BC Geological Survey
Coal Assessment Report
1070

Line Creek Operations

Assessment Report

2020 Burnt Ridge North Exploration Program

Teck

COAL ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TITLE OF REPORT: **Line Creek Operations Assessment Report**
2020 Burnt Ridge North Exploration Program

TOTAL COST: $2,921,540

AUTHOR: **Melissa Newton**
SIGNATURE:

NOTICE OF WORK PERMIT NUMBER/DATE: **Mine Permit C-129**

YEAR OF WORK: **2020**

PROPERTY NAME: **Burnt Ridge North (BRN) at Line Creek Operations (LCO)**

COAL LICENSE(S) AND/OR LEASES ON WHICH PHYSICAL WORK WAS DONE: **Teck Fee Simple tenure DL 4588 Lot #1**

MINERAL INVENTORY MINFILE NUMBER**:**
File: 082JSE001

MINING DIVISION: **Fort Steele**
NTS / BCGS: **082J02W / 082J006**
LATITUDE: **49° 58' 57"**
LONGITUDE: **-114° 48' 03"** (at center of work)
UTM Zone: **11** EASTING: **657669** NORTHING: **5539008**

OWNER: **Teck Coal Limited**

MAILING ADDRESS: **PO BOX 2003, Sparwood, BC, V0B 2G0**

OPERATOR: **Teck Coal Limited**

MAILING ADDRESS: **PO BOX 100, Elkford, BC, V0B 1H0**

REPORT KEYWORDS:

Interbedded sequence of sandstones, siltstones, silty shales, mudstones, and low to high volatile bituminous coal from the Jurassic–Cretaceous Mist Mountain Formation. The region is structurally complex, containing extensive thrust faulting and folding.

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:
Annual Assessment Reports Since 1974

SUMMARY OF TYPES OF WORK IN THIS REPORT		EXTENT OF WORK (m)	ON WHICH TENURES
GEOLOGICAL (scale, area)			
	Ground, mapping	3km x 0.6 km	**Teck Fee Simple tenure DL 4588 Lot #1**
GEOPHYSICAL (line-kilometres)			
	Gamma, Neutron	**12,466 m**	**Teck Fee Simple tenure DL 4588 Lot #1**
	Density, Caliper, and Resistivity	**7,903 m**	**Teck Fee Simple tenure DL 4588 Lot #1**
	Dipmeter and Deviation	**5,741 m**	**Teck Fee Simple tenure DL 4588 Lot #1**
	Deviation (in pipe Gyro)	**2,317 m**	**Teck Fee Simple tenure DL 4588 Lot #1**
	Others(specify): **Acoustical Televiewer** **Optical Televiewer**	**1,617 m** **1,509 m**	**Teck Fee Simple tenure DL 4588 Lot #1**
	Core: Four 9" Large Diameter Core hole (LDC or LD Core) Three Diamond Drill Holes	**442 m** **774 m**	**Teck Fee Simple tenure DL 4588 Lot #1**
	Non-core (Twenty 4 ¾" diameter Reverse Circulation (RC or Rev Circ) holes)	**5,637 m**	**Teck Fee Simple tenure DL 4588 Lot #1**
SAMPLING AND ANALYSES			
Total # of Samples			
2,134	**Ply Analysis (Ash, FSI, RM, and LT)**		**Teck Fee Simple tenure DL 4588 Lot #1**
296 284 12	**Total Proximate (RM, Ash, & VM) & FSI & Sulphur** -Analysis run on each of the 141 comps for raw and clean results. -Analysis run twice on each bulk sample for raw and clean results, except for FSI which was only run once.		**Teck Fee Simple tenure DL 4588 Lot #1**
142	**LT, Fluorine, Chlorine, Mercury, Dilatation, Gieseler Fluidity, and Mineral Ash Analysis** -Analysis were requested on composite samples but may not be run on samples with a high ash value.		**Teck Fee Simple tenure DL 4588 Lot #1**
3	**Phosphorous, LT, Float Sink Analysis, Froth Floatation, and Mineral Ash Analysis** -Analysis run on the raw bulk samples.		**Teck Fee Simple tenure DL 4588 Lot #1**
3	**Fluorine, Phosphorous, Dilatation, Gieseler Fluidity, Caking Index, Plastometric, and Mineral Ash Analysis** -Analysis on each cleaned bulk sample, but the fluorine analysis was run twice.		**Teck Fee Simple tenure DL 4588 Lot #1**
166	**Total Petrographic** -Analysis on composite samples & 3 clean bulk samples		**Teck Fee Simple tenure DL 4588 Lot #1**
6	**Carbonization and Coke Testing**		**Teck Fee Simple tenure DL 4588 Lot #1**
65	**QAQC Analysis (60** Plys with Ash only & 5 clean comp with proximate, sulphur, and phosphorus)		**Teck Fee Simple tenure DL 4588 Lot #1**
61 **20** **36 + 5**	**Geochem Analysis** -Moose Mtn Fm: Rinse pH, paste pH, Total Sulphur, Sulphate Sulphur, Total Carbon, Carbonate Carbon, Ultra Trace Metals on solids by Aqua Regia Digestion, & Total Organic Carbon -Mist Mtn Fm (primary + duplicates): Ultra trace elements by Aqua Regia Digestion, Total Carbon, and Sulphur.		**Teck Fee Simple tenure DL 4588 Lot #1**
1337	**pXRF rock chip samples**		**Teck Fee Simple tenure DL 4588 Lot #1**
48 **57** **9** **14**	**Geotech Analysis** -Unconfined Compressive Strength Test (UCS) -Bulk Density -Triaxial & Direct Shear Testing -Young's modulus and Poisson's ratio Testing		**Teck Fee Simple tenure DL 4588 Lot #1**

Table 6 and Appendix 4 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

Line Creek Operations Assessment Report

2020 Burnt Ridge North Exploration Program

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Line Creek Operations Assessment Report
2020 Burnt Ridge North Exploration Program

1. INTRODUCTION

This report presents the results of coal exploration and geotechnical activities conducted during the summer and fall of 2020 on the Burnt Ridge North (BRN) drilling program, located in the Elk Valley Coalfield, Teck Coal Limited, Line Creek Operations (LCO), in southeastern British Columbia. The exploration work was completed by Teck personnel.

i. Property Description and Access

The BRN drilling program is located on the Line Creek property, approximately 25 kilometers north, and east of Sparwood, BC. Access to the Line Creek property is by driving 15 km north on highway 43, then 15 km east on the Line Creek Mine access road. Refer to Figure 1 for property location.

ii. Property History

Burnt Ridge North (BRN) comprises approximately 2,500 ha. and is part of the 44,000-ha coal-bearing lands acquired by Kaiser Resources Ltd. from Crowsnest Industries Ltd. in 1968. In 1980, Kaiser Resources Ltd. mining interests were acquired by British Columbia Resources Investment Corporation, which became B.C. Coal Ltd. a year later. The name was later changed to Westar Mining. In 1992, Westar Mining filed for bankruptcy protection. The D.L. 4588 Lot 1 and associated coal licenses were acquired by Fording Coal Ltd. and through amalgamation they later became part of Teck Resources Ltd.

Exploration activities from 1968 to 1979 have included access construction, the excavation of three test pits for bulk sample collection, trenched coal seams, six adits driven into five of the main coal seams, and one diamond drill hole was completed at the north end of the property. Afterwards, the property remained dormant until the early to mid-1990's when a number of small reverse circulation drill programs and associated access construction was completed. In 2010 and 2012 to 2013, a number of larger drilling campaigns occurred in the area; followed by a hiatus in BRN exploration. In 2019, drilling programs resumed. BRN pre-benching activities began in the winter of 2020 and mining is expected to begin in Q3 or Q4 of 2021.

BRN is located north of the existing Burnt Ridge Extension (BRX) open pit mining operation and is part of the Teck Fee Simple tenure DL 4588 Lot #1. The tenure number, name, owner, grant, and area are summarized in Table 1. All licenses are located in British Columbia in the Fort Steel Mining Division. Refer to Figure 2 for coal lease and license location.

Mining operations, which started in 1981, have produced as much as 4.0 million Tonnes of clean metallurgical each year for markets in North and South America, Africa, Europe, and Asia.

