BC Geological Survey
Coal Assessment Report
1056

COAL ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TITLE OF REPORT: Greenhills Operations Assessment Report 2018 CPX2 (Phase 8 Exploration)

TOTAL COST: $3,932,681.16

AUTHOR(S): Alison Seward
SIGNATURE(S): Alison Seward

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): CX-5-016/September 6, 2018

YEAR OF WORK: 2018

PROPERTY NAME: Teck Greenhills Operation (GHO) -Phase 8 region

COAL LICENSE(S) AND/OR LEASES ON WHICH PHYSICAL WORK WAS DONE:
District Lots 3422, 3423, 6635, Coal Lease 389282

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 082JSE007

MINING DIVISION: Fort Steele
NTS / BCGS: 082J02C, 082J02F
LATITUDE: 50 ° 06 ' 00.62 "
LONGITUDE: -114 ° 51 ' 54.00 " (at centre of work)
UTM Zone: 11 EASTING: 652684.8 NORTHING: 5551951.3

OWNER(S): Teck Coal Limited

MAILING ADDRESS:
Teck Resources Limited, Suite 3300, 550 Burrard Street, Vancouver, BC, Canada V6C 0B3

OPERATOR(S) [who paid for the work]: Teck Coal Limited

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REPORT KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude. **Do not use abbreviations or codes**)
Interbedded sequence of sandstones, siltstones, silty shales, mudstones, and medium to high volatile bituminous coal from the Jurassic–Cretaceous Mist Mountain Formation. The region is structurally complex, containing exte

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:

n/a

SUMMARY OF TYPES OF WORK IN THIS REPORT		EXTENT OF WORK (in metric units)	ON WHICH TENURES
GEOLOGICAL (scale, area)			
	Ground, mapping		
	Photo interpretation		
GEOPHYSICAL (line-kilometres)			
	Ground		
	(Specify types)		
	Airborne		
	(Specify types)		
	Borehole		
	Gamma, Resistivity, +Neutron	20,703.0 m	District Lots 3422, 3423, 6635, Coal Le
	Resistivity		District Lots 3422, 3423, 6635, Coal Le
	Caliper	20,992.23 m	District Lots 3422, 3423, 6635, Coal Le
	Deviation	20,992.23 m	District Lots 3422, 3423, 6635, Coal Le
	Dip	20,703.0 m	District Lots 3422, 3423, 6635, Coal Le
	Others (specify) Acoustic and O	AT - 6,683.0m; C	District Lots 3422, 3423, 6635, Coal Le
DRILLING			
	Core 9"	591.8m	District Lots 3422, 3423, 6635, Coal Le
	Non-Core RC	20,703.0m	District Lots 3422, 3423, 6635, Coal Le
SAMPLING AND ANALYSES			
	Proximate 148 to date, 76		District Lots 3422, 3423, 6635, Coal Le
	Ultimate 0		
	Petrographic 148 to date, 76		District Lots 3422, 3423, 6635, Coal Le
	Vitrinite reflectance 148 to date, 76		District Lots 3422, 3423, 6635, Coal Le
	Coking 148 to date, 76		District Lots 3422, 3423, 6635, Coal Le
	Wash tests 148 to date, 76		District Lots 3422, 3423, 6635, Coal Le
PROSPECTING (scale/area)			
PREPARATORY/PHYSICAL			
Line/grid (km)			
Trench (number, metres)			
Bulk sample(s)			

Tables 2 and 3 remain confidential under the terms of the Coal Act Regulation and have been removed from the public version.

http://www.bclaws.ca/civix/document/id/complete/statreg/251_2004

Greenhills Operations Assessment Report

2018 CPX2 (Phase 8) Exploration

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1.0 Introduction

This report presents results of coal exploration activities conducted during the summer and fall of 2018 on the Greenhills CPX2 (Phase 8), located in the Elk Valley Coal Field, Teck Coal Limited, Greenhills Operations, in southeastern British Columbia. New work completed during 2018 included reverse circulation and large diameter core drilling programs, and the supporting road and pad construction. The work was completed by Greenhills site personnel, Teck Coal personnel, and a number of contractors.

1.1 Property Description and Access

The Greenhills Phase 8 area is located adjacent, and north-west of the Greenhills Operations property, and south-west of the Fording River operations, between the Fording River and Elk River valleys. Greenhills Operations is located approximately 8 km north of Elkford, BC, and the 2018 project area is approximately 15 km northeast of Elkford. The property is accessed by paved road northeast from Elkford along the Fording River Road (Hwy 43B), through the Greenhills Operations on active mine roads and then via exploration trails. The project area can also be accessed further north along the Fording River Road and through the Fording River Operations. The general location of the property is shown in Figure 1 (see PDF).

Greenhills Operations is located in the Kootenay Region, within the front ranges of the Rocky Mountains. The topography is dominated by steep, heavily forested mountain canyons and valleys. Nearly all of the major rivers and tributaries, including the Elk River, have a very high channel gradient. The area is within the Northern Rocky Mountain physiographic province and is characterized by north to northwest trending mountain ranges separated by straight valleys that run parallel to the mountain ranges.

The Greenhills property ranges in elevation from about 1,650 m.a.s.l. on the valley floor to about 2,250 m.a.s.l. at the upper extent of the mine. Vegetation varies with elevation; valley bottoms are dominated by Rocky Mountain Douglas Fir, Lodgepole Pine and Trembling Aspen. The main mining and exploration areas occur within a biogeoclimatic zone described as the Engelmann Spruce Alpine Fir Zone at elevations from 1,000 m.a.s.l. to 2,200 m.a.s.l. Forest cover in this zone includes Engelmann Spruce, Lodgepole Pine, Western Larch and Trembling Aspen. Treeless areas above 2,250 m.a.s.l. are in the Alpine Zone. Slopes are steep and rugged. Soils are regosolic, acid brown and brown wooded and form a shallow mantle over bedrock or glacial till of varying depths.

1.2 Property History

Exploration for coal in the Greenhills area began in the late 1880's. In 1898 the Crow's Nest Pass Coal Company acquired the coal and surface rights to 110,000 acres in the Elk Valley, including District Lot 4588 which encompasses the current Greenhills property. In the late 1960's Kaiser Resources Ltd. acquired two thirds of the Crow's Nest Pass Coal Company property, including Greenhills, and continued exploration work. In 1980 Kaiser was bought by B.C. Resources Investment Corporation, which became Westar Mining Limited.

Greenhills Operations started production in 1983 as a joint venture between Westar (80%) and POSCAN (20%). Production reached a peak of 3.2 million tonnes per year before Westar filed for bankruptcy protection, and the mine closed in October of 1992. Fording Coal Limited purchased the Westar share of the mine in December 1992, and the mine re-opened in February 1993. After a reorganization of Canadian Pacific Limited, Fording Coal became part of the Elk Valley Coal Corporation, which then held the 80% of the joint venture. Teck Resources Limited acquired Fording Coal's assets in 2008, including the 80% of the Greenhills joint venture, and the Elk Valley Coal Partnership was renamed to Teck Coal Limited.

Mining operations, which commenced in 1983, have produced clean metallurgical and thermal coal for markets in North and South America, Europe and Asia. Maximum annual production has steadily increased to a maximum of 5.8 million tonnes per year in 2018.

1.3 Coal Licenses and Tenure

At the present time the Greenhills property consists of 11,806 ha, which includes two active mining areas, referred to as Cougar Pit Phase 4 to 6 and Cougar Pit Phase 7, and several adjacent areas planned for future surface mine development, including phase 8 . Title to the majority of the Greenhills property is held mostly as Fee Simple (Freehold) land, Lot 1, District Lot 4588 Kootenay District, which is a crown grant consisting of 9,864 ha. Cougar Phase 8is located within District Lots 3422, 3423, and 6635, Crown Grants consisting of approximately 650 ha freehold land and two coal leases (389282 and 389310).

Currently eight coal licenses, two coal leases, one fee simple district lot, and three Crown Grant District lots for Greenhills Operations are held by Teck Coal Limited. Greenhills tenures are shown on the map in Figure 2. The tenure number, name, owner, grant dates, expiry dates, and area are summarized in Table 1. All licenses are located within British Columbia in the Fort Steele Mining Division.

Table 1: GHO Coal Licenses

Tenure ID	Parties	Type	Status	Grant Date	Expiry Date	Hectares	Comments	Project
327805	TECK COAL LIMITED (100.0000%)	Coal Licence	Active	8/10/1990	8/10/2020	259	Coal License	Greenhills Operation, BC
327806	TECK COAL LIMITED (100.0000%)	Coal Licence	Active	8/10/1990	8/10/2020	211	Coal License	Greenhills Operation, BC
327807	TECK COAL LIMITED (100.0000%)	Coal Licence	Active	8/10/1990	8/10/2020	259	Coal License	Greenhills Operation, BC
327808	TECK COAL LIMITED (100.0000%)	Coal Licence	Active	8/10/1990	8/10/2020	259	Coal License	Greenhills Operation, BC
327992	TECK COAL LIMITED (100.0000%)	Coal Licence	Active	3/13/1986	1/31/2020	259	For the purposes of rental calculation, all licenses that were in effect in 1986 must be considered to have been issued on their anniversary date in 1986.	Greenhills Operation, BC
327997	TECK COAL LIMITED (100.0000%)	Coal Licence	Active	3/13/1986	1/31/2020	259	For the purposes of rental calculation, all licenses that were in effect in 1986 must be considered to have been issued on their anniversary date in 1986.	Greenhills Operation, BC
327998	TECK COAL LIMITED (100.0000%)	Coal Licence	Active	3/13/1986	1/31/2020	259	For the purposes of rental calculation, all licenses that were in effect in 1986 must be considered to have been issued on their anniversary date in 1986.	Greenhills Operation, BC
328001	TECK COAL LIMITED (100.0000%)	Coal Licence	Active	3/13/1986	1/31/2020	65	For the purposes of rental calculation, all licenses that were in effect in 1986 must be considered to have been issued on their anniversary date in 1986.	Greenhills Operation, BC
389282	TECK COAL LIMITED (100.0000%)	Coal Lease	Active	5/19/1977	5/19/2028	2,250	Coal Lease No. 2 (389282)	Fording River Operations, BC/ Greenhills Operation, BC
389310	TECK COAL LIMITED (100.0000%)	Coal Lease	Active	5/9/1998	5/9/2028	2,859	Coal Lease No. 16 (389310)	Fording River Operations, BC/ Greenhills Operation, BC
012-249-602	FORDING COAL LIMITED (100.0000%)	Fee Simple	Active	N/A	N/A	9,864	District Lot 4588; Lot 1 Plan 11279 Kootenay District	Greenhills Operation, BC
016-720-423	FORDING COAL LIMITED (100.0000%)	Crown Grant	Active	N/A	N/A	259.01	District Lot 3423 (No.4543/248, Coal License No. 1606) Kootenay Land District.	Fording River Operations, BC/ Greenhills Operation, BC
016-733-991	FORDING COAL LIMITED (100.0000%)	Crown Grant	Active	N/A	N/A	194.26	District Lot 3422 (No. 4542/248, Coal License No. 1605), Kootenay Land District, NW 1/4 AND E 1/2. (PID: 016-733-983, 016-733-991)	Fording River Operations, BC/ Greenhills Operation, BC
016-734-009	FORDING COAL LIMITED (100.0000%)	Crown Grant	Active	N/A	N/A	129.5	District Lot 6635 (No.4552/248, Coal License No.1607) Kootenay Land District, WEST 1/2.	Fording River Operations, BC/ Greenhills Operation, BC

