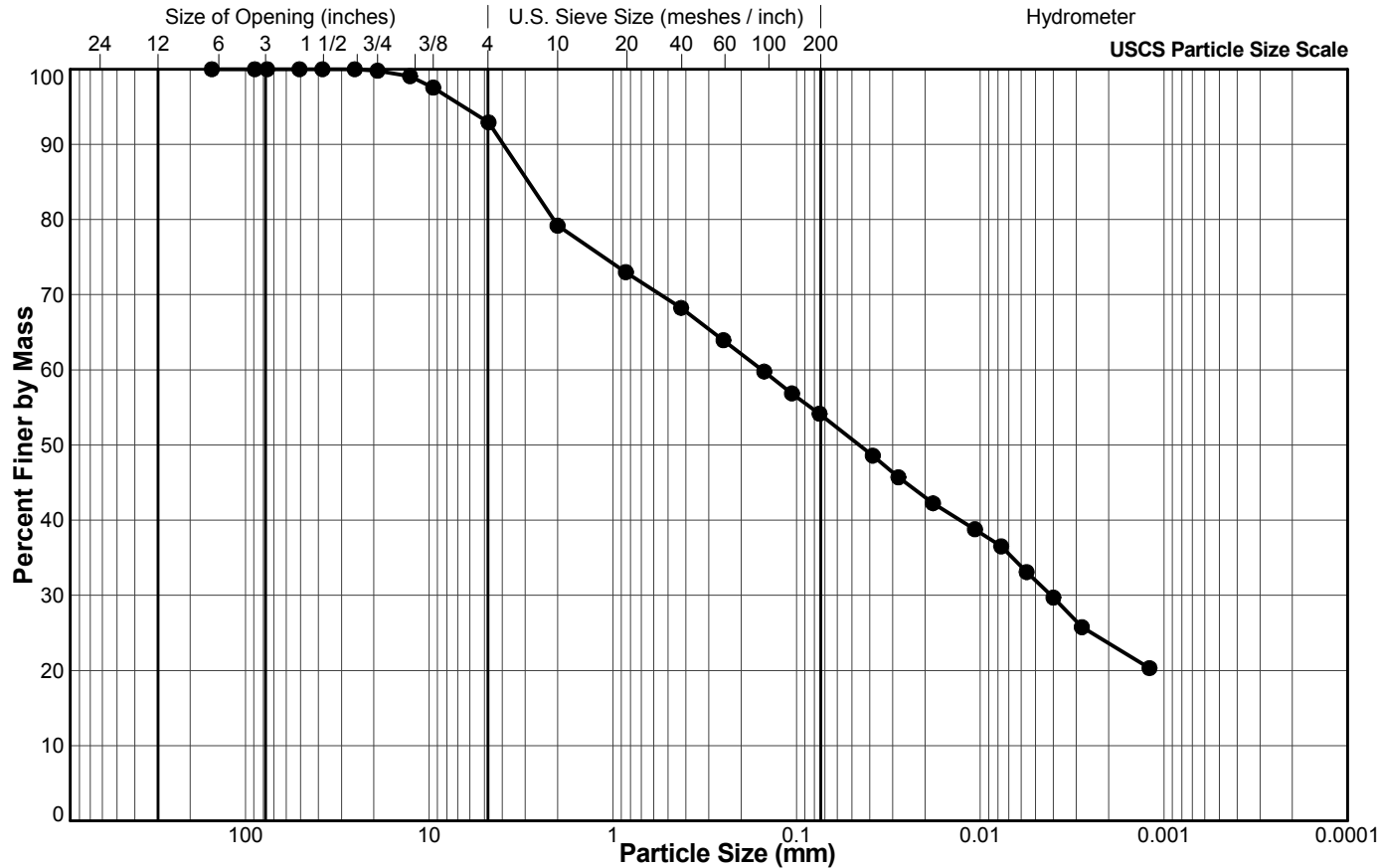
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-24S
Sample No.: 29685
Depth Interval (m): 16.20 to 16.80
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	99.8
1/2"	12.7	99.1
3/8"	9.5	97.6
#4 US MESH	4.75	92.9
#10 US MESH	2	79.2
#20 US MESH	0.85	73.0
#40 US MESH	0.425	68.2
#60 US MESH	0.25	63.9
#100 US MESH	0.15	59.8
#140 US MESH	0.106	56.9
#200 US MESH	0.075	54.2
	0.0385	48.6
	0.0279	45.7
	0.0181	42.2
	0.0107	38.8
	0.0077	36.5
	0.0056	33.1
	0.0040	29.7
	0.0028	25.8
	0.0012	20.3

BOULDER		COBBLE		GRAVEL		SAND			FINES (Silt, Clay)
				Coarse	Fine	Coarse	Medium	Fine	

DC/PE

4/30/2019

LP

5/1/2019

Tech

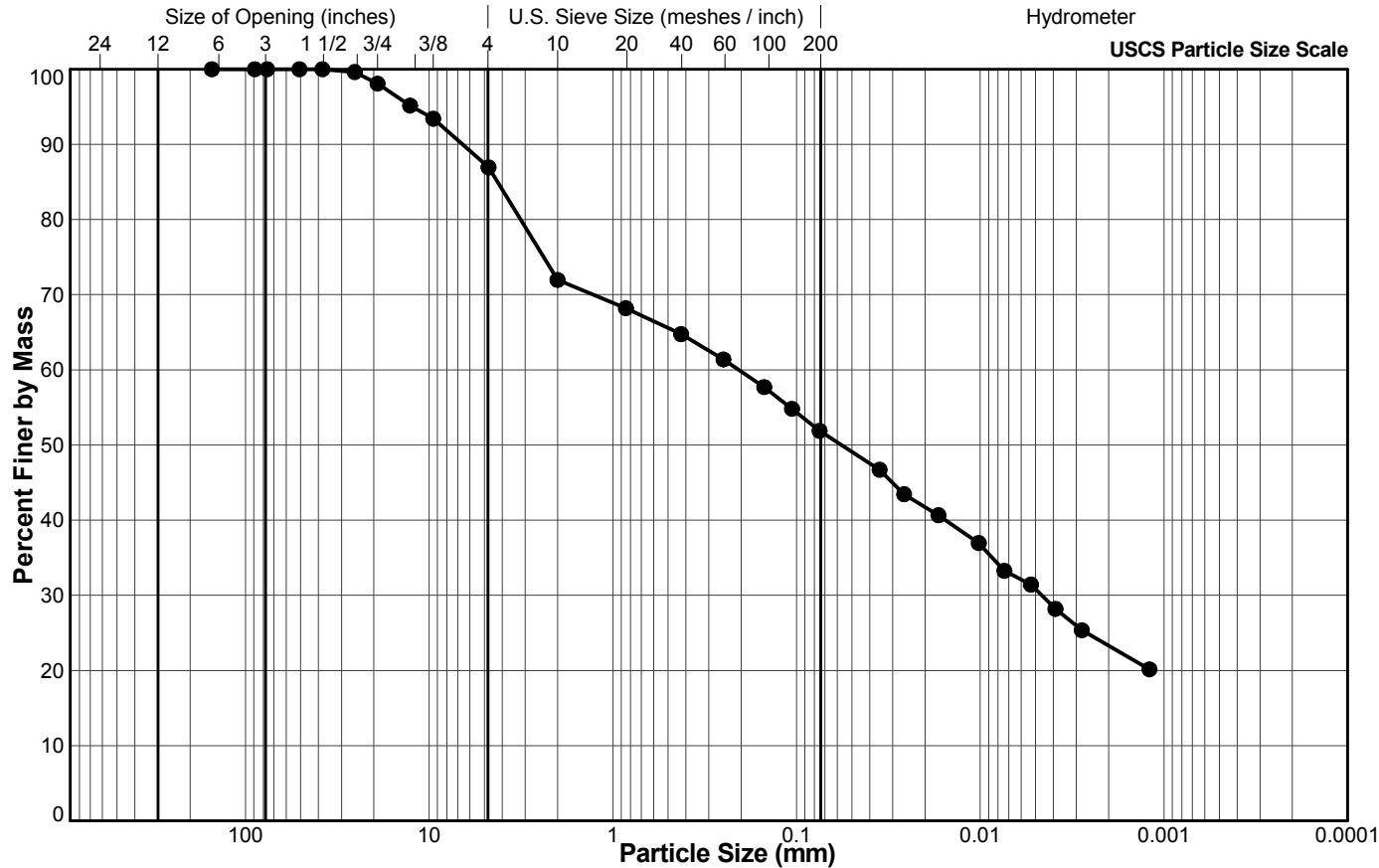
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-25S
Sample No.: 29689
Depth Interval (m): 8.20 to 8.80
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	99.6
3/4"	19.1	98.1
1/2"	12.7	95.2
3/8"	9.5	93.4
#4 US MESH	4.75	86.9
#10 US MESH	2	72.0
#20 US MESH	0.85	68.2
#40 US MESH	0.425	64.8
#60 US MESH	0.25	61.4
#100 US MESH	0.15	57.7
#140 US MESH	0.106	54.8
#200 US MESH	0.075	51.9
	0.0353	46.7
	0.0260	43.4
	0.0169	40.7
	0.0102	37.0
	0.0074	33.3
	0.0053	31.4
	0.0039	28.2
	0.0028	25.4
	0.0012	20.2

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/PE

5/2/2019

LP

5/6/2019

Tech

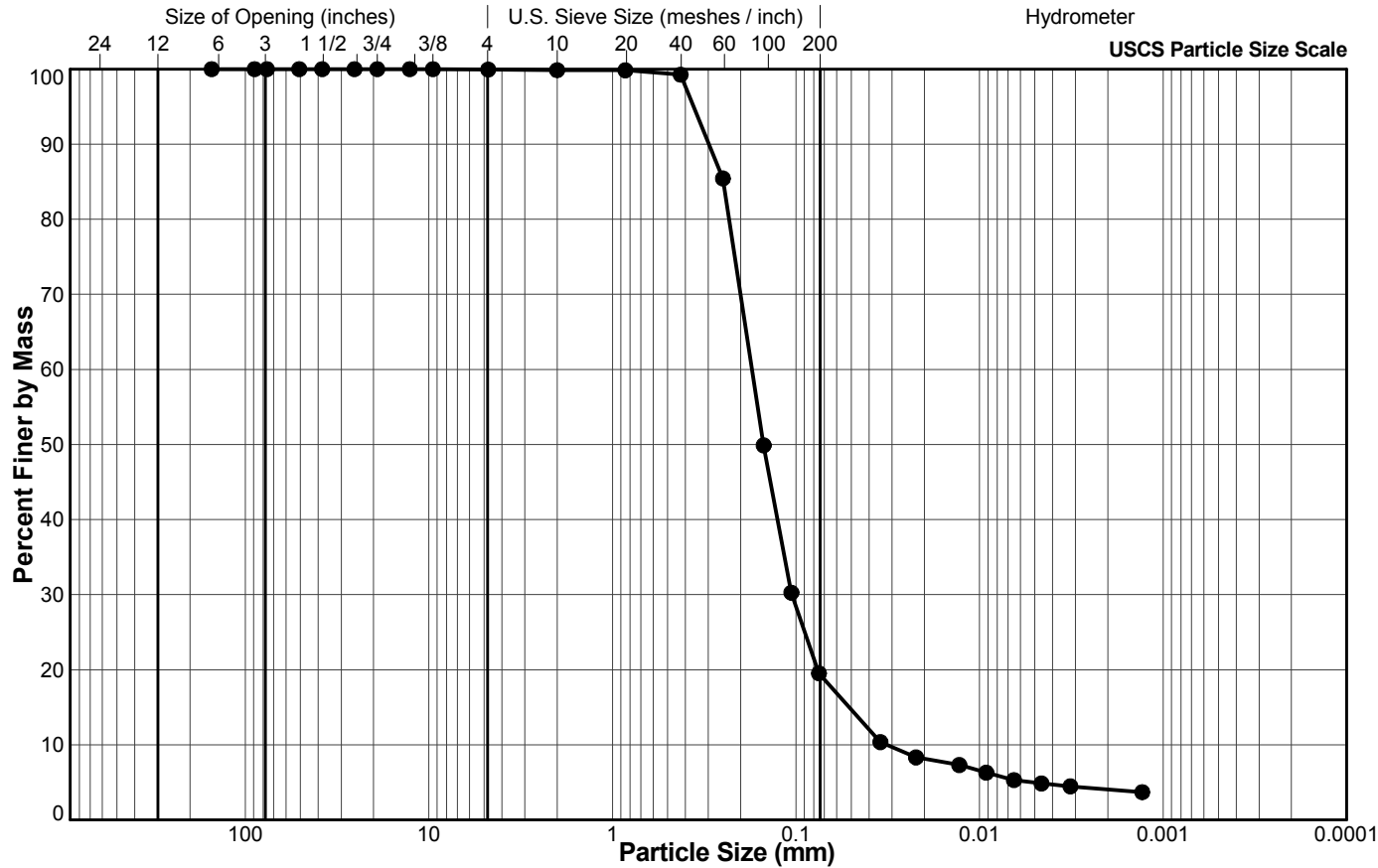
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-26S
Sample No.: 29591
Depth Interval (m): 51.20 to 51.80
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	100.0
3/8"	9.5	100.0
#4 US MESH	4.75	99.9
#10 US MESH	2	99.9
#20 US MESH	0.85	99.8
#40 US MESH	0.425	99.3
#60 US MESH	0.25	85.4
#100 US MESH	0.15	49.9
#140 US MESH	0.106	30.3
#200 US MESH	0.075	19.5
	0.0347	10.4
	0.0222	8.3
	0.0129	7.3
	0.0092	6.3
	0.0065	5.3
	0.0046	4.9
	0.0032	4.5
	0.0013	3.7

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/PE

4/30/2019

LP

5/1/2019

Tech

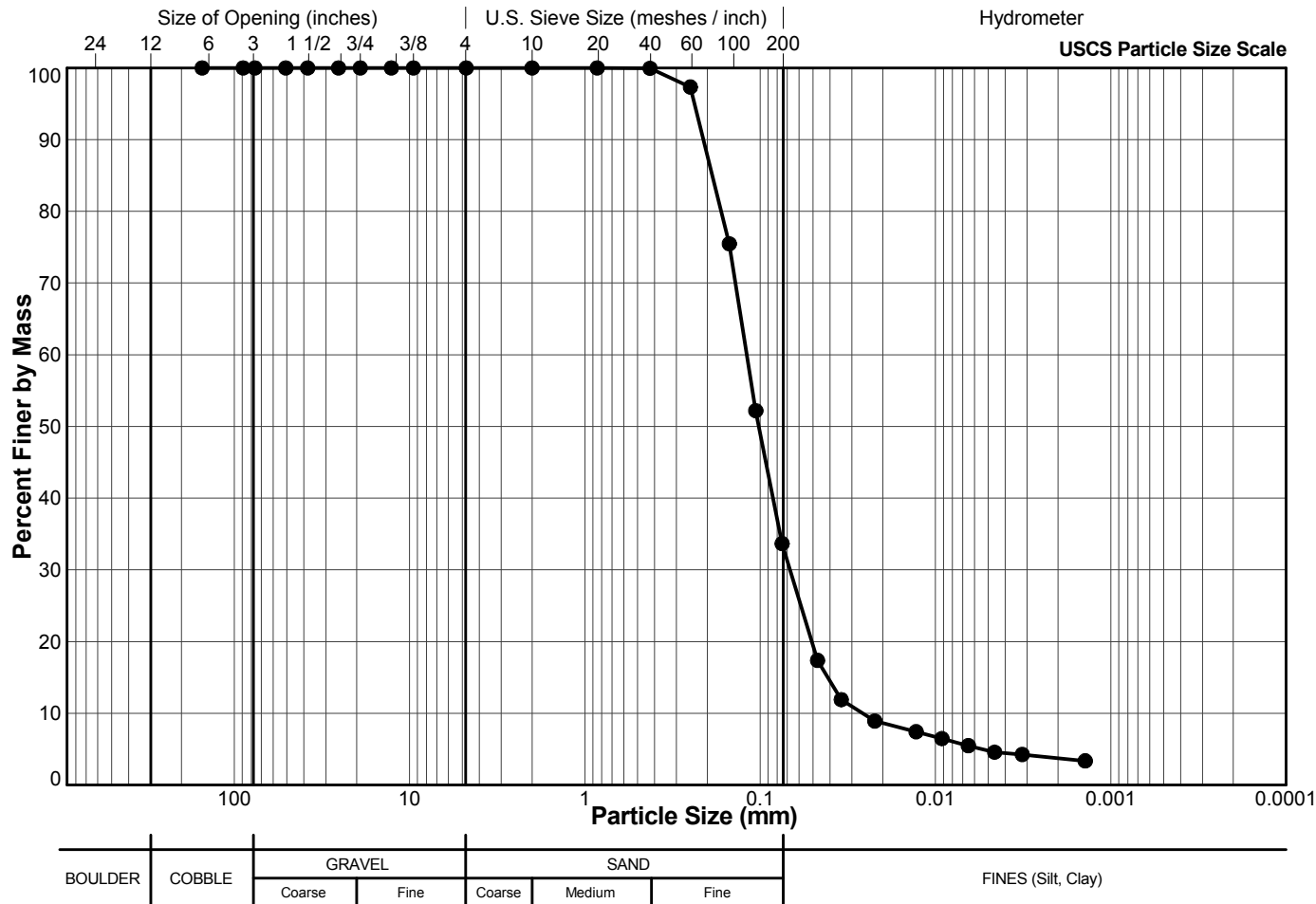
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-27S
Sample No.: 29603
Depth Interval (m): 29.60 to 30.20
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	100.0
3/8"	9.5	100.0
#4 US MESH	4.75	100.0
#10 US MESH	2	100.0
#20 US MESH	0.85	100.0
#40 US MESH	0.425	99.9
#60 US MESH	0.25	97.3
#100 US MESH	0.15	75.5
#140 US MESH	0.106	52.2
#200 US MESH	0.075	33.7
	0.0471	17.4
	0.0345	11.9
	0.0222	8.9
	0.0129	7.4
	0.0092	6.5
	0.0065	5.5
	0.0046	4.6
	0.0032	4.3
	0.0014	3.4

DC/KS

4/30/2019

LP

5/1/2019

Tech

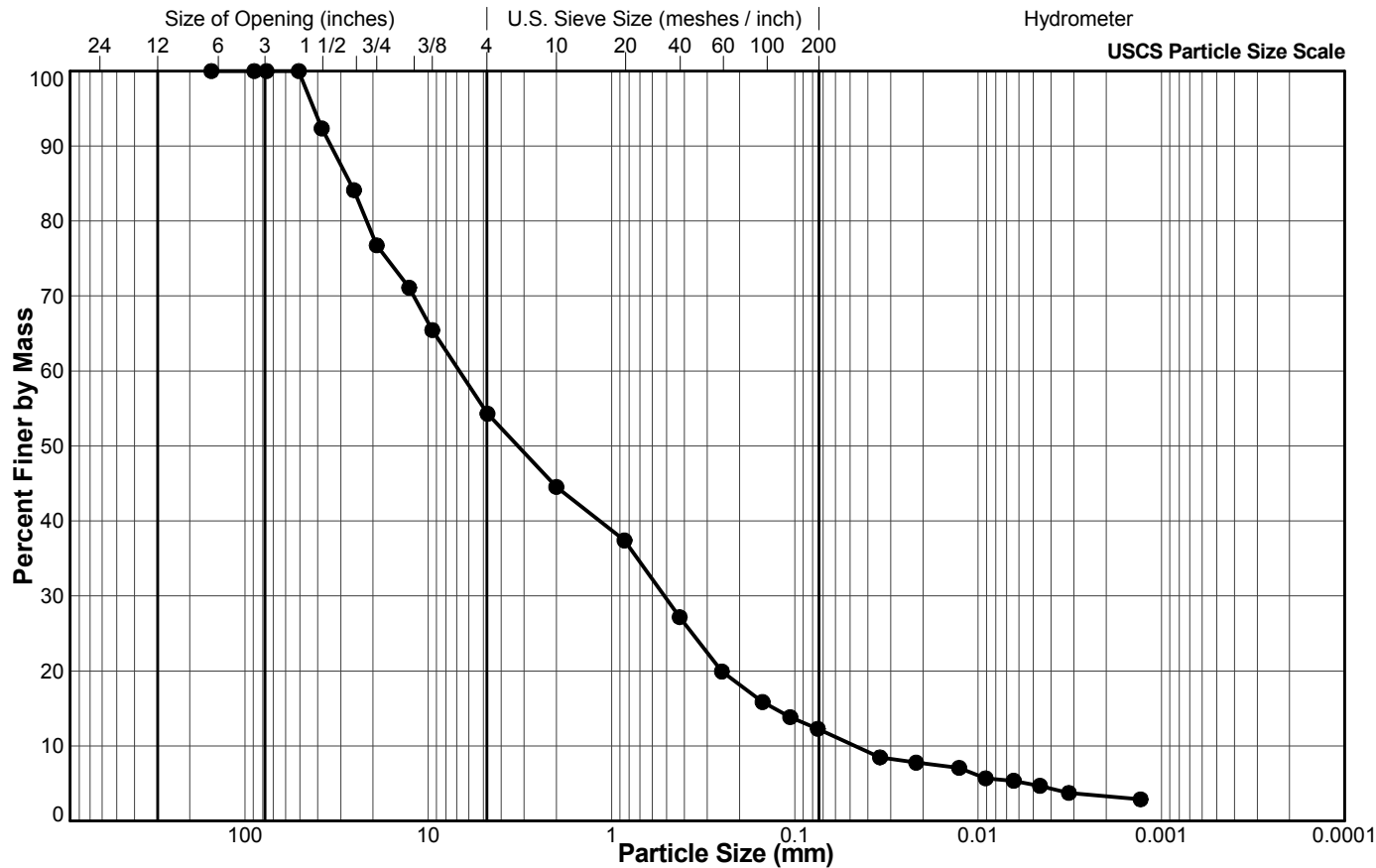
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-27S
Sample No.: 29604
Depth Interval (m): 32.90 to 33.50
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	92.4
1"	25.4	84.1
3/4"	19.1	76.8
1/2"	12.7	71.1
3/8"	9.5	65.5
#4 US MESH	4.75	54.3
#10 US MESH	2	44.5
#20 US MESH	0.85	37.4
#40 US MESH	0.425	27.2
#60 US MESH	0.25	19.9
#100 US MESH	0.15	15.9
#140 US MESH	0.106	13.8
#200 US MESH	0.075	12.3
	0.0343	8.5
	0.0218	7.8
	0.0127	7.1
	0.0091	5.7
	0.0064	5.4
	0.0046	4.7
	0.0032	3.7
	0.0013	2.9

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/PE

4/30/2019

LP

5/1/2019

Tech

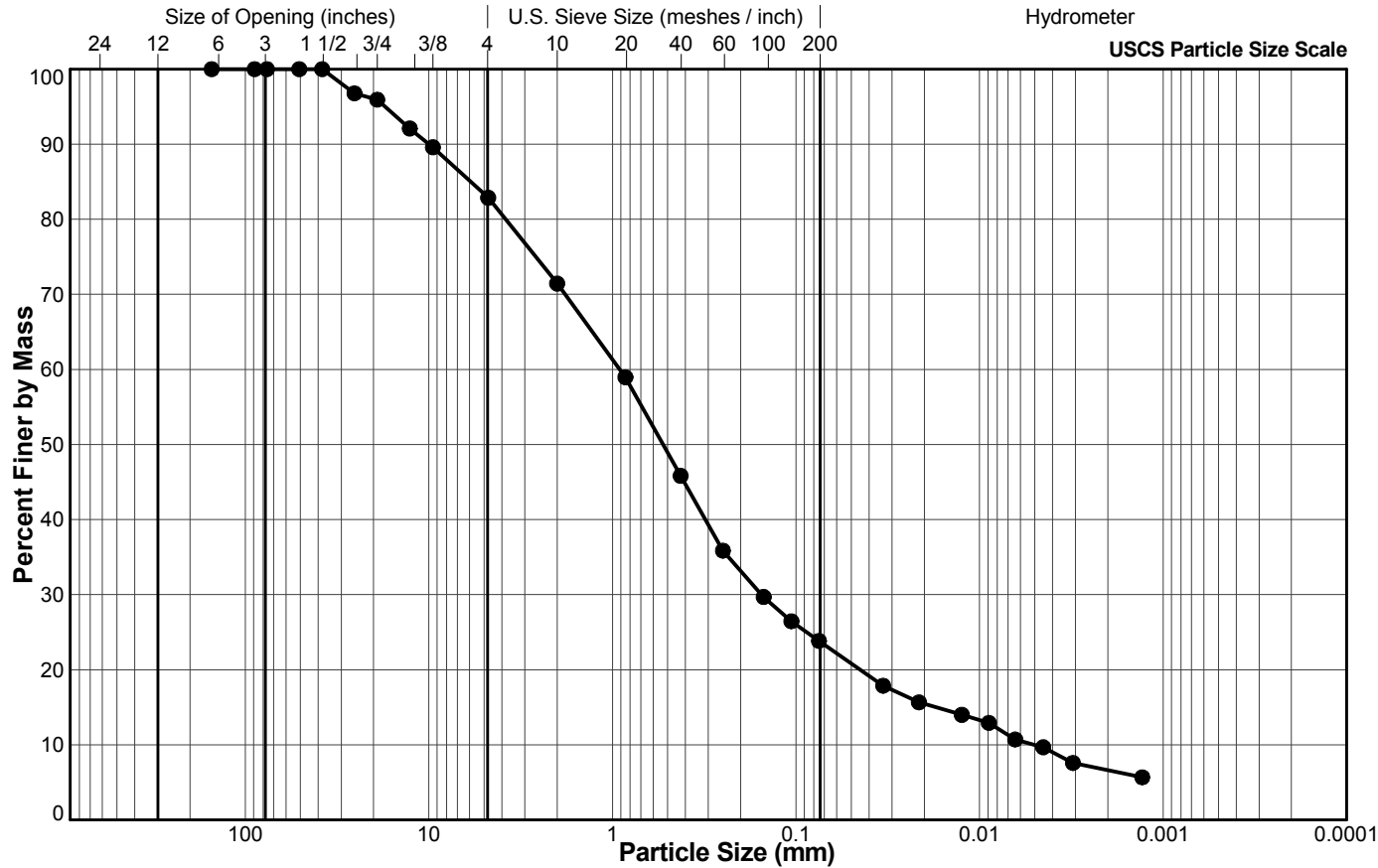
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-27S
Sample No.: 29605
Depth Interval (m): 35.70 to 36.30
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	96.8
3/4"	19.1	95.9
1/2"	12.7	92.1
3/8"	9.5	89.6
#4 US MESH	4.75	82.9
#10 US MESH	2	71.4
#20 US MESH	0.85	59.0
#40 US MESH	0.425	45.8
#60 US MESH	0.25	35.9
#100 US MESH	0.15	29.7
#140 US MESH	0.106	26.5
#200 US MESH	0.075	23.8
	0.0335	17.9
	0.0214	15.7
	0.0125	14.0
	0.0089	12.9
	0.0064	10.7
	0.0045	9.7
	0.0031	7.6
	0.0013	5.7