Table 1
LCO Coal Licenses

Code	Parties	Type	Status	Grant Date	Area (Ha)	Project
327719	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	10/28/1986	130	Line Creek Operation, BC
327810	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	3/13/1986	259	Line Creek Operation, BC
327811	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	3/13/1986	130	Line Creek Operation, BC
327978	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	3/13/1986	259	Line Creek Operation, BC
327990	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	3/13/1986	259	Line Creek Operation, BC
327991	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	3/13/1986	259	Line Creek Operation, BC
327992	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	3/13/1986	259	Line Creek Operation, BC
327993	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	3/13/1986	259	Line Creek Operation, BC
327995	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	3/13/1986	259	Line Creek Operation, BC
327996	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	3/13/1986	259	Line Creek Operation, BC
327997	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	3/13/1986	259	Line Creek Operation, BC
327998	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	3/13/1986	259	Line Creek Operation, BC
327999	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	3/13/1986	259	Line Creek Operation, BC
328000	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	3/13/1986	259	Line Creek Operation, BC
328001	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	3/13/1986	65	Line Creek Operation, BC
328002	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	3/13/1986	259	Line Creek Operation, BC
328003	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	3/13/1986	259	Line Creek Operation, BC
328004	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	3/13/1986	259	Line Creek Operation, BC
328005	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	3/13/1986	259	Line Creek Operation, BC
328006	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	3/13/1986	130	Line Creek Operation, BC
328007	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	3/13/1986	130	Line Creek Operation, BC
328012	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	10/16/1986	130	Line Creek Operation, BC
328013	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	10/16/1986	130	Line Creek Operation, BC
328014	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	10/16/1986	130	Line Creek Operation, BC
328674	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	3/13/1986	259	Line Creek Operation, BC
336958	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	6/15/1995	259	Line Creek Operation, BC
336959	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	6/15/1995	182	Line Creek Operation, BC
336960	TECK COAL LIMITED (100.0000%)	CLI (BC)	Active	6/15/1995	129	Line Creek Operation, BC
389284	TECK COAL LIMITED (100.0000%)	CLE (BC)	Active	6/30/1981	3,238	Line Creek Operation, BC
389291	TECK COAL LIMITED (100.0000%)	CLE (BC)	Active	10/1/1991	782	Line Creek Operation, BC
418131	TECK COAL LIMITED (100.0000%)	CLE (BC)	Active	10/28/2013	1,402	Line Creek Operation, BC

2. GEOLOGY

The information in the following stratigraphy and structure sections was taken from Olver's 2014 LCO ARIS report, Musil's 2018 FRO (Fording River Operation) ARIS report, and Lawrence and Reicher's 1982 report on the 1980/81 development work carried out in the Elk River Coal Project.

i. Stratigraphy

The general stratigraphic succession on the Line Creek Property is summarized in Table 2:

Table 2
Line Creek Stratigraphy

Period	Litho-Stratigraphic Units			Principle Rock Types
Recent				Colluvium
Quaternary				Clay, silt, sand, gravel, cobbles
Lower Cretaceous	Blairmore Group			Massive, bedded sandstones and
Lower Cretaceous to Upper Jurassic	KOOTENAY GROUP	Elk Formation		Sandstone, siltstone, shale, mudstones, chert pebble conglomerate, minor coal
		Mist Mountain Formation		Sandstone, siltstone, shale, mudstones, 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 oldest rocks present on the Line Creek property are the Mississippian Rundle Group which are located on top of Mt. Lyne at the southwestern corner of the DL4588 Lot #1.

The Jurassic Fernie Formation shales occur throughout the area, along the sides of the valleys on the lower flanks of the mountains. These dark grey to black marine shales are recessive and, poorly exposed. The Fernie Formation is approximately 100 m thick and has a conformable contact with the Morrissey Formation through the "Passage Beds," which is a transitional zone from marine to non-marine

sedimentation. This transition zone is made up of a sequence of siltstones, shales, and fine-grained sandstone.

The overlying Jurassic-Cretaceous Kootenay Group is subdivided into the Morrissey, the Mist Mountain, and the Elk Formations from bottom to top. These formations are of a non-marine origin and are part of an eastward thinning wedge of rock.

The Jurassic-Cretaceous Morrissey Formation, which is the "basal sandstone" of the Kootenay Group, is a prominent cliff-forming marker horizon in many locations. This formation is approximately 65 m thick and can be further subdivided into two distinct units called the Weary Ridge and Moose Mountain members. The lower Weary Ridge Member is composed of a weaker, slightly argillaceous sandstone deposited in thicker beds that represents a foreshore beach deposit. In contrast, the upper Moose Mountain Member is composed of a thinly bedded, stronger, more siliceous rich sandstone that has been interpreted to represent a backshore beach deposit. On the Line Creek property, the Moose Mountain Member has an abrupt and conformable contact with the lowermost bed of the overlying Mist Mountain Formation.

The Mist Mountain Formation of the Jurassic-Cretaceous Kootenay Group contains all the economic coal seams on the Line Creek property. This economically important formation is 500-600 m thick and composed of an interbedded sequence of fine-grained sandstones, dark grey carbonaceous and argillaceous siltstones, silty shales, mudstones, minor conglomerate, and low to high volatile bituminous coal seams. There is approximately 60 m of minable coal in the formation that is divided between 4m to over 30m seams depending on the location. These seams do vary in thickness, presence of partings, and in quality along their length. Overall, this formation represents a deltaic or an interdeltaic coastal plain marsh environment.

The economic coal in the Mist Mountain Formation supports several coalfields in southeastern British Columbia, including the Elk Valley Coalfield, within which lies Teck's Line Creek, Greenhills, Elkview, and Fording River Operations. The volatility of the coal seams increases from medium-volatile hard coking coal with minor amounts of thermal coal in the south to medium-high volatile coking coal in the north.

The Jurassic-Cretaceous Elk Formation conformably overlies the Mist Mountain Formation at the top of the Kootenay Group. This formation is characterized as a thick, cliff-forming, coarsening up sequence of sandstone to conglomerate lithologies with some interbeds of siltstone, mudstone, shale, and thin coal seams. The coal seams lack the thickness necessary to be economically viable and contain a mix of sapropelic and humic coals. This formation's depositional environment has been interpreted as an alluvial plain.

The top of the Elk Formation marks the upper boundary of the Kootenay Group, which is unconformably overlain by the basal member of the Lower Cretaceous Blairmore Group. This thick bedded, cliff-forming sandstone and conglomerate unit is observed north of the Line Creek property.

ii. Structure

The LCO property is located within the Elk Valley Coalfield in the Front Ranges of the Rocky Mountains in Southern British Columbia. This coalfield is roughly 100 km long and was uplift into its current position during the late Cretaceous to early Tertiary Laramide Orogeny. The major structural features that

developed in the Elk Valley coalfield are the north-south trending synclines, steep westerly dipping thrust faults, a few high angle normal faults, and rare transverse faults.

The formation of the major fold structures began early in the tectonic cycle. In the Elk Valley coalfield, two asymmetric synclines are evident: the Greenhills Syncline to the west and the Alexander Creek Syncline to the east. These synclines are separated by the west-dipping Erickson Normal Fault. The dominant syncline, the Alexander Syncline (Line Creek Operations), is an asymmetric open fold with an upright to steeply inclined axial plane. Overall, the fold has no net plunge, but locally its plunge can be sub-horizontal to gentle. The second syncline, the Greenhills Syncline (Greenhills Operations), is a "mirror-image" of the Alexander Creek structure until it dies out to the north in the area of the Osborne Creek Depression. The asymmetry of these folds is due, at least in part, to the influence of the underlying Ewin Pass Thrust and the Erickson Fault which subcrops east of the Alexander and Greenhills Synclinal Axis, respectively.

Thrust faulting was contemporaneous with the later stages of folding; however, some earlier formed faults were folded during later deformation. The major thrust faults in the Elk Valley coalfield consist of, from east to west, the Ewin Pass Fault, the Erickson Fault, and the Bourgeau Thrust. The Ewin Pass Thrust is located on the eastern limb of the Alexander Creek Syncline and resulted in a repeat of the west dipping Kootenay Group strata. This fault begins to 'splay' before terminating at the south end of the Line Creek property. The Erickson Fault is a westerly dipping normal fault that separates the two major synclines in the Elk Valley coalfield. This fault places the Mist Mountain Formation in the western hanging wall in contact with Rundle, Rocky Mountain, Spray River, Fernie, and Morrissey formations of the eastern footfall. The west dipping Bourgeau Thrust defines the western boundary of the northern portion of the Elk Valley coalfield. Overall, thrust faults are more common on the eastern limb of the synclines than on the western limb.

The main structural features contained on the Line Creek property is the Ewin Pass Thrust and the Alexander Creek Syncline. The Ewin Pass Thrust lies on the eastern edge of the property and was historically mined by the Horseshoe Ridge (HSR) and Mine Services Area North (MSAN) pits. In the hanging wall of this thrust lies the Alexander Creek Syncline which outcrops along Dry Creek and is the dominant structural feature in the remaining area. The eastern limb of the syncline is currently being mined by the Mt. Michael and Mine Services Extension pits. The western limb of the syncline is currently being mined by the Burnt Ridge Extension pit and explored in the BRN area. There are also numerous smaller faults on the property with varying amounts of displacement that may be associated with minor folding, overturned coal seams, and other deformations.

Refer to Figure 3 for detailed geological map of LCO, and Figures 4-1 and 4-2 for cross-sections through BRN.

3. 2020 SUMMARY OF EXPLORATION & GEOTECHNICAL WORK

i. 2020 Exploration Project Objectives

In 2020, Line Creek conducted an exploration drilling and coal sampling program on Burnt Ridge North (BRN) which is in the Line Creek Operations Phase II mining area. Refer to Figure 5 for the BRN drill hole location map.

During this program, there was 20 Reverse Circulation (RC) holes totaling 5,637 m drilled and four Large Diameter Core (LDC) hole totaling 442 m drilled. The 20 RC holes were drilled for structure, coal thickness, and coal quality information. Three LDC holes were drilled, on the same pad, to obtain three 0.23 m diameter bulk samples from three different coal seams for coal quality and carbonization testing. The last LDC hole was abandoned, and no bulk samples were retrieved. Geophysical logs were completed on all RC holes and only one LDC hole. Unfortunately, open hole logs were not possible in four of the RC holes due to hole conditions, but thru-pipe logs were collected.

After drilling was completed, the surrounding area, ~3 x 0.6 km, was mapped, except for the southernmost ridge due to safety hazards as a results of pre-benching activities. The mapping was completed over 7 days, on outcrops exposed during previous pad and road building activities. This work focused on understanding the structures and coal seam orientations in the area.

