

## NORTHEAST REGION

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### SUMMARY AND TRENDS

The year 2007 would perhaps best be described as a year of consolidation in the Northeast Region. Late in 2006 Northern Energy and Mining Inc (NEMI – 20%), Hillsborough Resources Ltd (14%) and Anglo Coal Canada Ltd (66%) jointly created a new entity, the Peace River Coal Limited Partnership - the operating entity for which, Peace River Coal Inc (PRC), now manages most of the Northeastern British Columbia coal assets previously assigned separately to the companies. PRC operates the **Trend** mine south of Tumbler Ridge, to which it intends to add production from the adjacent **Roman Mountain** deposit in 2009.

Western Canadian Coal Corp (WCC) continued operation of the **Perry Creek** mine within the **Wolverine Project** west of Tumbler Ridge, and of the **Brule** mine south of Chetwynd. Late in 2006, Pine Valley Mining Corp suspended mining operations at its **Willow Creek** mine. WCC purchased that property and infrastructure in June 2007, with the intent of recommencing operations in 2008. In November 2007 WCC announced a conditional agreement to acquire Falls Mountain Coal Inc from Cambrian Mining PLC.

Other developed projects which the proponents intend to advance are **EB** (WCC), **Gething** (Canadian Dehua International Mines Group Inc), **Goodrich Central South** (First Coal Corp), and **Wapiti** (Hillsborough Resources Ltd).

Kennecott Canada Exploration Inc actively explored its **Murray River** property southeast of Tumbler Ridge, and both PRC and WCC were very active on their properties; but other projects saw little or no field activity in 2007. Estimated exploration expenditures for 2007 stood at \$10.5 million, down from \$19.9 million in 2006. Similarly 2007 drilling activity dropped to about 37 400 m, down from 66 000 m in 2006.

Locations for mines, developments and exploration projects are shown in Figure 2.1.

### COAL MINES

There were three operating coal mines in the Northeast Region in 2007, namely PRC's **Trend** mine, and WCC's **Wolverine (Perry Creek)** and **Brule** mines.

Peace River Coal's **Trend** mine, commissioned in January 2006, is located about 25 km south of Tumbler Ridge. Medium-volatile bituminous coal is being mined from the Lower Cretaceous Gates formation (D, E, F, G/I and J seams) with a cumulative coal thickness of 15 m, in a narrow pit that exploits a tight upright fold (Figure 2.2). Production in 2007 is targeted at 1 million tonnes/year of clean metallurgical coal, with a permitted annual production of 2 million tonnes/year. This output is expected to be reached in 2008, with a potential expansion to 6 million tonnes/year by 2011 as the nearby **Roman Mountain** deposit is added to production. Roman Mountain will also extend the mine life, currently estimated at about 10 years. Total reserves stand at 370 million tonnes. The work force, currently at about 80, will increase concomitantly to close to 300.

PRC's loadout facility, a few kilometres north of the Trend mine (Figure 2.3), was completed in 2007. From this starting point the company ships, through Ridley Terminals Inc at Prince Rupert, to markets in Japan, Korea and Europe. PRC is looking for opportunities to expand its markets further.

Western Canadian Coal's **Wolverine** Project, about 25 km to the northwest of Tumbler Ridge, saw continued production from the **Perry Creek** mine, which began operations in July 2006 (Figure 2.4). Current production of about 2.2 million tonnes/year of metallurgical coal is from the Gates Formation (E, F, G and J seams) with a cumulative coal thickness of 15 m.



Figure 2.2. Drilling and mining operations in the Gates Pit, Trend mine.