1.4 Economic and General Assessment

The 2018 CPX2 (Phase 8) drilling has not been incorporated into the most recent block model at this time, as drilling was still in progress at the time of the last scheduled model build. The 2018 drilling data will be included in future reports. The Greenhills year-end 2018 Reserves and Resources has calculated probable reserves for Phase 8, and resources calculated for the entire Cougar area as a whole. This includes Cougar Phases 4, 6 and 7, and future Phase 8. The reserves and resources for the Phase 8 and Cougar areas are shown in Table 2 and Table 3. This includes drillholes completed up to 2017, and does not include the drilling described in this report.

[redacted]

1.5 New Work Performed

The 2018 CPX2 (Phase 8 Exploration) consisted of construction of 2.58 km of new access trails, drilling of 40 reverse circulation drillholes and two large diameter core bulk sample sites. Downhole geophysical logging was completed on all reverse circulation holes, and on one large diameter core hole per site. Coal samples were collected from all reverse circulation drillholes, and bulk samples were compiled from the core collected at each large diameter site. Samples were shipped to Loring, GWIL and Pearson laboratories for analyses. The geological and resource models are in the process of being updated with the new information.

2.0 Geology

Greenhills Operations is located within the Elk Valley Coal Field, in the frontal range of the southern Canadian Rocky Mountains. The coal measures of Greenhills are contained in the Mist Mountain Formation of the Upper Jurassic to Lower Cretaceous Kootenay Group, sediments that were deposited 120 to 150 million years ago. The Mist Mountain Formation is comprised of interbedded sandstone, siltstone, mudstone and coal, and is approximately 500-600 m thick. Subsequent to deposition, the sediments were deformed by the mountain building of the late Cretaceous to early Tertiary Laramide Orogeny. The Elk Valley Coalfield is structurally contained within the Lewis Thrust Sheet, bounded to the west by the Bourgeau thrust and to the east by the Lewis thrust. North-south trending thrust faults have resulted in repeating of all or parts of the coal sequence in the coal field. Subsequent northerly-trending normal faults have displaced and further divided the sequence. Coal seams in the Mist Mountain Formation measure up to 18 m in thickness, and coal rank generally varies from low volatile bituminous in the lower part of the formation to medium and high volatile bituminous in the upper part of the formation. The regional geology of the Greenhills property is shown in Figure 3.

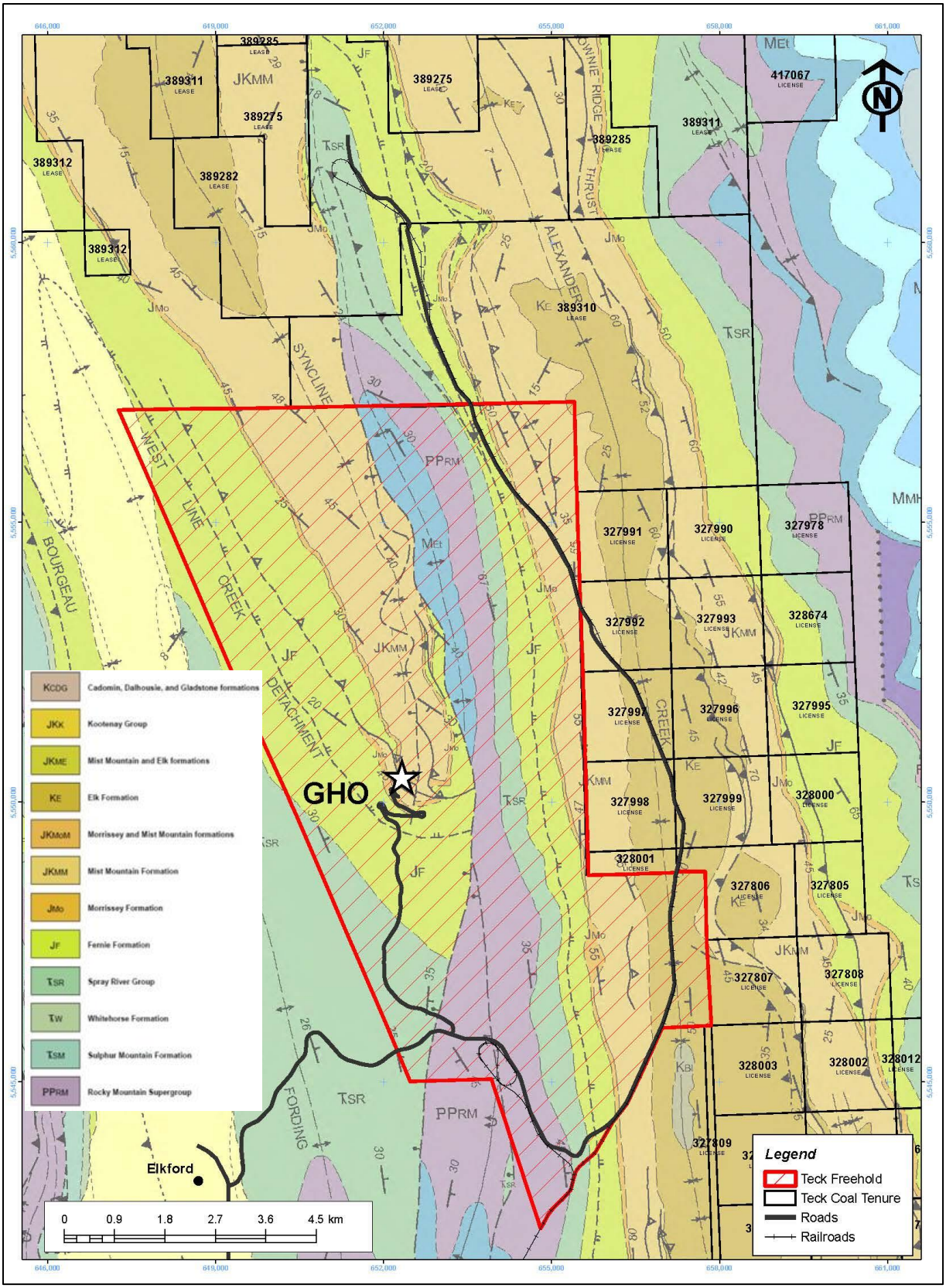

Figure 3: Greenhills Regional Geology Map

2.1 Stratigraphy

The general stratigraphic succession on the Greenhills property is summarized in Table 4.

Table 4: Greenhills Stratigraphy

Period	Litho-Stratigraphic Units			Principal Rock Types
Recent				Colluvium
Quaternary				Clay, silt, sand, gravel, cobbles
Lower Cretaceous	Blairmore Group			Massive bedded sandstone and conglomerate
Lower Cretaceous to Upper Jurassic	KOOTENAY GROUP	Elk Formation		Sandstone, siltstone, shale, mudstone, chert pebble conglomerate, minor coal
		Mist Mountain Formation		Sandstone, siltstone, shale, mudstone, thick coal seams
		MORRISSEY FORMATION	Moose Mountain Member	Medium to coarse-grained quartz-chert sandstone
			Weary Ridge Member	Fine to coarse-grained, slight ferruginous quartz-chert sandstone
Jurassic	Fernie Formation			Shale, siltstone, fine-grained sandstone
Triassic	Spray River Formation			Sandy shale, shale quartzite
	Rocky Mountain Formation			Quartzite
Mississippian	Rundle Group			Limestone

The Rundle Group limestone are the oldest rocks present on the Greenhills property, located on the west bank of the Fording River. The Rundle Group are in faulted contact with the Kootenay Group to the west, and unconformable contact with the Rocky Mountain Formation quartzites to the north.

The Fernie Formation shales occur throughout the area, generally along sides of valleys on the lower flanks of the mountains. The shales are recessive and generally poorly exposed; however, there are exposures in some creek drainages. The “Passage Beds” form a conformable contact between the Fernie and the Morrissey Formations, a transitional zone from marine to non-marine sediment deposition.

The Morrissey Formation, comprised of the Weary Ridge and Moose Mountain Members, is the “basal sandstone” of the Kootenay Group, which is a prominent cliff-forming marker horizon in many locations. The top of the Moose Mountain Member, is in sharp contact with the lower most bed of the Mist Mountain Formation (Greenhills 001 seam/Swift 010 seam) in most areas of the property.

The most widely occurring formation on the property is the Mist Mountain Formation, which contains all of the economic coal seams. The Mist Mountain Formation is an interbedded sequence of sandstones, siltstones, silty shales, mudstones, and medium to high volatile bituminous coal seams. The volatile

content increases and coal rank decreases up section. Lenticular sandstones comprise approximately one third of the Mist Mountain sediments on the property, but very few laterally extensive sandstone beds exist. The sandstone above the Greenhills 100 seam (Swift 090 seam) is one of the most persistent units and often forms a marker horizon.

The Elk Formation generally conformably overlies the Mist Mountain Formation. It is commonly a succession of sandstones, siltstones, shales, mudstones, chert pebble conglomerates, and sporadic, thin, high volatile bituminous coal seams. The coal seams are characterized by high alginate content (sapropellic) and are referred to as “Needle” coal. The Elk Formation occurs near the tops of the mountains, mainly on the east side of the Elk Valley in the Greenhills Range.