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/PE

4/30/2019

LP

5/1/2019

Tech

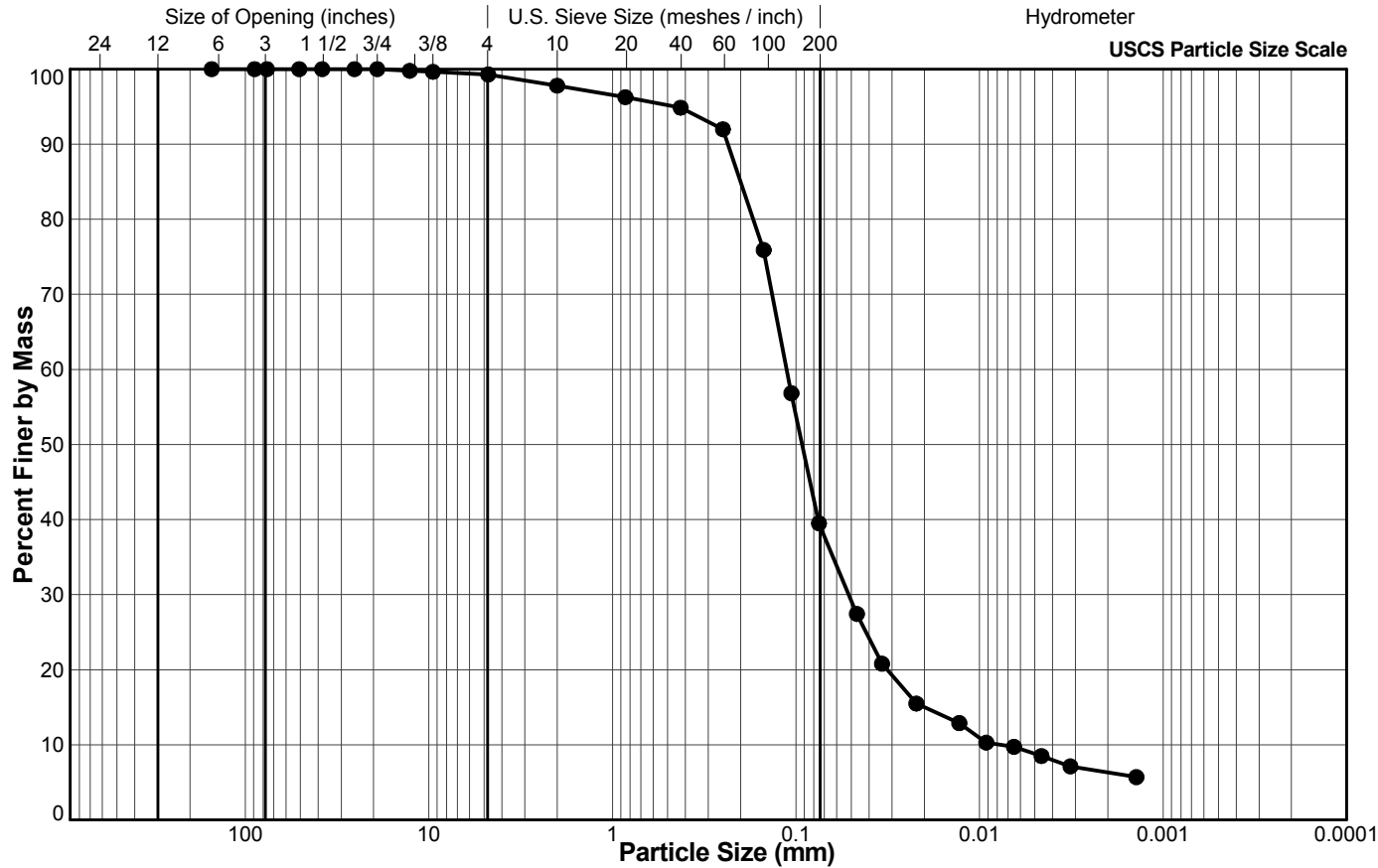
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-27S
Sample No.: 29606
Depth Interval (m): 41.50 to 42.10
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	100.0
3/4"	19.1	100.0
1/2"	12.7	99.8
3/8"	9.5	99.6
#4 US MESH	4.75	99.3
#10 US MESH	2	97.8
#20 US MESH	0.85	96.3
#40 US MESH	0.425	94.9
#60 US MESH	0.25	92.0
#100 US MESH	0.15	75.9
#140 US MESH	0.106	56.8
#200 US MESH	0.075	39.5
	0.0466	27.4
	0.0340	20.8
	0.0221	15.5
	0.0129	12.9
	0.0092	10.3
	0.0065	9.7
	0.0046	8.5
	0.0032	7.1
	0.0014	5.7

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/PE

5/2/2019

LP

5/6/2019

Tech

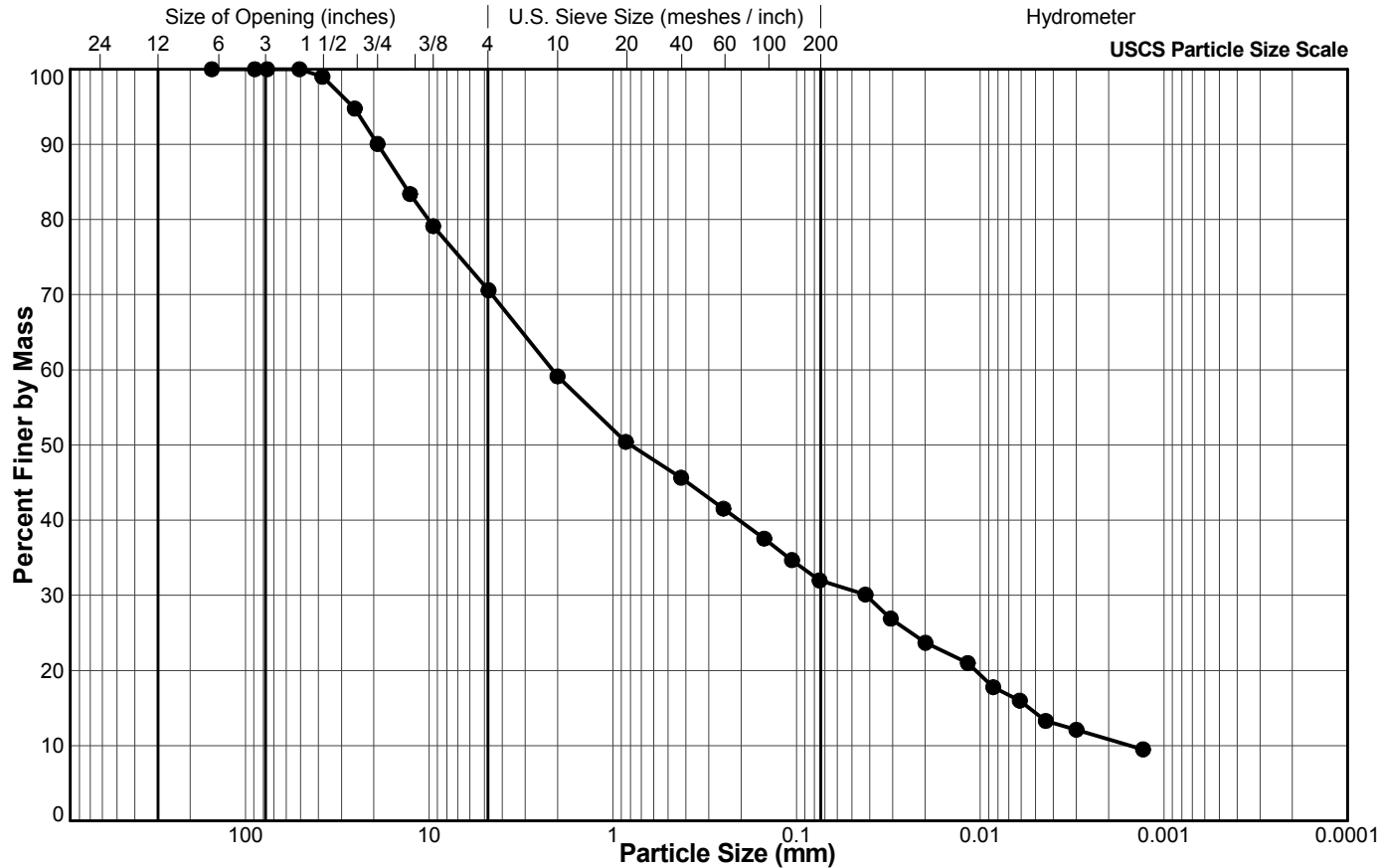
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-48TP
Sample No.: 29669
Depth Interval (m): 0.50 to 0.70
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	99.0
1"	25.4	94.8
3/4"	19.1	90.1
1/2"	12.7	83.4
3/8"	9.5	79.1
#4 US MESH	4.75	70.6
#10 US MESH	2	59.1
#20 US MESH	0.85	50.4
#40 US MESH	0.425	45.6
#60 US MESH	0.25	41.5
#100 US MESH	0.15	37.5
#140 US MESH	0.106	34.7
#200 US MESH	0.075	32.0
	0.0422	30.1
	0.0307	26.9
	0.0199	23.7
	0.0117	21.0
	0.0085	17.8
	0.0061	16.0
	0.0044	13.3
	0.0030	12.1
	0.0013	9.5

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/PE

4/30/2019

LP

5/1/2019

Tech

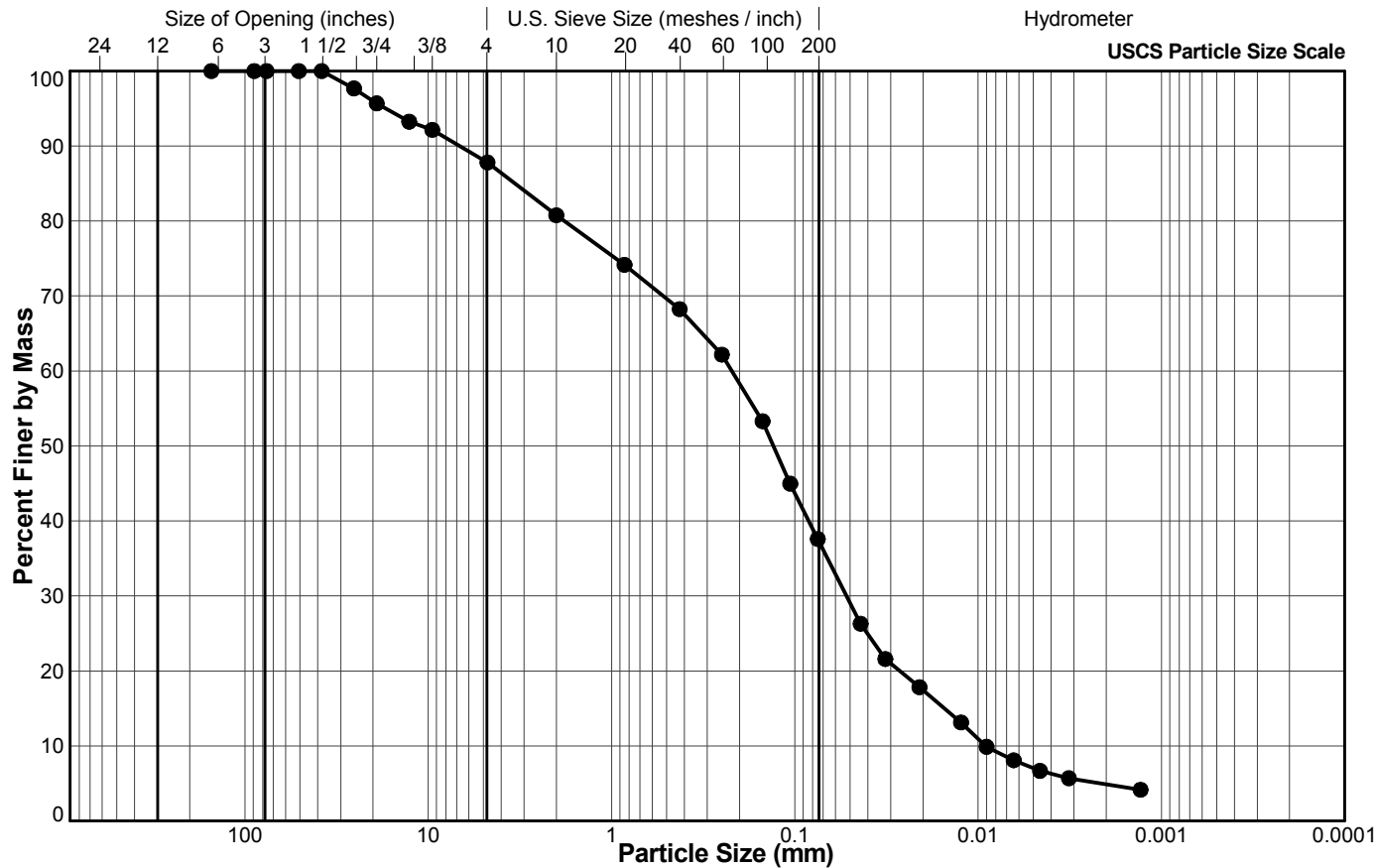
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-49TP
Sample No.: 29672
Depth Interval (m): 0.00 to 0.20
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	97.7
3/4"	19.1	95.7
1/2"	12.7	93.2
3/8"	9.5	92.2
#4 US MESH	4.75	87.8
#10 US MESH	2	80.8
#20 US MESH	0.85	74.2
#40 US MESH	0.425	68.2
#60 US MESH	0.25	62.2
#100 US MESH	0.15	53.3
#140 US MESH	0.106	45.0
#200 US MESH	0.075	37.6
	0.0438	26.3
	0.0321	21.6
	0.0209	17.8
	0.0124	13.1
	0.0090	9.9
	0.0064	8.1
	0.0046	6.7
	0.0032	5.7
	0.0013	4.2

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/PE

5/2/2019

LP

5/6/2019

Tech

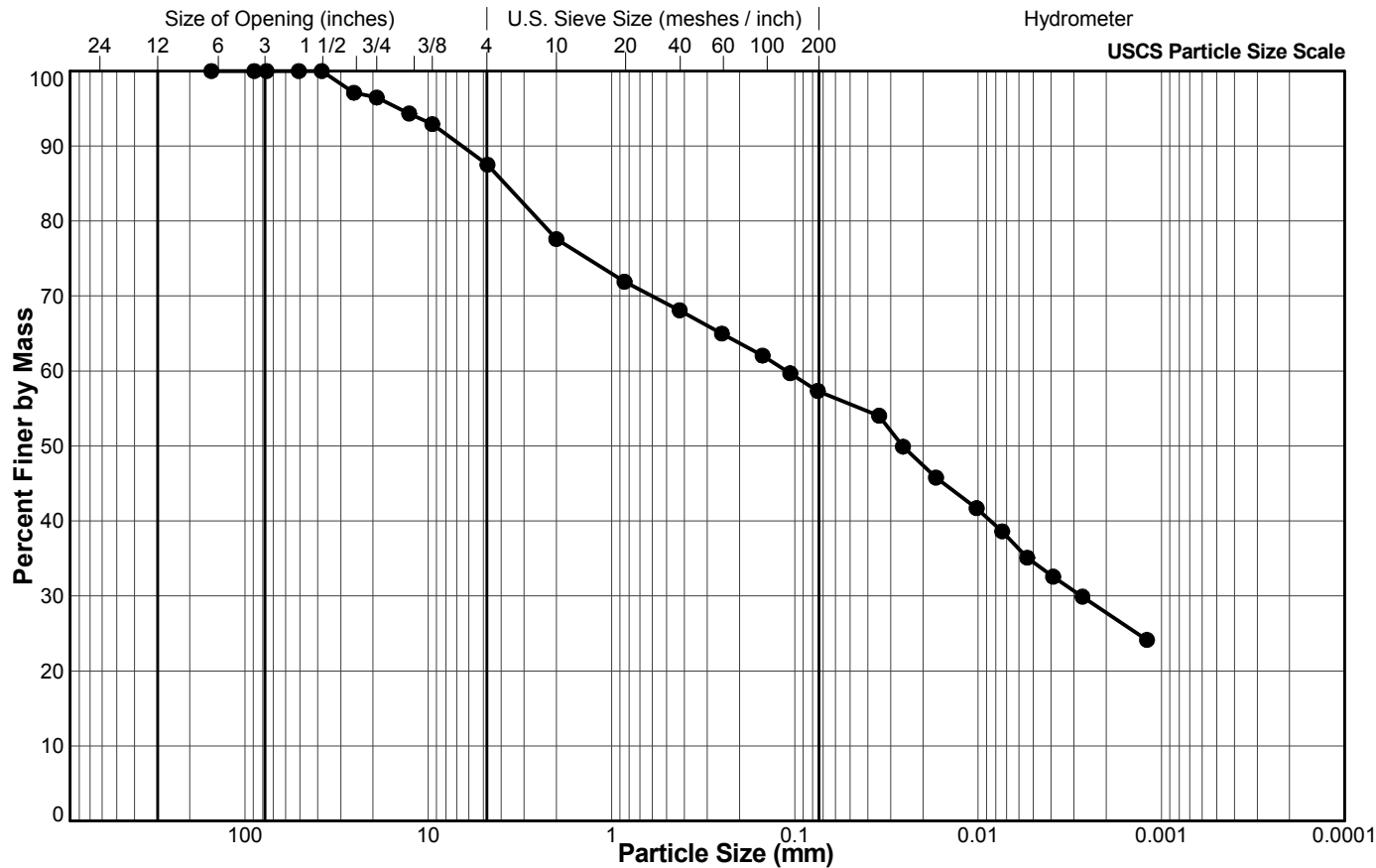
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Checked

Date

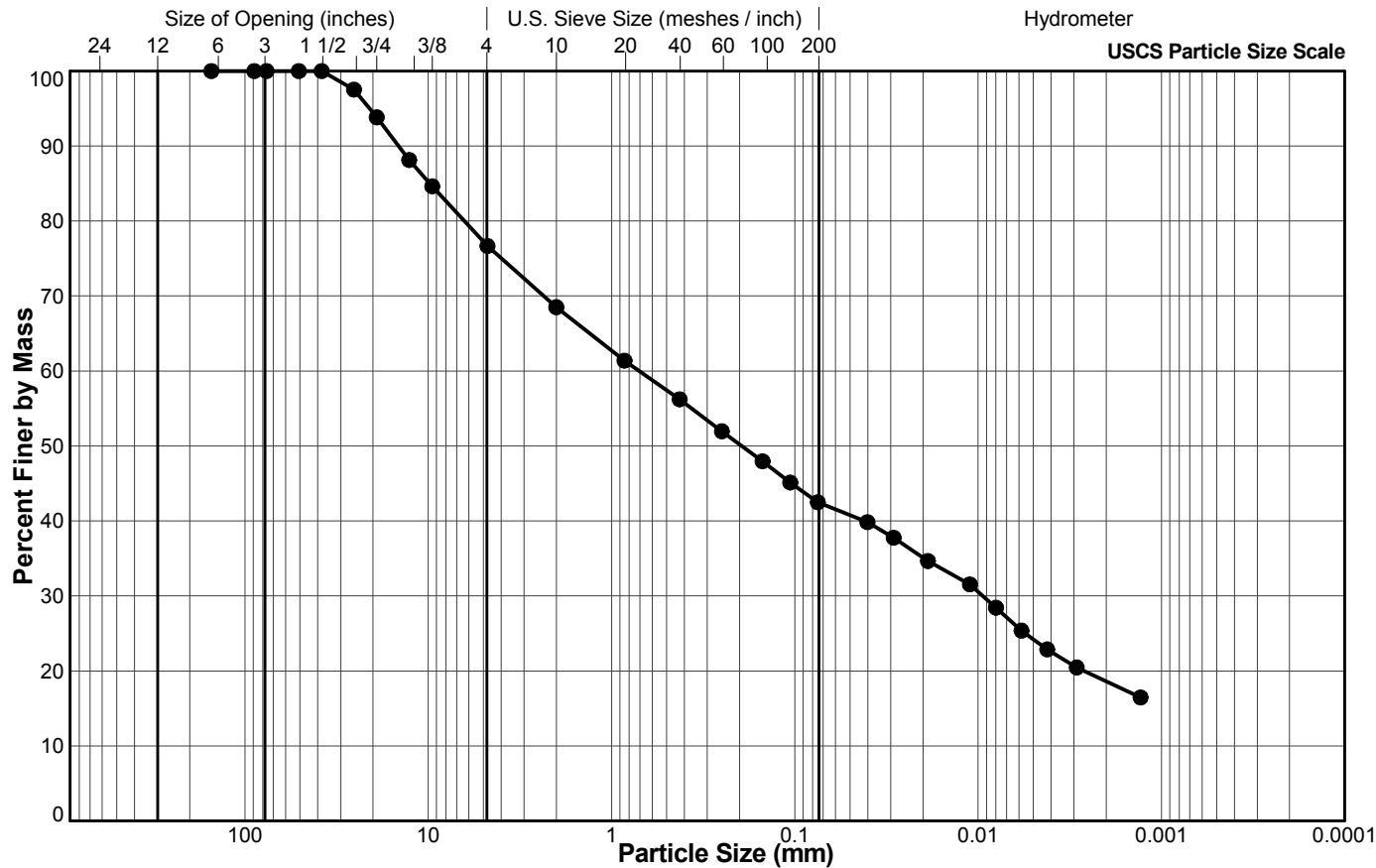
Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-49TP
Sample No.: 29674
Depth Interval (m): 2.90 to 3.10
Lab Schedule No.:



Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-52TP
Sample No.: 29690
Depth Interval (m): 1.10 to 1.30
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	100.0
1"	25.4	97.5
3/4"	19.1	93.8
1/2"	12.7	88.1
3/8"	9.5	84.6
#4 US MESH	4.75	76.7
#10 US MESH	2	68.5
#20 US MESH	0.85	61.4
#40 US MESH	0.425	56.2
#60 US MESH	0.25	52.0
#100 US MESH	0.15	48.0
#140 US MESH	0.106	45.1
#200 US MESH	0.075	42.5
	0.0402	39.8
	0.0289	37.8
	0.0188	34.7
	0.0111	31.5
	0.0080	28.4
	0.0058	25.4
	0.0042	22.9
	0.0029	20.5
	0.0013	16.5

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/PE

4/30/2019

LP

5/1/2019

Tech

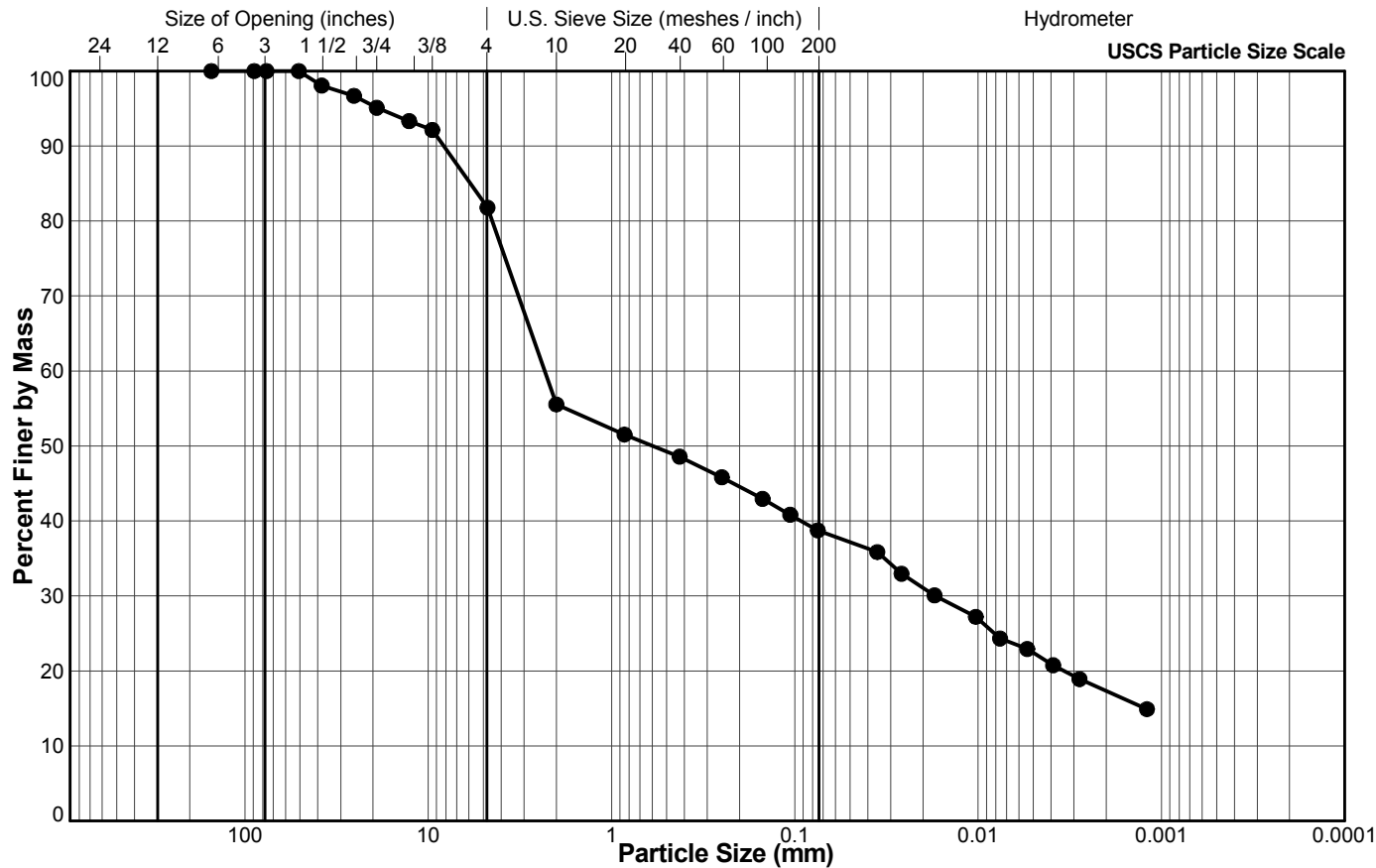
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-53TP
Sample No.: 29692
Depth Interval (m): 0.50 to 0.70
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	98.1
1"	25.4	96.7
3/4"	19.1	95.1
1/2"	12.7	93.3
3/8"	9.5	92.1
#4 US MESH	4.75	81.8
#10 US MESH	2	55.5
#20 US MESH	0.85	51.5
#40 US MESH	0.425	48.6
#60 US MESH	0.25	45.8
#100 US MESH	0.15	43.0
#140 US MESH	0.106	40.8
#200 US MESH	0.075	38.7
	0.0355	35.9
	0.0262	33.0
	0.0173	30.1
	0.0103	27.2
	0.0076	24.3
	0.0054	22.9
	0.0039	20.8
	0.0028	18.9
	0.0012	14.9

BOULDER		COBBLE		GRAVEL		SAND			FINES (Silt, Clay)
				Coarse	Fine	Coarse	Medium	Fine	

DC/PE

5/2/2019

LP

5/6/2019

Tech

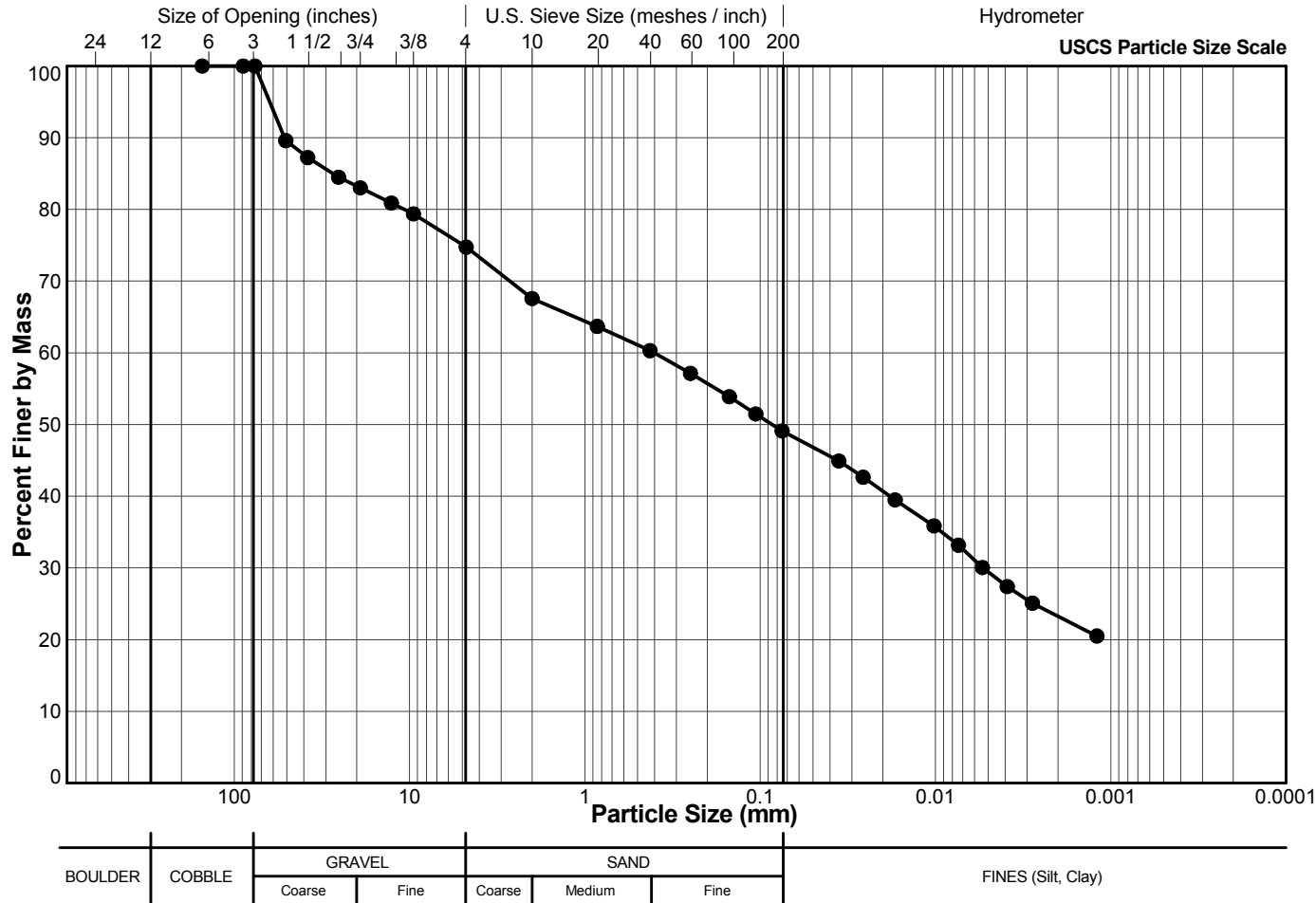
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-53TP
Sample No.: 29693
Depth Interval (m): 1.70 to 1.90
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	89.6
1 1/2"	38.1	87.2
1"	25.4	84.5
3/4"	19.1	83.0
1/2"	12.7	80.9
3/8"	9.5	79.4
#4 US MESH	4.75	74.7
#10 US MESH	2	67.6
#20 US MESH	0.85	63.7
#40 US MESH	0.425	60.3
#60 US MESH	0.25	57.1
#100 US MESH	0.15	53.9
#140 US MESH	0.106	51.5
#200 US MESH	0.075	49.1
	0.0356	44.9
	0.0259	42.7
	0.0170	39.5
	0.0102	35.9
	0.0074	33.2
	0.0054	30.1
	0.0039	27.4
	0.0028	25.1
	0.0012	20.5

