COAL ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TITLE OF REPORT: Coal assessment report for the Willow Creek coal lease -- Volume 3: Willow Creek Mine area

TOTAL COST: **$5,258,624.18**

AUTHOR(S): **C.G. Cathyl-Huhn, L.R. LeMay, and P. Singh**

SIGNATURE(S):

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

YEAR OF WORK: **2007 through 2013**

PROPERTY NAME**: Willow Creek**

COAL LICENSE(S) AND/OR LEASES ON WHICH PHYSICAL WORK WAS DONE:
Coal Lease 389294

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: **93O.008**

MINING DIVISION: **Liard**

NTS / BCGS**: NTS 93O/9 / BCGS 93O.059 and 93O.069**

LATITUDE: **55° 35’ 33.3" North**; LONGITUDE: **122° 14’ 18.1" West** (at centre of work)

UTM Zone: **10N** EASTING: **548000** NORTHING: **6161000**

OWNER(S): **Pine Valley Coal Ltd.**

MAILING ADDRESS: **200-235 Front St. (P.O. Box 2140), Tumbler Ridge, BC, V0C 2W0**

OPERATOR(S) [who paid for the work]: **Willow Creek Coal Partnership**

MAILING ADDRESS: **200-235 Front St. (P.O. Box 2140), Tumbler Ridge, BC, V0C 2W0**

REPORT KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralisation, size and attitude). **coal, Minnes Group, Bickford Formation, Bullhead Group, Cadomin Formation, Gething Formation, Gaylard Member, Bluesky Formation, Moosebar Formation, Bullmoose Member, Chamberlain Member, Cowmoose Member, anticlines, synclines, thrust faults**

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: **Coal Assessment Reports 490, 526, 667, 861, 936, 937, 952, 966 and 972; Petroleum Reports 582, 746, 863, and 1161.**

SUMMARY OF TYPES OF WORK IN THIS REPORT		EXTENT OF WORK (in metric units)	ON WHICH TENURES
GEOLOGICAL (scale, area)			
	Ground, mapping	**nil**	
	Photo interpretation	**nil**	
GEOPHYSICAL (line-kilometres)			
	Ground (Specify types)	**nil**	
	Airborne	**nil**	
	(Specify types)		
	Borehole		
	Gamma-density	**17,381.47 metres**	**389294**
	Resistivity	**17,339.85 metres**	**389294**
	Caliper	**17,339.85 metres**	**389294**
	Deviation	**17,067.26 metres**	**389294**
	Dipmeter	**nil**	
	Others **(gamma-neutron)**	**17,139.70 metres**	**389294**
	Core drilling of **38 boreholes**	**2,633.34 metres**	**389294**
	Non-core (rotary) drilling of **157 boreholes**	**19,621.17 metres**	**389294**
SAMPLING AND ANALYSES			
Total number of samples		**275**	**389294**
	Proximate	**251**	**389294**
	Ultimate	**14**	**389294**
	Petrographic	**68**	**389294**
	Vitrinite reflectance	**68**	**389294**
	Coking	**nil**	
	Wash tests	**26**	**389294**
PROSPECTING (scale/area)		**nil**	
PREPARATORY/PHYSICAL			
Line/grid (km)		**nil**	
Trench (number, metres)		**nil**	
Bulk sample(s):		**nil**	

Section 7 (pages 77-78), Appendix C, and Appendix D remain confidential under the terms of the Coal Act Regulation, and have been removed from the public version.

http://www.bclaws.ca/civix/document/id/complete/statreg/251_2004

1 Table of contents

1.1 List of tables

1.2 List of maps

2 Introduction

The Willow Creek Mine block comprises the northeasterly portion of a larger coal lease (the Willow Creek coal lease, covered by Crown tenure 389294, with an overall area of 6151 hectares). The Willow Creek coal lease, although held as one tenure, has been in recent years been explored and developed as three distinct blocks, although these blocks do not have independent identities as mineral tenures in their own right:

- Willow Creek Mine block, the subject of the present study.
- Willow West block, situated along the southwestern bank of Willow Creek, and thus lying to the west of Willow Creek Mine;
- Willow South block, situated along the northeastern bank of Willow Creek, and thus lying to the southeast of Willow West; and

Each of these blocks are reported within a three-volume series of coal-assessment reports (of which the present report is the third volume), presenting a comprehensive discussion of geology, current exploratory activity, coal-quality investigations, and geophysical data, placed within the context of an updated geological map.

To reiterate, this report concerns the Willow Creek Mine block. As such, current exploration comprises rotary-drilling and associated downhole geophysical surveys, conducted in years-2007 through 2013. No disturbant work has subsequently been done at Willow Creek Mine, to the date of writing in mid-June of 2015.

Historic work (**Table 3-2**) comprises drilling of 531 boreholes (likewise chiefly non-coring rotary-holes) and ancillary downhole geophysical surveys

Current work (**Table 3-3**) comprises drilling of 195 boreholes (the majority of which were non-coring rotary-holes) and an ancillary programme of downhole geophysical surveys (as documented in **Appendix A** of this report).

2.1 Scope of report

This report has been compiled and submitted by Willow Creek Coal Partnership (WCCP) in keeping with the provisions of the *Coal Act* and the *Coal Act Regulation*, with respect of exploratory activities on Crown coal tenures within British Columbia.

This report documents exploratory work completed on the Willow Creek Mine block of WCCP's Willow Creek coal lease, situated within the Mink-Brazion coalfield, in the northeastern part of British Columbia. WCCP's current exploratory work was conducted in years-2007 through 2013, with the drilling of 195 boreholes at Willow Creek Mine. No subsequent physical exploration work has been done at Willow Creek Mine.

2.2 Situation and objectives

The Willow Creek coal lease, and the Willow Creek Mine block thereof, are located in the Peace River region of northeastern British Columbia (**Map 2-1**), an area which has seen considerable coal-exploration activity since the late 1960s.Walter Energy Inc., and predecessor and associated firms such as Willow Creek Coal Partnership, have for some years operated metallurgical-coal mines within this area.

From 1980 onward, the Willow Creek Mine block has been drilled for coal. Work done in years-2007 through to 2013, subsequent to Western Coal's acquisition of the Willow Creek property, is considered as 'current' and therefore reportable exploratory work, as documented in **Appendix A** of the present report. Current work has consisted of construction and maintenance of roads, trails and drillsite pads within the Willow Creek Mine block, acquisition of borehole geophysical data, and the measurement of physical and chemical properties of coal samples through laboratory analysis, including petrographic and reflectometric studies.

2.3 Property description

The Willow Creek Mine block occupies the northeastern portion of the Willow Creek coal lease (Tenure 389294), within the Liard Mining District of northeastern British Columbia, situated within the eastern half of map-area 93O/9 of Canada's National Topographic System. The aggregate area of the Willow Creek coal lease is 6151 hectares. Tenure 389294 was granted by the Crown on March 31, 1998 (as listed in **Table 2-1**).

Table 2-1: Tenure details of the Willow Creek coal lease

Tenure Number	Map	Block	Units	Date Acquired	Area (hectares)	Former coal lease number
389294 (84 units)	93O/9E	B	61, 62, 63, 64, 71, 72, 73, 74, 81, 82, 83, 84, 85, 86, 87, 88 91, 92, 93, 94, 95, 96, 97, 98	March 31, 1998	6151	Coal Lease 15
	93O/9W	F	1, 2, 11, 12, 21, 22, 31, 32 41, 42, 51, 52, 61, 62, 63, 64 71, 72, 73, 74, 83, 84, 93, 94			
	93O/9E	G	3, 4, 5, 6, 7, 8, 9, 10, 13, 14, 15, 16, 17, 18, 19, 20, 25, 26, 27, 28, 29, 30, 35, 36, 37, 38, 39, 40, 47, 48, 49, 50, 57, 58, 59, 60			
Totals:	1 tenure		84 units		6,151 hectares	

Note: Map sheets listed are within the National Topographic System. Blocks and Units refer to the British Columbia Coal Tenures Grid System, whose unit cells are based upon NAD 27 surveys, and translated into NAD 83 coordinates for purposes of mapping.

To reiterate, the Willow Creek Mine block is an informal operational subdivision of the coal lease, with no formal stand-alone identity within the Crown mineral-tenure system of British Columbia. The outline of the Willow Creek Mine block is depicted upon **Map 2-2** and **Map 2-3** of the present report.

2.4 Coal production history

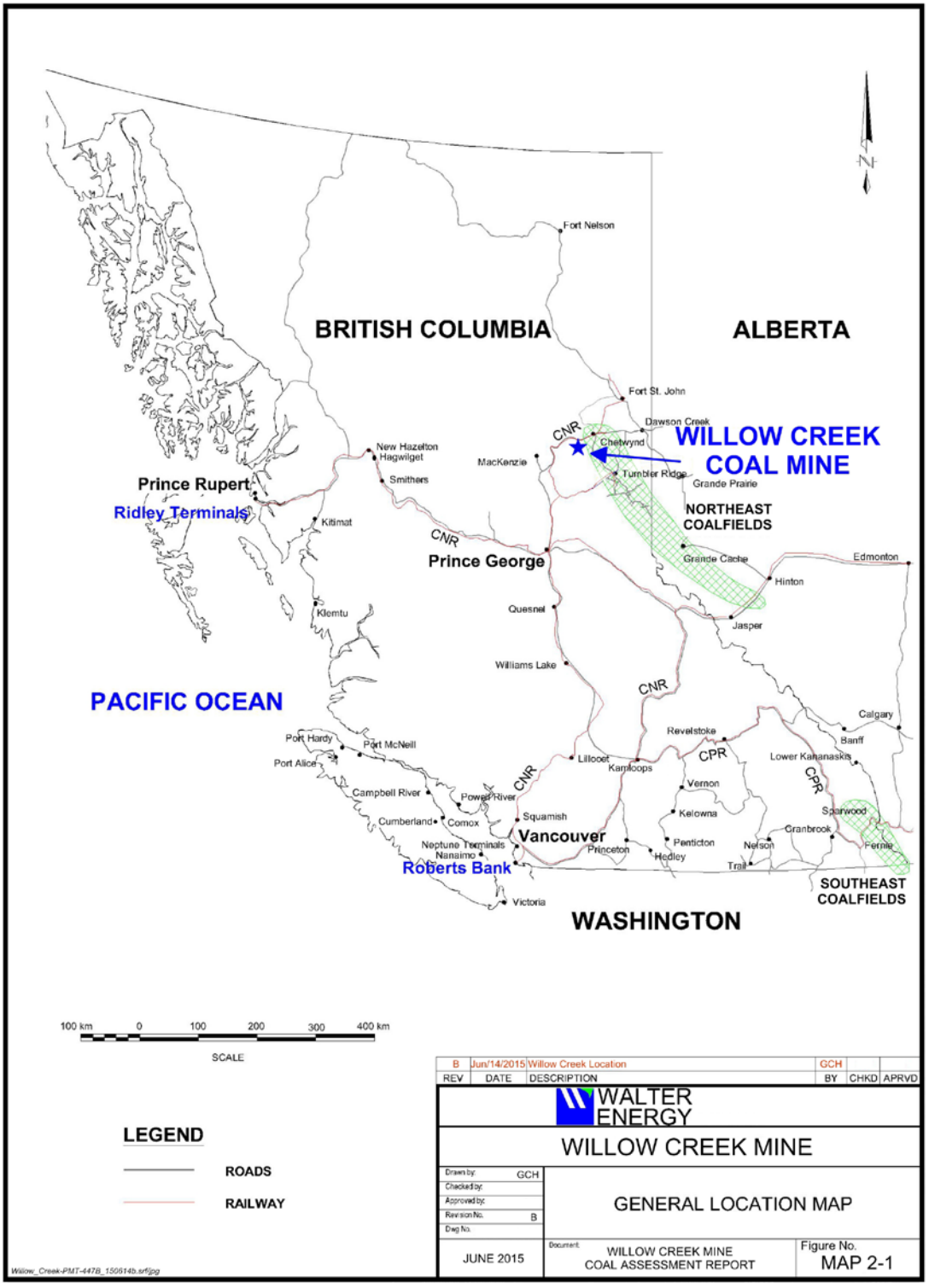
Willow Creek Mine's coals have been extensively worked by open-pit operations, commencing in year-2001 and suspended in 2014.

2.4.1 Production under previous ownership

Trial-scale coal production at Willow Creek Mine began in year-2001 and continued into 2002, comprising bulk-sample and test-pit operations, presumably under a limited production permit (although this has not yet been confirmed).

- In July of 2004, large-scale commercial production began, continuing until operations were suspended in October of 2006.

- Also in July of 2004, construction began on the Willow Creek coal-washery, being completed in February of 2005.
- In October of 2004, construction of railway-sidings and associated coal-loading facilities began, being completed December of 2004.



2.4.2 Production under Western/Walter ownership

Members of Western Coal's technical staff made an examination of the then-dormant Willow Creek Mine property in 2007 (L. Evans, personal communication, June 2015), leading to an acquisition of the mine from its previous owners. Commercial-scale coal production recommenced in August of 2008, was again suspended from November of 2008 to May of 2010, and continued until curtailment of production in April of 2013, followed by idling of the mine in June of 2014. Willow Creek Mine is presently standing-by on a care-and-maintenance basis. During the Walter/Western period of operation, certain capital projects were undertaken:

- In 2010, construction commenced on the North Haul Road, being completed in 2012.
- In March of 2011, construction commenced on the North Sediment Pond, being completed in August of 2012.
- Also in year-2011, an expansion of the coal-washery was commenced, being completed in February of 2012.

Workshops and other requisite support facilities (including administrative and technical offices) exist at Willow Creek Mine, and were in active use prior to suspension of mining. A coal-washery (as mentioned above) and railcar-loader with railway-sidings are also present.

2.4.3 Production statistics

During the overall period of operation (including intervening times of suspension), Willow Creek Mine has produced slightly more than 5.3 million tonnes of coal. Breakdown by year and material type is presented as **Table 2-2**.

Table 2-2: Production statistics by year and material type

	Bank cubic metres			Tonnes		
Year	Total mined	Waste	Coal	Total mined	Waste	Coal
2001	186,690	160,000	26,690	452,031	416,000	36,031
2002	215,811	180,000	35,811	516,345	468,000	48,345
2003	0	0	0	0	0	0
2004	1,594,963	1,412,000	182,963	3,918,200	3,671,200	247,000
2005	5,748,955	5,219,615	529,339	14,285,608	13,571,000	714,608
2006	4,779,093	4,328,231	450,861	11,862,062	11,253,400	608,662
2007	0	0	0	0	0	0
2008	1,249,000	1,212,000	37,000	3,201,150	3,151,200	49,950
2009	0	0	0	0	0	0
2010	6,415,816	6,078,157	337,659	16,259,048	15,803,208	455,840
2011	6,285,249	5,594,582	690,667	15,478,314	14,545,913	932,401
2012	16,228,129	15,245,144	982,985	40,964,404	39,637,374	1,327,030
2013	7,942,988	7,433,970	509,018	20,015,496	19,328,322	687,174
2014	1,727,828	1,581,502	146,326	4,309,445	4,111,905	197,540
Totals	**52,374,520**	**48,445,201**	**3,929,319**	**131262104**	**125957523**	**5304581**

Notes: table prepared by Allen Baron, EIT. Figures for years prior to 2010 were taken from annual reports. Year-2010 and onward figures were taken from monthly reconciliation files.

2.5 Geological setting of the Willow Creek Mine block of the Willow Creek coal lease

Near-surface sedimentary rocks within and adjacent to the Willow Creek Mine block are of Lower Cretaceous age, comprising (from youngest to oldest) the basal formations of the Fort St. John Group, and the entirety of the Bullhead Group. The older Minnes Group is inferred to underlie the Willow Creek Mine block, but it is not mapped at outcrop at any point, and it likely has not yet been reached by drilling within the block.

Coal has been extensively drilled (**Map 2-2**) within the Gaylard Member of the Gething Formation of the Bullhead Group (**Map 2-3**). Younger rocks, of the remainder of the Fort St. John Group, the Dunvegan Formation, and the yet-younger Alberta Group, were almost certainly originally-present at Willow Creek Mine, but these rocks have been stripped away by erosional processes.

Other than the coals which have been the focus of exploratory activities within the Willow Creek Mine block, associated sedimentary rocks comprise conglomerates, sandstones, siltstones, mudstones, carbonaceous mudstones, concretionary ironstone, accompanied by thin but distinctive bands of igneous tuff. Marine mudstones and siltstones occur within the Fort St. John Group (Wickenden and Shaw, 1943; Hughes, 1963). The local occurrence of bioturbated mudstones and siltstones in the basal half of the Gething Formation's Gaylard Member hints at the presence of marine conditions during deposition. The facies of the majority of the Gaylard Member, and also of the underlying Cadomin and Bickford formations, are otherwise fluvial.

Bedrock within the Willow Creek Mine block is moderately- to complexly-deformed, possibly more-so than is the case in the adjoining Willow West and Willow South blocks (James, 1998; Jordan and Acott, 2005; Cathyl-Huhn *et al.*, 2015). Southwest-verging thrust-faults, some of which may be folded, and associated northwest-striking, southwest-verging folds predominate at Willow Creek Mine, consistent with a structural setting within a passive-roof duplex system. Folding of the near-surface thrust-faults, and refolding of some of the folds, are very likely the result of tectonic ramping of younger, underlying, northeast-verging thrust-faults. The opposing vergences of the shallow and deep structures is consistent with the triangle-zone structure which is well-established to be present within the Pine Pass area (McMechan, 1985; Lingrey, 1996).

Within the Gaylard coal-measures, numerous coal zones have been found by historic and current drilling at Willow Creek Mine. Coal zones are numbered in downward succession from the No.1 (near the top of the coal-measures) through No.12, following a long-established schema (McKechnie, 1955). As well, a coal zone at the immediate top of the coal-measures has been given the local name of Bird Seam, although this coal is by no means correlative with the Bird Seam as previously-recognised (Wallis and Jordan, 1974) in other coal properties of northeastern British Columbia.

Most of the coal zones contain one or more major coal beds, often associated with laterally-branching splits, stringers and stringer plies (as summarised in **Table 5-1**). Individual coal beds and sub-beds range in thickness from a few decimetres to several metres.