The upper boundary of the Kootenay Group, the Elk Formation, is unconformably overlain by the basal member of the Blairmore group, which is comprised of thick bedded, cliff-forming sandstone and conglomerate.

2.2 Structure

The mountain building movements of the late Cretaceous to early Tertiary Laramide Orogeny formed the major structures in the sediments of the Elk Valley Coalfield. The major structural feature on the Greenhills property is the north-south trending, asymmetric Greenhills Creek syncline with near-horizontal to steep-dipping thrust faults, and a few high-angle normal faults. Some thrust faults were likely folded late in the tectonic cycle.

The formation of the fold structures began early in the tectonic cycle, forming the two main synclines at Greenhills and Fording River Operations, the Greenhills Syncline, located to the west of the Fording River, and the Alexander Creek Syncline, located to the east of the river. The thrust faulting was likely contemporaneous with later stages of folding. The anticline that separates the two main synclines was later faulted by the Erickson Normal Fault, and subsequently eroded. The Erikson Normal Fault is located along the flank of the Burnt Ridge-Greenhills Range complex, to the west of the Fording River (east edge of the Greenhills mine). The Erickson Fault is westerly dipping (40°- 70°), and brings Mist Mountain strata progressively into contact with Rundle, Rocky Mountain, Spray River and Morrissey strata. The downthrown block is to the west. A related normal fault, with lesser displacement, the Greenhills Normal Fault, separates the Greenhills Range coal block, dropped down to the west, from the Burnt Ridge coal block, to the east.

The Greenhills Syncline plunges northward at less than 5°. Figure 4 shows the location of a generalized cross section (Figure 5) for the Cougar Phase 7-8 area.

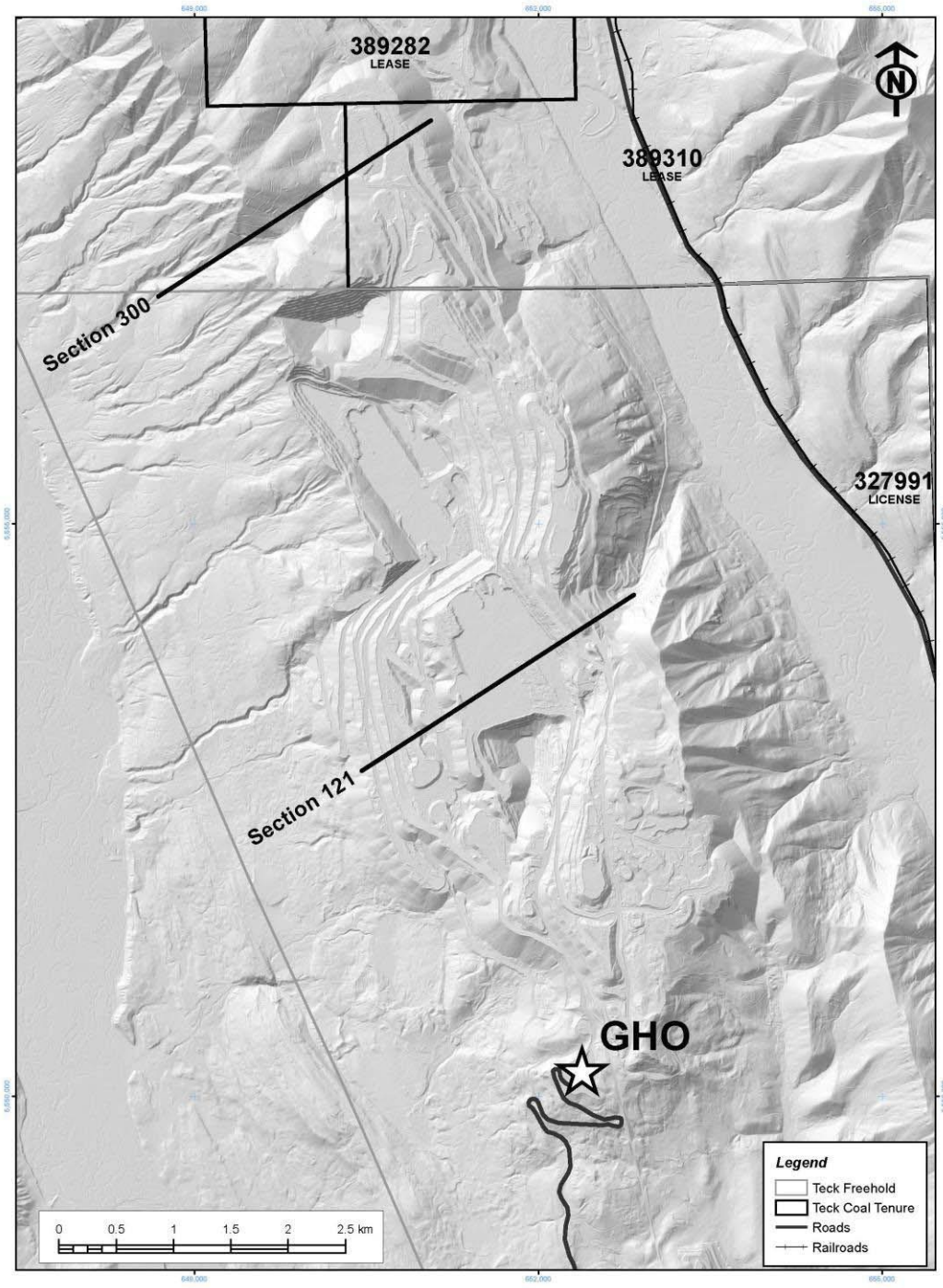

Figure 4: Plan map with typical cross section location

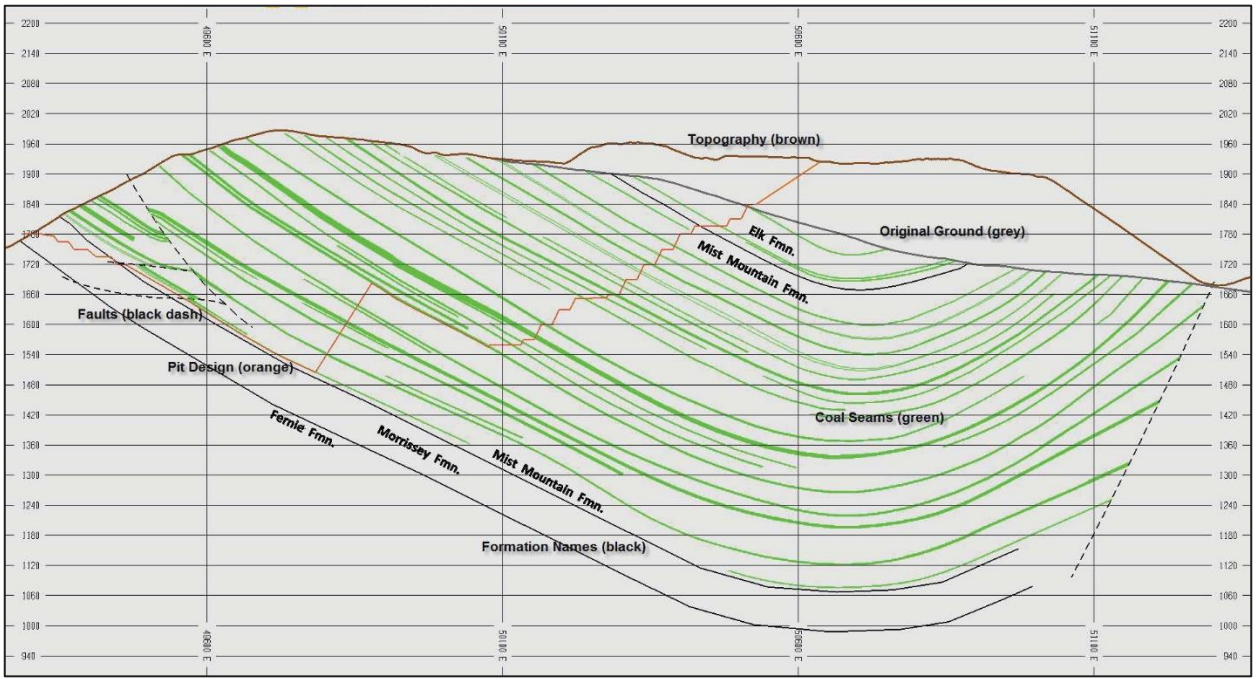

Figure 5: Typical cross-section Cougar Phase 7-8 area (#300), looking NNW. (Grid in meters)

3.0 Summary of 2018 Exploration Work

In 2018 Greenhills Operations conducted an exploration drilling and coal sampling program in the Phase 8 area. Some rock sampling for geochemical analyses was also completed as part of the drilling.

Prior to any activity in the area bird surveys were completed by a qualified contractor. Prior to drilling, previously existing exploration roads and trails were improved to allow drilling equipment access. Clearing timber, construction of new excavated trail, and drill pad construction was completed by qualified contractors to provide access to new drillhole locations.

For the 2018 program, 40 Reverse Circulation (RC) drillholes were drilled for structure and coal quality purposes. RC hole diameter was 0.14 m. Two bulk samples were collected with a 0.28 m large Diameter Coring (LDC) rig at two drill sites, with three LDC drillholes on each site. In total 21,294.8 m were drilled in 46 drillholes. There was 20,703.0 m of RC drilling, and 591.8m (6 holes) of LDC drilling completed. Geophysical logs were completed on all 40 of the RC drillholes, and on two LDC holes (one hole geophysically logged per bulk sample site). Acoustic Televiewer logs were completed on eighteen of the RC holes, and Optical Televiewer logs were completed on ten of the RC drillholes. Six of the RC holes had rock samples collected for geochemical purposes. Transducers were installed in four of the RC holes, and a Barrologger was installed in one of the holes with a transducer. The costs for this downhole measurement equipment are not included in the cost sheet in this report as it wasn't directly part of the exploration. The instruments were installed at selected locations to monitor seasonal changes in groundwater flow patterns, with the goal of characterizing pre-development bedrock groundwater flow regimes around the Phase 8 area.

Upon completion of each drillhole, collar locations were GPS surveyed to obtain the exact coordinates and elevations. The exploration program was completed under the direction and supervision of Greenhills Operations' site geology team.

