# NI 43-101 Technical Report on Coal Resources and Reserves of the Fording River Operations

Submitted to: Teck Resources Limited

Elkford, British Columbia, Canada

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#### 1.0 SUMMARY

Property Description, Location and Ownership

Teck Coal Limited's (Teck) Fording River Operations (FRO) consist of four operating surface coal pits along with several areas planned for surface mine development held under multiple contiguous coal leases and licences. The total area covers 23,153 hectares (ha), and is located approximately 108 kilometers (km) southwest of Calgary, Alberta, in the southeast corner of British Columbia near the town of Elkford; see Figure 1, Project Location.

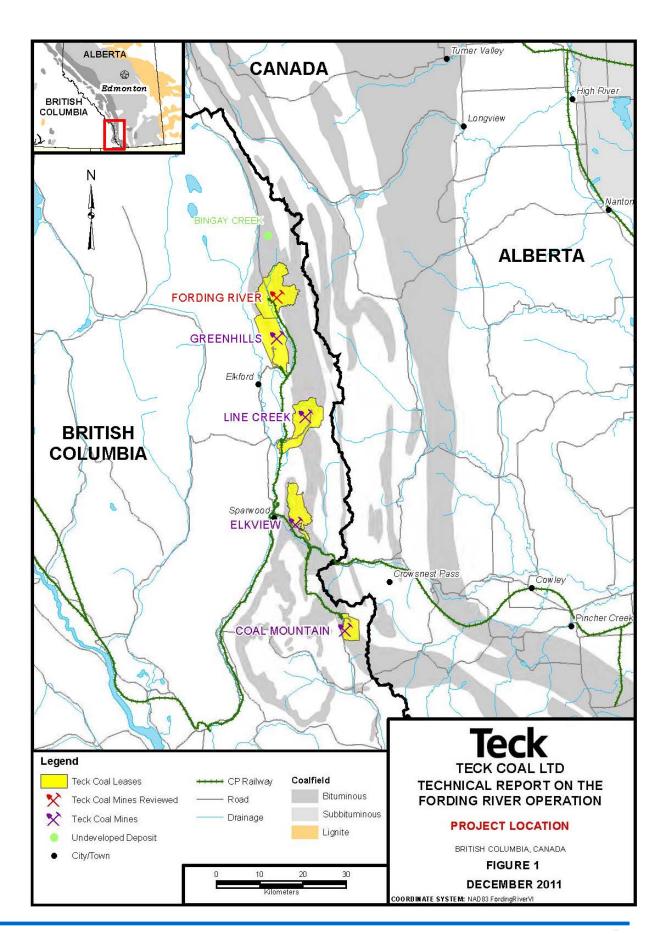
The FRO is located about 29 km by road northeast of Elkford, British Columbia. The mine has been in continuous operation since 1971 and currently has a production capacity of 10 million metric tonnes of clean coal (mtcc) per annum. FRO employs open-pit mining techniques utilizing mining shovels and trucks to release raw coals for processing on site. Clean coal production from FRO was 7.5 million mtcc in 2010.

The coal measures of FRO are contained in the Mist Mountain Formation of the Upper Jurassic to Lower Cretaceous age Kootenay Group. Inter-bedded sandstone, siltstone, mudstone and coal seams were deposited throughout this period. Subsequent to deposition, the sediments were impacted by the mountain building movements of the late Cretaceous to early Tertiary Laramide Orogeny, which produced the structural features that currently dominate the area.

Northerly trending thrust faults associated with the tectonic movements have resulted in repeating of all or parts of the coal sequence. Thrust faults have repeated coal seams and whole blocks of the coal-bearing Mist Mountain Formation. Subsequent northerly trending normal faults have also displaced and further divided the sequence.

The major structural features of the Fording River Valley are two north-south trending asymmetric synclines with near horizontal to steep westerly dipping thrust faults and a few high angle normal faults. The Greenhills Syncline is located to the west of the Fording River with the Alexander Creek Syncline to the east. The synclines are separated by the regional Erickson Normal Fault located on the western bank of the Fording River. The east limb of the Alexander Creek Syncline is affected by two major regional thrust faults: the Ewin Pass and Brownie Ridge thrusts. The intervening anticline was subsequently faulted (Erickson Fault), then eroded.

On October 30, 2008, Teck Resources acquired all the assets of Fording Canadian Coal Trust, thus making Teck the sole owner of Elk Valley Coal Corporation (EVCC), which it renamed Teck Coal Limited (Teck).



#### Exploration

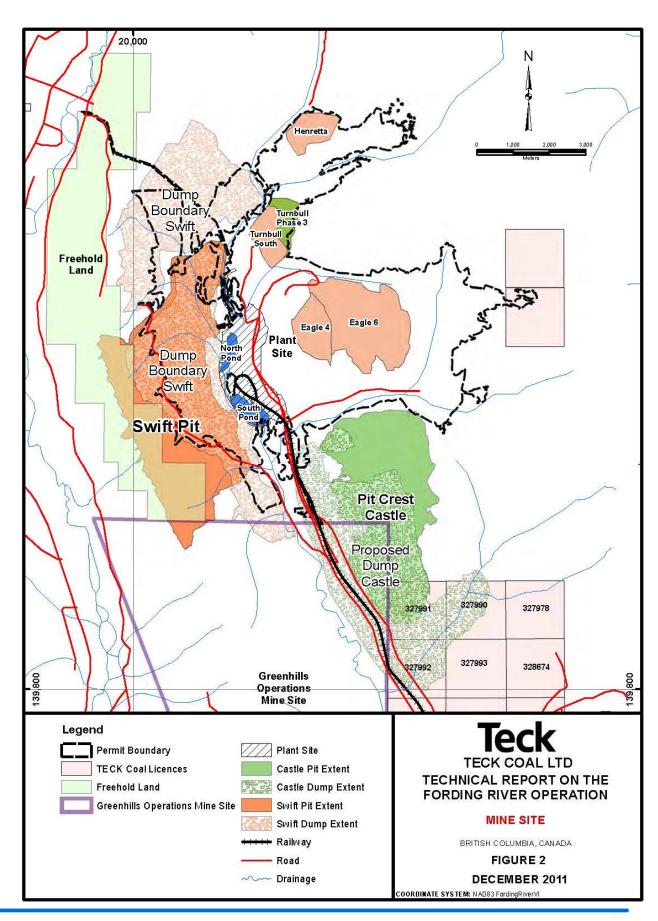
The property is a mature operation with 40 years of operating experience and exploration activity. The coal geology and quality is well understood and documented. The current exploration database consists of 6,100 drill holes and 55 adits, channels, trenches and augers. Due to the complex nature of the geology, FRO also collects data via geophysical logging of production blastholes, and the database contains information from 17,361 such holes. The FRO coal quality database contains 18,678 quality records.

Historic exploration of the property was extensive and pre-dates the commencement of mining by Fording Coal Ltd. in 1971. All exploration work was conducted by or for Fording Coal Ltd., or EVCC. There have been no other mining companies active in this area. To date, over 610,000 m of drilling have been completed on the property. Historically, most of the exploration drilling has been done with reverse circulation rotary drills, along with limited diamond core drilling conducted in the 1970s and 1980s.

Coal quality analyses include proximate, coking, petrographic and washability analysis. Coal quality analysis was performed to ASTM standards using both the FRO laboratory and reputable outside laboratories. In general the FRO laboratory performed the proximate and free swelling index (FSI) analysis, and the outside laboratories performed coking, petrographic and washability analysis. FRO is continuing to drill exploration holes on the property in order to verify structure and to increase confidence.

#### Development and Operations

FRO currently produces coal from four active pit areas using open-pit coal mining methods, with primary waste stripping and coal mining completed by shovels and rear dump haul trucks. The four active pit areas at FRO are the Eagle Main 4 Pit, Eagle 6 Pit, Turnbull South Pit and Henretta Phase 3 Pit. Future developments are planned for Castle Mountain, Swift and Turnbull. Locations of these areas are shown on Figure 2, Mine Site. The FRO primary product is high quality metallurgical coal used to make coke for the international steel industry. Major customers of Fording River products are located in all international market areas where Teck sells steel-making coal. Sales distribution of Fording River products reflects overall geographic reach of Teck's diversified steel-making coal customers.



The metallurgical coal product specifications for the major product coal blends of FRO are listed in Table 1.1, below.

FRO also produces a small amount of pulverized coal for injection (PCI) and thermal products. The coal is a mixture of all of the seams, and represents the oxidized (typically outside edge of the seam) portion of the mined seams. Although the majority of the product is consumed on site in the FRO coal-fired thermal dryer, some thermal product is sold on the international market. The tonnage of thermal coal sold over the last three years reflects the proportion of such products in Teck's overall product sales.

Table 1.1: Steelmaking Coal Product Specifications

Quality Parameter	Standard	Premium	Eagle
Ash (Wt.%)	9.5-10.0	8.75-9.25	8.5-8.7
Phosphorus (Wt.%)	0.07	0.075	0.07
Sulphur (Wt. %)	0.50-0.55	0.65-0.7	0.70-0.75
Volatile Matter (Wt.%)	22.5-24.5	24.5-26.5	26.5-28.5
RoMax (Reflectivity)	1.17-1.27	1.07-1.17	1.03-1.13
Fluidity (ddpm)	50-250	200-500	400-850

The majority of the coal product from FRO is transported 1,150 km by rail to either Westshore Terminals or to Neptune Bulk Terminals, in Vancouver British Columbia and from there to international steelmaker's plants by cargo vessel. Teck Resources holds a 46% interest in the Neptune Bulk Terminals. A small portion of Fording River coal products can also be transported to Ridley Terminal in Prince Rupert, British Columbia for export. Coal product also travels east to Thunder Bay Terminals for shipment to Ontario, the United States and international markets most effectively served from the East Coast.

#### Resources and Reserves

Resources for the Fording River Property are based on information supplied by FRO. Assurance of existence classifications for statements of resources and reserves are in accordance with the Canadian Institute of Mining and Metallurgy Definition Standards (CIMDS.) CIMDS specifies that additional guidelines for statements of coal resources and reserves are set forth in Geologic Survey of Canada (GSC) Paper 88-21. For the Fording River property, the geology type is predominantly Complex according to the definitions of GSC Paper 88-21.

The prepared estimates of coal resources are based on a raw strip ratio of 14.4 bank cubic metres waste per metric tonne raw coal (bcmw/MTRC) of in-situ coal. The use of this cutoff ratio was based on the Teck Coal cost data, pit design methodology and review of current market prices.

Based on the spacing of the available geological data and the limits of the estimated resources, it is estimated that FRO Measured and Indicated resources are 999 million MTRC. These coal resource estimates are presented in Table 1.2, below. The Measured and Indicated resource estimates are exclusive of the resources modified to produce the Proven and Probable reserve estimates described later in this section.

Table 1.2: Fording River Estimated Resources, Dec 31, 2011

Pit/Area	Coal Type	Measured (kMTRC)	Indicated (kMTRC)	Total Measured and Indicated Resources (kMTRC)	Inferred (kMTRC)
Swift	Met	25,000	271,000	296,000	317,000
	PCI			0	
	Thermal	0	0	0	1,000
	Total - Swift	25,000	271,000	296,000	318,000
Castle	Met	64,000	272,000	336,000	252,000
	PCI			0	
	Thermal	1,000	2,000	3,000	3,000
	Total - Castle	65,000	274,000	339,000	255,000
Eagle Mountain	Met	91,000	115,000	206,000	70,000
	PCI			0	
	Thermal	1,000	1,000	2,000	0
	Total - Eagle Mountain	92,000	116,000	208,000	70,000
Henretta	Met	29,000	22,000	51,000	5,000
	PCI			0	
	Thermal	0	0	0	
	Total - Henretta	29,000	22,000	51,000	5,000
Turnbull	Met	43,000	60,000	103,000	42,000
	PCI			0	
	Thermal	1,000	1,000	2,000	0
	Total - Turnbull	44,000	61,000	105,000	42,000
Total Resources by Class	Total Met	252,000	740,000	992,000	686,000
	Total PCI	0	0	0	0
	Total Thermal	3,000	4,000	7,000	4,000
	Total - Property	255,000	744,000	999,000	690,000

Notes: resources are exclusive of reserves. k = thousand. MTRC = metric tonnes raw coal

In accordance with CIMDS, FRO reserves were estimated based on the in-house pit designs (with the exception of the Swift and Castle pits designed by Marston), the Life-of-Mine Plan (LOMP) and

associated cost estimates and the modified application of GCS Paper 88-21 classifications of Proven and Probable Reserves. Based on the verified information supplied, the FRO reserves are economic, and pre-tax cash flows for proposed operations should generate a positive net present value (NPV) at an 8% discount rate, based on the saleable coal price levels and exchange rates forecast by Teck. Proven and Probable coal reserves of FRO total 626.5 million mtcc, and these estimated coal reserves are listed in Table 1.3, Fording River Estimated Reserves. In accordance with CIMDS, the reserve estimates include adjustments to the in-situ coal resource estimates for mining losses and out-of-seam dilution (OSD). No adjustments were made for moisture in ROM coal.

The estimated product coal tonnages resulting from the Proven and Probable reserves were 54.1 million mtcc and 572.4 million mtcc, respectively. This results in an average yield of 61% and total product coal of 626.5 million mtcc. Associated product coal strip ratio is estimated to be 12.5 bank cubic metres (bcm) waste per product tonne. Product coal quality specifications are listed in Table 1.1 above.

Table 1.3: Fording River Estimated Reserves Dec 31, 2011

Pit/Area	Coal Type	Proven (kMTCC)	Probable (kMTCC)	Total Reserve (kMTCC)	Clean Strip Ratio
Swift	Met	0	376,700	376,700	
	PCI			0	
	Thermal	0	1,600	1,600	
	Total - Swift	0	378,300	378,300	12.2
Castle	Met	0	183,600	183,600	
	PCI			0	
	Thermal	0	2,800	2,800	
	Total - Castle	0	186,400	186,400	14.5
Eagle Mountain	Met	38,300	6,700	45,000	
	PCI			0	
	Thermal	200	200	400	
	Total - Eagle Mountain	38,500	6,900	45,400	8.0
Henretta	Met	2,800	0	2,800	
	PCI			0	
	Thermal	0	0	0	
	Total - Henretta	2,800	0	2,800	14.6
Turnbull	Met	12,700	700	13,400	
	PCI			0	
	Thermal	100	100	200	
	Total - Turnbull	12,800	800	13,600	8.5
Total Reserves by Class	Total Met	53,800	567,700	621,500	
	Total PCI	0	0	0	
	Total Thermal	300	4,700	5,000	
	Total - Property	54,100	572,400	626,500	12.5

Notes: k = thousand. MTCC = metric tonnes clean coal

Conclusions

Based on the result of the prefeasibility study, the authors conclude that Teck's Fording River Operation is economic, and pre-tax cash flows for the proposed continuation of operation should generate a positive NPV, based upon the saleable coal price levels and exchanged rates forecast. Fording River is an

operating mine, no financial analysis is included within this report.

Recommendations

Based on the study results described in this technical report, the authors recommend that Teck continue to development and operate the Fording River Mine. The Scope of Work for this report did not include preparation of coal market analyses or supply/demand projections with respect to the anticipated coal products beyond those analyses that Teck performs as a part of its ongoing business, The price expectations of FRO for corporate and mine planning appear to be reasonable in comparison with general market expectations. With 40 years of production history, it is the opinion of the Qualified Persons that the Fording River Operation continues to be a viable project for metallurgical coal

production.

The Qualified Persons recommend that Teck continues to capture quality and geotechnical information to further optimize the pit designs. Additional exploration drilling, both core and reverse circulation, will enhance the understanding of the structural, geotechnical and geochemical nature of the ore body.

The Qualified Persons also recommend that further work on alternative waste movement methods be done to optimize the waste movement costs while maximizing backfilling opportunities.

NI 43-101 Technical Report
Teck Coal Ltd. - Fording River Operation

#### 2.0 INTRODUCTION

**Author** 

The following Qualified Persons have authored the report:

Eric Jensen, P. Eng., sections 1, 2,13, 15, 19, 20, 21, 22, 24, 25, 26

Barry Musil, P. Geol., sections 1, 2, 4, 9, 10, 11, 12, 17, 25, 26

Don Mills, P. Geol., sections 1,2, 6, 7, 8, 14, 15, 23, 25, 26

Andrew Knight, P. Eng., sections 1, 2, 3, 5,16,18, 25, 26, 27

This technical report was prepared for Teck Resources Limited

Terms of Reference

FRO has completed a large scale multi-year drilling program on the Castle and Swift areas with subsequent interpretation of geology and quality data collected. This has resulted in a positive restatement of resources and reserves for these areas. This report summarizes the technical work to support the updated resource and reserve statements.

This Technical Report (TR) addresses FRO coal with surface mining potential only.

Purpose

The TR documents the changes of resources and reserves at FRO. These are material to FRO and require reporting.

Sources of Information and Data

To prepare the TR, Teck relied primarily on information, exploration and sampling data collected or generated during more than 40 years of operating and exploration activity. A list of references used in the preparation of this TR is listed in Item 27, References.

The information supplied in this TR was sourced from key operating and technical personnel at the FRO and Teck corporate offices in Calgary, Alberta. Additional work was performed by Marston to develop mining pits for Castle Mountain and Swift developments, and supporting environmental information was developed by Golder Associates Inc., (Golder)

Teck provided Marston and Golder with information on geological and structural settings, geological data and coal quality data as provided in the FRO three-dimensional (3D) model, mine tenure and

permitting, current mine operations, economic information, mine planning, coal markets and price forecast data, and practices and procedures in place at FRO.

Scope of the Personal Inspection of the Property by the Qualified Person

Eric Jensen, P. Eng. and, Donald Mills, P. Geol. are the Qualified Persons QPs) responsible for this TR. The QPs of this report are either employed at the FRO site or employed at the Teck Coal Calgary/Sparwood offices and visit the site on a regular basis as part of their job functions.

Effective Date of Report

December 31, 2011

# 3.0 RELIANCE ON OTHER EXPERTS

This report has been prepared by Teck for FRO. The qualified persons have not relied on the work of an expert who is not a qualified person for information in this report.

4.0 PROPERTY DESCRIPTION AND LOCATIONS

Property Description and Location

Teck's FRO consists of four operating surface coal pits along with several areas planned for surface mine

development held under multiple contiguous coal leases and licences. The total area covers

23,153 ha, and is located approximately 108 km southwest of Calgary, Alberta, near the town of

Elkford in southeast British Columbia; see Figure 1.

The FRO is situated in the East Kootenay Region. The centre of the current mine disturbance at

FRO is at 50°11'30.50"N Latitude and 114°51'11.47"W Longitude. The plant site is at 50°11'15.47"N

Latitude and 114°52'42.34"W Longitude.

Title and Property Rights

The majority of the property is located on Crown Land and includes 17,336 ha held in seven coal leases

and 2,849 ha in 11 coal licences. Included in the 23,153 ha are 2,968 ha on 15 Crown- granted

lots of Freehold Land, as listed in Table 4.3, Fording River Operations Crown Grants. "Freehold

Land" is a relatively rare occurrence in British Columbia, and refers to private ownership of both surface

and mineral rights.

Coal leases and licences held by Teck for the FRO are listed in Table 4.1, Fording River Operations Coal

Leases, and Table 4.2, Teck Licences for the Fording River Operations. The lease rentals are in good

standing.

FRO controls the surface and subsurface rights to the properties which are in operation and to those that

are planned for development. There are no obligations that must be met by Teck Coal to complete any

ongoing exploration or development work to keep land tenures active. Licences are renewed annually

and have no expiry dates.

Land tenures are listed in Table 4.4, Fording River Operations Mineral Titles.

Property Boundaries

Property boundaries as well as current and future mining areas are shown in Figure 3, Project Exploration

and Coal Licence Areas. Survey information on the property boundaries was requested from FRO but not available at the time of this report.