At Willow Creek Mine, as in several other areas within the Mink-Brazion coalfield, the Gaylard coal-measures may be conveniently subdivided into five informal divisions, numbered in upward succession from Division 1 at the base of the Gaylard, to Division 5 at the top of the Gaylard. Drilling has established that the thickest, and possibly more laterally-extensive, coals occur within Divisions 3, 4, and 5 of the Gaylard Member, at Willow Creek Mine.

Access:

Road (main)

Road (other)

Trail

Seismic line

Drainage:

River or creek

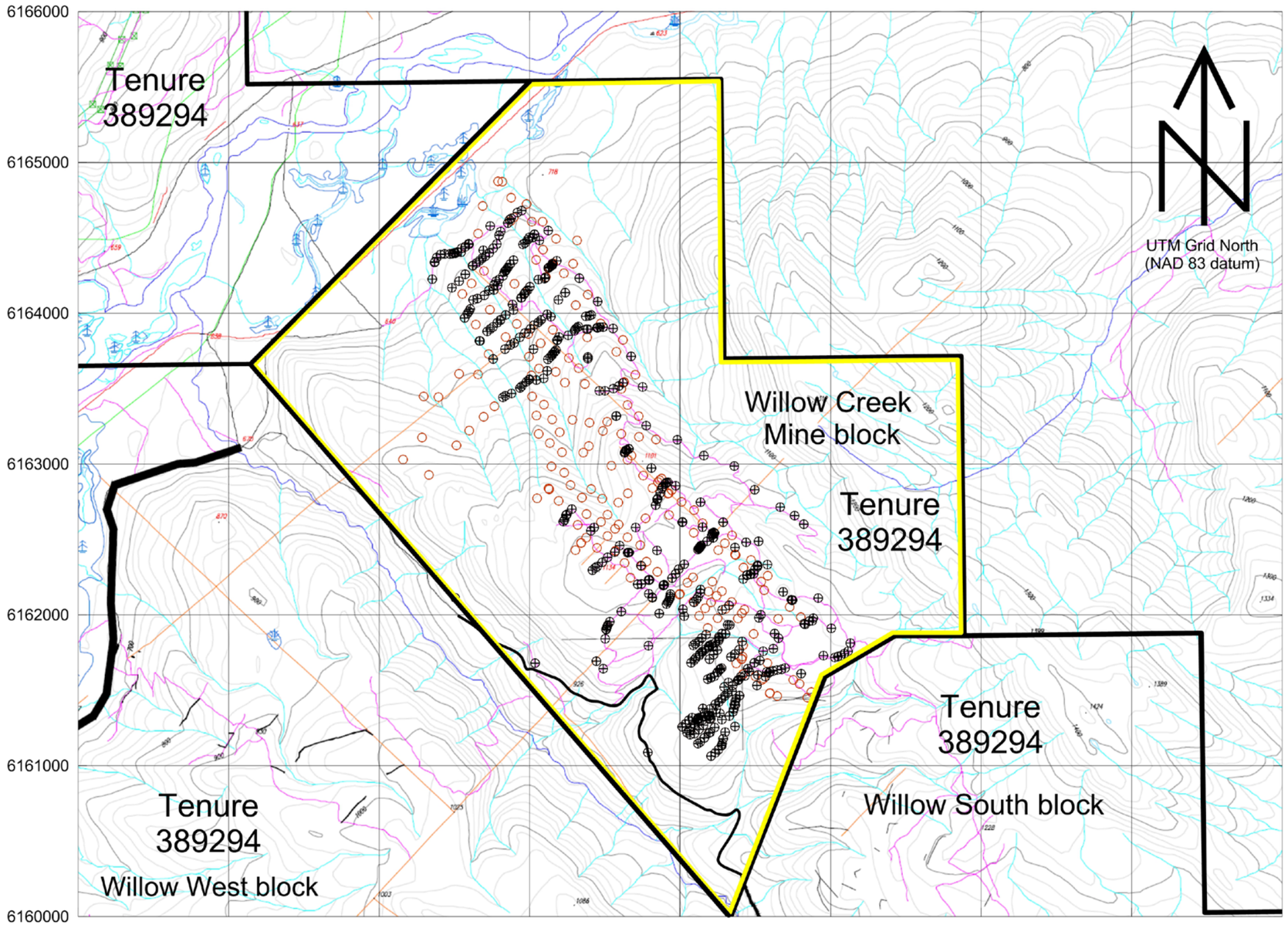
Stream (perennial or intermittent flow)

Outline of Willow Creek Mine block within Willow Creek coal lease

Boreholes:

⊕ Historic (pre-2007)

○ Current (2007 to 2013)

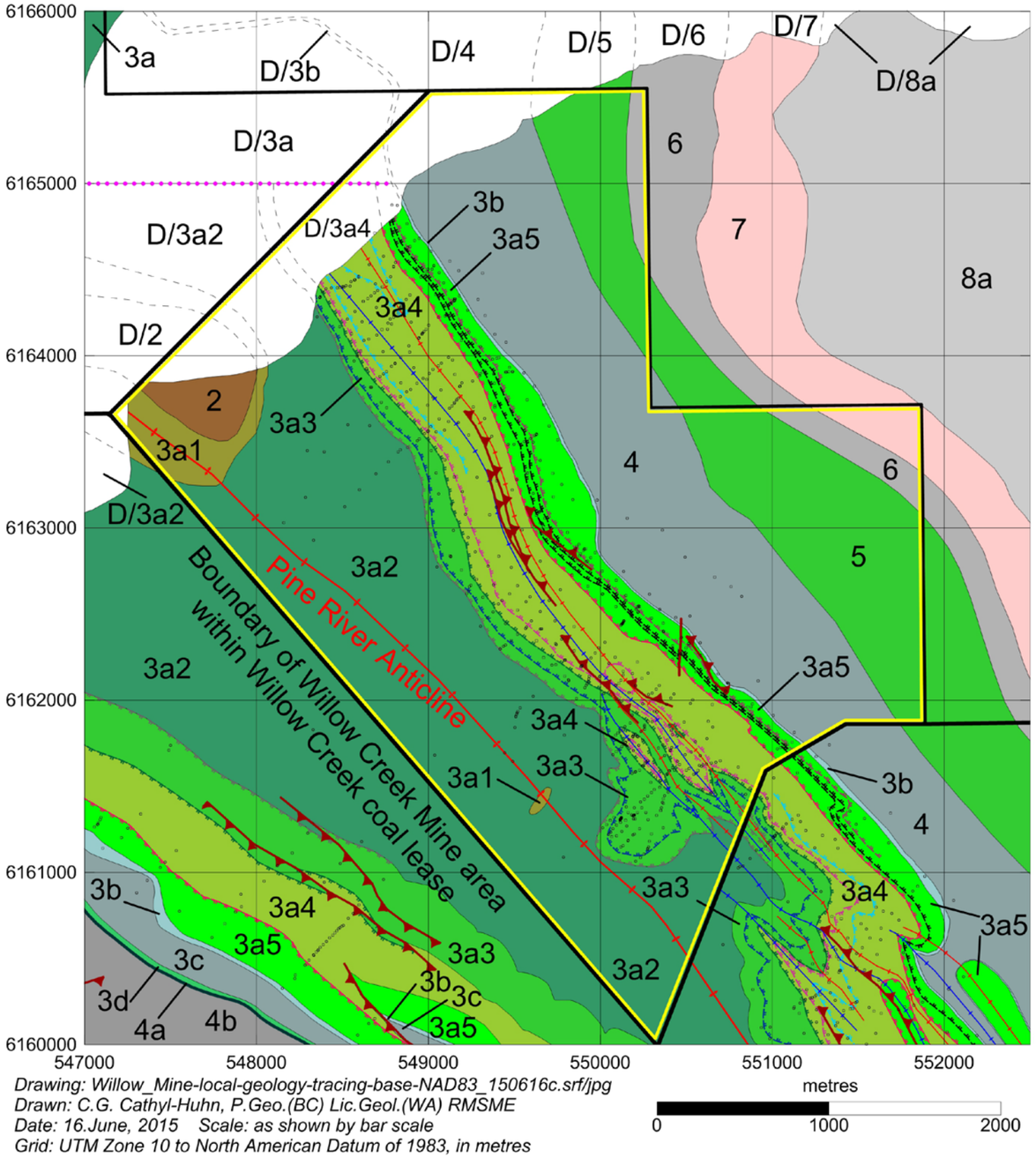


Base mapping: British Columbia government TRIM-series map sheets, at original scale of 1:20,000. Elevations are in metres above geodetic datum; contour interval is 20 metres.

Drawing: Willow_Mine-topography_150612d.srf/jpg
Drawn: C.G. Cathyl-Huhn, P.Geo.(BC) Lic.Geol.(WA) RMSME
Date: 12.June, 2015 Scale: as shown by bar scale
Grid: UTM Zone 10 to North American Datum of 1983, in metres

Willow Creek Mine Coal Assessment Report

Map 2-2:
Coal Tenure and Topography



Drawing: Willow_Mine-local-geology-tracing-base-NAD83_150616c.srf/jpg
Drawn: C.G. Cathyl-Huhn, P.Geo.(BC) Lic.Geol.(WA) RMSME
Date: 16.June, 2015 Scale: as shown by bar scale
Grid: UTM Zone 10 to North American Datum of 1983, in metres

STRATIGRAPHIC LEGEND:

QUATERNARY

D — Alluvium and colluvium -- fluvial and glaciolacustrine deposits; moraines; talus; possible landslide deposits

FORT ST JOHN GROUP (Albian)

8a — Hasler Formation -- siltstone and mudstone; minor sandstone; ironstone as bands of concretions

7 — Boulder Creek Formation -- conglomerate, sandstone, and siltstone; coal

6 — Hulcross Formation -- siltstone and mudstone; minor sandstone and tuff; ironstone; basal pebbly gritstone

5 — Gates Formation -- siltstone, sandstone, conglomerate; minor coal

4 — Moosebar Formation:

- 4c — Spieker Member -- siltstone, sandstone; minor mudstone
- 4b — Cowmoose Member -- mudstone, minor tuff and ironstone
- 4a — Green Marker -- erosive-based, locally-pebbly, glauconitic mudstone and sandstone
- 3d — Chamberlain Member -- sandstone and siltstone
- 3c — Bullmoose Member -- siltstone and sandstone; mudstone; minor tuff

3b — Bluesky Formation -- glauconitic sandstone and gritstone; siltstone and mudstone

BULLHEAD GROUP (Hauterivian to Early Albian)

3 — Gething Formation:

- 3a — Gaylard Member -- siltstone, sandstone and coal; minor conglomerate, minor tuff
- 3a5 — Division 5 -- siltstone, sandstone and mudstone; coal (zones 1, 2, 3 and 4)
- 3a4 — Division 4 -- siltstone, mudstone and sandstone; coal (zones A, M, 5 and 6)
- 3a3 — Division 3 -- sandstone and siltstone; minor mudstone; coal (zones 7 and 8)
- 3a2 — Division 2 -- siltstone and mudstone; minor sandstone and coal (zone 9)
- 3a1 — Division 1 -- sandstone; minor siltstone, mudstone, and conglomerate (zones 10 through 12?)

2 — Cadomin Formation -- sandstone; minor conglomerate

MINNES GROUP (Tithonian to Valanginian)

1 — [Older clastic sedimentary rocks -- present only at depth, not known to outcrop or subcrop within map-area]

Coal Zones:

No.1 zone
No.2 zone
No.3 zone
No.4 zone
A-zone
No.5 zone
No.6 zone
No.7 zone
No.8 zone

not shown owing to sparse control

No.9 zone
No.10 zone
No.11 zone
No.12 zone

Lateral change in stratigraphic detail

Structure:

Anticlinal trace

Synclinal trace

Thrust-fault (with barbs on over-thrust plate)

Control:

Borehole

WALTER ENERGY

Willow Creek Mine Coal Assessment Report

Map 2-3: Bedrock geology of Willow Creek Mine block

Outline of Willow Creek Mine block within Willow Creek coal lease

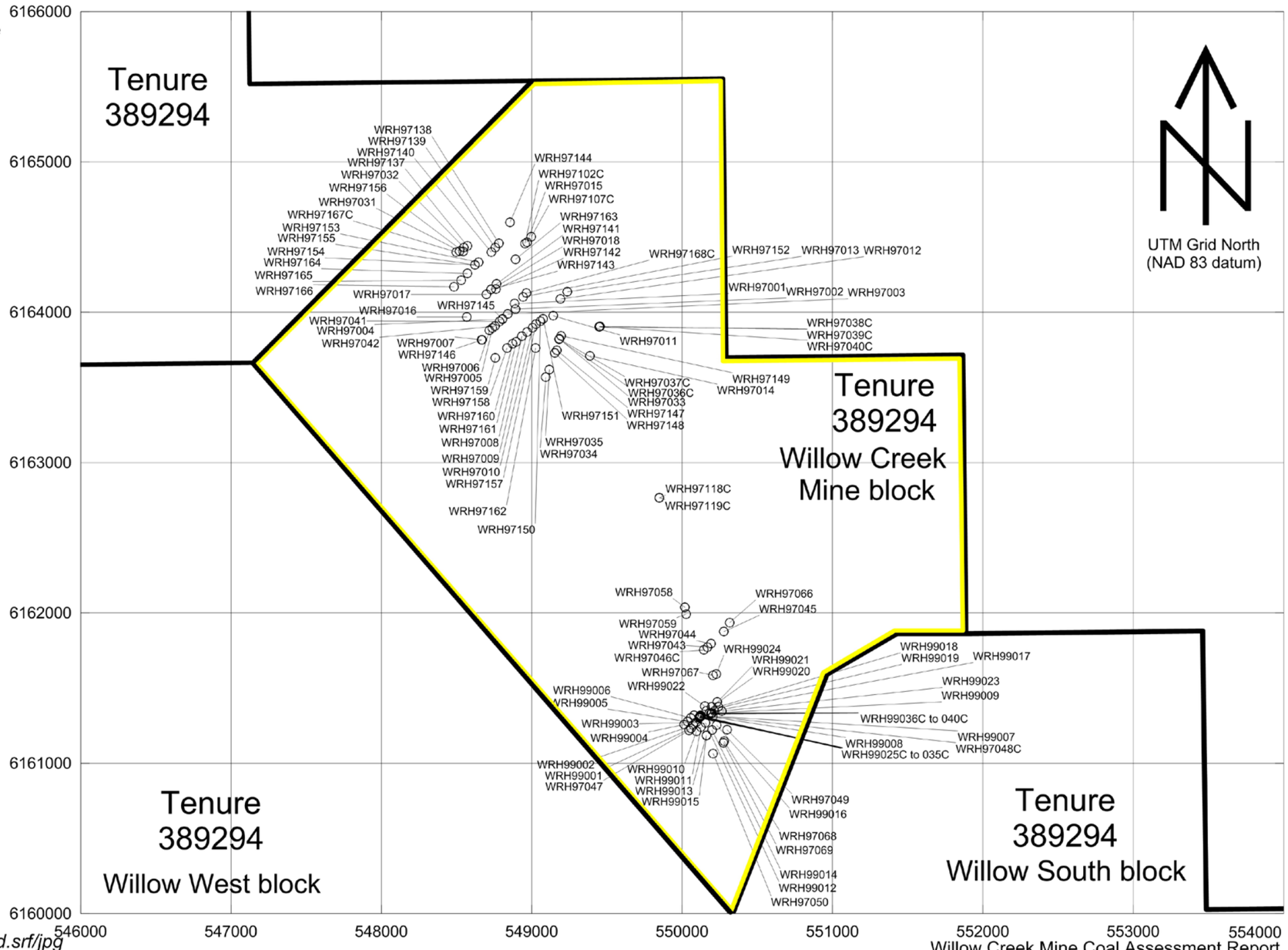
Boreholes:

○ Years-1997 and 1999

Note: positions are unavailable for numerous cored coal-quality boreholes drilled in 1997, other than as very approximate positions depicted in a plan (Anonymous, 1997, Figure 6) dated August 31, 1997, contained within a report dated November 27, 1997, prepared by Pine Valley Coal Ltd.

Positions are lacking for the following WRH97-series boreholes:

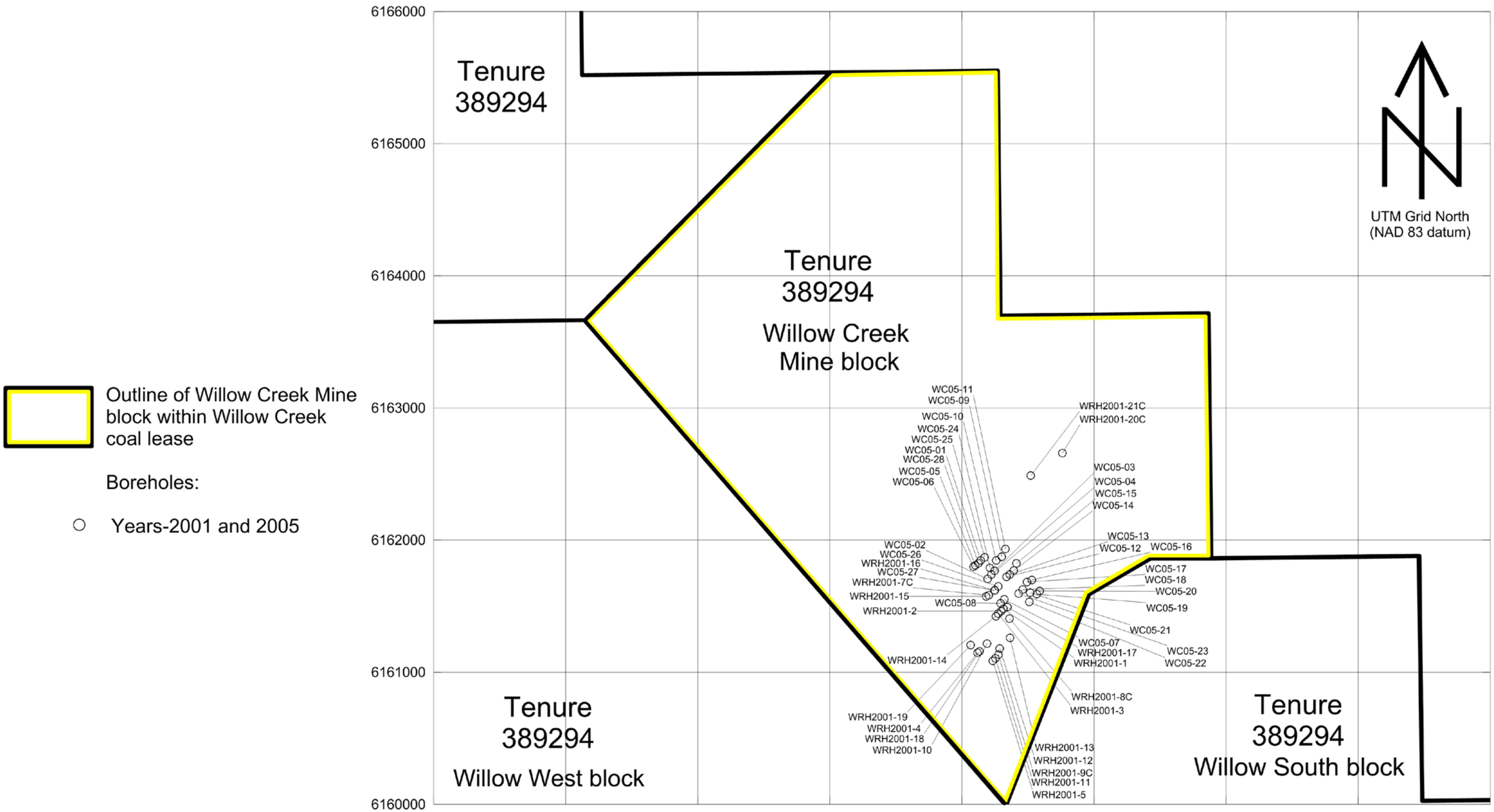
101C, 103C to 106C, 108C to 117C, 117.1C, 120C to 136C, 169C to 194C; also lacking for borehole WSH97008.