Drillhole locations relative to coal lease or District Lot are shown in Table 5.

Table 5: Phase 8 Drillhole Locations Relative to Coal License

Coal License	Drillholes
District Lot 3422	RC18-114, RC18-118, RC18-119, RC18-120, RC18-121, RC18-122, RC18-123, RC18-125, RC18-126, RC18-127, RC18-128, RC18-131, RC18-132, RC18-133, RC18-136, RC18-137, RC18-138, RC18-139, LDCR18-04A-C,
District Lot 3423	RC18-100, RC18-101, RC18-102, RC18-105, RC18-110, RC18-111, RC18-116, RC18-117, LDCR18-03A-C
District Lot 6635	RC18-115, RC18-124, RC18-129, RC18-130, RC18-134, RC18-135
Coal Lease 389282	RC18-103, RC18-104, RC18-106, RC18-107, RC18-108, RC18-109, RC18-112, RC18-113

3.1 Phase 8 2018 Exploration Project Objectives

The overall objective for the 2018 Greenhills CPX2 (Phase 8) drilling program was to determine with a high degree of certainty the location, thickness and coal quality in the planned Phase 8 pit region. Many holes were also used to gain geotechnical information on the footwall below current planned pit bottom, and to collect samples for selenium and acid generating potential (PAG) analyses. All of this information will come together to inform the CPX2 permit application in the coming years.

These objectives were accomplished by:

- Developing and implementing an exploration program that included drilling and logging of 40 new RC coal exploration holes and collecting two bulk samples;
- Revising geological interpretation that was based on historic mapping and drilling in the Phase 8 area, and updating the geological interpretation based on new drilling;
- Integrating the new exploration drilling results with previous historic programs;
- Determining the coal quality of the represented coal seams from cuttings samples, and bulk samples;
- Updating the coal resources in the exploration area using a computer geologic model; and
- Improving the resource model and supporting an economic assessment of the Phase 8 area.
- Understanding for planning purposes the location and thickness of PAG material.

3.2 Summary of Completed Work

The total cost for the 2018 Greenhills Phase 8 Exploration project was $3,932,681.16. The detailed cost statement is shown in Appendix 1.

The exploration project planning was carried out by the Greenhills geology team. Project execution was carried out by Greenhills geology personnel, Teck Coal and Teck Resources personnel, and a local consultant from Moose Mountain Technical Services of Cranbrook, BC. Geological interpretation was

completed by Moose Mountain Technical Services, and modelling was completed by Greenhills Operations geology personnel.

Prior to any activity in the area bird surveys were completed by Anatum Consulting. Prior to drill site preparation, the excavated trails and exploration drill sites were located by contractors from Silenus Resource Management of Cranbrook, BC. Trail and drill site construction for the project began in July 2018. Silenus Resource Management provided the field supervision for road and pad construction. They also supervised tree clearing and danger tree removal. Road work and new pad construction was completed by Kettle River Contracting, of Calgary, AB.

Both RC and LDC drilling services were performed by Foraco Canada Ltd., of Calgary, AB. Drills used on the project include a 2010 Ingersol Rand TH-100A, and a 2012 Schramm T685 WS for the RC drilling, and a 2006 Foremost DR-24 for the LDC drilling. The reverse circulation method of drilling was chosen as the preferred method to collect representative, uncontaminated, and accurately located coal samples. Large diameter core drilling was selected as the preferred method for collecting bulk samples for the purpose of carbonization testing.

Sampling accuracy is vital to develop an accurate understanding of coal seam properties; therefore, as part of the quality assurance and quality control procedures, periodic sampling audits were completed by Teck and Moose Mountain geology personnel, and five percent of the RC samples are selected as quality control samples, and duplicates are tested to ensure lab accuracy.

A total of 40 RC drillholes were completed by Foraco for a cumulative drilling length of 20,703.0 m. Drillhole depths ranged between 329 m and 697 m, averaging 518m. A total of six large diameter core holes, over two drill sites, were completed by Foraco, for a cumulative drilling length of 591.8 m. Large diameter core hole depths ranged from 91.2 m to 106 m, and averaged 98.6 m. Large diameter cores were geologically logged and sampled by Teck geology personnel. Multiple holes for LDC were drilled for the same location and seam in order to collect enough sample to have it washed and coked. A summary of drillhole information is listed in Table 6, and an exploration area map showing drillhole locations is shown in Figure 6. An excel file of table 6 below has also been provided along with this report.

Table 6: Greenhills Phase 8 2018 Drillhole Collar Locations

Drillhole ID	Purpose	UTM Coordinates		Elevation	Azimuth	Dip	Hole Depth (m)
		Easting	Northing				
LDCR18-03	Bulk Sample	649075.93	5558744.06	2047.28	0	-90	93.5
LDCR18-03B	Bulk Sample	649074.93	5558741.50	2047.36	0	-90	91.6
LDCR18-03C	Bulk Sample	649074.31	5558739.50	2047.40	0	-90	91.2
LDCR18-04	Bulk Sample	649033.63	5558556.57	2056.69	0	-90	103.7
LDCR18-04B	Bulk Sample	649034.12	5558559.00	2056.70	0	-90	105.8
LDCR18-04C	Bulk Sample	649034.49	5558562.00	2056.58	0	-90	106
RC18-100	Geological	648806.56	5558991.72	2178.38	238	-50	582
RC18-101	Geological	648846.88	5558913.51	2176.43	0	-90	542

RC18-102	Geological	648968.98	5558942.40	2123.33	0	-90	342
RC18-103	Geological	649151.05	5558908.12	2036.31	0	-90	329
RC18-104	Geological	649508.23	5558982.25	1972.86	0	-90	546
RC18-105	Geological	649011.94	5558818.67	2086.88	0	-90	530
RC18-106	Geological	649470.56	5558845.97	2003.98	0	-90	390
RC18-107	Geological	649646.79	5558845.49	1976.19	0	-90	426
RC18-108	Geological	649358.93	5558767.78	2017.86	0	-90	537
RC18-109	Geological	649505.69	5558758.83	2019.13	0	-90	397
RC18-110	Geological	648920.54	5558705.34	2109.38	238	-50	624
RC18-111	Geological	649077.02	5558741.43	2047.29	0	-90	506
RC18-112	Geological	649245.57	5558699.98	2021.37	0	-90	526
RC18-113	Geological	649386.28	5558679.44	2041.21	0	-90	541
RC18-114	Geological	649456.72	5558646.21	2050.47	0	-90	561
RC18-115	Geological	649590.92	5558622.25	2033.38	0	-90	386
RC18-116	Geological	648963.28	5558644.29	2086.25	238	-55	453
RC18-117	Geological	648964.55	5558644.08	2086.25	0	-90	469
RC18-118	Geological	649150.58	5558642.09	2030.73	0	-90	391
RC18-119	Geological	648976.00	5558519.28	2062.93	238	-50	534
RC18-120	Geological	648977.39	5558520.01	2062.82	238	-70	533
RC18-121	Geological	649176.17	5558537.08	2069.52	0	-90	508
RC18-122	Geological	649329.12	5558540.78	2080.00	0	-90	649
RC18-123	Geological	649447.32	5558549.95	2076.89	0	-90	598
RC18-124	Geological	649627.60	5558539.83	2010.19	0	-90	501
RC18-125	Geological	649112.95	5558486.64	2076.55	238	-50	568
RC18-126	Geological	649169.56	5558443.76	2083.36	0	-90	506
RC18-127	Geological	649326.65	5558450.78	2099.01	0	-90	697
RC18-128	Geological	649527.39	5558506.29	2053.83	0	-90	530
RC18-129	Geological	649831.94	5558500.80	1938.86	0	-90	335
RC18-130	Geological	649688.06	5558479.40	1968.87	0	-90	450
RC18-131	Geological	649190.52	5558390.14	2091.40	238	-50	582
RC18-132	Geological	649195.53	5558323.70	2104.70	0	-90	562
RC18-133	Geological	649321.00	5558340.67	2117.17	0	-90	618.5
RC18-134	Geological	649526.31	5558340.94	2039.61	0	-90	570
RC18-135	Geological	649745.25	5558365.78	1984.82	0	-90	468

RC18-136	Geological	649238.02	5558265.20	2121.91	238	-50	574
RC18-137	Geological	649309.34	5558210.43	2117.67	0	-90	620
RC18-138	Geological	649308.06	5558209.43	2117.73	238	-50	581
RC18-139	Geological	649390.90	5558273.34	2095.13	0	-90	641

Downhole geophysical logs were completed by Century Geophysical Corporation of Red Deer, AB. They use Mount Sopris Instruments geophysical tools, as made by the company in Denver, CO. Each RC hole was logged through the pipe for gamma-neutron, and most were also logged through the pipe for slim-density. Open holes were logged for downhole deviation, gamma-density, and dip meter. Geophysical logs are shown in Appendix 2. Acoustic Televiewer was run on 18 of the RC holes, and Optical Televiewer was run on ten of those 18 RC holes for geotechnical analysis. Geotechnical analysis of the televiewer logs is being completed by Teck personnel. Open LDC holes were logged for downhole deviation and gamma-density.

Sampling of coal seams intersected in RC drilling was done in 0.5 m intervals. The 0.5 m “ply” samples were shipped to Loring Laboratories Ltd. in Calgary, AB. All coal labs used in Calgary are following the American International Standard (ASTM) for coal testing. Plys were analyzed for Free Swelling Index (FSI), Ash %, and Residual Moisture. Ply results were analyzed by Teck geology personnel, and composite samples were selected based on ply results in combination with the geophysical logs. At this time ply analyses are still ongoing, and composite selection and analyses are in progress. Composites are being completed by both Loring Laboratories Ltd and GWIL Industries Birtley Coal & Minerals Testing Division, in Calgary, AB. Composites will be analyzed for raw proximate, including FSI. Composites will then undergo a single gravity wash and clean proximate analysis, including: moisture, ash, volatile matter, fixed carbon, sulphur, FSI and phosphorus; and trace element analysis for fluorine, chlorine, mercury, and arsenic. Clean composite samples will also undergo Mineral Analysis of Ash, Gieseler Fluidity Test and Rhur Dilatation. A small selection of composites have been selected for multi gravity washes. Pearson Petrography in Victoria, BC will complete the petrographic analysis.