Table 4-1: Fording River Operations Coal Leases

Lease Number	Area (ha)	Expiration Date
1	1,009	January 1, 2013
2	2,250	May 19, 2013
5	644	March 17, 2018
9	1,096	October 1, 2021
16	2,859	May 9, 2028
17	8,180	May 9, 2029
18	1,298	January 30, 2030
Total Area	17,336	

Table 4-2: Teck Licences for the Fording River Operations

Licences	Licence Number	Area (ha)
	327978	259
	327990	259
	327991	259
	327993	259
EDO.	327995	259
FRO	327996	259
	327999	259
	328000	259
	328674	259
	417067	259
Total Area		2,849

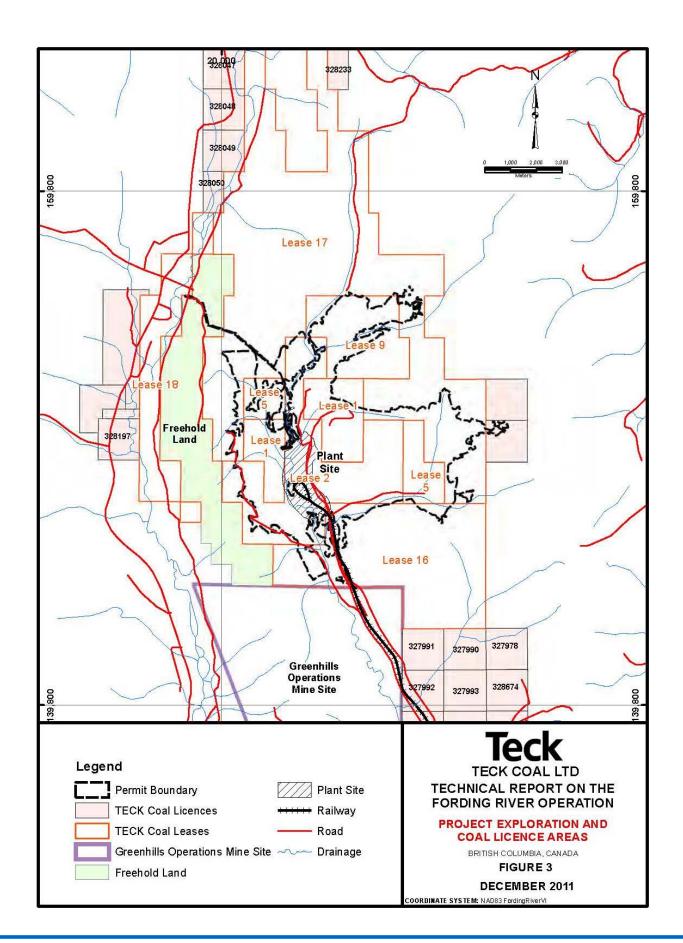


 Table 4-3:
 Fording River Operations Crown Grants

Lot Number	Lot Portion		
3422	NW 1/4 & E 1/2		
3423	ALL		
3424	ALL		
6047	ALL		
6048	ALL		
6049	ALL		
6050	ALL		
6051	ALL		
6635	W 1/2		
6821	ALL W		
6822	1/2		
6823	E 1/2		
6824	W 1/2		
6825	E 1/2		
6980	W 1/2 of W 1/2		
Total Area (ha)	2,968		

Table 4-4: Fording River Operations Mineral Titles

Area	Tenure Number	Work Recorded To	Status	Area (ha)	Teck Interest %
Fording River	389275 389282 389285 389290 389310 389311 389312 417067 417068 327978 327990 327991 327993 327995 327996 327999 328000 328674	1/1/2010 5/19/2008 3/17/2008 10/1/2008 5/9/2008 5/9/2008 11/30/2009 10/14/2008 3/13/1986 3/13/1986 3/13/1986 3/13/1986 3/13/1986 3/13/1986 3/13/1986 3/13/1986 3/13/1986 3/13/1986 3/13/1986 3/13/1986	Good Standing 1/01/2013 Good Standing 5/19/2013 Good Standing 3/17/2018 Good Standing 10/01/2021 Good Standing 5/09/2028 Good Standing 5/09/2029 Good Standing 1/30/2030 Good Standing 1/30/2030 Good Standing 1/31/2012 Good Standing 1/31/2013 Good Standing	1,009 2,250 644 1,096 2,859 8,180 1,298 259 259 259 259 259 259 259 259 259 259	100 100 100 100 100 100 100 100 100 100

#### Royalties and Payments

FRO is located primarily on Crown Land, with a small portion (12.8%) on Freehold Land. All mineral and surface rights are controlled by Teck. Coal on Crown Lands is subject to any provisions of those leases, including specified lease rentals and coal production royalties. Teck is not required to pay royalties on Freehold Land held under its leases and licences. However, all Teck mines operating in British Columbia are subject to British Columbia mineral taxes. This consists of a two-tier tax system with a minimum rate of 2% on operating cash flows and a maximum rate of 13% on cash flows after taking available deductions for capital expenditures and other permitted deductions.

#### Environmental Liabilities

FRO is required to rehabilitate disturbed areas after the completion of mining activities. FRO has made provisions to limit environmental liability by reclaiming disturbed areas on an ongoing basis as they become available. Short-term and long-term reclamation requirements are reassessed annually, and an annual reclamation plan is submitted to the British Columbia government, as required as a condition of the mine permit. FRO tracks annual ongoing reclamation costs under Operating Expenses in the Long-Range Mine Plan. In the April 2010 mine plan, this amounted to \$3.137 million/year. Permitting costs are typically included as Capital Costs in the long-range financial models.

Teck also tracks the Asset Retirement Obligation (ARO) for all operations. This is an estimate of the cost for mine closure at the end of operations, the decommissioning of the plant, mine buildings and ancillary facilities, and the reclamation which includes all disturbed areas. The ARO for FRO was amended in August 2010. A change in the ARO is the result of recent amendments to the C-3 permit (Section 4(a)) itemized for soil recovery and placement. Stockpiling soil is considered an operating cost; topsoil placement is an ARO cost. With an estimated end-of-life for the operation of 2084, the total ARO for the site was estimated at \$286.6 million.

#### Required Permits

Relationship with the regulatory authorities is in good standing. Permits for mining operations at FRO are current and have been in place since before operations began in 1971, with updates and amendments provided as needed. The Mining Permit (Permit C-3) was last amended on April 13, 2011, and the Exploration Permit (Permit C-102) was last amended on May 26, 2008. A list of mining permits and amendments is provided in Table 4.5, Fording River Operations C-3 Mining Permits. After the C-102 Exploration Permit was issued, there have been several amendments subsequently issued to grant FRO the authority to conduct specific exploration programs related to each amendment to the C-3 Permit.

FRO also holds several operating permits for air, land, water and waste. All relevant operating permits are currently in place at FRO. Operating permits in place at FRO are listed in Table 4.6, FRO Operating Permits.

Table 4-5: Fording River Operations C-3 Mining Permits

File Folder	Approval Date	Title	Permit Application Date	Report Date
	October, 1973	Clode Waste Pile		
1974	July 29, 1974	Turnbull 4 Seam		
	April, 1976	Wash Plant Waste for Backfill Material		
	May 11, 1977	Eagle Haul Road		
1978	January 5, 1978	Clode Pit Excavate Highwalls	November 7, 1977	
1978	February 20, 1978	Eagle 15 Seam 1 Pit Taylor	February 1, 1978	
1978	February 24, 1978	Pit 15 Seam Extension North		
	July 16, 1979	Tailings Pond Dyke Taylor Pit		
1979	August 8, 1979	Stage 1	May 29, 1979	May 17, 1979
1979	October 5, 1979	K Seam Pit Modification	August 30, 1979	•
1979	December 3, 1979	Turnbull R-4 Pit	September 1, 1978	September 14, 1979
1980	January 23, 1980	Blackwood Pit		1979-1980
	October 17, 1980	Swift Creek Crossover		
	April 17, 1980	15 Seam UG Site		
1980	December 4, 1980	Greenhills K Seam Pit Exploratory		
	July 14, 1981	Adits, Target Tunneling Ltd. Eagle		
1981	September 22, 1981	Phase 1		August 1981
1981	October 15, 1981	Greenhills Total K Seam	April 9, 1981	-
1981	November 3, 1981	Raising 'A' Spoil Rejects Pile		
1982	January 11, 1982	Blackwood Pit Extension	September 16, 1981	September 1981
1982	March 18, 1982	9 Spoil Dump		
	March 18, 1982	Eagle Access Road Construction		
1982	March 18, 1982	Greenhills South Waste Dump	January 4, 1982	
1982	March 19, 1982	South K Pit Temporary Spoil Dump		
1982	April 8, 1982	Blaine Spoil Haul Road	February 23, 1982	February 12, 1982
	July 14, 1982	Blaine Spoil Stages 1A & 1B	May 25, 1982	May 18, 1982
	June 10, 1982	Eagle Construction Pioneer Access Road		-
1982	September 30, 1982	Eagle Access Road 13 Seam Pit		July 27, 1982
	October 5, 1982	Kilmarnock Settling Pond System		

Table 4-5: Fording River Operations C-3 Mining Permits (cont'd)

Approval Date	Title	Permit Application Date	Report Date
October 26, 1982	Eagle 15 Seam Pit Pre-production		September 23, 1982
November 25, 1982	Taylor Pit Stage 2	June 7, 1982	
December 16, 1982	Blaine Spoil Impact & Catchment		
January 14, 1983	South Tailings Impoundment		
March 24, 1983	Brownie Pit Stage 1	March 7, 1983	March 4, 1983
April 28, 1983	Blaine Spoil Impact & Catchment Revision	January 31, 1983	
May 25, 1983	Eagle 15 Seam Pit Stage 2		March 1983
June 29, 1983	Brownie Stage 1 Pit Extended Interim		
September 8, 1983	Blaine Spoil		
November 16, 1983	K North Pit Revision to Seam	July 7, 1983	July 7, 1983
November 21, 1983	G Pit Work Ben Pit		
November 24, 1983	Brownie & 15 Seam Stage 2 Dumps		
December 2, 1983	I Pit in K Pit Area		
December 9, 1983	Brownie Stage 1	March 7, 1983	November 28, 1983
February 21, 1984	Eagle Stage 2 Backfill Creek Conditional Approval		
February 29, 1984	Upper Clode Access Road	July 8, 1983	July 8, 1983
March 19, 1984	Eagle 15 Seam Stage 3	February 15, 1984	February 15, 1984
July 19, 1984	Taylor Pit Stage 2 Revision 1	July 6, 1984	
July 19, 1984	Taylor Pit Stage 3		
September 18, 1984	K North Pit Waste Dump	August 13, 1984	
May 14, 1985	Brownie Pit Stage 1 Amendment	April 22, 1985	
July 3, 1985	South Tailings Impoundment Further Approval		
July 8, 1985	Swift Pit North Access Road		
December 4, 1985	Eagle Stage 3 Revision 2		July 1985
December 17, 1985	Swift Pit		•
February 6, 1986	Brownie Pit Stage 2	December 5, 1985	November 1985
April 1, 1986	Kilmarnock		
May 5, 1986	Eagle Stage 4	March 14, 1986	March 1986
June 4, 1986	Eagle West Face Access		March 1986
June 4, 1986	Swift Pit Revision 1		

Table 4-5: Fording River Operations C-3 Mining Permits (cont'd)

Approval Date	Title	Permit Application Date	Report Date
July 10, 1986	Brownie Stage 2 Program		April 7, 1986
September 3, 1986	Lake Pit Phase 1		•
January 15, 1987	Blaine Spoil Toe Dyke	November 7, 1986	
July 17, 1987	Taylor 1947 Temporary Access Ramps	December 12, 1986	December 12, 1986
July 17, 1987	South Spoil Stage 1	April 6, 1987	No date
July 21, 1987	Eagle Stage 3 Revision 3	April 3, 1987	March 1987
November 26, 1987	Clode 9 Seam Pit	September 28, 1987	September 28, 1997
January 21, 1988	Blaine Spoil South Extension	January 5, 1988	January 1998
May 12, 1988	4 Pit Dragline	March 17, 1988	
June 28, 1988	Eagle Lower Haul Road Modification		
August 9, 1988	Blaine South Spoil Continue Dumping	July 19, 1988	
November 14, 1988	Lower Eagle Haul Road Project 2065		February 1988
December 7, 1988	Swift Pit Revision 4		
February 13, 1989	Eagle Stage 4 Revision 2	September 16, 1988	August 1988
February 13, 1989	South Pit Stage 1		September 1988
February 15, 1989	Complements Swift Pit Approval of June 4, 1986		
April 3, 1989	Eagle Stage 6	January 25, 1989	January 1989
April 27, 1989	Eagle 6 Pre-stripping		
July 20, 1989	Brownie Stage 3	April 5, 1989	March 1989
November 20, 1989	South Spoil Stages 2 & 3	October 6, 1988	August 1989
February 9, 1990	South Spoil Toe Dyke Access Road	February 6, 1990	
February 9, 1990	Construction of Access Road to South Spoil Stage 2		
March 22, 1990	South Spoil Stage 2 to 4		January 1990
April 4, 1990	Clode Spoil & Taylor Footwall Access Road	February 21, 1990	No date
April 4, 1990	South Pit Stage 1 Revision 1	September 11, 1989	August 1989
April 9, 1990	Swift Pit Dragline Stage 2	November 17, 1989	November 1989
May 22, 1990	Lower 2 Spoil Lift	February 23, 1990	No date
June 18, 1990	Brownie Stages 2A, 3, 4 & 5	December 5, 1989	December 1989
November 6, 1990	Henretta Creek Area Construct New Road		
June 1, 1991	Lake Mountain Dragline Pit Henretta		January 28, 1991
December 16, 1991	Dragline Project		June, 1991

Table 4-5: Fording River Operations C-3 Mining Permits (cont'd)

Approval Date	Title	Permit Application Date	Report Date
February 7, 1992	Taylor Pit 1857 Access Road Design Changes to be Submitted		
March 6, 1992	Henretta R4 Access Road & Taylor R4 Spoil	January 10, 1992	January 10, 1992
March 6, 1992	South Spoil Dumping Guidelines		
June 1, 1992	Eagle Main 4 Pit Stage 1	December 17, 1990	October 1990
July 20 & 29, 1992	Henretta Dragline Project Approval of East Dump Underdrain		
October 8, 1992	Brownie Main Phase 1 Pit	April 22, 1992	April, 1992
October 8, 1992	South Spoil Dumping Guidelines Lake		
November 12, 1992	Mountain Access Road Revision South		
na	Spoil Stage 2 Design Amendment		
December 21, 1992	Brownie Stage 4 Pit	November 19, 1992	November 1992
December 22, 1992	South Spoil Dumping Guidelines		
March 25, 1993	South Spoil Stage 2 Revision 2		February 1993
November 10, 1993	Taylor Pit Stage 3 Slope Revision		October 1992
November 10, 1993	Brownie Spoil Stage 2A Access	August 20, 1993	August 16, 1993
na	Brownie Spoil Revision 1		November 28, 1993
December 22, 1993	Quartzite Quarry		
April 19, 1994	South Spoil Toe Dyke Design Revision	March 3, 1994	March 3, 1994
July 14, 1994	Henretta Dragline Project - North Pit	March 24, 1994	March 24, 1994
July 14, 1994	Brownie Main Phase 2 Pit	June 8, 1994	May 26, 1994
August 19, 1994	Kilmarnock Reject Spoil	April 8, 1994	April 8, 1994
December 19, 1994	Kilmarnock Reject Spoil Amendments South	September 26, 1994	
April 27, 1995	Tailings Pond, Tailings Dredging Project		
April 27, 1995	Brownie Spoil Stage 2A - 2180 m Access	April 18, 1995	
December 18, 1995	Eagle Main 6 Stage 1	November 16, 1995	November 21, 1995
June 19, 1996	South Pit Stage 2 and Coal Access	May 24, 1996	May 31, 1996
August 7, 1996	Henretta Ridge Pit & Spoils Tumbull		
September 10, 1996	Phase 2 Dragline Pit Eagle Main 4	April 22, 1996	August 25, 1996
January 24, 1997	Stage 2	December 17, 1996	December 17, 1996
January 24, 1997	Brownie Stage 5	January 8, 1997	January 8, 1997
July 10, 1997	Lake Pit Phase 2	May 20, 1997	May 15, 1997
July 10, 1997	Henretta Ridge East Spoil Design Modification-		

Table 4-5: Fording River Operations C-3 Mining Permits (cont'd)

Approval Date	Title	Permit Application Date	Report Date
	2000 Bench Development		
August 28, 1997	South Spoil Revision to Stage 4, 4B & 5	July 17, 1997	July 17, 1997
December 18, 1997	Blake Reject Spoil	•	November 28, 1997
March 10, 1998	Henretta Ridge East Spoil Toe Berm Revision	January 20, 1998	January 22, 1998
April 1, 1998	5 Year Harvesting Plan 1998 - 2002	·	-
May 11, 1998	Long Range Reclamation Plan		
June 16, 1998	Turn Pit Phase I	April 14, 1998	April 2, 1998
August 20, 1998	South Pit, Stage 3	August 5, 1998	August 5, 1998
April 20, 1999	Eagle Main 4 Stage 3	March 29, 1999	March 29, 1999
February 22, 2000	South Pit Stage 4 Coal Access Road		January 25, 2000
May 17, 2000	Henretta Ridge East Spoil Revision 2		April 24, 2000
April 30, 2001	Henretta Ridge East Spoil Revision 3	April 10, 2001	April 10, 2001
December 21, 2001	South Pit Stage 4		November 2001
May 7, 2002	2 Spoil Final Lift	April 11, 2002	April 11, 2002
April 14, 2003	Brownie Stage 3 and 4 Spoil Expansion		
May 16, 2003	Change of Name		
January 22, 2004	Henretta Ridge Pushback & Spoil Development	September 22, 2003	September 18, 2003
February 19, 2004	Turnbull South Pit & Waste Dump Development	October 30, 2003	October 2003
February 16, 2005	Upper Blake Reject Spoil		
July 19, 2006	Brownie Creek Limestone Quarry		
July 26, 2006	Upper Clode Spoil	April 7, 2006	April, 2006
June 30, 2008	Approving Raising the South Tails Pond Dyke		
August 28, 2008	Approving Development of Kilmarnock Till Pit		
July 31, 2009	Approving Work East of Railway Embankment		
May 31, 2010	Approving Henretta Ramp Construction		
August 30, 2010	Approving Reclamation Program		
January 10, 2011	Approving Henretta Phase 3 Pit Expansion		
April 13, 2011	Approving Kilmarnock Creek Diversion		

Table 4-6: FRO Operating Permits

Permit Type	Permit Number
Effluent Permit	PE-424
Air Permit	PA-1501
Landfill Permit	PR-7726
Joint Effluent Permit	BXL PE-5556
Joint Air Permit	BXL PA-5061
Waste Generator	BCG00675
Water Licence (Henretta Creek) Water	C109725
Licence (Lake Mountain Creek) Water	C103168
Licence (Kilmarnock Creek) Water	C100080
Licence (Clode Creek)	C058779
Water Licence (Fording River)	C054340
Water Licence (Fording River)	C049312
Water Licence (Blackmore Creek)	C049311
Water Licence (Fording River)	C047473
Water Licence (Fording River)	C038211
Licence to Cut (Crown Land)	YN069
Timber Mark (Town Private Land)	NB1PF
Timber Mark (Minesite Private Land) Explosives	NBTPH
Storage and Use Permit B.C. Permits	1814 & 1815
Licence for Explosive Manufacture	Factory Licence 2008(03)-F71491

# 5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

#### Topography, Elevation and Vegetation

The mine 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 ranges.

Operations at the Fording River range in elevation from 1,790 m in the valley floor to 2,225 m at the upper extent of the operations. Vegetation varies with elevation. Valley bottoms are dominated by Ponderosa Pine, Rocky Mountain Douglas Fir, Lodgepole Pine and Trembling Aspen. The main mining and exploration areas fall within a biogeoclimatic zone described as the Engelmann Spruce Alpine Fir Zone at elevations from 1,000 m to 2,200 m. Forest cover in this zone includes Engelmann Spruce, Lodgepole Pine, Western Larch and Trembling Aspen. Treeless areas above 2,250 m 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.

#### Property Access

Coal mining activity has been ongoing in the area for nearly 40 years, and the infrastructure is quite well developed, including all-weather roads and a railroad. The means of access to the property is via Highway 43 from Highway 3 at Sparwood, through Elkford to the Fording River Mine property. The property is approximately 29 km northeast of Elkford by road. Goods are delivered primarily by transport trucks and occasionally rail.

Nearly all of the coal from FRO is transported in unit trains from the site loadout facilities via Canadian Pacific Railways (CPR) rail lines to Westshore Terminals, 1,150 km to the west in Delta, British Columbia. Coal is also delivered via rail to Neptune Bulk Terminals in North Vancouver, British Columbia, Thunder Bay Terminals in Thunder Bay. The CPR and Canadian National Railway (CNR) own their own lines and have line sharing agreements in place to expedite traffic in certain areas.

#### Population Centres and Transport

Mining personnel are recruited from across Canada, with most employees living in Elkford, and Sparwood, located 35 km to the south. Employee bussing is available from Elkford to the mine site.

#### Climate and Length of Operating Season

Operations at FRO run 24 hours per day, seven days a week, year-round. Operations are not typically limited by the local weather. The climate of British Columbia is determined by its continental location and mountainous topography, and is characterized by long cold winters and short cool dry summers. Winter frontal systems moving easterly from the Pacific coast bring maritime Arctic air into the region, which modifies temperatures and results in snowfall. Summer weather is generally good. However, in all seasons, the mountains play a major role in determining the regional and local climatic characteristics. The closest weather station to the mine site is located in Sparwood, British Columbia, 65 km to the south. Typical temperatures and precipitation for the area are listed in Table 5.1, Climate Summary in Sparwood, British Columbia.

#### Surface Rights, Power, Water, Waste Disposal Areas and Plant Area

The surface rights required for all mining operations are authorized through coal leases and licences held by FRO. Power to the site is supplied by BC Hydro via the BC & Alberta link, known as the Kan-Elk line. There is a single 13.8 kV power line into the FRO property. The line is a spur of a main hydro line. Two transformers are used to split the load at the local substation site. Two 13.8 kV power lines are located on either side of Eagle Mountain. Each line is capable of supplying power to the entire operation, and the second line acts as a back-up. A single 13.8 kV line runs to Henretta, which also powers the Turnbull Pit. Several substations are placed at key locations in the mine to reduce the voltage to levels appropriate for electric mining equipment.