The overall objective for the 2020 BRN exploration program was to improve resource confidence, structural interpretation, and quality knowledge of the coal seams in BRN. This objective was accomplished by:

- Developing and implementing an exploration program that included drilling and logging of 20 new RC exploration holes and collecting three bulk samples;
- Mapping the southern portion of BRN surrounding the 2020 drilling program;
- Integrating the 2020 drilling and mapping results with previous historic programs;
- Revising the geological interpretation that was based on historic mapping and drilling in the area;
- Determine the coal quality of the represented coal seams from drill cuttings and bulk samples;
- Updating the coal interpretation in the exploration area using a computer-based 3D geologic model; and
- Improve the reserve and resource model and support an economic assessment of BRN.

Note: Samples collected in 2020 are still being processed and evaluations are ongoing for the BRN area.

Each drilling location was surveyed to obtain exact coordinates and elevations within the Teck Fee Simple tenue DL4588 Lot #1 area. The exploration project was completed under the direction and supervision of Line Creek Operations geology team.

ii. 2020 Geotech Project Objectives

In addition to the exploration program, a geotechnical core drilling program (diamond drilling or DD) was conducted in BRN by the LCO Geotech team. The 2020 geotechnical drilling program consisted of 4 drill holes totaling 829 meters of drilling. Two of these holes targeted geotechnical data gaps in the planned west pit wall where complex geology, high pit walls, and potential for variable geotechnical properties were expected. The final holes targeted the planned east pit wall where no previous geotechnical data is known in BRN. These two holes were drilled on the same pad due to downhole conditions in the first hole, BRN2002-GT, resulting the hole being abandoned and no logging data recovered. Fortunately, the second hole, BRN2002a-GT, was successful in reaching the targeted depth.

The three holes, excluding the abandoned hole, recovered approximately 774 m of core which provided valuable insights into the geological structures, rock mass qualities, and hydrogeological conditions of the targeted areas. Third-party consultants provided 24/7 core logging support and geophysically logged the three holes with the same logging suite as for the exploration holes plus televiewer logs (ATV and/or OTV) when possible. Contractor management and supervision will be completed by LCO personnel.

After the geotechnical logging and sampling was completed, additional geochemical sampling was conducted on the remaining core. The geochemical analysis consisted of collecting 54 geochemical samples, with 5 additional duplicate samples, and 1281 rock chips for portable X-ray Fluorescence (pXRF) analysis. The results of both analyses will be compared to aid in calibrating the pXRF machine and provide advanced information of Potentially Acid Generating (PAG) rocks in this pit prior to mining commencing.

Overall, the rock mass, structural, and hydrogeologic data recovered in these holes is critical to designing and optimizing the pit walls for safe and economic mining.

ii Summary of Completed Work

The total cost for the 2020 BRN Exploration and Geotechnical Programs is $2,921,540 which includes an estimate for the outstanding sample analysis costs. See Appendix 1 for the cost statement.

The planning, execution, geological interpretation, and modeling of the exploration and geotechnical drilling programs were completed by the Line Creek geology and geotechnical teams, and the Teck's Geoscience Services Team. Additional assistance was provided by LCO's Environmental, Survey, and Mine Ops teams. See the 'Sustainability Initiatives' section for more information on efforts to decrease environmental imparts made during the project.

As the program was being organized, senior management at LCO further reviewed the geological risks of mining in BRN in 2021 and decided to increase the exploration drilling program budget. This decision results in two phases of permit applications and program execution. The first Phase included the nine southernmost RC holes (BN2001-BN2009), the LDC location (BN2004-LD), and the DD holes, while the remaining 11 RC holes are part of phase II.

Prior to construction in BRN Phase I and II, an Independent Environment Monitor (IEM) conducted a pre-disturbance survey of the planned program that focused on nesting birds, wildlife habitat features, and other at-risk flora, such as the White Bark Pine. When possible, hole locations were moved to take advantage of historic disturbance, natural flat or less treed areas, and to avoid key ecosystems (ex. White Bark Pine). Once pads were built, a hazard assessment was conducted and resulted in a few pads requiring Geotechnical assessment by a LCO Geotechnical Engineer. Approvals from a qualified Engineer was received prior to the rig arriving or any additional work being conducted on the pad.

Construction activities for Phase I began on June 16th with the rehabilitation of ~7.5 kms of pre-existing access roads and 4 pads. The remaining pads required new constructions or the expansion of previous pads in the case of the LDC pad location. All construction was completed under the guidance of the Project Geologist (pad/road locations, environmental aspects, and safety) and LCO's General Supervisor of Mine Operations or designate (safety and construction specifics). After July 2nd, only sporadic construction

occurred when minor road maintenance or adjustments to previously constructed pads was required.

On August 4th, all required permit approval for Phase II of the drilling program had been received and construction activities resumed. An additional ~3km of existing roads and 3 pads were rehabilitated along with 2 new pads and ~210m of new road construction. The remaining 5 pads were built by expanding existing roads and the last hole was drilling on a pad created during Phase I of this exploration program. Additional support from a Construction Advisor was utilized as needed to ensure safe construction operations while the Project Geologist were busy with drilling operations. All danger tree falling were identified by the Construction Advisor, these trees were then verified by a qualified Tree Faller and the hazard was removed, if the tree was deemed a danger to exploration activities. After September 3rd, only sporadic construction occurred when minor road maintenance or adjustments to previously constructed pads was required. Approximately 3 days of road and pad de-activation work was completed at the end of September when crews were available, but some portions of the main road were left active for pre-benching crews to utilize.

RC drilling commenced on July 13th and continued until September 14th with a few hiatuses during the programs due to LCO Shutdowns. In general, holes were drilled from south to north with the timing of specific holes based on permit approvals. These holes were all drilled using the Prospector W750 drill and have a cumulative drilling length of 5,637m with individual holes ranging from 144m to 388m and an average of 282m. The RC drilling method is the preferred method for collecting uncontaminated, representative, and accurately located coal samples. Drill hole information is given in Table 3 and in the map shown in Figure 5.

Table 3
2020 RC Drill Hole Collar Locations and Logging Information

Drill Hole Name	Status	UTM COORDINATES		Elevation (m)	Azimuth	Dip	Hole Depth (m)	Logs Completed
		Easting	Northing					
BN2001	Completed	658221.60	5537771.85	2216.34	260	-70	345	OH
BN2002	Completed	657935.10	5537849.89	2277.97	260	-70	312	OH
BN2003	Completed	658120.53	5537924.24	2212.40	260	-80	339	OH, ATV, & OTV
BN2004	Completed	658006.20	5537941.56	2229.25	260	-90	370	OH
BN2005	Completed	658060.79	5538262.62	2053.38	230	-60	327.64	OH
BN2006	Completed	657863.76	5538269.42	2094.04	210	-60	284	OH, ATV, & OTV
BN2007	Completed	657909.26	5538373.36	2083.55	260	-75	256.24	OH
BN2008	Completed	657903.05	5538568.15	2135.07	260	-70	265	TP
BN2009	Completed	657769.68	5539126.13	2220.44	260	-70	388	OH
BN2010	Completed	657597.52	5538454.18	2268.57	260	-80	254	OH, ATV, & OTV
BN2011	Completed	657481.56	5539186.63	2297.70	260	-90	251	OH
BN2012	Completed	657429.73	5539417.83	2266.03	260	-90	250	OH & OTV
BN2013	Completed	657661.12	5539540.88	2144.99	260	-80	237	OH
BN2014	Completed	657423.25	5539727.42	2201.43	260	-75	290	TP
BN2015	Completed	657381.54	5539794.84	2205.17	260	-90	266	OH

BN2016	Completed	657560.99	5539827.84	2134.09	260	-70	211	TP
BN2018	Completed	657483.40	5539975.53	2186.79	260	-85	230	TP
BN2019	Completed	657380.00	5540100.53	2181.74	260	-90	144	TP
BN2020	Completed	657378.59	5540252.59	2134.23	260	-85	272	TP, no deviation
BN2021	Completed	657372.55	5540378.46	2074.73	260	-75	348	TP

Note: Log legend: TP = through pipe, OH = open hole, ATV = acoustic televiewer, and OTV = optic televiewer.

The 4 DD holes, totaling 829m, were drilled between August 12th until September 8th which overlapped with the exploration program and allowed for resources, such as first aid attendant, to be shared between programs and decreased costs. As these holes were being drilled, a consultant was logging all 774 m of core pulled from the ground, Point Load tests were conducted, and samples were taken to be sent off site for further geotechnical analyses (see Appendices 3 and 5). These additional offsite analyses included: 48 unconfined compressive strength tests (UCS), 14 young's modulus and Poisson's ratio tests, 9 direct shear test, 9 triaxial tests, 57 bulk density tests. The 55m of discrepancy between total drilled and core recovered is due to the process of setting casing where no core was recovered.

Once drilling was done and TD was achieved, the holes were geophysical logged with the standard exploration suite, see downhole geophysical logging section below, and televiewer tools, when possible. Unfortunately, water level and hole conditions prevented televiewer logs from being captured in BRN2001-GT and the Optical Televiewer (OTV) logs in BRN2003-GT where the tool was lost down the hole. The lost OTV tool contained specialized digital camaras in multiple direction and no radioactive source. OTV recovery efforts were not successful, but attempts will be made during mining to recover the tool. No piezometers were installed on any of the BRN holes. DD drill hole information is given in Table 4 and in the map shown in Figure 5.