Large Diameter Core drilling is a specialized method of drilling using a conventional reverse circulation drill rig to drill a 0.28 m diameter hole to recover representative core of coal seams. A single seam was targeted at each LDC drill site. Three holes were drilled on each site, approximate 3-5 m apart. For example LDCR18-03A, LDCR18-03B, LDCR18-03C are all drilled on site LDCR18-03, to collect sufficient coal from the target seam for pilot plant and carbonization testing. Refer to Appendix 3 for core logs.

Bulk samples from LDC holes were sent to GWIL laboratories in Calgary, AB for homogenization and washability analysis. This also involves analyzing for the same list of tests that are completed on RC samples, listed above. GWIL lab will then forward the crushed and homogenized samples to Hazen Research Inc. of Golden, CO, USA for pilot plant washability. The washed sample is then sent to Canmet Energy of Ottawa, ON for carbonization and testing. Homogenization and washability testing are currently in progress.

Geochemical rock samples were collected from six RC drillholes, samples were taken in two meter intervals in rock and tested for the geochemical signatures of the rock. Samples were shipped to

Maxxam Laboratories in Burnaby, BC for analysis. To-date the testing is on-going, under direction of SRK Consulting (U.S.) Inc., Reno, NV.

4.0 Results

The overall objective for the 2018 Greenhills CPX2 (Phase 8) drilling program was to determine with a high degree of certainty the location, thickness and coal quality in the planned Phase 8 pit region. Many holes were also used to gain geotechnical information on the footwall below current planned pit bottom, and to collect samples for Selenium and acid generating potential (PAG) analyses. Initial results show that PAG material is present under the basal coal seam in phase 8. All of this information will come together to inform the CPX2 permit application in the coming years.

The project consisted of 40 RC drillholes, and two bulk samples using LDC drilling. In total 21,294.8 m were drilled, made up of 20,703.0 m of RC drilling and 591.8m of LDC drilling. Geophysical logs were completed for all 40 RC holes, and two LDC sites, one for each bulk sample site. These logs were loaded to an AcQuire™ database and subsequently reviewed by Teck Geologists using Minesight™ software.

The Mist Mountain Formation in the Phase 8 area contains the full package of seams from Greenhills 001 seam (Swift 010) through seams in the 280 seam package (Swift 150). Phase 8 also contains a number of thin seams in the Elk Formation, mainly the Greenhills 290 (Swift 170) package. The 2018 drilling showed continuation of seams on the west limb of the syncline. Some faulting and structural complexity was identified with the significantly increased drilling density from the previous program. Deformation appears to be concentrated in the Greenhills 100 through 070 seams (Swift 090 through 070). Structural interpretation is on-going at this time. However the presence of forethrusts has been confirmed by this drilling.

Composite sample analyses are in progress and have not been completed at this time. It is estimated that this program has generated 769 composite coal samples and 805 geochemical rock samples. Once completed the raw and clean composite analyses will be added to the seams qualities in the geological database, and interpolated in the geological model. Petrographic analysis has not yet been completed at this time. All testing on the LDC bulk samples also has yet to be completed. The geochemical testing is also ongoing, results showing the presence of PAG material will be incorporated into the geological model.

The drillholes, structural and quality data will be added to future block models and reserve and resource estimates, once interpretation and analyses are completed. This data review and return of all the quality data from the labs is expected early in 2020, with a new model planned for April 2020. Any quality data that returns from the labs from the 2018 program will be sent with the 2019 Assessment report.

5.0 Conclusion

The 2018 CPX2 (Phase 8) exploration program has successfully increased drillhole density and resource confidence in the Phase 8 area. The program confirmed the location and continuity of the coal seams in the project area and allowed improved geological and structural interpretation. The assay testing is ongoing, and results will be incorporated into the model once received. Greenhills Operations will be

updating its geological model, and a mine engineering economic assessment of Phase 8 will be taking place.

Further RC drilling to improve resource confidence, improve structural interpretation and increase the amount of coal quality data will be undertaken in 2020 to inform the detailed planning for Phase 8 mining. The information already collected, as well as the two LDC sites that were completed in 2019, will go towards informing the mine permit application for the Phase 8 region in the coming years.

6.0 Author's Qualifications

CERTIFICATE OF QUALIFIED PERSON

Alison J. Seward, P. Geo.
Teck Coal Limited Greenhills Operations
P.O. Box 5000, Elkford, BC Canada, V0B1H0 alison.seward@teck.com

I, Alison J Seward, P. Geo. do hereby certify that:

I am employed as the Senior Geologist, Supervisor of Greenhills Operations, Teck Coal Limited, Box 5000, Elkford British Columbia V0B IH0.

This certificate applies to the Report titled "Greenhills Operations Assessment Report 2018 CPX2 (Phase 8 Exploration)" (the "Report") with an effective date of October 7, 2019.

I graduated with a Bachelor of Science degree in Earth and Ocean Science from the University of Victoria, Victoria, British Columbia in 2000.

My relevant experience includes exploration and mine production geology at both Fording River Operation and Greenhills Operation. I also have experience supporting both short and long range mine planning, and mining operations. I am responsible for all project geology including exploration and production, databases, geological models as well as all other aspects of geological management of the company's Greenhills mine site. I have performed annual and semi-annual site reporting duties such as the Mid-year and Year End Reserve and Resource Reports, Summary of Exploration Activity, and I have worked as a geologist since graduation from university in 2000. I've worked in various geological, project and management capacities for Teck Coal Limited and its predecessor companies for over 17 years. I have worked at Fording River Operations (2002-2010) as a Modelling Geologist, Production Geologist, Coal Quality Geologist, and as an Exploration Geologist. In 2010 I transferred to Greenhills where I became Senior Geologist, Supervisor (2010 to present).

I am a member of the Association of Professional Engineers and Geoscientists of British Columbia, member #32721.

Through my education and relevant experience I am a "qualified person" as defined in National Instrument 43-101, Standards of Disclosure for Mineral Projects (the Instrument).

I primarily work at Greenhills Operation, but occasionally visit other Teck Coal Limited sites.

Since 2010 I have been the site designated QP for Greenhills Operation and have been responsible for the Mid-year and Year End Reserve and Resource Reports.

Signed and Dated this 7th Day of October 2019.

Alison Seward, P.Geo.
Senior Geologist Supervisor,

620,000 630,000 640,000 650,000 660,000 670,000

5,580,000 5,570,000 5,560,000 5,550,000 5,540,000 5,530,000 5,520,000 5,510,000 5,500,000

Highwood River

Fording River Operations

Greenhills Operations

Fording River

Oldman River

Elkford

Line Creek Operations

ALBERTA

BRITISH COLUMBIA

43

Sparwood

Elkview Operations

3

Hosmer

White River

Bull River

Elk River

Regional Location Map

Teck

- Communities
- Canadian Pacific Railway
- Primary Highway
- Secondary Highway
- Watercourse
- British Columbia - Alberta Border
- Mine Permit Boundaries
- GHO Mine Permit Boundary
- First Nations Reserve
- Provincial Park/Protected Area
- Waterbody

N

0 2.5 5 Kilometers

DATE:	MINE OPERATION:
4/4/2019	Elk Valley
SCALE:	COORDINATE SYSTEM:
1:250,000	NAD 1983 UTM Zone 11N

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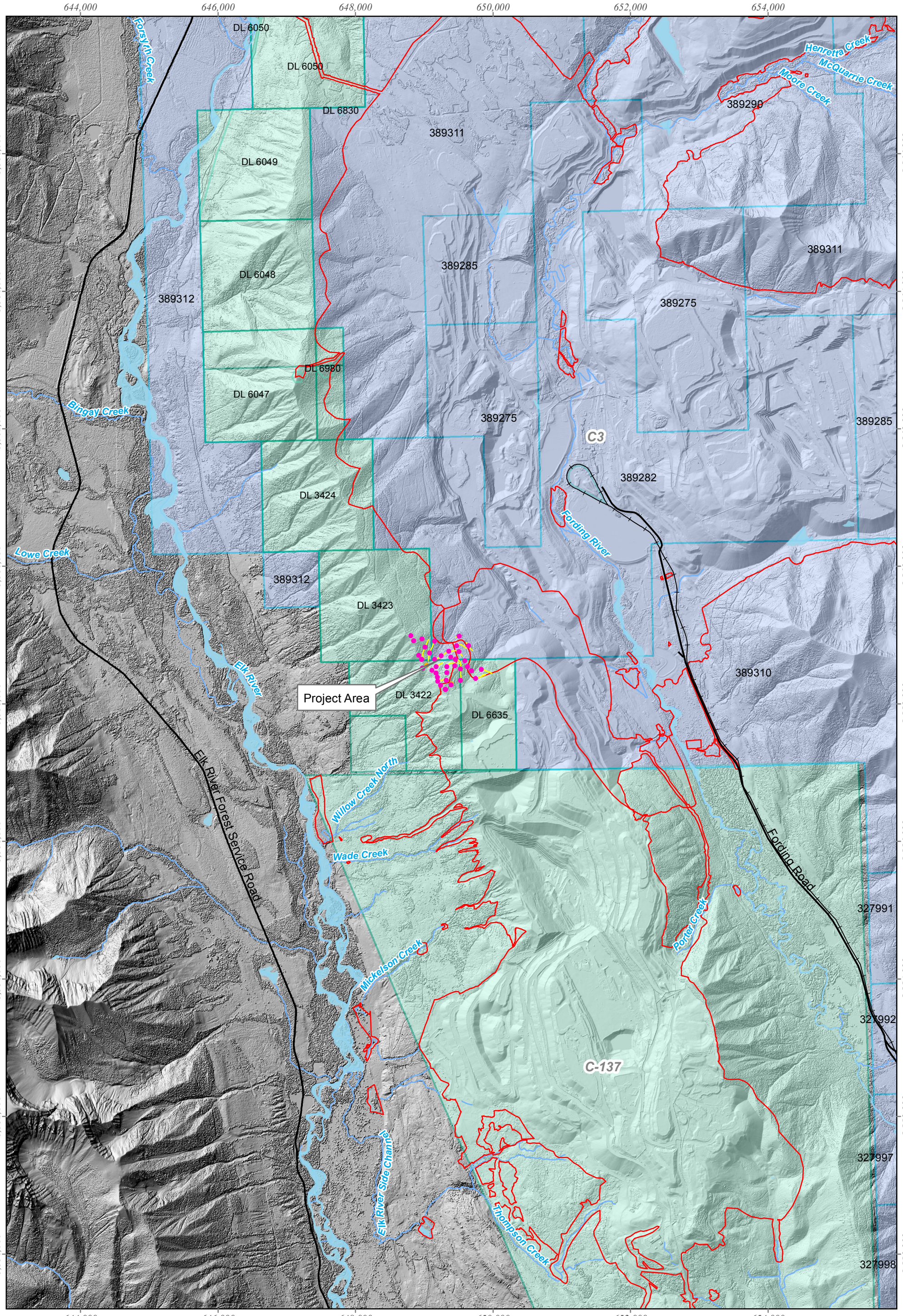