DC/PE

5/2/2019

LP

5/6/2019

Tech

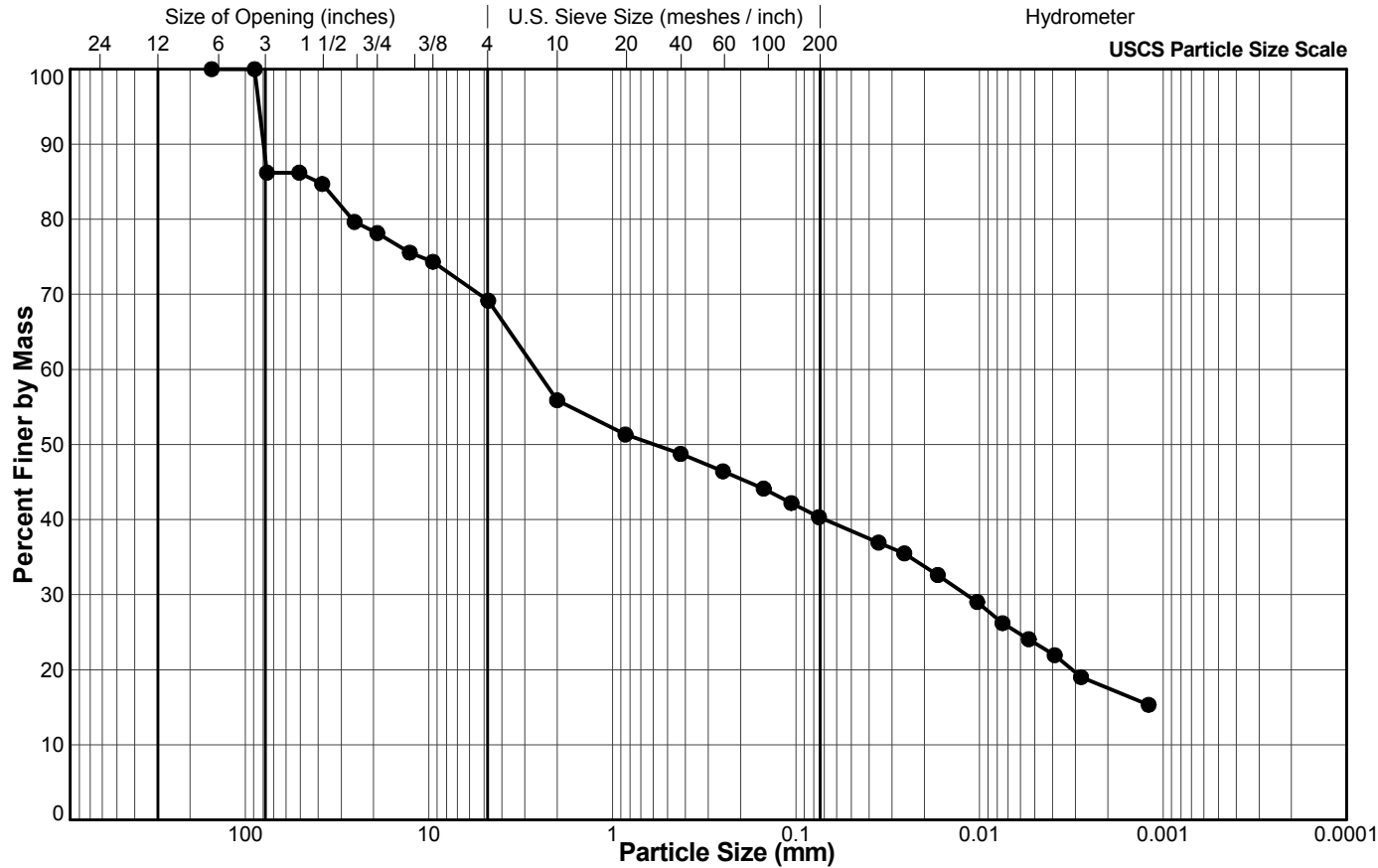
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-55TP
Sample No.: 29697
Depth Interval (m): 1.10 to 1.30
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	86.2
2"	50.8	86.2
1 1/2"	38.1	84.7
1"	25.4	79.7
3/4"	19.1	78.2
1/2"	12.7	75.6
3/8"	9.5	74.3
#4 US MESH	4.75	69.2
#10 US MESH	2	55.9
#20 US MESH	0.85	51.3
#40 US MESH	0.425	48.7
#60 US MESH	0.25	46.4
#100 US MESH	0.15	44.1
#140 US MESH	0.106	42.2
#200 US MESH	0.075	40.3
	0.0355	36.9
	0.0257	35.5
	0.0169	32.6
	0.0103	29.0
	0.0075	26.2
	0.0054	24.1
	0.0039	21.9
	0.0028	19.0
	0.0012	15.3

BOULDER		COBBLE		GRAVEL		SAND			FINES (Silt, Clay)
				Coarse	Fine	Coarse	Medium	Fine	

DC/PE

5/2/2019

LP

5/6/2019

Tech

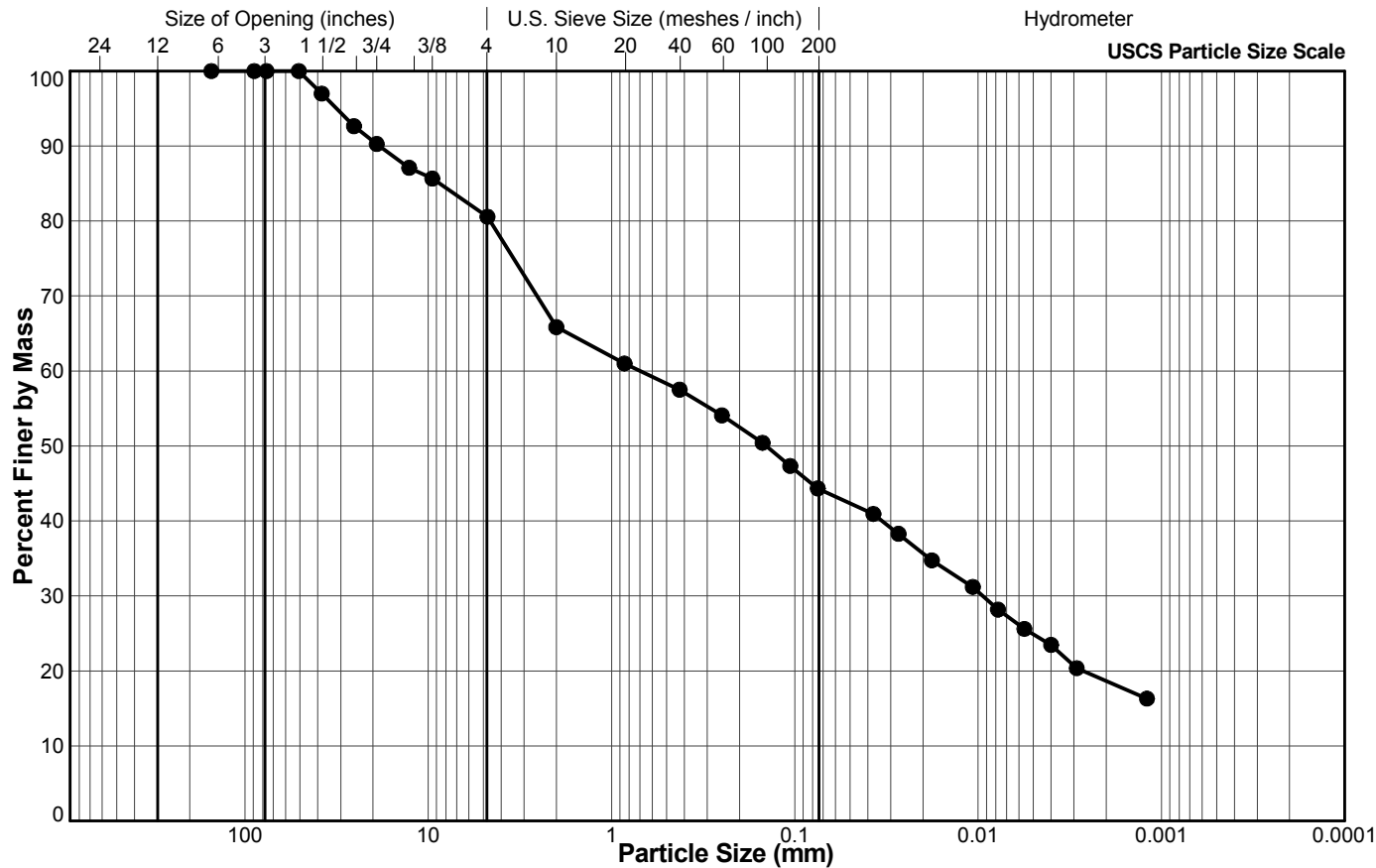
Date

Checked

Date

Client: Telkwa Coal Ltd.
Project: Explore 0112
Location:
Project No.: 18109666 **Phase:** 2000

Sample Location: 19-57TP
Sample No.: 35023
Depth Interval (m): 1.10 to 1.30
Lab Schedule No.:



Legend

Sieve Size (USS)	Particle Size (mm)	Percent Passing
6"	152.4	100.0
3.5"	88.9	100.0
3"	76.2	100.0
2"	50.8	100.0
1 1/2"	38.1	97.0
1"	25.4	92.7
3/4"	19.1	90.3
1/2"	12.7	87.1
3/8"	9.5	85.7
#4 US MESH	4.75	80.6
#10 US MESH	2	65.9
#20 US MESH	0.85	61.0
#40 US MESH	0.425	57.5
#60 US MESH	0.25	54.1
#100 US MESH	0.15	50.4
#140 US MESH	0.106	47.3
#200 US MESH	0.075	44.3
	0.0373	40.9
	0.0272	38.3
	0.0179	34.7
	0.0107	31.2
	0.0078	28.2
	0.0056	25.6
	0.0040	23.5
	0.0029	20.4
	0.0012	16.3

BOULDER	COBBLE	GRAVEL		SAND			FINES (Silt, Clay)
		Coarse	Fine	Coarse	Medium	Fine	

DC/PE

5/2/2019

LP

5/6/2019

Tech

Date

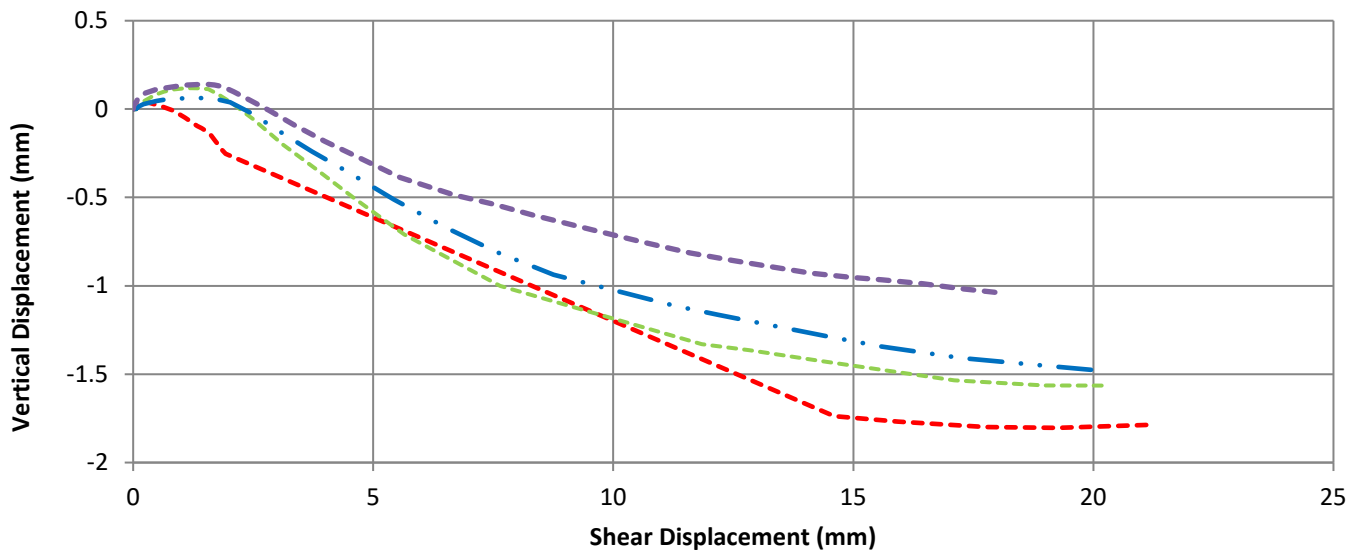
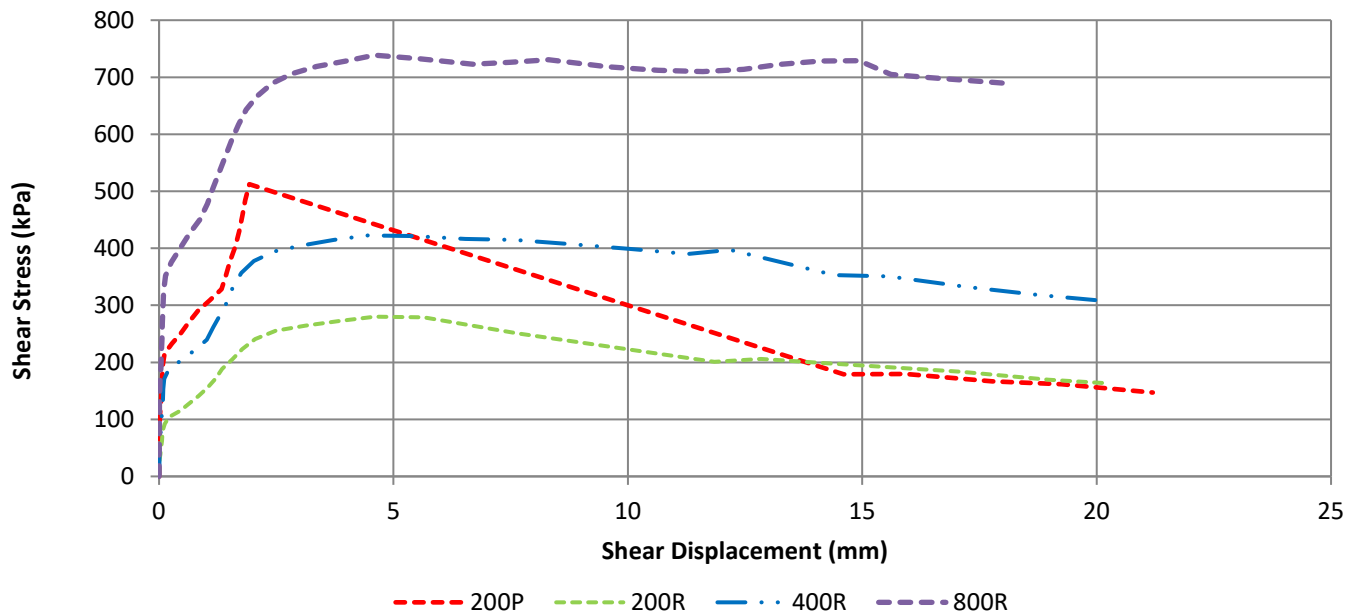
Checked

Date

Appendix E – 2019 Rock Laboratory Testing Results

Project No.:	18109666/2000	Sample No.:	19-09D
Project:	PO# EXPLORE 0112	Test ID:	35004
Location:	NOT PROVIDED	Depth (m):	33.0-33.3
Client:	TELKWA	Lab ID No:	B19-058

Test Condition:	Open	Moisture Condition:	As-received
Lithology:	SST BEDDING@3532	Sample Geometry	Elliptical
Discontinuity Orientation	Alpha Angle 22.5° to core axis.	Joint Roughness Coefficient	6-8
		Encapsulating Material	Capping Compound



The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

L.Peerey
TESTED BY

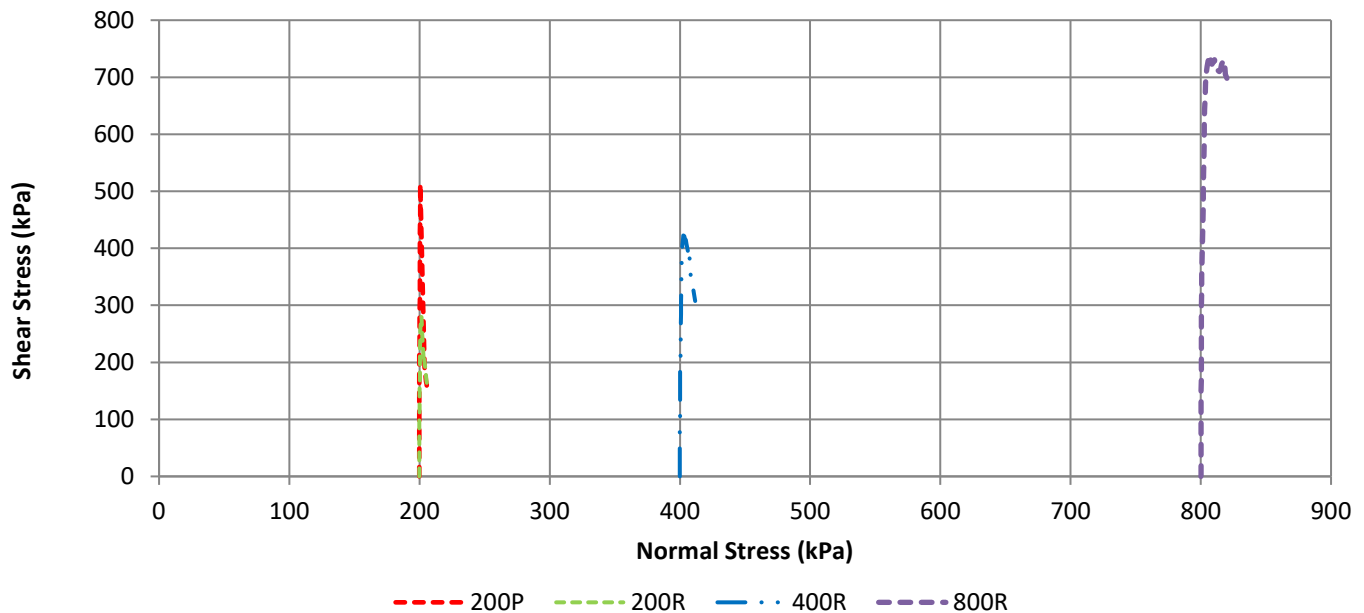
April 4, 2019
DATE

D.Lim
CHECKED BY

April 9, 2019
DATE

Project No.:	18109666/2000	Sample No.:	19-09D
Project:	PO# EXPLORE 0112	Test ID:	35004
Location:	NOT PROVIDED	Depth (m):	33.0-33.3
Client:	TELKWA	Lab ID No:	B19-058

Test Condition:	Open	Moisture Condition:	As-received
Lithology:	SST BEDDING@3532	Sample Geometry	Elliptical
Discontinuity Orientation	Alpha Angle 22.5° to core axis.	Joint Roughness Coefficient	6-8
		Encapsulating Material	Capping Compound



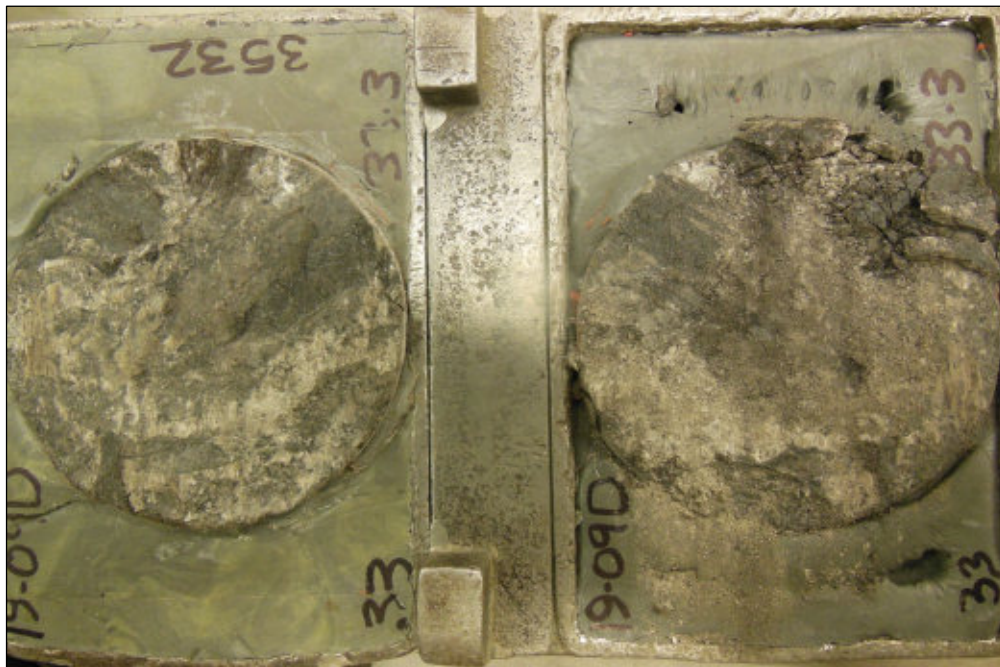
The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

L.Peerey	April 4,2019	D.Lim	April 9,2019
TESTED BY	DATE	CHECKED BY	DATE

Project No.:	18109666/2000	Sample No.:	19-09D
Project:	PO# EXPLORE 0112	Test ID:	35004
Location:	NOT PROVIDED	Depth (m):	33.0-33.3
Client:	TELKWA	Lab ID No:	B19-058



Before Shear



After Shear

The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

L.Peerey
TESTED BY

April 4,2019
DATE

D.Lim
CHECKED BY

April 9,2019
DATE

Direct Shear Strength Testing Under Constant Normal Force

ASTM D5607

Project No.:	18109666/2000	Sample No.:	19-09D
Project:	PO# EXPLORE 0112	Test ID:	35004
Location:	NOT PROVIDED	Depth (m):	33.0-33.3
Client:	TELKWA	Lab ID No:	B19-058

PEAK + RESIDUAL			RESIDUAL 1			RESIDUAL 2			RESIDUAL 3		
σ_n Stress, kPa		200	σ_n Stress, kPa		200	σ_n Stress, kPa		400	σ_n Stress, kPa		800
Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert
Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp
mm	kPa	mm	mm	kPa	mm	mm	kPa	mm	mm	kPa	mm
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1.75	0.00	0.00	2.36	0.00	0.00	3.56	0.00	0.00	1.97	0.00
0.00	3.99	0.00	0.00	5.96	0.00	0.00	8.56	0.00	0.00	8.10	0.00
0.00	6.70	0.00	0.01	10.31	0.00	0.00	13.99	0.00	0.00	14.71	0.00
0.00	9.66	0.00	0.01	15.00	0.00	0.01	20.04	0.00	0.00	22.20	0.01
0.00	12.70	0.00	0.01	20.19	0.00	0.01	26.62	0.00	0.00	30.02	0.01
0.00	15.88	0.00	0.01	25.80	0.00	0.01	33.86	0.00	0.00	38.57	0.01
0.00	19.64	0.00	0.01	32.01	0.00	0.01	41.41	0.00	0.00	48.17	0.01
0.00	23.60	0.00	0.03	38.86	0.00	0.01	49.63	0.00	0.01	58.70	0.01
0.00	28.01	0.00	0.04	45.98	0.00	0.02	58.67	0.00	0.01	70.59	0.01
0.00	32.45	0.01	0.05	53.74	0.00	0.03	68.83	0.00	0.01	83.66	0.02
0.00	37.54	0.01	0.06	62.38	0.00	0.03	79.99	0.00	0.01	98.07	0.02
0.00	42.79	0.01	0.07	71.86	0.00	0.04	92.02	0.00	0.01	113.96	0.02
0.00	48.13	0.01	0.09	81.91	0.01	0.06	105.34	0.00	0.01	131.28	0.02
0.00	54.25	0.01	0.12	92.65	0.03	0.06	119.65	0.00	0.01	150.41	0.02
0.01	60.21	0.01	0.22	104.23	0.04	0.08	135.57	0.01	0.02	170.94	0.03
0.01	66.94	0.01	0.45	115.21	0.08	0.09	153.14	0.01	0.04	192.92	0.03
0.01	73.81	0.01	0.64	127.70	0.10	0.11	171.37	0.01	0.05	216.58	0.04
0.01	81.75	0.01	0.84	141.15	0.11	0.21	188.52	0.03	0.07	241.70	0.04
0.01	90.23	0.02	1.03	155.69	0.12	0.49	204.48	0.05	0.07	268.85	0.04
0.01	99.63	0.02	1.20	171.30	0.12	0.77	221.68	0.06	0.08	296.44	0.05
0.02	109.47	0.02	1.35	188.49	0.12	1.02	239.86	0.06	0.10	324.55	0.06
0.03	120.34	0.03	1.56	205.50	0.11	1.15	261.47	0.06	0.14	351.86	0.07
0.04	132.00	0.03	1.78	223.54	0.08	1.31	284.64	0.06	0.26	375.71	0.09
0.05	146.43	0.03	2.05	240.70	0.04	1.46	307.68	0.06	0.46	401.07	0.11
0.07	162.84	0.04	2.49	255.20	-0.06	1.58	332.99	0.06	0.65	425.90	0.12
0.07	179.75	0.04	3.12	264.43	-0.20	1.75	356.74	0.06	0.87	450.23	0.13
0.08	197.56	0.05	3.82	272.39	-0.34	2.02	377.94	0.04	1.03	477.96	0.13
0.12	215.60	0.05	4.60	280.08	-0.50	2.46	394.38	-0.02	1.15	505.35	0.14

The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

L. Peerey
TESTED BY

April 4, 2019
DATE

D. Lim
CHECKED BY

April 9, 2019
DATE



Direct Shear Strength Testing Under Constant Normal Force

ASTM D5607

Project No.: 18109666/2000

Sample No.: 19-09D

Project: PO# EXPLORE 0112

Test ID: 35004

Location: NOT PROVIDED

Depth (m): 33.0-33.3

Client: TELKWA

Lab ID No: B19-058

[illegible]