**Table 5-1:** 

## Climate Summary in Sparwood, British Columbia

Description	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Ave.
Temperature													
Daily Average (°C)	-6.8	-4.4	0.2	4.9	9.2	12.6	15.4	15.1	10.4	5	-2	-7.7	4.3
Daily Maximum (°C)	-2.5	0.5	5.5	11	16	19.5	23.2	23.6	18	10.8	1.7	-3.7	10.3
Daily Minimum (°C)	-11.1	-9.3	-5.1	-1.3	2.4	5.7	7.6	6.6	2.7	-1	-5.7	-11.6	-1.7
Extreme Maximum (°C)	10.3	13.8	19.5	25.6	31.3	32.5	34.1	36.5	34.2	27.2	16.9	10.5	
Extreme Minimum (°C)	-37.9	-34.6	-29.3	-15	-5.8	-3.3	0	-3.5	-8.5	-22.2	-34	-39.8	
Precipitation													
Rainfall (mm)	14	14.4	14.5	26.1	56.8	61.2	51.5	34.1	41.3	38.8	39	14.1	
Snowfall (cm)	50.6	34	28.4	15.6	5.2	1.6	0	0.1	1.4	11.1	43.3	57.2	
Precipitation (mm)	53.2	40.9	38.4	38.4	61.9	62.8	51.5	34.2	42.7	48.2	71.7	59.6	
Average Snow Depth (cm)	17	14	5	0	0	0	0	0	0	0	5	15	
Extreme Daily Rainfall (mm)	27.8	35.8	15.4	27.1	31.7	45.2	27.2	16.5	26.2	38.4	47	27.8	
Extreme Daily Snowfall (cm)	23.8	24.4	23	32	26.8	15	0	1	4	16.4	41	65	
Extreme Daily Precipitation (mm)	31.7	35.8	22.2	27.1	34	45.2	27.2	16.5	28.2	38.4	47	65	
Extreme Snow Depth (cm)	56	64	33	26	27	3	0	0	1	18	44	133	
Wind													
Maximum Hourly Speed	67	83	59	52	41	44	37	44	44	63	59	74	
Direction of Maximum Hourly Speed	SE	E	E	SE	S	SE	SW	S	SE	E	E	E	Е
Wind Chill													
Extreme Wind Chill	-45.6	-47.5	-37.4	-23	-9	-4.8	-2.6	-4.6	-10.5	-27.1	-41.4	-48.6	
				_								_	

Source: www.farmzone.com/statistics/CL1157631/sb002

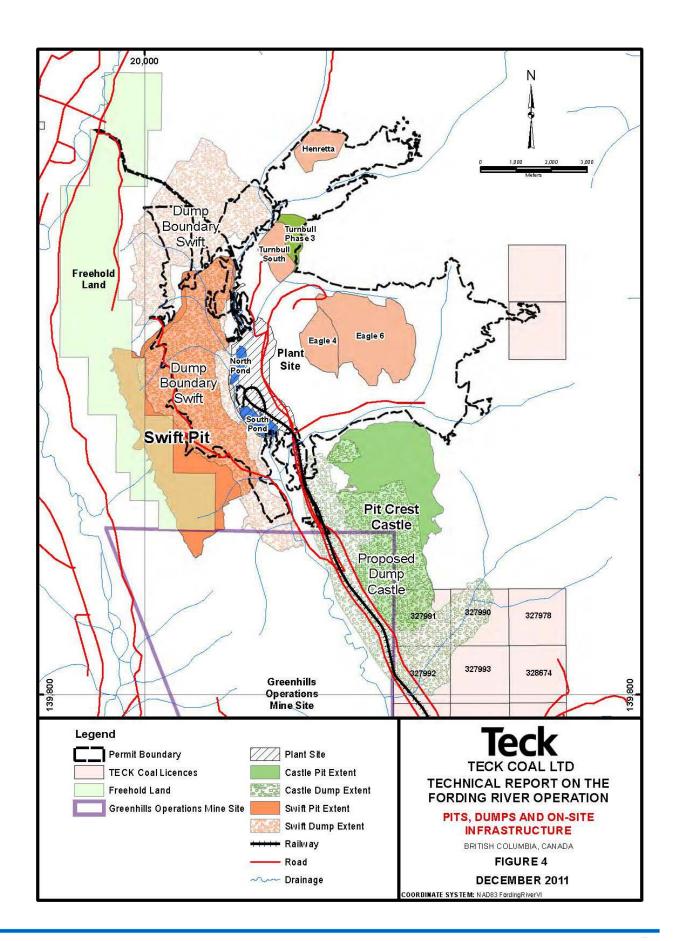
There is a total of 11 groundwater wells in the FRO property. Water supply for the mine is provided by six of these wells. Make-up water for the plant comes from the wells and is augmented by flooded abandoned mine cuts as needed. Three wells located south of the tailings ponds are used to recover seepage from the ponds. This water is pumped back into the pond. Two additional wells located by the environmental facilities (2 km to the south of the mine site) are used to provide the needs of the greenhouse.

Key on site infrastructure at FRO include the raw coal stockpiles, coal processing plant, rail loadout facilities, administrative, engineering and maintenance buildings, mine dry, powder magazine, and bulk explosive storage facilities. On site facilities are generally located in the valley floor along the Fording River. The location of on-site facilities is shown in Figure 4, Pits, Dumps and Onsite Infrastructure.

Coal processing plant tailings are stored in two ponds located to the south of the plant site on the valley floor. To provide additional required tailings capacity, the height of the dyke of the South Tailings Pond has been increased in 2010 in accordance with the permitted design. Due to further development plans, FRO is investigating alternative tailings storage options to meet future tailings storage demands, including the use of another mined-out pit.

Coarse reject is currently being hauled to the Upper Blake Reject Dump and backhauled to spoil areas in the active pits.

FRO's bulk explosives facility is owned by Teck and operated by MAXAM Explosives Company, which manages and operates the delivery and manufacturing of bulk explosives on site. FRO has two magazines: a powder magazine and a caps magazine.



#### 6.0 HISTORY

#### Prior Ownership of the Property

The first published observations of coal in the Fording River valley were made by George M. Dawson of the Geological Survey of Canada (GSC) in his 1886 preliminary report of the region. As part of the 1881 crown land agreement with the federal government, the Canadian Pacific Railway (CPR) in 1902 filed for coal rights on several lots of land in the Elk and Fording River valleys. Between 1939 and 1947, the CPR sold or transferred all of its Elk and Fording River holdings to its mining subsidiary, the Consolidated Mining and Smelting of Canada (Cominco). Subsequently later in 1947 Cominco decided to surrender all but 11.5 of CPR's original lots or 7,360 acres. The outstanding lots that comprise the rest what is now the Fording River property were staked in 1966 by Canadian Pacific Oil and Gas (CPOG), a division of Canadian Pacific Investments Ltd (CPI).

Fording River Operations began its existence in 1968 as the primary asset of Fording Coal Limited, owned 60% by CPI and 40% by Cominco. Canadian Pacific acquired Cominco's share in 1986

Fording Coal Ltd became an independent, publically owned company called Fording Inc. in October 2001 following the reorganization of Canadian Pacific Limited. Fording, Inc was converted into an income trust and the creation of a coal partnership was completed. The Fording Canadian Coal Trust was created on February 28, 2003, from a multi-party agreement between Fording Coal Ltd., Teck Cominco Ltd., Westshore Terminals Income Fund, Ontario Teacher's Pension Plan Board and Sherritt International Corporation. The Trust held 60% of the Elk Valley Coal Partnership (EVCP), which holds the Canadian metallurgical coal properties previously held by Fording Coal Ltd., Teck Cominco Ltd., CONSOL Energy Inc. and Luscar Energy Partnership. The EVCP controlled the metallurgical coal operations under Elk Valley Coal Corporation (EVCC), a wholly owned subsidiary of EVCP. Prior to formation of the trust, the FRO was under the ownership of Fording Coal Ltd. Fording Coal Ltd. was incorporated into the formation of EVCC. On October 30, 2008, Teck Resources acquired all the assets of Fording Canadian Coal Trust, thus making Teck Resources the sole owner of EVCC, which it renamed Teck Coal Limited (Teck).

FRO commenced production in 1971 and made its first coal shipment in 1972. The initial contract was for three million tonnes per year of Fording Standard low volatile coal to a single customer. Mining was concentrated on the west side of the Fording River valley, primarily using the dragline to expose the coal for hauling to the processing plant. Mining operations were gradually moved across the valley to Eagle Mountain in the early 1980s, to where the source of raw coal is now centered, and mining by truck/shovel has taken over as the primary method of exposing coal. The processing plant was expanded from its original design capacity of 3 million MTCC to 9.5 million MTCC. Fording River coking coal is delivered to customers on five continents.

#### Previous Mineral Resource and Reserve Statements

The latest updates were reported in the FRO Year End Reserve and Resource Report, dated December 2010. These estimates are listed in Table 6.1, Summary of Coal Tonnages Reported by FRO - December 2010, and Table 6.4, Summary of Resources by Area, December 2010.

Table 6-1: Summary of Coal Tonnages Reported by FRO - December 2010

Pit	Proven (million mtcc)	Probable (million mtcc)	Total Reserve (million mtcc)
Eagle	46.2	8.9	55.1
Henretta	3.0	0.0	3.0
Turnbull	16.1	1.1	17.2
Castle	33.5	17.2	50.7
Sunshine	105.6	12.8	118.4
Lake	12.0	7.4	19.4
Total	216.4	47.4	263.8

Note -M = million. mtcc = metric tonnes clean coal

Table 6-2: Summary of Resources by Area, December 2010

Pit	Measured (million mtrc)	Indicated (million mtrc)	Total Measured and Indicated (million mtrc)
Eagle	96	126	222
Henretta	20	14	34
Turnbull	46	68	114
Castle	136	419	555
Sunshine	98	239	337
Total	396	866	1,262

Inferred Resources (million mtrc) 85 9 46 255 350 745

Notes - mtrc = metric tonnes raw coal.

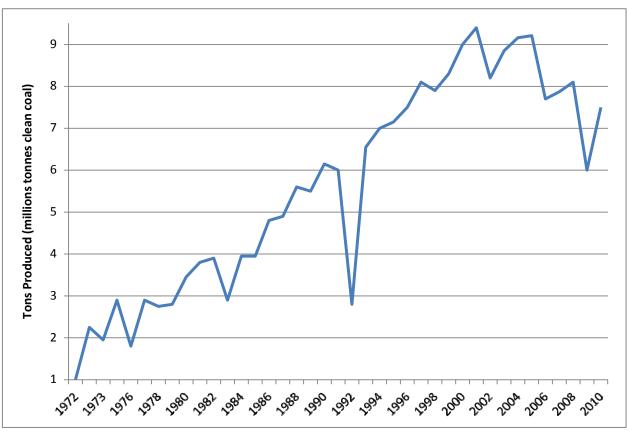
- resources are exclusive of reserves

## Technical Report Data

Two other TRs (NI 43-101) have been completed on FRO. Marston prepared a TR, dated February 2008 for FRO, and Norwest Corporation prepared a TR, dated January 29, 2009. The Marston TR reported Reserves of Proven 170.1 million mtcc and Probable 69.9 million mtcc reserves. Norwest Corporation's TR reported Proven and Probable Reserves of 186.1 million mtcc and 70.4 million mtcc, respectively.

## Property Production

The FRO processing plant was originally designed with a capacity of 3 million mtcc per year in 1971. This has since been expanded to 10 million mtcc per year. FRO coal production from 1972 to 2010 is illustrated in Graph 1, Historic FRO Coal Production – 1972 through 2010. Coal production over last eight years is listed in Table 6.5, Historic FRO Coal Production – 2003 through 2010.



Graph 1: Historic FRO Coal Production – 1972 through 2010

The drop in production in years 1992 and 2009 are attributed to a strike and low global demand, respectively.

Table 6-3: Historic FRO Coal Production – 2003 through 2010

Year	Clean Coal Production			
2003	8.85			
2004	9.60			
2005	9.21			
2006	7.70			
2007	7.87			
2008	8.10			
2009	6.00			
2010	7.50			
Total 2003 - 2010	64.82			

# 7.0 GEOLOGICAL SETTING AND MINERALIZATION

## Regional Geology

The regional geology of southeastern British Columbia has been the subject of numerous geological studies, including coal, oil and gas exploration, and it is reasonably well understood. The East Kootenay coalfields are comprised of three separate coalfields extending from the Montana border northward. These are known as the Flathead, Crowsnest and Elk Valley coalfields in southeastern British Columbia. The Fording River property is situated within the frontal range of the southern Canadian Rocky Mountains, within the central and northern sections of the Elk Valley Coalfield.

The coal measures of FRO are contained in the Mist Mountain Formation of the Upper Jurassic to Lower Cretaceous age Kootenay Group (deposited approximately 120-150 million years ago). Inter- bedded sandstone, siltstone, mudstone and coal seams were deposited throughout this period. The Mist Mountain Formation is approximately 500 m – 600 m thick. Subsequent to deposition, the sediments were impacted by the mountain building movements of the late Cretaceous to early Tertiary Laramide Orogeny, which produced the structural features that currently dominate the area. The Elk Valley Coal Field (including FRO coal measures) is structurally contained within the Lewis Thrust Sheet, bounded to the west and east by the Bourgeau and Lewis Thrust Faults, respectively. The succession of geological formations in the area is summarized in Table 7.1, Fording River – Geological Formations.

At FRO, northerly trending thrust faults associated with the tectonic movements have resulted in repeating of all or parts of the coal sequence including whole blocks of the coal-bearing Mist Mountain Formation. Subsequent northerly trending normal faults have also displaced and further divided the sequence.

Economically, the Mist Mountain Formation is the most important formation of the Kootenay Group. The formation contains coal seams ranging in thickness up to 18 m. Generally the coal rank 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

Table 7.1: Fording River – Geological Formations

PERIOD	LITHO-STRATIGRAPHIC UNITS			PRINCIPAL ROCK TYPES		
Recent				Colluvium		
Quaternary				Clay, Silt, Sand, gravel, cobbles		
Lower Cretaceous	Blairmore Group			Massive bedded sandstones and conglomerates		
	Elk Formation			Sandstone, Siltstone, shale, mudstone, chert pebble conglomerate, minor coal		
	κ <sup>F</sup>		Mist Mountain Formation	Sandstone, Siltstone, shale, mudstone, thick coal seams		
Lower	o r o m o r e t a r i a o y n s e	MF	Moose Mountain Member	Medium to coarse grained quartz-chert sandstone		
Cretaceous to Upper Jurassic		o o r r r m i a s t s i e o y n	Weary Ridge Member	Fine to coarse grained, slightly ferruginous quartz-chart sandstone		
Jurassic	Fernie Formation			Shale, siltstone, fine-grained sandstone		
Triassic	Spray River Formation			Sandy shale, shale quartzite		
	Rocky Mountain Formation		Mountain Formation	Quartzites		
Mississippian	Rundle Group		Rundle Group	Limestone		
				(Gibson, 1985)		

## Local Geology

#### Structural

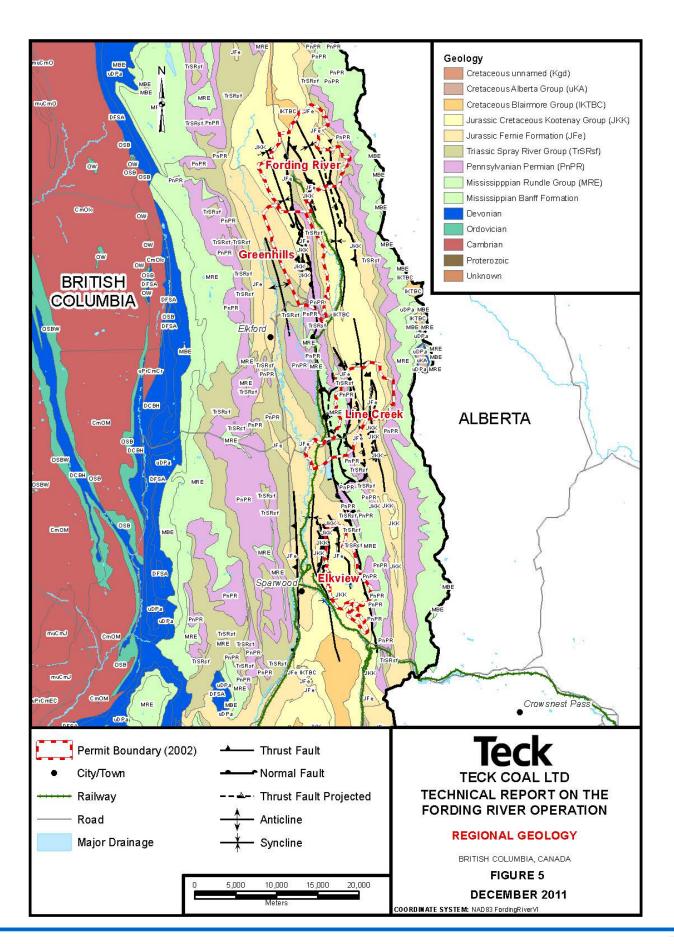
The major structural features of the Fording River Valley are two north-south trending asymmetric synclines with near horizontal to steep westerly dipping thrust faults, and a few high angle normal faults. The Greenhills Syncline is located to the west of the Fording River with the Alexander Creek Syncline to the east. The synclines are separated by the regional Erickson Normal Fault located on the western bank of the Fording River. The east limb of the Alexander Creek Syncline is affected by two major regional thrust faults: the Ewin Pass and Brownie Ridge thrusts. This thrust faulting was probably contemporaneous with the later stages of folding. The intervening anticline was subsequently faulted (Erickson Fault), then eroded. Figure 5, Regional Geology, and Figure 6, Local Geology reflect the geology of the area.

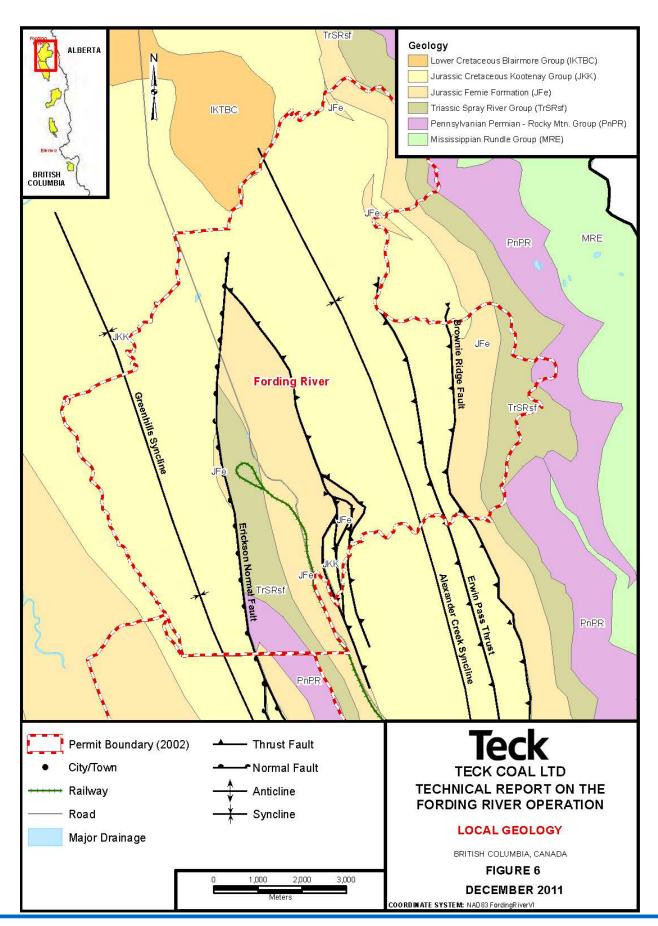
The Alexander Creek Syncline can be traced from the southern property boundary on Castle Mountain to the northern end of the property on Weary Ridge. The strata of the west limb, on the western face of Eagle Mountain, dips easterly at 20° to 25°. Approaching the axis of the syncline, these dips decrease gradually to horizontal. The east limb of the syncline attains a 20° westerly dip within a much shorter (500 m) distance of the axis. This asymmetry is caused in part by the influence of the Ewin Pass Thrust, which subcrops 600 m to 800 m east of the synclinal axis. A generalized cross section through Eagle Mountain is shown in Figures 7a and 7b, Typical Geological Cross Sections Eagle Mountain A-A' and B-B'.

Further to the east, on Brownie Ridge, the strata dip at an average angle of 42° westerly. The Brownie Ridge Thrust, which subcrops near the crest of the ridge, likely contributes to this steepening.

#### Stratigraphy

A generalized stratigraphic column for the FRO area is shown in Figure 8. The oldest rock strata present on the Fording River property are the Rundle Group limestone, located on the west bank of the Fording River, near the southern property boundary. They are in faulted contact with the Kootenay Group to the west, and in unconformable contact with Rocky Mountain Formation quartzite to the north. The latter are exposed on the eastern slope of the Brownie Creek Valley.





The Fernie Formation shales occur throughout the area, generally along the sides of the valleys on the lower flanks of the mountains. The shales are recessive and, therefore poorly exposed. The Fernie Formation is in conformable contact with the Morrissey, through the Passage Beds, which are a transitional zone from marine to non-marine sedimentation.