Teck

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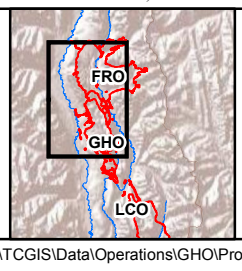

Claim Map

- Large Diameter Core Site
- RC Drillhole
- New Access
- Roads
- Permit Boundary
- TECK COAL LIMITED
- Teck Fee Simple Land
- Railway

N

0 280 560 1,120 1,680 Meters

DATE:	MINE OPERATION:
4/4/2019	Fording River
SCALE:	COORDINATE SYSTEM:
1:50,000	NAD 1983 UTM Zone 11N

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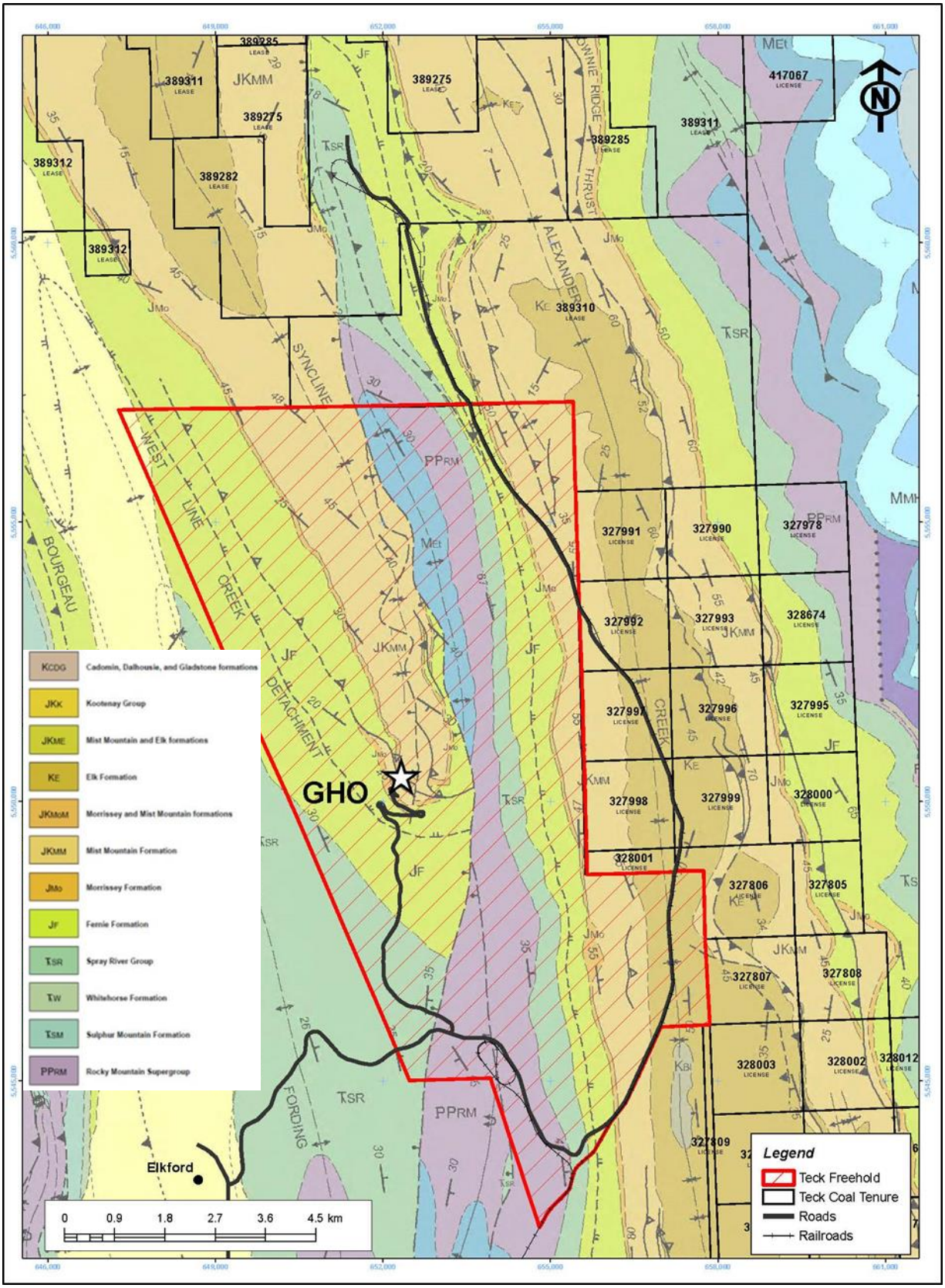
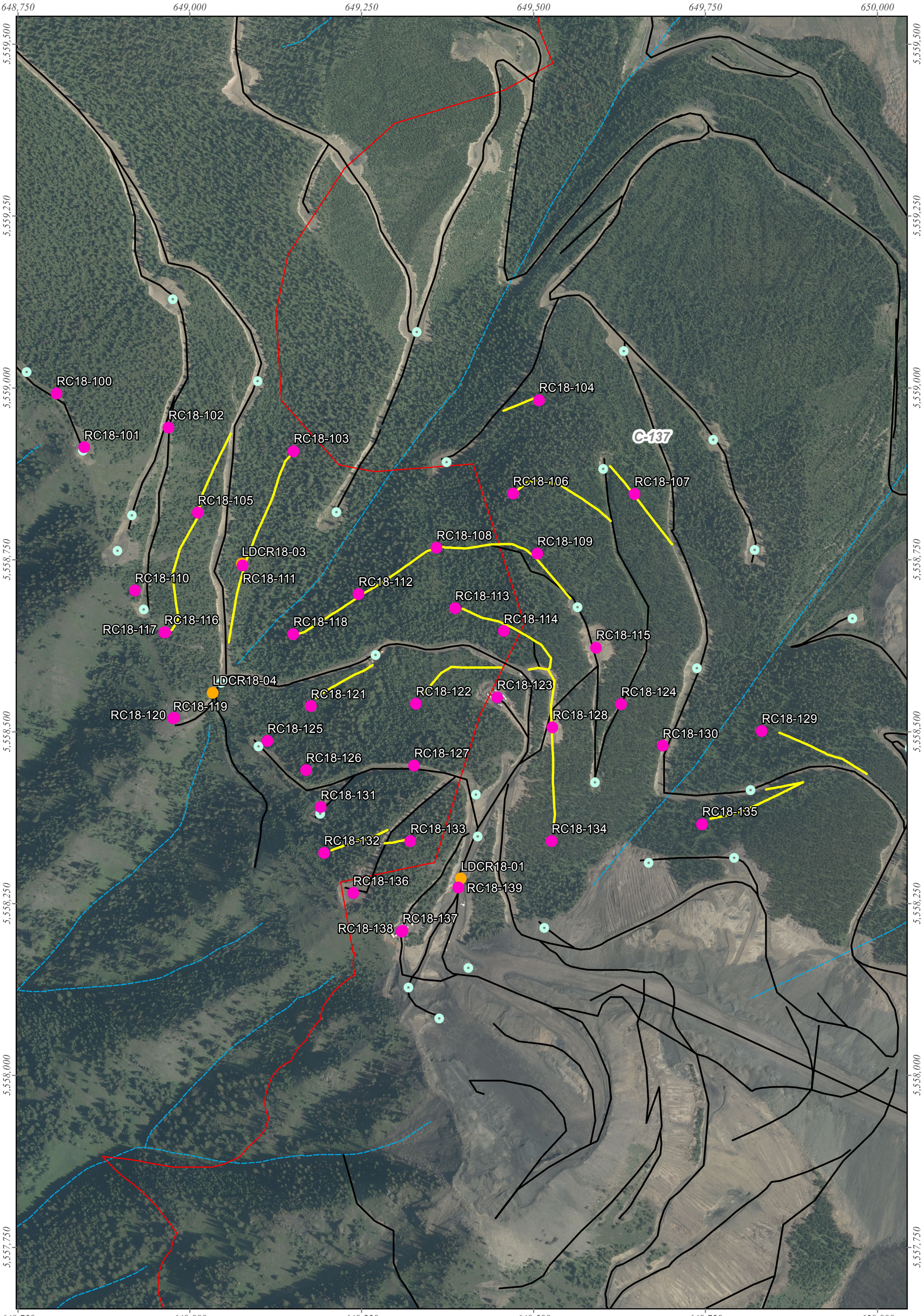


Figure 3: Greenhills Regional Geology Map



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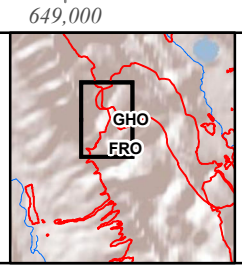

Exploration Work

- Large Diameter Core Site
- RC Drillhole
- New Access
- Historic Drillhole
- Pre-existing Roads
- Permit Boundary
- Intermittent Stream

N

0 25 50 100 150 Meters

DATE:	MINE OPERATION:
4/4/2019	Fording River
SCALE:	COORDINATE SYSTEM:
1:5,001	NAD 1983 UTM Zone 11N