The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

L.Peerey
TESTED BY

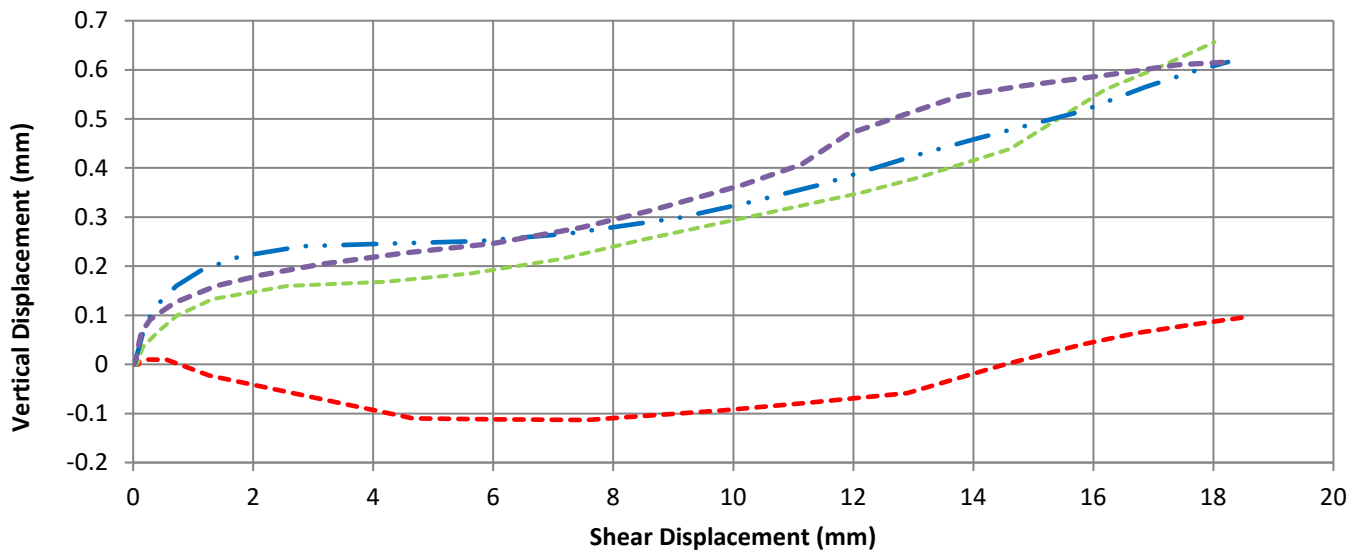
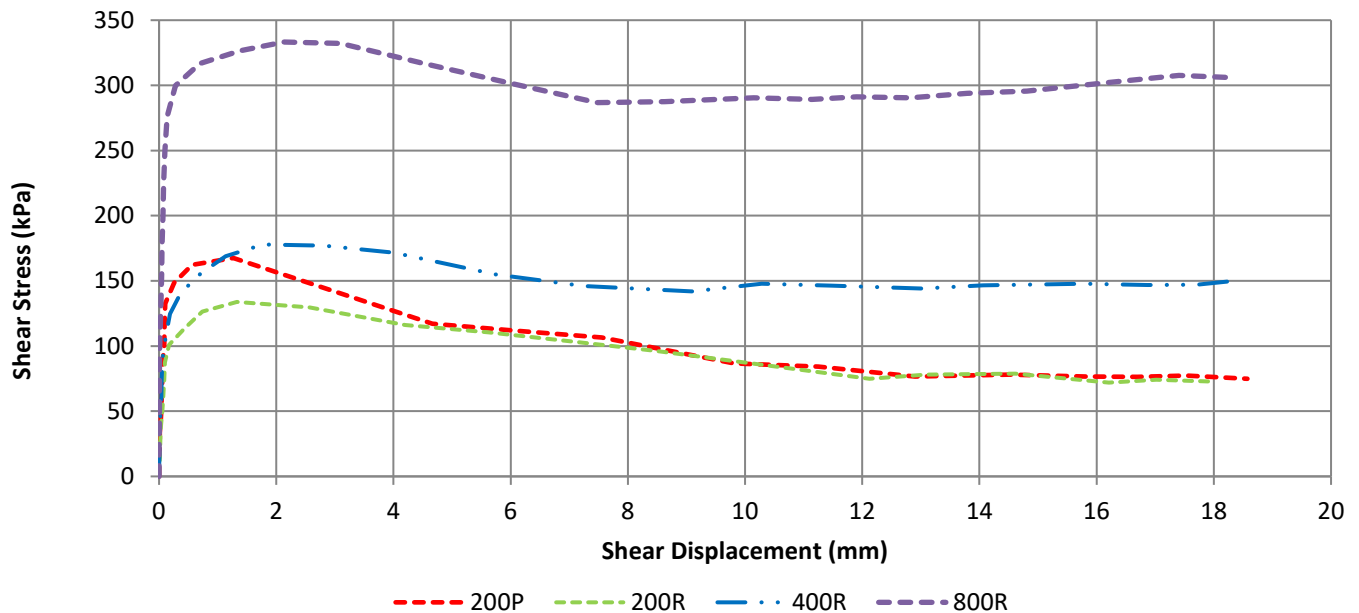
April 4, 2019
DATE

D.Lim
CHECKED BY

April 9, 2019
DATE

Project No.:	18109666/2000	Sample No.:	19-16D
Project:	PO# EXPLORE 0112	Test ID:	35011
Location:	NOT PROVIDED	Depth (m):	67.8-68.0
Client:	TELKWA	Lab ID No:	B19-058

Test Condition:	Open	Moisture Condition:	As-received
Lithology:	MDST+COAL BEDDING@3521	Sample Geometry	Elliptical
Discontinuity Orientation	Alpha Angle 9.0° to core axis.	Joint Roughness Coefficient	6-8
		Encapsulating Material	Capping Compound



The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

L.Peerey
TESTED BY

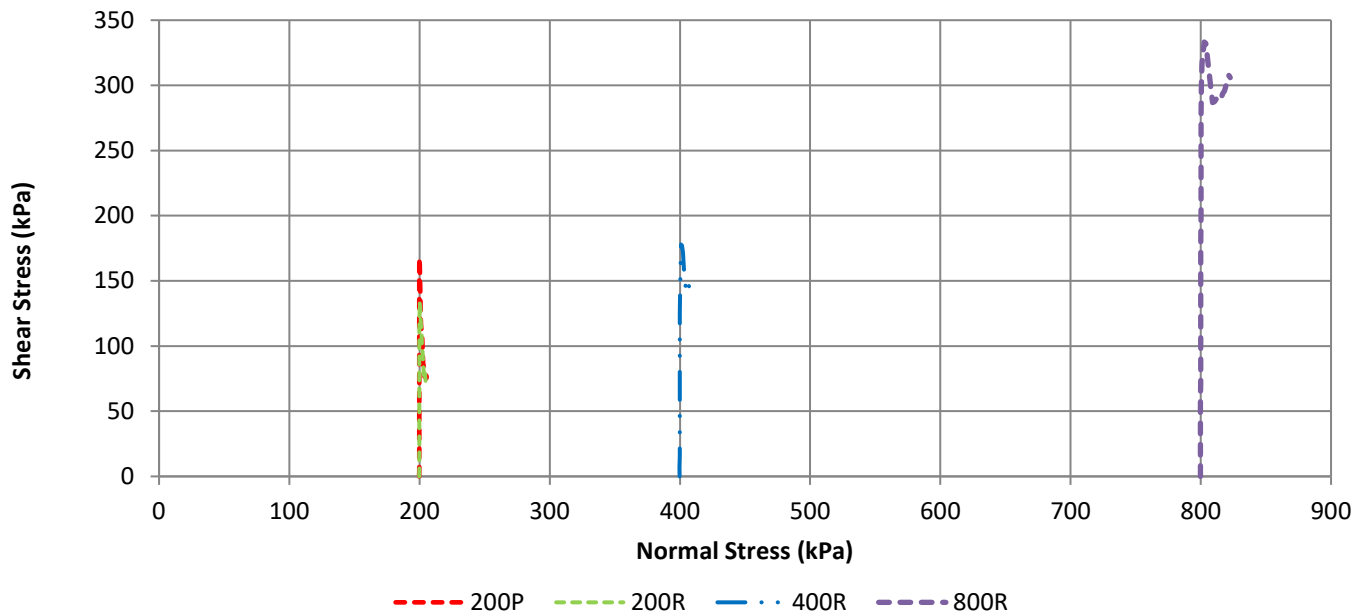
April 4, 2019
DATE

D.Lim
CHECKED BY

April 9, 2019
DATE

Project No.:	18109666/2000	Sample No.:	19-16D
Project:	PO# EXPLORE 0112	Test ID:	35011
Location:	NOT PROVIDED	Depth (m):	67.8-68.0
Client:	TELKWA	Lab ID No:	B19-058

Test Condition:	Open	Moisture Condition:	As-received
Lithology:	MDST+COAL BEDDING@3521	Sample Geometry	Elliptical
Discontinuity Orientation	Alpha Angle 9.0° to core axis.	Joint Roughness Coefficient	6-8
		Encapsulating Material	Capping Compound



The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

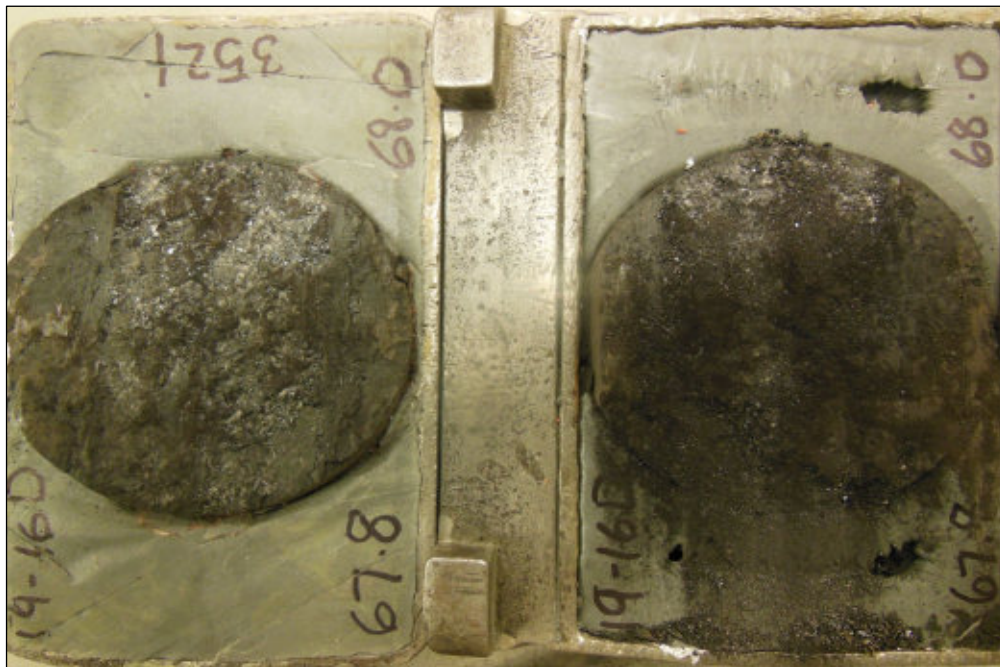
L.Peerey	April 4,2019	D.Lim	April 9,2019
TESTED BY	DATE	CHECKED BY	DATE

Project No.: 18109666/2000
Project: PO# EXPLORE 0112
Location: NOT PROVIDED
Client: TELKWA

Sample No.: 19-16D
Test ID: 35011
Depth (m): 67.8-68.0
Lab ID No: B19-058



Before Shear



After Shear

The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

L.Peerey
TESTED BY

April 4,2019
DATE

D.Lim
CHECKED BY

April 9,2019
DATE

Direct Shear Strength Testing Under Constant Normal Force

ASTM D5607

Project No.:	18109666/2000	Sample No.:	19-16D
Project:	PO# EXPLORE 0112	Test ID:	35011
Location:	NOT PROVIDED	Depth (m):	67.8-68.0
Client:	TELKWA	Lab ID No:	B19-058

PEAK + RESIDUAL			RESIDUAL 1			RESIDUAL 2			RESIDUAL 3		
σ_n Stress, kPa		200	σ_n Stress, kPa		200	σ_n Stress, kPa		400	σ_n Stress, kPa		800
Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert
Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp
mm	kPa	mm	mm	kPa	mm	mm	kPa	mm	mm	kPa	mm
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	4.68	0.00	0.00	5.27	0.00	0.00	6.41	0.00	0.00	4.84	0.00
0.00	10.86	0.00	0.01	12.63	0.00	0.00	15.47	0.00	0.00	11.76	0.00
0.01	17.63	0.00	0.02	20.95	0.00	0.01	25.35	0.00	0.00	19.83	0.00
0.01	25.33	0.00	0.02	29.91	0.00	0.02	36.15	0.00	0.00	28.36	0.00
0.01	33.45	0.00	0.03	39.63	0.00	0.02	47.99	0.00	0.00	38.12	0.00
0.03	42.53	0.00	0.05	50.05	0.00	0.04	61.10	0.00	0.01	48.89	0.00
0.04	51.76	0.00	0.07	61.55	0.00	0.04	75.56	0.01	0.01	60.38	0.00
0.05	62.66	0.00	0.09	74.20	0.01	0.06	91.24	0.02	0.01	72.91	0.00
0.06	74.46	0.00	0.10	87.36	0.02	0.11	107.79	0.04	0.01	86.51	0.00
0.06	87.30	0.00	0.17	100.88	0.04	0.19	124.66	0.08	0.01	101.23	0.00
0.09	101.29	0.00	0.43	113.44	0.07	0.37	140.92	0.12	0.02	117.90	0.00
0.09	116.31	0.00	0.74	126.37	0.10	0.72	155.92	0.16	0.03	136.09	0.01
0.10	132.63	0.01	1.33	133.85	0.13	1.13	169.03	0.19	0.05	155.62	0.01
0.26	148.53	0.01	2.57	129.59	0.16	1.77	177.93	0.22	0.05	177.07	0.01
0.56	162.35	0.01	4.20	116.05	0.17	2.82	177.15	0.24	0.07	199.97	0.02
1.27	167.54	-0.02	5.62	110.59	0.19	4.01	171.62	0.24	0.08	224.61	0.03
4.66	117.09	-0.11	7.12	103.08	0.21	5.75	154.97	0.25	0.10	249.66	0.05
6.10	111.80	-0.11	8.48	96.21	0.25	7.24	145.99	0.27	0.14	275.93	0.07
7.55	106.53	-0.11	12.12	75.02	0.35	9.10	141.92	0.30	0.28	299.74	0.09
9.81	86.76	-0.09	13.09	78.11	0.38	10.29	147.77	0.33	0.69	316.73	0.13
11.25	84.34	-0.08	14.61	78.94	0.44	11.49	146.24	0.37	1.38	326.47	0.16
12.90	76.68	-0.06	16.21	71.93	0.56	13.02	144.24	0.42	2.13	333.25	0.18
14.51	78.01	0.00	17.02	74.26	0.60	14.06	146.65	0.46	3.10	332.10	0.20
15.81	76.64	0.04	18.02	72.68	0.66	15.79	147.70	0.52	4.52	316.82	0.23
16.69	76.43	0.06				16.87	146.79	0.57	6.01	301.61	0.25
17.53	77.36	0.08				17.71	147.12	0.60	7.48	286.77	0.28
18.57	75.00	0.10				18.24	149.44	0.62	8.63	287.46	0.31
									10.15	290.36	0.37

The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

L. Peerey
TESTED BY

April 4, 2019
DATE

D. Lim
CHECKED BY

April 9, 2019
DATE



Direct Shear Strength Testing Under Constant Normal Force

ASTM D5607

Project No.: 18109666/2000

Sample No.: 19-16D

Project: PO# EXPLORE 0112

Test ID: 35011

Location: NOT PROVIDED

Depth (m): 67.8-68.0

Client: TELKWA

Lab ID No: B19-058

PEAK + RESIDUAL		RESIDUAL 1		RESIDUAL 2		RESIDUAL 3	
σ_n Stress, kPa	200	σ_n Stress, kPa	200	σ_n Stress, kPa	400	σ_n Stress, kPa	800

[illegible]

The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

L.Peerey
TESTED BY

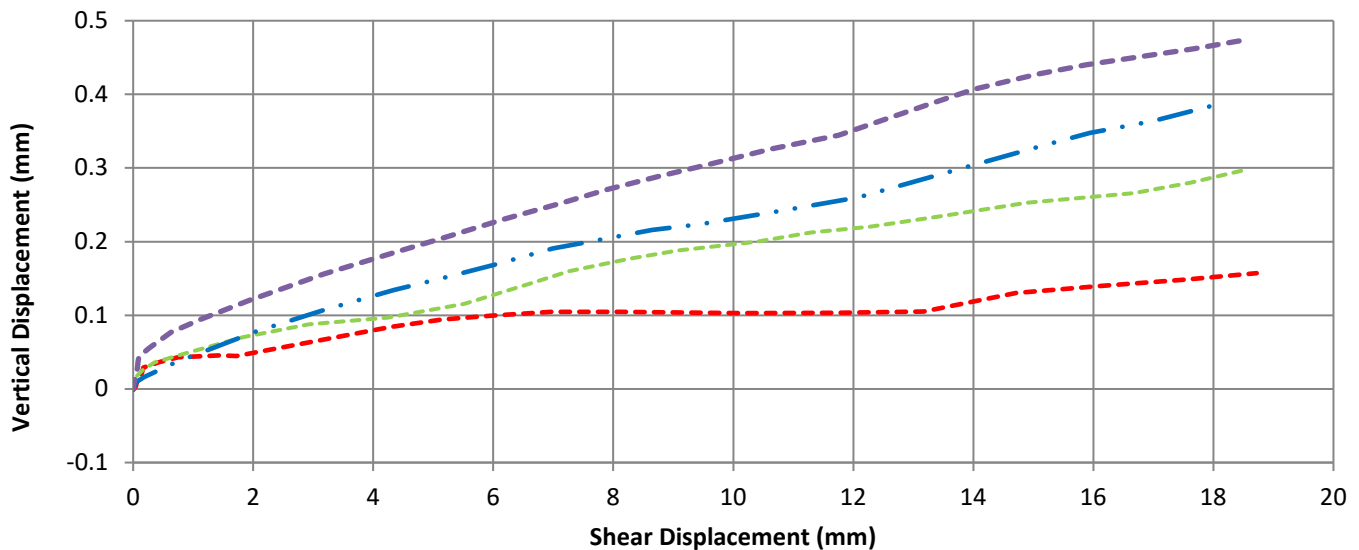
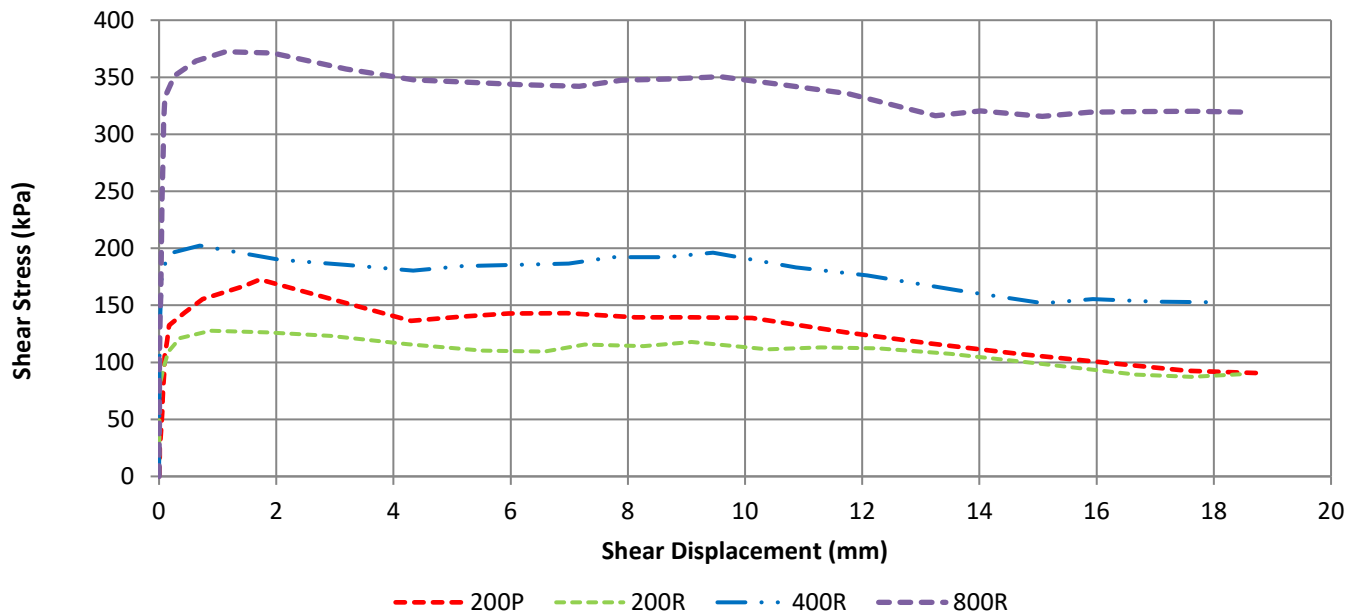
April 4, 2019
DATE

D.Lim
CHECKED BY

April 9, 2019
DATE

Project No.:	18109666/2000	Sample No.:	19-17D
Project:	PO# EXPLORE 0112	Test ID:	35013
Location:	NOT PROVIDED	Depth (m):	42.8-43.0
Client:	TELKWA	Lab ID No:	B19-058

Test Condition:	Open	Moisture Condition:	As-received
Lithology:	SLST BEDDING@2535	Sample Geometry	Elliptical
Discontinuity Orientation	Alpha Angle 33.5° to core axis.	Joint Roughness Coefficient	6-8
		Encapsulating Material	Capping Compound



The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

L.Peerey
TESTED BY

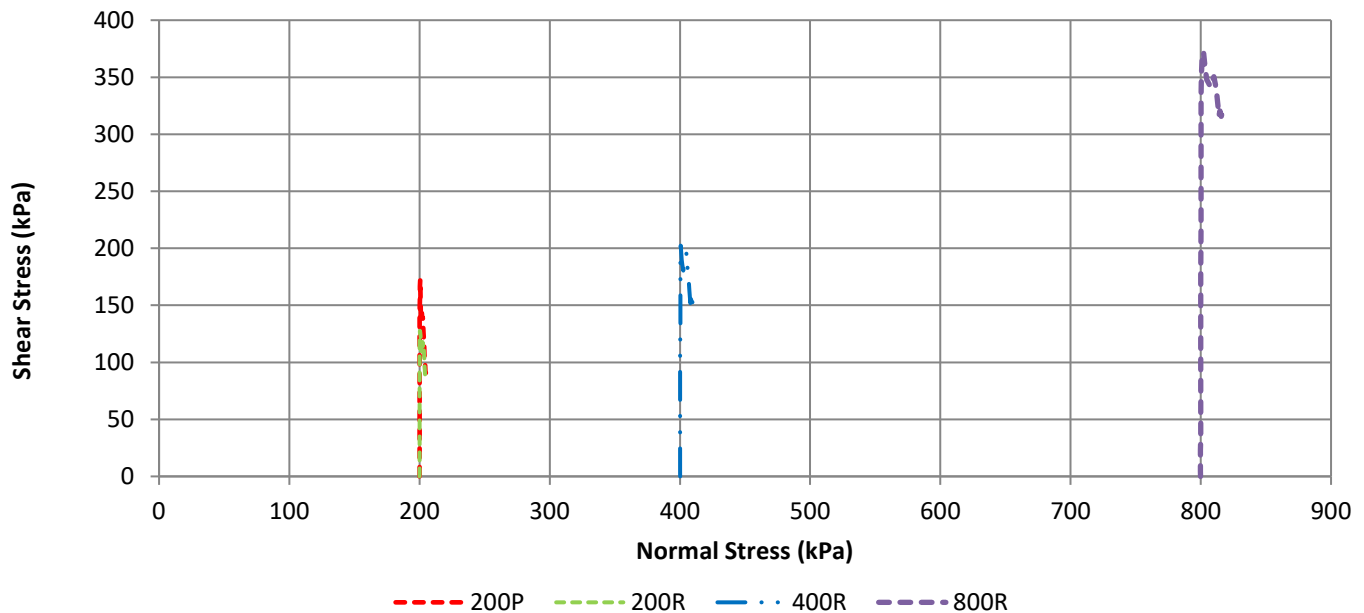
April 5, 2019
DATE

D.Lim
CHECKED BY

April 9, 2019
DATE

Project No.:	18109666/2000	Sample No.:	19-17D
Project:	PO# EXPLORE 0112	Test ID:	35013
Location:	NOT PROVIDED	Depth (m):	42.8-43.0
Client:	TELKWA	Lab ID No:	B19-058

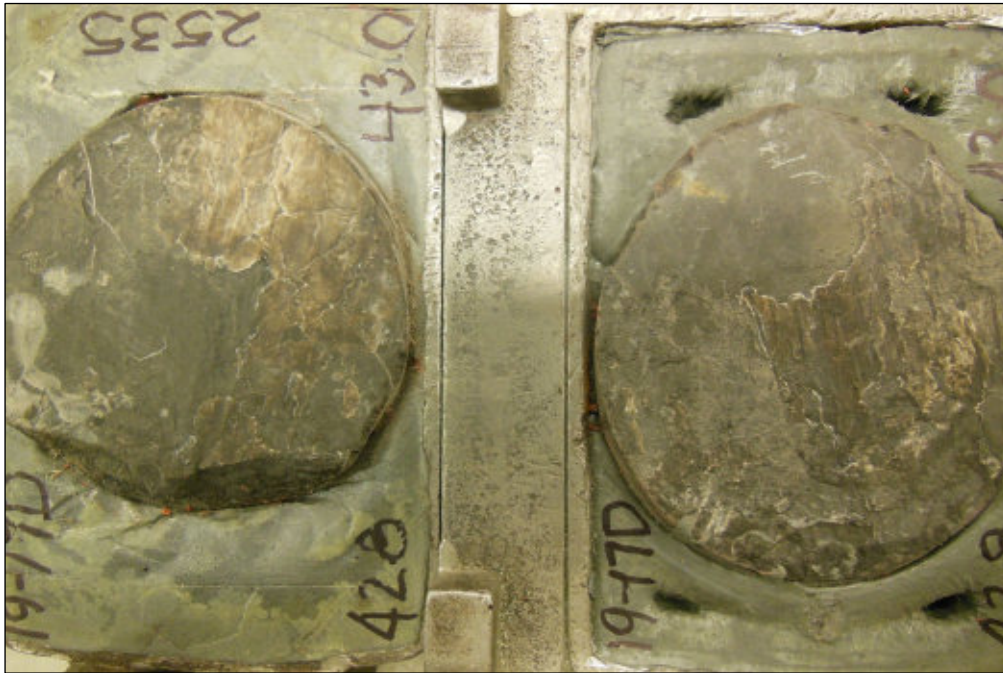
Test Condition:	Open	Moisture Condition:	As-received
Lithology:	SLST BEDDING@2535	Sample Geometry	Elliptical
Discontinuity Orientation	Alpha Angle 33.5° to core axis.	Joint Roughness Coefficient	6-8
		Encapsulating Material	Capping Compound



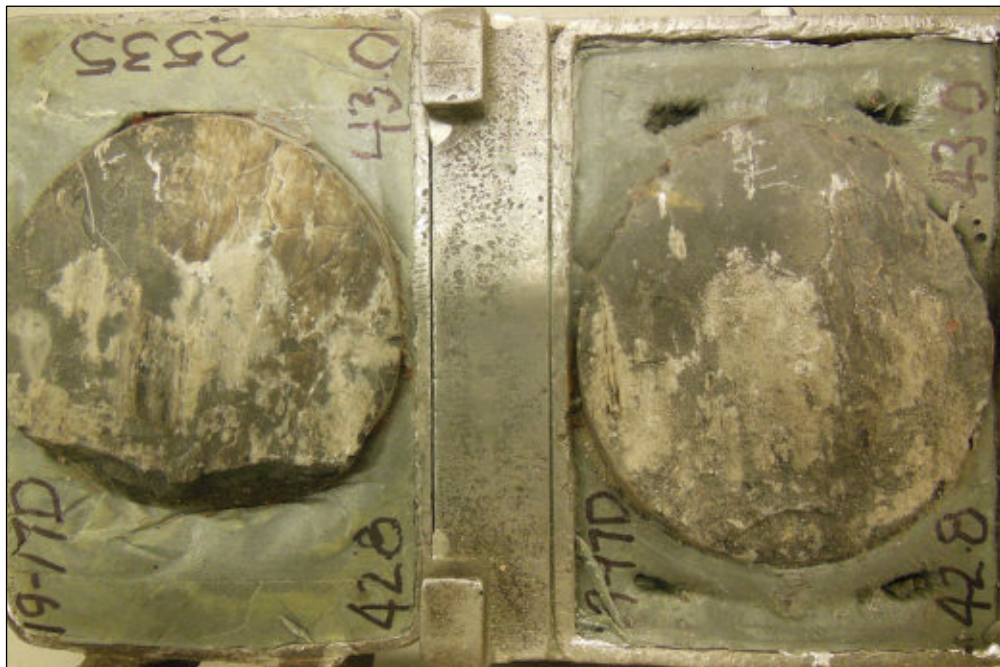
The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

L.Peerey	April 5, 2019	D.Lim	April 9, 2019
TESTED BY	DATE	CHECKED BY	DATE

Project No.:	18109666/2000	Sample No.:	19-17D
Project:	PO# EXPLORE 0112	Test ID:	35013
Location:	NOT PROVIDED	Depth (m):	42.8-43.0
Client:	TELKWA	Lab ID No:	B19-058



Before Shear



After Shear

The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

L.Peerey
TESTED BY

April 5, 2019
DATE

D.Lim
CHECKED BY

April 9, 2019
DATE

Direct Shear Strength Testing Under Constant Normal Force

ASTM D5607

Project No.:	18109666/2000	Sample No.:	19-17D
Project:	PO# EXPLORE 0112	Test ID:	35013
Location:	NOT PROVIDED	Depth (m):	42.8-43.0
Client:	TELKWA	Lab ID No:	B19-058