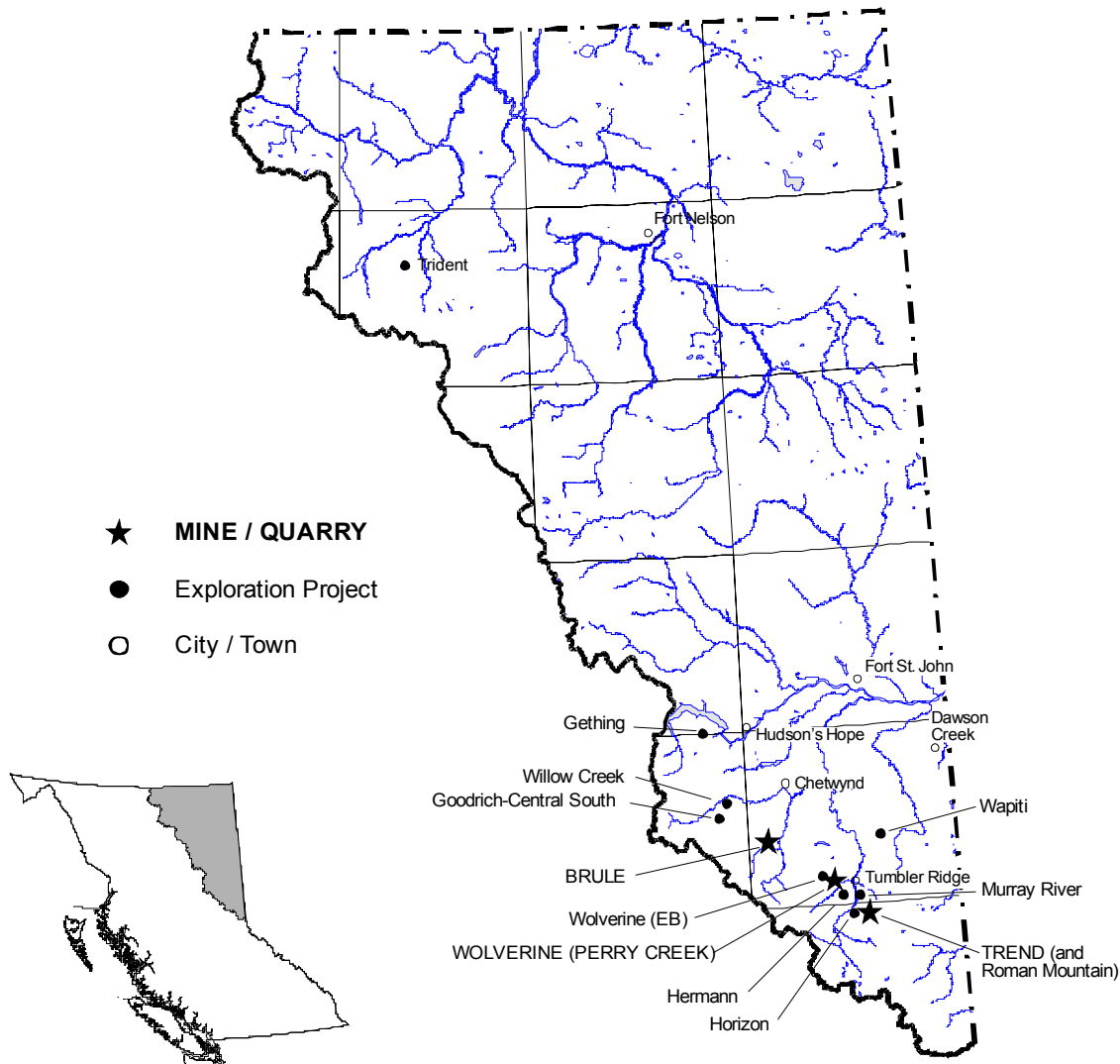


Figure 2.1. Operating mines, development projects and major exploration projects, Northeast Region, 2007.



Figure 2.3. Operations at Peace River Coal's Loadout Facility.

Output is projected to increase to 3 million tonnes/year—the capacity of the preparation plant (Figure 2.5). Shipping is through Ridley Terminals Inc to markets in Asia, Europe and South America. Current total reserves stand at 27.7 million tonnes. The Perry Creek pit is planned to be enlarged, and pit life extended thereby to about 10 years at the projected production rate.

WCC's **Brule** mine is located about 45 km south-southwest of Chetwynd adjacent to the former Dillon mine, which closed in September 2006 after reserves were exhausted. Coal is extracted from the Brule and Blind pits in the Gething Formation – from the Lower Seam, Upper Seam and Seam 60 with a cumulative thickness of 12.2 m (Figure 2.6). As in the case of the other producing mines in the Region, the rock units are deformed into tight upright folds, making for a long and narrow trough-shaped pit. Brule began shipping in March 2007 at a rate of 1 million tonnes/year, and the



Figure 2.4. Mining operations at Wolverine (Perry Creek - Phase 2).

plan is for an increase to 2 million tonnes/year of mostly PCI coal. Reserves stand at about 22 million tonnes, and on-lease exploration drilling of about 2400 m may extend this.

At present coal is trucked to the Bullmoose loadout facility, but plans are to build a road northward to the **Willow Creek** mine to make use of that facility's wash plant and shipping infrastructure. At present the Brule mine employs about 60 workers on-site.

Mining activity is summarized in Table 2.1.

## COAL EXPLORATION PROJECTS

There were 11 major exploration projects (Table 2.2), some of which were being advanced to the pre-development or development stage.

### *Hudson's Hope Area*

Canadian Dehua International Mines Group Inc intends to develop its **Gething** property, located about 25 km west of Hudson's Hope, as an underground operation. Potentially 400 workers would be employed,



Figure 2.5. Wolverine Project: grizzly and conveyor at Perry Creek mine.