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Exploration Work type	Comment	Days			Totals
Personnel (Name)* / Position	**Field Days (list actual days)**	**Days**	**Rate**	**Subtotal***	
Consultant Geologist- Moose Mountain Technical Services		90		$85,050.00	
Kettle River Contracting	Road/Pad building equip.operators	21		$581,847.00	
Silenus Resource Management	Field supervision, road and pad layout	104		$205,467.00	
Silenus Resource Management	Tree Faller	10	$650.00	$6,500.00	
Anatum Ecological	Migratory Bird Surveys	23		$27,617.50	
Guardian First Aid	On-site MTC & First Aid attendant	153.625		$192,994.48	
			$0.00	$0.00	
				$1,099,475.98	**$1,099,475.98**
Ground geophysics	**Line Kilometres / Enter total amount invoiced list personnel**				
Well logging	Define by total length	20992.2	m	$381,485.64	
				$381,485.64	**$381,485.64**
Geochemical Surveying	**Number of Samples**	**No.**	**Rate**	**Subtotal**	
Drill (cuttings, core, etc.)	coal ply samples (no composites done)	1402.0	$0.00	$0.00	
Stream sediment			$0.00	$0.00	
Soil			$0.00	$0.00	
Rock		229.0	$155.26	$35,554.54	
Water			$0.00	$0.00	
Biogeochemistry			$0.00	$0.00	
Whole rock			$0.00	$0.00	
Petrology			$0.00	$0.00	
Other (specify)			$0.00	$0.00	
				$35,554.54	**$35,554.54**
Drilling	**No. of Holes, Size of Core and Metres**	**No.**	**Rate**	**Subtotal**	
Diamond			$0.00	$0.00	
Reverse circulation (RC)	40 holes, 20601.0 m	40.0	$48,958.00	$1,958,320.00	
Rotary air blast (RAB)			$0.00	$0.00	
Other (specify)	Bulk Sample 9" Coring, 864.4 m, 3 samples	9.0	$38,744.00	$348,696.00	
				$2,307,016.00	**$2,307,016.00**
Reclamation	**Clarify**	**No.**	**Rate**	**Subtotal**	
After drilling	replace water bars and open berms		$0.00	$4,550.00	
Monitoring			$0.00	$0.00	
Other (specify)	Grass Seed			$3,900.00	
				$8,450.00	**$8,450.00**
Transportation		**No.**	**Rate**	**Subtotal**	
Airfare			$0.00	$0.00	
Taxi			$0.00	$0.00	
truck rental	MMT Pickup truck rental (July-Dec)	6.00	$2,199.00	$13,194.00	
kilometers			$0.00	$0.00	
				$13,194.00	**$13,194.00**
Miscellaneous					
Telephone			$0.00	$0.00	
Other (Specify)	Radios	3.00		$3,026.00	
Other (Specify)	Portable Bathrooms	2.00		$4,700.00	
Other (Specify)	Culverts			$7,884.00	
Other (Specify)	Fire fighting equipment			$28,000.00	
Other (Specify)	Bins for shipping samples			$12,090.00	
Other (Specify)	Sample bags and tags	8200.00	$3.20	$26,240.00	
Other (Specify)	Storage C-can	1.00	$5,565.00	$5,565.00	
				$87,505.00	**$87,505.00**
TOTAL Expenditures					**$3,932,681.16**

Teck Coal Core Logging Form

PROJECT: LCD Phase 4, 7, & 8 HOLEID: LDCR18-03A LOGGED BY: PAM, RDH DATE: 14-Dec-2018 PAGE 1 of 1

Hole ID	Run		DEPTH		Interval m	Core Recovery		Lithology	Colour	Hardness	Broken Texture	Comments
	Run	Box	From m	To m		m	%					
LDCR18-03A	1	1	88.0	89.3	1.3	1.4	104%	Coal	Black	Soft-Medium	Brecciated; intact	Brecciated top; vitreous clasts in to dull matrix; rubbly over 88.0-88.3m and broken/fissile 88.5-89.0m.
LDCR18-03A	1	1	89.3	89.5	0.2	0.2	75%	Coal	Black	Medium	Intact	Vitreous, massive, no banding; some punky fractures.
LDCR18-03A	1	2	89.5	90.0	0.5	0.5	100%	Coal	Black	Medium	Intact	Vitreous, massive, no banding; some punky fractures.
LDCR18-03A	2	3	90.0	90.2	0.2	0.2	100%	Coal	Black	Soft	Brecciated, broken	Brecciated, dull and rubbly; similar to 88.0-88.3m interval at top.
LDCR18-03A	2	3	90.2	90.4	0.2	0.2	100%	Coal	Black	Medium	Intact	Vitreous, massive, no banding; some punky fractures; as above.
LDCR18-03A	2	3	90.4	90.6	0.2	0.2	100%	Coal	Black	Soft	Brecciated, broken	Brecciated, broken; dull and rubbly; as above.
LDCR18-03A	2	3	90.6	91.0	0.4	0.4	100%	Coal	Black	Medium	Intact	Vitreous, massive, no banding; some punky fractures; as above.
LDCR18-03A	2	3	91.0	91.3	0.3	0.3	100%	Coal	Black	Soft	Brecciated, broken	Brecciated, broken; dull and rubbly; as above.
LDCR18-03A	2	4	91.3	91.5	0.2	0.2	100%	Coal	Black	Soft	Brecciated, broken	Brecciated, broken; dull and rubbly; as above.
LDCR18-03A	2	4	91.5	91.9	0.4	0.4	100%	Coal	Black	Medium	Intact	Vitreous, massive with thin banded with predominant bright lithotype.
LDCR18-03A	2	4	91.90	92.40	0.50	0.500	100%	Coal	Black	Soft-Medium	Intact, Brecciated	Vitreous.
LDCR18-03A	2	4	92.4	92.5	0.1	0.1	100%	Coal	Black	Medium	Intact	Vitreous, massive with thin banded with predominant bright lithotype.
LDCR18-03A	3	5	92.5	92.7	0.2	0.2	100%	Coal	Black	Medium	Intact	Vitreous, massive with thin banded with predominant bright lithotype.
LDCR18-03A	3	5	92.7	92.8	0.1	0.2	100%	Siltstone, Mudstone	Medium Brown	Hard	Intact	Siltstone/mudstone with 15-20%, thin coal lenses, fractures and stringers (<0.5 cms).
LDCR18-03A	3	5	92.8	93.5	0.7	0.7	100%	Siltstone, Mudstone	Medium-Light Brown	Hard	Intact	Medium-dark brown/grey, fine-grained siltstone/mudstone. Medium bedded with some thin beds at 58 degrees to core axis.
Total Coal			**88.0**	**92.7**	**4.7**	**4.7**	**100%**					**5 boxes in total. Footwall interval from 92.7-93.5m was removed from the box.**

Teck Coal Core Logging Form

PROJECT: LCD Phase 4, 7, & 8 HOLEID: LDCR18-03B LOGGED BY: PAM DATE: 15-Dec-2018 PAGE 1 of 1

Hole ID	Run		DEPTH		Interval m	Core Recovery		Lithology	Colour	Hardness	Broken Texture	Comments
	Run	Box	From m	To m		m	%					
LDCR18-03B	1	1	86.5	87.2	0.7	0.6	92%	Coal	Black	Medium	Broken; Rubbly	Massive, vitreous; no banding.
LDCR18-03B	1	1	87.2	87.9	0.8	0.8	100%	Coal	Black	Medium	Intact	Massive, vitreous; no banding.
LDCR18-03B	1	2	87.9	88.1	0.2	0.2	100%	Coal	Black	Medium	Intact	Massive, vitreous; no banding.
LDCR18-03B	1	2	88.1	88.8	0.7	0.4	50%	Coal	Black	Medium	Broken	Massive, vitreous; no banding. Fissile 88.1-88.2m.
LDCR18-03B	2	3	88.8	90.1	1.3	1.3	100%	Coal	Black	Medium	Broken; Rubbly	Massive, vitreous; no banding. Broken 88.8-89.4m; more fine-grained rubble (duller) 89.4-90.3m.
LDCR18-03B	2	4	90.1	90.3	0.2	0.2	75%	Coal	Black	Medium	Broken	As above; broken and more fine-grained rubble (duller).
LDCR18-03B	2	4	90.3	90.5	0.2	0.2	100%	Coal	Black	Medium	Intact; Brecciated	Massive, vitreous and dull, no banding; as above.
LDCR18-03B	2	4	90.5	91.1	0.6	0.6	100%	Coal	Black	Medium	Intact	Massive, vitreous, perhaps thin banding fabric(?) - not distinct, brittle.
LDCR18-03B	2	4	91.1	91.2	0.1	0.1	100%	Coal	Black	Medium	Broken	Massive, vitreous, perhaps thin banding fabric(?) - not distinct, brittle. As above.
LDCR18-03B	3	5	91.2	91.4	0.1	0.2	100%	Coaly Shale	Dark Brown	Hard	Broken	Dark brown hard shale/coaly shale with tr-5% fine coal fractures, lenses. No apparent bedding. (removed from box for lab)
LDCR18-03B	3	5	91.4	91.6	0.3	0.3	100%	Siltstone-Mudstone	Medium Brown	Hard	Intact; Broken	More massive fine-grained medium bedded siltstone-Mudstone. (removed from box for lab)
Total Coal			**86.5**	**91.2**	**4.7**	**4.3**	**90%**					**5 boxes in total. Footwall interval from 91.2-91.6m was removed. Only 4 boxes to be shipped to lab.**

Teck Coal Core Logging Form

PROJECT: LCD Phase 4, 7, & 8 HOLEID: LDCR18-03C LOGGED BY: RH & MN DATE: 18/12/18 PAGE 1

Hole ID	Run		DEPTH		Interval m	Core Recovery		Lithology	Colour	Hardness	Broken Texture	Comments
	Run	Box	From m	To m		m	%					
LDCR18-03C	1	1	86.0	86.2	0.2	0.2	100%	Coal	Black	soft, friable		Rubbly, brecciated, vitreous & dull, soft & friable.
LDCR18-03C	1	1	86.2	87.5	1.3	1.3	100%	Coal	Black	Medium		Brecciated but cohesive, vitreous & dull, medium to hard, minor vitreous dull banding 87.3-87.5 m.
LDCR18-03C	1	2	87.5	88.5	1.0	1.0	100%	Coal	Black	Medium/Hard		Massive cohesive, vitreous black, medium to hard.
LDCR18-03C	1	2	88.5	88.8	0.3	0.3	100%	Coal	Black	Medium/Hard		Brecciated but cohesive, vitreous, medium to hard.
LDCR18-03C	1	2	88.8	89.0	0.2	0.2	100%	Coal	Black	Soft/Medium		Rubbly, brecciated, fault zone. Fractures/shear at ~44 degrees ICA
LDCR18-03C	2	3	89.0	89.8	0.8	0.5	60%	Coal	Black	Soft		Rubbly, brecciated, poor recovery 89.0-89.3 m rubble section with soft friable core.
LDCR18-03C	2	3	89.8	90.6	0.8	0.9	100%	Coal	Black	Medium/Hard		Brecciated but cohesive, vitreous, local dull nodules.
LDCR18-03C	2	3	90.6	90.8	0.2	0.2	100%	Shale	Brown/Black	Hard		Shale/siltsonte bedded at ~30 degrees ICA, minor thin <1 cm coal stringers (removed from box for lab)
LDCR18-03C	2	4	90.8	91.2	0.5	0.5	100%	Shale	Brown/Black	Hard		Shale/siltsonte bedded at ~30 degrees ICA, minor thin <1 cm coal stringers (removed from box and box reused) Box not sent for analysis.
Total Coal			**86.0**	**90.6**	**4.6**	**4.3**	**93%**					**4 boxes in total. Footwall interval from 90.6-91.2m was removed. Only 3 boxes to be shipped to lab.**