The Morrissey Formation, locally serving as the basal sandstone of the Kootenay Group, is a prominent cliff-forming marker horizon in many locations. It consists of the Weary Ridge and Moose Mountain Members. On the Fording River property, the top of the Moose Mountain Member is in sharp contact with the lowermost bed of the Mist Mountain Formation.

Lenticular sandstones comprise about ½ of the Mist Mountain sediments at Fording River, but only a few laterally extensive sandstone beds exist. The sandstone above and below Seam 4 (040) and above the 9 Seam (090) are the most persistent units, and are often cliff-forming marker horizons.

The Mist Mountain Formation is generally overlain conformably by strata of the Elk Formation. On the Fording River property, this formation 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 and referred to as "needle" coal. Within the FRO property boundaries, the Elk Formation is seen along the ridge tops, primarily along the Greenhills Range and north towards Mount Tuxford.

The top of the Elk Formation marks the upper boundary of the Kootenay Group, which is unconformably overlain by the basal Cadomin Formation of the Blairmore Group. This thick bedded, cliff-forming sandstone and conglomerate unit is observed on the upper slopes of Mount Tuxford.

### Property Geology

The coal currently or planned to be mined at the FRO are contained on Eagle, Castle and Turnbull mountains and Henretta Ridge and on the northeast flank of the Greenhills Range. The current and future mining areas are shown in Figure 2.

Aggregate coal thickness on Eagle Mountain ranges to more than 70 m. Nine major seams and more than 20 minor seams are currently being mined. The coal seams are numbered sequentially upwards from the base of the Mist Mountain Formation. The lowest, 1 Seam (010 to the west of the Fording River) is located immediately above the Morrissey Formation, increasing to 15 Seam (150) located immediately below the Elk Formation. Seams above the 15 Seam are considered to be "Elk" coal. Minor seams are often numbered with the same pre-fix as an adjacent major seam to form a

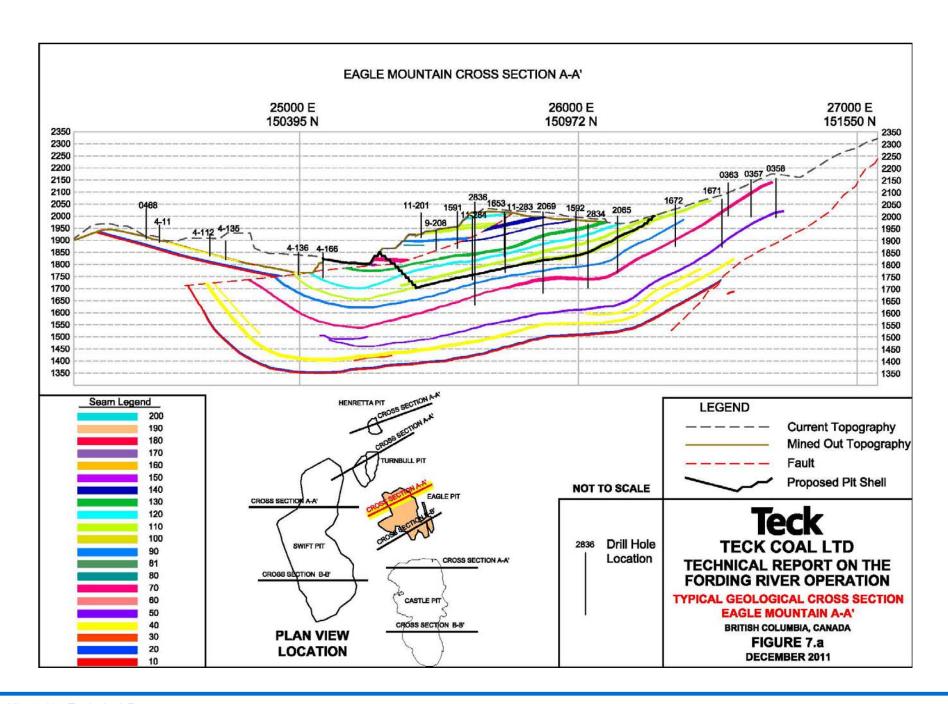
"package" (i.e., the 7 Seam may consist of 070, 071, 072, 073 and 074.) FRO does not consider coal seams less than 0.9 m in true thickness as mineable for the purposes of Resource or Reserve estimates.

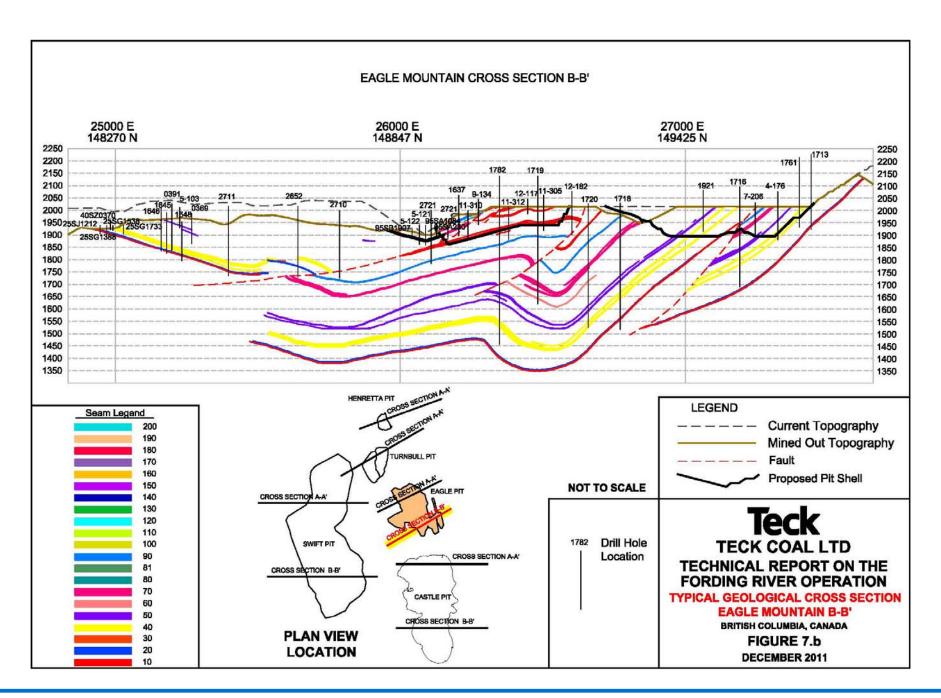
## Eagle Mountain

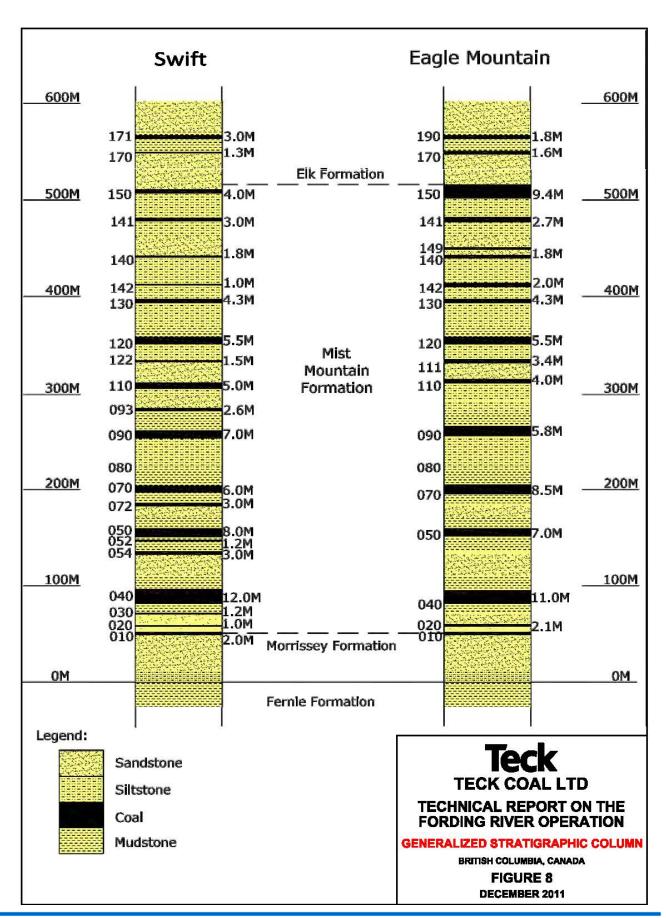
Mining has been carried out on Eagle Mountain since the early 1970s. Coal is currently mined in the Eagle Main 4 Pit (EM4) and Eagle 6 Pit.

The Eagle Main 4 Pit South, located on the southwestern portion of Eagle Mountain, contains seams from the uppermost fault block (above the Ewin Pass Thrust). It is bounded to the north by the Eagle Main 4 Pit North and to the south by Eagle South Pit, both of which have been previously mined. Seams in EM4 are mined from the western limb of the Alexander Creek Syncline. Seam dips range from 25° to horizontal, depending on the proximity to the synclinal axis. Typical geological cross sections through Eagle Mountain are shown in Figures 7a and 7b. The Eagle Main 4 Pit South is scheduled to be completed in 2013.

The Eagle 6 Pit is located immediately to the east of Eagle Main 4 Pit, on the central and eastern regions of Eagle Mountain. Mining in this pit involves seams blocks (below the Ewin Pass and Brownie Ridge Thrust Faults). Seams in Eagle 6 are mined from the east limb of the Alexander Creek Syncline with bedding dip angles ranging from 45° to horizontal. Benched footwall designs are necessary in this area due to the geotechnical characteristics of the steeply dipping seam floors. There is a total of 60 different seam splits mined in this pit, including splits of 15 main seams. The Eagle 6 Pit is scheduled to be completed in 2019.





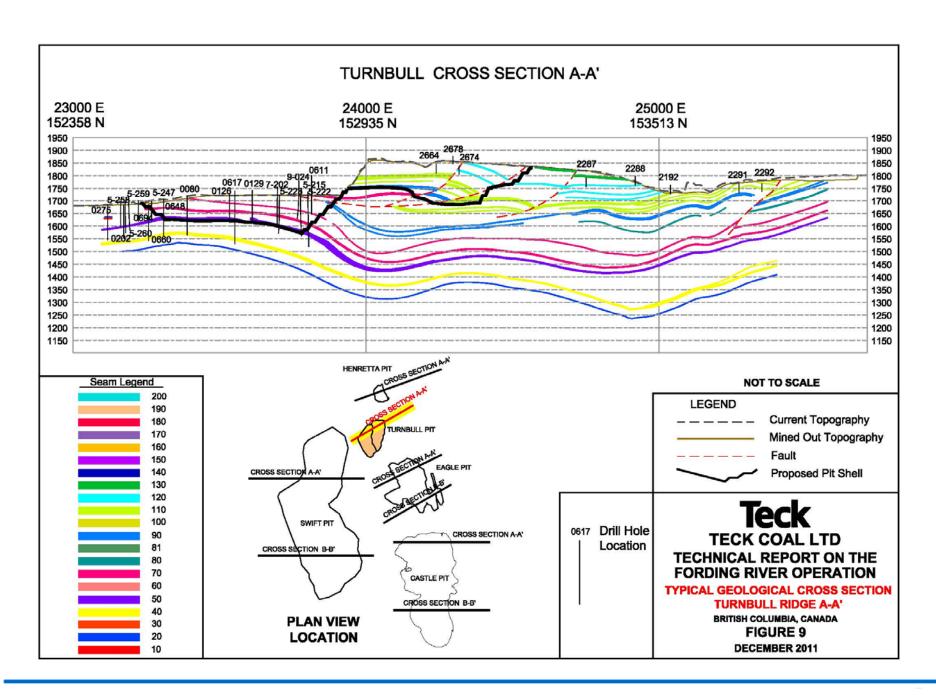


#### Turnbull Mountain

Mining has been carried out on Turnbull Mountain intermittently since the early 1970s, and most recently in 1999 (Turn Pit). FRO is planning three phases to the Turnbull mining area, namely Turnbull South, and Turnbull Ridge. Mining began in Turnbull South Pit in 2005, and is scheduled for completion in 2014.

The Turnbull South Pit is located on the southwest flank of Turnbull Mountain. It is bordered to the west by the completed Turnbull Dragline Pit and by the Turn Pit at the north end. The Turnbull South Pit contains seams from both above and below the Ewin Pass Thrust Fault. Seams are mined from the west limb and axis of the Alexander Creek Syncline. Bedding dips range from 23° through horizontal as the axial region is approached.

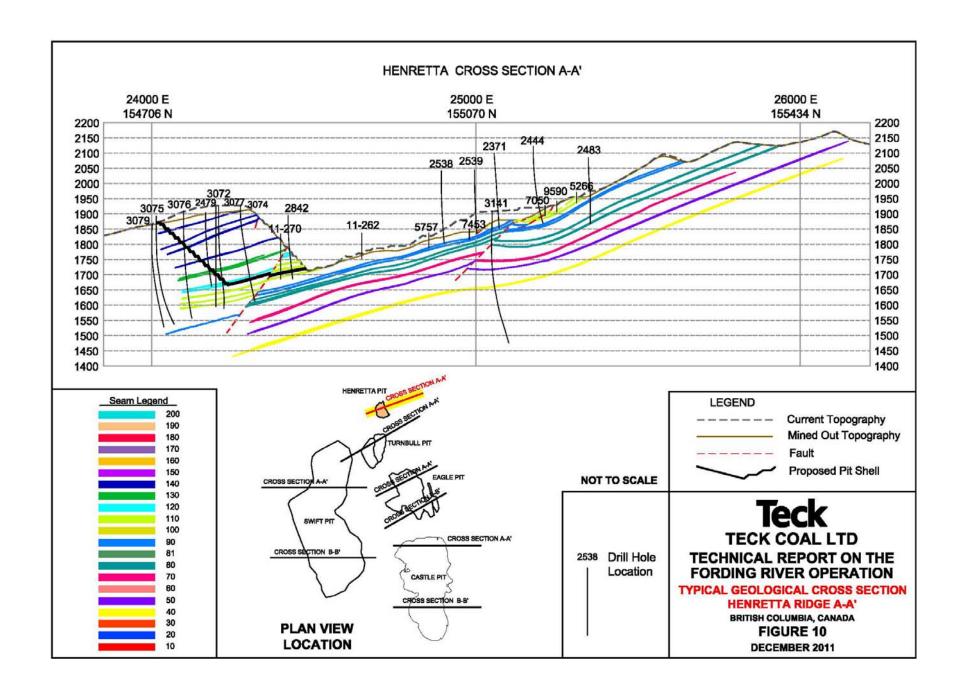
Turnbull Ridge, Figure 9, Typical Geological Cross Section Turnbull Ridge A-A', is essentially a pushback of the Turnbull South Pit highwall between the pre-existing North and South pit areas and extends down to the 090 Seam. Due to higher stripping ratios, Turnbull Ridge is deferred until later in the mine life and is scheduled for completion in 2045.



### Henretta Ridge

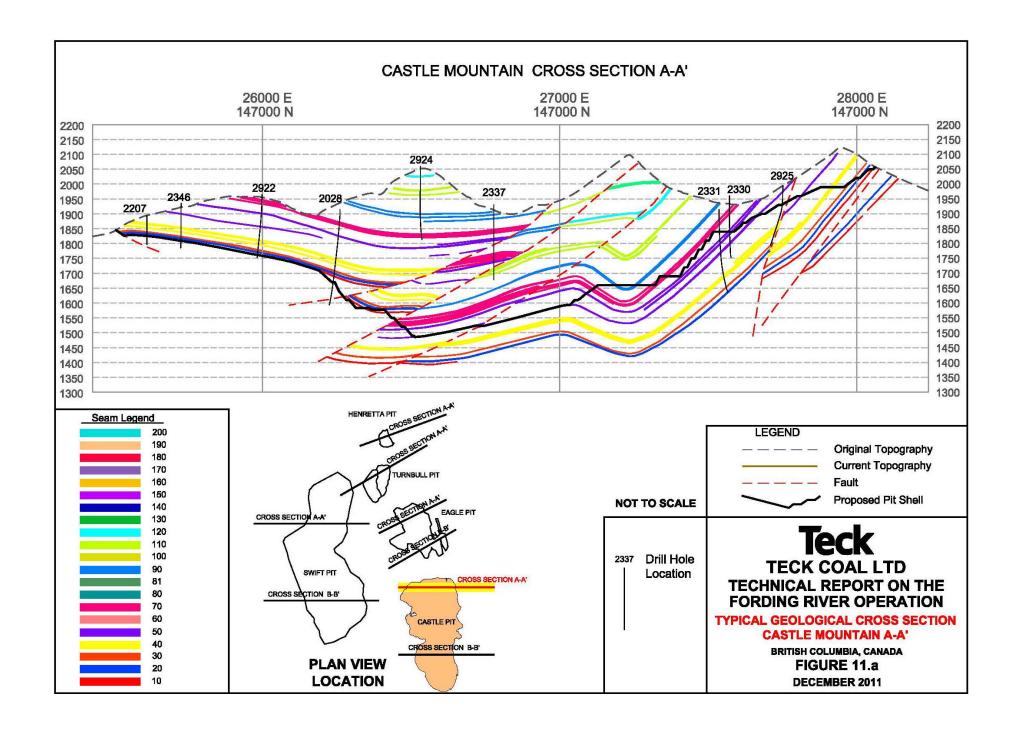
Mining began in the Henretta Valley bottom area in 1993, with preparation of boxcuts by mobile equipment in preparation for dragline mining. Mining was then concentrated in the Henretta Ridge Pit, which was started in 1996 and completed in early 2011.

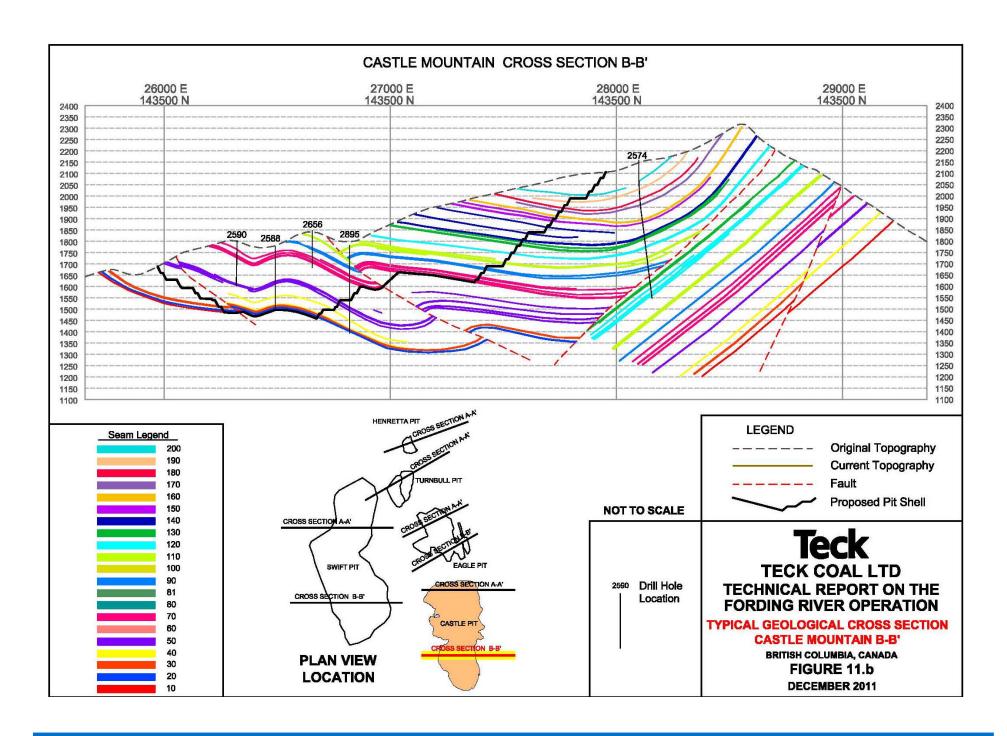
The next phase of the Henretta Pit consists of a 300-m pushback of the Henretta Ridge highwall. Seams in the Henretta Ridge Pit are mined from the east limb of the Alexander Creek Syncline. Bedding dips are typically 20° to 30° to the west. A typical geological cross section through Henretta Ridge is shown in Figure 10. This pit releases Eagle and Premium coals. This pit follows the westerly dipping 112 and 115 Seams to the east, and is limited by a north-south trending highwall to the west and an east-west trending endwall to the north. The Henretta Pit is due to be completed in 2015.



### Castle Mountain

In 2011 optimization work was performed on the Castle Pit to reflect current economic conditions and additional exploration drilling; see Figure 11a and 11b, Typical Geological Cross Sections - Castle Mountain A-A' and B-B'. This work identified a substantial increase in ultimate pit resulting in a total reserve of 186.4 million mtcc. Seams from the Castle Pit will be mined from the west limb of the Alexander Creek Syncline. Bedding dips range from 35° to horizontal in the proposed pit area. The pit is planned to be mined from south to the north in a series of 10 mining phases. Mining is planned to commence in 2054 and to continue through 2084.