PEAK + RESIDUAL			RESIDUAL 1			RESIDUAL 2			RESIDUAL 3		
σ_n Stress, kPa		200	σ_n Stress, kPa		200	σ_n Stress, kPa		400	σ_n Stress, kPa		800
Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert
Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp
mm	kPa	mm	mm	kPa	mm	mm	kPa	mm	mm	kPa	mm
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1.73	0.00	0.00	2.45	0.00	0.00	2.64	0.00	0.00	4.66	0.00
0.01	6.57	0.00	0.00	8.26	0.00	0.00	8.32	0.00	0.00	13.30	0.00
0.01	18.39	0.00	0.00	14.22	0.00	0.00	14.71	0.00	0.00	23.10	0.00
0.01	25.13	0.00	0.00	20.76	0.00	0.00	21.31	0.00	0.00	33.94	0.00
0.02	31.85	0.00	0.00	27.43	0.00	0.00	28.43	0.00	0.00	45.57	0.00
0.04	39.75	0.00	0.00	34.93	0.00	0.00	35.71	0.00	0.01	58.24	0.00
0.05	48.39	0.00	0.01	43.06	0.00	0.00	44.02	0.00	0.01	71.80	0.00
0.05	57.62	0.01	0.01	52.07	0.01	0.00	52.99	0.00	0.01	87.28	0.00
0.06	68.00	0.01	0.01	61.67	0.01	0.01	62.83	0.00	0.01	103.59	0.01
0.07	79.13	0.01	0.01	72.55	0.01	0.01	73.71	0.00	0.01	120.88	0.01
0.09	91.34	0.01	0.03	84.07	0.02	0.01	85.83	0.00	0.02	139.27	0.01
0.10	104.99	0.01	0.08	96.54	0.02	0.01	98.83	0.00	0.03	158.20	0.01
0.14	119.01	0.02	0.16	109.49	0.03	0.01	113.24	0.00	0.03	177.99	0.01
0.17	132.40	0.03	0.35	121.30	0.04	0.01	128.70	0.00	0.04	220.74	0.02
0.44	143.66	0.04	0.88	127.72	0.05	0.02	145.08	0.00	0.05	242.91	0.02
0.75	155.43	0.04	1.83	126.22	0.07	0.04	162.04	0.01	0.06	265.78	0.03
1.44	166.80	0.05	2.93	123.15	0.09	0.05	179.52	0.01	0.07	287.99	0.03
1.72	172.65	0.04	4.24	115.92	0.10	0.18	195.62	0.02	0.08	310.72	0.04
4.30	136.46	0.08	5.52	110.37	0.12	0.69	202.34	0.04	0.10	332.42	0.04
5.14	140.14	0.09	6.57	109.33	0.14	2.05	190.01	0.08	0.26	351.27	0.05
5.97	142.81	0.10	7.26	115.65	0.16	3.18	185.61	0.11	0.63	364.19	0.08
6.96	143.19	0.10	8.27	114.29	0.18	4.34	180.53	0.13	1.13	372.34	0.09
8.13	139.51	0.10	9.09	117.97	0.19	5.17	184.46	0.15	1.93	371.12	0.12
9.10	139.58	0.10	10.38	111.43	0.20	6.08	185.49	0.17	3.19	357.33	0.16
10.12	138.90	0.10	11.29	113.09	0.21	6.99	186.67	0.19	4.35	347.53	0.18
11.72	126.32	0.10	12.27	112.23	0.22	7.74	192.19	0.20	5.24	345.79	0.21
13.17	116.58	0.11	13.50	107.55	0.24	8.65	192.17	0.22	6.18	343.53	0.23
14.71	107.32	0.13	14.89	99.70	0.25	9.45	196.06	0.22	7.17	342.15	0.25

The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

L. Peerey
TESTED BY

April 5, 2019
DATE

D. Lim
CHECKED BY

April 9, 2019
DATE



Direct Shear Strength Testing Under Constant Normal Force

ASTM D5607

Project No.: 18109666/2000

Sample No.: 19-17D

Project: PO# EXPLORE 0112

Test ID: 35013

Location: NOT PROVIDED

Depth (m): 42.8-43.0

Client: TELKWA

Lab ID No: B19-058

PEAK + RESIDUAL		RESIDUAL 1		RESIDUAL 2		RESIDUAL 3	
σ_n Stress, kPa	200	σ_n Stress, kPa	200	σ_n Stress, kPa	400	σ_n Stress, kPa	800

[illegible]

The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

L.Peerey
TESTED BY

April 5, 2019
DATE

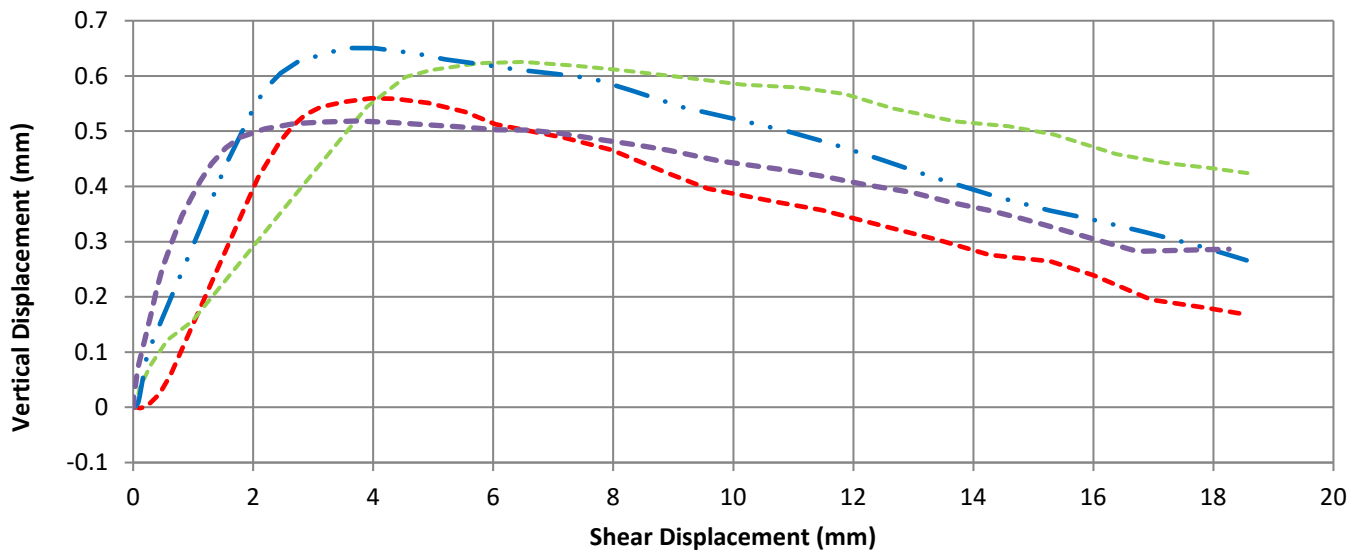
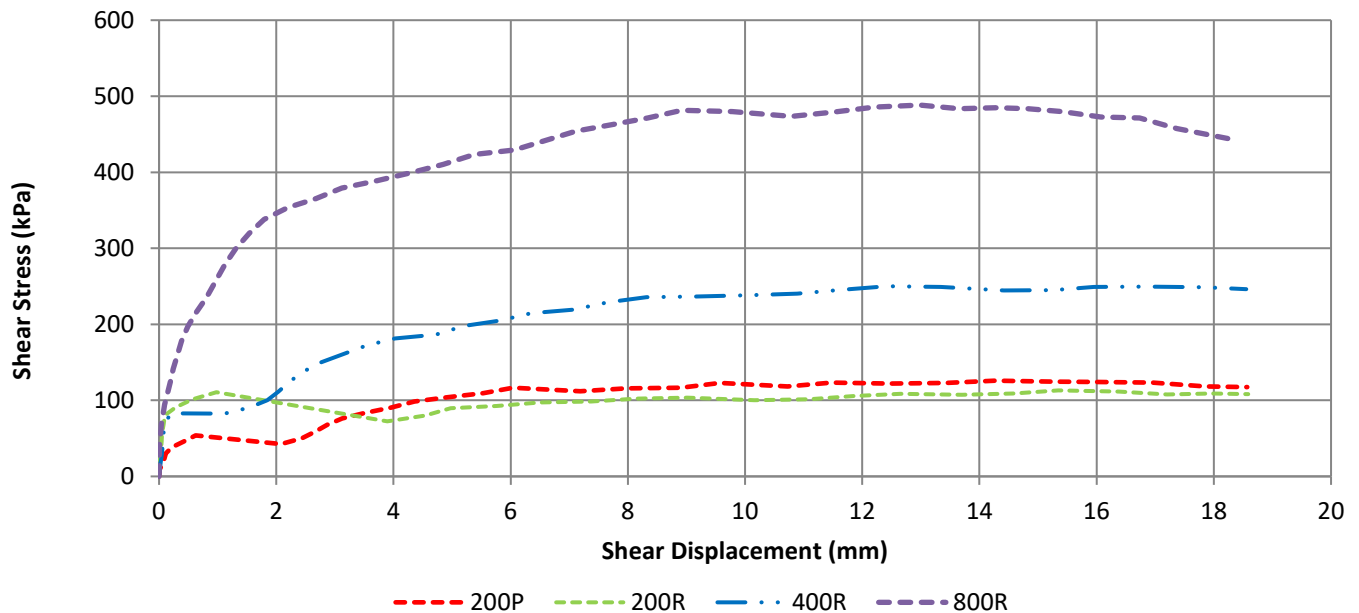
D.Lim
CHECKED BY

April 9, 2019
DATE

Golder Associates Ltd.
300, 3811 North Fraser Way, Burnaby, British Columbia, Canada V5J 5J2
Tel: 604-412-6899 Fax: 604-412-6816 www.golder.com

Project No.:	18109666/2000	Sample No.:	19-17D
Project:	PO# EXPLORE 0112	Test ID:	35015
Location:	NOT PROVIDED	Depth (m):	45.4-45.7
Client:	TELKWA	Lab ID No:	B19-058

Test Condition:	Open	Moisture Condition:	As-received
Lithology:	SST + COAL BEDDING@2521	Sample Geometry	Elliptical
Discontinuity Orientation	Alpha Angle 12.5° to core axis.	Joint Roughness Coefficient	6-8
		Encapsulating Material	Capping Compound



The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

L.Peerey
TESTED BY

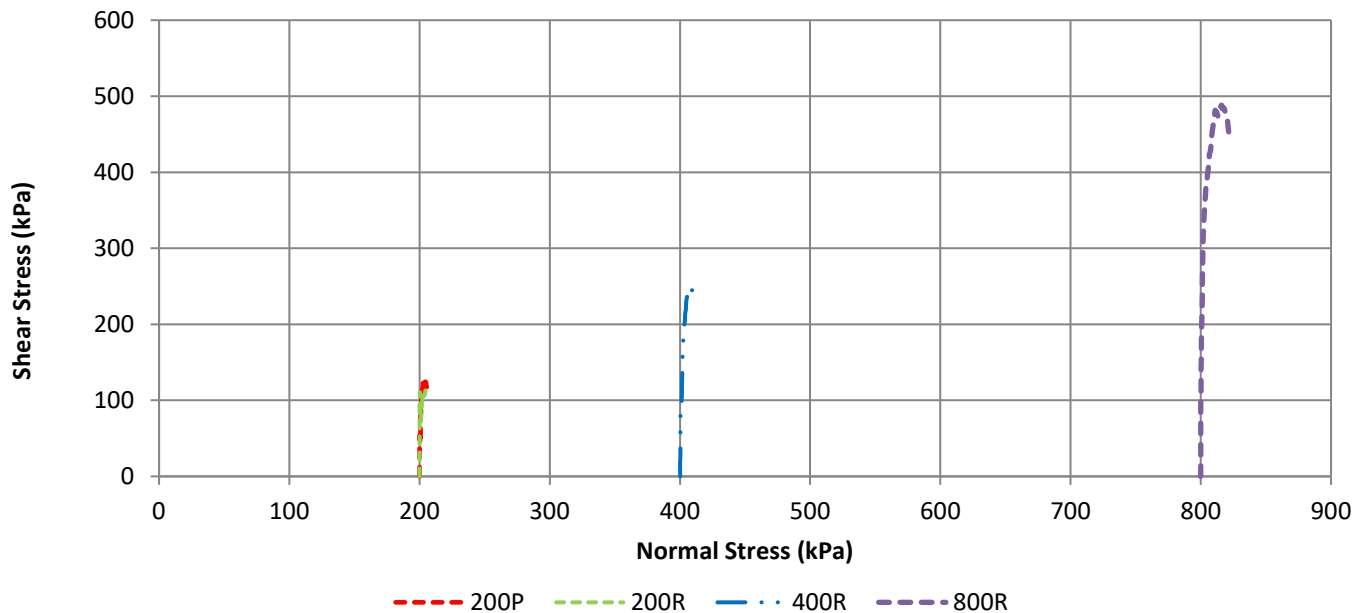
April 5, 2019
DATE

D.Lim
CHECKED BY

April 9, 2019
DATE

Project No.:	18109666/2000	Sample No.:	19-17D
Project:	PO# EXPLORE 0112	Test ID:	35015
Location:	NOT PROVIDED	Depth (m):	45.4-45.7
Client:	TELKWA	Lab ID No:	B19-058

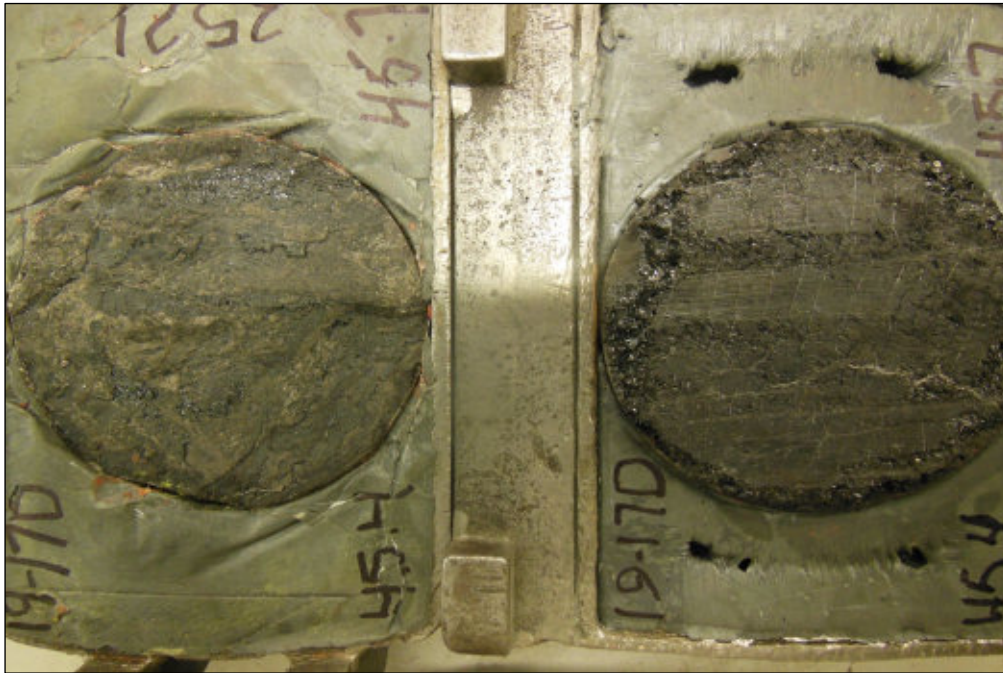
Test Condition:	Open	Moisture Condition:	As-received
Lithology:	SST + COAL BEDDING@2521	Sample Geometry	Elliptical
Discontinuity Orientation	Alpha Angle 12.5° to core axis.	Joint Roughness Coefficient	6-8
		Encapsulating Material	Capping Compound



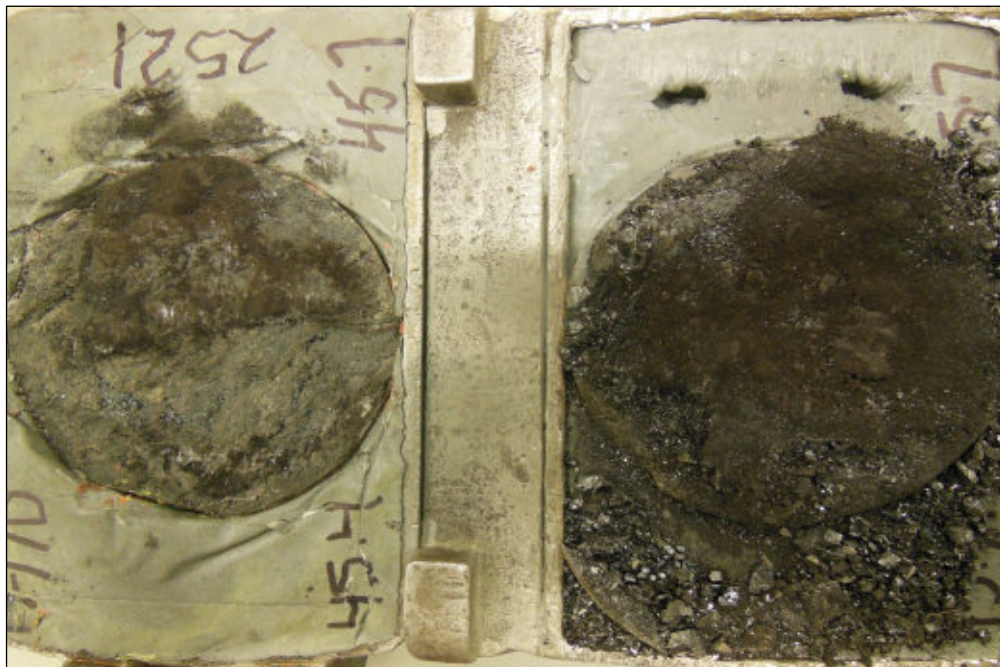
The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

L.Peerey	April 5, 2019	D.Lim	April 9, 2019
TESTED BY	DATE	CHECKED BY	DATE

Project No.:	18109666/2000	Sample No.:	19-17D
Project:	PO# EXPLORE 0112	Test ID:	35015
Location:	NOT PROVIDED	Depth (m):	45.4-45.7
Client:	TELKWA	Lab ID No:	B19-058



Before Shear



After Shear

The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

L.Peerey
TESTED BY

April 5, 2019
DATE

D.Lim
CHECKED BY

April 9, 2019
DATE

Direct Shear Strength Testing Under Constant Normal Force

ASTM D5607

Project No.:	18109666/2000	Sample No.:	19-17D
Project:	PO# EXPLORE 0112	Test ID:	35015
Location:	NOT PROVIDED	Depth (m):	45.4-45.7
Client:	TELKWA	Lab ID No:	B19-058

PEAK + RESIDUAL			RESIDUAL 1			RESIDUAL 2			RESIDUAL 3		
σ_n Stress, kPa		200	σ_n Stress, kPa		200	σ_n Stress, kPa		400	σ_n Stress, kPa		800
Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert	Horz	Shear	Vert
Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp	Disp	Stress	Disp
mm	kPa	mm	mm	kPa	mm	mm	kPa	mm	mm	kPa	mm
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	4.09	0.00	0.00	3.71	0.00	0.00	5.57	0.00	0.00	4.38	0.00
0.01	9.82	0.00	0.01	11.27	0.00	0.02	12.26	0.00	0.01	19.62	0.00
0.06	15.88	0.00	0.01	19.21	0.00	0.03	19.03	0.00	0.01	28.07	0.00
0.09	22.84	0.00	0.02	27.30	0.00	0.04	26.90	0.00	0.01	37.38	0.01
0.12	30.35	0.00	0.03	36.34	0.00	0.05	35.34	0.00	0.01	47.03	0.02
0.22	38.30	0.00	0.04	46.31	0.00	0.06	43.94	0.01	0.03	57.31	0.03
0.43	46.52	0.02	0.05	56.95	0.01	0.07	53.00	0.01	0.04	68.71	0.04
0.62	54.05	0.06	0.08	68.30	0.02	0.08	63.13	0.01	0.07	80.94	0.06
2.08	42.40	0.42	0.10	80.45	0.03	0.11	73.89	0.02	0.10	94.22	0.08
2.44	49.98	0.48	0.28	91.14	0.07	0.23	82.97	0.10	0.14	108.88	0.10
2.66	58.89	0.51	0.57	101.67	0.12	1.11	82.57	0.32	0.19	124.17	0.12
2.87	67.74	0.53	0.98	110.52	0.16	1.54	90.35	0.44	0.24	141.35	0.14
3.12	76.29	0.54	3.89	72.57	0.54	1.85	100.27	0.51	0.31	159.43	0.17
3.51	83.52	0.55	4.54	79.80	0.60	2.04	111.77	0.55	0.38	178.01	0.21
3.96	90.64	0.56	4.97	89.81	0.61	2.23	124.92	0.58	0.49	197.33	0.25
4.36	98.40	0.56	5.76	92.55	0.62	2.46	137.72	0.60	0.64	216.25	0.30
4.91	104.09	0.55	6.50	97.37	0.63	2.76	149.68	0.63	0.81	235.38	0.35
5.53	109.32	0.53	7.38	98.59	0.62	3.54	172.22	0.65	0.97	257.20	0.38
6.04	116.48	0.51	8.14	102.50	0.61	4.03	181.49	0.65	1.12	278.24	0.41
7.19	111.93	0.49	9.02	103.60	0.60	4.73	186.49	0.64	1.31	299.43	0.44
7.97	115.90	0.47	10.16	100.00	0.58	5.20	197.88	0.63	1.54	319.74	0.47
8.90	116.69	0.42	11.09	101.32	0.58	5.82	205.07	0.62	1.79	338.05	0.49
9.57	122.79	0.40	11.85	105.85	0.57	6.35	214.73	0.61	2.20	353.65	0.50
10.73	118.20	0.37	12.65	108.59	0.54	7.07	219.18	0.60	2.68	365.45	0.51
11.47	123.30	0.36	13.70	107.16	0.52	7.66	228.98	0.60	3.12	379.31	0.52
12.47	122.26	0.33	14.59	108.84	0.51	8.32	235.85	0.57	3.72	389.00	0.52
13.43	122.95	0.30	15.34	113.12	0.49	9.15	236.58	0.54	4.30	399.50	0.52
14.27	125.91	0.28	16.38	111.59	0.46	10.04	238.04	0.52	4.85	410.47	0.51

The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

L. Peerey
TESTED BY

April 5, 2019
DATE

D. Lim
CHECKED BY

April 9, 2019
DATE



Direct Shear Strength Testing Under Constant Normal Force

ASTM D5607

Project No.: 18109666/2000

Sample No.: 19-17D

Project: PO# EXPLORE 0112

Test ID: 35015

Location: NOT PROVIDED

Depth (m): 45.4-45.7

Client: TELKWA

Lab ID No: B19-058

PEAK + RESIDUAL			RESIDUAL 1			RESIDUAL 2			RESIDUAL 3		
σ_n Stress, kPa	200		σ_n Stress, kPa	200		σ_n Stress, kPa	400		σ_n Stress, kPa	800	

[illegible]

The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

L.Peerey
TESTED BY

April 5, 2019
DATE

D.Lim
CHECKED BY

April 9, 2019
DATE

Golder Associates Ltd.
300, 3811 North Fraser Way, Burnaby, British Columbia, Canada V5J 5J2
Tel: 604-412-6899 Fax: 604-412-6816 www.golder.com

Laboratory Determination of Uniaxial Compressive Strength of Intact Rock Core Specimens

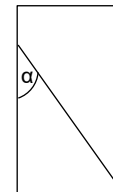
Summary of Test Results

ASTM D7012 Method C

Project No.: 18109666/2000
Project: Explore #0112
Location: Not Provided
Client: Telkwa
Lab ID No: B19-058

Failure Modes (5) Single Shear
 (1) Simple Extension (6) Spalling
 (2) Multiple Extension (7) Other
 (3) Multiple Fracturing
 (4) Multiple Shear * Wet density based on as received moisture

Note: Alpha angle, α , measured relative to the core axis



No.	Borehole #	Sample #	Depth (m)	Dia (mm)	Ht (mm)	Area (cm ²)	Volume (cm ³)	Mass (g)	* Wet Density (kg/m ³)	Moisture (%)	Dry Density (kg/m ³)	Maximum Load (kN)	Stress σ_u (MPa)	Rock Type	Failure Mode	
															Type	α (deg)
1	19-09D	35003	31.2-31.4	84.84	177.91	56.53	1005.77	2574.50	2560	2.27	2503	101.30	17.9	Siltstone	6	N/A
2	19-09D	35005	48.7-48.9	84.85	178.15	56.55	1007.43	2675.90	2656	1.83	2608	275.90	48.8	Sandstone	3/6	N/A
3	19-16D	35009	57.6-57.9	84.80	164.14	56.47	926.98	2398.40	2587	1.76	2543	152.60	27.0	Siltstone	3	N/A
4	19-16D	35010	61.9-62.1	84.84	148.13	56.53	837.32	2109.30	2519	2.08	2468	229.60	40.6	Mudstone	6	N/A
5	19-16D	35012	72.2-73.2	84.88	177.88	56.58	1006.47	2599.70	2583	2.72	2515	60.10	10.6	Siltstone	7	N/A
6	19-17D	35014	45.1-45.4	84.80	180.21	56.48	1017.88	2655.90	2609	1.45	2572	195.80	34.7	Sandstone	6	N/A
7	19-17D	35016	51.3-51.5	84.69	174.50	56.33	982.89	2730.80	2778	1.10	2748	87.20	15.5	Siltstone	6	N/A
8	19-18D	35017	24.3-24.5	84.88	180.41	56.58	1020.85	2646.90	2593	1.23	2561	155.60	27.5	Siltstone	6	N/A

Note:

Test No.3, Sample does not conform to ASTM requirements and results may differ from those obtained from test specimens that meet requirements.

-ASTM D7012; Section 8.1.1 Desirable specimen length to diameter ratios are between 2.0:1 and 2.5:1. Specimen length to diameter ratios of less than 2.0:1 are unacceptable.

Test No.4, Sample does not conform to ASTM requirements and results may differ from those obtained from test specimens that meet requirements.

-ASTM D7012; Section 8.1.1 Desirable specimen length to diameter ratios are between 2.0:1 and 2.5:1. Specimen length to diameter ratios of less than 2.0:1 are unacceptable.

Test No.5, Top half sample shattered during testing while the bottom half remained intact.