Table 4

2020 DD Drill Hole Collar and Geochem Sample Locations

Drill hole Name	Status	UTM COORDINATES		Elevation	Azimuth	Dip	Hole Depth (m)	Logs	Geochem Samples
		Easting	Northing						
BRN2001-GT	Completed	657839.95	5537704.71	2320.89	250	-80	250.9	OH	MF = 7 MM = 20
BRN2002-GT	Completed	658272.44	5537897.04	2223.07	70	-80	281.5	OH, ATV, & OTV	MF = 10
BRN2002A-GT	Abandoned	657700.31	5538431.23	2212.82	250	-80	55.1		
BRN2003-GT	Completed	657700.31	5538431.23	2212.82	250	-70	242.1	OH & ATV	MF = 10

Note: Log legend: TP = through pipe, OH = open hole, ATV = acoustic televiewer, and OTV = optic televiewer.

LDC is a specialized method of drilling to recover bulk samples that uses a conventional reverse circulation rig to recover a 0.23 m diameter core of the target coal seams for the purpose of carbonization testing (collection of critical coke quality data). The 4 LDC holes were drilled approximately 4 m from the pilot RC

hole on pad BN2004 between August 16th and 24th using the 2006 Foremost DR-24 drill. Three of the holes intersected the target location and one was abandoned prior to recovering any coal. Only one of the LDC holes, BN2004a-LD, was geophysically logged with the density, neutron, and deviation tools. These holes recovered approximately 18.8 m of seam 71, 15.4 m of seam 72, and 14.8 m of seam 80. All core retrieved was geological logged by a Teck Geologist, see Appendix 3, and then sent to the lab for further analysis. These analyses included Proximate, FSI, Sulphur, Phosphorous, LT, Froth Floatation, MAA, Fluorine, Dilation, Gieseler Fluidity, Caking Index, Plastometric, and Petrology. All three bulk samples were then sent for carbonization testing as they met the required weight of coal needed for the analysis, see Appendix 4. LDC drill hole information is given in Table 5 and in the map shown in Figure 5.

Table 5
2020 LDC Hole Locations

Drill hole Name	Status	UTM COORDINATES		Elevation	Azimuth	Dip	Hole Depth (m)	Target Seam and Thickness (m)
		Easting	Northing					
BN2004A-LD	Completed	658015.08	5537927.88	2231.16	0	-90	135.37	071 – 8.9 m 072 – 8.1 m 080 – 4.5 m
BN2004B-LD	Abandoned	658015.08	5537927.88	2231.16	360	-90	39	
BN2004BA-LD	Completed	658015.08	5537927.88	2231.16	360	-90	134.3	071 – 9.9 m 072 – 7.3 m 080 – 10.3 m
BN2004C-LD	Completed	658015.08	5537927.88	2231.16	360	-90	133.6	080 – 4.5 m

The downhole geophysical logs that were collected may include: gamma ray, density, neutron, and gyro (deviation) through the pipe (TP); and gamma ray, density, caliper, resistivity, dipmeter, Acoustic Televiewer (ATV), and Optic Televiewer (OTV) were run open hole (OH). The ATV and OTV tools were only run in 4 holes that were identified by LCO Geotech as key locations for Geotechnical Pit Analysis. Several holes in the area had extremely poor hole conditions and only through pipe logs were possible. Geophysical logging information for the Exploration holes is given in Table 3 and Appendix 2. Additional geophysical logging information was recovered from the Geotechnical drilling program for use in meeting the exploration objectives. See Table 4 and Figure 5 for the hole locations, and Appendix 2 for the logs.

As sampling accuracy is critical to develop an accurate understanding of coal seam thickness and quality, Line Creek conducted sample audits at the RC rig to assure accurate collection of coal samples. Once per week, the ply samples were shipped to the lab for analysis. These analyses included: ash, free swelling index (FSI), residual moisture (RM), and light transmittance (LT). See appendix 4 for results.

Composite and sub-composite intervals were chosen after the ply results were reviewed by a Line Creek Geologist and the instructions were sent to the lab for the composite preparation and analysis. The raw coal composites are being analyzed for ash, RM, Volatile Matter (VM), FSI, and Sulphur. The clean coal composites are also being analyzed for proximate (RM, Ash, & VM), FSI, Sulphur, LT, Fluorine, Chlorine, Mercury, Dilation, Gieseler Fluidity, Phosphorous, and Mineral Ash Analysis (MAA). See appendix 4 for the results of these analyses.

In addition, a number of the 2020 plys and composite samples were chosen to participate in a QAQC program at a different lab. Sixty plys samples were tested for ash and RM, and 10 clean composites will be tested for proximate analysis, Sulphur, and phosphorus. Additional QAQC analysis were completed on some remaining composite samples retained from the 2018 and 2019 programs.

Once the Geotech drilling program was completed, the 3 cores collected were sampled by the Exploration Team for geochemistry and pXRF analysis. The purpose of these analysis was: 1) to begin collecting and understanding PAG rocks in the new BRN pit, and 2) provide a robust dataset of pXRF and geochemical analysis on the same intervals to aid in calibrating the pXRF device for future work. A total of 56 geochemistry samples were collected, not including 5 duplicates. Thirty-six samples of a 2m interval were collected in the Mist Mountain Formation (MF) every 30 m. The remaining 20 samples were collected from the lower portion of BRN2001-GT in the Moose Mountain Member (MM) at an interval of 1m. The portion of samples remaining after the geochemical lab test were complete, have been returned to Teck for use in the pXRF testing. These 56 samples and an additional 1281 rock chips collected at a 1 m interval throughout the Geotech cores will comprise the pXRF data set. Analysis and results review is currently being conducted. Please see Table 4 and Appendix 6 for more information.

After the exploration drilling and de-activation activities had been completed in late September, seven days were spent mapping an area of approximately 3 x 0.6 km surrounding the drilling program, except for the southernmost ridge due to safety concerns of working below pre-benching activities. The work reviewed 17 outcrops exposed during previous road and pad construction. At each outcrop, structural and geological information was recorded along with the outcrop locations and the approximate dimensions of the exposure. The dominant lithology observed was sandstone with variable thickness, but locally coal, mudstone, siltstone, and carbonaceous mudstone was present. Bedding dipped between 49-80 degrees to the southeast-southwest depending on location. At 8 locations faults were also present, with dips ranging from 75-85 degrees to the southeast. These faults, 1-4 cm wide, was recognized by the present of gauge and offset markers displaying normal movement. Please see Figure 6 and Appendix 7 for more information.

iii Sustainability Initiatives

All involved in the program attempted to reduce its impact on the environment. Some of the initiatives that were implemented included:

- One of the permit requirements of working in this area during the bird window was a pre- and post-site inspection along with weekly visits by an Independent Environmental Monitor (IEM). The IEM also asked to check the area for Wildlife Habitat Features, at-risk species, invasive species, cleanliness, compliance with environmental management plans, and that spills were cleaned up appropriately. No major issues were recorded.
    - Pads were moved or activities in certain areas were temporarily paused to avoid affecting at-risk flora and nesting birds.
- Construction:
    - All pad locations were chosen adjacent to existing roads, except for two pads, to minimize

disturbance to the area. These locations were moved slightly during the pre-construction stage of the project to take advantage of natural topography and existing disturbance to further decrease construction disturbance and timber clearing in the area.

        - This same thought process applied to the new roads and the two associate pads that needed to be built. Any major changes were approved by EMLI prior to construction beginning.

    - A few culverts were installed during the rehabilitation of the historic roads to direct surface waters and eliminate the need for vehicles driving through the water. These were removed during the de-activation stage of the program and the area was returned to pre-2020 status.

    - The 2020 and 2019 LDC holes were filled with crushed rock to eliminate the 16" open hole hazard for wildlife and future mining activities.

    - At the end of the program, the project area was de-activated. This work included filling in the sumps to eliminate wildlife traps, breaking berms, and adding swales for water management and erosion control.

- Drilling:

    - Utilized the Prospector W750 Rig as it required a smaller pad size of 16 x 25 m that can be built parallel to the slope rather than the 20 x 30 m pad size of most RC rigs that must be built at a very specific angle.

    - Nineteen out of the 24 RC and LDC holes in BRN had the steel casing at the surface pulled once drilling and logging had been completed. An attempt was made in the remaining holes, but the rig was unable to extract the casing from the ground. Rocks were used to cover the hole if it did not cave inward on its own.

    - Water was pulled from the Mine Services building.

    - Sumps were activity monitored. When a sump was nearly full, all drilling activity ceased until the water can be dealt with so no drilling fluids can escape. This year, one pad required an extra sump to contain all the drilling fluids so the hole could be completed.

- All spills, even a drop, where cleaned up and reported for tracking and learning purposes. This information was shared with the IEM and Teck's Environmental Team.

- Two EMLI inspections and a FLNRORD tour of the area was conducted during the program. No major issues noted. The Mines Inspection was impressed with the ergonomic of the rig and associated equipment.

All learnings from this project will be used to improve future exploration projects.

4. RESULTS

The primary goal of the 2020 drilling programs in BRN was to improve resource and pit design confidence through tighter spaced drilling as well as increased knowledge of coal seams, geological structures, and

geotechnical rock properties. This information is critical for understanding the geology which greatly affects the mine design and plan for the BRN pit that will start being mined in 2021.

The 2020 project consisted of 20 exploration RC Drill Holes, four DD holes, and three bulk samples using a LDC drilling rig. There was 5,637 m of RC, 829 m of DD, and 442 m of LDC drilling for a total of 6,908 m drilled. Geophysical logs were completed on all RC and DD holes, but only one LDC hole was logged. The logging data recovered from these holes combined with the mapping results, historic data, and the highwall of the Burnt Ridge Extension (BRX) pit to the south was utilized in a model update for the area. This model update is still in progress but has already had a significant impact our geological understanding and increased reserves in the area.