Drawing: Willow_Mine-1997-99-drilling_150614d.srf/jpg
Drawn: C.G. Cathyl-Huhn, P.Geo.(BC) Lic.Geol.(WA) RMSME
Date: 14.June, 2015 Scale: as shown by bar scale
Grid: UTM Zone 10 to North American Datum of 1983, in metres

Willow Creek Mine Coal Assessment Report

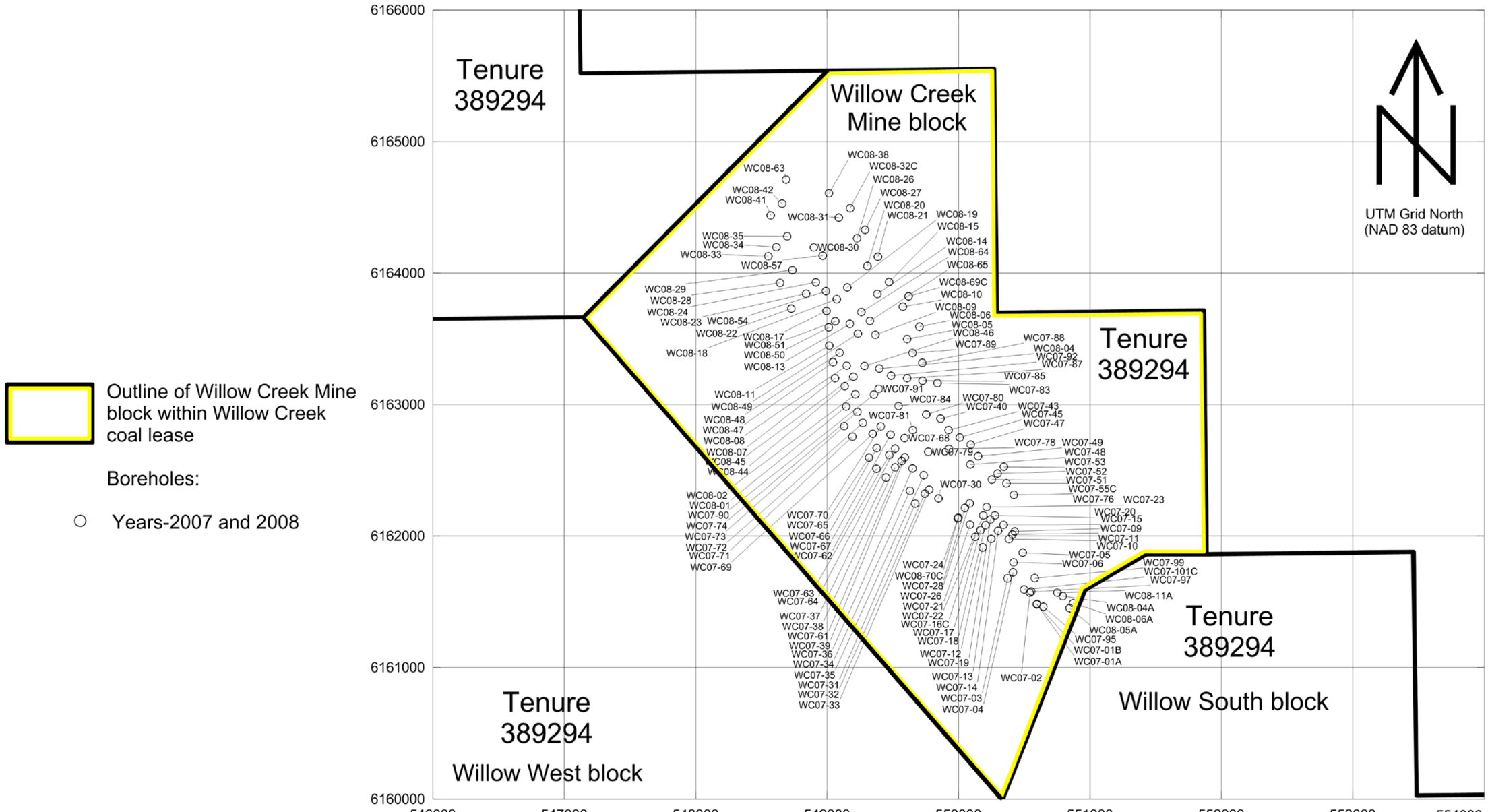
Map 2-4:
Historic (1997-99) drilling



Drawing: Willow_Mine-2001-05-drilling_150614d.srf/jpg
Drawn: C.G. Cathyl-Huhn, P.Geo.(BC) Lic.Geol.(WA) RMSME
Date: 14.June, 2015 Scale: as shown by bar scale
Grid: UTM Zone 10 to North American Datum of 1983, in metres

Willow Creek Mine Coal Assessment Report

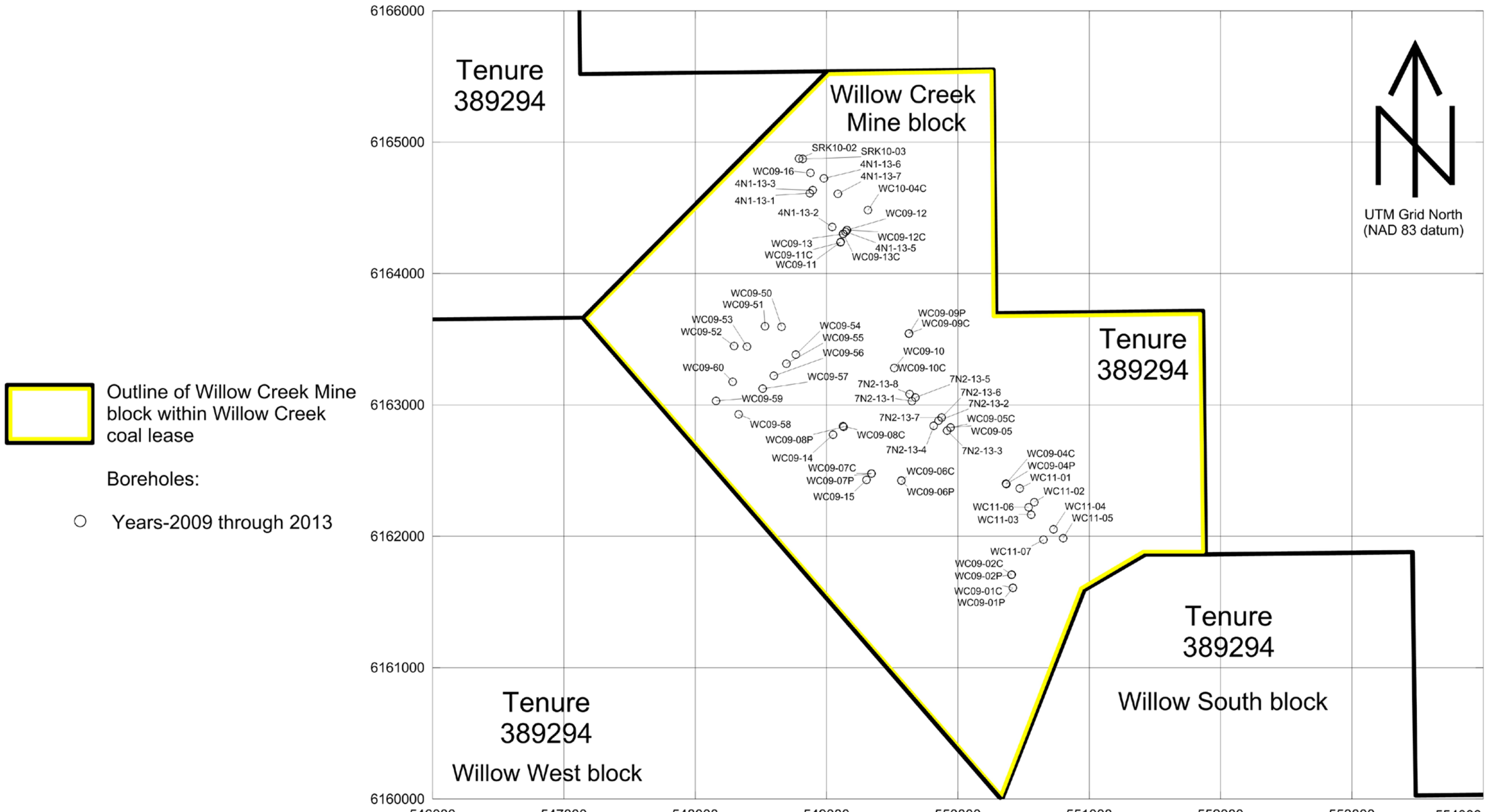
Map 2-5:
Historic (2001-05) drilling



Drawing: Willow_Mine-2007-8-drilling_150614d.srf/jpg
Drawn: C.G. Cathyl-Huhn, P.Geo.(BC) Lic.Geol.(WA) RMSME
Date: 14.June, 2015 Scale: as shown by bar scale
Grid: UTM Zone 10 to North American Datum of 1983, in metres

Willow Creek Mine Coal Assessment Report

Map 2-6: Current (2007-08) drilling



Outline of Willow Creek Mine block within Willow Creek coal lease

Boreholes:

- Years-2009 through 2013

Drawing: Willow_Mine-2009-13-drilling_150614d.srf/jpg
Drawn: C.G. Cathyl-Huhn, P.Geo.(BC) Lic.Geol.(WA) RMSME
Date: 14.June, 2015 Scale: as shown by bar scale
Grid: UTM Zone 10 to North American Datum of 1983, in metres

Willow Creek Mine Coal Assessment Report

Map 2-7:
Current (2009-13) drilling

Regional correlations of Gaylard coals are here proposed, although not examined in detail:

- The 'Bird' zone at Willow Creek Mine may be correlative with the Lower Gething A zone at Sukunka Colliery. It is definitely not correlative with the type Bird Seam at Sukunka, which instead lies near the top of the Chamberlain Member of the Gething Formation.
- No.4 zone at Willow Creek Mine may be correlative with the Brenda Seam at Hasler Creek, F zone at Mink Creek, Seam C60 at Burnt River, and the Lower Gething B zone at Sukunka;
- No.6 zone at Willow Creek Mine may be correlative with the Upper Seam at Burnt River; and
- No.7 zone at Willow Creek Mine may be correlative with the Lower Seam at Burnt River.

Current coal-resource studies commencing the Willow Creek Mine block are discussed within **Section 7** of this report.

2.6 Location and access

Chetwynd town, located on Highway 97 and situated approximately 50 kilometres northeast of Willow Creek Mine, is the closest incorporated settlement to Willow Creek Mine (**Map 2-1**). Chetwynd's population was reported as 2,633 persons in the year-2006 census. In the context of more-distant communities within British Columbia, the Willow Creek Mine coal property is located 130 kilometres south of Fort St John, 95 kilometres west of Dawson Creek, and 315 kilometres northeast of Prince George. Vancouver is situated 730 kilometres to the south-southwest of the property. Commercially-scheduled aircraft flights connect Vancouver to Fort St. John.

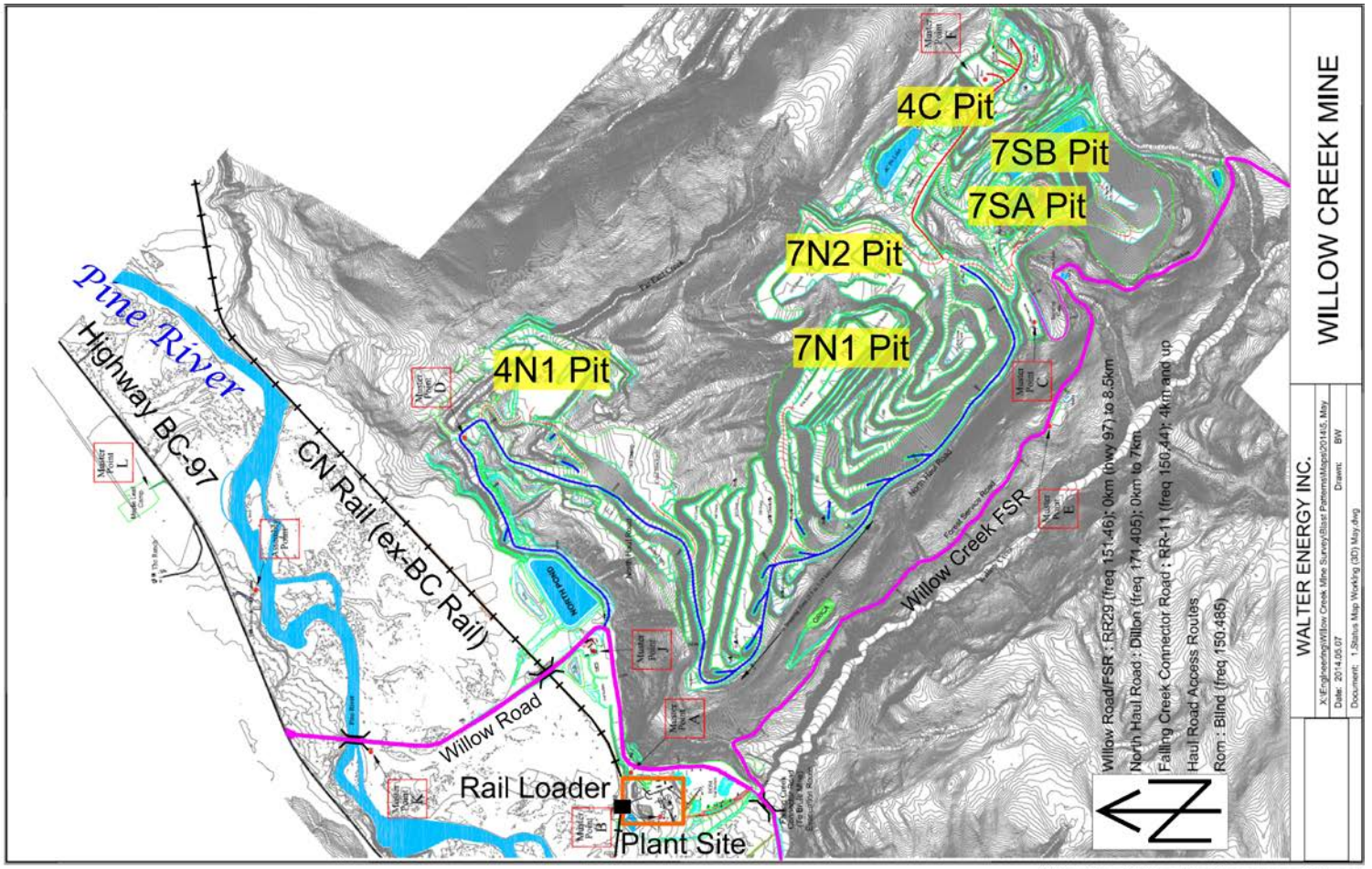
A coal-loading facility is situated on the southern bank of the Pine River (**Map 2-8**), 5 kilometres to the northwest of Willow Creek Mine. This loadout site, which fills railway cars with coal produced from Brule Mine and from the Willow Creek coal washery, allows rail access to ports along the Pacific Coast of Canada, and elsewhere within the North American railway network. CN Rail are the operator of the former BC Rail line to which the loadout site is connected.

2.7 Climate

The nearest climate station to Willow Creek Mine is at Chetwynd, with 'cool continental' climate of frigid winters and warm summers. Average annual rainfall and snowfall at Chetwynd are 306 millimetres and 169 centimetres respectively. The average frost free period ranges between 84 to 91 days, and about 30 foggy days are expected per year. The mean daily temperature at Chetwynd is 15.4 C in July and -10.7 C in January. Winter temperatures below -40C are not uncommon, with the coldest weather occurring in January and February of most years.

2.8 Landforms and forest cover

The Willow Creek Mine block lies within the Inner Foothills of the Rocky Mountains. Topography comprises deeply-dissected, steep-sided, rounded hills and mountains, with elevations ranging from 635 to 1345 metres above sea level. Topographic contours at 20-metre intervals, based upon provincial government mapping (TRIM map-sheets 93O.059 and 93O.069), are shown in **Map 2-2**, and depicted as LIDAR-derived formlines on **Map 2-8**.



Not to scale

Base mapping:
Walter Energy LIDAR

Drawing: Willow_Mine-layout_150615b.srf/jpg
Drawn: C.G. Cathyl-Huhn, P.Geo.(BC) Lic.Geol.(WA) RMSME
Date: 15.June, 2015 Scale: none Grid: none

Layout as of May 2014

Willow Creek Mine Coal Assessment Report

Map 2-8:
Willow Creek Mine

The Willow Creek Mine block lies within the Sub-Boreal Interior ecoprovince, within which are three biogeoclimatic ecosystem classification variants:

- Boreal White and Black Spruce moist warm Peace variant (BWBSmw1),
- Sub-boreal Spruce wet cool Finlay-Peace variant (SBSwk2), and
- Englemann Spruce Subalpine Fir moist very cold Bullmoose variant (ESSFmv2).