The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

B. Matheson
TESTED BY

March 19, 2019
DATE

G. Patton
CHECKED BY

March 25, 2019
DATE

Uniaxial Compressive Strength of Intact Rock Core Specimens (Method C)

ASTM D7012

Project No.:	18109666/2000	Borehole:	19-09D
Project:	Explore #0112	Sample Number:	35003
Location:	Not Provided	Depth (m):	31.2-31.4
Client:	Telkwa	Lab ID No:	B19-058

Testing Results		Sample Measurements	
Max Load (kN)	101.30	Diameter (mm)	84.84
Stress σ_u (MPa)	17.9	Height (mm)	177.91
Pace Rate (kN/s)	1.25	Area (cm ²)	56.53
Lithology	Siltstone	Volume (cm ³)	1005.77
		Mass (g)	2574.50
		Moisture Content (%)	2.27
		Wet Density (kg/m ³)	2560
		Dry Density (kg/m ³)	2503



BEFORE TEST

Failure Mode	Notes
Type: 6	- Water content as received
α angle: N/A	- Wet density based on as received moisture
* Degrees measured with respect to core axis.	Mode:
The impact of any pre-existing feature on the test results will be noted in the comments, if applicable.	(1) Simple Extension
	(2) Multiple Extension
	(3) Multiple Fracturing
	(4) Multiple Shear
	(5) Single Shear
	(6) Spalling
	(7) Other



AFTER TEST

Comments

The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

B. Matheson

March 19, 2019

G. Patton

March 25, 2019

TESTED BY

DATE

CHECKED BY

DATE

Uniaxial Compressive Strength of Intact Rock Core Specimens (Method C)

ASTM D7012

Project No.: 18109666/2000

Borehole: 19-09D

Project: Explore #0112

Sample Number: 35005

Location: Not Provided

Depth (m): 48.7-48.9

Client: Telkwa

Lab ID No: B19-058

Testing Results		Sample Measurements	
Max Load (kN)	275.90	Diameter (mm)	84.85
Stress σ_u (MPa)	48.8	Height (mm)	178.15
Pace Rate (kN/s)	1.25	Area (cm ²)	56.55
Lithology	Sandstone	Volume (cm ³)	1007.43
		Mass (g)	2675.90
		Moisture Content (%)	1.83
		Wet Density (kg/m ³)	2656
		Dry Density (kg/m ³)	2608



BEFORE TEST

Failure Mode	Notes
Type: 3/6	- Water content as received
α angle: N/A	- Wet density based on as received moisture
* Degrees measured with respect to core axis.	Mode:
The impact of any pre-existing feature on the test results will be noted in the comments, if applicable.	(1) Simple Extension
	(2) Multiple Extension
	(3) Multiple Fracturing
	(4) Multiple Shear
	(5) Single Shear
	(6) Spalling
	(7) Other



AFTER TEST

Comments

The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

B. Matheson

March 19, 2019

G. Patton

March 25, 2019

TESTED BY

DATE

CHECKED BY

DATE

Uniaxial Compressive Strength of Intact Rock Core Specimens (Method C)

ASTM D7012

Project No.:	18109666/2000	Borehole:	19-16D
Project:	Explore #0112	Sample Number:	35009
Location:	Not Provided	Depth (m):	57.6-57.9
Client:	Telkwa	Lab ID No:	B19-058

Testing Results		Sample Measurements	
Max Load (kN)	152.60	Diameter (mm)	84.80
Stress σ_u (MPa)	27.0	Height (mm)	164.14
Pace Rate (kN/s)	1.25	Area (cm ²)	56.47
Lithology	Siltstone	Volume (cm ³)	926.98
		Mass (g)	2398.40
		Moisture Content (%)	1.76
		Wet Density (kg/m ³)	2587
		Dry Density (kg/m ³)	2543

Failure Mode	Notes
Type: 3	- Water content as received
α angle: N/A	- Wet density based on as received moisture
* Degrees measured with respect to core axis.	Mode:
The impact of any pre-existing feature on the test results will be noted in the comments, if applicable.	(1) Simple Extension
	(2) Multiple Extension
	(3) Multiple Fracturing
	(4) Multiple Shear
	(5) Single Shear
	(6) Spalling
	(7) Other

Comments
Sample does not conform to ASTM requirements and results may differ from those obtained from test specimens that meet requirements. <i>ASTM D7012; Section 8.1.1 Desirable specimen length to diameter ratios are between 2.0:1 and 2.5:1. Specimen length to diameter ratios of less than 2.0:1 are unacceptable.</i>



BEFORE TEST



AFTER TEST

The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

B. Matheson

March 19, 2019

G. Patton

March 25, 2019

TESTED BY

DATE

CHECKED BY

DATE

Uniaxial Compressive Strength of Intact Rock Core Specimens (Method C)

ASTM D7012

Project No.:	18109666/2000	Borehole:	19-16D
Project:	Explore #0112	Sample Number:	35010
Location:	Not Provided	Depth (m):	61.9-62.1
Client:	Telkwa	Lab ID No:	B19-058

Testing Results		Sample Measurements	
Max Load (kN)	229.60	Diameter (mm)	84.84
Stress σ_u (MPa)	40.6	Height (mm)	148.13
Pace Rate (kN/s)	1.25	Area (cm ²)	56.53
Lithology	Mudstone	Volume (cm ³)	837.32
		Mass (g)	2109.30
		Moisture Content (%)	2.08
		Wet Density (kg/m ³)	2519
		Dry Density (kg/m ³)	2468

Failure Mode	Notes
Type: 6	- Water content as received
α angle: N/A	- Wet density based on as received moisture
* Degrees measured with respect to core axis.	Mode:
The impact of any pre-existing feature on the test results will be noted in the comments, if applicable.	(1) Simple Extension
	(2) Multiple Extension
	(3) Multiple Fracturing
	(4) Multiple Shear
	(5) Single Shear
	(6) Spalling
	(7) Other

Comments
Sample does not conform to ASTM requirements and results may differ from those obtained from test specimens that meet requirements. <i>ASTM D7012; Section 8.1.1 Desirable specimen length to diameter ratios are between 2.0:1 and 2.5:1. Specimen length to diameter ratios of less than 2.0:1 are unacceptable.</i>



BEFORE TEST



AFTER TEST

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B. Matheson

March 19, 2019

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March 25, 2019

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DATE

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Uniaxial Compressive Strength of Intact Rock Core Specimens (Method C)

ASTM D7012

Project No.:	18109666/2000	Borehole:	19-16D
Project:	Explore #0112	Sample Number:	35012
Location:	Not Provided	Depth (m):	72.2-73.2
Client:	Telkwa	Lab ID No:	B19-058

Testing Results		Sample Measurements	
Max Load (kN)	60.10	Diameter (mm)	84.88
Stress σ_u (MPa)	10.6	Height (mm)	177.88
Pace Rate (kN/s)	1.25	Area (cm ²)	56.58
Lithology	Siltstone	Volume (cm ³)	1006.47
		Mass (g)	2599.70
		Moisture Content (%)	2.72
		Wet Density (kg/m ³)	2583
		Dry Density (kg/m ³)	2515



BEFORE TEST

Failure Mode	Notes
Type: 7	- Water content as received
α angle: N/A	- Wet density based on as received moisture
* Degrees measured with respect to core axis.	Mode:
The impact of any pre-existing feature on the test results will be noted in the comments, if applicable.	(1) Simple Extension
	(2) Multiple Extension
	(3) Multiple Fracturing
	(4) Multiple Shear
	(5) Single Shear
	(6) Spalling
	(7) Other



AFTER TEST

Comments
Failure Mode: The top half of the sample fractured into multiple pieces, while the bottom half remained intact.

The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

B. Matheson

March 19, 2019

G. Patton

March 25, 2019

TESTED BY

DATE

CHECKED BY

DATE

Uniaxial Compressive Strength of Intact Rock Core Specimens (Method C)

ASTM D7012

Project No.:	18109666/2000	Borehole:	19-17D
Project:	Explore #0112	Sample Number:	35014
Location:	Not Provided	Depth (m):	45.1-45.4
Client:	Telkwa	Lab ID No:	B19-058

Testing Results		Sample Measurements	
Max Load (kN)	195.80	Diameter (mm)	84.80
Stress σ_u (MPa)	34.7	Height (mm)	180.21
Pace Rate (kN/s)	1.25	Area (cm ²)	56.48
Lithology	Sandstone	Volume (cm ³)	1017.88
		Mass (g)	2655.90
		Moisture Content (%)	1.45
		Wet Density (kg/m ³)	2609
		Dry Density (kg/m ³)	2572



BEFORE TEST

Failure Mode	Notes
Type: 6	- Water content as received
α angle: N/A	- Wet density based on as received moisture
* Degrees measured with respect to core axis.	Mode:
The impact of any pre-existing feature on the test results will be noted in the comments, if applicable.	(1) Simple Extension
	(2) Multiple Extension
	(3) Multiple Fracturing
	(4) Multiple Shear
	(5) Single Shear
	(6) Spalling
	(7) Other



AFTER TEST

Comments

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B. Matheson

March 19, 2019

G. Patton

March 25, 2019

TESTED BY

DATE

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DATE

Uniaxial Compressive Strength of Intact Rock Core Specimens (Method C)

ASTM D7012

Project No.:	18109666/2000	Borehole:	19-17D
Project:	Explore #0112	Sample Number:	35016
Location:	Not Provided	Depth (m):	51.3-51.5
Client:	Telkwa	Lab ID No:	B19-058

Testing Results		Sample Measurements	
Max Load (kN)	87.20	Diameter (mm)	84.69
Stress σ_u (MPa)	15.5	Height (mm)	174.50
Pace Rate (kN/s)	1.25	Area (cm ²)	56.33
Lithology	Siltstone	Volume (cm ³)	982.89
		Mass (g)	2730.80
		Moisture Content (%)	1.10
		Wet Density (kg/m ³)	2778
		Dry Density (kg/m ³)	2748



BEFORE TEST

Failure Mode	Notes
Type: 6	- Water content as received
α angle: N/A	- Wet density based on as received moisture
* Degrees measured with respect to core axis.	Mode:
The impact of any pre-existing feature on the test results will be noted in the comments, if applicable.	(1) Simple Extension
	(2) Multiple Extension
	(3) Multiple Fracturing
	(4) Multiple Shear
	(5) Single Shear
	(6) Spalling
	(7) Other

Comments



AFTER TEST

The test data given herein pertain to the sample provided only. This report constitutes a testing service only.

B. Matheson

March 19, 2019

G. Patton

March 25, 2019

TESTED BY

DATE

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DATE

Uniaxial Compressive Strength of Intact Rock Core Specimens (Method C)

ASTM D7012

Project No.:	18109666/2000	Borehole:	19-18D
Project:	Explore #0112	Sample Number:	35017
Location:	Not Provided	Depth (m):	24.3-24.5
Client:	Telkwa	Lab ID No:	B19-058

Testing Results		Sample Measurements	
Max Load (kN)	155.60	Diameter (mm)	84.88
Stress σ_u (MPa)	27.5	Height (mm)	180.41
Pace Rate (kN/s)	1.25	Area (cm ²)	56.58
Lithology	Siltstone	Volume (cm ³)	1020.85
		Mass (g)	2646.90
		Moisture Content (%)	1.23
		Wet Density (kg/m ³)	2593
		Dry Density (kg/m ³)	2561



BEFORE TEST

Failure Mode	Notes
Type: 6	- Water content as received
α angle: N/A	- Wet density based on as received moisture
* Degrees measured with respect to core axis.	Mode:
The impact of any pre-existing feature on the test results will be noted in the comments, if applicable.	(1) Simple Extension
	(2) Multiple Extension
	(3) Multiple Fracturing
	(4) Multiple Shear
	(5) Single Shear
	(6) Spalling
	(7) Other



AFTER TEST

Comments

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B. Matheson

March 19, 2019

G. Patton

March 25, 2019

TESTED BY

DATE

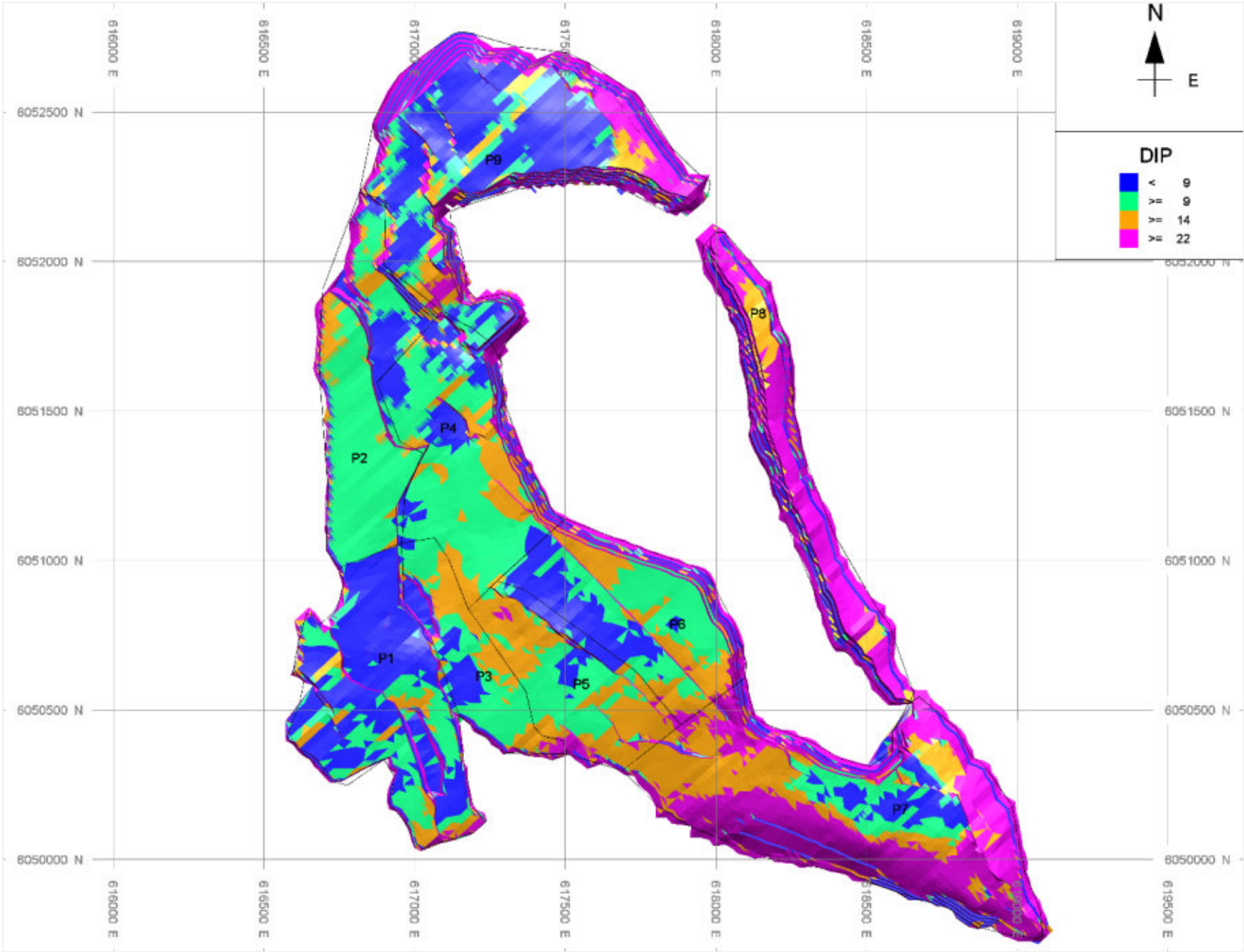
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DATE

Appendix F – Geological Cross Sections

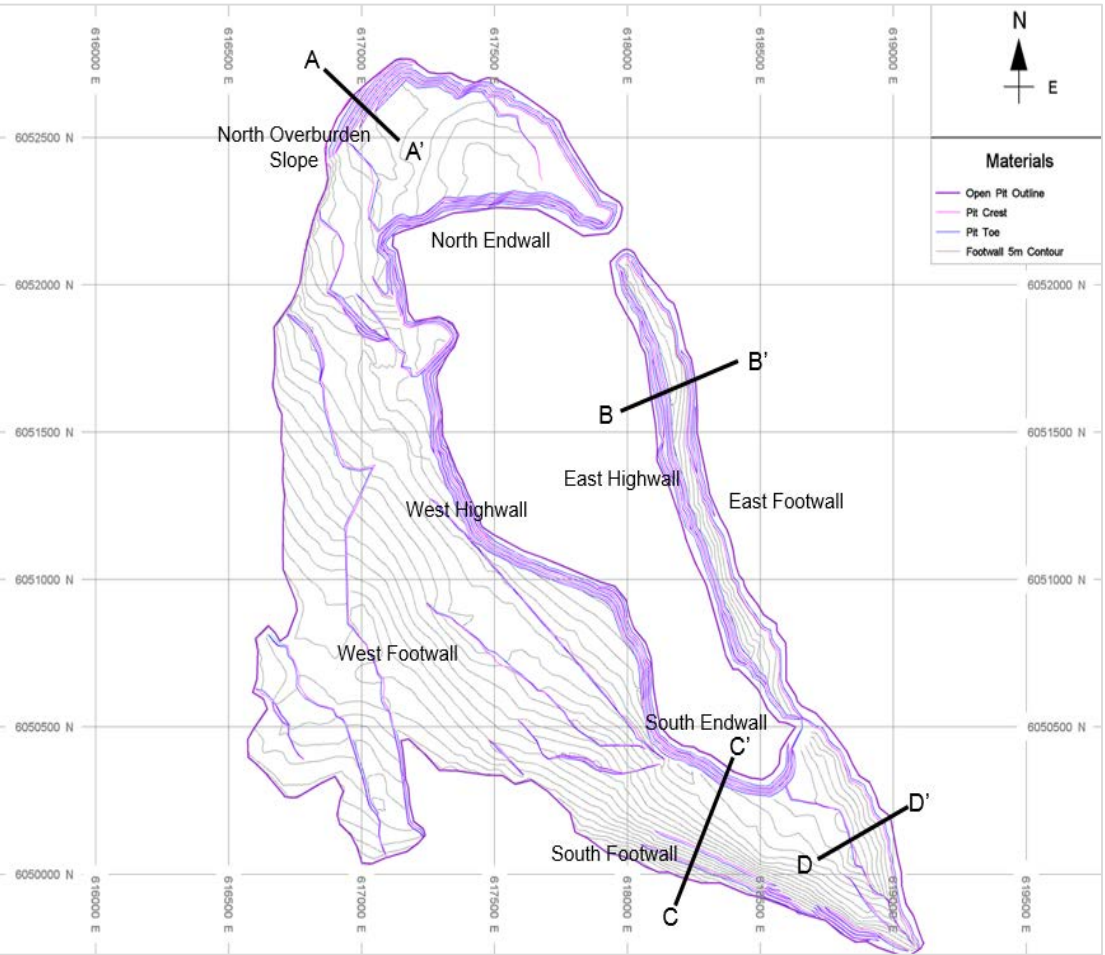
TENAS GEOLOGICAL MODEL

COAL SEAM GEOLOGY – BEDDING DIPS



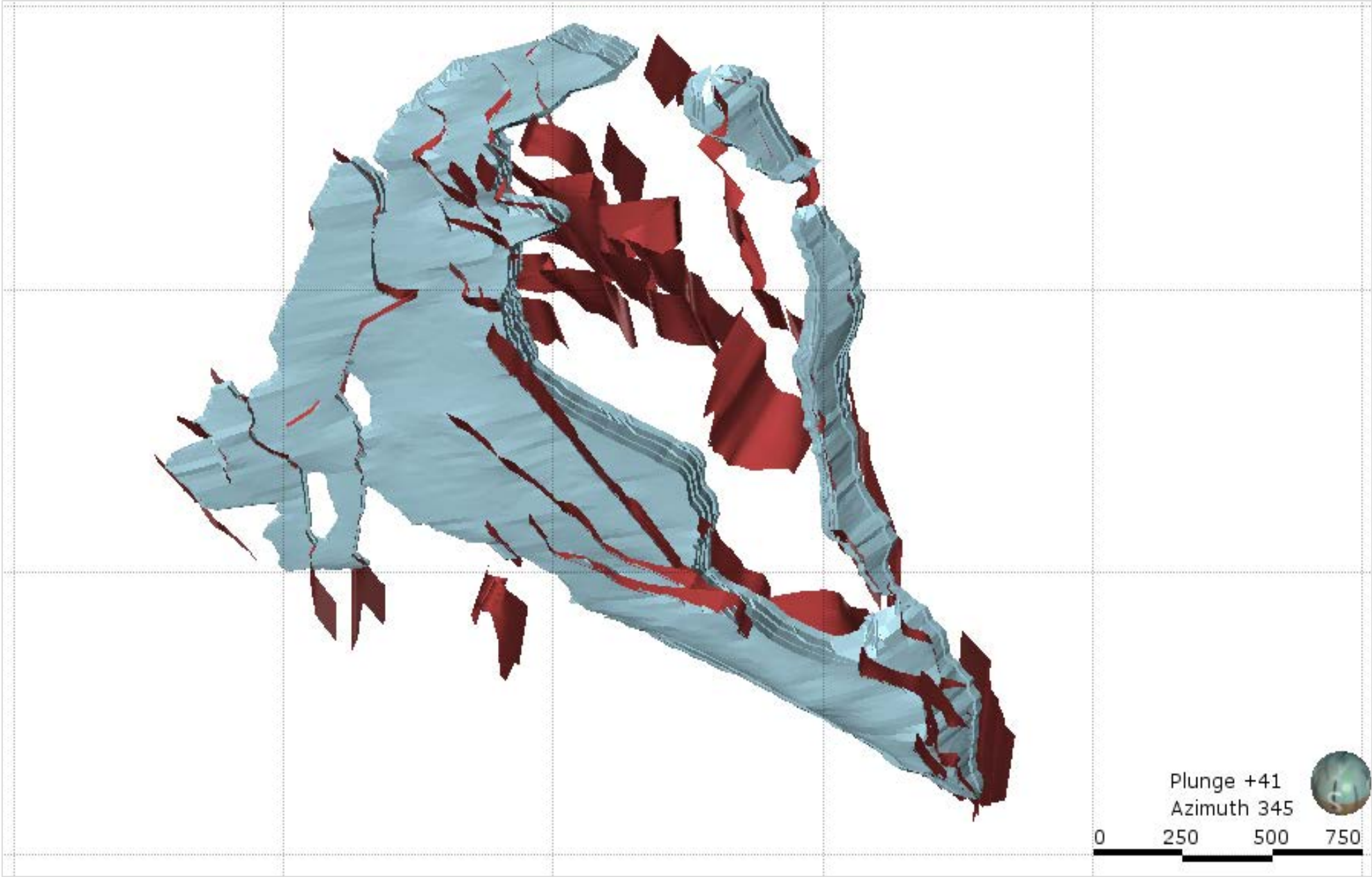
NOTE: Bedding dips shown for coal seam 1LA

FOOTWALL SLOPE CONTOURS



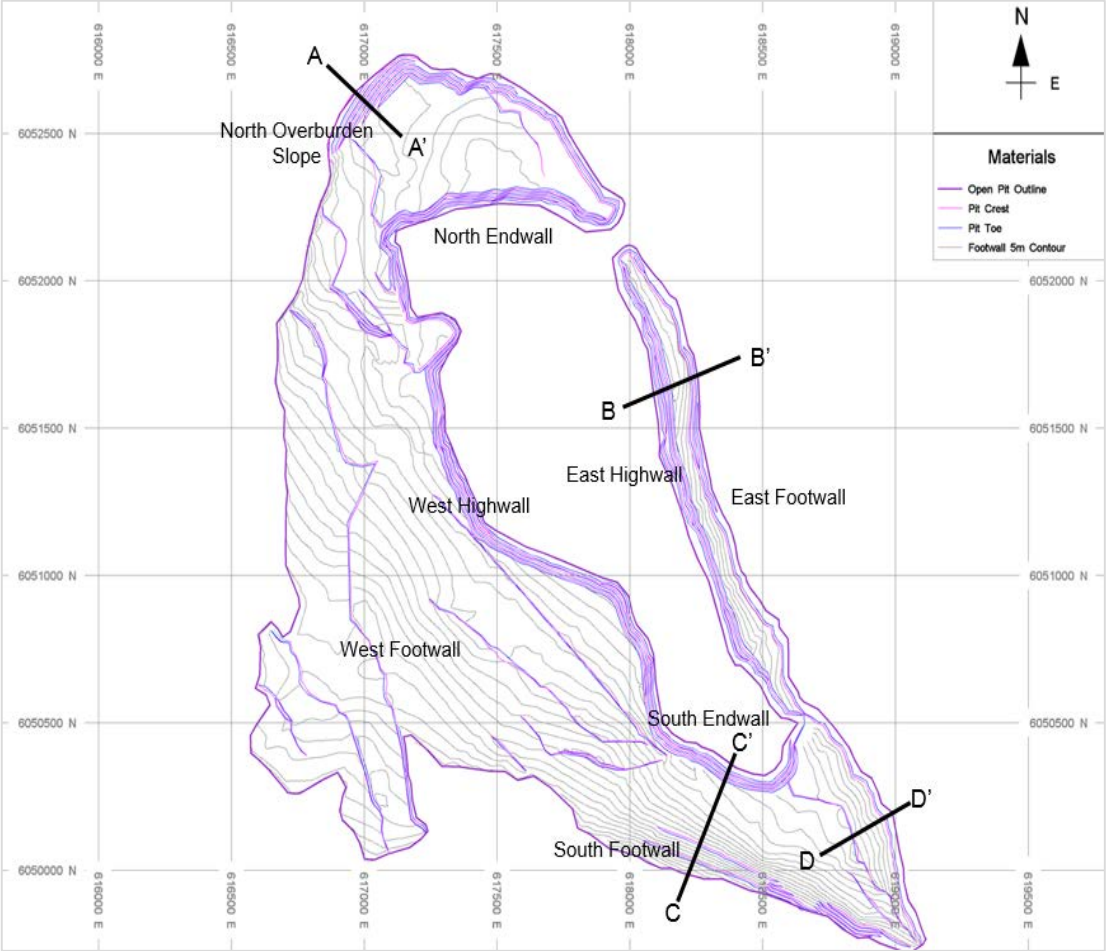
TENAS STRUCTURAL GEOLOGY

3D FAULT MODEL



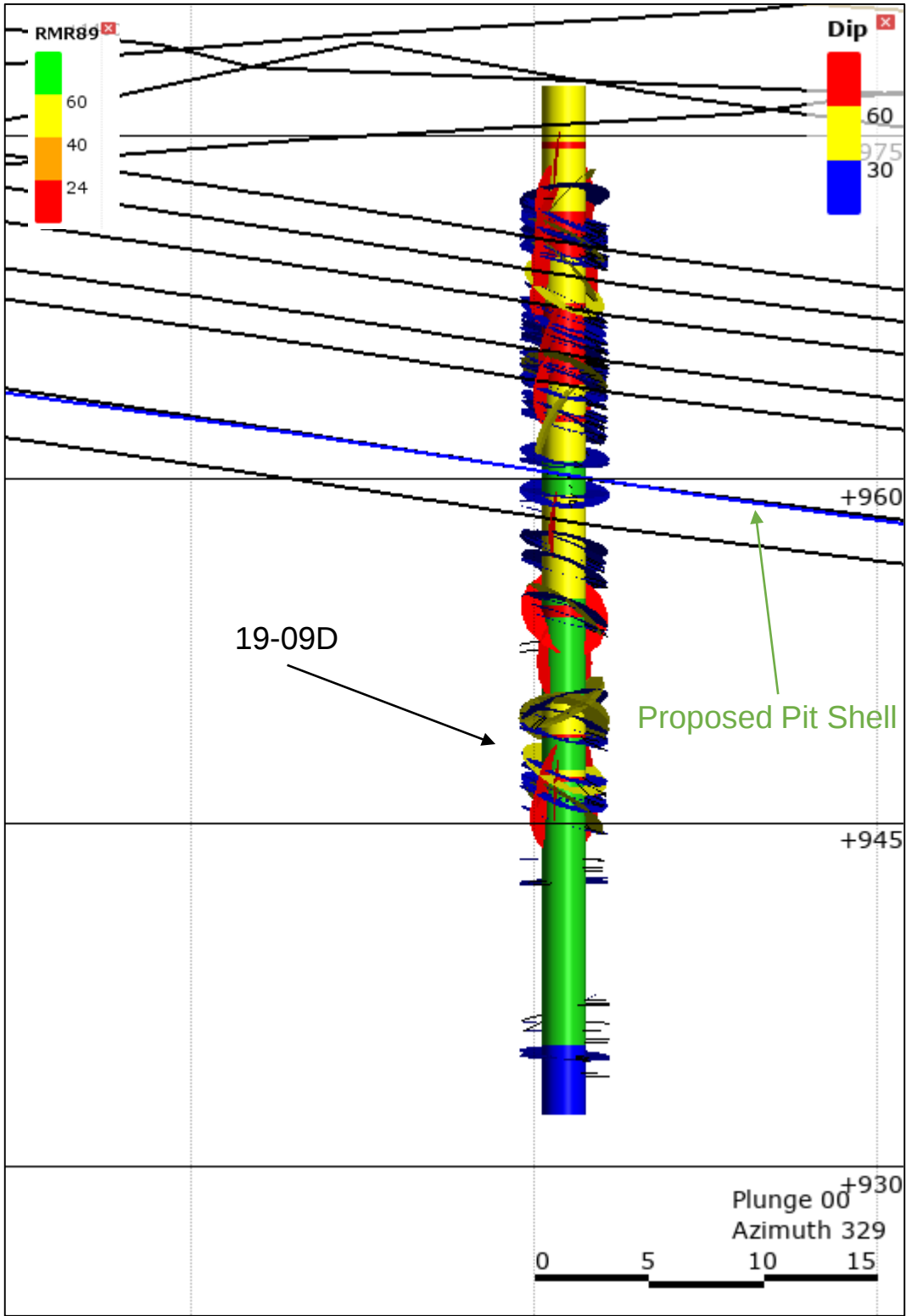
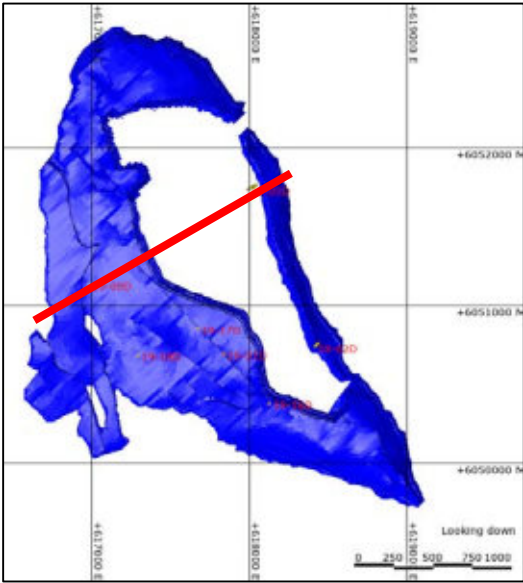
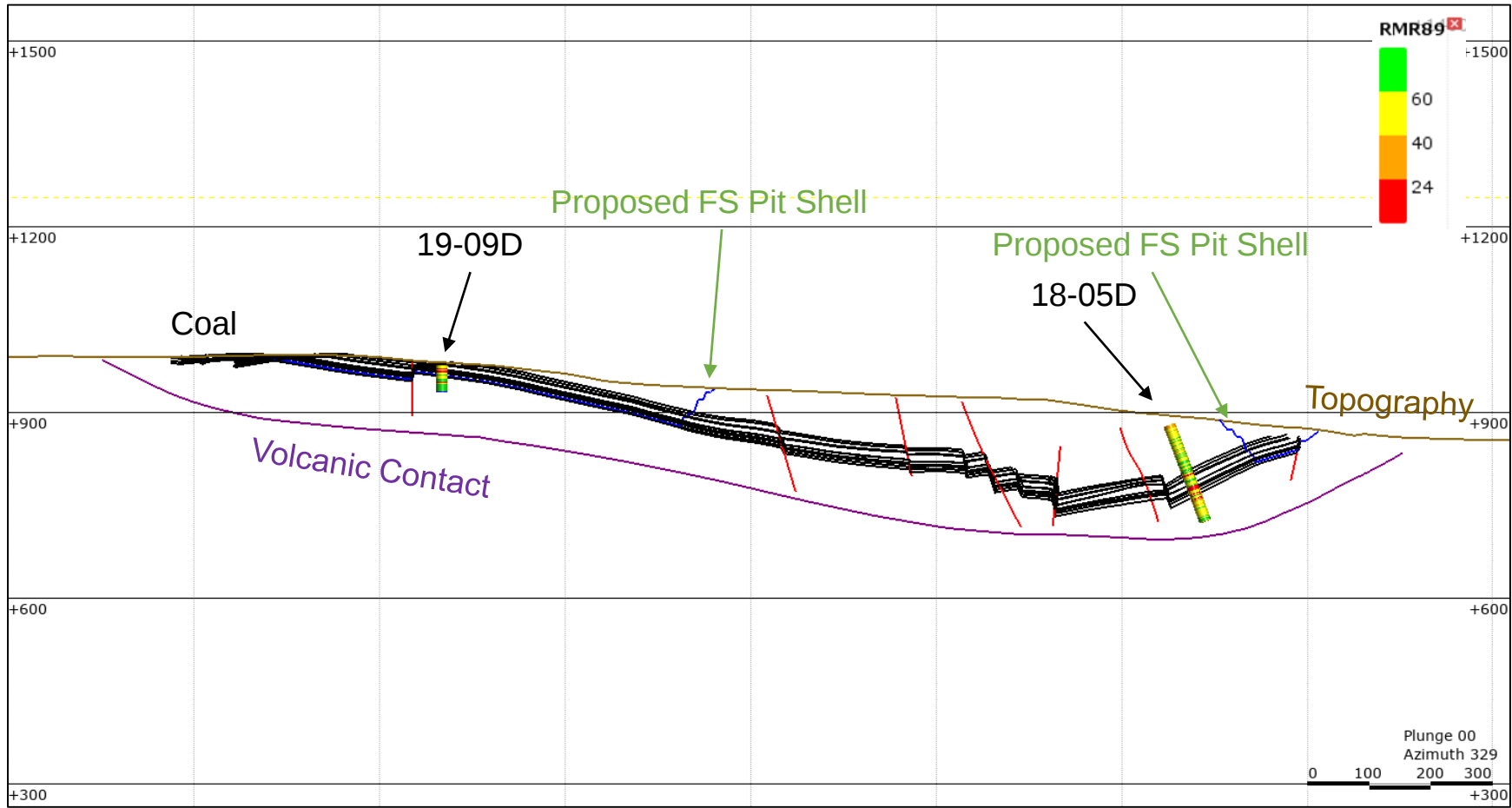
NOTE: 3D Coal and Fault model developed by Telkwa Coal Ltd.