Earlier models interpreted BRN as being composed of two different structural domains. The southern domain is dominated by an anticline-syncline complex and numerous thrust faults, including some duplexes. The northern domain has a more planar stratigraphic geometry with some thrust faults. A transverse fault has been interpreted to separate these domains, but no direct evidence was available.

The new model has interpreted a large anticline-syncline complex in the south with folded duplexes resolving the room problem in the hinges and thickening the coal. The geometry and complexity of the structures is based on those seen in the BRX highwall. As you move northward away from the active mining area, the mapping and drillhole data suggests that the anticline-syncline complex begins to open and decrease in amplitude which results in less intense folded duplexes and fault movement at the core of the folds. Eventually, the duplexes merge into a single throughgoing fault while the overlaying anticline-syncline continues to decrease in amplitude. Near the domain change in the previous model, the anticline-syncline complex has disappeared and all the displacement in the area is begin accommodated along faults and a few larger duplexes. As you continue towards the northern end of the current model, near the middle of the 2020 program, the duplexes appear and disappear, but no other major fold develops. See Figure 4-1 and 4-2 for cross-sections.

Coal quality results from the 2019 and earlier programs suggest hard metallurgical coal in the area with some deep oxidization roots at the northern end of the 2020 exploration area. The northern 2020 holes target gaps in the oxide roots to help constrain the size and depth of these zones. Once the lab completes the 2020 composite analysis, these results will be incorporated into the in-progress geological model.

The carbonization and coke analysis of the three bulk samples are key to determine the coal's marketability and assist the long term mine plan for the region. See Appendix 4 for more information on the bulk sample results.

Geochemical analyses provided some insights into the BRN area and formation contacts, but more data points are needed to understand any possible trends in the area.

The most recent reserves numbers published for BRN, see Table 6, is based on a the partially completed 2020 model in the south and the older model in the north with a sharp transition in-between. These resources encompass the entire BRN area which extends from the active Burnt Ridge Extension (BRX) pit along the ridge to the north near Highway 43 and Greenhills Operations. The 2020 project area only covers a small portion of BRN. Results are still being worked on for the geotechnical portion of the drilling program and will be updated once received.

5. CONCLUSION

The 2020 exploration and geotechnical drilling programs successfully increased drill hole density and geological and structural confidence in BRN. The program confirmed the location and continuity of all coal seams in the area allowing for improved geological and structural interpretation while the rock quality information provided insights into the geotechnical risks in this area which can now be proactively managed.

Further drilling to improve confidence in this structurally complex area, in reserves estimate, and to increase the amount of coal and rock quality data is needed in the area. Future drill programs can be complemented with field mapping and drone flights of BRN, and the adjacent active BRX pit information.

6. REFERENCES

Lawrence, G.F. and Reichner, K.H., 1982. Report on the 1980/81 Development Work carried out on the Elk River Coal Project. Accessed Mar. 2020. http://cmscontent.nrs.gov.bc.ca/geoscience/Coal/COALReports/0280.pdf

Musil, B.F., 2018. Fording River Operations, Assessment Report, 2018 Turnbull and Castle Exploration Project. Copy of 2018 ARIS submission, 18 pp.

Olver, T., 2014. Line Creek Operations, Summary Report, 2014 Exploration Program. Copy of 2014 ARIS submission, 13 pp.

7. AUTHOR'S QUALIFICATIONS

Statements of Author's Academic and Professional Qualifications

CERTIFICATE OF QUALIFIED PERSON

Name: Melissa Newton, P.Geo.

Company: Teck Resources Ltd.

Address: Line Creek Operations
P.O. Box 2003
15km North, Hwy 43
Sparwood, BC
V0B 2G0

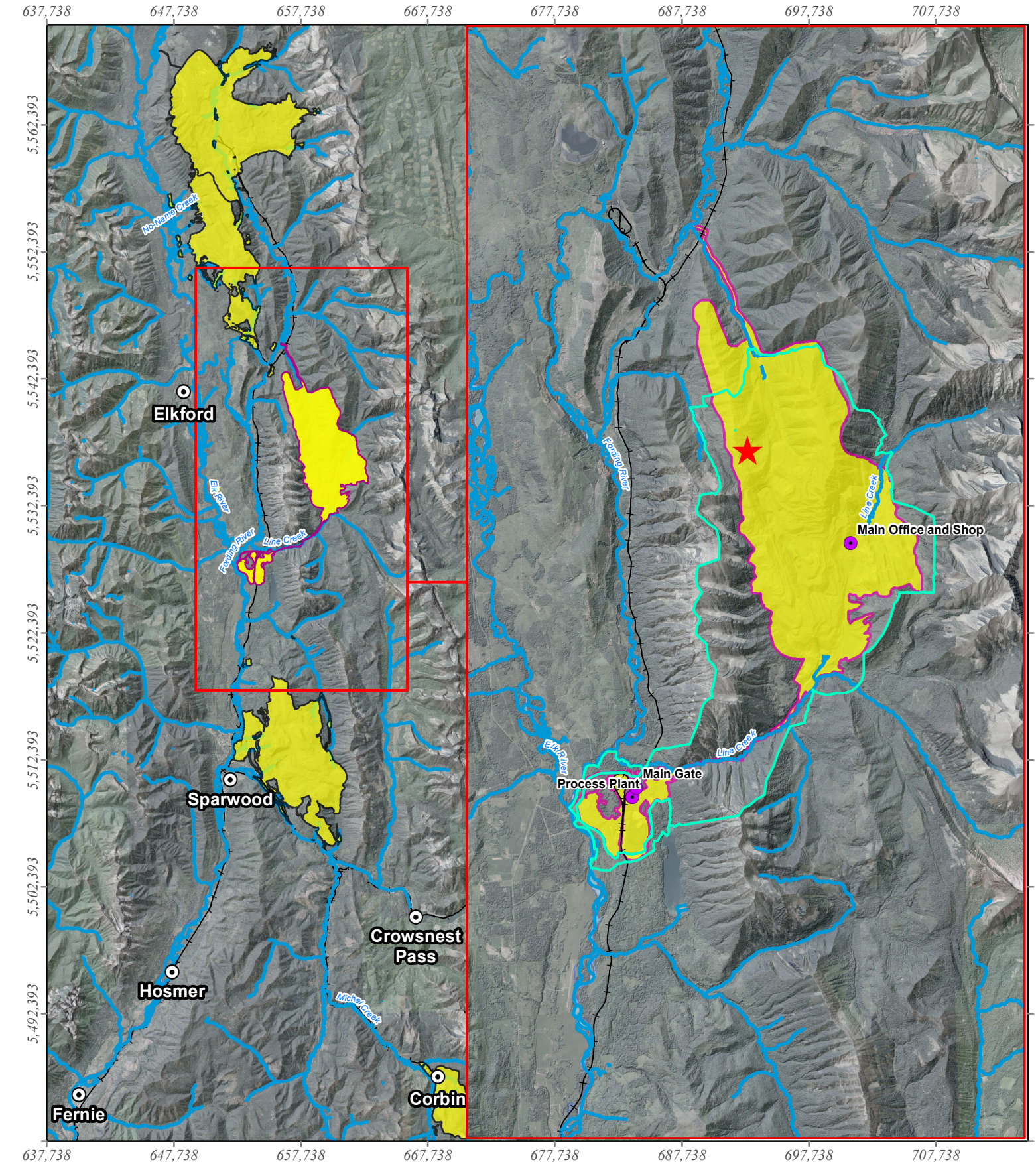
I, Melissa Newton, P.Geo, am employed as a Geologist at Teck Resources Ltd. This certificate applies to the report titled "Line Creek Operations, Assessment Report, 2020 Burnt Ridge North Exploration Program". I graduated from the University of Calgary with two Bachelor of Science Degrees in Geology and Geophysics in 2008 and a Master of Science Degree in Geology in 2011. I am a member of the Association of Professional Engineers and Geoscientists of British Columbia (# 209674). From 2011 to 2016, I worked for ConocoPhillips on various projects throughout the Western Canadian Sedimentary Basin. In 2017, I worked as a sessional instructor at the University of Calgary where I taught a second-year geology students about igneous and metamorphic rocks, and ore deposits. In 2018, I worked at North Coal Ltd. as a Supervising Geologist and help execute an exploration drilling program. From 2018 to mid-2020, I have worked at Teck Coal Ltd. as a Project Geology and have helped execute exploration drilling programs at different Teck mines. Since mid-2020, I moved into the Geologist role where I planned and managed the exploration programs at LCO. As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101).

Melissa Newton

Melissa Newton, P.Geo.

Additional Comments:

- Geochem Analysis from the Mist Mtn Fm: The certificate provided from the lab contains an additional 8 samples (sample tag # 20198551-20198558) belonging to in-pit samples that were added to this work. The additional samples are not part of the BRN work so no information about them has been provided.



