BC Geological Survey
Assessment Report
1067

COAL ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TITLE OF REPORT: 2019 GHO CPX2 Phase 8 Exploration Coal Assessment Report_Final_Feb 22

TOTAL COST: $261,879.08

AUTHOR(S): Alison Seward P.Geo.
SIGNATURE(S): A. Seward

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S):0600338

YEAR OF WORK: 2019

PROPERTY NAME: Teck Greenhills Operation

COAL LICENSE(S) AND/OR LEASES ON WHICH PHYSICAL WORK WAS DONE:
CL 389282, DL 3423, DL 6635, DL 3422

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN:

MINING DIVISION: East Kooteney
NTS / BCGS:
LATITUDE: _____ ° _____ ' _____"
LONGITUDE: _____ ° _____ ' _____" (at centre of work)
UTM Zone: 11 EASTING: 50.1001720 NORTHING: -114.865000

OWNER(S): Teck Coal Ltd

MAILING ADDRESS:
3300-550 Burrard Street Vancouver BC V6C 0B3

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

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REPORT KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude. **Do not use abbreviations or codes**)
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Mines Act Permit CX-5-016 Approval # 18-0600338-0824

SUMMARY OF TYPES OF WORK IN THIS REPORT		EXTENT OF WORK (in metric units)	ON WHICH TENURES
GEOLOGICAL (scale, area)			
	Ground, mapping	n/a	
	Photo interpretation	n/a	
GEOPHYSICAL (line-kilometres)			
	Ground		
	(Specify types)	N/A	
	Airborne		
	(Specify types)	N/A	
	Borehole		
	Gamma, Resistivity,	20	DL 3422
	Resistivity	N/A	
	Caliper	N/A	
	Deviation	N/A	
	Dip	N/A	
	Others (specify)	N/A	
DRILLING			
	Core 11 holes	55	DL 3422
	Non-Core	489.5m	DL 3422
SAMPLING AND ANALYSES			
	Proximate 1 sample		DL 3422
	Ultimate		
	Petrographic 1 sample		DL 3422
	Vitrinite reflectance		
	Coking 1 sample		DL 3422
	Wash tests 1 sample		DL 3422
PROSPECTING (scale/area)		N/A	
PREPARATORY/PHYSICAL			
Line/grid (km)		N/A	
Trench (number, metres)		N/A	
Bulk sample(s)		N/A	

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

https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/251_2004

Greenhills Operations Assessment Report

2019 CPX2 (Phase 8) Exploration

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1.0 Introduction

This report presents results of coal exploration activities conducted during the summer of 2019 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 2019 includes only a large diameter core drilling program (1 site), and the supporting road and pad rehabilitation. 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 2019 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 6.2 million tonnes per year in 2019.

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 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	1/31/2021	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	1/31/2021	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	1/31/2021	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	1/31/2021	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 and 2019 CPX2 (Phase 8) drilling has been incorporated into the most recent geological block model. The Greenhills year-end 2019 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, 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 October 2019, and including the drilling described in this report.

1.5 New Work Performed

The 2019 CPX2 (Phase 8 Exploration) consisted of the upgrading of 460m of existing access trails, to drill a single large diameter core bulk sample site, consisting of 11 holes to the same target seam. The site had been planned for completion in 2018 originally, but the drilling contractor couldn't accommodate it. So it was completed in July 2019. Downhole geophysical logging (Gamma only) was completed on one of the large diameter core holes at the site. A bulk sample was compiled from the 11 cores collected at the large diameter site. Samples were shipped to GWIL and Pearson laboratories for analyses. Canmet Labs completed the coking tests.

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.