Teck Coal Core Logging Form

PROJECT: LCD Phase 4, 7, & 8 HOLEID: LDCR18-04A LOGGED BY: MN DATE: 19/12/18 PAGE 1

Hole ID	Run		DEPTH		Interval m	Core Recovery		Lithology	Colour	Hardness	Broken Texture	Comments
	Run	Box	From m	To m		m	%					
LDCR18-04A	1	1	98.0	99.1	1.1	0.4	32%	Coal	Black	Soft	Rubbly	Rubbly, brecciated, dominantly vitreous clasts with dull coal in-between, some large clasts (~10*10*5 cm) display banding.
LDCR18-04A	1	1	99.1	99.8	0.7	0.7	100%	Coal	Black	Soft-Medium	Cohesive	Alternating bands of medium hard vitreous coal and softer brecciated coal. Bands are 6-20 cm thick.
LDCR18-04A	1	1	99.8	100.0	0.2	0.2	100%	Coal	Black	Soft	Rubbly	Rubbly, brecciated, small clasts, and vitreous.
LDCR18-04A	1	2	100.0	100.2	0.2	0.2	100%	Coal	Black	Soft	Cohesive	Alternating 4-5 cm thick layers of vitreous and fine grained dull coal .
LDCR18-04A	1	2	100.2	100.4	0.1	0.2	100%	Coal	Black	Soft	Cohesive	Massive vitreous coal.
LDCR18-04A	1	2	100.4	100.9	0.6	0.6	100%	Coal	Black	Soft	Cohesive	A mix of dull and vitreous coal, mostly vitreous.
LDCR18-04A	2	3	100.9	101.0	0.1	0.1	100%	Coal	Black	Soft	Rubbly	Rubbly and vitreous.
LDCR18-04A	2	3	101.0	101.3	0.3	0.3	100%	Coal	Black	Medium	Cohesive	Vitreous with minor layering.
LDCR18-04A	2	3	101.3	102.9	1.6	0.8	50%	Coal	Black	Soft	Rubbly	Brecciated, gravel size clasts with the odd larger clast. Clast are vitreous while matrix is dull coal.
LDCR18-04A	2	4	102.9	103.3	0.4	0.4	100%	Coal	Black with brown streak on the outside surface	Soft	Somewhat cohesive	Brecciated, gravel size clasts with the odd larger clast. Clast are vitreous while matrix is dull coal. Slightly harder then the unit above.
LDCR18-04A	2	4	103.30	103.70	0.4	0.400	100%	Shale	Dark grey-brown	Hard	Cohesive	Fissile texture displayed in areas, minor coal streaks. (removed from box for lab)
Total Coal			**98.0**	**103.3**	**5.3**	**3.8**	**71%**					**4 boxes in total. Footwall interval from 103.3-103.7m was removed.**

Teck Coal Core Logging Form

PROJECT: LCD Phase 4, 7, & 8 HOLEID: LDCR18-04B LOGGED BY: MN/RH DATE: 20-Dec-2018 PAGE 1

Hole ID	Run		DEPTH		Interval m	Core Recovery		Lithology	Colour	Hardness	Broken Texture	Comments
	Run	Box	From m	To m		m	%					
LDCR18-04B	1	1	99.9	100.3	0.4	0.4	100	Coal	Black	Medium	Rubbly	Crushed by hammer bit, large and small vitreous chunks with fine grained dull coal mixed in
LDCR18-04B	1	1	100.3	100.65	0.35	0.35	100	Coal	Black	Medium	Cohesive	Massive vitreous coal with a thin 1 cm thick band of dull coal at 100.59 m
LDCR18-04B	1	1	100.65	100.9	0.25	0.25	100	Coal	Black	Medium	Rubbly	Brecciated, small and a few large clasts of vitreous coal in a dull coal matrix
LDCR18-04B	1	2	100.9	101.5	0.6	0.6	100	Coal	Black	Medium	Cohesive	Brecciated, small vitreous coal clasts in a dull coal matrix
LDCR18-04B	1	2	101.5	102.0	0.5	0.5	100	Coal	Black	Soft	Cohesive	Massive vitreous coal
LDCR18-04B	2	3	102.0	102.9	0.9	0.9	100	Coal	Black	Soft	Rubbly	Brecciated, small vitreous coal clasts in a dull coal matrix
LDCR18-04B	2	3	102.9	103.1	0.2	0.2	100	Coal	Black	Medium-Soft	Cohesive	Brecciated, small vitreous coal clasts in a dull coal matrix
LDCR18-04B	2	3	103.1	103.5	0.4	0.4	100	Coal	Black	Medium	Cohesive	Massive vitreous coal
LDCR18-04B	2	4	103.5	104.4	0.9	0.9	100	Coal	Black	Medium	Cohesive	Massive vitreous coal
LDCR18-04B	2	4	104.4	104.9	0.5	0.5	100	Coal	Black	Soft	Cohesive	Nodules of vitreous coal in a dull coal matrix
LDCR18-04B	3	5	104.9	105.1	0.2	0.2	100	Coal	Black	Soft	Rubbly	Nodules of vitreous coal in a dull coal matrix. Rubbly material noted at top of the box likely fallen down from up, hole during Christmas break. All material is Coal (110 cm recovered over 90 cm run)
LDCR18-04B	3	5	105.1	105.3	0.2	0.2	100	Coal	Black	Medium	Cohesive	Banded, with <0.5 cm vitreous and dull layering, cohesive and competent with banding oriented 20-30° ICA .
LDCR18-04B	3	5	105.3	105.7	0.4	0.4	100	Siltstone	Dark/buff brown	Hard	Cohesive	Siltstone with thin < 1.5 cm lenticular lenses of vitreous coal lenses making up <10% of unit. Bedding oriented 20-30° ICA. (removed from box for lab)
LDCR18-04B	3	5	105.7	105.8	0.1	0.1	100	Siltstone	Dark/buff brown	Hard	Cohesive	Siltsone. No coal layering. Bedding oriented 20-30° ICA. (removed from box for lab)
Total Coal			99.9	105.3	5.4	5.4	100%					5 boxes in total. Footwall interval from 105.3-105.8 m was removed.

Teck Coal Core Logging Form

PROJECT: LCD Phase 4, 7, & 8 HOLEID: LDCR18-04C LOGGED BY: RH DATE: 31-Dec-2018 PAGE 1

Hole ID	Run		DEPTH		Interval m	Core Recovery		Lithology	Colour	Hardness	Broken Texture	Comments
	Run	Box	From m	To m		m	%					
LDCR18-04C	1	1	100.5	100.95	0.45	0.45	100	Coal	Black	Soft	Rubbly/Fissile	Vitreous to Dull and rubbly, weakly brecciated. Angular fragments <1cm to 15 cm in size. Crushed by hammer bit?
LDCR18-04C	1	1	100.95	101.4	0.45	0.45	100	Coal	Black	Medium	Cohesive	Predominantly Vitreous to dull weakly banded texture at 20-30° ICA. Cohesive but breaks easily along bedding.
LDCR18-04C	1	2	101.4	101.9	0.5	0.5	100	Coal	Black	Medium	Cohesive	Predominantly Vitreous to dull weakly banded texture at 20-30° ICA. Cohesive but breaks easily along bedding.
LDCR18-04C	1	2	101.9	102.3	0.4	0.4	100	Coal	Black	Soft/Medium	Brecciated/Semi-cohesive	Brecciated, small vitreous coal clasts< 1cm within a dull coal matrix
LDCR18-04C	1	2	102.3	102.5	0.2	0.2	100	Coal	Black	Medium/Hard	Cohesive	Vitreous glassy massive black coal that is cohesive.
LDCR18-04C	2	3	102.5	103.1	0.6	0.6	100	Coal	Black	Soft	Brecciated/Rubbly	Brecciated but semi-cohesive rubbly coal. Vitreous clasts < 2cm in a dull coal matrix.
LDCR18-04C	2	3	103.1	103.8	0.7	0.7	100	Coal	Black	Medium-hard	Cohesive	Weakly banded to massive vitreous coal with local mm scall dull bands. Easily broken along bedding at 20-30° ICA.
LDCR18-04C	2	4	103.8	104.5	0.7	0.7	100	Coal	Black	Medium-hard	Cohesive	Weakly banded to massive vitreous coal with local 2mm scall dull bands. Banding more prevalent than unit above. Easily broken along bedding at 20-30° ICA.
LDCR18-04C	3	5	104.5	104.8	0.3	0.3	100	Coal	Black	Soft	Brecciated/Rubbly	Brecciated but semi-cohesive rubbly coal. Vitreous clasts < 2cm in a dull coal matrix.
LDCR18-04C	3	5	104.8	105.5	0.7	0.7	100	Coal	Black	Medium-soft	Weakly brecciated and Fractured	Weakly brecciated and broken predominantly vitreous coal with local dull. Fractured zone and breaks oriented 25-35° ICA at 104.9-105.1 m and basal 20 cm of seam (105.3-105.5 m).
LDCR18-04C	3	5	105.5	106	0.5	0.5	100	Siltstone	Buff Brown/Grey	Hard	Fractured	Strongly fractured and broken up siltstone with local thin < 1cm bands of vitreous coal. Core is rubbly and locally unconsolidated.
Total Coal			100.5	105.5	5.0	5.0	100%					5 boxes in total. Footwall interval from 105.5-106.0 m was removed.