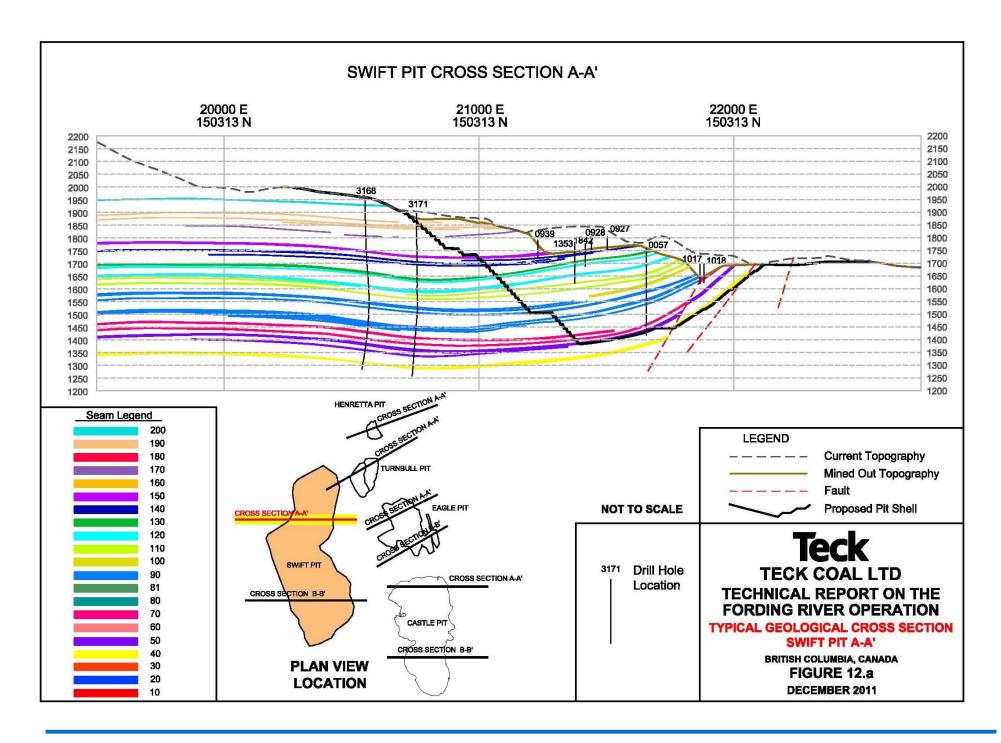


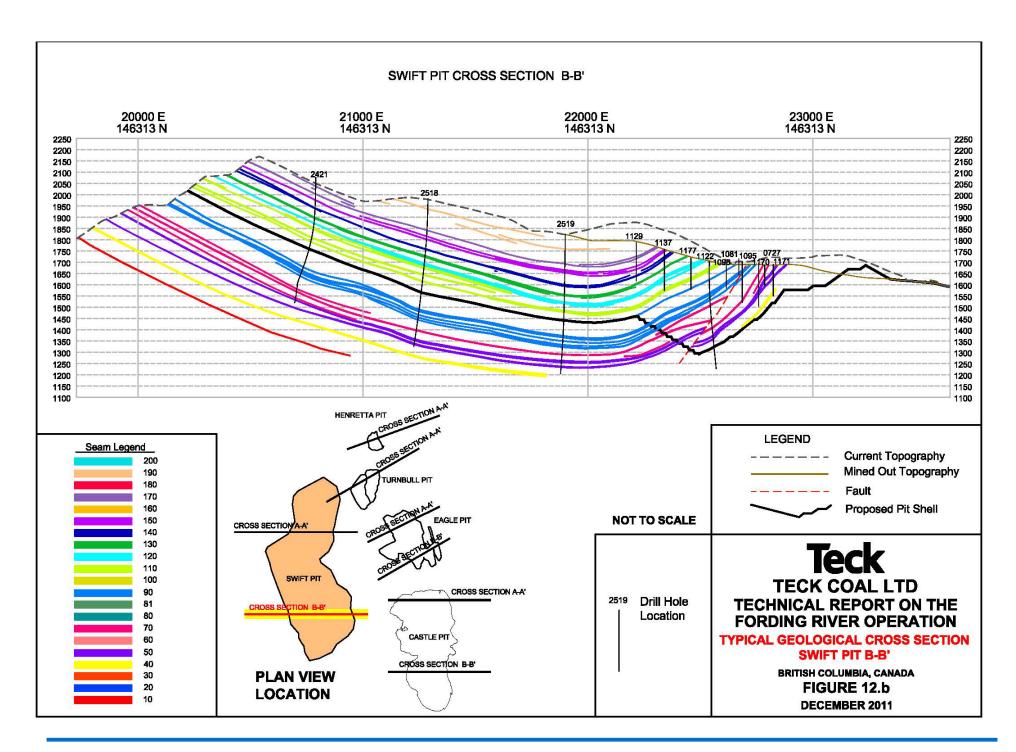
#### Swift Pit

The Greenhills Range is located to the west of the Fording River, across from Eagle Mountain. The proposed Swift Pit (originally referred to as the Sunshine Pit) is located at the northeastern end of the Greenhills Range. Mining in this pit is a westward pushback of the various pits that were mined out in the 1980s and early 1990s.

Seams in the Swift Pit are mined from both limbs of the Greenhills Syncline. Bedding dips range from 25° to 50° west, depending on proximity to the syncline axis. Typical geological cross sections through Greenhills Range shown in Figures 12a and 12b, Typical Geological Cross Sections Swift Pit A-A' and B-B'.

Original reserves for Lake and Sunshine Pits were 137.8 million mtcc. Early in 2011, optimization work was completed in these pits. As a result, the pit design was expanded to encompass the two pits along with the region separating them and was renamed as Swift. Additional optimization work continued on the Swift Pit through 2011 and identified an additional 240.5 million mtcc. The total for all phases of the Swift Pit (Original and Expansion) is 378.3 million mtcc.





Mineralization

The mineral formations are shown on Figure 6, Local Geology. The mineralized zone in the FRO

properties contain bituminous grade coal seams with varying volatile matter contents. The Mist

Mountain Formation contains over 13 economic coal seams (consisting of medium to high volatile

bituminous coal) and is the most widely occurring formation on the Fording River property. The Mist

Mountain Formation is approximately 500-metres (m) thick and consists of an interbedded sequence of

sandstones, siltstones, silty shales, mudstones, and medium to high volatile bituminous coal seams,

with the depth of burial ranging from surface exposures to greater than 1,500 m.

A typical stratigraphic profile for the area is shown in Figure 8, Generalized Stratigraphic Column. A

geological cross section showing typical folding and faulting that occurs in the area is shown in Figure

7a and 7b, Typical Geological Cross Sections - Eagle Mountain A-A' and B-B'.

The quality of the coal seams in the Mist Mountain Formation varies with depth of burial and location

along strike of the deposit. With standard coal processing to remove impurities, these seams will

produce coking coal suitable for use in steel-making. The majority of coal products produced by FRO

requires a blend of coal mined from two or more seams, and potentially of coal from different mining

areas.

FRO uses the following categories to identify the different types of coals mined from the pits.

Standard Coal:

< 24.5% Volatile Matter (VM), includes Seams 010 – 090.

Premium Coals:

26.5% to 28.5% VM, includes Seams 110 - 130.

Eagle Coals:

> 28.5% VM, includes Seams 140 and higher.

There are seams with VM content near 25%, which FRO blends into both Standard and Premium

categories.

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# 8.0 DEPOSIT TYPES

The mineral deposit type being investigated at FRO is bituminous coal that occurs in consistent seams of mineable thickness in sedimentary rock formations. The rock formations on the property are faulted and folded due to post-depositional tectonic activity. Folds in the area tend to be broad and open.

GSC Paper 88-21 lists four categories of geology type, which are intended to "address differences in the complexity of seam geometry within deposits." In order of increasing complexity, these include Low, Moderate, Complex and Severe. As per the definitions in GSC Paper 88-21, deposits of geology type Complex "have been subjected to relatively high levels of tectonic deformation. Tight folds, some with steep inclinations or overturned limbs, may be present, and offsets by faults are common." Fault plates generally retain normal stratigraphic sequences, and seam thicknesses are rarely modified.

According to the definitions provided in GSC Paper 88-21 and the geological and structural characteristics in the area, the coal deposits of the FRO area are predominantly geology type Complex with lesser areas of geology type Moderate.

# 9.0 EXPLORATION

### Historical Exploration Programs

Historic exploration of the property has been extensive. Ground mapping, trenching, and surface sampling were undertaken in the mid 1960's. The first drilling on the property was commenced in the summer of 1967 by Canadian Pacific Oil & Gas Limited (subsidiary of Canadian Pacific Investments Ltd). Since the commencement of mining in 1971 all exploration work has been conducted by or for Fording Coal Ltd., Elk Valley Coal Corporation, or Teck Coal Ltd. There have been no other mining companies active in this area.

The FRO property has had five general areas of mining and exploration activity, including Henretta Pit, Eagle Mountain, Castle Mountain, Turnbull Pit, a portion of the Greenhills Pit, and associated extensions.

A summary of past exploration programs is provided in Table 9.1, below.

Table 9-1: Summary of Historic Exploration on the FRO Property

Item	Number			
Adits	27			
Channels	17			
Trenches	3			
Auger	2			
Bulk Sampled	6			
Total	55			

## Current Exploration Programs

Various exploration methods have been used on the property, including surface mapping, trenching, adits, bulk sampling and drilling. Drilling (rotary) is the primary method used to acquire supporting data for the determination of coal tonnages in resource and reserve calculations.

FRO has developed detailed standard practices and procedures for exploration and in-pit drilling. These are discussed in section 10.0 DRILLING.

# 10.0 DRILLING

To date, over 6,100 holes (with over 610,000 m of drilling) have been completed on the property. Historically, most of the exploration drilling has been done with reverse circulation rotary drills, along with some diamond core drilling. Bulk sampling supported by drill sample analyses is used to estimate the quality of the coal in any coal tonnage calculations.

Details on exploration drilling work performed in the various pit areas over the last five years are listed in Table 10.1, Summary of FRO 2007 to 2011 Exploration Drilling Programs.

Table 10.1: Summary of FRO 2007 to 2011 Exploration Drilling Programs

Area	2007		2008		2009		2010		2011		TOTAL	
	Drill Holes	metres										
Eagle	21	1,830	24	3,130	16	2,150	18	2,102	36	5,292	115	14,504
Turnbull	0	0	5	764	10	988	16	2,386	46	4,474	77	8,612
Henretta	25	2,186	5	427	3	270	22	7,862	20	5,341	75	16,086
Castle	48	16,106	44	13,854	0	0	0	0	0	0	92	29,960
Swift	38	16,641	16	5,961	0	0	64	27,781	81	35,076	203	86,856
<b>Bulk Samples</b>	-	-	17	-	-	-	10	-	-	-	-	-

Currently, all exploration and in-pit drilling is reverse circulation rotary drilling with centre sample return. All holes are geophysically logged for gamma-neutron, gamma-density and downhole deviation (when required). Generally, drillhole deviation is measured in holes greater than 100 m. Seam contact data from production (blasthole) drilling are also used to build the geological model. Only contact information from geophysical logging is used from the blast-hole drilling, as quality samples are not taken from the blastholes.

## Current and Future Exploration

The FRO medium term exploration program targets the acquisition of additional data in Castle Mountain, Turnbull and Greenhills to improve interpretations of seam definition and coal quality predictions in advance of mining. Longer term exploration includes several areas adjacent or in close proximity to current operations.

Exploration in 2011 targeted the three current and two future mining areas. Within Turnbull Pit 4,500 metres was drilled to increase the drill hole density within the 5 Seam to 75 m and all other seams to a drill hole density of 100 m. In the Henretta Pit area 5,341 m of drilling was completed. This drilling targeted 9 through the 4 seams below the existing pit footwall to further define resources. Within the

Swift Pit, 28,000 m of drilling has been completed to improve confidence and reserve classification and increase proven and probable categories.

Exploration for 2012 will target the currently mined pits by in pit drilling as well as the Swift, Henretta, and Castle areas. Bulk sampling of coal in future mining areas is also planned for 2012. The 2012 exploration program is currently under development.

Interpretation of Exploration Information

From drilling information, FRO geologists develop closely spaced cross sections using MineSight®, a commercially available geological modeling and mine design software package. Interpretations of seam roof and floor structure, incorporating seam true thickness measurements, are completed using data from nearby exploration, and in some cases, production blasthole data. These cross sections are used to develop three-dimensional block models of the five active and future pit areas.

The number and spacing of drill holes used in the preparation of cross-sectional coal geology and subsequent block models are listed in Table 9.2. These models are utilized by FRO to aid in seam correlations, to estimate seam thicknesses and mineable tonnages and to generate mine plans and production schedules.

A representative number of cross sections (Figures 9a - 13b) described in Item 7, has been prepared to demonstrate the validity of the coal seam structural and thickness interpretations and to support validation of the block model resource and reserve classifications.

Based on the work completed in the block model the structural and seam interpretations are consistent with respect to seam identification, correlation and proper application of true thickness data throughout the resource area. Details of the mineral resource and reserves estimation process are included in Item 14, Mineral Resource Estimates, and Item 15, Mineral Reserve Estimates, respectively.

Identification of Surveyor and Investigator

The programs were carried out in a professional manner and to reasonable standards appropriate for delineation of coal resources and in accordance with standard mining industry practice.

The FRO laboratory is certified under ISO 9001-2000 standards. The analyses of samples are completed according to procedures consistent with prevailing industry and testing quality standards.

All surveying of exploration works are performed by FRO technical staff. The general guidelines are

intended to conform to ISO 9001-2000 Standard Operating Procedures and Guidelines (Quality Manual) and are subject to the requirements of Standard Practices and Procedures defined in FRO documentation as EN.017.R1.

#### **Procedures**

FRO acquires coal structural data through exploration drilling to develop geological and mining models. Data from production (blasthole) drilling are also used to build the geological model.

Detailed corporate standard practices and procedures have been developed for exploration, production and in-pit drilling. The FRO exploration, production, and in-pit drilling process consists of four phases (including the three phases described in Item 9.2, and reproduced below).

- First Phase: consists of a few deep (400m 750m) widely spaced(>500m apart) diamond or reverse circulation rotary drill holes.
- Second Phase: follow-up drilling to assess the continuity of coal seams, to provide
  correlations between the primary phase drill holes and to supply additional coal quality information,
  which consists of a program of shallower (250m 400m) reverse circulation rotary holes spaced at
  150m to 250m.
- Third Phase: in-fill drilling to provide geological and coal quality information at sufficient detail
  to allow completion of the final mine design, which includes shallow drill holes (100m 200m) at
  closely spaced intervals (75m 100m), depending on the structural complexity.
- Fourth Phase: in-pit drilling. Drill holes are spaced at 50m spacing in two passes consisting of:
  - reverse circulation rotary test holes are completed two benches above the target coal seam to collect structural and quality data. In at least every second hole, the coal chip samples are tested for Romax (reflectance), sulphur content, phosphorus (P<sub>2</sub>0<sub>5</sub>) and proximate analysis; and,
  - production test holes are completed between each reverse circulation rotary test hole with the blasthole rig using two rods. Maximum depth is 35 m, and these holes usually penetrate the entire coal seam to be mined.

The drilling, sampling, sample delivery and on site laboratory have been independently reviewed by the Snowden Group in October 2011.

Drill hole locations are staked and flagged by FRO surveyors, or geologists. Field technicians supervise heavy equipment to create the drill access roads and pads.

Current exploration holes are drilled using reverse air circulation in holes of 5.5-inch diameter. The

reverse circulation sampling method is preferred over core drilling because the coal is difficult to core, and from FRO experience the core recoveries were low.

During reverse circulation drilling, when a coal zone is reached, pulldown is stopped, and the depth is recorded to the nearest 0.5 m. This depth is the starting point for the first sample. One-half metre of coal is drilled, and cuttings are collected and bagged. Cuttings are then collected in intervals of 0.5 m throughout the coal seam.

In the reverse circulation method, compressed air is forced down an annulus between the outside wall and inner barrel of the drill pipe. An air and formation water mixture returns through the inner barrel of the drill pipe carrying chip samples of the coal and rock cuttings. The sample is collected through slots which run from the outside of the drill pipe to the inner barrel, approximately 0.75 m above the drill bit. The remainder of the return fluid continues up between the outside of the drill pipe and the drill hole wall, which creates positive upward pressure which reduces contamination by material falling from higher up in the hole.

The sample return air water mix is directed through a cyclone, which removes most of the water from the sample. The sample is then directed to a 172-mesh (90 micron) vibrating screen which removes water with a minimum loss of fines. The 0.5m samples from the screen are collected in 10-litre plastic bags. The sample volume collected can vary. The collected samples are reasonably representative of the coal being drilled because, as noted above, there is positive pressure up the hole outside the drill string which will prevent material falling down from higher up the drill holes. The variable sample volume is believed to be due to retrieving more or less coal from the coal seam being sampled depending on its rock strength. This can be confirmed and accounted for with the downhole geophysical caliper tool which monitors hole diameter.

Samples from the vibratory screen are tagged with the drill hole number, sample top and bottom depth, and the sample number and delivered to the on-site laboratory by the drilling contractor. The samples bags are stored in metal containers by drill hole number prior to preparation for analysis.

All drill holes are geophysically logged using FRO equipment or third party contractors. Exploration holes, which are usually over 150 meters deep, are generally geophysically logged by a third party contractor (such as Century Wireline Services) to obtain natural gamma, neutron, density, caliper, resistivity, down hole deviation and when required, dip meter.

In areas showing potential mineable coal, additional in-fill exploration drilling is scheduled to provide geological and in-situ coal quality information to support more detailed modeling. In-fill drill holes are typically shallow (100m – 300m deep) and closely spaced (50m – 100m along section), depending on

local geological complexities.

During production, information from blasthole drilling is incorporated into the geological database. Blasthole data is used only where geophysical logs are completed on the production blasthole.

### Summary

FRO conducts annual exploration drilling programs to further delineate its potential mineable coal. Historically, most of the exploration drilling has consisted of reverse circulation rotary holes along with a small amount of diamond core drilling. Blasthole drills have also been used for in-pit development drilling. Details of the historic exploration programs at FRO are provided in Item 9 of this report.

11.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

Sample Preparation Personnel

The collection of samples is performed by the exploration contractors. The sampling process is

evaluated regularly by FRO geologists.

FRO laboratory personnel either prepare and analyze all samples, or oversee and supervise subcontract

personnel in the preparation and analysis of samples.

Sample Preparation, Assaying and Analytical Procedures

The FRO lab is certified under ISO 9001-2000. The FRO sample collection and processing procedures

are documented in the Fording River ISO 9001-2000 Quality Manual. All procedures are conducted

according to ASTM standards.

Upon collection in the field, all samples are logged and bagged for delivery to the on-site FRO laboratory

by the drilling contractor. Sample identification is in the form of sample tags with a unique hole identifier,

drill hole location and sampled interval details. Samples are stored at the mine site laboratory until

analysis is complete.

The sampling procedure requires that samples are split on a riffle splitter prior to the size required by the

laboratory. Increment coal samples (based on the 0.5m sampling protocol) are analyzed for raw ash

content at the FRO laboratory. Increment samples are cross-referenced with geophysical logs and

geological cross sections to composite and to identify coal seams in mineable zones by the FRO

geologist. The geologist selects generally contiguous samples within the coal seam sequence which

contain raw ash of 45% (adb) or less. The composite sample is analyzed for raw ash, VM, inherent

moisture, fixed carbon (by difference), FSI, sulphur and P<sub>2</sub>O<sub>5</sub> on an air-dried basis. Samples are

later washed and analyzed for clean ash content, FSI, VM content and clean coal yield. Select composite

samples are tested for sulphur content, dilatation, fluidity, coking, petrography and ash mineral analysis.

At the lab, select seam composites are washed at pre-determined gravities and analyzed for clean ash

content, FSI, S, P2O5 and VM content. Select composite samples are also sent to outside laboratories

for coking and petrography analysis.

FRO uses the following laboratories for these analyses: Birtley Lab, International Petrological

Solutions, Pearson Coal Petrography Inc., and the CANMET Laboratory. These laboratories were selected by Teck based on their qualifications and credentials.

Nature and Extent of Quality Control Measures

The quality control measures in place at the FRO are extensive. The FRO lab takes part in two different round-robin programs. The International Canadian Coal Laboratories Round Robin Series (CANSPEX) program participation is coordinated through Quality Associates International Ltd., an independent body. Participation with CANSPEX has been since its inception, and its test results are consistently ranked in the preferred groupings. The lab also participates in a corporate inter-mine round-robin program. This program is coordinated through Central Labs at Teck's Elkview Operations.

The FRO laboratory conducts all analyses according to ASTM standards. The sampling procedures are documented in the internal Quality Document Skill No. 1841: Standard Procedure – Drill Hole Samples, Assay Sheets, Composites and Petrography Samples. Analyses contracted to outside commercial laboratories are also conducted according to ASTM standards.

Adequacy of Sample Preparation, Security and Analytical Procedures

The sample preparation, security and analytical procedures in place at FRO conform to generally recognized coal industry standards. This opinion is based on materials utilized in the preparation of this report and the FRO operational knowledge of the QPs.

Commercial laboratories used are all well recognized and certified laboratories.