The Willow Creek Mine block is heavily forested, chiefly with lodgepole pine, trembling aspen, balsam poplar, white and black spruce, and tamarack. The property lies within Tree Farm Licence 48, part of the Dawson Creek Timber Supply Area. Some cut-blocks have been operated for timber harvesting within the Willow Creek Mine block. As a result, forest cover exhibits a range of ages and states of maturity.

2.9 Acknowledgements and statement of professional responsibility

Thanks are due to many past and present workers:

- Laura LeMay B.Sc., Preetpal Singh M.A.Sc., and Allen Baron EIT, at Walter Energy, who compiled borehole records, statistics, and drafts of many of this report's data tables.
- Dr. Peter Jones, at International Tectonic Consultants, who has continued to offer thought-provoking insights into the structural geology of the Mink-Brazion coalfield, including the Pine River Anticlinorium and the associated triangle-zone structure.
- Blake Snodsmith, at Jim Walter Resources, who provided a regional TRIM base-map, from which the topographic base of **Map 2-2** was derived.
- Larry Evans, P.E., at Walter Energy Inc., who provided copies of archived internal reports relevant to the Willow Creek Mine and surrounding areas.

Gwyneth Cathyl-Huhn P.Geo. (BC) Lic.Geol. (WA) RMSME accepts professional responsibility for data and conclusions presented within this report.

3 Exploration

Both historic (pre-2007) and current (years-2007 through 2013) coal exploration has been done by various parties within the Willow Creek Mine segment of the Willow Creek coal lease. The majority of the work is of historic vintage. In all, 726 historic and current boreholes (**Table 3-1**) are known to have been drilled between the years 1980 and 2013.

3.1 History of coalfield development

The following discussion is adapted in part from an unpublished report (Ryan, 2010) on behalf of Unicorn International Mines Group Inc.

Coal was first discovered in the Peace River District in 1793, by Alexander MacKenzie's exploring expedition (MacKenzie, 1801). Prior to 1980, less than 100,000 tonnes of coal were mined at all locations within northeastern British Columbia (Ryan, 2002).

At a location on Hasler Creek, situated about 17 kilometres southeast of Willow Creek Mine, the Hasler Creek Coal Company commenced small-scale underground coal-mining in 1943, continuing through 1944 and 1945. At this time, considerable geological mapping and some prospecting were undertaken within the Pine River Anticlinorium, including the Willow Creek Mine area (Wickenden and Shaw, 1943, Spivak, 1944; reviewed by Stott, 1973).

From 1946 onward to 1951, British Columbia's former Department of Mines conducted a diamond-drilling and trenching programme of the then-known coal deposits near the Pine River valley (McKechnie, 1955). This programme entailed extensive drilling within the Willow Creek Mine block, but logs of these boreholes have not yet been located, although they might eventually be found within the working files of the British Columbia Geological Survey Branch.

From the late 1950s onward, several oil companies undertook structural and stratigraphic mapping within and adjacent to Willow Creek Mine, and within the Mink-Brazion coalfield generally.

- In the summer and autumn of 1956, Photographic Survey Corporation Limited compiled a aerial-photographic interpretation of the geological structure of the area (Pekar and Scott, 1956), on behalf of West Canadian Petroleums and Trans Empire Oils Ltd.
- In the summer of 1957, Trans Empire Oils Ltd. conducted a follow-up fieldwork programme, as reported by Bossort (1957).
- Two reports prepared on behalf of Triad Oil, by Dr. Peter Jones (1960; 1963) are the most useful of those reports which are publicly-available, as they incorporate detailed structural and stratigraphic mapping.

Governmental and academic surveys were carried on concurrently. In 1963, Dr. John Hughes compiled a dissertation for McGill University, concerning structural geology and tectonics of the Pine River valley, including the Willow Creek Mine area (Hughes, 1963). Dr. Hughes' work was sponsored by the then-extent British Columbia Department of Mines, leading to the publication of two provincial Geological Survey Bulletins (Hughes, 1964; 1967).

The expansion of steel production in mid-1960s stimulated exploration for metallurgical coking coal. By the mid-1970s within northeastern British Columbia, most of the land with coal potential had been acquired by mining companies, or by oil and gas companies seeking to enter

the coal industry as a means of diversification. Initial development interest was along the existing railway (then known as the British Columbia Railway) which passed through Pine Pass and thus connected Chetwynd and Dawson Creek with then-existing ports along British Columbia's western coast.

Interest in coal development increased with rapid increase in crude oil prices, and concomitant increase in coal prices. These price increases were followed in short order by the signing of a joint government-industry agreement between Japan and Canada, to develop new coal mines, highways, railways, other infrastructure, and a workers' townsite at Tumbler Ridge. Shipments of northeastern British Columbia coal through a new port at Ridley Island (near Prince Rupert, British Columbia) commenced in 1984, and have continued to the present day, albeit at currently-reduced levels owing to the present depression in global coal prices.

The Geological Survey of Canada published a regional-scale structural synthesis (McMechan, 1984), consisting of a map and cross-section at a scale of 1:250,000, followed by a journal article concerning the geometry of thrust-faults (McMechan, 1985).

3.2 Historic (years-1980 through 2005) exploration

The bulk of historic exploratory work at Willow Creek Mine has been by means of drilling, although considerable trenching and test-pitting was also done, especially within coal outcrops exposed during the construction of access trails and drill pads. A continuous miner (an underground coal-cutting and loading machine) was transported to the property from the Sukunka Mines in the early 1980s, but it remains unclear whether it was ever put into use to drive adits into the property although such work was planned (A.S. Marton, personal communication, 1981).

Historic work is documented (albeit incompletely in some cases) within coal-assessment reports and unpublished technical reports prepared by third parties (Marton, 1981; Marton and Jones, 1981; Anonymous, 1997; James; 1998; Jordan and Acott, 2005). By the late 1990s, the structure and general characteristics of the Willow Creek coals were sufficiently well-understood, to appreciate that the coal-measures were complexly-folded and faulted, and that principal structures had a southwestern vergence.

Locations of historic boreholes are generally well-established by means of surveying, initially established in terms of local (minesite) coordinate systems, but subsequently translated into Universal Transverse Mercator (UTM) coordinates referred to the older NAD27 (North American Datum of 1927) or the modern NAD83 (North American Datum of 1983) metrologies. A conspicuous exception to the general understanding concerns the positions of numerous year-1997 boreholes from which cores were aggregated to form drilled bulk-samples for coking tests (Anonymous, 1997); these boreholes' positions are only known in general terms, from graphic symbols presented on a drilling plan. Within **Table 3-2** of the present report, such situations are denoted by the lack of UTM coordinates within the entries for such poorly-documented boreholes. The reason for the lack of surveyed coordinate data for these holes is unknown.

The substantial majority (**Table 3-1**, below) of historic boreholes (333 out of 531 boreholes) were drilled by means of non-coring rotary methods. Rotary-holes were generally shallower than diamond-cored boreholes, as indicated by the greater overall total length of cored boreholes (17,305.72 out of 31,080.36 metres). Initial drilling of the property (in 1980-81) was

entirely by means of coring, in keeping with the need to establish stratigraphy and structural style through the examination of cores (A.S. Marton, personal communication, 1980).

The total of historic boreholes here-given does not include boreholes which may have been drilled by the British Columbia Government (McKechnie, 1955) between 1946 and 1951 -- this issue is still being examined, and copies of detailed logs have been requested from the British Columbia Geological Survey Branch.

Maps 2-4 and **2-5** present a graphic index to the locations (where known) of historic boreholes drilled between years-1997 and 2005. The numerous boreholes drilled in years-1980 through 1996 are documented in maps and data tables within historic coal-assessment reports (Marton, 1981; Marton and Jones, 1981; James, 1998).

3.2.1 Coordinate transformation from minesite grid to UTM (NAD83 Zone 10)

Minesite grid

Origin east 14652.254 Origin north 14950.671

UTM grid

Transformed east 534954.317 Transformed north 6146860.561

Rotation -46º 55' 52.918088"

Scale factor 0.99946605 Elevation adjustment -2.623 metres

Table 3-1: Statistical summary of historic and current drilling

Year in which drilled	Core drilling		Rotary drilling		All boreholes	
	Total holes	Total metres	Total holes	Total metres	Total holes	Total metres
historic drilling						
1980	3	854.70	0	nil	3	854.70
1981	43	11,240.30	0	nil	43	11,240.30
1994	3	107.91	54	2,694.29	57	2,802.20
1996	55	2,041.76	145	4,781.04	200	6,822.80
1997	73	2,052.30	67	3,119.88	140	5,172.18
1999	16	299.95	24	627.83	40	927.78
2001	5	708.80	15	576.20	20	1,285.00
2005	0	nil	28	1,975.40	28	1,975.40
totals	198 core	17,305.72	333 rotary	13,774.64	531 overall	31,080.36
current drilling						
2007	3	201.16	74	8,079.65	77	8,280.81
2008	3	475.30	50	5,887.68	53	6,362.98
2009	13	380.00	25	1,983.15	38	2,363.15
2010	5	493.05	1	13.00	6	506.05
2011	0		7	1,024.35	6	1,024.35
2013	14	1,083.83	0		14	1,083.83
totals	38 core	2,633.34	157 rotary	16,987.33	195 overall	19,621.17
all years	*236 core*	*19,939.06*	*490 rotary*	*30,762.47*	*726 overall*	*50,701.53*

Table 3-2: Historic boreholes at Willow Creek Mine

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
Year-1980								
DDH80001	549887.07	6162194.75	1092.04	248.2		7C-N	1980	Core
DDH80002	549990.66	6162303.11	1112.8	260		7C-N	1980	Core
DDH80003	550286.84	6162614.54	1133.7	346.5		4C	1980	Core
3 boreholes		*3 core*		0 rotary				
Year-1981								
DDH81004	549971.01	6162856.41	1100.1	297		4C	1981	Core
DDH81005	549809.44	6162973.51	1083.5	282.5		4C	1981	Core
DDH81006	550439.21	6162480.59	1129.3	323.1		4C	1981	Core
DDH81007	549597.74	6162459.43	1101	252.1		7C-N	1981	Core
DDH81008	549427.75	6162580.55	1089.13	136.2		7C-N	1981	Core
DDH81009	550683.88	6162153.52	1165.23	328.3		4C	1981	Core
DDH81010	551003.98	6161910.81	1161.3	316.1		7C-S	1981	Core
DDH81011	550222.71	6162547.25	1121	154.5		4C	1981	Core
DDH81012	550136.92	6162459.43	1113.8	66.1		4C	1981	Core
DDH81013	550136.19	6162747.57	1129.8	352.3		4C	1981	Core
DDH81014	549845.6	6162427.48	1106.9	261.2		7C-N	1981	Core
DDH81015	550579.89	6162332.95	1136.98	343.2		4C	1981	Core
DDH81016	549703.65	6162579.32	1083.2	297.4		7C-N	1981	Core
DDH81017	550917.9	6162110.71	1161.76	337.1		4C	1981	Core
DDH81018	549773.69	6163253.6	986.4	261.2		4C	1981	Core
DDH81019	550493.93	6162829.35	1105.4	513.6		4C	1981	Core
DDH81020	549750.87	6163510.93	891.7	262.7		7C-N	1981	Core
DDH81021	549673.11	6163713.73	851.8	299.3		7C-N	1981	Core
DDH81022	550821.1	6162601.23	1127	498.6		4C	1981	Core
DDH81023	549554.58	6163898.68	823.4	285.6		4Nex	1981	Core
DDH81024	549255.55	6163854.23	821.4	246		7N	1981	Core
DDH81025	550665.44	6162715	1113.1	540.1		4C	1981	Core
DDH81026	549116.02	6163991.69	794.85	178		7N	1981	Core
DDH81027	549329.76	6164233.12	772.19	300.8		4Nex	1981	Core
DDH81028	549452.25	6164076.96	795.1	291.7		4Nex	1981	Core
DDH81029	550360.23	6162985.93	1065	419.4		4C	1981	Core
DDH81030	549179.57	6164347	748.3	255.1		4Nex	1981	Core
DDH81031	550156.41	6163055.78	999	361.2		4C	1981	Core
DDH81032	549386.2	6163699.67	863.4	206.3		7N	1981	Core
DDH81033	549980.65	6163161.79	985.6	294.4		4C	1981	Core
DDH81034	549462.17	6163485	909.3	191.1		7C-N	1981	Core
DDH81035	549576.37	6163319.57	993.2	87.5		4C	1981	Core
DDH81036	550012.75	6162614.78	1099.3	385.9		4C	1981	Core

Table 3-2: Historic boreholes at Willow Creek Mine (continued)

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
DDH81037	549573.89	6163317.64	994.5	239.9		7C-N	1981	Core
DDH81038	549639.02	6163090.94	1068.78	239.9		4C	1981	Core
DDH81039	550014.88	6162616.62	1099.3	38.4		4C	1981	Core
DDH81040	550133.44	6162145.56	1080	187.1		7C-S	1981	Core
DDH81041	548840.18	6164281.9	729.5	145		7N	1981	Core
DDH81042	550325.47	6162064.43	1115.2	120.7		7C-S	1981	Core
DDH81043	548691.85	6164417.54	690.2	161.2		7N	1981	Core
DDH81044	550522.64	6161980	1138.83	157.3		7C-S	1981	Core
DDH81045	548807.24	6164541.58	689.9	166.7		7N	1981	Core
DDH81046	550653.91	6161844.84	1147.8	158.5		7C-S	1981	Core
43 boreholes		*43 core*		*0 rotary*				
Year-1994								
WRH94001	548878.47	6163467.78	818.68	73.2		7N	1994	Rotary
WRH94002	548946.38	6163515.89	819.83	100		7N	1994	Rotary
WRH94003	548995.3	6163559.3	810.09	54.8		7N	1994	Rotary
WRH94004	549044.04	6163556.48	800.38	42.6		7N	1994	Rotary
WRH94005	549121.68	6163694.46	815.34	85.3		7N	1994	Rotary
WRH94006	549297.68	6163884.84	821.53	11.58		4Nex	1994	Rotary
WRH94007	549303.03	6163893.9	822.48	16.7		4N	1994	Rotary
WRH94008	549314.62	6163904.45	824.16	28.3		4N	1994	Rotary
WRH94009	549322.7	6163912.52	823.8	19.5	logs missing	4N	1994	Rotary
WRH94010	549372.91	6163978.83	816.36	45.7		4N	1994	Rotary
WRH94011	549397.35	6163984.68	812.28	40		4N	1994	Rotary
WRH94012	549409.35	6163988.06	809.61	40		4N	1994	Rotary
WRH94013	549149.83	6164321.49	750.66	42		4N	1994	Rotary
WRH94014	549124.38	6164299.43	751.24	80		4Nex	1994	Rotary
WRH94015	549057.97	6164224.58	745.92	40.04		4N	1994	Rotary
WRH94016	549151.51	6164319.55	751.02	24.3	logs missing	4N	1994	Rotary
WRH94017C	549098.26	6164229.64	754.05	29.41		4N	1994	Core
WRH94018	549063.24	6164483.7	719.44	40		4N	1994	Rotary
WRH94018A	549123.77	6164547.08	711.31	18.2		4N	1994	Rotary
WRH94019	548503.77	6164401.36	657.8	100		7N	1994	Rotary
WRH94020	549890.26	6162198.37	1092.58	128		7C-N	1994	Rotary
WRH94021	549946.5	6162244.85	1107.78	95.5		7C-S	1994	Rotary
WRH94022	549970.25	6162271.95	1110.41	102.8		7C-N	1994	Rotary
WRH94023	550027.5	6162335.66	1109.2	75		7C-N	1994	Rotary
WRH94024	549894.27	6162201.38	1093.59	128		7C-N	1994	Rotary
WRH94025	548503.77	6162114.74	1100.6	42.6	logs missing	7C-N	1994	Rotary
WRH94026	549280.62	6162702.14	1063.97	79.2		7C-N	1994	Rotary

Table 3-2: Historic boreholes at Willow Creek Mine (continued)

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
WRH94027	549448.45	6162320.21	1123.26	42.6	logs missing	7C-N	1994	Rotary
WRH94028	549481.92	6162347.87	1119.1	70	logs missing	7C-N	1994	Rotary
WRH94029	549517.31	6162380.76	1116.17	97.5		7C-N	1994	Rotary
WRH94030	549882.31	6162850.64	1095.25	109.7		4C	1994	Rotary
WRH94031	549867.44	6162807.93	1090.9	80		4C	1994	Rotary
WRH94032	549850.99	6162770.94	1087.77	79.2		4C	1994	Rotary
WRH94033	549836.32	6162726.71	1082.06	61		4C	1994	Rotary
WRH94034C	549812.73	6162117.42	1100.67	33.5		7C-N	1994	Core
WRH94035	549816.12	6162114.15	1100.6	25		7C-N	1994	Rotary
WRH94036	*not drilled?*							
WRH94037	550127.18	6162443.1	1113.76	22.8		4C	1994	Rotary
WRH94038	550148.58	6162580.8	1116.51	29	no folder in file		1994	Rotary
WRH94039	549789.79	6162230.41	1105.01	19.2		7C-N	1994	Rotary
WRH94040	548919.32	6164667.29	689.07	45		4N	1994	Rotary
WRH94041	548866.94	6164619.37	684.97	17		4N	1994	Rotary
WRH94042	548665.65	6164347.91	699	40		7N	1994	Rotary
WRH94043	548822.54	6164246.97	727.36	38.37		7N	1994	Rotary
WRH94044	548796.07	6164223.21	725.54	47		7N	1994	Rotary
WRH94045	548594.85	6164460.43	663.85	40		7N	1994	Rotary
WRH94046	548405.71	6164388.58	644.96	47		7N	1994	Rotary
WRH94047C	548369.56	6164339.08	641.36	45		7N	1994	Core
WRH94048	548352.17	6164226.55	635.88	45		7N	1994	Rotary
WSH94001	549791.96	6162139.67	1101.95	26.5		7C-N	1994	Rotary
WSH94002	549405.42	6162557.39	1093.14	22		7C-N	1994	Rotary
WSH94003	549565.65	6162416.21	1109.25	23.5		7C-N	1994	Rotary
WSH94004A	550133.79	6162450.38	1113.5	22		4C	1994	Rotary
WSH94004B	550132.62	6162449.12	1113.5	20.4		4C	1994	Rotary
WSH94005	550229.1	6162542.1	1121	17.5		4C	1994	Rotary
WSH94006	550208.56	6162527.44	1119.4	33.7		4C	1994	Rotary
WSH94007	549150.18	6164328.89	751	10		4N	1994	Rotary
WSH94008	549103.99	6164237.03	754	10		4N	1994	Rotary
57 boreholes		*3 core*		*54 rotary*				
Year-1996								
PRH96001C				23.06			1996	Core
PRH96002				36.48			1996	Rotary
WET96003	549020.19	6164502.85	707	16			1996	Rotary
WRH96001	550885.12	6161978.01	1156	80		4C	1996	Rotary
WRH96002	550829.41	6161936.41	1154	65		4C	1996	Rotary
WRH96003	550551.81	6161758.41	1123.5	130		7C-S	1996	Rotary