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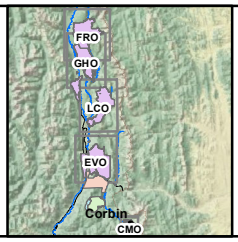

LCO Location Overview

- Exploration Location
- Points of Reference
- No Unauthorized Entry
- Creek
- Railway
- C-129

N

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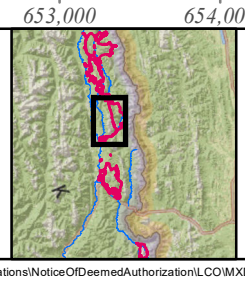

2020 LCO Coal Licenses Map

- REV CIRC
- LD CORE
- DIAMOND DRILL
- LCO Facility Locations
- C-129 Permit Boundary
- Coal Tenure
- Teck Fee Simple Lands

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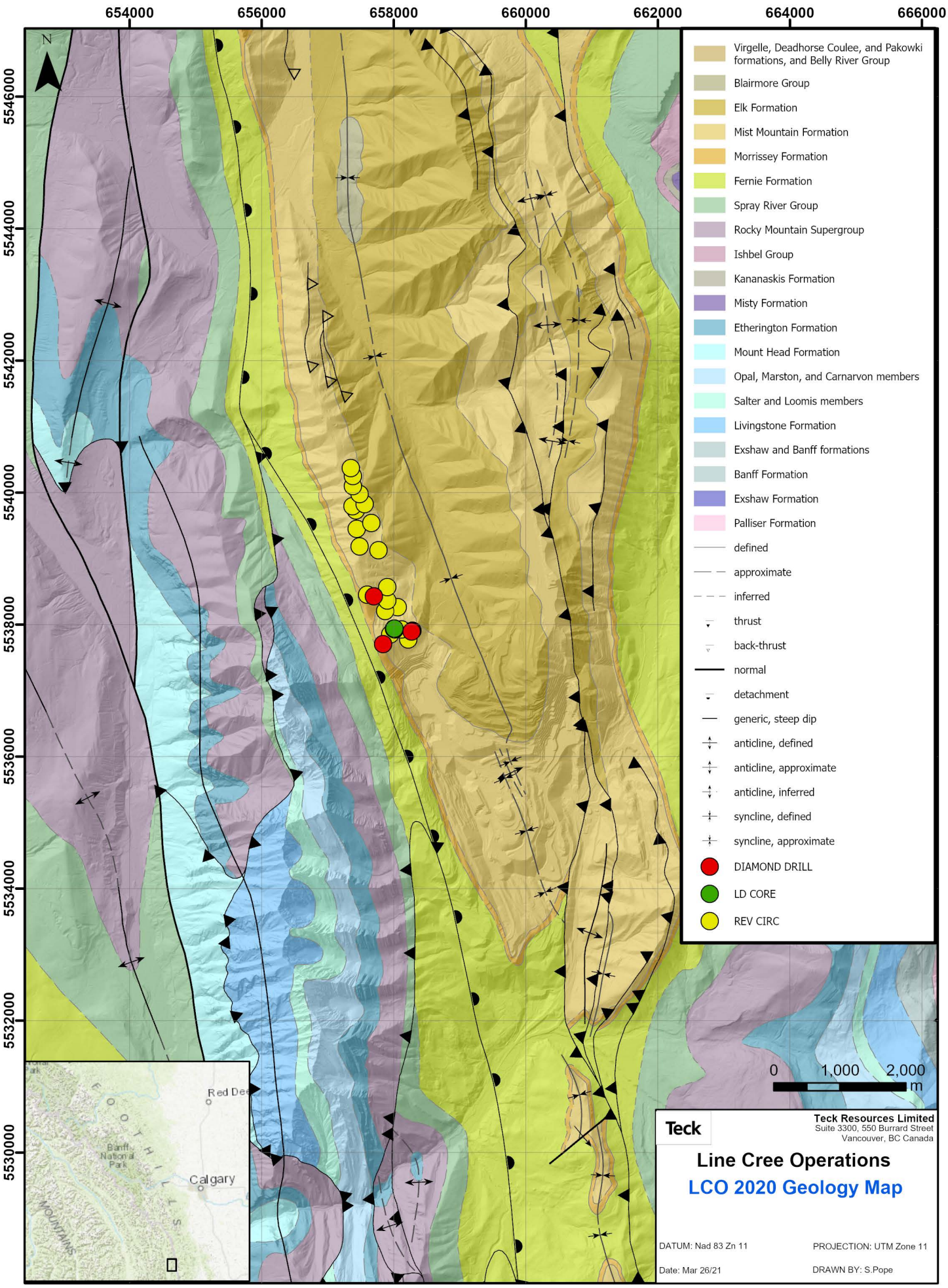
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Virgelle, Deadhorse Coulee, and Pakowki formations, and Belly River Group
Blairmore Group
Elk Formation
Mist Mountain Formation
Morrissey Formation
Fernie Formation
Spray River Group
Rocky Mountain Supergroup
Ishbel Group
Kananaskis Formation