Figure 2.6. Mining Operations in Blind Pit, Brule mine.

shipping 2.0 million tonnes/year of clean metallurgical coal to markets in Asia *via* the Ridley Island terminal at Prince Rupert. Production would be from the Lower Cretaceous Gething Formation, in which previous exploration had identified 8 significant coal seams in the upper 150 m. The inferred resource is 98 million tonnes of coal, and production from the mine and on-site preparation plant would be about 2 million tonnes of clean coal annually. By late 2007, the project was in the Environmental Assessment pre-application stage. Detailed exploration is planned for 2008, together with a feasibility study and the submission of the Environmental Assessment report.

### ***Chetwynd – Pine River Area***

Operations at Pine Valley Coal's **Willow Creek** mine were suspended in October 2006. The mine had produced PCI coal primarily from its 7C Pit, and metallurgical coal from its 4 Pit – in aggregate about 350 000 tonnes from Gething Formation seams. The mine area is more complex structurally than those to the south, and is characterized by tight anticlines and synclines overturned to the west. Deformation was sufficiently intense that, in places, coal was tectonically mobilized (Figure 2.7). In June 2007 Western Canadian Coal Corp purchased the property, with the intent of placing the mine under “care and maintenance” for 2007 and bringing it back into production in 2008. During 2007, 17 rotary and 3 core boreholes totalling 2001 m were completed.

First Coal Corp pursued a modest drilling program on its **Goodrich Central South** property southwest of the former Willow Creek mine. About 41 million tonnes of measured and indicated, and 32 million tonnes of inferred metallurgical coal resource has been identified in the Gething Formation and especially in the underlying Bickford Formation. First Coal plans to extract a 100 000 tonne bulk sample in 2008 leading to



Figure 2.7. Coal injection at Willow Creek.

a hoped-for mine permit in 2008-2009. Contingent upon a successful outcome, the property may advance to mine permitting in 2009.

### ***South of Tumbler Ridge***

Peace River Coal continued evaluation of its **Roman Mountain** project close to the Trend mine, completing almost 21 000 m of drilling. About 27 million in-place tonnes of coal had been identified as of June 2007. The coal measures at Roman Mountain occur in a tight upright syncline at the top of the mountain and are extend for up to 7 km along strike. The Environmental Assessment process for the project began in November 2007, and the intent is that it be completed in 2008 with production in 2009 subject to approvals being in place.

An additional 1600 m of drilling was completed at PRC's **Horizon** project, with an Environmental Assessment Application expected to be submitted late in 2008. About 42 million tonnes of metallurgical and PCI coal resource have been identified, with production expected beginning in 2010 at 1.2 million tonnes/year from gently-folded coal measures in the Gates and Gething Formations.

Kennecott Canada Corp had planned up to 7

**TABLE 2.1. FORECAST MINE PRODUCTION, NORTHEAST REGION, 2007**

Mine	Operator	Deposit Type/ Commodity	Work Force	Forecast Production (2007), tonnes	Proven and Probable Reserves (effective date)
Trend	Peace River Coal Inc	Metallurgical Coal	~80	1 000 000 t	21.6 million tonnes ROM (June 2007)
Wolverine (Perry Creek)	Western Canadian Coal Corp	Metallurgical Coal	~175	2 200 000 t	35.8 million tonnes ROM (16 March 2006)
Brule	Western Canadian Coal Corp	PCI coal	~60	750 000 t	22.5 million tonnes ROM (27 Oct. 2005)

**TABLE 2.2. SIGNIFICANT EXPLORATION PROJECTS, NORTHEAST REGION, 2007**

Property	Operator	MINFILE (Map ref.)	Commodity	Deposit Type	Work Program
Brule	Western Canadian Coal Corp	093P 007	ULV (Ultra-Low Volatile) PCI Coal	Sedimentary	DD (2418 m)
Gething	Canadian Dehua International Mines Group Inc	0930 025, 094B 013, 037	Coking Coal	Sedimentary	EN
Goodrich Central South	First Coal Corp	093O 034	Coking Coal	Sedimentary	FS, TR, DD (1000 m)
Hermann	Western Canadian Coal Corp	093I 031	Coking Coal	Sedimentary	EN
Horizon (Five Cabin)	Peace River Coal Inc	(093I 086)	Coking Coal /PCI Coal	Sedimentary	A, PD (1619 m)
Murray River	Kennecott Canada Exploration Inc	(093P 005)	Coal	Sedimentary	A, DD (921 m)
Perry Creek (EB)	Western Canadian Coal Corp	093P 015	Coal	Sedimentary	DD (4404 m)
Perry Creek (Wolverine)	Western Canadian Coal Corp	093P 025	Coking Coal	Sedimentary	PD, DD (4212 m)
Roman Mountain	Peace River Coal Inc	093I 030	Coking Coal	Sedimentary	A, PD (20 781 m)
Wapiti	Hillsborough Resources Ltd	093P 021	Thermal Coal	Sedimentary	TR, PD (800 m)
Willow Creek	Western Canadian Coal Corp	093O 008	Coking Coal/ PCI Coal	Sedimentary	A, PD (2001 m)

Work Program Abbreviations:

A = access; trail, road construction on claims; AB-EM = airborne electromagnetics; AB-MG = airborne magnetics; AB-RD = airborne radiometrics; BU (X tonnes) = bulk sample (weight in tonnes if known); CD = condemnation drilling; CQ = coal quality testing; CT = carbonization test (coal); DD (Xm) = diamond drilling totaling X metres; EN = environmental baseline studies/monitoring, remediation work; FS = feasibility studies; G = geology, mapping, etc; GC = geochemical sampling (rock, soil, silt, etc); GD = geotech drilling; GP = geophysics (general); IP = Induced Polarization; 3D-IP; MG = magnetics; MK = marketing-primarily for industrial mineral products; MS = metallurgical studies; OB = overburden drilling; OP-BU = open-pit bulk sample; P = prospecting; PD = percussion drilling; PF = pre-feasibility studies; R = reclamation; RC = reverse circulation drilling; TR = trenching, UG (X m) = X metres of underground development; UG-BU = underground bulk sample; UT = UTEM; VLF; WT = washability test (coal)

drillholes on its **Murray River** property southwest of Tumbler ridge to test seams in the Gates Formation; but abandoned the project after only two holes, totalling 921 m, had been completed encountering significant overpressures of water and gas. The company plans to return to the area in 2009.

### ***Wolverine Valley Area***

Western Canadian Coal undertook an extensive drilling program around the **Perry Creek** mine in its Wolverine Project area, with a view to defining and extending reserves to about ten years at the projected production rate. Forty-six core holes and 14 rotary boreholes were completed, totalling 4212 m. The Perry Creek pit is planned to be enlarged, and pit life extended thereby to about 10 years at the projected production rate.

Included in the Wolverine Project is the nearby **EB** deposit. Whereas the Gates Formation beds at the Perry Creek operation are characterized by tight upright folds, at EB the unit is nearly flat-lying. About 7.4 million tonnes of ROM metallurgical coal are at EB, and were delineated by some 4400 m of drilling in 2007.

WCC's **Hermann** project is located south of the Perry Creek mine and about 16 km southwest of Tumbler ridge. Exploration drilling on the property is complete, and the proposed mine remains in the Environmental Assessment process. Mining would be from four pits to access five seams (E, E4, F, G and J) the Gates Formation, having an aggregate thickness of 14.8 m. From a coal resource of about 9.0 million tonnes, production would be at the rate of 0.8 and 1.1 million tonnes/year.

Peace River Coal continued evaluation of its **Horizon** property with a drill program totalling slightly over 1600 m. A resource of about 42 million tonnes of metallurgical and PCI coal has been identified, with production – both open pit and underground – anticipated beginning in 2010 at 1.2 million tonnes/year.

### ***Dawson Creek to Tumbler Ridge***

Hillsborough Resources Ltd completed about 800 m of drilling at its **Wapiti** thermal coal project, located about 40 km northeast of Tumbler Ridge. The coal measures occur within the Upper Cretaceous Wapiti Group. Plans for coal production to supply a nearby electrical generation facility were shelved when the province declined to support coal-fired power generation. Nevertheless, assessment of the property continues and the company is exploring export opportunities. A measured resource of 80 million tonnes has been defined in this relatively flat-lying

section, and a development decision is expected in March 2008.

## **METAL EXPLORATION PROJECTS**

Activity on the **Trident** project joint venture (Action Minerals Inc and Aries Resource Corp), about 170 km west of Fort Nelson, was minimal in 2007. The project followed-up on several magnetic anomalies, one of which marked the Missy high grade copper mesothermal vein that was the subject of previous investigation.

## **OUTLOOK FOR 2008**

Coal production in 2008 is expected to increase from all of the producing mines in the Region. Production may be increased further if Western Canadian Coal brings the Willow Creek mine back into production and expands production at Wolverine by mining the EB deposit. Meanwhile, Peace River Coal will be working toward a further expansion of activity in the Trend mine area with production from the Roman Mountain deposit anticipated in 2009 and subsequent production from the Horizon (Five Cabin) deposit.

Proposals for new coal mines continue to be developed by Canadian Dehua International Mines Group Inc (Gething), First Coal Corp (Goodrich Central South), and Hillsborough Resources Ltd (Wapiti). Assuming that one or more these proposals comes to fruition, the next decade could see a major step-up in coal production.

## **ACKNOWLEDGMENTS**

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