# 12.0 DATA VERIFICATION

For this report, Teck requested Marston to review the procedures taken to verify the quality of data. During two site visits twenty (20) representative exploration drillhole files were selected. The quality of the geological data generated and the extent to which exploration information was interpreted and recorded from downhole sources was evaluated.

The work was conducted in accordance with the guidelines published in the Geological Survey of Canada Paper 88-21, (Hughes et al., 1989).

FRO geological data, and the steps performed for data verification are summarized as the following bulleted items.

- Twenty primary geological data sources were reviewed including drill hole sampling records, drill logs and geophysical logs, and composites of analytical data. Both hardcopy and electronic data were reviewed, including:
  - hardcopy data driller's logs, geophysical logs, and quality data; and,
  - electronic data log Ascii (LAS) files of geophysical logs, and composite analytical data.

A comparison between the geophysical log seam picks (from and to lithology intervals and quality sample intervals) and the drillhole sampling records (for the same parameters) was conducted to determine any differences in the two databases.

It is the author's opinion that the procedures used to ensure the quality of the data used in this report are sound and adequate.

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

FRO processes ROM coal to separate the rock, to lower the product ash content and to produce several

coal products. Current coal products produced at FRO include the following.

Fording River Standard

Fording River Premium

Fording River Eagle

Product coal quality targets and ranges for these products are listed in Table 13.1, Steelmaking Coal

Product Specifications. The majority of the products are a blend of coals from two or more seams. FRO

produces all products sized to -2 inches using standard coal processing methods of heavy media

cyclones for coarse coal, and cyclones and froth flotation for fines processing.

The current wash plant configuration has limited capacity to process fine coal in the raw feed. If the raw

feed consists of a significant portion of fine coal, the throughput can but can be reduced until all fine coals

are treated, or throughput can be maintained, which will cause fine coal to bypass the recovery circuit

and to report to the tailings. In either scenario, large quantities of fine coal in the raw feed would

negatively impact plant output in its current configuration. Teck has taken steps to address the

impact of coal fines with wash plant improvements. The wash plant enhancement plans are an

insignificant cost to the wash plant and will not materially affect mining and processing operations.

The quality of the coal seams in the Mist Mountain Formation varies with depth of burial and location

along strike of the deposit. The majority of coal products produced by FRO requires a blend of coal

mined from two or more seams, and potentially of coal from different mining areas.

FRO uses the following categories to identify the different types of coals mined from the pits.

Standard Coal: < 24.5% Volatile Matter (VM), includes Seams 010 – 090.</li>

Premium Coals: 26.5% to 28.5% VM, includes Seams 110 – 130.

Eagle Coals: > 28.5% VM, includes Seams 140 and higher.

There are seams with VM content near 25%, which FRO blends into both Standard and Premium

categories.

FRO Thermal is a relatively recent coal product. It comprises approximately 1% of total FRO

production, and the majority of the product is consumed on site in the coal-fired thermal dryer. An

average of one trainload per month of FRO Thermal is currently shipped to market. This product is tailored to customer/marketing demands, and as such, the specifications can change from train to train.

Table 13-1: Steelmaking Coal Product Specifications

Quality Parameter	Standard	Premium	Eagle
Ash (Wt.%)	9.5-10.0	8.75-9.25	8.5-8.7
Phosphorus (Wt.%)	0.07	0.075	0.07
Sulphur (Wt. %)	0.50-0.55	0.65-0.7	0.70-0.75
Volatile Matter (Wt.%)	22.5-24.5	24.5-26.5	26.5-28.5
RoMax (Reflectivity)	1.17-1.27	1.07-1.17	1.03-1.13
Fluidity (ddpm)	50-250	200-500	400-850

The FRO wash plant process flow diagram is further discussed in Item 17. ROM coal from pits and stockpiles passes through a rotary breaker and plant feeders. After sizing to 38 millimetres (mm) (1.5 inches), the raw coal is screened to 0.75 mm, with +0.75 mm coal feeding heavy medium cyclones, with the product screened to +0.5 mm, centrifuged and sent to the thermal dryer. Coal sized at -0.75 mm enters a fine coal circuit that includes water only cyclones, spirals, sieve bends, froth flotation cells, thickeners, centrifuges, and the thermal dryer. Coarse rejects are directed to a bin for loading into haul trucks. Spiral rejects are dewatered and sent with coarse rejects, with screen underflow reporting to tailings ponds. Flotation rejects are split for either, thickening, filtering and disposal with coarse rejects, or directed to the tailings ponds.

Coal from several seams is blended to produce a specified product quality prior to loadout and transportation. Product coal quality is controlled by ongoing analysis of ROM coal before it enters the plant. Coal samples are collected for all seams from selected production blastholes and analyzed for ash content and FSI. Raw coal samples are also composited and analyzed for ash content and FSI. Washability analyses are performed to obtain information on ash content, FSI, VM content and yields at various gravities. Certain composite samples are analyzed for sulphur content, dilatation, fluidity and ash mineral constituents. These analyses are performed at the FRO on site laboratory, with certain composite samples also sent to outside laboratories for coking and petrography analysis.

Coal quality data is stored in the FRO acQuire® database. This database is continuously updated as new data becomes available. The information is incorporated into the FRO 3D block model for quality estimation purposes.

FRO performs single seam runs (SSR) to generate coal seam washability curves. This information is used to forecast yield and to control plant operating parameters. Currently, FRO has a program to

conduct SSRs on each seam planned to comprise greater than 1.5% of plant feed for the next five years.

The following analyses are completed for products of the single seam runs.

- Coal VM content, sulphur content, FSI, mean maximum reflectance of vitrinite in oil (Romax), total moisture content, residual moisture content and fixed carbon content.
- Ash Mineral Analysis: silicon dioxide (SiO<sub>2</sub>), aluminum oxide (Al<sub>2</sub>O<sub>3</sub>), titanium oxide (TiO<sub>3</sub>), iron oxide (Fe<sub>2</sub>O<sub>3</sub>), calcium monoxide (CaO), magnesium monoxide (MgO), dipotassium oxide (K<sub>2</sub>O), disodium oxide (Na<sub>2</sub>O), diphosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>), sulphur trioxide (SO<sub>3</sub>) and trace elements.
- Plasticity: log max fluidity, max fluidity, start temp, final temp and plastic range.
- Dilatation: dilatation, softening temperature, final dilatation temperature, maximum contraction and maximum dilation.
- Vitrinite Type Analysis.
- Reactives: vitrinite, exinite, reactive semi-fusinite and total reactives.
- Inerts: inert semi-fusinite, fusinite, inertodetrinite, macrinite, mineral matter and total inerts.

FRO technical staff maintains a large spreadsheet containing coal quality and washability data for each seam in each area. Component blends of selected seams from different pits can be combined in the spreadsheet to determine the average plant feed ash on an annual basis for each product.

The product analyses and petrographic analyses are used to classify the coal in the production process. These results are not interpolated in the modeling process but are available in the acQuire® database and can be accessed during the mine plan production scheduling.

The ash content of the coal composite sample is applied to the coal seam thickness from the geophysical log and used to model the in-situ coal ash.

To estimate the ROM (delivered) coal tonnage and quality, coal mining recovery, coal losses and the addition of dilution are applied to the geological model to estimate the tonnage and ash content of the coal which will be delivered to the wash plant. The resultant ash content estimate is used to predict the specific gravity (SG), wash plant yield and coal product tonnes.

FRO performs a reconciliation of the modeled coal volume (bcm), ash content delivered to the wash plant and predicted yield based on an ash/yield curve. Reconciliations are performed quarterly and accumulated by year. The reconciliations are done by mining area for Eagle 4, Eagle 5, Turnbull, and Henretta, and combined for all areas.

The reconciliation reports have been reviewed for 2007 to 2010. The in-situ coal seam geological

model is adjusted for mining recovery, including coal losses and rock dilution from the mining process. The mine plan production schedule produces an estimate of tonnage and ash content of coal to be delivered to the preparation plant and a forecast yield based on the ash, and the tonnage and ash content of the product coal. On a quarterly basis, the estimated tonnage, ash content and yield are compared with actual by mining area.

The coal tonnage delivered to the preparation plant, on an annual average basis, is close to predicted for 2007 through 2010 as shown in Table 13.2, Summary of Metallurgical Coal Tonnage Estimates compared with Actual. The forecast metallurgical coal tonnage was 29.8 Mt, and the actual was 29.0 Mt which is 97% of forecast over the four years. The forecast ash content and wash plant yield forecasts were well within acceptable ranges for the period. In 2010 the actual metallurgical coal tonnage was significantly lower than forecast at 89%. The reduced recovery was experienced in the Eagle 6 and Turnbull mining areas, which had metallurgical coal recoveries of

86% and 88%, respectively. FRO has analyzed these recoveries in detail and has concluded that due to the low coal recoveries experienced in areas immediately adjacent to fault zones, particularly low angle fault zones, and when mining thin seams, lower coal recovery factors will be estimated from reconciliation data and applied to the 2011 Eagle and Turnbull block models. The factors used are 50% volume discount to coal within 25 m of a major fault (one in Turnbull and two in Eagle); 20% volume discount to all seams between 0.9 m and 1.1 m true thickness; and, 10% volume discount to all seams between 1.1 m and 1.2 m true thickness. As a result of these changes, modeled coal within the Eagle pit shell is 3.1% less than the 2010 models, and the volume loss within the Turnbull South pit shell is 13.2%. The Swift, Castle and Henretta geological models do not include the above losses because the geological evidence to date does not indicate that level of complexity in those areas.

Table 13-2: Summary of Metallurgical Coal Tonnage Estimates Compared with Actual

Year		2007		2008			2009			2010		
	Model	Actual	%	Model	l Actual		Model	Actual	%	Model Actual		%
Total Met Coal tonnes	7,170,970	7,073,734	99%	7,452,743	7,556,806	101%	6,383,050	6,617,410	104%	8,817,461	7,808,421	89%

Table 13-3: Summary of Geological Model Ash and Plant Yield Estimates Compared with Actual

	20	07	20	80	20	09	2010		
Year	Ash (adb)	Yield	Ash (adb) Yield		Ash (adb)	Yield	Ash (adb)	Yield	
Model	32.3	61%	31.1	63%	29.2	64%	31.8	62%	
Reported	30.3	59%	26.8	68%	29.7	63%	29.9	62%	
Difference	-2	-2%	-4.3	6%	0.5	-1%	-1.9	0.30%	

For the 2011 mid-year reserves report, FRO performed a reconciliation of forecast versus actual for the period December 1, 2010 to May 31, 2011. The tonnage delivered to the wash plant was significantly

lower than forecast at 84%. The root of this discrepancy was the use of an April geologic model for reconciliation which did not include the more recent coal recovery modifications. During the reconciliation period, mining was concentrated in the area of severe disruption of the coal by a horizontal fault in the Turnbull Pit. Thin faulted seams were also mined in the Eagle Pit, which caused low coal recovery. These complex structures will continue to be encountered through early 2012.

FRO has taken adequate measures to account for the low coal recovery in the geological models and in the estimates of Coal Resources and Reserves. FRO will continue to pay close attention to reconciliation of actual versus forecast coal tonnages and quality, to ensure that potential coal recovery issues are accounted for in the geological models and Coal Resource estimates.

# 14.0 MINERAL RESOURCE ESTIMATES

Teck is reporting estimated resources for the southeastern British Columbia Fording River property owned and controlled by Teck, based on information provided by FRO staff. Assurance of existence classifications for statements of Resources are in accordance with CIMDS. CIMDS specifies that additional guidelines for statements of Coal Resources and Reserves are set forth in GSC Paper 88-21. The GSC Paper 88-21 guidelines essentially describe the data point density required to estimate Measured, Indicated and Inferred Resources given different coal deposit geology types. In accordance with NI 43-101 (Canadian Securities Administrators, 2011) and the CIMDS, Don Mills supervised the data validation, the in-situ resource estimation and verification work.

Under CIMDS, a Mineral Resource is defined as "a concentration of natural, solid, inorganic or fossilized organic material in or on the Earth's crust in such form and quantity and such a grade or quality that it has reasonable prospects for economic extraction. The location quantity, grade, geologic characteristics and continuity of a mineral Resource are known estimated or interpreted from specific geologic evidence and knowledge." Mineral Resources are subdivided into classes of Measured, Indicated and Inferred, (MII) with the level of confidence reducing with each class. Coal Resources are always reported as an insitu tonnage, and are not adjusted for mining losses or recovery. Minimum mineable seam thickness and maximum removable parting thickness also are considered.

In accordance with provisions of NI 43-101, Teck used "Canadian Institute of Mining, Metallurgy and Petroleum "CIM Definition Standards on Mineral Resources and Reserves" adopted by Canadian Institute of Mining Council on November 27, 2010. Teck has also been guided by the Geological Survey of Canada Paper 88-21 (GSC Paper 88-21) titled, "A Standardized Coal Resource/Reserve Reporting System for Canada," (Hughes, et al, 1989) during the validation, classification, estimation and reporting of coal resources for the FRO property.

Key Assumptions, Parameters and Methods Used to Estimate Mineral Resources

For the Fording River property, it is Don Mills' opinion that the FRO coal meets the criteria for Complex classification.

Information from the exploration drilling program, along with topographic and other surface information, is used to construct geological cross sections and ultimately a MineSight® 3-D Block Model. Using this model, various analyses are completed to evaluate potential mineability of a given area. Reserves and resources in this report are based on the 3D model building procedure documented in SP&P EN.005 and is discussed below and in Item 15, Mineral Reserve Estimates.

The basis for the Resources and Reserves estimates lie in the utilized 3D geology block model and the procedures used to gather coal information. Gathered information includes coal thickness and quality. Methods used to process/input the data into the block model are described below.

The FRO coal resource estimates are based primarily on the results of reverse circulation drilling samples and downhole geophysical gamma and density logs.

Reverse circulation drilling samples taken every 0.5 m, as described in Items 10 and 11, are analyzed for ash content. The results of the ash analyses are sent to a FRO geologist for review. The geologist selects generally contiguous samples within the coal seam sequence which contain raw ash of 45% (adb) or less, and requests a composite analysis of this interval which is defined as coal. The composite sample is analyzed for raw ash, volatile matter, inherent moisture, fixed carbon (by difference), FSI, sulphur and P2O5 on an air-dried basis.

The selected composite quality results, reported on a Rotary Drill Hole Sampling Record are entered into the acQuire® database to provide an indicative value of the in-situ ash content of the coal, which has been defined by the geophysical logs. The acQuire® Geoscientific Information Management System database is used corporately by Teck Coal to store and to manipulate all geophysical, geological and coal quality information. Drilling data previously stored in other formats has been or is being entered into the acQuire® system. The composite sample raw quality results are matched with the geophysical corrected true seam thickness in the acQuire® database to be interpolated in the coal quality model. The ash content of the coal composite sample is applied to the coal seam thickness from the geophysical log and used to model the in-situ coal ash. The acQuire® system is fully accessible from the Mintec MineSight® mining software, which is used for geological modeling, mine design, planning and scheduling by FRO. The database is being updated and checked on an ongoing basis.

Evaluation of gamma, density and caliper geophysical logs by FRO geologists is an essential component of the modeling process. The coal seam tops and bottoms are measured primarily from the gamma density log and secondarily from the gamma neutron logs. It has been the experience at the mine that the gamma density log coal seam thickness closely represents the mineable coal seam thickness in the mine at the location of the drill hole.

In general the driller's identification of the coal and sampling in 0.5m intervals is reasonably close to the location in the geophysical log. The geophysical log measurements of the coal depths are accepted as being correct, as is standard in the industry, and are used as the basis for the coal seam thickness in the geological model.

The 3D block models are volumetric based; a TOPO model item stores the proportion of the model block existing below topography. Separate model items list up to three waste types and two coal seams per block (as either metallurgical (met) or oxidized metallurgical coal (oxide). These items are stored as

volumetric proportions of the block. Additional volumetric items that account for waste above or in front of a coal seam, rehandle material and unconsolidated overburden may also be included. As a QA check, the sum of all the volumetric items in a block must never exceed the TOPO item.

Additional model items (for each coal parameter) are: seam name, raw ash, raw SG, raw VM, delivered ash, delivered SG, plant yield, clean sulphur and clean phosphorous. Table 14.1, Block Model Dimensions, lists the block model dimensions used for the various block models.

Table 14-1: Block Model Dimensions

Pit	X-direction	Y-direction	Z-direction
Eagle	20	20	15
Turnbull	20	20	15
Henretta	10	10	15
Castle	25	25	15
Swift	25	25	15

The 3D model is built from the valid (i.e., with clear hanging wall and footwall definition) drill intervals from the acQuire® database. The seam dips and true thicknesses are calculated based on the drill hole data, and then seam polygons are generated. The true thicknesses of the seams are interpolated using an inverse distance weighting. The search and weighting parameters are listed in Table 14.2, below.

Table 14-2: Interpolation and Search Parameters

	Eagle Mountain	Turnbull	Henretta	Castle	Swift
Seam Thickness					
Max No of Samples	1	1	1	1	1
Inverse Dist Weighting	2.1	2.1	1.8	2.2	2.1
Search Distance (m)	1,000	1,800	500	2,000	2,700
Quality Parameters (DASH, DSG)					
Inverse Dist Weighting	1.2	1.2	1.5	1.2	1.2
X,Y Search Distance (m)	1,800	1,800	1,800	2,800	1,800
Z Search Dist (m)	1000	1,000	1,000	1,000	1,000
Quality Parameters (VM, S, Phos)					
Inverse Dist Weighting	1.5	1.2	1.5	1.5	1.5
X,Y Search Distance (m)	1,800	700	1,800	2,800	1,800
Z Search Dist (m)	1,800	700	1,800	1,000	1,800

The next modeling step is the classification of modeled coal volumes as Measured, Indicated, Inferred or Speculative. Blocks are initially assigned as speculative. Ellipsoid search envelopes with the distance from the centroid along the three axes equal to the distances are used to determine if the block is

classified as Measured, Indicated or Inferred. A minimum of three drill hole intercepts must fall within the associated ellipsoid to classify the block. Three passes are taken sequentially for Inferred, Indicated and Measured with the designation only being updated if the test for three data points is met. Consequently, the block is assigned the highest level of assurance that is supported by the data.

The stated Resources is based on the redefinition of resource shell boundaries due to water bodies and a lower break even strip ratio (BESR) of 14.4:1. Resources are estimated by evaluating a series of pit shells and then by selecting the pit shell which has an incremental strip ratio of 14.4:1 (BCM waste to metric tonne of raw coal). Only modeled coal which has been classified as Measured, Indicated or Inferred is included in the incremental strip ratio calculations. Resources are then calculated and summarized based on the level of assurance classification in accordance with GSC 88-21.

In Table 14.3, below, the Measured and Indicated resource estimates are exclusive of the resources, modified to produce the Proven and Probable reserve estimates described later in Item 15.

Table 14-3: Fording River Estimated Resources (resources are exclusive of reserves) Dec 31, 2011

Pit/Area	Coal Type	Measured (kMTRC)	Indicated (kMTRC)	Total Measured and Indicated Resources (kMTRC)	Inferred (kMTRC)
Swift	Met	25,000	271,000	296,000	317,000
	PCI			0	
	Thermal	0	0	0	1,000
	Total - Swift	25,000	271,000	296,000	318,000
Castle	Met	64,000	272,000	336,000	252,000
	PCI			0	
	Thermal	1,000	2,000	3,000	3,000
	Total - Castle	65,000	274,000	339,000	255,000
Eagle Mountain	Met	91,000	115,000	206,000	70,000
	PCI			0	
	Thermal	1,000	1,000	2,000	0
	Total - Eagle Mountain	92,000	116,000	208,000	70,000
Henretta	Met	29,000	22,000	51,000	5,000
	PCI			0	
	Thermal	0	0	0	
	Total - Henretta	29,000	22,000	51,000	5,000
Turnbull	Met	43,000	60,000	103,000	42,000
	PCI			0	
	Thermal	1,000	1,000	2,000	0
	Total - Turnbull	44,000	61,000	105,000	42,000
Total Resources by Class	Total Met	252,000	740,000	992,000	686,000
	Total PCI	0	0	0	0
	Total Thermal	3,000	4,000	7,000	4,000
	Total - Property	255,000	744,000	999,000	690,000

Notes: resources are exclusive of reserves. k = thousand. MTRC = metric tonnes raw coal

# Discussion on Material Effects of Issues on Mineral Resource Estimates

A basic assumption of this report is that the estimated coal resources for the FRO have a reasonable prospect for development under existing circumstances and assuming a reasonable outlook for all issues that may materially affect the mineral resource estimates.

Failure to achieve reasonable outcomes in the following areas could result in significant changes to Reserves and/or Resources.

- FRO will continue to obtain customers and achieve the forecasted market price.
- FRO will continue to obtain the necessary mining and environmental permits to expand operations to the currently defined ultimate pits.
- FRO will endeavor to obtain core samples from future coal deposits which have not yet been mined to further verify the reverse circulation quality data.

Except as stated herein, Teck is not aware of any modifying factors exogenous to mining engineering considerations that would be of sufficient magnitude to warrant excluding resource tonnage.