Misty Formation
Etherington Formation
Mount Head Formation
Opal, Marston, and Carnarvon members
Salter and Loomis members
Livingstone Formation
Exshaw and Banff formations
Banff Formation
Exshaw Formation
Palliser Formation
defined
approximate
inferred
thrust
back-thrust
normal
detachment
generic, steep dip
anticline, defined
anticline, approximate
anticline, inferred
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syncline, approximate
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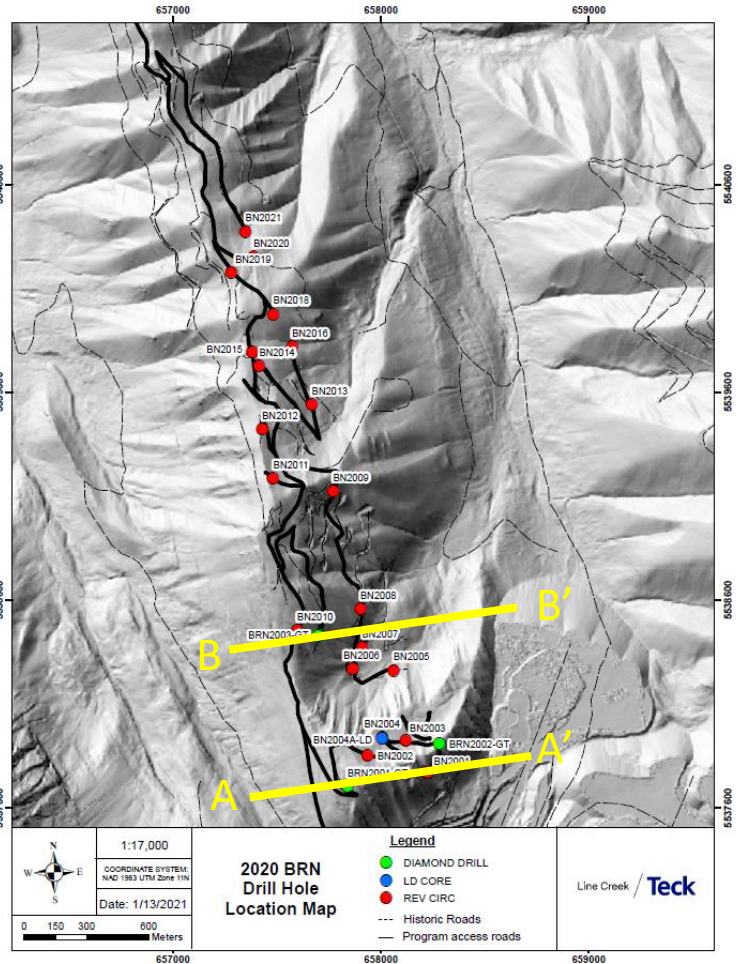
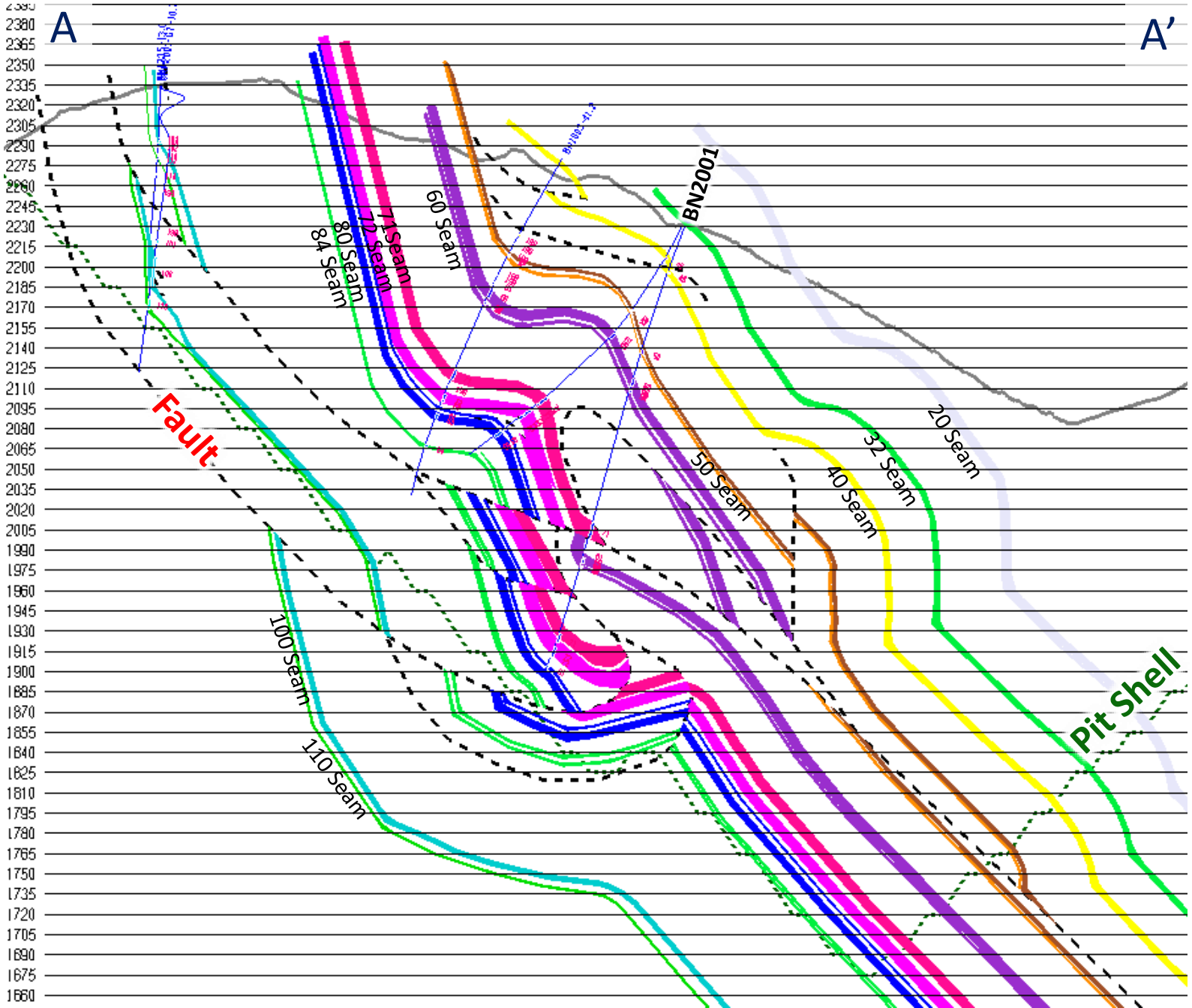
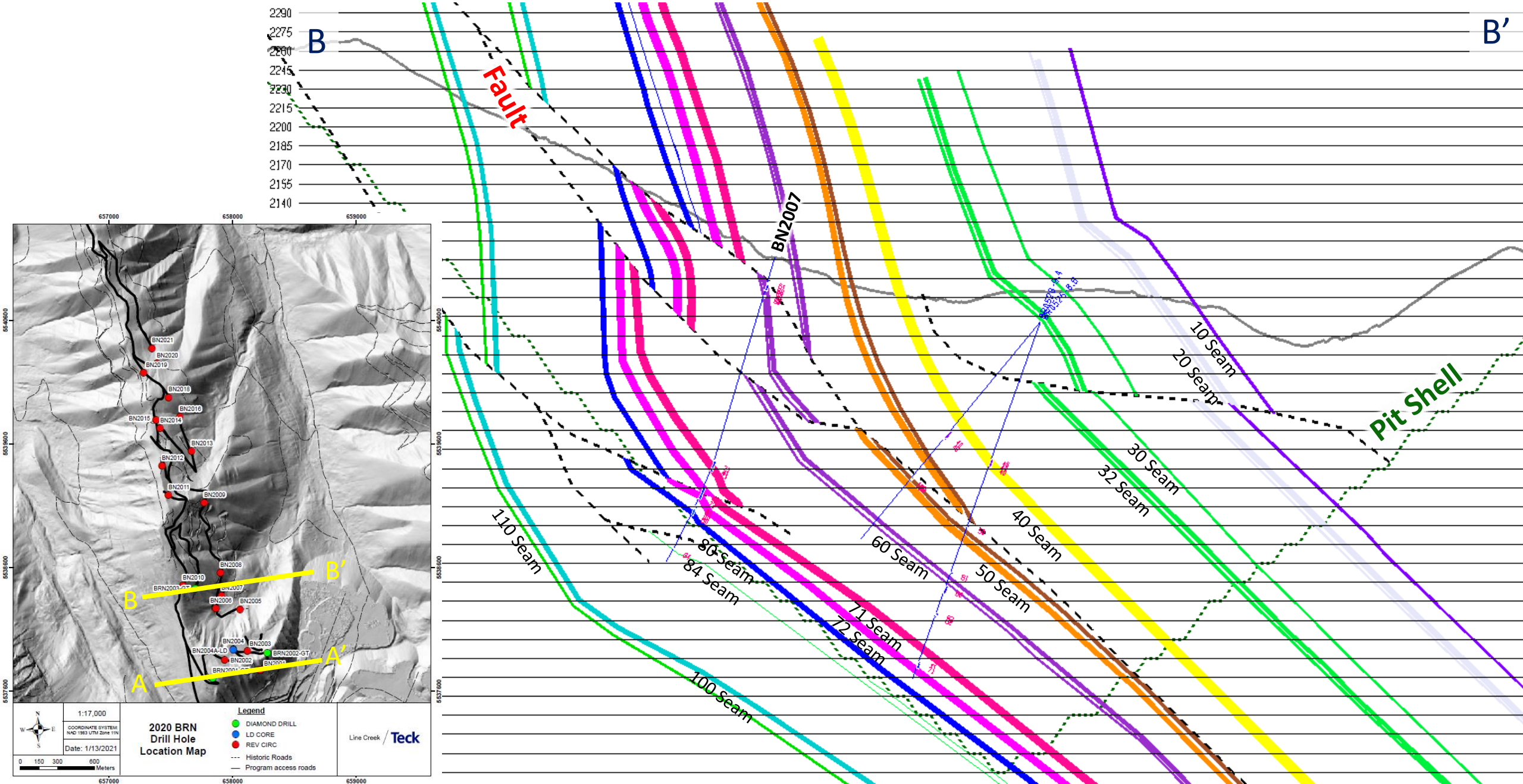
Banff National Park
Calgary
FOOTHILLS
MOUNTAINS
Teck
Teck Resources Limited
Suite 3300, 550 Burrard Street
Vancouver, BC Canada
Line Cree Operations
LCO 2020 Geology Map
DATUM: Nad 83 Zn 11
PROJECTION: UTM Zone 11
Date: Mar 26/21
DRAWN BY: S.Pope