FOOTWALL SLOPE CONTOURS



TENAS GEOLOGICAL SECTIONS

19-09D DRILLHOLE AND GEOLOGICAL SECYION

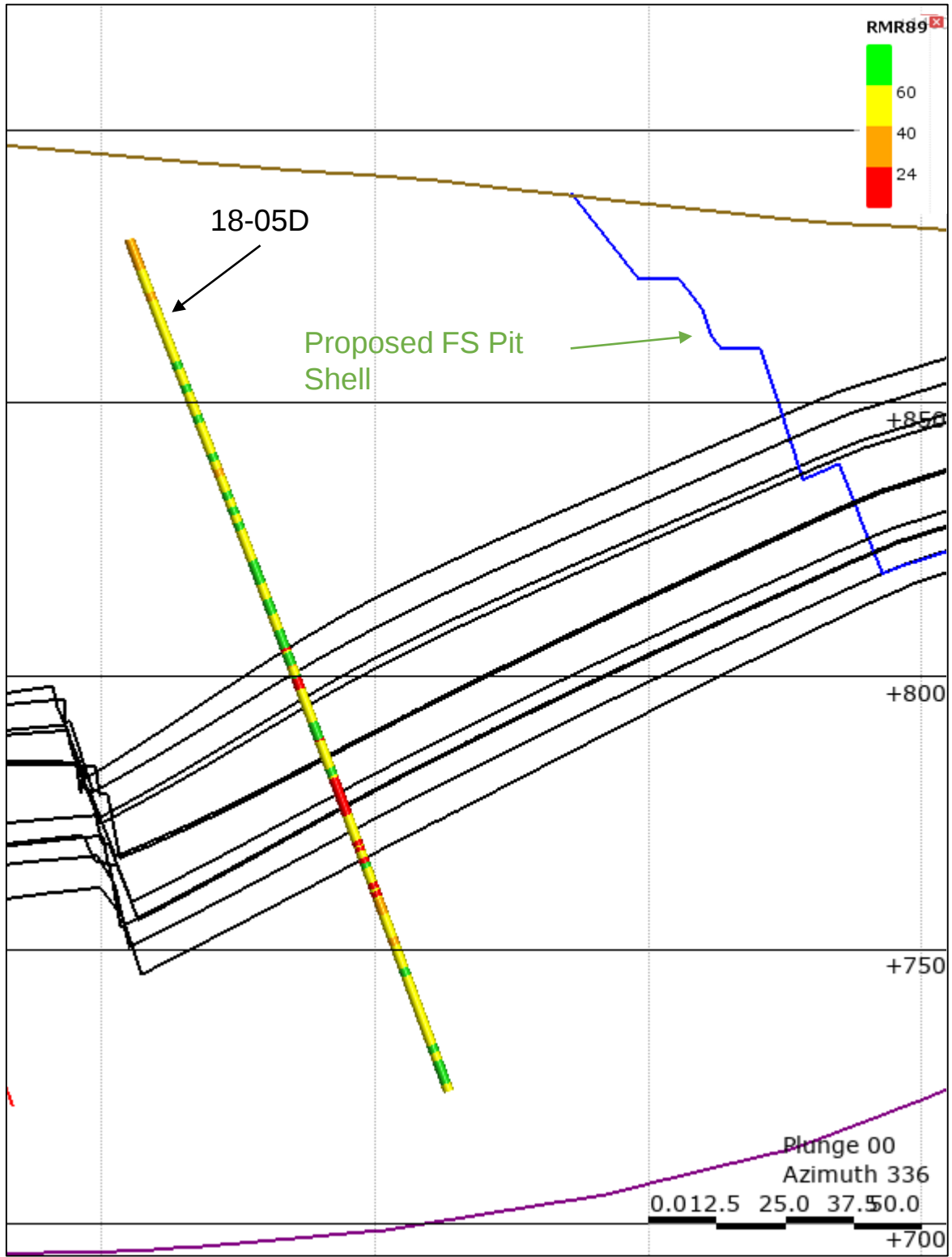
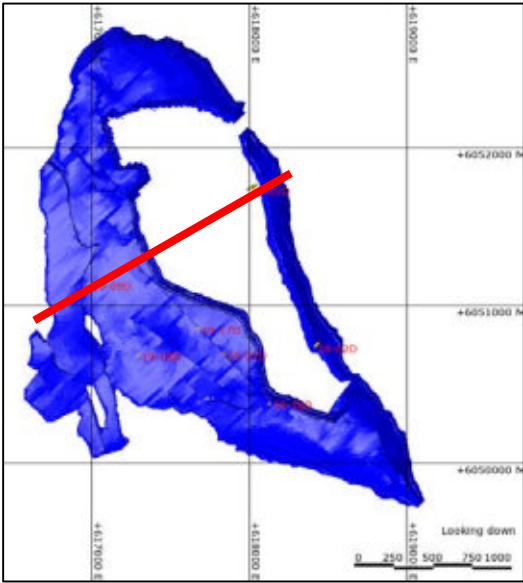
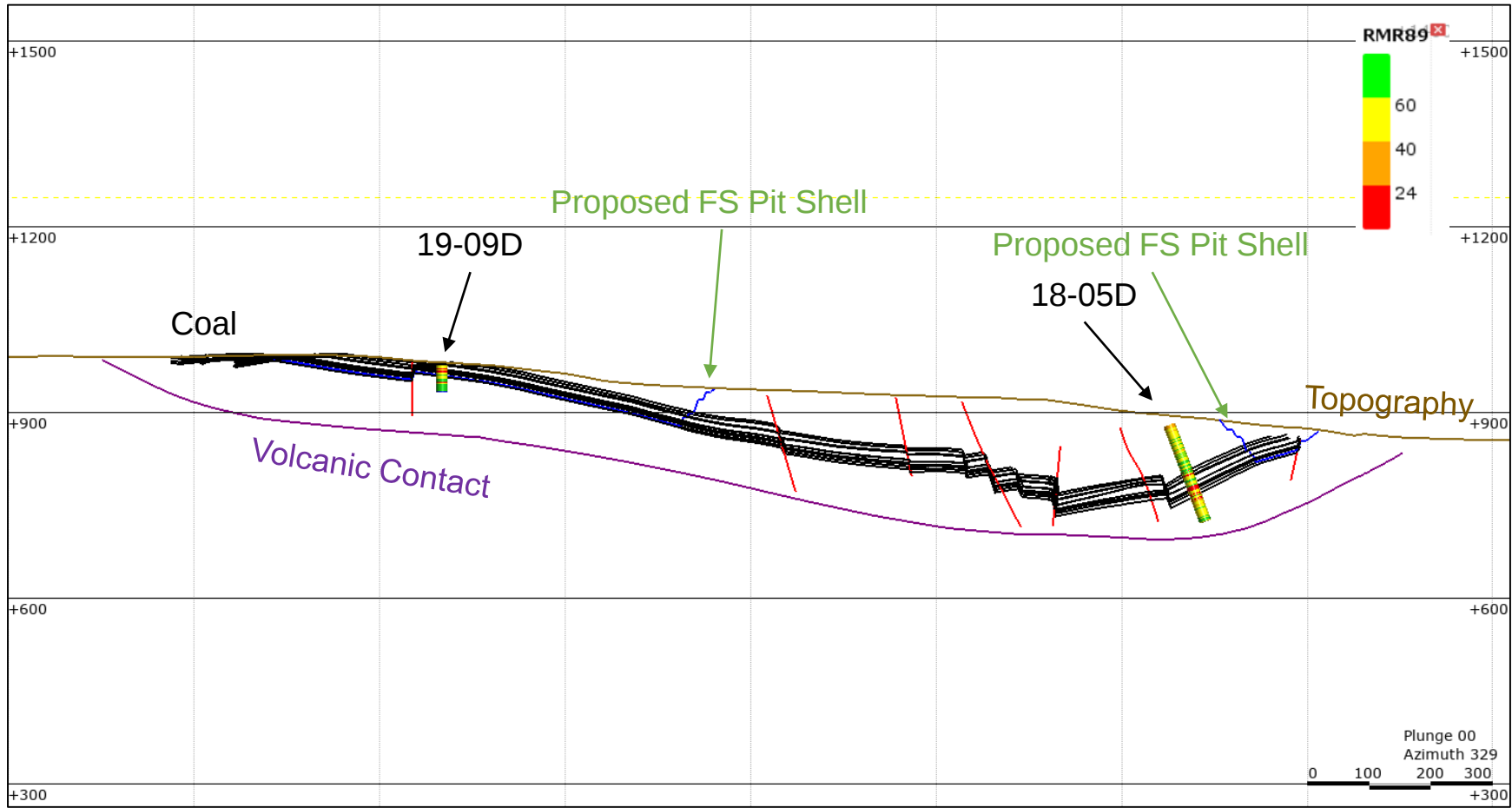


NOTE: 3D Coal and Fault model developed by Telkwa Coal Ltd.

 Job No: 2CI009.017	 TENAS PROJECT	PIT SLOPE GEOTECHNICAL STABILITY ASSESSMENT		
		TENAS PIT GEOLOGY		
		Date: 2019/03/30	Approved:	Figure:

TENAS GEOLOGICAL SECTIONS

18-05D DRILLHOLE AND GEOLOGICAL SECYION

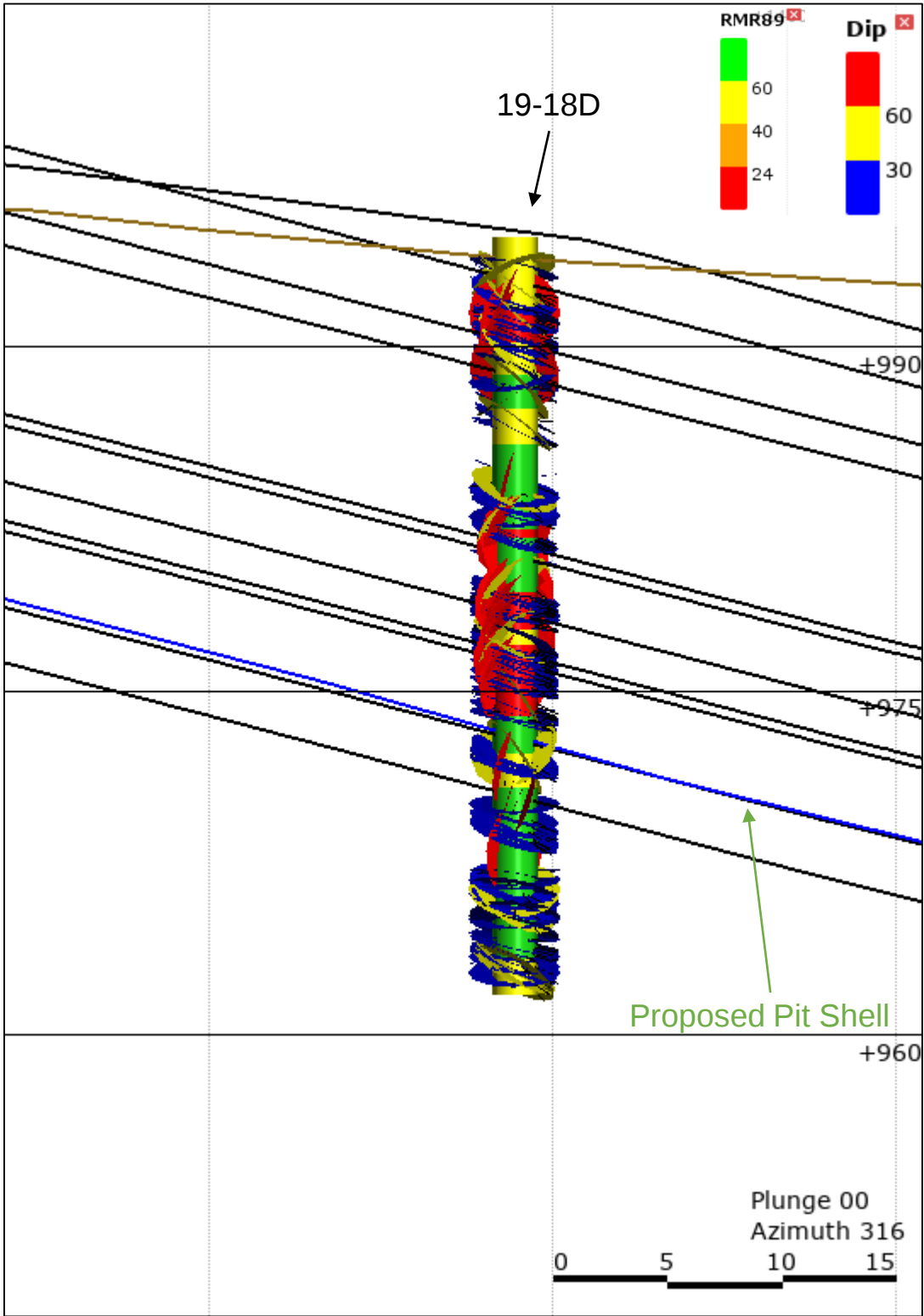
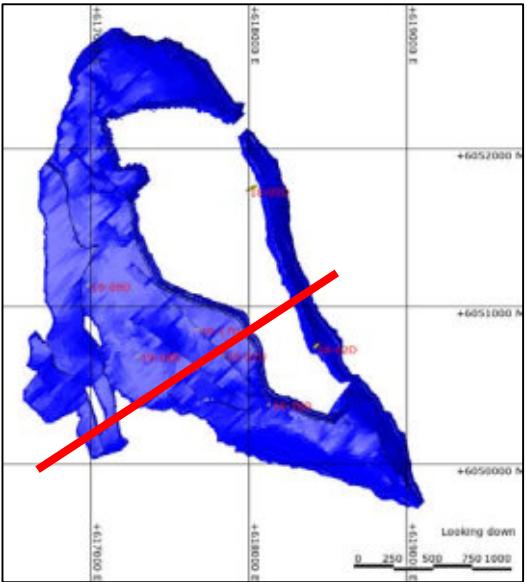
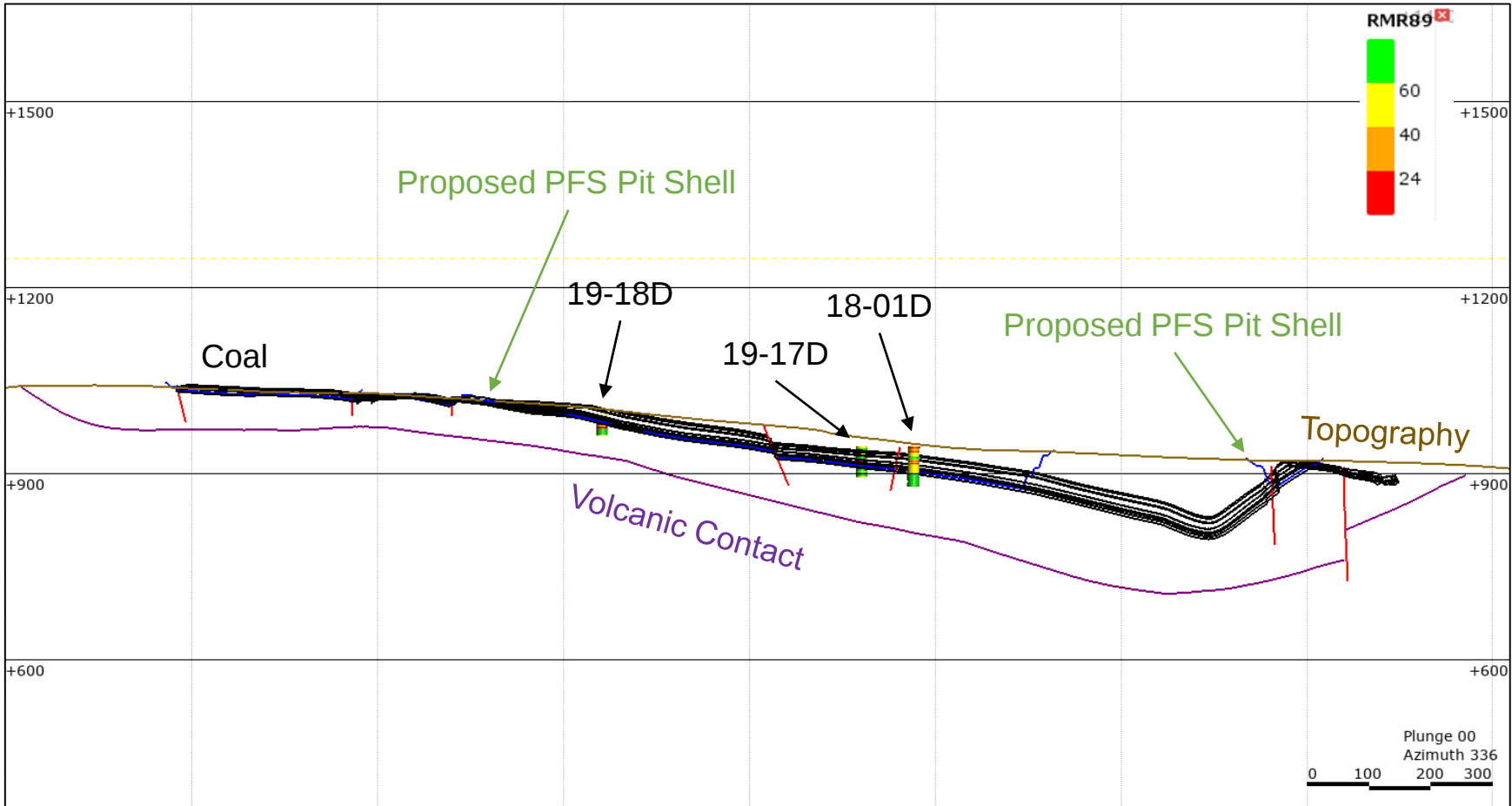


NOTE: 3D Coal and Fault model developed by Telkwa Coal Ltd.

 Job No: 2CI009.017	 TENAS PROJECT	PIT SLOPE GEOTECHNICAL STABILITY ASSESSMENT		
		TENAS PIT GEOLOGY		
		Date: 2019/03/30	Approved:	Figure:

TENAS GEOLOGICAL SECTIONS

19-18D DRILLHOLE AND GEOLOGICAL SECYION

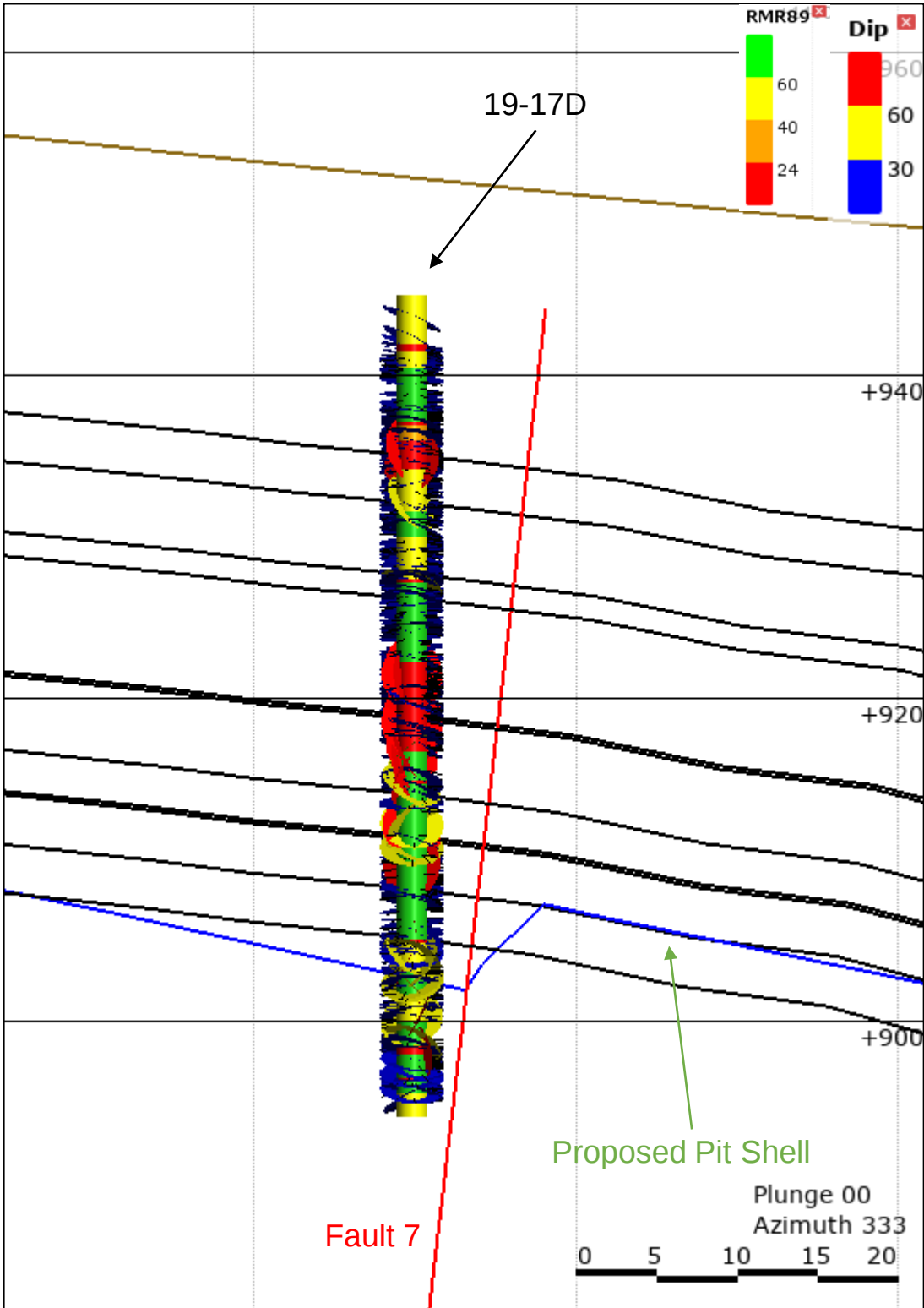
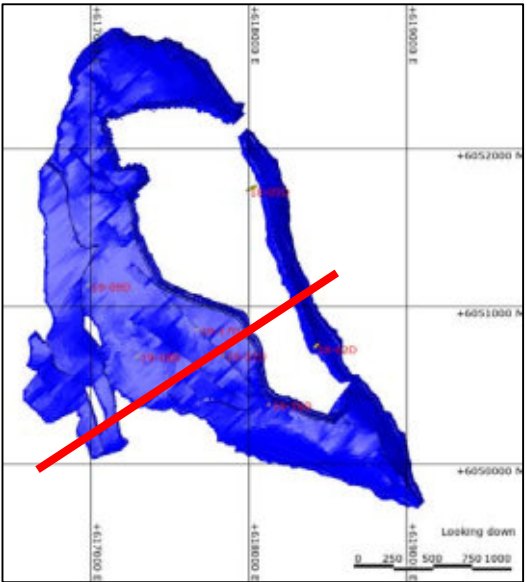
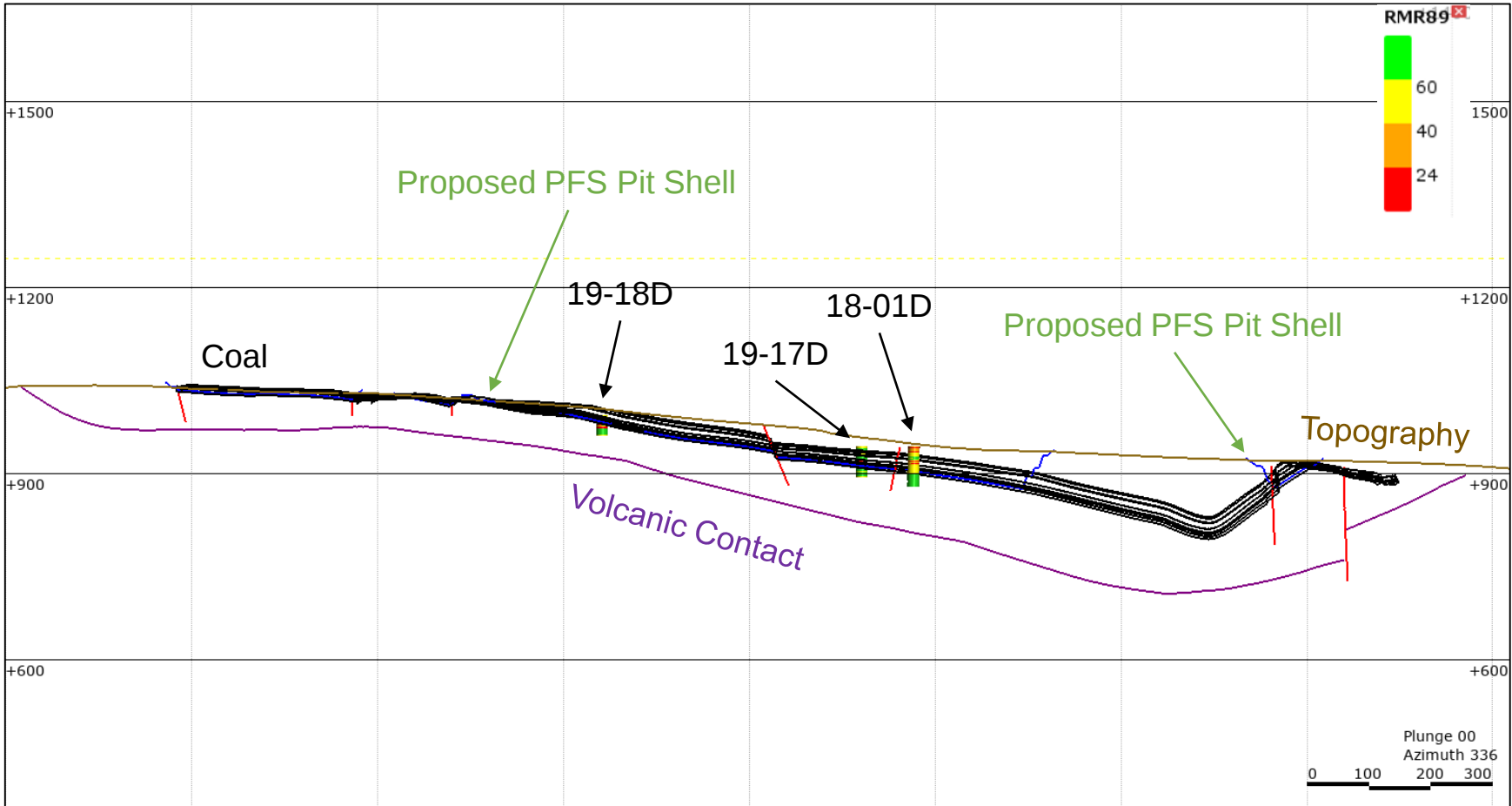


NOTE: 3D Coal and Fault model developed by Telkwa Coal Ltd.