Table 3-2: Historic boreholes at Willow Creek Mine (continued)

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
WRH96004C	550449.55	6161643.33	1131.1	130		7C-S	1996	Core
WRH96005	550400.2	6161589.11	1122.9	45		MO	1996	Rotary
WRH96006	550381.4	6161565.41	1121.4	39		MO	1996	Rotary
WRH96007	550389.31	6161572.32	1121.5	35		MO	1996	Rotary
WRH96008	550400.71	6161589.51	1123	62		MO	1996	Rotary
WRH96009	550389.01	6161569.61	1121.4	67.5		MO	1996	Rotary
WRH96010C	550401.71	6161588.61	1123.1	42.54		7C-S	1996	Core
WRH96021	550395.61	6161463.91	1110.7	47		PEN	1996	Rotary
WRH96022	550367.1	6161402.71	1102.9	24		PEN	1996	Rotary
WRH96023	550619.71	6161776.81	1134.5	42		7C-S	1996	Rotary
WRH96024C	550857.71	6161958.92	1134.5	35		4C	1996	Core
WRH96025C	550823.71	6161941.01	1154	34		4C	1996	Core
WRH96026C	550877.21	6161961.31	1154.3	20.7		4C	1996	Core
WRH96044	551115.33	6161757.73	1157.24	98		4C-S	1996	Rotary
WRH96045	550364.75	6162446.08	1121.82	98		4C	1996	Rotary
WRH96046	550514	6162319.47	1131.5	98		4C	1996	Rotary
WRH96047	549609.28	6162023.11	1080.36	45.1		7C-N	1996	Rotary
WRH96048	549502.26	6161842.21	1070.06	98		7C-W	1996	Rotary
WRH96050	548869.99	6164326.75	732.83	14.7		7N	1996	Rotary
WRH96051	548854.57	6164304.8	730.95	16.78		7N	1996	Rotary
WRH96052	548843.37	6164288.81	729.68	4.9		7N	1996	Rotary
WRH96053	548831.65	6164273.25	729.93	20.8		7N	1996	Rotary
WRH96054	548985.26	6164154.36	758.96	29.86		7N	1996	Rotary
WRH96055	548973.76	6164139.95	758.45	30		7N	1996	Rotary
WRH96056	548961.79	6164125.55	756.9	29.8		7N	1996	Rotary
WRH96057	548945.84	6164104.4	756.81	32.85		7N	1996	Rotary
WRH96058	548777.42	6164212.4	722.7	27		7N	1996	Rotary
WRH96059	549000.79	6164175.32	756.34	33.98		7N	1996	Rotary
WRH96060	548586.09	6163996.54	713.4	18.94		7N	1996	Rotary
WRH96061	548596.24	6164012.29	714.55	19.4		7N	1996	Rotary
WRH96062	548605.19	6164028.61	717.4	33.1		7N	1996	Rotary
WRH96063	548624.71	6164087.98	716.96	11.8		7N	1996	Rotary
WRH96064	548653.12	6164098.03	713.2	32.76		7N	1996	Rotary
WRH96065	548685.61	6164364.95	698.51	24.06		7N	1996	Rotary
WRH96066	548704.47	6164378.64	699.14	14.1		7N	1996	Rotary
WRH96067	549498.75	6163484.86	913.4	23.88		4N	1996	Rotary
WRH96068	549556.7	6163500.53	914.33	11.8		4N	1996	Rotary
WRH96069	549594.11	6163519.1	916.36	11.64		4N	1996	Rotary
WRH96070C	549122.61	6164299.6	751.25	32.66		4N	1996	Core

Table 3-2: Historic boreholes at Willow Creek Mine (continued)

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
WRH96071	549132.59	6164305.76	751.33	6.7		4N	1996	Rotary
WRH96072C	549378.09	6163893.8	830.25	66.75		4Nex	1996	Core
WRH96073C	549385.65	6163895.31	830.24	64.92		4N	1996	Core
WRH96074C	549466.79	6163907.27	823.64	44.65		4N	1996	Core
WRH96075C	549486.55	6163908.36	823	35		4N	1996	Core
WRH96076C	549489.91	6163908.33	823.04	33.5		4N	1996	Core
WRH96077C	549142.32	6164312.27	751.07	18.6		4N	1996	Core
WRH96078C	549031.56	6164522.51	706.27	32		4N	1996	Core
WRH96079C	548985.73	6164487.08	707.17	72		4N	1996	Core
WRH96080	549619.71	6163537.7	912.68	30.48		4N	1996	Rotary
WRH96081	548595.14	6164456.84	663.63	21.34		7N	1996	Rotary
WRH96082	548486.25	6164395.55	656.89	14.78		7N	1996	Rotary
WRH96083	548507.36	6164398.24	657.92	15		7N	1996	Rotary
WRH96085?	*not drilled?*							
WRH96091?	*not drilled?*							
WRH96093	549489.91	6161643.48	1038.18	15		7C-S	1996	Rotary
WRH96094	549224.29	6162619.59	1058.99	15		7C-N	1996	Rotary
WRH96095	549239.75	6162661.06	1063.03	27		7C-N	1996	Rotary
WRH96096	549434.94	6162311.03	1126.05	32		7C-N	1996	Rotary
WRH96097	549417.64	6162296.46	1125.45	32.6		7C-N	1996	Rotary
WRH96098	549936.24	6162137.08	1079.82	20		7C-S	1996	Rotary
WRH96099	549909.67	6162072.8	1074.93	22		7C-S	1996	Rotary
WRH96100C	548786.36	6164185.11	724.92	30.5		7N	1996	Core
WRH96101	548797.5	6164515.17	694.96	37.8		7N	1996	Rotary
WRH96102C	548797	6164516.78	694.9	44.8		7N	1996	Core
WRH96103C	548435.76	6164392.89	649.72	56.5		7N	1996	Core
WRH96104C	548382.99	6164369.59	642.75	19.5		7N	1996	Core
WRH96105C	548369.15	6164341.89	641.55	43.6		7N	1996	Core
WRH96106	548877.34	6164628.02	685.48	62		4Nex	1996	Rotary
WRH96107C	548996.71	6164503.26	706.02	68		4Nex	1996	Core
WRH96108C	549717.52	6162202.16	1109.75	47		7C-N	1996	Core
WRH96109C	549796.25	6162233.69	1105.51	84		7C-N	1996	Core
WRH96110C	549795.62	6162231.58	1105.17	23		7C-N	1996	Core
WRH96111C	549860.68	6162009.61	1080.57	26.5		7C-N	1996	Core
WRH96112C	550127.65	6162444.64	1113.6	21.5		4C	1996	Core
WRH96113C	550123.17	6162439.41	1113.4	15.5		4C	1996	Core
WRH96114C	550117.66	6162432.97	1112.81	10		4C	1996	Core
WRH96115C	550214.28	6162542.32	1119.64	11		4C	1996	Core
WRH96116C	550224.09	6162543.53	1120.18	15.7		4C	1996	Core

Table 3-2: Historic boreholes at Willow Creek Mine (continued)

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
WRH96117C	550215.84	6162535.22	1121.5	16		4C	1996	Core
WRH96118C	549846.98	6162764.59	1087.17	37		4C	1996	Core
WRH96119C	549847.85	6162766.21	1087.16	49		4C	1996	Core
WRH96120	550419.47	6162237.57	1115.2	6			1996	Rotary
WRH96121	550442.98	6162261.62	1120.39	21		4C	1996	Rotary
WRH96122	550470.18	6162271.45	1124.17	15.1		4C	1996	Rotary
WRH96123	549658.95	6163101.49	1067.48	15		4C	1996	Rotary
WRH96124	549646.6	6163090.48	1068.84	12		4C	1996	Rotary
WRH96125	549629.6	6163074.69	1069.57	18		4C	1996	Rotary
WRH96126	549916.88	6162879.28	1096.85	30		4C	1996	Rotary
WRH96127	549899.85	6162868.99	1095.58	18		4C	1996	Rotary
WRH96128	549878.79	6162837.72	1095.36	118.3		4C	1996	Rotary
WRH96129	551090.8	6161742.93	1155.93	35		4C-S	1996	Rotary
WRH96130	551069.79	6161731.31	1154.92	30		4C-S	1996	Rotary
WRH96131	551047.88	6161723.67	1155.61	30		4C-S	1996	Rotary
WRH96132	550744.01	6162096.01	1158.58	25		4C	1996	Rotary
WRH96132A	550746.5	6162097.43	1158.34	26		4C	1996	Rotary
WRH96133	550952.04	6161730.02	1156.5	30.48		4C-S	1996	Rotary
WRH96134	550802.96	6161610.16	1150.56	30		7C-S	1996	Rotary
WRH96135	550204.52	6161802.26	1083.07	30		MO	1996	Rotary
WRH96136	550189.24	6161788.41	1080.75	25		MO	1996	Rotary
WRH96137	550147.16	6161756.96	1078.2	5		MO	1996	Rotary
WRH96137A	550147.77	6161754.77	1078.44	30		MO	1996	Rotary
WRH96138	550130.8	6161741.42	1079.51	30		MO	1996	Rotary
WRH96139	550278.76	6162032.83	1103.52	25.3		7C-S	1996	Rotary
WRH96140C	549907.51	6162875.46	1096.26	43		4C	1996	Core
WRH96141C	549908.06	6162877.09	1096	28		4C	1996	Core
WRH96142C	549848.84	6162767.7	1087	30		4C	1996	Core
WRH96143	549645.01	6163093	1068.37	80		4C	1996	Rotary
WRH96144	549650.97	6162412.95	1100.92	20		7C-N	1996	Rotary
WRH96145C	550513.83	6162328.33	1131	26		4C	1996	Core
WRH96146C	550497.87	6162304.07	1130	20		4C	1996	Core
WRH96147C	550487.64	6162272.13	1126	40		4C	1996	Core
WRH96148C	550446.99	6162265.04	1121	27		4C	1996	Core
WRH96149	549658.7	6162414.88	1100.8	25		7C-N	1996	Rotary
WRH96150C	549246.48	6162667.04	1067	36		7C-N	1996	Core
WRH96151C	549659.85	6162415.21	1101	26		7C-N	1996	Core
WRH96152C	549655.66	6162414.19	1101	26		7C-N	1996	Core
WRH96153	549231.36	6162629.67	1058.57	29		7C-N	1996	Rotary

Table 3-2: Historic boreholes at Willow Creek Mine (continued)

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
WRH96154	549659.33	6163100.2	1067.75	78		4C	1996	Rotary
WRH96155	549632.93	6163079.49	1069.23	83		4C	1996	Rotary
WRH96156	550178.61	6162487.26	1110.72	75		4C	1996	Rotary
WRH96157	550466.08	6162269.47	1123.24	68		4C	1996	Rotary
WRH96158	551129.83	6161813.99	1165.78	117.35		4C-S	1996	Rotary
WRH96159	550739.09	6162101.14	1158.14	88.87		4C	1996	Rotary
WRH96160	549508.08	6161901.67	1076.56	18.4		7C-W	1996	Rotary
WRH96161	549512.55	6161917.03	1077.1	30.48		7C-N	1996	Rotary
WRH96162	549519.03	6161932.44	1077.74	6.1		7C-N	1996	Rotary
WRH96163	549917.95	6162084.98	1074.43	30.48		7C-S	1996	Rotary
WRH96164	549923.08	6162095.1	1075.58	27		7C-S	1996	Rotary
WRH96165	549930.33	6162109.67	1077.17	33.53		7C-S	1996	Rotary
WRH96166	549932.91	6162122.53	1078.16	33.53		7C-S	1996	Rotary
WRH96167	551027.92	6161717.96	1155.95	30.48		4C-S	1996	Rotary
WRH96168	550672.35	6161639.91	1149.54	30.4		7C-S	1996	Rotary
WRH96169	550644.88	6161635.04	1148.86	23		7C-S	1996	Rotary
WRH96169B	550373.18	6161444.59	1105.7	33.3		PEN	1996	Rotary
WRH96170	550366.73	6161427.74	1103.67	33		PEN	1996	Rotary
WRH96171	550356.44	6161375.93	1099.12	33.5		PEN	1996	Rotary
WRH96172	550350.65	6161357.56	1096.78	16		PEN	1996	Rotary
WRH96172A	550350.43	6161357.25	1096.64	3		PEN	1996	Rotary
WRH96173	550327.81	6161329.85	1091.15	34.95		PEN	1996	Rotary
WRH96174	550276.55	6161306.39	1086.99	33.4		PEN	1996	Rotary
WRH96175	550125.87	6161730.04	1080.47	30.3		MO	1996	Rotary
WRH96176	550257.34	6161854.15	1083.06	6.1		7C-S	1996	Rotary
WRH96176A	550258.36	6161831.75	1087.68	13		7C-S	1996	Rotary
WRH96177	550235.75	6161817.72	1085.74	18.1		7C-S	1996	Rotary
WRH96178	550219.74	6161787.82	1080.76	15.2		7C-S	1996	Rotary
WRH96179	550190.37	6161787.82	1080.76	27		MO	1996	Rotary
WRH96180	550697.26	6161647.73	1151.59	30.48		7C-S	1996	Rotary
WRH96181	550616.94	6161628.22	1144.56	26.07		7C-S	1996	Rotary
WRH96182	550597.13	6161623.34	1143.39	30.48		7C-S	1996	Rotary
WRH96183	550266.24	6161640.4	1120.94	30.48		MO	1996	Rotary
WRH96184	550193.28	6161310.97	1086.2	30.48		PEN	1996	Rotary
WRH96185	550575.71	6161621.43	1142.27	30.48		7C-S	1996	Rotary
WRH96186	550134.81	6162167.26	1078.68	18.1		7C-S	1996	Rotary
WRH96187	550093.01	6162082.29	1078.92	30.48		7C-S	1996	Rotary
WRH96188	550107.46	6162099.55	1078.51	30.48		7C-S	1996	Rotary
WRH96189	550118.48	6162115.24	1077.84	18.3		7C-S	1996	Rotary

Table 3-2: Historic boreholes at Willow Creek Mine (continued)

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
WRH96190	550106	6161714.89	1081.63	26.1		7C-S	1996	Rotary
WRH96191	550092.02	6161699.17	1078.34	30		MO	1996	Rotary
WRH96192	550072.28	6161682.59	1073.9	30		MO	1996	Rotary
WRH96200	550514.14	6162330.03	1131.2	20.27		4C	1996	Rotary
WRH96200C	550511.74	6162326.87	1131.2	20.27		4C	1996	Core
WRH96201C	550220.66	6162512.34	1119.4	36.58		4C	1996	Core
WRH96203	549508.84	6161907.84	1076.73	31.09		7C-W	1996	Rotary
WRH96204	549444	6161692.55	1039.95	19.2		7C-S	1996	Rotary
WRH96205	549532.2	6161954.95	1079.37	38		7C-W	1996	Rotary
WRH96206C	549741.31	6162205.89	1108.32	43.89		7C-N	1996	Core
WRH96207C	550129.4	6162447.92	1113.53	22.56		4C	1996	Core
WRH96208	550136.5	6162456.78	1113.07	20		4C	1996	Rotary
WRH96208C	550138.91	6162459.95	1113.07	19.2		4C	1996	Core
WRH96209C	550218.95	6162509.87	1119.41	65.53		4C	1996	Core
WRH96210	549515.99	6161926.39	1077.44	38.1			1996	Rotary
WRH96211C	549739.92	6162326.7	1109.61	25.6		7C-N	1996	Core
WRH96212C	548738.14	6164577.68	674.5	37.19		7N	1996	Core
WRH96213C	548947.54	6164680.32	691.22	80.77		4N	1996	Core
WRH96214C	549032.34	6164523.15	706.27	27		4N	1996	Core
WRH96215C	548367.79	6164337.71	641.21	38.4		7N	1996	Core
WRH96216C	548367.47	6164336.9	641.17	18.29		7N	1996	Core
WRH96221B	549175.09	6163756.33	825.82	30.48		7N	1996	Rotary
WRH96222	549136.01	6163708.65	818.6	30.48		7N	1996	Rotary
WRH96223	549149.25	6163723.67	820.78	30.48		7N	1996	Rotary
WRH96224	549161.65	6163741.02	823.14	30.48		7N	1996	Rotary
WRH96225	550146.43	6161301.08	1083.9	24.38		PEN	1996	Rotary
WRH96226	550115.87	6161291.31	1079.62	17.05		PEN	1996	Rotary
WRH96227	550260.78	6161634.56	1098.74	30.48		MO	1996	Rotary
WRH96228	550348.77	6161531.64	1107.66	30.48		PEN	1996	Rotary
WRH96229	550537.19	6161999.74	1139.84	30.48		7C-S	1996	Rotary
WRH96230	550628.18	6161877.3	1149.33	24		7C-S	1996	Rotary
WRH96231	549788.69	6161795.97	1049.65	21.34		7C-S	1996	Rotary
WRH96232	549786	6161087.25	1041.95	24.38		7C-W	1996	Rotary
WRH96233	549035.89	6161680.42	908.33	18.29		7C-W	1996	Rotary
WRH96234	548823.06	6163442.6	821.47	30.48		7N	1996	Rotary
WRH96235	548836.8	6163453.07	821.34	30.48		7N	1996	Rotary
WRH96236	548936.26	6163504.9	819.36	30.48		7N	1996	Rotary
WRH96237	548978.48	6163545.54	815.13	21.34		7N	1996	Rotary
WRH96238	548998.6	6163561.51	809.62	29		7N	1996	Rotary

Table 3-2: Historic boreholes at Willow Creek Mine (continued)

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
WRH96239	*not drilled?*							
WRH96240	*not drilled?*							
WRH96241	*not drilled?*							
WRH96242	*not drilled?*							
WRH96243	548470.75	6164394.35	654.64	18.29		7N	1996	Rotary
200 boreholes		*55 core*		*145 rotary*				
Year-1997								
WRH97001	548885.5	6164057.56	739.25	40		7N	1997	Rotary
WRH97002	548891.17	6164021.8	735.43	34.52		7N	1997	Rotary
WRH97003	548839.34	6163987.78	732.93	40		7N	1997	Rotary
WRH97004	548804.48	6163953.47	734.2	7		7N	1997	Rotary
WRH97005	548737.92	6163894.12	738.86	50		7N	1997	Rotary
WRH97006	548718.63	6163880.25	739.16	50		7N	1997	Rotary
WRH97007	548664.9	6163816.75	738.58	40		7N	1997	Rotary
WRH97008	548934.2	6163840.31	754.11	55		7N	1997	Rotary
WRH97009	548968.91	6163867.84	757.45	65		7N	1997	Rotary
WRH97010	549005.39	6163897.43	765.12	40		7N	1997	Rotary
WRH97011	549141.52	6163976.43	794.84	40		7N	1997	Rotary
WRH97012	549190.9	6164088.8	785.77	30		4Nex	1997	Rotary
WRH97013	549237.05	6164135.65	796.69	36		4N	1997	Rotary
WRH97014	549386.57	6163710.15	861.23	35		4N	1997	Rotary
WRH97015	548968.95	6164465.24	708.65	40		4Nex	1997	Rotary
WRH97016	548567.97	6163969.26	713.73	55		7N	1997	Rotary
WRH97017	548698.77	6164118.81	708.28	65		7N	1997	Rotary
WRH97018	548729.81	6164151.32	709.75	70		7N	1997	Rotary
WRH97031	548520.2	6164407.17	658.41	74.76		7N	1997	Rotary
WRH97032	548548.63	6164431.36	660.24	82.45		7N	1997	Rotary
WRH97033	549183.67	6163822.68	829.71	35.3		7N	1997	Rotary
WRH97034	549093.02	6163567.19	800.42	65.83		7N	1997	Rotary
WRH97035	549116.25	6163618.75	805.25	39.7		7N	1997	Rotary
WRH97036C	549181.44	6163820.11	829.89	25		7N	1997	Core
WRH97037C	549182.22	6163821.3	829.8	23.85		7N	1997	Core
WRH97038C	549451.11	6163903.98	824.24	11.73		4N	1997	Core
WRH97039C	549454.35	6163904.7	824.14	12.92		4N	1997	Core
WRH97040C	549447	6163903.11	824.34	9.87		4N	1997	Core
WRH97041	548785.01	6163939.35	735.97	50.91		7N	1997	Rotary
WRH97042	548754.39	6163907.14	737.86	44.2		7N	1997	Rotary
WRH97043	550167.02	6161772.5	1076.89	116.46		7C-S	1997	Rotary
WRH97044	550191.65	6161794.92	1082.04	81.1		7C-S	1997	Rotary

Table 3-2: Historic boreholes at Willow Creek Mine (continued)

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
WRH97045	550277.78	6161875.63	1077.84	105.49		7C-S	1997	Rotary
WRH97046C	550144.78	6161753.48	1078.5	38.55		MO	1997	Core
WRH97047	550045.8	6161218.95	1077.71	74.7		PEN	1997	Rotary
WRH97048C	550202.28	6161311.16	1087.15	29.44		PEN	1997	Core
WRH97049	550298.18	6161222.71	1086.41	33	missing file	PEN	1997	Rotary
WRH97050	550205.76	6161064.95	1089.71	45.95		PEN	1997	Rotary
WRH97058	550018.36	6162037.23	1060.51	102.44		7C-N	1997	Rotary
WRH97059	550027.37	6161992.53	1058.64	72.6		7C-N	1997	Rotary
WRH97060	*not drilled?*							
WRH97066	550315.29	6161935.13	1095.56	30		7C-S	1997	Rotary
WRH97067	550205.72	6161585.08	1096.15	25		MO	1997	Rotary
WRH97068	550278.88	6161146.23	1083.72	30		PEN	1997	Rotary
WRH97069	550275.24	6161135.92	1083.37	30		PEN	1997	Rotary
WRH97098	*not drilled?*							
WRH97099	*not drilled?*							
WRH97101C				35			1997	Core
WRH97102C	548954.7	6164457.28	709.56	33.53		4N	1997	Core
WRH97103C				33.48		4N	1997	Core
WRH97104C				27.38		4N	1997	Core
WRH97105C				29.42		4N	1997	Core
WRH97106C				28.85		4N	1997	Core
WRH97107C	548996.71	6164503.3	706.02	31.17			1997	Core
WRH97108C				28.9			1997	Core
WRH97109C				20.83			1997	Core
WRH97110C				23.87			1997	Core
WRH97111C				23.47			1997	Core
WRH97112C				19.71			1997	Core
WRH97113C					records missing		1997	Core
WRH97114C				19.51			1997	Core
WRH97115C				20.65			1997	Core
WRH97116C				8.24			1997	Core
WRH97117C				8.23			1997	Core
WRH97117.1C				11.81			1997	Core
WRH97118C	549846.98	6162765	1087.17	15.32			1997	Core
WRH97119C	549847.85	6162766.2	1087.16	23.42		7N	1997	Core
WRH97120C				25.23		7N	1997	Core
WRH97121C				19.8		7N	1997	Core
WRH97122C				39.42			1997	Core
WRH97123C				26.87			1997	Core

Table 3-2: Historic boreholes at Willow Creek Mine (continued)

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
WRH97124C				37.79			1997	Core
WRH97125C				38.1			1997	Core
WRH97126C				40.73			1997	Core
WRH97127C				33.1			1997	Core
WRH97128C				32.87			1997	Core
WRH97129C				19.55			1997	Core
WRH97130C				31.6			1997	Core
WRH97131C				30.56			1997	Core
WRH97132C				19.65			1997	Core
WRH97133C				28.19		7C-N	1997	Core
WRH97134C				28.53		7C-N	1997	Core
WRH97135C				28.73		7C-N	1997	Core
WRH97136C				37.96			1997	Core
WRH97137	548571.47	6164440.52	662.44	41		7N	1997	Rotary
WRH97138	548780.36	6164459.79	702.72	20		7N	1997	Rotary
WRH97139	548756.59	6164429.71	700.19	20		7N	1997	Rotary
WRH97140	548730.42	6164399.34	698.41	20		7N	1997	Rotary
WRH97141	548764.71	6164188.22	716.09	60		7N	1997	Rotary
WRH97142	548762.29	6164154.33	713.66	50		7N	1997	Rotary
WRH97143	548728.38	6164151.66	710.25	60		7N	1997	Rotary
WRH97144	548855.46	6164599.07	683.71	5		4N	1997	Rotary
WRH97145	548804.94	6163955.43	737.57	5		7N	1997	Rotary
WRH97146	548669.2	6163816.01	738.58	51.7		7N	1997	Rotary
WRH97147	549165.65	6163746.9	822.34	15.85		7N	1997	Rotary
WRH97148	549152.3	6163729.04	822.95	14.02		7N	1997	Rotary
WRH97149	549195.23	6163843.3	829.36	20.12		7N	1997	Rotary
WRH97150	549057.05	6163941.26	784.97	64.62		7N	1997	Rotary
WRH97151	549075.78	6163955.38	792.82	31.08		7N	1997	Rotary
WRH97152	548941.72	6164102.13	756.88	34.14		7N	1997	Rotary
WRH97153	548645.7	6164333.12	695.05	50		7N	1997	Rotary
WRH97154	548621.72	6164314.14	690.39	70.59		7N	1997	Rotary
WRH97155	548620.96	6164314.49	691.08	75.98		7N	1997	Rotary
WRH97156	548544.65	6164403.85	659.67	46.6		7N	1997	Rotary
WRH97157	549026.46	6163920.04	771.88	37		7N	1997	Rotary
WRH97158	548835.46	6163761.77	766.36	52		7N	1997	Rotary
WRH97159	548757.56	6163697.02	774.64	65		7N	1997	Rotary
WRH97160	548873.15	6163789.46	766.06	32.6		7N	1997	Rotary
WRH97161	548897.21	6163803.67	764.02	46.6		7N	1997	Rotary
WRH97162	549025.62	6163760.93	782.22	30.63		7N	1997	Rotary

Table 3-2: Historic boreholes at Willow Creek Mine (continued)

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
WRH97163	548892.07	6164352.46	736.17	34.44		7N	1997	Rotary
WRH97164	548572.15	6164257.32	688.99	39.01		7N	1997	Rotary
WRH97165	548529.72	6164213.5	687.52	48.77		7N	1997	Rotary
WRH97166	548482.97	6164169.97	681.39	45.72		7N	1997	Rotary
WRH97167C	548497.94	6164400.28	657.83	35.5		7N	1997	Core
WRH97168C	548964	6164127	756.25	29.92		7N	1997	Core
WRH97169C				21.79			1997	Core
WRH97170C				44.12			1997	Core
WRH97171C				49.73			1997	Core
WRH97172C				48			1997	Core
WRH97173C				44.9			1997	Core
WRH97174C				42.24	6 inch core		1997	Core
WRH97175C				40.61	6 inch core		1997	Core
WRH97176C				38.39	6 inch core		1997	Core
WRH97177C				25.05			1997	Core
WRH97178C				22.93	6 inch core		1997	Core
WRH97179C				21.94			1997	Core
WRH97180C				23.17	6 inch core		1997	Core
WRH97181C				21.94			1997	Core
WRH97182C				36.34	6 inch core		1997	Core
WRH97183C				36.66	6 inch core		1997	Core
WRH97184C				37.18	6 inch core		1997	Core
WRH97185C				37.18			1997	Core
WRH97186C				33.37	6 inch core		1997	Core
WRH97187C				35.25			1997	Core
WRH97188C				37.18			1997	Core
WRH97189C				36.84			1997	Core
WRH97190C				24.5			1997	Core
WRH97191C				24.53			1997	Core
WRH97192C				28.8			1997	Core
WRH97193C				21.79			1997	Core
WRH97194C				39.62			1997	Core
WSH97008							1997	Core
140 boreholes		*73 core*		*67 rotary*				
Year-1999								
WRH99001	550058.68	6161232.61	1077.13	21.15		PEN	1999	Rotary
WRH99002	550073.48	6161252.88	1077.29	19.92		PEN	1999	Rotary
WRH99003	550093.83	6161272.45	1077.7	21.45		PEN	1999	Rotary
WRH99004	550014.24	6161257.64	1076.48	15.36		PEN	1999	Rotary

Table 3-2: Historic boreholes at Willow Creek Mine (continued)

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
WRH99005	550035.03	6161276.84	1076.83	18.71		PEN	1999	Rotary
WRH99006	550056.63	6161301.54	1074.85	15.52		PEN	1999	Rotary
WRH99007	550079.19	6161319.45	1075.77	9.45		PEN	1999	Rotary
WRH99008	550121.99	6161319.83	1080.16	18.31		PEN	1999	Rotary
WRH99009	550181	6161333.53	1084.5	24.28		PEN	1999	Rotary
WRH99010	550095.12	6161212.78	1086.66	36.42		PEN	1999	Rotary
WRH99011	550124.61	6161239.55	1087.96	36.4		PEN	1999	Rotary
WRH99012	550154.4	6161268.93	1088.2	36.66		PEN	1999	Rotary
WRH99013	550161.32	6161186.21	1094.62	49.6		PEN	1999	Rotary
WRH99014	550197.96	6161221.91	1096.17	18		PEN	1999	Rotary
WRH99015	550160.59	6161183.32	1094.55	51.96		PEN	1999	Rotary
WRH99016	550228.41	6161254.24	1094.96	11.03		PEN	1999	Rotary
WRH99017	550214.9	6161348.11	1084.38	24.38		PEN	1999	Rotary
WRH99018	550239.99	6161374.65	1085.29	24.3		PEN	1999	Rotary
WRH99019	550161.75	6161348.34	1079.87	17.61		PEN	1999	Rotary
WRH99020	550197.29	6161375.82	1081.85	16.66		PEN	1999	Rotary
WRH99021	550234.08	6161407.73	1082.95	18.79		PEN	1999	Rotary
WRH99022	550151.22	6161379	1076.62	30.75		PEN	1999	Rotary
WRH99023	550264.84	6161346.74	1083.68	27.3		PEN	1999	Rotary
WRH99024	550227.49	6161594.03	1096.74	63.82		PEN	1999	Rotary
WRH99025C	550123.49	6161312.87	1079.87	37.49		PEN	1999	Core
WRH99026C	550121.24	6161315.85	1079.97	14.94		PEN	1999	Core
WRH99027C	550120.66	6161314.55	1079.95	14.94		PEN	1999	Core
WRH99028C	550119.98	6161313.09	1080.02	14.43		PEN	1999	Core
WRH99029C	550118.52	6161311.71	1079.95	14.94		PEN	1999	Core
WRH99030C	550117.2	6161310.25	1079.93	14.94		PEN	1999	Core
WRH99031C	550115.8	6161308.47	1079.86	14.63		PEN	1999	Core
WRH99032C	550113.63	6161307.21	1080.04	15.54		PEN	1999	Core
WRH99033C	550113.51	6161305.41	1079.73	14.63		PEN	1999	Core
WRH99034C	550114.31	6161303.4	1079.62	14.63		PEN	1999	Core
WRH99035C	550114.46	6161301.46	1079.8	14.94		PEN	1999	Core
WRH99036C	550197.86	6161333.53	1084.36	22.76		PEN	1999	Core
WRH99037C	550196.18	6161331.81	1084.32	22.76		PEN	1999	Core
WRH99038C	550194.35	6161330.17	1084.22	22.66		PEN	1999	Core
WRH99039C	550192.75	6161329.59	1084.16	22.86		PEN	1999	Core
WRH99040C	550190.71	6161327.93	1084.15	22.86		PEN	1999	Core
40 boreholes		*16 core*		*24 rotary*				

Table 3-2: Historic boreholes at Willow Creek Mine (continued)

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
Year-2001								
WRH2001-1	550313.59	6161479.85	1094.2	57.6		PEN	2001	Rotary
WRH2001-2	550296.38	6161463.51	1095.23	66.5		PEN	2001	Rotary
WRH2001-3	550274.74	6161442.61	1097.93	56.8		PEN	2001	Rotary
WRH2001-4	550118.13	6161147.44	1096.31	32.7		PEN	2001	Rotary
WRH2001-5	550233.99	6161086.87	1086.72	40.5		PEN	2001	Rotary
WRH2001-6	*not drilled?*							
WRH2001-7C	550202.16	6161582.08	1096.84	42.3		MO	2001	Core
WRH2001-8C	550360.3	6161406.79	1102.98	29.7		PEN	2001	Core
WRH2001-9C	550276.25	6161133.76	1082.86	42.8		PEN	2001	Core
WRH2001-10	550191	6161217.59	1096	9		PEN	2001	Rotary
WRH2001-11	550254.14	6161105.04	1085.75	42		PEN	2001	Rotary
WRH2001-12	550286.44	6161180.38	1083.55	41.5		PEN	2001	Rotary
WRH2001-13	550364.36	6161259.15	1076.8	13.1		PEN	2001	Rotary
WRH2001-14	550256.82	6161424.38	1094.72	37.5		PEN	2001	Rotary
WRH2001-15	550183.47	6161574.53	1094.53	28.9		MO	2001	Rotary
WRH2001-16	550245.62	6161619.7	1096.89	28			2001	Rotary
WRH2001-17	550344	6161492.41	1103	68.8		PEN	2001	Rotary
WRH2001-18	550132.66	6161156.74	1096.59	28.3		PEN	2001	Rotary
WRH2001-19	550066.87	6161206.13	1081.66	25		PEN	2001	Rotary
WRH2001-20C	550760	6162658	1119	294		4C	2001	Core
WRH2001-21C	550522	6162489	1152	300		4C	2001	Core
20 boreholes		*5 core*		*15 rotary*				
Year-2005								
WC05-01	550142.06	6161845.26	1050.5	44		7C-S	2005	Rotary
WC05-02	550193.5	6161706.03	1054.75	44		7C-S	2005	Rotary
WC05-03	550246.26	6161766.99	1059.7	44		7C-S	2005	Rotary
WC05-04	550223.12	6161738.03	1057.38	74		7C-S	2005	Rotary
WC05-05	550101.79	6161809.68	1049.7	62		7C-S	2005	Rotary
WC05-06	550088.1	6161796.97	1049.9	53.9		7C-S	2005	Rotary
WC05-07	550321	6161551	1048.9	9.4		MO	2005	Rotary
WC05-08	550293	6161521	1046.7	11.5		MO	2005	Rotary
WC05-09	550301.58	6161874.06	1086.5	123		7C-S	2005	Rotary
WC05-10	550258.75	6161845.4	1083.2	62		7C-S	2005	Rotary
WC05-11	550330.22	6161931.91	1097.9	117		7C-S	2005	Rotary
WC05-12	550337.93	6161722.07	1091.7	62		7C-S	2005	Rotary
WC05-13	550362.3	6161739.77	1107.8	98		7C-S	2005	Rotary
WC05-14	550392.28	6161768.58	1119.2	189.6		7C-S	2005	Rotary
WC05-15	550412.1	6161823.21	1107.3	74		7C-S	2005	Rotary
WC05-16	550528.91	6161698.5	1137.3	80		7C-S	2005	Rotary
WC05-17	550492.02	6161683.07	1134.2	129		7C-S	2005	Rotary

Table 3-2: Historic boreholes at Willow Creek Mine (concluded)

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
WC05-18	550460.41	6161625.83	1110.6	104		7C-S	2005	Rotary
WC05-19	550566.63	6161590.78	1146.1	92		7C-S	2005	Rotary
WC05-20	550587.96	6161615.59	1145.5	37		7C-S	2005	Rotary
WC05-21	550517.58	6161601.57	1132.2	110		7C-S	2005	Rotary
WC05-22	550509.21	6161531.56	1097.36	62		7C-S	2005	Rotary
WC05-23	550430.37	6161594.38	1097.34	44		7C-S	2005	Rotary
WC05-24	550212.36	6161788.68	1047.37	43		7C-S	2005	Rotary
WC05-25	550172.31	6161868.86	1063.2	62		7C-S	2005	Rotary
WC05-26	550274.98	6161648.77	1049.9	50		7C-S	2005	Rotary
WC05-27	550248.5	6161618.88	1050.2	38		7C-S	2005	Rotary
WC05-28	550125.59	6161823.47	1050.2	56		7C-S	2005	Rotary
28 boreholes		*0 core*		*28 rotary*				

Table 3-3: Current boreholes at Willow Creek Mine

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
Year-2007								
WC07-01A	550595.98	6161480.66	1098.76	97.54		7C-S	2007	Rotary
WC07-01B	550596.52	6161481.34	1098.8	167.64		7C-S	2007	Rotary
WC07-02	550543.1	6161568.61	1097.35	121.92		7C-S	2007	Rotary
WC07-03	550373.68	6161678.73	1087.67	70.1		7C-S	2007	Rotary
WC07-04	550414.85	6161723.48	1087.51	100.58		7C-S	2007	Rotary
WC07-05	550487.45	6161873.15	1129.02	170.25		7C-S	2007	Rotary
WC07-06	550419.22	6161800.41	1098.82	185.93		7C-S	2007	Rotary
WC07-07	*not drilled?*							
WC07-08	*not drilled?*							
WC07-09	550427.4	6162036.14	1129.61	73		7C-S	2007	Rotary
WC07-10	550383.37	6161975.78	1115.5	146.3		7C-S	2007	Rotary
WC07-11	550410.53	6162012.2	1122.95	131.06		7C-S	2007	Rotary
WC07-12	550183.23	6161913.2	1063.67	54.86		7C-S	2007	Rotary
WC07-13	550248.05	6161978.33	1087.42	161		7C-S	2007	Rotary
WC07-14	550302.01	6162039.58	1107.15	128		7C-S	2007	Rotary
WC07-15	550343.41	6162085.24	1119.08	122		7C-S	2007	Rotary
WC07-16C	550126.11	6161994.02	1078.67	85.34		7C-S	2007	Core

Table 3-3: Current boreholes at Willow Creek Mine (continued)

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
WC07-17	550166.31	6162043.81	1080.74	131.4		7C-S	2007	Rotary
WC07-18	550204.64	6162083.4	1096.8	118.87		7C-S	2007	Rotary
WC07-19	550242.95	6162127.61	1105.3	99		7C-S	2007	Rotary
WC07-20	550278.09	6162157.55	1106.41	115.5		7C-S	2007	Rotary
WC07-21	550088.2	6162088.3	1077.08	140.2		7C-N	2007	Rotary
WC07-22	550186.99	6162156.1	1094.44	128		7C-N	2007	Rotary
WC07-23	550214.59	6162220.07	1097.57	131.1		7C-S	2007	Rotary
WC07-24	549994.88	6162136.46	1067.1	97.5		7C-S	2007	Rotary
WC07-25	*not drilled?*							
WC07-26	550085.91	6162249.64	1095.31	140		7C-N	2007	Rotary
WC07-27	*not drilled?*							
WC07-28	550048.96	6162214.4	1098.69	121.9		7C-S	2007	Rotary
WC07-29	*not drilled?*							
WC07-30	549847.85	6162285	1111.38	79.2		7C-N	2007	Rotary
WC07-31	549670.28	6162245.67	1112.4	57.9		7C-N	2007	Rotary
WC07-32	549743.39	6162323.44	1109.3	91.5		7C-N	2007	Rotary
WC07-33	549775.31	6162354.05	1110.7	118.9		7C-N	2007	Rotary
WC07-34	549629.47	6162344.61	1110.52	88.4		7C-N	2007	Rotary
WC07-35	549735.06	6162461.01	1089.9	146.3		7C-N	2007	Rotary
WC07-36	549651.03	6162513.65	1068.4	131.1		7C-N	2007	Rotary
WC07-37	549448.53	6162444.99	1108.34	67.1		7C-N	2007	Rotary
WC07-38	549516.51	6162523.26	1088.91	82.3		7C-N	2007	Rotary
WC07-39	549592.2	6162598.86	1045.13	134		7C-N	2007	Rotary
WC07-40	549864.26	6162892.43	1092.31	106.7		4C	2007	Rotary
WC07-41	*not drilled?*							
WC07-42	*not drilled?*							
WC07-43	549924.91	6162805.26	1100.42	82.3		4C	2007	Rotary
WC07-44	*not drilled?*							
WC07-45	550008.62	6162749.06	1114.34	103.6		4C	2007	Rotary
WC07-46	*not drilled?*							
WC07-47	550093.06	6162694.81	1126.88	115.8		4C	2007	Rotary
WC07-48	550089.8	6162543.81	1105.81	39.6		4C	2007	Rotary
WC07-49	550149.06	6162608.19	1121.43	88.4		4C	2007	Rotary
WC07-50	*not drilled?*							
WC07-51	550253.91	6162429.9	1112.43	45.72		4C	2007	Rotary
WC07-52	550296.97	6162475.53	1118.21	99.06		4C	2007	Rotary
WC07-53	550344.52	6162526.52	1120.73	129.54		4C	2007	Rotary
WC07-54	*not drilled?*							
WC07-55C	550363.97	6162401.51	1117.5	51.82		4C	2007	Core

Table 3-3: Current boreholes at Willow Creek Mine (continued)

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
WC07-56	*not drilled?*							
WC07-57	*not drilled?*							
WC07-58	*not drilled?*							
WC07-59	*not drilled?*							
WC07-60	*not drilled?*							
WC07-61	549567.17	6162571.26	1060.88	131.1		7C-N	2007	Rotary
WC07-62	549375.9	6162512.1	1093.55	57.9		7C-N	2007	Rotary
WC07-63	549472.8	6162617.06	1056.92	97.5		7C-N	2007	Rotary
WC07-64	549517.97	6162665.06	1020.81	88.4		7C-N	2007	Rotary
WC07-65	549317.96	6162596.53	1077.24	57.9		7C-N	2007	Rotary
WC07-66	549378.68	6162669.93	1059.95	122		7C-N	2007	Rotary
WC07-67	549482.8	6162770.4	993.28	125		7C-N	2007	Rotary
WC07-68	549589.8	6162744.88	1016.01	131		7C-N	2007	Rotary
WC07-69	549348.1	6162777.48	1003.63	42.7		7C-N	2007	Rotary
WC07-70	549409.27	6162834.55	975.49	122		7C-N	2007	Rotary
WC07-71	549193.48	6162756.96	1049.24	60.9		7C-N	2007	Rotary
WC07-72	549271.77	6162859.91	978.37	88.3		7C-N	2007	Rotary
WC07-73	549130.32	6162835.45	1030.99	60.9		7C-N	2007	Rotary
WC07-74	549229.25	6162943.59	953.35	70.1		7C-N	2007	Rotary
WC07-75	*not drilled?*							
WC07-76	550420.59	6162313.99	1118.54	62.48		4C	2007	Rotary
WC07-77	*not drilled?*							
WC07-78	549927.47	6162662.81	1094.85	60		4C	2007	Rotary
WC07-79	549769.05	6162639.67	1091.62	154		7C-N	2007	Rotary
WC07-80	549754.94	6162924.1	1095.82	102		4C	2007	Rotary
WC07-81	549651.13	6162805.13	1036.8	182.8		7C-N	2007	Rotary
WC07-82	*not drilled?*							
WC07-83	549839.51	6163162.56	997.98	91.4		4C	2007	Rotary
WC07-84	549544.12	6162989.38	1015.16	180		7C-N	2007	Rotary
WC07-85	549726.3	6163181.59	1031.16	97.5		4C	2007	Rotary
WC07-86	*not drilled?*							
WC07-87	549609.05	6163199.96	1028.15	60		4C	2007	Rotary
WC07-88	549723.31	6163317.91	980.26	97.5		4C	2007	Rotary
WC07-89	549651.03	6163391.4	965.69	88.4		4N	2007	Rotary
WC07-90	549355.54	6163076.45	932.39	109.7		7C-N	2007	Rotary
WC07-91	549392.48	6163119.96	939.62	137.1		7C-N	2007	Rotary
WC07-92	549486.55	6163220.36	984.6	182.8		7C-N	2007	Rotary
WC07-93	*not drilled?*							
WC07-94	*not drilled?*							

Table 3-3: Current boreholes at Willow Creek Mine (continued)

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
WC07-95	550645.79	6161462.32	1103.09	152.4		7C-S	2007	Rotary
WC07-96	*not drilled?*							
WC07-97	550553.92	6161577.23	1097.21	167.64		7C-S	2007	Rotary
WC07-98	*not drilled?*							
WC07-99	550579.48	6161679.42	1120.38	137.16		7C-S	2007	Rotary
WC07-100	*not drilled?*							
WC07-101C	550498.85	6161592.93	1087.71	64		7C-S	2007	Core
77 boreholes		*3 core*		*74 rotary*				
Year-2008								
WC08-01	549144.63	6162984.25	952.72	39		7C-N	2008	Rotary
WC08-02	549214.78	6163077.35	908.64	47.45		7C-N	2008	Rotary
WC08-03	*not drilled*							
WC08-04	549398.17	6163273.17	931.67	151.5		7C-N	2008	Rotary
WC08-04A	550793.7	6161543.25	1140.77	88.5		7C-S	2008	Rotary
WC08-05	549608.52	6163497.97	925.48	97		4N	2008	Rotary
WC08-05A	550846.1	6161452	1114.32	52.7		7C-S	2008	Rotary
WC08-06	549703	6163592.78	876.6	119.6		4N	2008	Rotary
WC08-06A	550871.7	6161489	1122.21	101		7C-S	2008	Rotary
WC08-07	549060.97	6163199.18	903.89	143		7C-N	2008	Rotary
WC08-08	549148.87	6163296.42	856.97	84.36		7C-N	2008	Rotary
WC08-09	549366.68	6163531.53	895.58	130.1		7C-N	2008	Rotary
WC08-10	549574.89	6163744.47	862.33	203		4N	2008	Rotary
WC08-11	549016.18	6163447.74	856.53	46.7		7N	2008	Rotary
WC08-11A	550752.15	6161569.1	1140.9	73.6		7C-S	2008	Rotary
WC08-12	*not drilled*							
WC08-13	549173.52	6163612.79	832.03	136.5		7N	2008	Rotary
WC08-14	549381.69	6163840.27	838.41	151.5		4Nex	2008	Rotary
WC08-15	549470.92	6163931.85	821.65	139		4Nex	2008	Rotary
WC08-16	*not drilled*							
WC08-17	548995.52	6163712.64	781.02	141.01		7N	2008	Rotary
WC08-18	549072.56	6163802.11	797.76	126.23		7N	2008	Rotary
WC08-19	549153.63	6163891.29	816.34	142		7N	2008	Rotary
WC08-20	549305.1	6164052.72	821.74	159.16		4Nex	2008	Rotary
WC08-21	549387.07	6164124.33	790.49	125.01		4Nex	2008	Rotary
WC08-22	548725.77	6163729.91	759.41	164.39		7N	2008	Rotary
WC08-23	548839.25	6163843.3	749.01	173.18		7N	2008	Rotary
WC08-24	*548914.53*	6163929.66	750.92	165.15		7N	2008	Rotary
WC08-25	*not drilled*							
WC08-26	549227.73	6164264.78	768.91	147.01		4Nex	2008	Rotary

Table 3-3: Current boreholes at Willow Creek Mine (continued)

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
WC08-27	549288.9	6164327.06	754.94	155.4		4N	2008	Rotary
WC08-28	548640.96	6163925.98	736.86	185.23		7N	2008	Rotary
WC08-29	548734.88	6164023.4	733.48	162.09		7N	2008	Rotary
WC08-30	548899.61	6164195.69	754.01	121.21		7N	2008	Rotary
WC08-31	549088.66	6164421.74	736.46	146.64		4Nex	2008	Rotary
WC08-32C	549174.63	6164493.5	720.64	172.9		4Nex	2008	Core
WC08-33	548552.59	6164127.57	704.51	81.09		7N	2008	Rotary
WC08-34	548613.74	6164197.04	703.46	141.48		7N	2008	Rotary
WC08-35	548696.92	6164279.87	712.71	138.4		7N	2008	Rotary
WC08-36	*not drilled*							
WC08-37	*not drilled*							
WC08-38	549014.38	6164606.49	702.04	166		4Nex	2008	Rotary
WC08-39	*not drilled?*							
WC08-40	*not drilled?*							
WC08-41	548570.88	6164439.21	659	112.8		7N	2008	Rotary
WC08-42	548656.08	6164528.99	660.2	60.9		7N	2008	Rotary
WC08-43	*not drilled*							
WC08-44	549133.82	6163138.62	902.73	29.65		7C-N	2008	Rotary
WC08-45	549198.25	6163210.53	869.55	30.48		7C-N	2008	Rotary
WC08-46	549283.28	6163293.76	863.92	81.47		7C-N	2008	Rotary
WC08-47	549045.16	6163321.13	864.32	69.43		7C-N	2008	Rotary
WC08-48	549094.79	6163393.86	838.62	50		7C-N	2008	Rotary
WC08-49	549233.57	6163539.39	855.24	151.5		7N	2008	Rotary
WC08-50	549012.96	6163587.22	804.87	102		7N	2008	Rotary
WC08-51	549062.69	6163633.05	803.65	103		7N	2008	Rotary
WC08-52	*not drilled?*							
WC08-53	*not drilled?*							
WC08-54	548990.89	6163861.34	770.81	123.12		7N	2008	Rotary
WC08-55	*not drilled?*							
WC08-56	*not drilled?*							
WC08-57	548966.33	6164132.88	763.4	191.51		7N	2008	Rotary
WC08-58	*not drilled?*							
WC08-59	*not drilled?*							
WC08-60	*not drilled?*							
WC08-61	*not drilled?*							
WC08-62	*not drilled?*							
WC08-63	548688.09	6164711.91	640.66	122		7N	2008	Rotary
WC08-64	549260.58	6163702.75	867.48	102.51		7C-N	2008	Rotary
WC08-65	549326.08	6163635.42	860.97	112.12		7C-N	2008	Rotary

Table 3-3: Current boreholes at Willow Creek Mine (continued)

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
WC08-66	*not drilled?*							
WC08-67	*not drilled?*							
WC08-68	*not drilled?*							
WC08-69C	549618.7	6163822.82	848.85	144.8		4N	2008	Core
WC08-70C	549997.71	6162139.84	1067.26	157.6		7C	2008	Core
WC08-71	*not drilled*							
WC08-72	*not drilled*							
WC08-73	*not drilled*							
WC08-74	*not drilled*							
WC08-75	*not drilled*							
WC08-76	*not drilled*							
WC08-77	*not drilled*							
WC08-78	*not drilled*							
WC08-79	*not drilled*							
WC08-80	*not drilled*							
WC08-81	*not drilled*							
WC08-82	*not drilled*							
WC08-83	*not drilled*							
WC08-84	*not drilled*							
WC08-85	*not drilled*							
WC08-86	*not drilled*							
WC08-87	*not drilled*							
WC08-88	*not drilled*							
WC08-89	*not drilled*							
WC08-90	*not drilled*							
WC08-91	*not drilled*							
WC08-92	*not drilled*							
WC08-93	*not drilled*							
WC08-94	*not drilled*							
WC08-95	*not drilled*							
WC08-96	*not drilled*							
WC08-97	*not drilled*							
WC08-98	*not drilled*							
WC08-99	*not drilled*							
53 boreholes		*3 core*		*50 rotary*				
Year-2009								
WC09-01P	550418	6161607	1086	39.62		7C-S	2009	Rotary
WC09-01C	550418	6161608	1086	31		7C-S	2009	Core
WC09-02P	550407	6161707	1081	33.52		7C-S	2009	Rotary

Table 3-3: Current boreholes at Willow Creek Mine (continued)

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
WC09-02C	550409	6161709	1081	30		7C-S	2009	Core
WC09-03	*not drilled?*							
WC09-04P	550368	6162397	1116	25		4C	2009	Rotary
WC09-04C	550366	6162400	1116	14		4C	2009	Core
WC09-05	549944	6162828	1102	42.67		4N	2009	Rotary
WC09-05C	549944	6162828	1102	39		4N	2010	Core
WC09-06P	549570	6162424	1107	30.48		7C-N	2009	Rotary
WC09-06C	549570	6162422	1109	26		7C-N	2010	Core
WC09-07P	549342	6162477	1092	30.48		7C-N	2009	Rotary
WC09-07C	549341	6162478	1092	24		7C-N	2010	Core
WC09-08P	549129	6162833	1030	38.62		7C-N	2009	Rotary
WC09-08C	549126	6162838	1030	33		7C-N	2010	Core
WC09-09P	549627	6163542	914	30		4N	2010	Core
WC09-09C	549628	6163544	914	30		4N	2010	Core
WC09-10	549514	6163281	980	33.52		4C	2009	Rotary
WC09-10C	549514	6163281	980	34		4C	2010	Core
WC09-11	549107	6164240	756	42.67		4N	2009	Rotary
WC09-11C	549106	6164237	754	38		4N	2009	Core
WC09-12	549156	6164331	748	30.48		4N	2009	Rotary
WC09-12C	549153	6164331	748	23		4N	2009	Core
WC09-13	549127	6164301	751	36.57		4N	2009	Rotary
WC09-13C	549126	6164302	749	28		4N	2009	Core
WC09-14	549049	6162774	1040	88.39		7C-N	2009	Rotary
WC09-15	549304	6162429	1088	109.7		7C-N	2009	Rotary
WC09-16	548876	6164765	670	109.7		4Nex	2009	Rotary
WC09-17	*not drilled*							
WC09-18	*not drilled*							
WC09-19	*not drilled*							
WC09-20	*not drilled*							
WC09-21	*not drilled*							
WC09-22	*not drilled*							
WC09-23	*not drilled*							
WC09-24	*not drilled*							
WC09-25	*not drilled*							
WC09-26	*not drilled*							
WC09-27	*not drilled*							
WC09-28	*not drilled*							
WC09-29	*not drilled*							
WC09-30	*not drilled*							

Table 3-3: Current boreholes at Willow Creek Mine (continued)