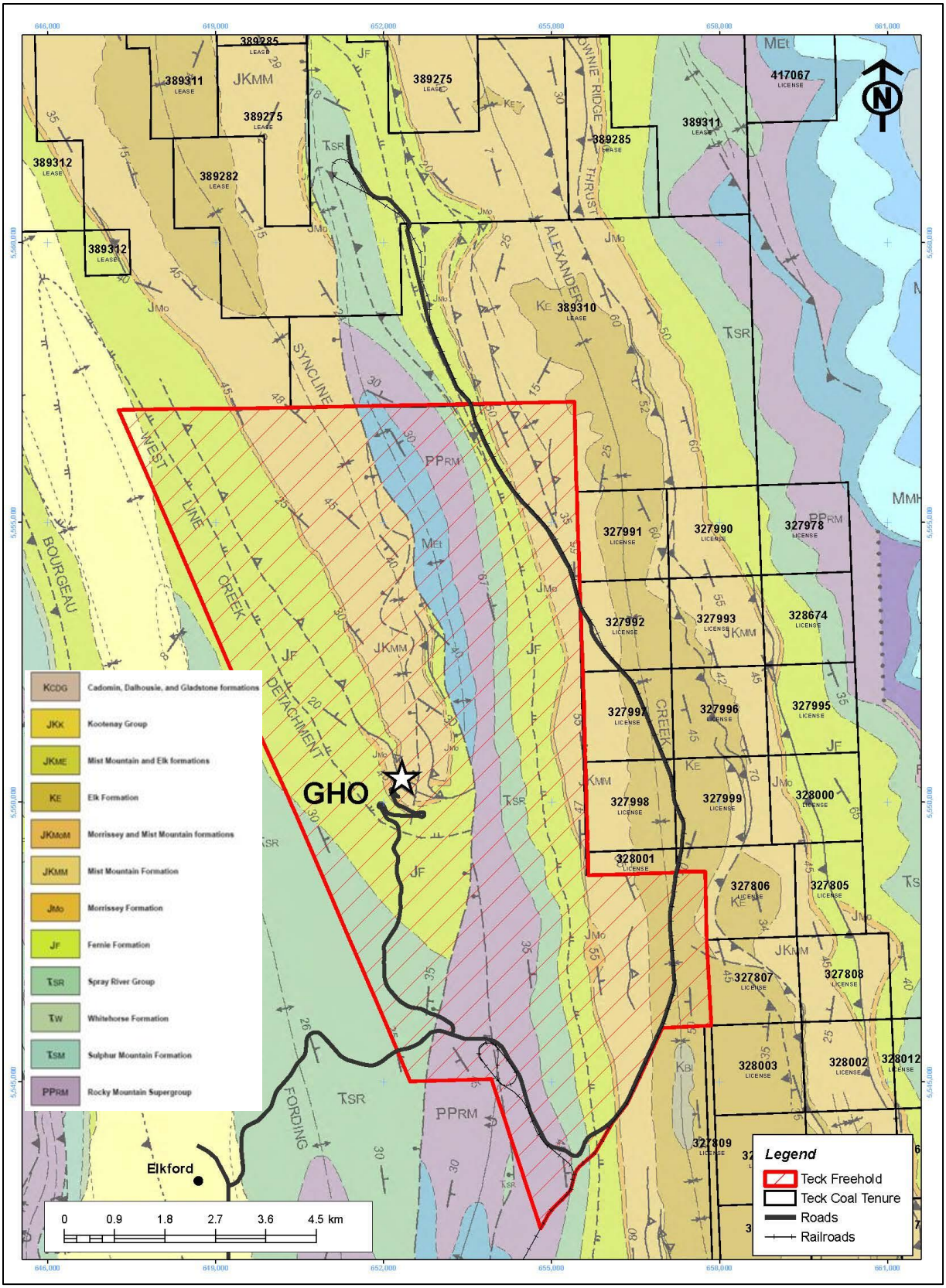

Figure 3: Greenhills Regional Geology Map

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.

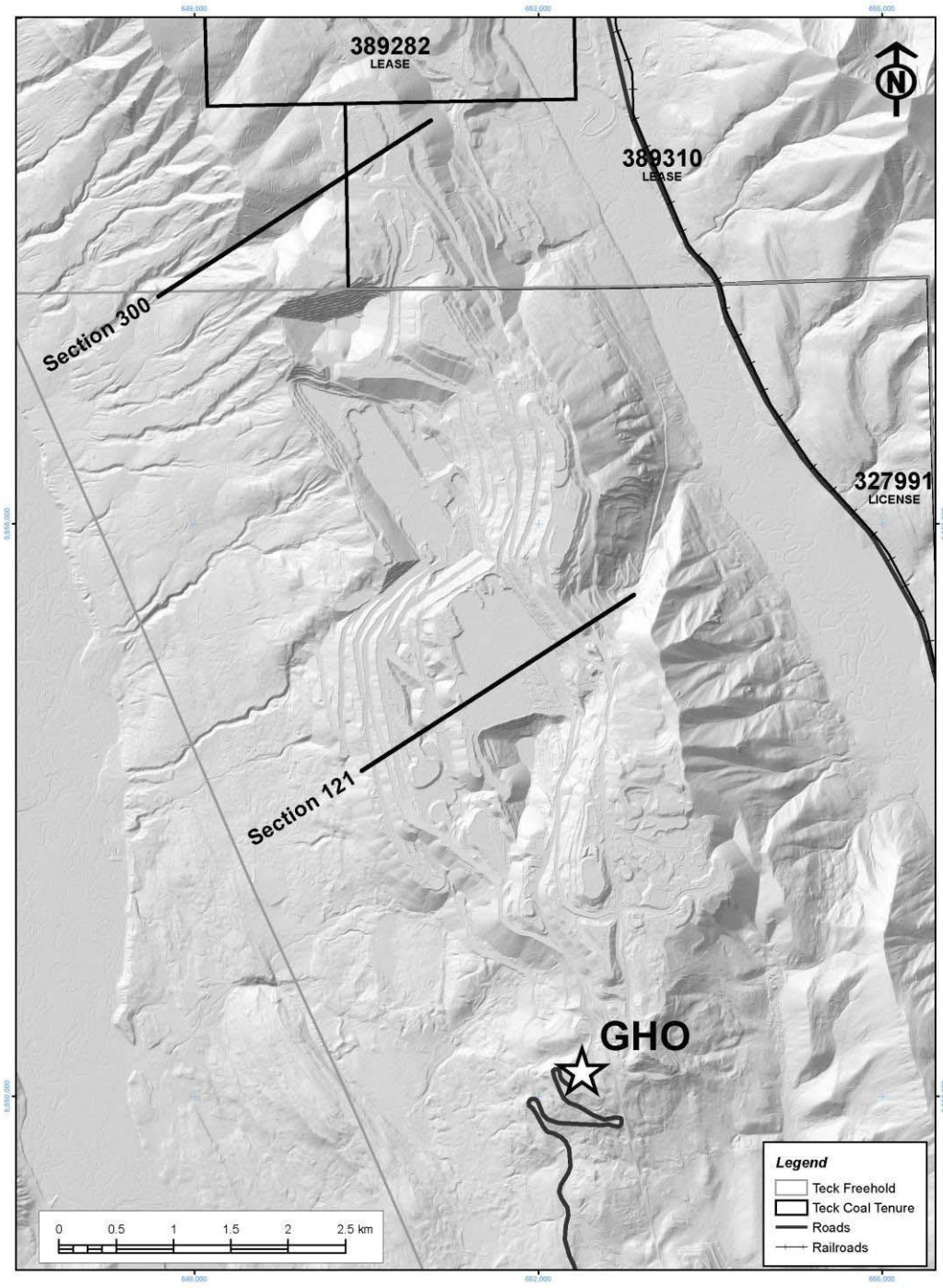

Figure 4: Plan map with typical cross section location

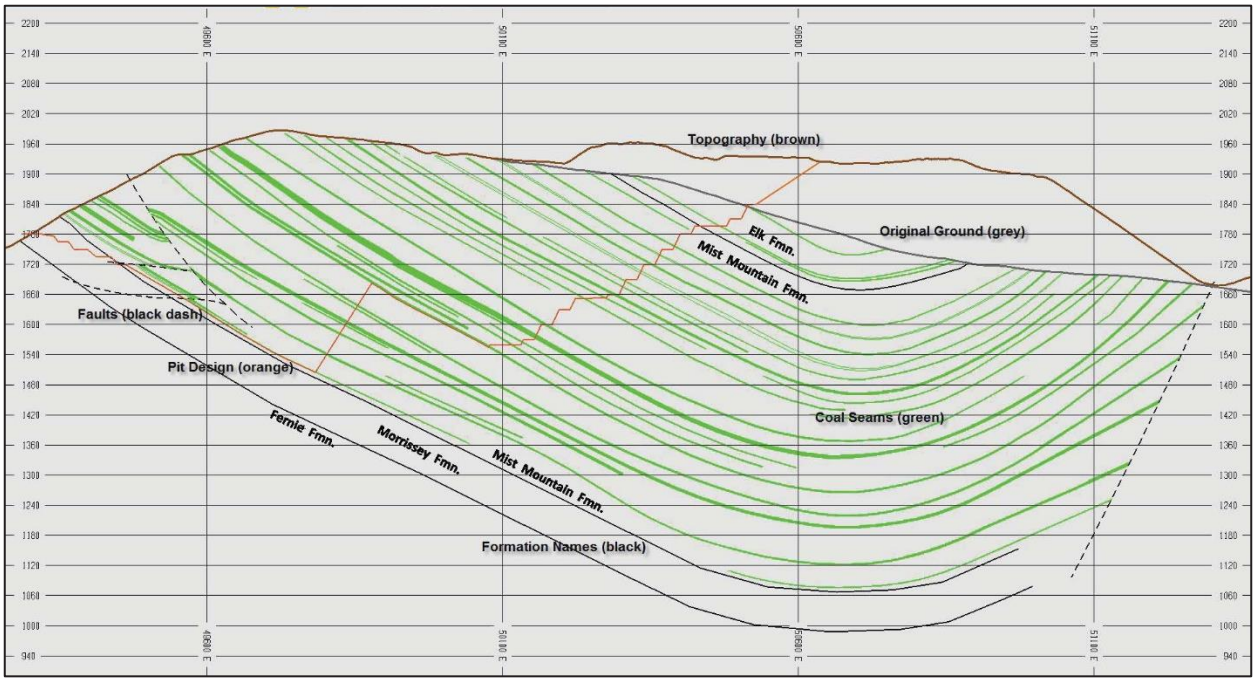

Figure 5: Typical cross-section Cougar Phase 7-8 area (#300), looking NNW. (Grid in meters)

3.0 Summary of 2019 Exploration Work

In 2019 Greenhills Operations conducted an exploration drilling and coal sampling program in the Phase 8 area. No rock samples for geochemical analysis were collected.

Prior to any activity in the area bird surveys were completed by a qualified contractor. Prior to drilling, 460m previously existing exploration roads and trails were improved to allow drilling equipment access. Upgrading excavated trail, creation of the drill sump, and drill pad berms were completed by a qualified contractor to provide safe access to new drillhole location.

For the 2019 program, one bulk sample was collected with a 0.28 m (diameter) Large Diameter Coring (LDC) rig at one drill site, with eleven LDC drillholes on the site composited into a single sample for 29-0 seam. In total 518.7 m were drilled over 11 drillholes, collecting 29.2m of coal for 29-0 seam. A geophysical log was completed on one representative hole of the 11 drilled. Teck logging equipment was used, which is the reason for only a gamma geophysical log.

Upon completion of the logged 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	LDCR18-02 A-K,

3.1 Phase 8 2019 Exploration Project Objectives

The overall objective for the 2018-2019 Greenhills CPX2 (Phase 8) drilling program was to determine with a high degree of certainty the location, thickness and coal quality of the seams in the planned Phase 8 pit region. This single LDC site in 2019 was the completion of the drilling plan from 2018. This latest core sample will be combined with all the 2018 and older information collected for the phase 8 region. 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 2019 Greenhills Phase 8 Exploration project was $261,879.08 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 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 Ecological Consulting, of Crowsnest, AB. Road reopening work and sump construction was completed by Transcendent Mining and Mobilization, of Sparwood, BC.

Large Diameter Core (LDC) 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, drilling multiple holes 3-5m apart, to collect enough sample. Large diameter core drilling was selected as the preferred method for collecting bulk samples for the purpose of carbonization testing. Refer to *Appendix 2* for core logs. The LDC drilling services were performed by Foraco Canada Ltd., of Calgary, AB. The drill used on the project was a 2006 Foremost DR-24 for the LDC drilling.

Sampling accuracy is vital to develop an accurate understanding of coal seam properties; therefore, as part of the quality assurance and quality control procedures, a representative sample of each core was

taken and sent to a different lab than the main one preparing for the coking tests. These composite results will be compared to the final bulk sample results for control purposes.

As this program was a completion of the phase 8 work planned and nearly completed in 2018 there was only one drill site. It was for the LDC and 11 coal samples of core totaling 29.2m were collected to be composited into a single bulk sample. The eleven holes ranged from 44.2m to 49.8 meters in length, averaging 47.15m long.

Large diameter cores were geologically logged and sampled by Moose Mt Technical Services or 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. Note that the rock above the coal samples are not cored, they are hammer drilled, so there are no samples or core logs for that portion of the holes. There is only a single geophysical gamma log of the entire hole. A representative hole was logged, not all 11 holes. 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 2019 Drillhole Collar Locations

Drillhole ID	Purpose	UTM Coordinates		Elevation	Azimuth	Dip	Hole Depth (m)
		Easting	Northing				
LDCR18-02(D)	Bulk Sample	649276.997	5558602.831	2061.04	0	-90	46.1

Downhole geophysical logs were completed by Teck Greenhills Geology personnel using Teck equipment. Teck uses Mount Sopris Instruments geophysical tools, as made by the company in Denver, CO. One LDC hole was logged through the pipe for gamma, as Greenhills does not own a gamma-density or gamma-neutron tool. Geophysical logs are shown in *Appendix 3.* As the coal from the 11 holes is considered a single site and single sample, it will exist only a one hole in the geological database and that is why only one representative hole was logged for the 11 drilled.

Sampling of coal seams intersected in the drilling was done in 1.0 m (or less) intervals. The 1.0 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. These plys are then used to check against the final core results from GWIL Industries Birtley Coal & Minerals Testing Division, in Calgary, AB. Composites of the combined sample of the 11 cores were completed by GWIL Birtley Industries. Composites will be analyzed for raw proximate, including FSI. A subsample of the composite will then undergo a single gravity wash at 1.5 specific gravity and then 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. Pearson Petrography in Victoria, BC complete the petrographic analysis. GWIL lab forwarded most of the crushed and homogenized sample to Hazen Research Inc. of

Golden, CO, USA for pilot plant washability. The washed sample wasthen sent to Canmet Energy of Ottawa, ON for carbonization and testing.

4.0 Results

The overall objective for the 2018-2019 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 2019 portion of the project consisted of a single large diameter core site, LDCR18-02. The total drilling of the 11 core holes needed to get enough bulk sample of a targeting single coal seam was 29.2m. Geophysical logs were completed for all one of the eleven LDC holes on site 18-02. 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 2019 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 (2018) 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 as acoustic and optical televiewer logs from the 2018 drilling are being reviewed. However the presence of forethrusts has been confirmed by this drilling.

Composite sample analyses resulted in 699 composite coal samples and from 6 different hole, 233 geochemical rock samples. This data has been added to the seams qualities in the geological database, and interpolated in the geological model. The geochemical testing confirmed the presence of PAG material and it has been incorporated into the geological model also.

In 2019 the sample was for a single composite and coking sample, included in the above paragraph's totals. No rock geochemistry was completed in 2019.

The drillholes, structural and quality data will be added to future block models and reserve and resource estimates, once interpretation and analyses are completed.

5.0 Conclusion

The 2018-2019 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. All analysis data has returned from the labs and has been included into Teck Greenhills Geological models.

Greenhills Operations will continue to update its geological model, and a mine engineering economic assessment of Phase 8 as plans progress.

Further RC drilling to improve resource confidence, improve structural interpretation and increase the amount of coal quality data will be undertaken in 2021-2023 to inform the detailed planning for Phase 8 mining. Any new data as well as the information already collected 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, Greenhills Operations, Teck Coal Limited, Box 5000, Elkford British Columbia V0B IH0.

This certificate applies to the Report titled "Greenhills Operations Assessment Report 2019 CPX2 (Phase 8 Exploration)" (the "Report") with an effective date of February 22, 2021.

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 July 2020). I am currently working part time as the Mine's Modelling Senior Geologist.

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.

From 2010-2020 I was the site designated QP for Greenhills Operation (Geology) and have been responsible for the Year End Reserve and Resource Reports.

Signed and Dated this 22nd Day of February 2021.

Alison Seward, P.Geo.
Senior Geologist

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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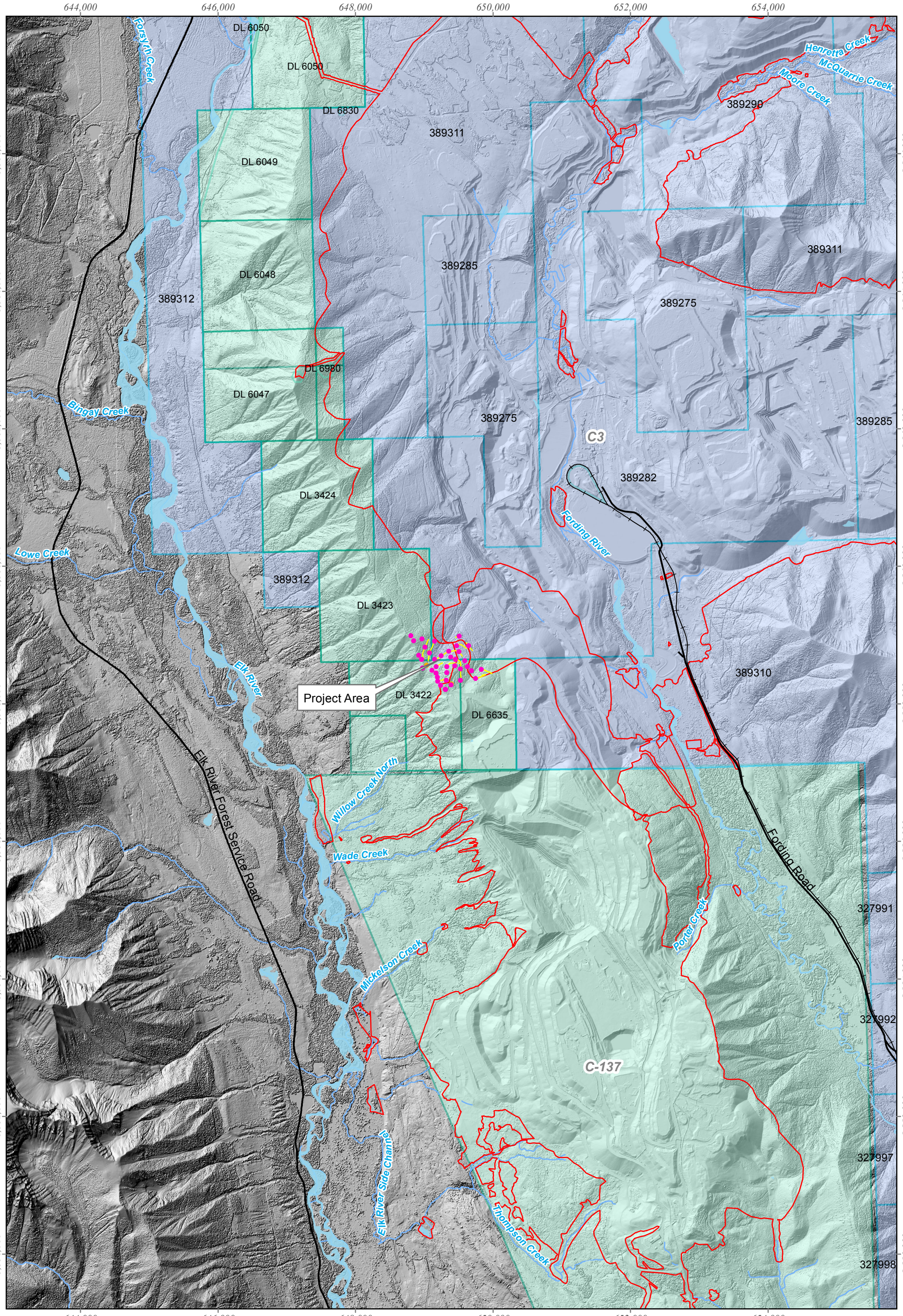

Teck

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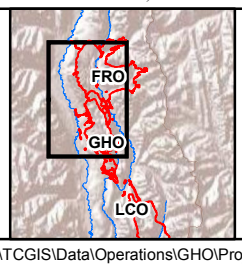

Claim Map

- 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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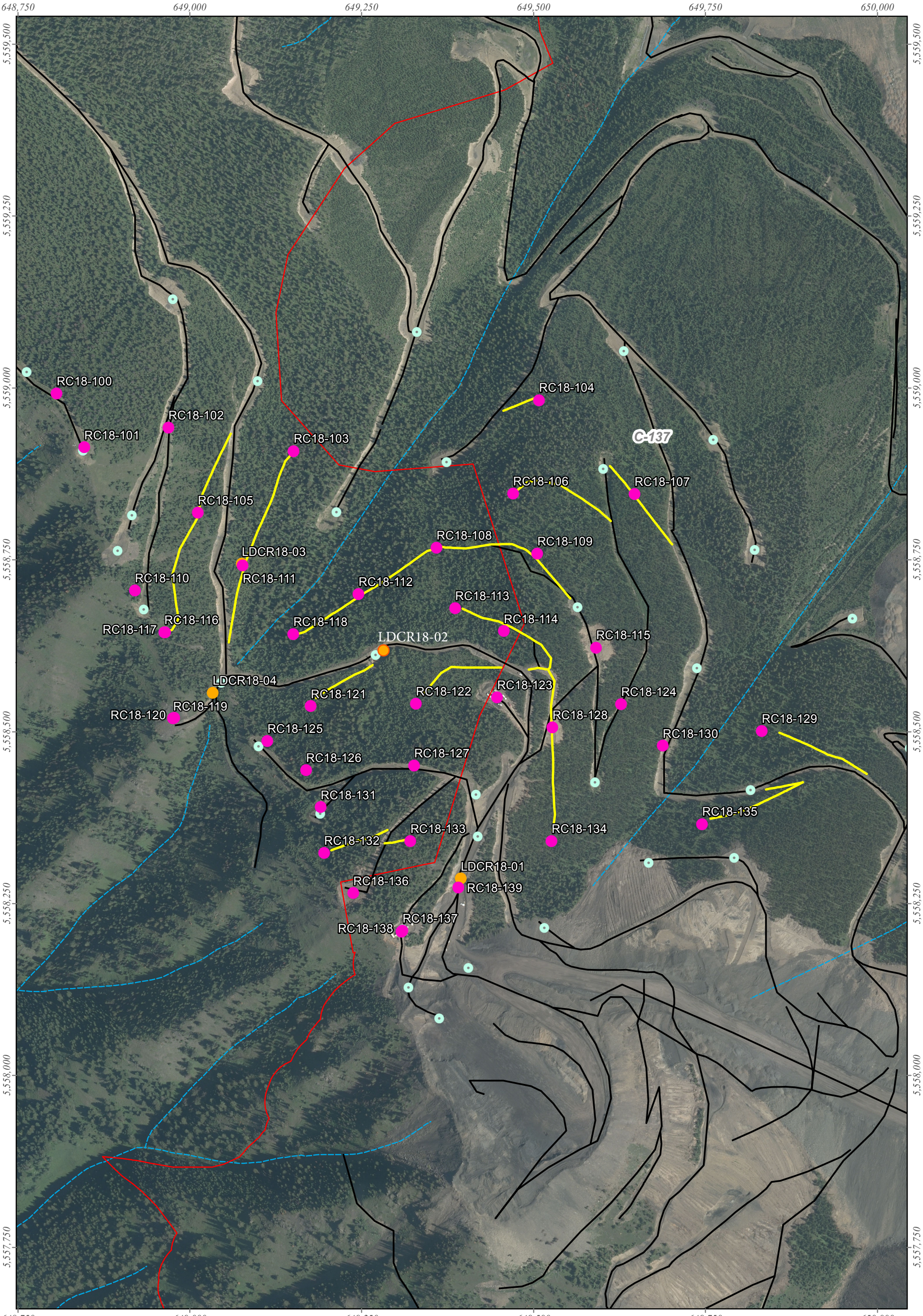

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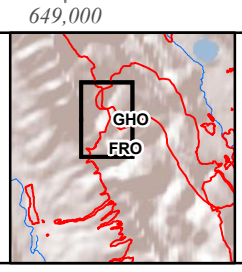

Exploration Work

- 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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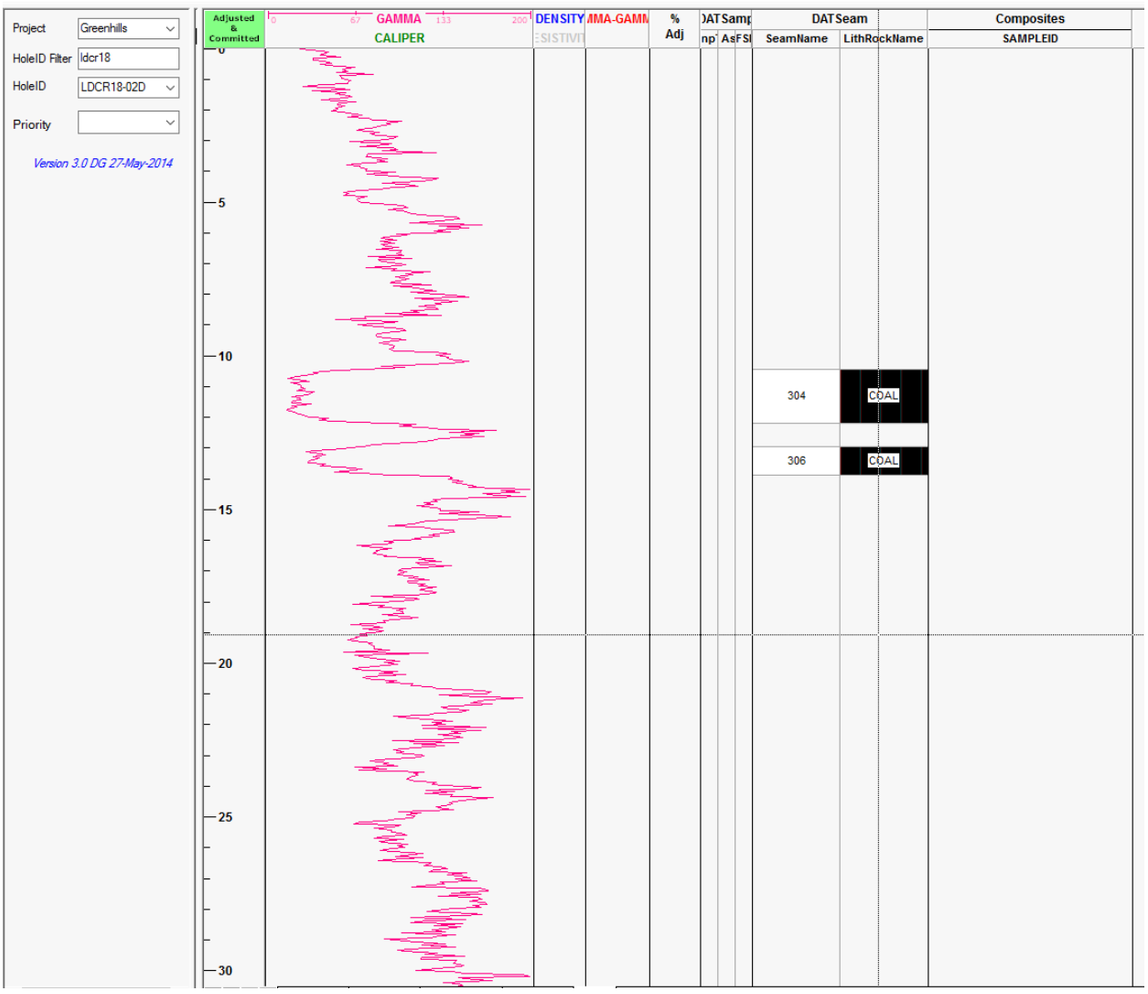
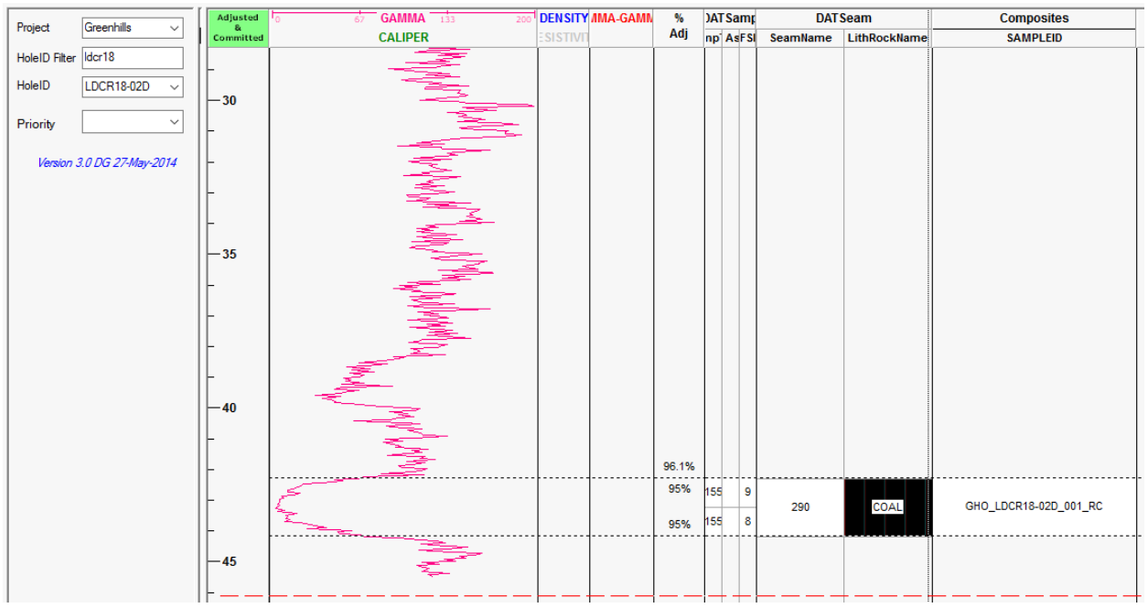
Appendix 1