# 15.0 MINERAL RESERVE ESTIMATES

The mineral reserves at lands owned and controlled by Teck at the FRO in southeastern British Columbia were estimated using the geological model developed, the design parameters outlined specified in Item 14, cost information outlined in Item 21 and the current economic outlook for coal prices. In accordance with NI 43-101 (Canadian Securities Administrators, 2011) and the CIM Definition Standards (CIM, 2010), one or more Qualified Persons, employees of Teck, supervised the data validation and the reserve verification work. The certifications for the QPs are provided in this report

Under CIMDS, a Mineral Reserve is defined as "the economically mineable part of a Measured or Indicated Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This study must include adequate information on mining, processing, metallurgical, economic and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified. A Mineral Reserve includes diluting material and allowances for losses that may occur when the mineral is mined." A Mineral Reserve is subdivided into two classes, Proven and Probable, with the level of confidence reducing with each class, respectively. The CIMDS provides for a direct relationship between Measured Mineral Resources and Proven Reserves and between Indicated Resources and Probable Mineral Reserves. Inferred Resources cannot be combined or reported with other categories. Reserves are classified according to the confidence level that can be placed in each estimate. In the FRO geological model, the classification of reserves is treated separately for each seam. The distribution of the classes varies from one seam to the next depending on whether a drill hole penetrated that seam. Where a seam has been penetrated, the reserves are appropriately classified.

In accordance with provisions of NI 43-101, Teck used "Canadian Institute of Mining, Metallurgy and petroleum "Definition Standards on Mineral Resources and Reserves" adopted by CIM Council on November 27, 2010. Teck has also been guided by the Geological Survey of Canada Paper 88-21 (CGS Paper 88-21) titled, "A Standardized Coal Resource/Reserve Reporting System for Canada," (Hughes, et al, 1989) during the validation, classification, estimation and reporting of coal reserves for FRO property.

#### Coal Reserve Estimates

Coal reserves are based on pit designs and a long-range mine development plan developed by FRO with portions of the engineering work outsourced to Marston. An ultimate pit shell was created based on long-term product coal pricing and U.S. dollar to Canadian dollar exchange rates as provided by FRO.

The coal pricing and exchange rate assumptions were:

Product Coal Price \$US130

Currency Exchange Rate \$US1.00 = \$CDN1.10

Resulting Coal Price \$CDN143

Costs

Offsite and processing plant costs \$30.00 per metric tonne
 Site costs: \$21.50 per metric tonne
 Waste and Coal Mining Costs \$3.78 per bank cubic meter

The resulting LG pits shells were used as a starting point to develop the ultimate pits for FRO. Consideration of waste haulage, waste storage and geotechnical issues factor significantly in the alteration of the LG pit design to a final pit design. Note that FRO allows Inferred coal to contribute to the development of the ultimate pit shell of Eagle, Henretta and Turnbull, but does not include Inferred Resources in any reporting of reserves or during economic evaluations of proposed LOMPs. The current pit expansions of Castle and Swift were developed on Measured and Indicated Resources only.

FRO has extensive geotechnical experience to support the proposed pit wall design criteria of the current active mining pits of Eagle, Turnbull and Henretta. The design factors are typical of surface coal mines in similar topographic and geological configurations. The proposed mining pits of Castle and Swift have pit wall heights of 800 m and will be substantially higher than the pits currently being mined in the area. The highwall designs for these pits were reduced from the 51° design criteria used for the previous designs to 41°. This was accomplished by incorporating haul roads in the highwalls to provide access and to reduce the overall slope of the walls. Additionally in areas where bedding dipped into the highwall greater than 18° degrees and formed areas of potential instability, removing additional material to relieve stress was performed. Additional geotechnical sampling and analysis is required to fully evaluate these areas.

The estimated coal reserves for the Fording River property are listed in Table 15.1, below.

The estimated product coal tonnages resulting from the Proven and Probable Reserves were 54.1 million mtcc and 572.4 million mtcc, respectively. These result in an average yield of 61% and a total product coal of 626.4 million mtcc. Associated waste stripping requirements were estimated to total 7.8 billion bank cubic meters waste with a product coal strip ratio 12.5 bank cubic meters waste per clean metric tonne coal.

Table 15.1: Fording River Estimated Reserves, Dec 31, 2011

Pit/Area	Coal Type	Proven (kMTCC)	Probable (kMTCC)	Total Reserve (kMTCC)	Clean Strip Ratio
Swift	Met	0	376,700	376,700	
	PCI			0	
	Thermal	0	1,600	1,600	
	Total - Swift	0	378,300	378,300	12.2
Castle	Met	0	183,600	183,600	
	PCI			0	
	Thermal	0	2,800	2,800	
	Total - Castle	0	186,400	186,400	14.5
Eagle Mountain	Met	38,300	6,700	45,000	
	PCI			0	
	Thermal	200	200	400	
	Total - Eagle Mountain	38,500	6,900	45,400	8.0
Henretta	Met	2,800	0	2,800	
	PCI			0	
	Thermal	0	0	0	
	Total - Henretta	2,800	0	2,800	14.6
Turnbull	Met	12,700	700	13,400	
	PCI			0	
	Thermal	100	100	200	
	Total - Turnbull	12,800	800	13,600	8.5
Total Reserves by Class	Total Met	53,800	567,700	621,500	
	Total PCI	0	0	0	
	Total Thermal	300	4,700	5,000	
	Total - Property	54,100	572,400	626,500	12.5

Notes: k = thousand. MTCC = metric tonnes clean coal

# Quality

FRO produces bituminous coking coal for the global steel industry. It produces several different products which include the following.

- Fording River Standard
- Fording River Premium
- Fording River Eagle

Coal quality specifications for these products are listed in Table 17.1, FRO Product Coal Quality, in Item 17.

Key Assumptions, Parameters and Methods Used to Convert Mineral Resources to Mineral Reserves

The basis for the model design was the FRO interpretation of the geological structures used in the development of its block model using the MineSight® geological and mine planning package.

Preparation of the Fording River block model begins with the cross-sectional interpretation of the coal seam floors and roofs by the FRO geologist. This manual interpretation is compared with a computer-generated roof using MineSight® True Thickness Tool module, which calculates the coal seam true thickness and dip to generate the coal seam roof based on data in surrounding drill holes. The interpretations are performed on sections from 10-m spacing for Henretta to 50-m spacing for Castle, which correspond to the associated block model cell plan extents. Consequently, a cross section centerline passes through the centroid of each of the block model blocks containing coal.

Four non-coal surfaces are incorporated into the model, namely current topography, overburden, mined-out surface and original ground. These surfaces are used to ensure that previously mined areas of coal and overburden are properly accounted. All material between the topography and the mined-out surface is coded as rehandle and reported with a swell factor of 30%. Data for these surfaces comes from monthly surveys and periodic flyovers.

An oxide surface is generated using a vertical 10 m - 12 m offset from the unconsolidated (overburden) surface. This surface is subject to revision based on an analysis known as alkali extraction, which is performed on coal chips recovered from selected blastholes and production test holes. The current topography surface is used during the block model generation to identify valid blocks, assigned to existing blocks as topo%, representing the total volume percentage of any given block remaining. The coal blocks are then rationalized so that the total volume is equal to topo% times the block volume. If there is a discrepancy, the waste volume is adjusted.

Representative cross sections through Eagle Mountain, Henretta Ridge, Turnbull Mountain, Castle Mountain and the Green Hills Range are found in Figures 7a, 7b, 9, 10, 11a, 11b and 12a, 12b, respectively.

In-situ coal tonnes are calculated based on estimates of specific gravity based on raw ash (RASH) content. Coal loss and dilution are calculated based on a coal loss thickness of 0.3 m per seam and waste dilution thickness of 0.3 m per seam.

Additional mining parameters are as follows.

•	Minimum mineable seam thickness	0.9 m
•	Minimum removable parting thickness	0.7 m
•	Removable parting dilution thickness	0.30 m
•	Removable parting coal loss thickness	0.30 m
•	Rock dilution ash	80%
•	Rock dilution SG	2.3
•	Parting dilution ash	70%
•	Maximum delivered ash cutoff	46.4%

Specific gravity (SG) values for coal are based on empirical formulas, validated over the history of mining at FRO.

Yield is based on a delivered ash relationship based on historical plant performance. Clean coal quality information interpolated is as follows.

Clean Moisture [CMOI]
Clean VM [CVM]
Clean Fixed Carbon [CFC
Clean Sulphur [CSUL]
Clean FSI [CFSI]
%P205 [PHOS])

Where information is not available, data is filled in statistically based on geographic location.

With the exception of the Product Coal Tonnes, the coal tonnage figures and ash contents are expressed on an air-dried moisture content basis. They are not converted to an as-received moisture content basis during the calculations of in-situ and ROM (delivered) coal. This procedure allows the use of the FRO regression factors for project plant yield. These regressions are based on ROM tonnes and ash content, both expressed on an air-dried moisture content basis, and the regression curves account for additional moisture in the clean coal product.

Discussion on Material Effects of Issues on Mineral Reserve Estimates

A basic assumption of this report is that the estimated Coal Reserves for the FRO have a reasonable prospect for development under existing circumstances and assuming a reasonable outlook for all issues that may materially affect the mineral reserve estimates.

Failure to achieve reasonable outcomes in the following areas could result in significant changes to

#### reserves.

- FRO will continue to obtain customers and achieve the forecasted market price.
- FRO will continue to obtain the necessary mining and environmental permits to expand operations to the currently defined ultimate pits.

Except as stated herein, Teck is not aware of any modifying factors exogenous to mining engineering considerations (i.e., competing interests, environmental concerns, socio-economic issues, legal issues, etc.) that would be of sufficient magnitude to warrant excluding reserve tonnage below design limitations.

# 16.0 MINING METHODS

The property has been actively mined since 1971. The mine is currently being developed using open-pit coal mining methods, with primary waste stripping and coal mining completed by seven electric shovels supplemented with large wheel loaders.

Waste is blasted using large diameter blast-hole drills. The shot overburden/interburden is dumped into the waste haul trucks by electric shovels. Mine waste is backfilled into the advancing mining pit where practical and to external dumps as required to release adequate ROM coal to meet annual production targets. Front-end loaders and bulldozers are used to move coal to piles on the mined benches; coal haul trucks later haul coal to the breaker for delivery to the coal processing plant.

ROM coal is processed in an on-site heavy media coal processing facility where it is washed and blended to meet a variety of clean coal product specifications.

The current mining fleet is comprised of the following equipment.

- Caterpillar 994 (2)
- Letourneau 1850 (3)
- Letourneau 1400 (1)
- Marion 301 shovel
- Marion 351 shovel
- P & H 4100 A shovel
- P & H 4100 XPB shovels (2)
- P & H 4100 XPC shovel (2)
- Production drills (5)
- Waste/coal haul fleet (63)
- Bulldozers
- Graders
- Backhoes
- Scrapers
- Water trucks

Future development plans include the use of waste crushing and conveyance systems in order to create the initial voids for future mine expansion after which waste will be backfilled into the advancing mined-out pits.

# Pit Geotechnical Design Parameters

The design criteria for mining pits for the LOMP, found in Tables 16.1 and 16.2, was developed based on geotechnical evaluations combined with many years of mining experience at the property. The Fording River ultimate pit designs utilized the following design criteria, which are typical of surface coal mines in similar topographic and geological configurations.

Table 16-1: Highwall, Haul Roads, Spoil and Rehandle Design Parameters

Pit	Higl	nwall Design	Param	eters	Haul	Roads	Spoils & Rehandle			
Pit	Face Angle	Inter-ramp Angle	Berm Width	Berm Frequency	Grade	Width	Swell Factor	Slope Angle		
Eagle Mountain	As requir	red for location s condition		otechnical	8.0%	42-46 m	1.3	37 degree face angle, 26 degree overall, Max 75 m Lifts		
Turnbull	70 degrees	55 degrees	10 m	10 m 2 Benches		42-46 m	1.3	37 degree face angle, 26 degree overall, Max 75 m Lifts		
Henretta	62 degrees	43 degrees	8-10 m	1 Bench	8.0%	42-46 m	1.3	37 degree face angle, 26 degree overall, Max 75 m Lifts		
Castle	65 degrees	51 degrees	10 m	2 Benches	8.0%	42-46 m	1.3	37 degree face angle, 26 degree overall, Max 75 m Lifts		
Swift	65 degrees	51 degrees	0 m	2 Benches	8.0%	42-46 m	1.3	37 degree face angle, 26 degree overall, Max 75 m Lifts		

Table 16-2: Design Parameters for Footwalls

Bedding	Footwall for All Pits								
Plane Dip (Degrees)	Face Angle	Berm Width	Berm Frequency						
< 35	Bedding	0 m	Not Req						
36 > and < 50	Bedding	8 m	5 Benches						
51 > and < 65	Bedding	8 m	2 Benches						
> 65	Bedding	10 m	2 Benches						

Pit designs for Castle and Swift include areas with highwall heights up to 800 m. Where the

highwall heights significantly exceed the experience at the property, additional benching and haul road access was incorporated into the designs in order to reduce the overall pit slope angle. When the coal seams dipped more than 18° and the orientation had the potential to create wedges in the highwall that could slide into the pit, the wedges were mined out or unloaded to minimize the risk of large scale failures.

#### Mine Production

The Fording River Mine is designed to have a nominal capacity of 10 million tonnes of clean coal million mtcc per year. The updated Life of Mine Plans includes Proven and Probable Reserves to support mining until 2084. For the first 18 years of the plan, up to 2029, mine production averages approximately 10 million mtcc per year. In 2030, once the higher strip ratio areas in Swift and Castle are mined, the production rate is estimated at an average of approximately 8 MMTC per year. For the entire Life of Mine Plan the clean strip ratio averages 12.7 bank cubic meter of waste per metric tonne of clean coal.

The location of existing mine workings, tailing ponds, waste dumps and important surface features are shown on Figure 7. Old mining operations include several pits located in the Eagle Mountain/Turnbull area to the east of the Fording River and in the Greenhills area located to the west of the river. Two tailings ponds are located to the southwest of the plant site, near the train loading facilities. All pits, dumps, tailings ponds and on site infrastructure are located within the boundaries of FRO's leases, Licences and freehold lands.

# 17.0 RECOVERY METHODS

FRO processes ROM (run of mine) coal to separate the rock, lower the product ash content, and to produce several coal products. Current coal products produced at FRO include the following.

- Fording River Standard
- Fording River Premium
- Fording River Eagle

Product coal quality targets and ranges for these products are listed in Table 17.1, Steelmaking Coal Product Specifications. The majority of the products are a blend of coals from two or more seams. FRO produces all products sized to -2 inches using standard coal processing methods of heavy media cyclones for coarse coal, and cyclones and froth flotation for fines processing.

The current wash plant configuration has limited capacity to process fine coal in the raw feed. If the raw feed consists of a significant portion of fine coal, the throughput can but can be reduced until all fine coals are treated, or throughput can be maintained which will cause fine coal to bypass the recovery circuit and report to the tailings. In either scenario, large quantities of fine coal in the raw feed would negatively impact plant output in its current configuration. Studies to address the impact of coal fines with wash plant improvements have been undertaken. The subsequent wash plant enhancement plans are an insignificant cost to the wash plant and will not materially affect mining and processing operations.

The quality of the coal seams in the Mist Mountain Formation varies with depth of burial and location along strike of the deposit. The majority of coal products produced by FRO requires a blend of coal mined from two or more seams, and at times of coal from different mining areas.

FRO PCI and Thermal are relatively recent coal products, which comprises a blend of a number of seams and represents the oxidized portion of the seams mined. It comprises approximately 1% of total FRO production, and the majority of the product is consumed on site in the coal-fired thermal dryer. Less than one trainload per month of FRO Thermal is currently shipped to market. This product is tailored to customer/marketing demands, and as such, the specifications can change from train to train.

Table 17-1: Steelmaking Coal Product Specifications

Quality Parameter	Standard	Premium	Eagle
Ash (Wt.%)	9.5-10.0	8.75-9.25	8.5-8.7
Phosphorus (Wt.%)	0.07	0.075	0.07
Sulphur (Wt. %)	0.50-0.55	0.65-0.7	0.70-0.75
Volatile Matter (Wt.%)	22.5-24.5	24.5-26.5	26.5-28.5
RoMax (Reflectivity)	1.17-1.27	1.07-1.17	1.03-1.13
Fluidity (ddpm)	50-250	200-500	400-850

A schematic of the FRO wash plant process flow diagram is shown in Figure 13. This figure illustrates the flow of the coal through the plant. ROM coal from pits and stockpiles passes through a rotary breaker and plant feeders. After sizing to 38 mm (1.5 inches), the raw coal is screened to 0.75 mm, with +0.75 mm coal feeding heavy medium cyclones, with the product screened to +0.5 mm, centrifuged and sent to the thermal dryer. Coal sized at -0.75 mm enters a fine coal circuit that includes water only cyclones, spirals, sieve bends, froth flotation cells, thickeners, centrifuges, and the thermal dryer. Coarse rejects are directed to a bin for loading into haul trucks. Spiral rejects are dewatered and sent with coarse rejects, with screen underflow reporting to tailings ponds. Flotation rejects are split for either thickening, filtering and disposal with coarse rejects, or directed to the tailings ponds.

Coal from several seams is blended to produce a specified product quality prior to loadout and transportation. Product coal quality is controlled by ongoing analysis of ROM coal before it enters the plant. Coal samples are collected for all seams from selected in-pit reverse circulation drillholes and analyzed for ash content and FSI. Raw coal samples are also composited and analyzed for ash content and FSI. Washability analyses are performed to obtain information on ash content, FSI, VM content and yields at various gravities. Certain composite samples are analyzed for sulphur content, dilatation, fluidity, and ash mineral constituents. These analyses are performed at the FRO on site laboratory, with certain composite samples also sent to outside laboratories for coking and petrography analysis

Coal quality data is stored in the acQuire<sup>®</sup> database. This database is continuously updated as new data becomes available. The information is incorporated into the FRO 3D block model for quality estimation purposes.

FRO performs Single Seam Runs (SSRs) to generate coal seam washability curves. This information is used to forecast yield and to control plant operating parameters. Currently, FRO has a program to conduct SSRs on each seam that is planned to comprise greater than 1.5% of plant feed for the next five years.

The following analyses are completed for products of the SSRs.

- Coal VM content, sulphur content, FSI, mean maximum reflectance of vitrinite in oil
- (Romax), total moisture content, residual moisture content and fixed carbon content.
- Ash Mineral Analysis: silicon di-oxide (SiO<sub>2</sub>), aluminum oxide (Al<sub>2</sub>O<sub>3</sub>), titanium oxide (TiO<sub>3</sub>), iron oxide (Fe<sub>2</sub>O<sub>3</sub>), calcium monoxide (CaO), magnesium monoxide (MgO), dipotassium oxide (K<sub>2</sub>O), disodium oxide (Na<sub>2</sub>O), diphosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>), sulphur trioxide (SO<sub>3</sub>) and trace elements.
- Plasticity: log max fluidity, max fluidity, start temp, final temp and plastic range.
- Dilatation: dilatation, softening temperature, final dilatation temperature, maximum contraction and maximum dilation.
- Vitrinite Type Analysis.
- Reactives: vitrinite, exinite, reactive semi-fusinite and total reactives.
- Inerts: inert semi-fusinite, fusinite, inertodetrinite, macrinite, mineral matter and total inerts.

FRO technical staff maintains a significant dataset containing coal quality and washability data for each seam in each area. Component blends of selected seams from different pits can be combined in the spreadsheet to determine the average plant feed ash on an annual basis for each product.

Weekly evaluations between mined and projected volumes of waste and coal to reconcile the differences confirm the use of appropriate pit recovery factors for Fording River.

Coal recovery in the mining operation varies based on seam and location. In general, the thinner seams have lower associated mining recovery as losses at the seam roof, and floor coal/waste contacts represent a greater proportion of the seam. FRO stated that the recovery factors for each of the coal seams were developed based on seam location, dip, thickness and historic mine performance.

Due to the low coal recoveries experienced in areas immediately adjacent to fault zones and when mining thin seams, the following recovery factors were determined by FRO staff from reconciliation data and added to the 2011 Eagle and Turnbull block models.