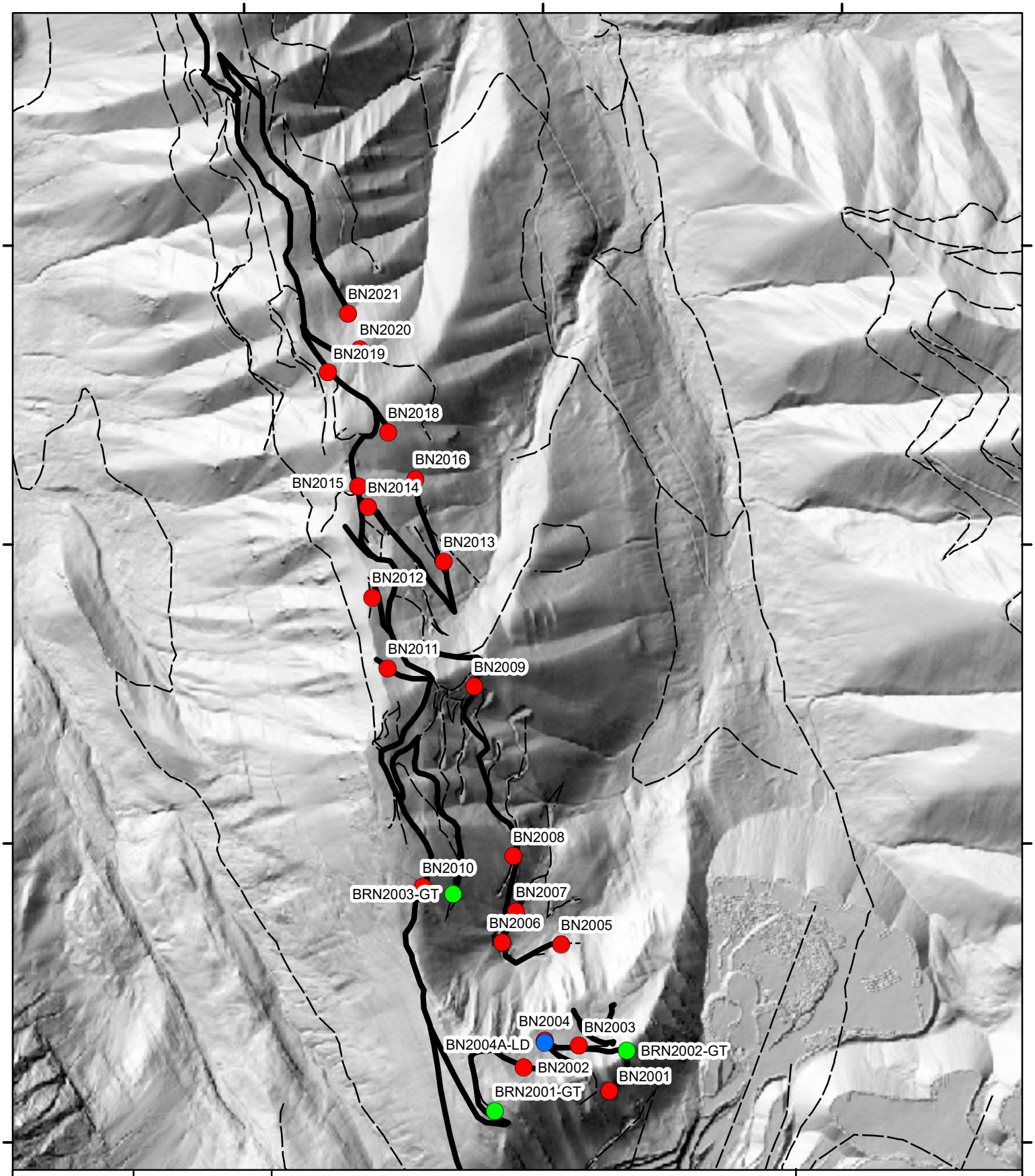
Southern Cross-Section of BRN





Northern Cross-Section of BRN

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Date: 1/13/2021
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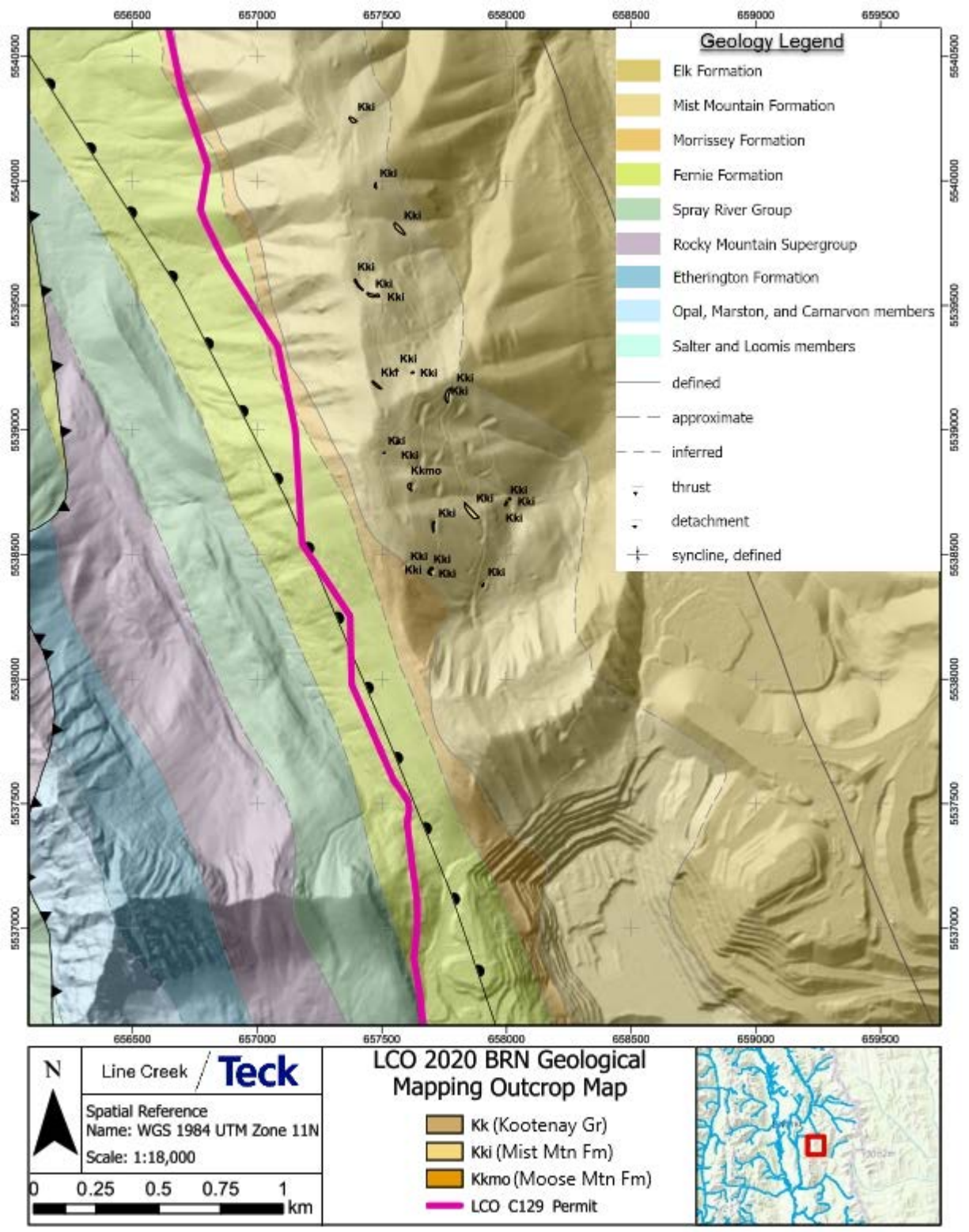
2020 BRN Drill Hole Location Map
Legend
DIAMOND DRILL
LD CORE
REV CIRC
Historic Roads
Program access roads
Line Creek
Teck


Geology Legend
Elk Formation
Mist Mountain Formation
Morrissey Formation
Fernie Formation
Spray River Group
Rocky Mountain Supergroup
Etherington Formation
Opal, Marston, and Carnarvon members
Salter and Loomis members
defined
approximate
inferred
thrust
detachment
syncline, defined
Kki
Kkf
Kkmo
656500
657000
657500
658000
658500
659000
659500
5540500
5540000
5539500
5539000
5538500
5538000
5537500
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N
Line Creek / Teck
Spatial Reference
Name: WGS 1984 UTM Zone 11N
Scale: 1:18,000
0 0.25 0.5 0.75 1 km
LCO 2020 BRN Geological Mapping Outcrop Map
Kk (Kootenay Gr)
Kki (Mist Mtn Fm)
Kkmo (Moose Mtn Fm)
LCO C129 Permit

2020 BRN Exploration Program Statement of Expenditure

Personnel		Days	Rate	Subtotal	Total
Teck Resources Limited - Approx. Field Days			*		
June 29th	Senior Geologist Supervisor	1	$937.50	$938	
Sep 2nd	Senior Geologist	1	$937.50	$938	
June 16th-Sept 3rd	Geologist	35	$675.00	$23,625	
June 1st - Sept 30th	Project Geologist	63	$425.00	$26,775	
Aug 11th-Aug 22rd	Principal Geologist	12	$937.50	$11,250	
July 13th - Aug 30th	Senior Geologist Supervisor	25	$937.50	$23,438	
July 16th	Geotechnical Engineer	1	$675.00	$675	
Sept 3rd	Superintendent Environment	1	$937.50	$938	
Sept 3rd	Coordiator Environment	1	$675.00	$675	
July20th - September 20th	Geotechnical Engineer 1	45	$675.00	$30,375	
July 20th - September 20th	Geotechnical Engineer 2	3	$675.00	$2,025	
June 16th- Sept 30th	Mine Ops Crew (1-2 man crew)	36	$300.00	$10,800	
June 16th-Sept 30th	General Supervisor Mine Ops or designate	36	$937.50	$33,750	
** Day rates are approximate for Teck personnel*					**$166,200**
Teck Resources Limited - Office Days			*		
Field Preparation	Senior Geologist Supervisor	10	$937.50	$9,375	
	Senior Geologist	15	$937.50	$14,063	
	Geologist	105	$675.00	$70,875	
	Senior Geologist Supervisor	5	$937.50	$4,688	
	Principal Geologist	5	$937.50	$4,688	
	Geotechnical Engineer 1	3	$675.00	$2,025	
	Geotechnical Engineer 2	25	$937.50	$23,438	
Field Preparation/Training	Project Geologists	47	$425.00	$19,975	
Data Management	Project Geologists	60	$425.00	$25,500	
	Geologist	75	$675.00	$50,625	
	Geotechnical Engineer 1	3	$675.00	$2,025	
Interpretation and Reporting	Project Geologist	2	$425.00	$850	
	Geologist	26	$675.00	$17,550	
	Geotechnical Engineer 2	15	$937.50	$14,063	
	Senior Geologist	1	$937.50	$938	
Permitting	Superintendent Environment	5	$937.50	$4,688	
	Coordiator Environment	10	$675.00	$6,750	
** Day rates are approximate for Teck personnel*					**$272,113**

Consulting Services		Number	Rate	Subtotal	
Field Consulting Services					
	Construction Advisor	11	$1,880.68	$20,687	
	Stantec	10	$650.00	$6,500	
	Independent Environmental Monitor	21	$1,247.86	$26,205	
					$53,393

Transportation		Number	Rate	Subtotal	
Vehicle Rental					
	Truck Rental (June 5th - Oct 28th)	1	$8,619.00	$8,619	
					$8,619

Analytical Services				Subtotal	
Sample Analysis					
	Plys, Composite, and Bulk Sample Analysis	1	$341,348.00	$341,348	
	Rush Ply LT analysis	1	$8,586.00	$8,586	
	Petrographic Analysis	1	$35,460.00	$35,460	
	2018-2020 QAQC Analysis	1	$8,245.00	$8,245	
	Mini-Wash of bulk sample	1	$18,250.00	$18,250	
	Carbonization Testing	1	$9,000.00	$9,000	
Geochem Sample Analysis					
	pXRF Analysis	1	$7,700.00	$7,700	
	Geotech Lab Analysis	1	$5,947.00	$5,947	
Geotech Sample Analysis					
	pXRF Analysis	1	$7,700.00	$7,700	
	Geotech Lab Analysis	1	$5,947.00	$5,947	
					$448,183

Drilling and Geophyscial Logging				Subtotal	
Drilling					
	RC Drilling	1	$703,435.00	$703,435	
	LDC Drilling	1	$188,729.00	$188,729	
	DD Drilling	1	$762,000.00	$762,000	
Geophysical Logging					
	Televiewer Interpretation	1	$2,300.00	$2,300	
	Geophysical Logging Company	1	$129,295.00	$129,295	
					$1,785,759

Field Costs				Subtotal	
Construction					
	Equipment Rental	1	$52,190.00	$52,190	
First Aid					
	First Aid Attendent and Equipment	1	$130,935.00	$130,935	
Other					
	Danger Tree Falling	1	$2,149.00	$2,149	
	Washroom Facilities - incorporated with site costs	1	$0.00	$0	
					$185,274

Equipment				Subtotal	
Field Equipment and Supplies					
	Filing Cabinates&General Supplies (folders, permenant markers, etc)	1	$2,000.00	$2,000	
					$2,000

Total Expenditures	**$2,921,540**