Exploration Work type	Comment	Days			Totals
Personnel (Name)* / Position	**Field Days (list actual days)**	**Days**	**Rate**	**Subtotal***	
Consultant Geologist- Moose Mountain Technical Services		20.5		$29,520.00	
Transcedent Mining & Mobilization	Road/Pad building equip.operators	2		$2,265.17	
Anatum Ecological	Migratory Bird Surveys	1.3		$3,147.30	
Guardian First Aid	On-site MTC & First Aid attendant	21.6		$16,118.40	
				$51,050.87	**$51,050.87**
Office Studies	**List Personnel (note - Office only, do not include field days)**				
				$0.00	**$0.00**
Airborne Exploration Surveys	**Line Kilometres / Enter total invoiced amount**				
				$0.00	**$0.00**
Remote Sensing	**Area in Hectares / Enter total invoiced amount or list personnel**				
				$0.00	**$0.00**
Ground Exploration Surveys	**Area in Hectares/List Personnel**				
Ground geophysics	**Line Kilometres / Enter total amount invoiced list personnel**				
Seismic refraction					
Well logging (done in-house)	one hole logged, no cost, Teck tools & employee		45.5m	$0.00	
Geophysical interpretation					
Petrophysics					
Other (specify)					
				$0.00	**$0.00**
Geochemical Surveying	**Number of Samples**	**No.**	**Rate**	**Subtotal**	
Other (specify)	all sample tests covered outside of this project.		$0.00	$0.00	
				$0.00	**$0.00**
Drilling	**No. of Holes, Size of Core and Metres**	**No.**	**Rate**	**Subtotal**	
Diamond	none		$0.00	$0.00	
Reverse circulation (RC)	none		$0.00	$0.00	
Rotary air blast (RAB)	none		$0.00	$0.00	
Other (specify)	Bulk Sample 9" Coring, 474.4 m, 1 sample	1.0	$0.00	$204,409.70	
				$204,409.70	**$204,409.70**
Other Operations	**Clarify**	**No.**	**Rate**	**Subtotal**	
				$0.00	**$0.00**
Reclamation	**Clarify**	**No.**	**Rate**	**Subtotal**	
After drilling	replace water bars and open berms	1.0	$0.00	$4,550.00	
Monitoring			$0.00	$0.00	
Other (specify)				$0.00	
				$4,550.00	**$4,550.00**
Transportation		**No.**	**Rate**	**Subtotal**	
Airfare			$0.00	$0.00	
Taxi			$0.00	$0.00	
truck rental	MMT Pickup truck rental (July)	1.00	$1,868.51	$1,868.51	
kilometers			$0.00	$0.00	
ATV			$0.00	$0.00	
fuel			$0.00	$0.00	
Helicopter (hours)			$0.00	$0.00	
Fuel (litres/hour)			$0.00	$0.00	
Other					
				$1,868.51	**$1,868.51**
Accommodation & Food	**Rates per day**				
				$0.00	**$0.00**
Miscellaneous					
				$0.00	**$0.00**
Equipment Rentals					
				$0.00	**$0.00**
Freight, rock samples					
			$0.00	$0.00	
			$0.00	$0.00	
				$0.00	**$0.00**
TOTAL Expenditures					**$261,879.08**





Screen shot from AcQuire database for Teck – Greenhills – for LDCR18-02(D)