 Job No: 2CI009.017	 TENAS PROJECT	PIT SLOPE GEOTECHNICAL STABILITY ASSESSMENT		
		TENAS PIT GEOLOGY		
		Date: 2019/03/30	Approved:	Figure:

TENAS GEOLOGICAL SECTIONS

19-17D DRILLHOLE AND GEOLOGICAL SECYION

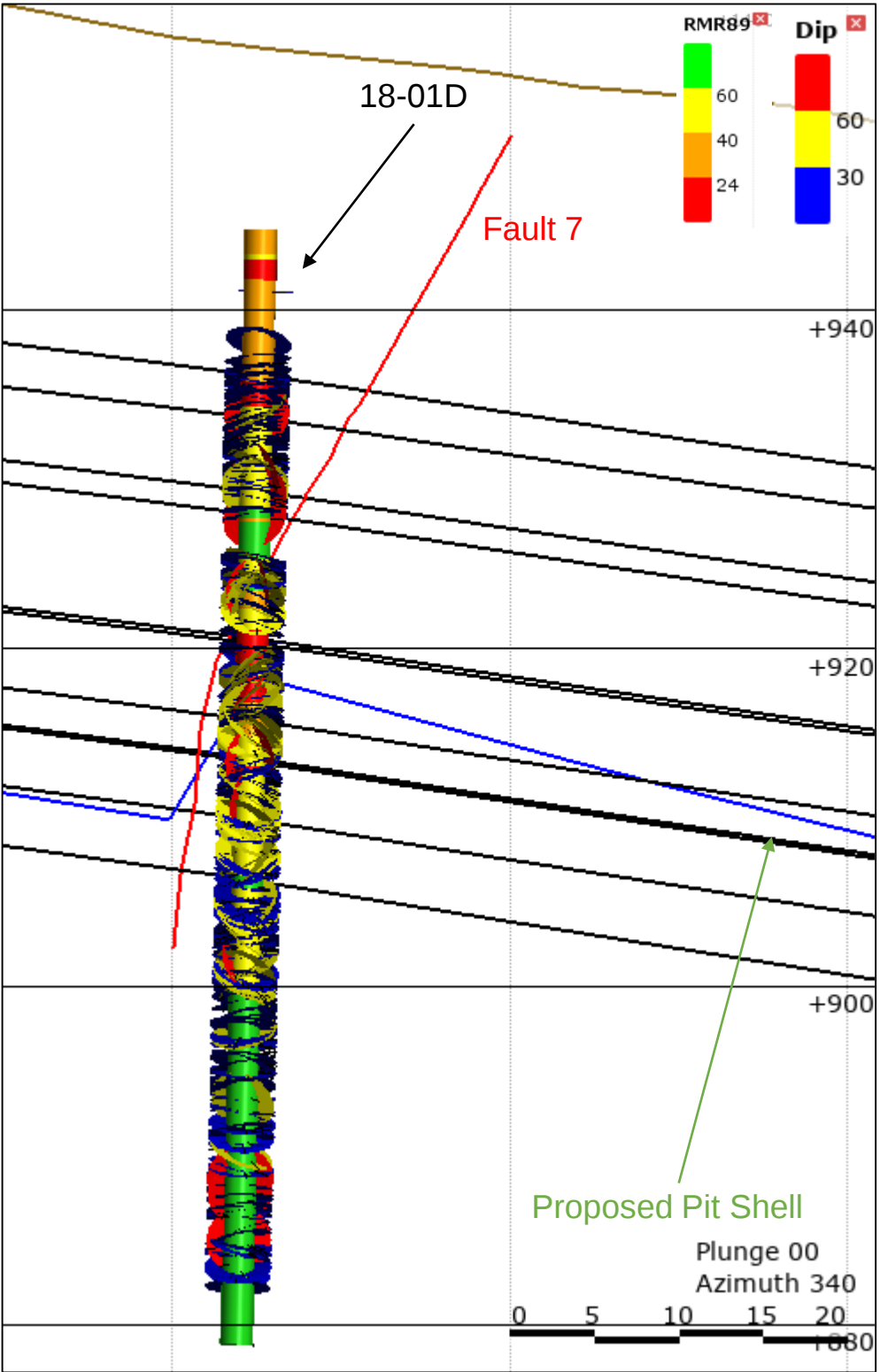
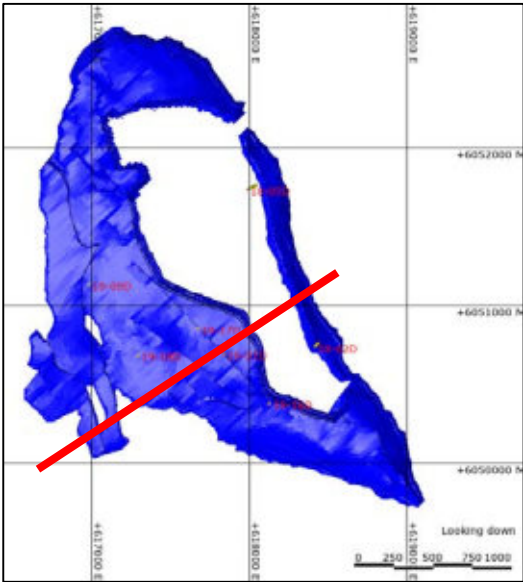
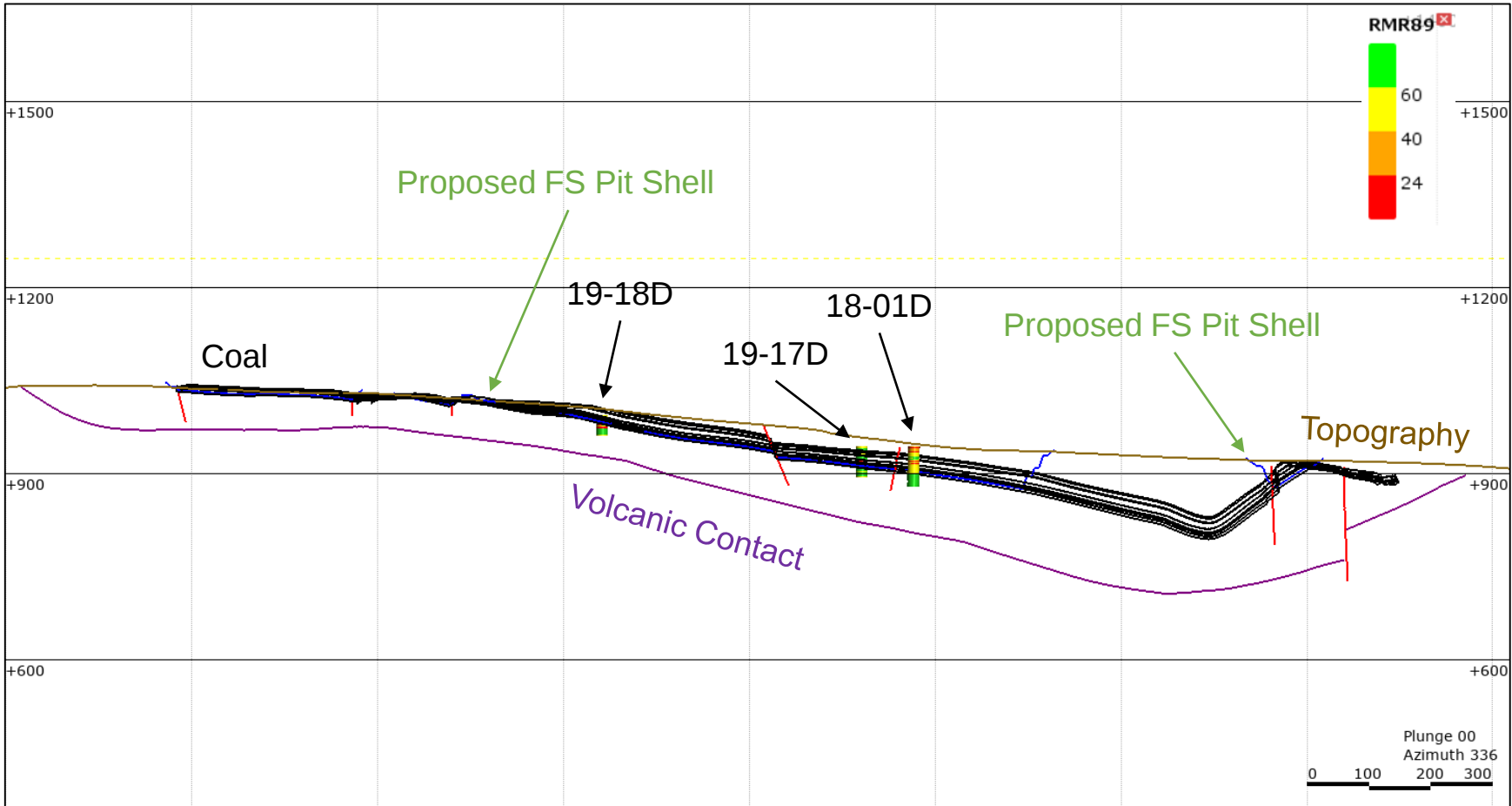


NOTE: 3D Coal and Fault model developed by Telkwa Coal Ltd.

 Job No: 2CI009.017	 TENAS PROJECT	PIT SLOPE GEOTECHNICAL STABILITY ASSESSMENT		
		TENAS PIT GEOLOGY		
		Date: 2019/03/30	Approved:	Figure:

TENAS GEOLOGICAL SECTIONS

18-01D DRILLHOLE AND GEOLOGICAL SECYION

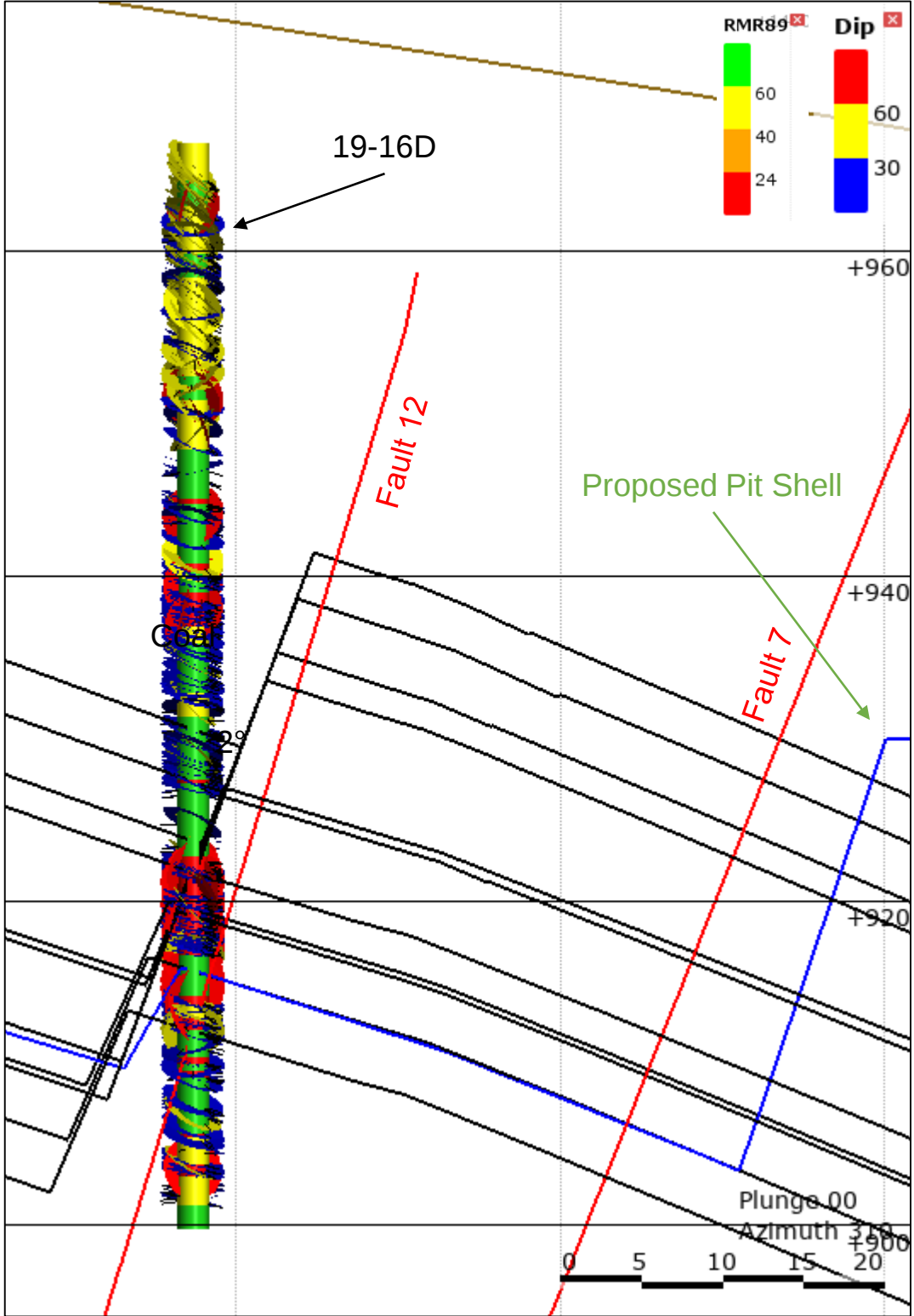
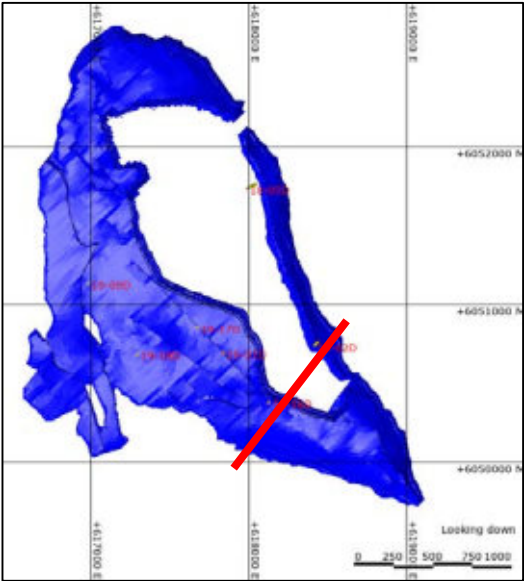
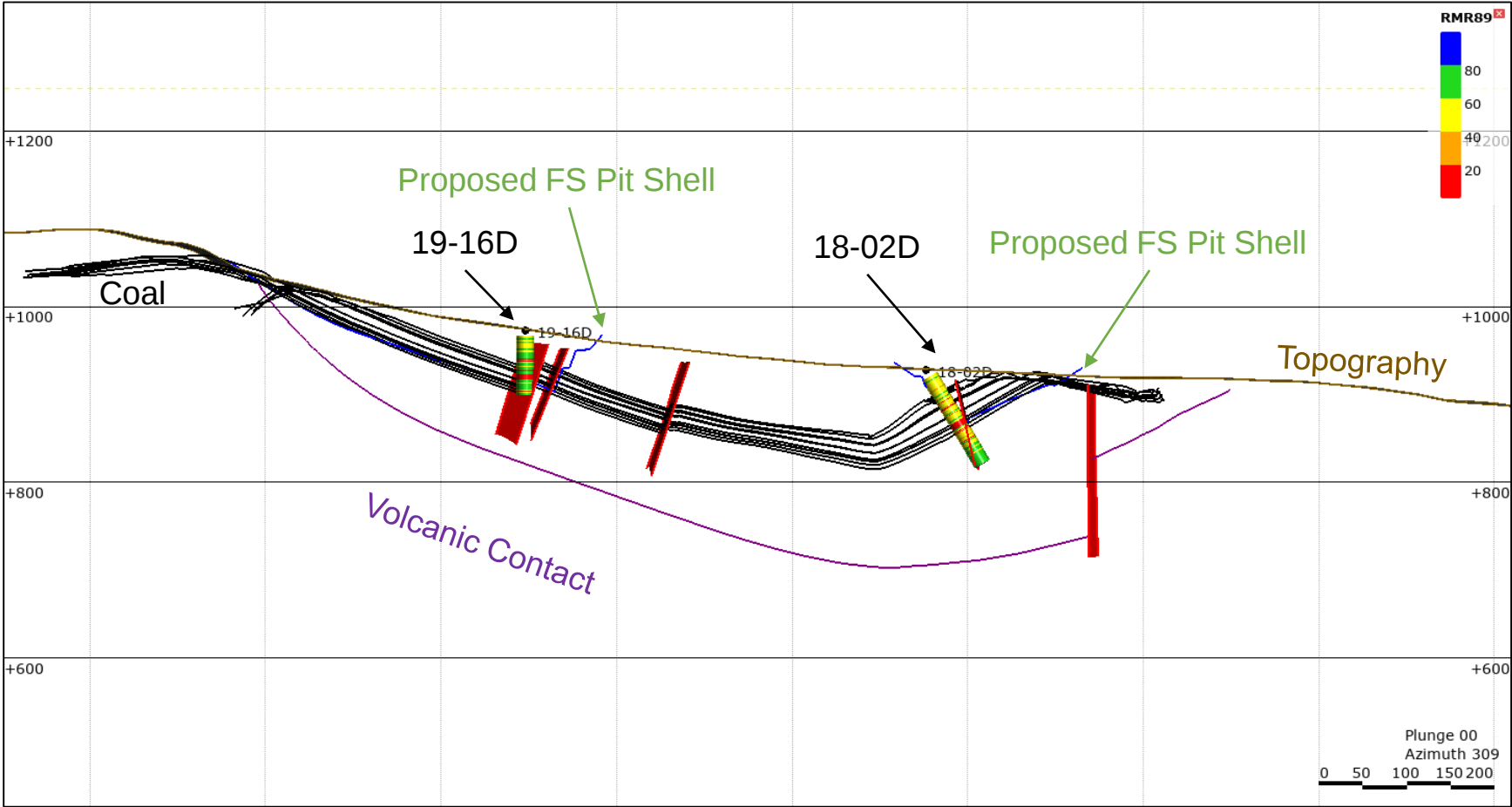


NOTE: 3D Coal and Fault model developed by Telkwa Coal Ltd.

 Job No: 2CI009.017	 TENAS PROJECT	PIT SLOPE GEOTECHNICAL STABILITY ASSESSMENT		
		TENAS PIT GEOLOGY		
		Date: 2019/03/30	Approved:	Figure:

TENAS GEOLOGICAL SECTIONS

19-16D DRILLHOLE AND GEOLOGICAL SECYION

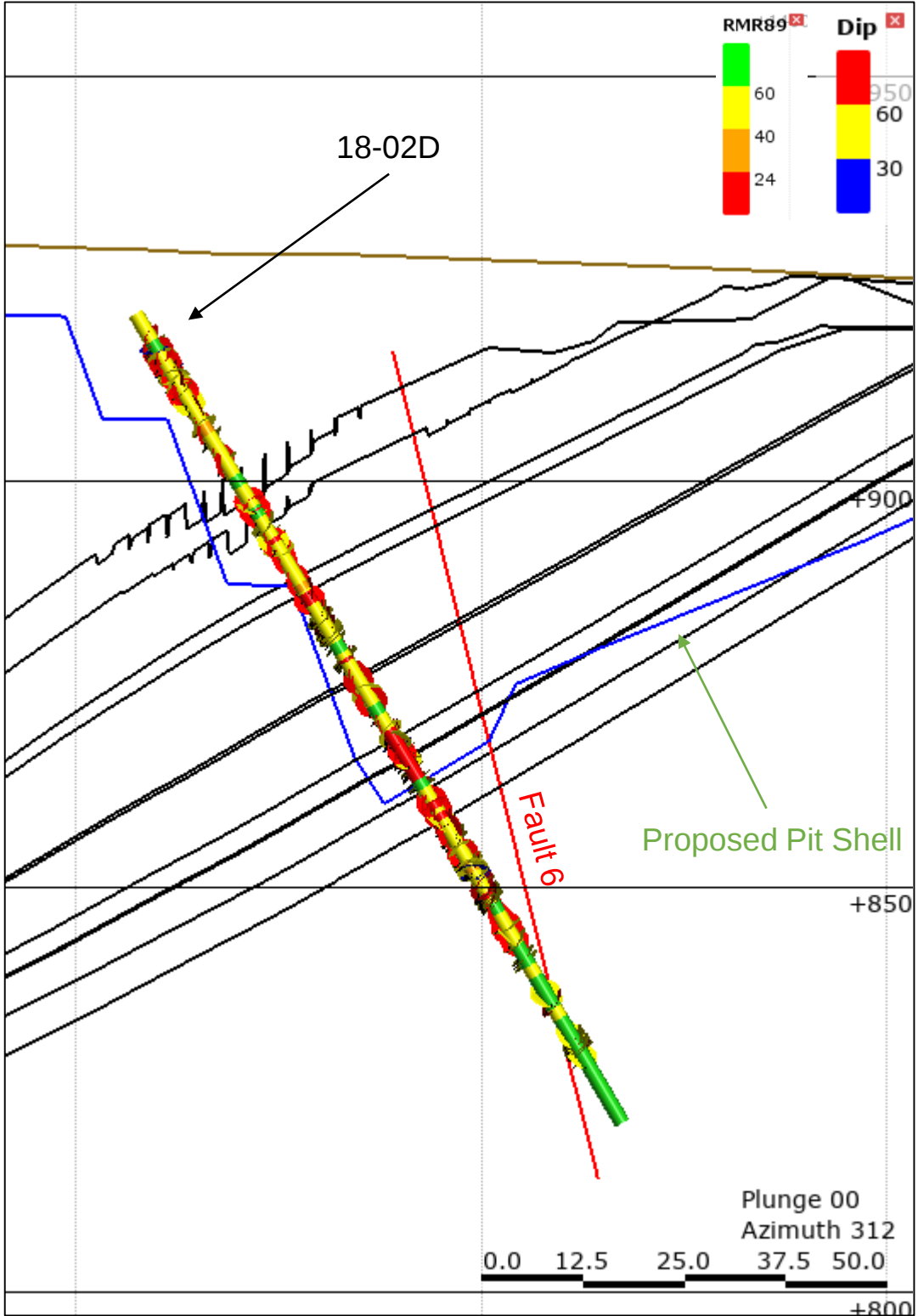
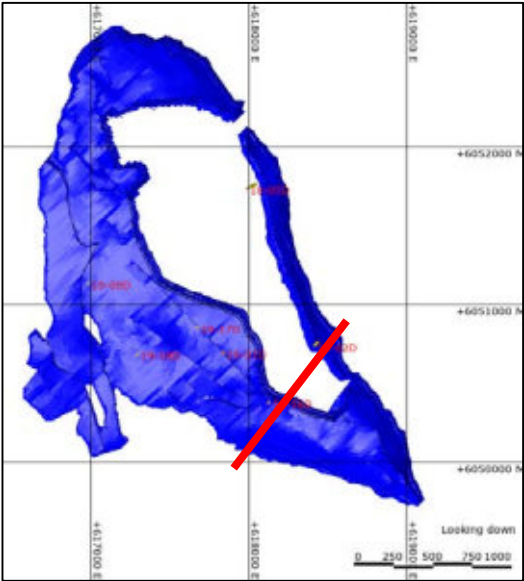
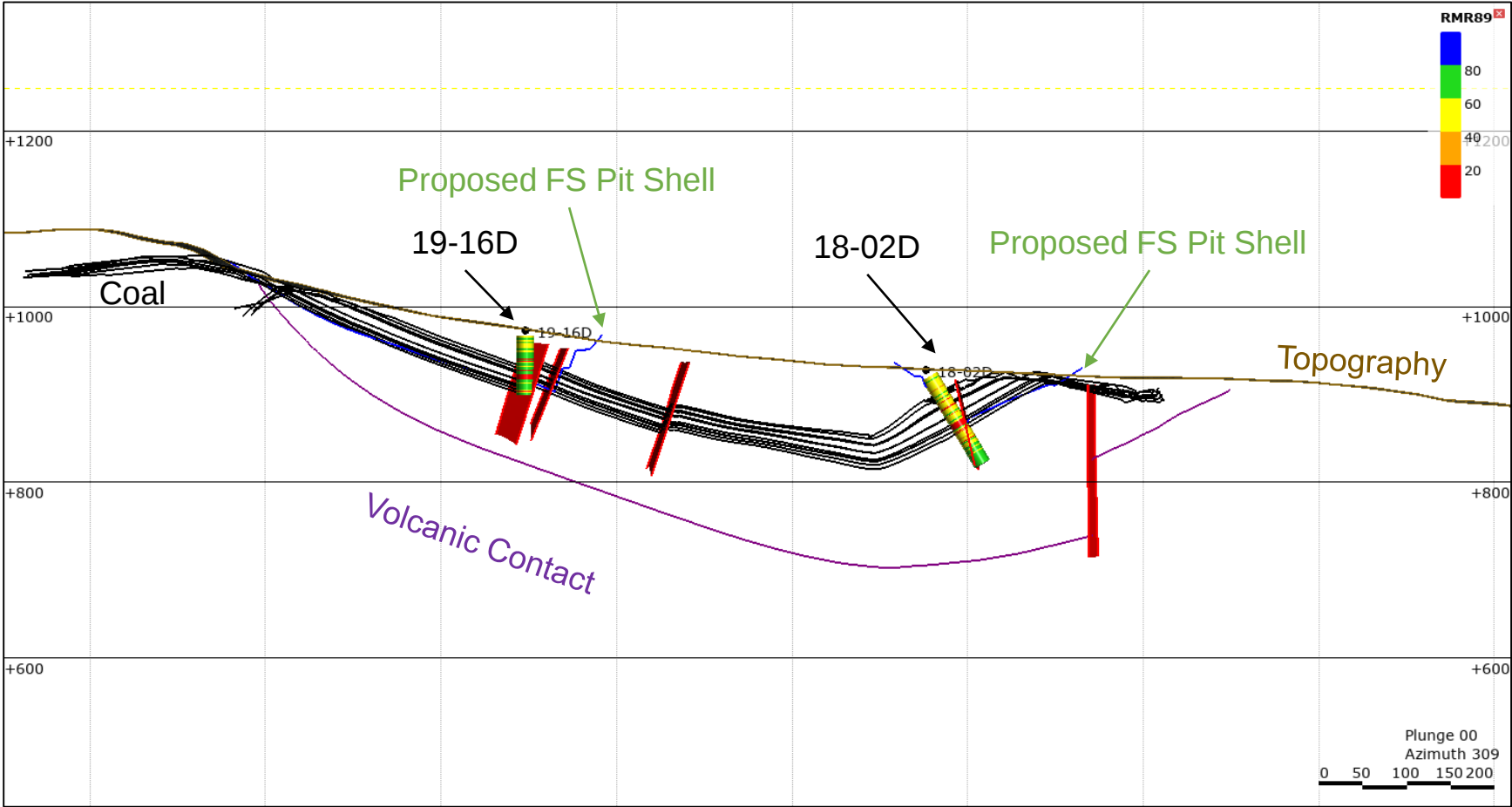


NOTE: 3D Coal and Fault model developed by Telkwa Coal Ltd.

		PIT SLOPE GEOTECHNICAL STABILITY ASSESSMENT		
		TENAS PIT GEOLOGY		
		Date: 2019/03/30	Approved:	Figure:
Job No: 2CI009.017	TENAS PROJECT			

TENAS GEOLOGICAL SECTIONS

19-16D DRILLHOLE AND GEOLOGICAL SECYION



NOTE: 3D Coal and Fault model developed by Telkwa Coal Ltd.

 Job No: 2CI009.017	 TENAS PROJECT	PIT SLOPE GEOTECHNICAL STABILITY ASSESSMENT		
		TENAS PIT GEOLOGY		
		Date: 2019/03/30	Approved:	Figure: