NORTHEAST REGION

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SUMMARY AND TRENDS

The Northeast Region includes the area encompassed by the Dawson Creek, Fort St. John and Fort Nelson Forest Districts. The principal area of mining interest in the region is the Peace River Coalfield and only this area is discussed. This coalfield is within the Rocky Mountain Foothills and trends northwest from the Alberta border for more than 400 km to north of Hudson Hope. Within the coalfield there are two Lower Cretaceous, coal-bearing formations of economic significance. The younger Gates Formation is known for its medium to high-volatile bituminous coal, such as was extracted at the Bullmoose and Quintette mines. The older Gething Formation hosts low-volatile bituminous coal which has a long history of exploration, but limited mining restricted to the early 1900s.

Interest in the Peace River Coalfield was revitalized by a remarkable increase in world demand for metallurgical coal, spear-headed by a dramatic rise in the requirement for steel in China. As a result, international coal commodity markets improved dramatically.

Improved international coal markets resulted in price increases for spot market metallurgical coal sales that reached well in excess of US$100 per tonne. Prices for Pulverized Coal Injection (PCI) coal (a low-volatile, high rank coal with a growing market) and thermal coal have also risen substantially (although the increases are offset in Canada by a much higher CDN:US dollar exchange rate than in 2003). These elevated prices have led directly to an injection of capital to support acquisition of coal tenure, exploration, deposit appraisal and development of numerous coal properties. The region has not witnessed this level of activity since the 1970s and 1980s when the entire coal belt was staked and was the focus of extensive exploration.

Two open pit coal mines opened in the region (Figure 7-1 and Table 7-1). The Willow Creek coal mine of Pine Valley Mining Corporation commenced commercial-scale production in July, 2004. The Dillon coal mine, part of the large Burnt River property of Western Canadian Coal Corp, began operations in December, 2004. In addition, the proposed Wolverine coal mine, another Western Canadian Coal Corp project, formally entered the provincial Environmental Assessment review process.

An estimated $3.6 million was spent on exploration within the region during 2004 (Table 7-2). Comparisons with previous years are unavailable, but 2004 stands out, versus recent years, because the work was generally of an advanced nature.. The amount of exploration drilling totaled more than 13 000 metres. There were five major exploration programs in the region (c.f. four in 2003), one of which had expenditures exceeding one million dollars. In general, the larger programs included deposit appraisal drilling in order to establish reserves and resources that are compliant with National Instrument 43-101 reporting standards. Aggressive mine planning, including pre-feasibility and feasibility studies, base line environmental data collection and analysis, was conducted on the Burnt River, Trend and Wolverine properties. Smaller programs that took place late in the year, or were planned for the winter of 2004-2005, include Goodrich, Hermann, Lossan and Wapiti. In addition to field programs, compilation and review of data on the Sukunka, Saxon, Omega, Pine Pass and Belcourt properties, among others, was carried out. The location of significant exploration projects, and smaller exploration projects believed to have regional significance, are shown on Figure 7-1.

A total of 81 coal licenses, including those in the application stage, were acquired by industry during the first eleven months of 2004. These licenses cover 36 048 hectares and represent a more than four-fold increase over the area claimed in calendar 2003 (c.f. 31 licenses covering 8636 hectares).

COAL MINES

Previous coal production came from multiple pits at the Quintette mine and from the South Fork pit at the Bullmoose mine. The two operations produced medium-volatile bituminous coal for export markets. The Quintette mine operated from 1983 to 2000 producing 68.1 million tonnes of coal. The Bullmoose mine operated from 1983 to 2003 and produced approximately 34.1 million tonnes of coal. Combined production from the Quintette and Bullmoose mines from 1984 to 1999, a period when the mines were operating at or near capacity, averaged 5.9 million tonnes of clean coal per annum.

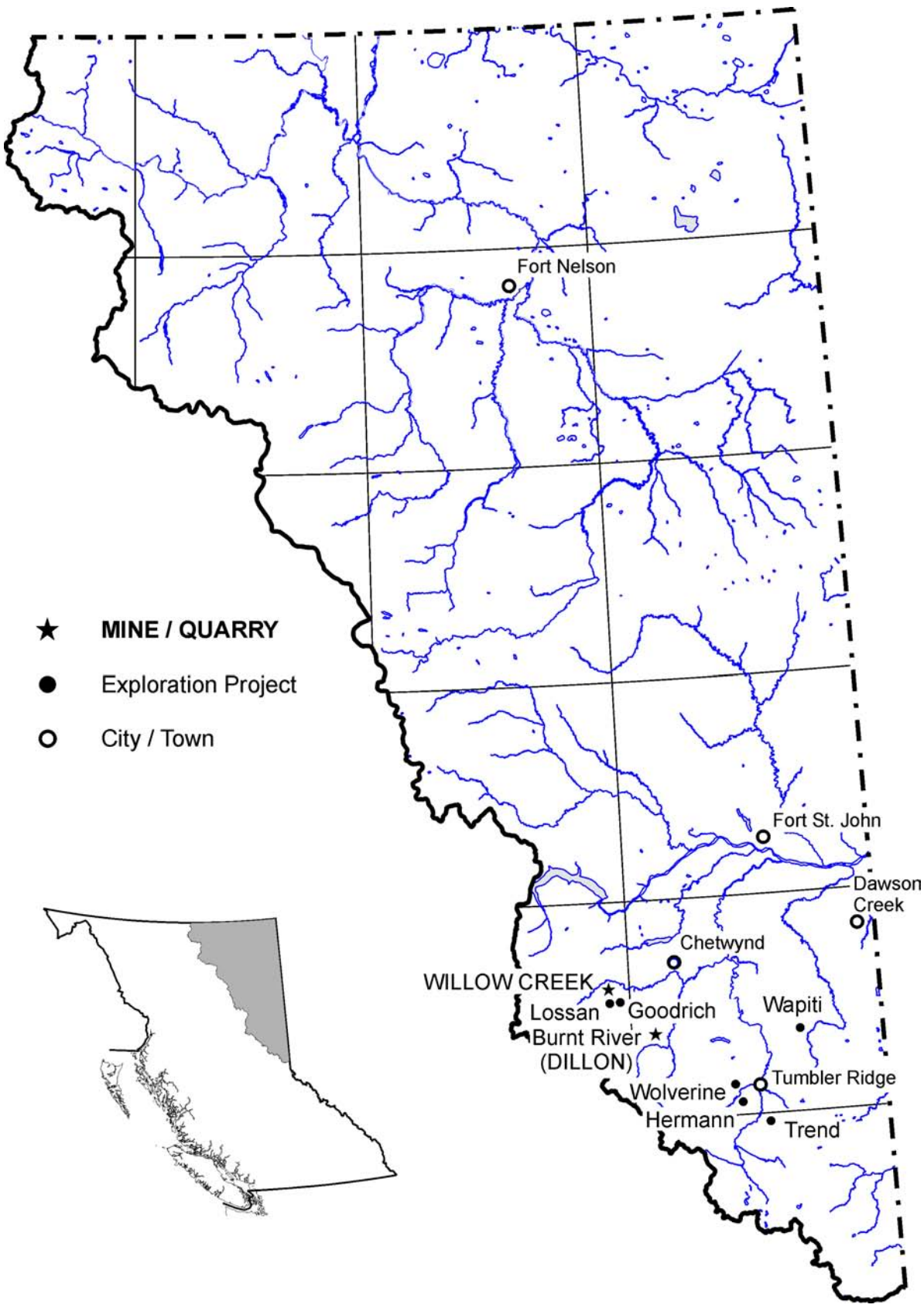

Figure 7-1. Operating mines, major exploration programs and selected smaller exploration projects in the Northeast Region.

TABLE 7-1. PRODUCTION AND RESERVES FOR OPERATING MINES, NORTHEAST REGION

Mine	Operator	Deposit Type / Commodity	Forecast Production in 2004 (tonnes or kilograms)	Proven and Probable Reserves (at Jan. 1, 2004)
Coal				
Dillon	Western Canadian Coal Corp	Metallurgical (PCI) coal	30,000 t	1,560,000 t
Willow Creek	Pine Valley Mining Corp	Metallurgical (PCI) coal	225,000 t	15,200,000 t

The opening of the Willow Creek mine in July, 2004, and the opening of the Dillon mine in December, 2004, marks a new era of coal mining in the northeast (Table 7-1). Pine Valley Mining Corp owns the Willow Creek mine and Western Canadian Coal Corp owns the Dillon mine. The two entities are among six or seven highly motivated junior mining companies which are positioned to take full advantage of the strong international coal markets.

WILLOW CREEK

Pine Valley Mining Corporation commenced commercial-scale production on July 30, 2004, at its 900 000 tonnes per year Willow Creek coal mine (Figure 7-2), 45 kilometres west of Chetwynd. Willow Creek is the first coal mine to open in the northeast since the Quintette and Bullmoose mines began production in 1983.

The Willow Creek property was explored in the early 1980s for its potential for underground mining. Interest waned as coal prices became depressed and it was not until the mid-1990s when Globaltex Ventures Ltd, the precursor to Pine Valley Mining Corporation, began to re-examine the potential of the property. A total of 84 400 tonnes of coal was mined and shipped to Japan for testing during 2001 and 2002.

Figure 7-2. Mining of coal measures from the Peninsula pit, ***Willow Creek mine****.*

The coal measures at Willow Creek occur within the Lower Cretaceous Gething Formation on the east limb of the Peace River anticline. Test results showed that coal from the 6 and 7 seams is low-volatile bituminous, high rank coal suitable for pulverization and injection into blast furnaces (Ryan et al., 2004). Current mineable reserves for the property total 15.2 million tonnes.

The use of small-scale in-pit crushing equipment, a temporary load-out and a 25-car rail siding constrained production to about 45 000 tonnes per month for the first four or five months of operation. This occurred while permanent crushing, wash plant and load-out facilities were under construction and an extension to the rail siding was being completed. All but the wash plant are expected to be complete by the end of 2004 when monthly production is expected to increase to 90 000 per month. The coal wash plant is not expected to be complete until mid-2005. The company's estimate for the total capital cost of the mine development is CDN$24 million. In 2005, Pine Valley Coal will apply for an amendment to its Mines Act permit that will allow production of up to 2.0 million tonnes of clean coal per annum. The current total mine workforce is approximately 60, but would increase to more than 100 if mine expansion proceeds. Employment during the peak of construction exceeded 110 workers.

Pine Valley Coal owns licenses that cover the nearby **Pine Pass** (Minfile 093O 007), Crassier and Fischer deposits. In 2003, a reserve of 9.5 million tonnes (NI 43-101 compliant) was calculated for part of the Pine Pass deposit, located north of the Pine River between Cleveland and Fisher creeks. Exploration is expected to proceed on one or more of these properties in 2005. Each property has potential to host an economic deposit that could supplement production at Willow Creek.

DILLON MINE

Western Canadian Coal received a Mines Act permit on September 8, 2004 for its 240 000 tonnes per annum Dillon coal mine, part of the **Burnt River** coal property (Minfile 093P 007-008). Clearing, stripping of soil and overburden, and site construction began in mid-September and continued through an unseasonably mild

TABLE 7-2. MAJOR EXPLORATION PROJECTS, NORTHEAST REGION

Property	Operator	Minfile (NTS)	Commodity	Deposit Type	Work Program
Burnt River (Dillon & Brule)	Western Canadian Coal Corp	093P 007, 008	PCI Coal	Sedimentary	RD (2416 m); DD (462 m); GP; BU (680 kg); CQ; GT; EN; PF; FS
Goodrich	Kennecott Canada Exploration Pty Ltd	093P 024	PCI / Thermal Coal	Sedimentary	RC; DD; GP; CQ planned
Hermann	Western Canadian Coal Corp		Met. Coal	Sedimentary	RD (~600 m); DD planned; CQ planned
Trend	NEMI Northern Energy & Mining Inc	093I 030	Met. Coal	Sedimentary	A; G; TR; DD (2724 m); RT (4531 m); BU (~9 t); CQ; EN; PF; R
Wapiti	Aurora Coal & Minerals Ltd	093P 021	Thermal Coal	Sedimentary	G; RT (~500 m planned); CT
Wolverine (Perry Creek & EB)	Western Canadian Coal Corp	093P 015, 025	Met. Coal	Sedimentary	DD (~1000 m); BU; GT; CD; PF

fall and early winter. Mining commenced in early December and, under a deal struck with the Bullmoose Operating Corporation, coal is trucked 94 km to the Bullmoose loadout facility for transfer onto rail cars. The first shipment of coal left the loadout on December 6, 2004. Under full-scale production the mine will produce PCI coal at a rate of 240 000 tonnes of clean coal per annum for approximately 6.5 years. At full capacity the project will employ 40 to 50 mine workers and an additional 30 will be employed to haul coal to the load out.

The Burnt River property is centered about 50 km southwest of Chetwynd. It is underlain by folded coal-bearing stratigraphy comprised of marine and non-marine shales, carbonaceous shales, siltstones and sandstones of the Gething Formation. Three main coal seams have been identified on the property and include Seam 60, Upper Seam and Lower Seam. The low-volatile, high rank coals are preserved in two northwest trending synclines. The Dillon syncline contains the Dillon deposit with established reserves of 1.56 million tonnes run-of-mine (ROM) coal with a strip ratio of 2.2:1 BCM:t ROM coal. The Upper Seam and Lower Seam are found in the Dillon deposit and have a true thickness of 2.19 metres and 6.06 metres, respectively. The much larger Owl syncline contains the Brule deposit that has an approximate coal resource of 33 million tonnes. All three seams are represented at Brule. Western Canadian Coal completed a major exploration program on the Brule deposit in 2004. The program included about 2700 metres of rotary and diamond drilling and large-diameter spot coring of coal seams to obtain a bulk sample for coal quality testing. Baseline environmental monitoring and on site pre-feasibility work was also completed. The company is designing a mine plan for the Brule deposit that, together with Dillon mine, would produce 1.5 million tonnes of clean coal annually for 12 to 15 years. Western Canadian Coal plans to submit its application for Brule to the Environmental Assessment Office in 2005.

Western Canadian Coal signed two key agreements in December that ensure its product will get to port. CN Rail has agreed to transport coal to port, and Ridley Terminals Inc, at the Port of Prince Rupert, will provide coal handling services for a minimum of 10 years.

EXPLORATION AND DEVELOPMENT PROJECTS

Western Canadian Coal Corp applied for an environmental assessment certificate for the development of the **Wolverine** metallurgical coal mine. The proposed mine includes the **Perry Creek** (Minfile 093P 025) and **Mount Spieke**r or **EB** (Minfile 093P 015) deposits. The project is located in the Wolverine Valley about 25 km northwest of Tumbler Ridge and is strategically positioned adjacent to the CN Rail Tumbler Ridge Branch Line. The province's Environmental Assessment Office (EAO) accepted the proposal in May and initiated a formal review. At the completion of the review process in mid–December, the EAO provided a summary assessment report along with the project application to the provincial ministers of Energy and Mines, Sustainable Resource Management, and Water Land and Air Protection for their decision on whether to issue an Environmental Assessment Certificate. Pending certification and permit approvals, construction could begin as early as the second quarter of 2005. Production is anticipated to commence in the fall of 2006. The mine would employ a workforce of about 200.

The coal measures of interest occur within the Lower Cretaceous Gates Formation in a gently southeast plunging open syncline. Four seams (E, F, G and J

seams) have a maximum cumulative thickness of up to approximately 15 metres and occur over a stratigraphic interval of 90 metres within the Middle Gates member. The coals have a rank of medium-volatile bituminous and are generally categorized as high quality or premium metallurgical coals. The measured plus indicated, in-place resources of immediate interest for the E, F, G and J seams at Perry Creek total 32.73 million tonnes. The Perry Creek pit is expected to produce 17.1 million tonnes of run-of-mine coal during 8 years of operation at an overall strip ratio of 5.7:1 bank cubic metres of waste per tonne run-of-mine coal (BCM:t ROM). The planned rate of production is 1.6 million tonnes of clean metallurgical coal per annum. Development of the nearby Mount Spieker deposit, containing 8.0 million run-of-mine tonnes, would likely follow adding substantially to the mine life of the project. An estimated 25 million tonnes of coal would remain following open pit mining and would be considered for possible underground development.

NEMI Northern Energy and Mining Inc completed a major exploration program on its **Trend** metallurgical coal property (093I 030), located 25 km south of Tumbler Ridge and approximately 12 km south of the dormant Quintette coal mine. The program was the largest in the region and included more than 7000 metres of rotary and diamond drilling. Large diameter coring of the seams (Figure 7-3) produced approximately 10 tonnes of coal that will be subjected to a range of coal quality tests and a washability test. Substantial environmental baseline studies provided the information required for a detailed prefeasibility study. The coal measures on the Trend property lie on the northeastern flank of Roman and Quintette mountains. Sandstones, shales, and conglomerates of the Lower Cretaceous Gates Formation and similar lithologies of the underlying Gething Formation are interbedded with multiple coal seams. The sedimentary succession forms a northwest-trending, steeply northeast dipping homocline. The coal reserves of interest are contained in five seams (D, E, F, G/I and J) in the Gates Formation. These five seams have a cumulative thickness of more than 15 metres on the South block.

*Figure 7-3. Large diameter drilling of multiple seams on the **Trend** property.*

Past exploration on the property outlined inferred resources of 30 million tonnes on the South block and 23 million tonnes on the Extension block. The Roman and Hambler blocks offer potential to greatly expand the property's overall resource.

NEMI is expected to submit a *Mines Act* permit application for a 240 000 tonne per annum coal mine in the first quarter of 2005 to the Ministry of Energy and Mines for review and approval. The small mine would be centered on the 6-metre thick 'L seam' that crops out in the central part of the South block. A trough-shaped pit, measuring 150 metres wide by 1900 metres long would allow the release of approximately 1 million tonnes of raw coal.

NEMI is also expected to apply to the EAO in mid-2005 for certification of a 2 million tonne ROM coal mine. Conceptual mine planning has identified a narrow, 8 km long pit that would be developed in several phases and release coal from both the upper Gates and lower Gething formations. An estimated 30 million tonnes ROM coal would be released over a 15-year period. Coal would be hauled a distance of about 35 km from the pit area to a rail siding and loadout facility north of the Quintette minesite.

EXPLORATION PROJECTS

The **Wapiti** thermal coal property (Minfile 093P 021) of Aurora Coal & Minerals Ltd is located 30 kilometres north of Tumbler Ridge. The property is underlain by sandstone, siltstone, mudstone and conglomerate of the Upper Cretaceous Wapiti Group. Exploration in 2004 targeted the No. 1 seam on the Heritage block, a near surface, shallow-dipping seam that ranges between 1.6 – 2.1 metres thick. A series of shallow rotary drill holes, 10 to 35 metres in depth, confirmed depth to seam and thickness of seam. Spot coring of the seam provided approximately 200 kilograms of sample for a combustion test. Previous exploration on the property outlined a surface mineable coal resource of 45.4 million tonnes at a strip ratio of 11.5:1 bank cubic metres of waste per tonne of coal (BCM:t ROM). Information from the 2004 program will enable the company to calculate a reserve for part of the deposit that conforms to NI 43-101 standards. Collection of base line environmental data also began in the summer and will continue through 2005. The company intends to complete a feasibility study in 2005 that details a one million tonne per year open pit coal mine.

Kennecott Canada Exploration Pty Ltd acquired coal licenses covering more than 30 000 hectares in the Pine Pass area west of Chetwynd. The Kennecott tenure covers the headwaters of Falling, Hasler and Highhat creeks south of the Willow Creek mine. This area is part of former **Goodrich** property (Minfile 093P 024) that Gulf Canada Resources Inc explored from 1979 to the mid-1980s. The coal measures are interbedded with

mudstones, siltstones and sandstones of the Lower Cretaceous Gething Formation. Multiple coal seams occur near the top of the formation and are medium to high volatile bituminous coals suitable for the metallurgical coal market. In 2004, Kennecott completed only two holes of a planned 12-hole rotary and core drilling program. The company will resume their efforts early in 2005.

Cline Mining Corporation used existing drill hole and bulk sample information on its **Lossan** coal property, centered about 15 km southeast of the Willow Creek mine, to calculate a NI 43-101 compliant resource. The 'surface mineable' resource is 20.02 million tonnes of medium-volatile bituminous coal in the measured, indicated and inferred categories. Lossan was once part of the Gulf Canada Resources' Goodrich property, where earlier work identified two principal coal seams within the Lower Cretaceous Gething Formation. The two seams average 4 and 8 metres in thickness and are suitable for PCI coal and metallurgical coal markets. A 10 to 20-hole drilling program, originally planned for 2004, was deferred until early in 2005.

Western Canadian Coal began an exploration drilling program in mid-December on its **Hermann** property, located south of the Wolverine River, about 5 km southeast of the proposed Perry Creek pit. The field program, including rotary drilling and spot coring of coal seams of Gates Formation seams, will extend well into the new year.

Late in the year, a joint-venture agreement was formed between NEMI and Western Canadian Coal to explore and develop the **Saxon** and **Belcourt** properties. An extensive fieldwork program is planned for both properties in 2005.

OUTLOOK FOR 2005

Completion of the wash plant and extension of the rail siding at the Willow Creek mine will permit the operation to produce at least 90 000 tonnes of clean coal per month. The small Dillon mine will reach its annual rate of 240 000 tonnes per annum while the nearby proposed Brule mine moves toward EA certification and permitting. The small 'L Seam' mine proposed for the Trend property will likely proceed through permitting and reach production before the end of the year. Coal production for 2005 is estimated to be approximately 1.5 to 2.0 million tonnes. EA certification and permitting of the proposed Wolverine coal mine will enable site clearing and mine construction to get underway.

Exploration and deposit appraisal programs that began late in calendar 2004 will likely be expanded in 2005. Advanced stage projects will be directed toward EA certification and permitting.

Many of the coal licences granted late in the year will see sizeable exploration programs in 2005. Major programs are expected on Lossan, Goodrich, Sukunka, Belcourt, Saxon and others, including the Five Cabin property of Murray River Coal Ltd. In all, exploration is expected to increase substantially over the levels witnessed in 2004.

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