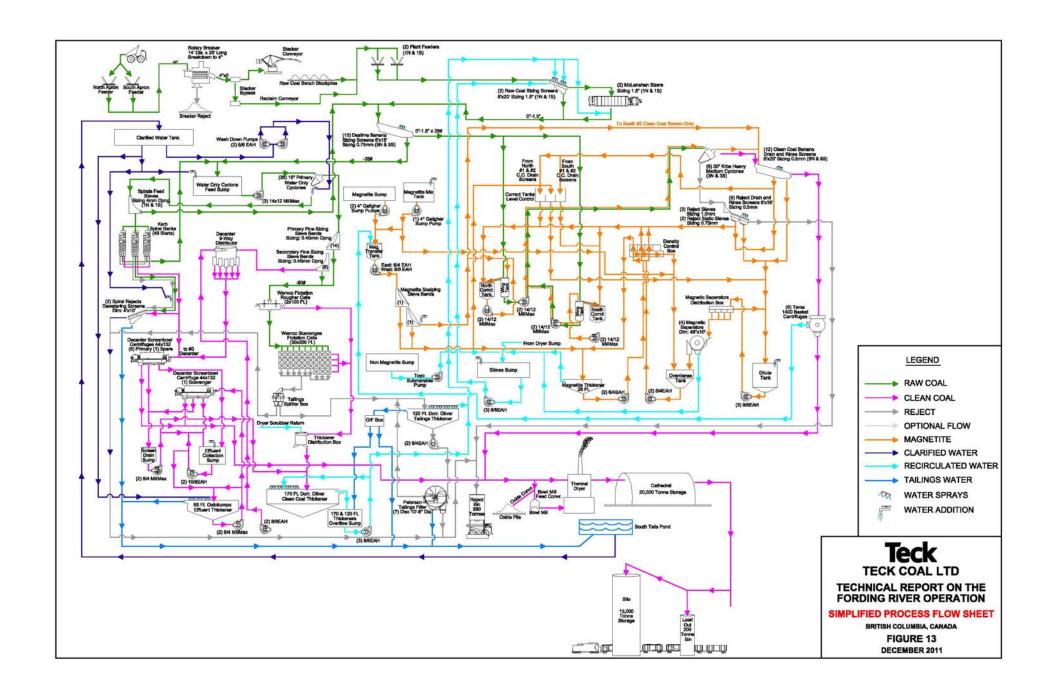
- 50% volume discount to coal within 25 m of a major fault (there is one in Turnbull and two in Eagle)
- 20% volume discount to all seams between 0.90 m and 1.10 m true thickness
- 10% volume discount to all seams between 1.11 m and 1.50 m true thickness

As a result of these changes, modeled coal within the Eagle pit shell is 3.1% less than the 2010 models, and the modeled coal within the Turnbull South pit shell is 13.2% less.

All metallurgical grade coal is transported to the preparation plant for processing. As with most coal

preparation plants, this is a gravity-based separation process that removes rock and non- carbonaceous material from ROM coal. The preparation plant is designed to use standard coal washing and thermal drying technology to produce a suite of clean metallurgical coal products.

Tailings from the preparation plant are transported to designated storage areas on the mine site. Average projected product coal yield is estimated at 61%.



# 18.0 PROJECT INFRASTRUCTURE

The location of existing mine workings, tailing ponds, waste dumps and important surface features are shown on Figure 4. Old mining operations include several pits located in the Eagle Mountain/Turnbull area to the east of the Fording River and in the Greenhills area located to the west of the river. Current mining areas include Eagle 4 Pit and Eagle 6 Pit, located on Eagle Mountain, Turnbull Pit located on Turnbull Mountain and Henretta Pit located on Henretta Ridge. Several old and active rock waste dumps are located in close proximity to these pits. Two tailings ponds are located to the southwest of the plant site, near the train loadout facilities. All pits, dumps, tailings ponds and on site infrastructure are located within the boundaries of FRO's leases, licences and freehold lands.

Coal mining activity has been ongoing in the area for 40 years, and the infrastructure is quite well developed, including all-weather roads and a railroad. The means of access to the property is via Highway 43 from Highway 3 at Sparwood, through Elkford to the Fording River Mine property. Goods are delivered primarily by transport trucks and occasionally rail. Area infrastructure is shown in Figure 4.

The CPR rail lines to Westshore Terminals are 1,150 km to the west in Delta, British Columbia. Coal is also delivered via rail to Neptune Bulk Terminals in North Vancouver, British Columbia, Thunder Bay Terminals in Thunder Bay. CPR and CNR own their own lines and have line sharing agreements in place to expedite traffic in certain areas.

The surface rights required for all mining operations are authorized through coal leases and licences held by FRO. Power to the site is supplied by BC Hydro via the BC & Alberta link, known as the Kan-Elk line. There is a single 138 kV power line into the FRO property. The line is a spur of a main hydro line. Two transformers are used to split the load at the local substation site. Two 13.8 kV power lines are located on either side of Eagle Mountain. Each line is capable of supplying power to the entire operation, and the second line acts as a back-up. A single 13.8 kV line runs to Henretta, which also powers the Turnbull Pit. Several substations are placed at key locations in the mine to reduce the voltage to levels appropriate for electric mining equipment.

There is a total of 11 groundwater wells in the FRO property. Water supply for the mine is provided by six of these wells. Make-up water for the plant comes from the wells and is augmented by flooded abandoned mine cuts and/or the Fording River, as needed. Three wells located south of the tailings ponds are used to recover seepage from the ponds. This water is pumped back into the pond. Two additional wells located by the environmental facilities (2 km to the south of the mine site) are used to provide the needs of the greenhouse.

Key on site infrastructure at FRO include the raw coal stockpiles, coal processing plant, rail loadout facilities, administrative, engineering and maintenance buildings, mine dry, powder magazine, and bulk explosive storage facilities. On site facilities are generally located in the valley floor along the Fording River.

Coarse reject is currently being hauled to the Upper Blake Reject Dump and backhauled to spoil areas in the active pits. As the Blake Dump is nearing capacity, coarse reject disposal is planned to be diverted to the Turnbull West Spoil.

The Castle expansion will require re-alignment of sections of Fording River and relocation of the rail line, access road and power line from the east side of the Fording River to the west side. The Castle expansion will also require a sedimentation pond to the south of the proposed Castle waste dump.

# 19.0 MARKET STUDIES AND CONTRACTS

Markets for Fording River Coal

FRO produces steelmaking coal for the global steel industry. It produces several different products which include Standard, Eagle and Premium brands. Fording River also produces a PCI and a thermal product, but these products represent a very small portion of the mine's production. Markets for the metallurgical coal products include Asia, Europe, North and South America.

#### Contracts

The Fording River mine production is blended with the products produced from other Teck operations then sold by Teck. In export markets, steelmaking coal is typically priced on a quarterly basis. Prior to 2010, pricing was agreed to under an annual, and in some cases, longer term contracts. These typically include annual re-pricing mechanisms. This practice changed due to the market movement becoming more frequent, larger in magnitude and more difficult to predict. Quarterly pricing allows better alignment with market conditions and more predictable deliveries.

The Fording River Mine's primary product is high quality metallurgical coal used to make coke for the international steel industry. Major customers of Fording River products are located in all international market areas where Teck sells steel-making coal. Sales distribution of Fording River products reflects overall geographic reach of Teck's diversified steel-making coal customers. The steelmaking product specifications for Fording River's three major products are listed in Table 19.1, Steelmaking Coal Product Specifications.

FRO also produces a small amount of PCI and thermal products. These products are a blend of a number of the seams, and represents the oxidized (typically outside edge of the mountain) portion of the seams mined. Although the majority of the product is consumed on site in the FRO coal-fired thermal dryer, some thermal product is sold on the international market. The tonnage of PCI and thermal coal sold over the last three years reflects the proportion of such products in Teck's overall product sales.

Table 19-1:

**Steelmaking Coal Product Specifications** 

Quality Parameter	Standard	Premium	Eagle
Ash (Wt.%)	9.5-10.0	8.75-9.25	8.5-8.7
Phosphorus (Wt.%)	0.07	0.075	0.07
Sulphur (Wt. %)	0.50-0.55	0.65-0.7	0.70-0.75
Volatile Matter (Wt.%)	22.5-24.5	24.5-26.5	26.5-28.5
RoMax (Reflectivity)	1.17-1.27	1.07-1.17	1.03-1.13
Fluidity (ddpm)	50-250	200-500	400-850

The majority of the coal product from FRO is transported 1,150 km by rail to either Westshore Terminals or to Neptune Bulk Terminals, in Vancouver, British Columbia to international steelmaker's plants. Teck holds a 46% interest in the Neptune Bulk Terminals. A small portion of Fording River coal products can also be transported to Ridley Terminals, in Prince Rupert, British Columbia for export. Coal product also travel East via rail to the steelmakers' plants or to Thunder Bay Terminals for shipment over the Great Lakes to the steel-making industry in Ontario and the United States.

# 20.0 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

As of Dec 31, 2011, all necessary Licences and permits and their subsequent amendments are in place for current operations at FRO. Monitoring requirements in these Licences and permits are undertaken as part of an in-house Environmental Management System (EMS) administered by FRO.

The EMS has been accredited since 2001 and is registered within the requirements of the International Organization for Standardization (ISO) 14001: 2004 framework. Activities are implemented and maintained to provide effective environmental management of all FRO coal mining and processing activities within the operations tenure. The Environmental Management System Manual (Teck 2008a), which conforms to the ISO 14001: 2004 standards, provides a guide to the system and identifies where different components of the system can be located. All related procedures, the EMS manual, forms and other documents are warehoused in digital format accessible at the operation.

Proposed future operations include re-mining and mining the Swift development area and mining the Castle Mountain development area. The first four phases of the Swift development (Swift Project) area was identified as meeting the thresholds requiring and environmental assessment (EA) under the British Columbia Environmental Assessment Act (BCEAA). It is anticipated that the remaining phases of the Swift development area and the Castle Mountain development area would also require an EA under the BCEAA. The need to subject these future operations to an EA and regulatory review under the Canadian Environmental Assessment Act (CEAA) would be triggered from the requirement for a federal permit, authorization or approval. It is anticipated that an authorization from DFO under Section 35(2) of the Federal Fisheries Act (Government of Canada 1985) may be required for the placement of waste rock in the upper reaches of the Swift and Cataract drainages, the placement of waste rock in the Chauncey Creek valley.

Engineered facilities at the mine site include water management infrastructure, waste rock spoils and tailings disposal areas. General guidance on the design of these facilities is as follows.

• Water management infrastructure: Drainage systems must be designed to divert clean surface runoff from undisturbed areas around the mine area to minimize the amount of water in contact with mine processes. Drainage systems must also be in place to collect and to treat mine water from the mine pits and dump areas before the water is released to receiving streams. Inflow design flood for the design of permanent water management infrastructure must be established based on the consequences on human life, the environment and the economy from the failure of that infrastructure (example of guidance is given in Canadian Dam Association (CDA) 2007).

- Waste rock spoils: Design of layouts for waste rock spoils must include considerations for spoil slope stability and selenium (Se) management strategies. Selenium management strategies follow guidelines contained in the report issued by the Strategic Advisory Panel on Selenium Management (SAPSM 2010). The geotechnical assessment of spoils must consider the requirements by the BC Mine Waste Rock Pile Research Committee (BCMWRPRC) Guidelines on investigation and design (BCMWRPRC, 1991a), operation and monitoring (BCMWRPRC, 1991b), review and evaluation of failure (BCMWRPRC,
- 1992), and rock drain research program (BCMWRPRC, 1999).
- Tailings disposal areas: These facilities must be developed to contain tailings within an enclosed area. Water from the tailings pond release to the environment must be through a controlled discharge point and treated as needed. A framework for the management of tailings is presented in Mining Association of Canada (MAC) (1998). Containment structures such as dikes and dams must be designed for inflow and seismic criteria established based on the consequences on human life, the environment and the economy from the failure of these structures (see CDA 2007).

The current Closure and Reclamation objectives at FRO are set in the Five Year/Conceptual Reclamation Report for 2008-2013, (Teck (2008b)). The intent is to re-establish previously existing end-land uses on a property average basis. In Teck (2008b), it states,

"The average land capability to be achieved on these reclaimed lands will not be less than the average that existed prior to mining, unless the land capability is not consistent with the approved end land use." Although current values were not provided, it is assumed that all requisite bonds are in place for FRO. FRO will be required to post additional bonds as new mining areas are developed. As production progresses, remediation and reclamation of the site will be undertaken in accordance with federal and provincial regulations. Required bonding amounts generally increase with disturbed area during the course of mining operations, and eventually bonded amounts are released as reclamation is successfully completed.

FRO is located within the asserted traditional territory of the Ktunaxa Nation, which is represented by the Ktunaxa Nation Council (KNC). Teck has formalized a working relationship with KNC through a protocol agreement on November 2007. This agreement provides work plans to address issues and concerns from KNC on FRO operations and development. Teck has indicated its commitment of meeting the needs of the communities in which it operates and to maintain a healthy environment and a vibrant economy for present and future generations.

#### 21.0 CAPITAL AND OPERATING COSTS

FRO is an on-going operation with significant operating history. Annual budget plans and long-range plans are developed on a regular basis. The plans forecast mine waste and volume and coal tonnage as well as project operating and capital mine expenditures on an annual basis. The plans are based on historical and projected equipment operating productivities and costs, and are reviewed to ensure that the projected equipment and labour operating hours and associated costs are valid. Included in the process is an estimate of the future expected price of coal, which is jointly provided by the marketing and finance departments of Teck. Also, as a part of the long range planning process, sensitivity analyses are done to evaluate changes in operating and capital expenditures as well as variations in coal pricing and exchange rates.

All aspects of the mining process are included in the operating plans, including waste, mining, coaling operations, and reclamation activities. Indirect costs such as taxes, royalties, administration and overhead are also detailed on an annual basis. Capital expenditures for development of new mining areas and equipment acquisitions and replacements are developed and a schedule of the spending is prepared. Capital Costs are summarized in the chart below.

Table 21-1 FRO Capital Expenditures 2012-2084

							(	CAP	ITAL	EX	PEN	DITU	JRES	5					
		2012 - 2084																	
		All Values in 000's CDN\$																	
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	12-'21	22-'29	30-'39	40-'49	50-'59	60-'69	70-'79	80-'84	Total
Development	300	3,600	11,150	6,500	5,800	1,800		2	•		29,150	402,937	165,134	25,935	128,154	46,408	48,409	17,948	864,074
Replacement Equipment	35,659	45,425	7,618	35,569	86,426	9,418	20,277	24,094	27,197	15,966	340,822	356,545	245,516	500,476	327,096	261,816	221,076	232,828	2,486,174
Sustaining	16,827	44,750	47,300	2,500	7,250	10,250	5,500	1,500	500	6,699	154,212	53,589	66,986	66,986	66,986	66,986	66,986	33,493	576,224
Expansion Equipment	6,500	65 <b>±</b> 6	28,620	37,520	4,260	42,880	48,240	53,600	26,800	36,420	315,940	127,880	28,620	498,480	107,200	28,620		12	1,106,740
Expansion	23,819	13,036	is.	50,000	50,000	23		2	-	2	149,711	1 1			1 .				149,711
Total Capital	83,105	106,811	94,688	132,089	153,736	64,348	74,017	79,194	54,497	59,084	989,835	940,950	506,256	1,091,877	629,436	403,830	336,471	284,269	5,182,923

Development includes access and infrastructure costs for Swift, Castle, Turnbull South and Turnbull Ridge. Replacement Equipment includes haul trucks, shovels, drills, loaders and support equipment. Sustaining includes Maintenance, Processing Plants and Selenium treatment. Expansion Equipment includes pit operating equipment required to increase production to 10 million clean tonnes per year, including haul trucks, shovels, drills and loaders. Expansion includes the processing plant capital required to increase production to 10 million tonnes per year.

Operating Costs are summarized in the Table below:

Table 21-2 FRO Operating Costs 2012-2084

	Operating Costs 2012 - 2084 millions \$								
	12-'21	22-'29	30-'39	40-'49	50-'59	60-'69	70-'79	80-'84	Total
Labour	1,684	1,411	1,905	2,125	2,118	1,939	1,918	768	13,868
Fuel and Power	1,443	1,258	1,464	1,822	1,909	1,642	1,637	648	11,823
Consumables	994	878	1,092	1,332	1,443	1,165	1,154	468	8,525
Repairs	1,412	1,202	1,620	1,844	1,905	1,642	1,621	655	11,902
Insurance and Taxes	74	59	74	73	73	73	73	37	537
Other	431	349	431	431	417	413	417	193	3,084
<b>Total Cash Costs</b>	6,037	5,158	6,586	7,628	7,866	6,875	6,819	2,770	49,739

Labour costs include Administration and Operating labour. Fuel and Power includes diesel, electrical power, natural gas and other fuels. Consumables include tires, lubes, explosives and accessories, and plant consumables. Repairs include repair supplies and external services. Insurance and taxes include property taxes and insurance. Other includes light vehicles, equipment leases, head office allocation and other charges.

Eric Jensen has reviewed the long range mine plans, cost budges and revenue forecasts developed by the mine and is of the opinion that the planning process meets or exceeds standard industry practices. Eric Jensen is also of the opinion that the planning, costing and pricing criteria and assumptions used in the planning process appear reasonable given the physical, economic and market conditions that the mine is operating within.

#### Mine Life

The current mine life is projected to be 2084. Based on a life-of-mine plan completed in November 2011, annual production can be maintained close to the 2011 forecast production level of 8 million tonnes of metallurgical coal for the next by 74 years.

#### Payback

Mining operations are ongoing and discussion of the payback period is not applicable at this time.

#### Taxes

Taxation and mine economics are included in the long-range mine planning process as previously discussed.

# 22.0 ECONOMIC ANALYSIS

No Economic Analysis is provided as Teck Resources Limited is a producing issuer and the Fording Operation is currently in production and the technical report does not include a material expansion of current production.

# 23.0 ADJACENT PROPERTIES

The FRO is one of six coal mining and processing operations owned by Teck. Five of these mine sites are in the East Kootenay coal fields in southeast British Columbia.

The FRO property is bounded to the north by the Elco Property, in which Teck has a 75% interest, and to the south by Greenhills Mine, which is controlled by Teck. The property is bounded on the east by the British Columbia/Alberta border. Teck does not hold any interests in this direction. The adjacent properties immediately surrounding FRO are shown in Figure 2.

The property north-west of the FRO leases (Bingay Creek Property) is controlled by Centermount Coal Ltd, wholly-owned subsidiary of Centerpoint Resources Inc. This report does not include information on the geology or mineralization of the Centermount Coal property.

# 24.0 OTHER RELEVANT DATA AND INFORMATION

There is no additional relevant information or data to be discussed.

# 25.0 INTERPRETATION AND CONCLUSIONS

#### Interpretation

It is Don Mills' opinion that the exploration data reviewed for the FRO area is sufficient to construct a reasonable interpretation of the geology of the area and to construct geological and coal quality models sufficient for a TR. FRO has been conducting exploration and in-pit drilling programs on the property since 1967. Over 6,100 holes with over 600,000 m of associated drilling depth have been completed on the FRO property.

Don Mills reviewed the available studies and geological data on file at FRO, and has the opinion that the exploration and geological work is thorough and conforms to reasonable standards. The results of the exploration and its interpretation have been consistent over time, lending confidence to the conclusions that have been reached. These include the following bulleted items.

- Based on the data available and the geological interpretation, it is Don Mills' opinion that the
  coal deposits in the FRO mine areas are mainly of Complex geology type; a small portion is
  considered Moderate geology.
- The FRO geological models for the mine areas reasonably represent the drill hole and other data provided and are a reasonable interpretation of that data. The models are sufficient for use as the basis of Resource and Reserve estimates.
- Based on a review of historic performance and the stated intentions of FRO to continue to modify
  the processing plant components to achieve historic product coal yield levels, it is Don Mills and
  Barry Musils' opinion that the FRO projected coal preparation plant yields are reasonable for the FRO
  coal seams.
- Based on an independent review of model preparation and use of exploration and modeling data, and using an external block model assembled using FRO cross-sectional representations of seam structure, Andrew Knight estimated total raw coal resources of 999 million mtrc, of which 255 million mtrc is Measured and 744 million mtrc is Indicated. Andrew Knight estimated total clean coal reserves of 626.5 million mtcc, of which 54.1 million mtcc is Proven and 572.4 million mtcc is Probable. The coal reported as Resources are exclusive of the Measured and Indicated Resources comprising the Proven and Probable Reserves.

It is Don Mills' opinion that coal sampling procedures, sample preparation; sample analysis and sample security procedures are adequate, within industry standards and sufficient to ensure representative sampling results.

#### Conclusions

Based on the results of the pre-feasiblity study, the qualified persons of this report conclude that FRO is economic, and pre-tax cash flows for proposed operations should generate a positive NPV, based on the saleable coal price levels and exchange rates forecast by Teck. As Fording River is an operating mine, no economic analysis or financial statements are provided.

# 26.0 RECOMMENDATIONS

Based on the study results described in this technical report, the Qualified Persons recommend that Teck Operations continue to development and operate the Fording River Mine. The Scope of Work for this report did not include preparation of coal market analyses or supply/demand projections with respect to the anticipated coal products beyond those analyses that Teck performs as a part of its ongoing business. The price expectations of FRO for corporate and mine planning appear to be reasonable in comparison with general market expectations. With 40 years of production history, it is the opinion of the Qualified Persons that the Fording River Operation continues to be a viable project for metallurgical coal production.

The Qualified Persons recommend that Teck continues to capture quality and geotechnical information to further optimize the pit designs. Additional exploration drilling, both core and reverse circulation, will enhance the understanding of the structural, geotechnical and geochemical nature of the ore body.

The Qualified Persons also recommend that further work on alternative waste movement methods be done to optimize the waste movement costs while maximizing backfilling opportunities.

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# **Signatures of Qualified Persons**

The undersigned prepared the Technical Report, NI43-101 Technical Report on Coal Resources and Reserves of the Fording River Operations, effective December 31, 2011 "Signed" Eric L. Jensen, P.Eng. February 19, 2012 "Signed" Donald E. Mills, P.Geo. February 19, 2012 "Signed" Andrew J. Knight, P.Eng. February 19, 2012 "Signed" Barry F. Musil, P.Geo. February 19, 2012