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
WC09-31	*not drilled*							
WC09-32	*not drilled*							
WC09-33	*not drilled*							
WC09-34	*not drilled*							
WC09-35	*not drilled*							
WC09-36	*not drilled*							
WC09-37	*not drilled*							
WC09-38	*not drilled*							
WC09-39	*not drilled*							
WC09-40	*not drilled*							
WC09-41	*not drilled*							
WC09-42	*not drilled*							
WC09-43	*not drilled*							
WC09-44	*not drilled*							
WC09-45	*not drilled*							
WC09-46	*not drilled*							
WC09-47	*not drilled*							
WC09-48	*not drilled*							
WC09-49	*not drilled*							
WC09-50	548657	6163595	778	100.58		7N	2009	Rotary
WC09-51	548531	6163598	771	109.73		7N	2009	Rotary
WC09-52	548295	6163449	777	97.53		7N	2009	Rotary
WC09-53	548394	6163443	779	118.87		7N	2009	Rotary
WC09-54	548766	6163383	826	127.12		7N	2009	Rotary
WC09-55	548695	6163313	845	125		7N	2009	Rotary
WC09-56	548598	6163221	831	110		7N	2009	Rotary
WC09-57	548513	6163123	852	109.72		7N	2009	Rotary
WC09-58	548330	6162928	931	131.06		7N	2009	Rotary
WC09-59	548159	6163031	904	131.06		7N	2009	Rotary
WC09-60	548285	6163176	882	131.06		7N	2009	Rotary
38 boreholes		*13 core*		*25 rotary*				
Year-2010								
SRK10-02	548789	6164874	646	96		4Nex	2010	Core
SRK10-03	548818	6164872	651	13		4C	2010	Rotary
WC10-01C				55.12			2010	Core
WC10-02C				49.03			2010	Core
WC10-03C				119.32			2010	Core
WC10-04C	549315.08	6164481.61	737.76	173.58		4N	2010	Core
WC10-21	*not drilled?*							

Table 3-3: Current boreholes at Willow Creek Mine (concluded)

	UTM (NAD83 Zone10)		metres		Data source	Pit / Area	Year drilled	Drilling method
Borehole	Easting	Northing	Elevation	Depth				
WC10-38	*not drilled?*							
WC10-44	*not drilled*							
WC10-50	*not drilled?*							
WC10-51	*not drilled?*							
6 boreholes		*5 core*		*1 rotary*				
Year-2011								
WC11-01	550470.54	6162363.95	1101.84	79.24		4C	2011	Rotary
WC11-02	550581.43	6162260.41	1112.1	60.96		4C	2011	Rotary
WC11-03	550557.71	6162164.2	1103.63	195.07		4C	2011	Rotary
WC11-04	550728.22	6162051.83	1104.26	234.94		4C	2011	Rotary
WC11-05	550801.4	6161986.22	1106.38	210.31		4C	2011	Rotary
WC11-06	550537.7	6162220.24	1111.09	48.76		4C	2011	Rotary
WC11-07	550652.17	6161973.82	1151.31	195.07		4C	2011	Rotary
7 boreholes		*0 core*		*7 rotary*				
Year-2013								
4N1-13-1	548872.6	6164612	686.80	48.20		4N1	2013	Core
4N1-13-2	549042.5	6164354.5	739.60	49.70		4N1	2013	Core
4N1-13-3	548893.44	6164634.25	689.11	65.80		4N1	2013	Core
4N1-13-4	*not drilled*							
4N1-13-5	549145.43	6164318.19	752.76	94.18		4N1	2013	Core
4N1-13-6	548979.90	6164724.00	692.37	191.71		4N1	2013	Core
4N1-13-7	549085.40	6164607.00	707.46	191.70		4N1	2013	Core
7N2-13-1	549650.3	6163028.9	1058.00	52.10		7N2	2013	Core
7N2-13-2	549853.1	6162879.7	1069.96	50.00		7N2	2013	Core
7N2-13-3	549918.3	6162803.15	1070.20	49.40		7N2	2013	Core
7N2-13-4	549816.5	6162840.4	1070.40	32.00		7N2	2013	Core
7N2-13-5	549676	6163056.4	1058.00	61.60		7N2	2013	Core
7N2-13-6	549875.81	6162903.98	1070.81	71.30		7N2	2013	Core
7N2-13-7	549875.8	6162904	1070.23	66.10		7N2	2013	Core
7N2-13-8	549632.19	6163082.75	1058.00	60.04		4N1	2013	Core
14 boreholes		*14 core*		*0 rotary*				

3.3 Current (years-2007 through 2013) exploration

Willow Creek Coal Partnership conducted drilling programmes within the Willow Creek Mine block in years-2007 through 2013. Current drilling comprised 195 boreholes, with overall depth of 19,621.17 metres. **Table 3-3** (given above) presents the positional details and depths of current boreholes. Summary tables concerning major coal-beds intersected within selected historic boreholes and within current boreholes are presented as **Table 5-2**, and as **Tables A-2** through **A-9**, within **Appendix A**.

Positions of most of the boreholes have been recorded, although those of a small number of boreholes are still unknown. In the case of a smaller number yet, starting trajectories of the boreholes are unknown, or only partially known (generally stated only as a rounded-off figure for dip angle, but no indication of starting azimuth).

The purpose of the current drilling was to refine and extend the understanding of the structure and extent of Gaylard Member coal, and to better define the quality variations of major coal beds (**Table B-1** in **Appendix B** and **Table D-1** in **Appendix D**). Current drilling mainly examined the coals of zones No. 1 through No.7, within the upper and middle portions of the Gaylard Member. Less attention was paid to coal zones 8 through 11, and zone 12 appears to have not been tested by current drilling.

The majority of the boreholes were advanced by means of non-coring methods, using rotary-drilling rigs. A modest amount of coring was undertaken; however, core descriptions have not yet been located.

Access to drill sites was generally via a combination of existing and new trails, including reactivated logging trails where they were conveniently located with regard to the desired drilling locations. Some drill-pads were built immediately adjacent to existing high-grade roads.

3.3.1 Borehole geophysics

Downhole geophysical logging of nearly all of the current boreholes was done by Century Wireline Services and by Weatherford. Downhole geophysical logs have been located for almost all of the current boreholes, and it is presumed that any remaining gaps in the geophysical record represent boreholes which either collapsed prior to logging, or whose stability was regarded to be insufficient to allow safe usage of the geophysical tools.

A standard coal-industry suite of logs was run:

- Gamma/caliper/resistivity/density;
- Gamma/density through drill rods (done as a rare expedient; uncalibrated);
- Gamma/neutron; and
- Deviation/verticality.

Dipmeters were not run in any of the current boreholes; nor were sonic logs. Digital and/or scanned hardcopies of resultant downhole geophysical logs are presented in **Appendix A**, with an inventory of logs as **Table A-1**.

Most of the digital logs are presented in LAS (Log ASCII Standard, as promulgated by the Canadian Well Logging Society) format, or in TIF (Tagged Image File) format. LAS files

can readily be imported into, and manipulated by, geophysical-processing software, whereas TIF files may be opened by the native *Microsoft Windows* image-viewer.

3.3.2 Cross-reference to current coal-quality work

Efforts are still underway to locate coal-quality data within the voluminous hard-copy technical files held at Willow Creek Mine. At the time of writing, in June 2015, it remains unclear just what current work has been done, owing mainly to extensive turnover of technical staff, and resultant gaps in collective organisational memory. What is presently known, however, is that analytical work was done upon various core samples collected in the course of the year-2008, year-2009, year-2010 and year-2013 (Avery and Voyle, 2013) drilling programmes at Willow Creek Mine as discussed within **Section 6**, **Appendix B** (raw-coal quality data) and confidential **Appendix C** (clean-coal quality data) of this report. Results of petrographic and reflectometric studies on year-2013 samples are presented in confidential **Appendix D** of this report.

3.4 Comments on validity of exploratory work

Historic and current drilling at Willow Creek Mine, comprising 726 boreholes at 50,701.53 metres' total length (**Table 3-1**) is regarded as having validly tested the coal potential of the coal-measures of the Gaylard Member of the Gething Formation, such that tonnage estimates of the coal resource (of coal-in-place) can be undertaken with reasonable confidence. Coal-resource estimation is discussed in greater detail within **Section 7** of the present report.

Stratigraphic variations in coal quality (notably, in the coking potential of the various coal beds) between coal zones are reasonably-well established by existing drilling and analytical work, although not yet sufficiently-documented. However, understanding of spatial variations of coal quality within individual coal beds, or closely-associated coal beds within a given coal zone, is hampered by the missing positional data of numerous boreholes.

The various tables of coal-bed intersection thicknesses and depths, as presented within this report, have been compiled from pre-existing data-tables found within technical records held at Willow Creek Mine, upon the presumption that these earlier documents were prepared with a reasonable and customary level of skill as has prevailed within the Canadian coal industry.

4 Geological setting

The coalfields of northeastern British Columbia are hosted by marine and non-marine clastic sediments of Jurassic, Cretaceous and earliest Tertiary age. These rocks form a series of thick sequences of molasse and flysch, all of which was deposited into the Rocky Mountain Foreland Basin of Western Canada. The basin is bounded by the mobile crustal terranes of the Cordilleran Orogen to the west, and the cratonic rocks and Palaeozoic cover sequences of the Canadian Shield to the east.

4.1 Regional structural setting

Most of the Jura-Cretaceous sediments were derived from orogenically-uplifted landmasses lying to the southwest of the basin, although patterns of sedimentation were to some extent influenced by occasional vertical movements of underlying structures within the cratonic basement rocks, chief amongst which was the Peace River Arch (Stott, 1968).

During Late Mesozoic and Early Cenozoic time, the Cordilleran Orogen underwent two main phases of deformation: the Late Jurassic to earliest Late Cretaceous Columbian Orogeny, and the Late Cretaceous to Oligocene Laramide Orogeny (Douglas *et al*, 1970). Both of these orogenies were driven by transpressional crustal movements along the outboard (western) edge of the North American continent. In each case, orogenic activity was driven by the collision of northward-moving exotic crustal terranes, which in turn caused compressive strains within the previously-accreted western margin of the continent. Northeast-directed overthrusting of Palaeozoic rocks caused episodic uplift of the Cordilleran Orogen, in turn providing a ready source of sediment into the Foreland Basin (Cant and Stockmal, 1989; Cant, 1996; Cant and Abrahamson, 1996).

The present-day Rocky Mountains are the most visible manifestation of Columbian and Laramide overthrusting, which gradually proceeded northeastward, with successively-younger thrusts tending to break through the Foreland's rocks at successively-deeper stratigraphic levels. As successively-younger thrusts developed, they generated passive folding within overlying, previously-deformed rocks. Overlying, older thrusts were therefore passively folded along with their adjoining strata. Recognition of folded thrusts is essential to understanding the structural geology of the Foothills coal deposits of northeastern British Columbia.

From southwest to northeast, the Cordilleran fold-thrust belt gradually changes structural styles (Thompson, 1979) from a thrust-dominant regime(within the mostly-Palaeozoic carbonate-clastic rocks of the Rocky Mountain Main Ranges and Front Ranges) to a mixed fold-thrust regime (within the Inner Foothills, including the Willow Creek Mine property) to a gently-folded frontal regime (within the Outer Foothills, five to ten kilometres to the northeast of Willow Creek Mine).

4.2 Regional stratigraphic setting

Stratigraphic nomenclature within the coalfields of northeastern British Columbia has undergone considerable revision during the past fifty years. Principal workers, whose reports were used as primary references for the present report, are J.E. Hughes (1964, 1967), D. Stott (1968, 1973, 1981, 1998), P.McL.D. Duff and R.D. Gilchrist (1981), and D.W. Gibson (1992).

The stratigraphic sequence within the northwestern part of the Mink-Brazion coalfield (including Willow Creek Mine) comprises Lower Cretaceous rocks of the Fort St. John and Bullhead groups, and older Jurassic to Lower Cretaceous rocks of the Minnes Group (**Table 4-**

1). Fort St. John Group rocks are present only along the northeastern fringe of the Willow Creek Mine block, owing to substantial erosion. Minnes Group rocks are present only in the subsurface at Willow Creek Mine, inasmuch as the Bullhead Group rocks are nowhere completely stripped-away by erosion (**Map 2-3**). Almost all of the block is covered with coal-measures of the Gaylard Member of the Gething Formation, which forms the upper part of the Bullhead Group, or by the marine rocks of the overlying Bluesky and Moosebar formations, which form the basal part of the Fort St. John Group.

Considerable stratigraphic controversy (as expressed in works of Hughes and Stott) has revolved around the identity and stratigraphic topology of rocks underlying and overlying the coal-measures of the Gething Formation. In this report, the Gething Formation, as well as immediate sub-Gething rocks, are assigned to the Bullhead Group, following Stott's extensive regional work. Hughes' stratonymy, comprising the Crassier and Beaudette groups, is now formally deprecated.

At the latitude of the Willow Creek Mine block, and within the Pine Pass area in general, only the Gaylard Member of the Gething Formation contains coal of potentially-mineable thickness, although within the nearby Burnt River property (McClymont, 1981; Cathyl-Huhn and Avery, 2014b), the Chamberlain Member (there the uppermost subdivision of the Gething Formation) also appears to be coal-bearing.

Owing to the general southwestward back-stepping of the Gething paleodelta complex, at Willow Creek Mine the Bluesky is recognised as a formation in its own right (homotaxial with the more-extensive Bluesky sediments within the Deep Basin of the Alberta Syncline), and the Bullmoose and Chamberlain members (elsewhere assigned to the Gething Formation) are both considered to be members of the Moosebar Formation, as neither the Bullmoose rocks nor the Chamberlain rocks manifest any non-marine indicators. Supra-Gething rocks (from the Bluesky Formation upwards) are assigned to the Fort St. John Group, following Stott's work.

4.3 Local structural geology

Structural geology of the Willow Creek Mine area would be difficult to decipher on the sole basis of bedding attitudes within exposed bedrock, owing to the isolated nature of the outcrops. Much of our understanding of local structural geology comes from borehole intersections of coal-measures, supplemented by isolated exposures of bedrock alongside roads and trails. An additional source of structural information, albeit indirect, is from the interpretation of landforms as visible in aerial photographs and on detailed topographic maps, although this indirect observation is locally hampered by Drift cover.

Map 2-3 depicts, in general terms, our understanding of bedrock structure at property scale. Willow Creek Mine comprises a series of moderately-tight southwest-verging folds, overlain and bounded to the northeast by a northeast-dipping monoclinal panel of coal-measures and cover rocks, dislocated by southwest-verging thrust-faults. The Willow Creek Mine block occupies the leading (northeastern) limb and central duplex zone of the Pine River Anticlinorium, which in turn lies within a regional-scale triangle zone (McMechan, 1984; 1985; Lingrey, 1996). Willow Creek Mine's coal-measures appear to occupy a shallower structural position within the triangle-zone than those of the Willow South or Willow West blocks.

Normal stratigraphic sequences are generally preserved at Willow Creek Mine, despite the thrust-faulting of the rocks and concomitant folding and tectonic stacking. Overturned strata

appear to be rare, although this determination is clouded by the angled geometry of most exploratory boreholes.

4.4 Local stratigraphy

Based largely upon the interpretation of downhole geophysical logs of coal-exploration boreholes, the following stratigraphic sequence (as shown in **Table 4-1**) has been identified within and adjacent to the Willow Creek Mine block.

Table 4-1: Table of formations and subdivisions

Group/Formation/Member			Map-unit		Lithology and thickness		
Quaternary Drift			D		Alluvium; lodgement till; moraines; talus; glaciolacustrine silts, up to ?150 m thick within Pine Valley.		
Fort St. John Group	Hasler Fm.		8a		Siltstone and mudstone; minor sandstone; ironstone as bands of concretions; at least 180 m thick		
	Boulder Creek Fm.		7		Sandstone and siltstone; conglomerate; coal; 75 to 95 m	*Presence of coal not yet proven within Willow Creek Mine block*	
	Hulcross Fm.		6		Siltstone and mudstone; minor sandstone and tuff; basal pebbly gritstone; 120 to 130 m thick		
	Gates Fm.		5		Siltstone, sandstone and conglomerate; minor coal; 190 to 230 m thick	*Presence of coal not yet proven within Willow Creek Mine block*	
	Moosebar Fm. 165 to 280 m thick	Spieker Mb.	4	4c	Siltstone, sandstone; minor mudstone; 60 to 90 m thick	*May be locally structurally-thickened due to internal thrust-induced telescoping, or repeated outright by thrusting. Possible detachment zones at base of Cowmoose Member and Bullmoose Member.*	
		Cowmoose Mb.		4b	Mudstone; minor tuff and ironstone; erosive-based basal glauconitic grit; 80 to 100 m thick		
		Green Marker		4a	Locally-glauconitic siltstone and sandstone; nil to *ca.* 3 m thick		
		Chamberlain Mb.		3d	Sandstone and siltstone; 3 to 6 m thick		
		Bullmoose Mb.		3c	Siltstone and sandstone; mudstone; minor tuff; 100 to 120 m thick		
	Bluesky Fm.		3b		Glauconitic sandstone and gritstone; siltstone and mudstone; 1 to 8 m		
Bullhead Group	Gething Fm.	Gaylard Mb.	3a		Numerous fining-upward cycles of sandstone, siltstone, mudstone and coal (zones 'Bird' and 1 through 12); minor tuff; local concentration of sandstone beds; 260 to 360? metres thick	3a5	Siltstone, sandstone, mudstone and coal (zones 'Bird' and 1 through 4); minor tuff
						3a4	Siltstone and mudstone; coal (zones A, 5 and 6)
						3a3	Sandstone; minor siltstone and mudstone; coal (zones 7 and 8)
						3a2	Siltstone and mudstone; minor sandstone and coal (zone 9)
						3a1	Basal sandy unit: sandstone and siltstone; minor coal (zones 10 to 12 -- correlations tentative)
	Cadomin Fm.		2		Gritty to pebbly, siliceous sandstone and sandy conglomerate with distinctive 'blocky' gamma-log response; minor siltstone and coal; 2.5 to 14? m thick; erosional base		
Minnes Gp.	Bickford Fm.		1		Siltstone, sandstone, conglomerate, and mudstone; minor coal; 285 to 300 m thick	*present only at depth beneath the property*	
	Monach Fm.				Sandstone and conglomerate; siltstone; 210 to 260 m thick		
	Beattie Peaks Fm.				Siltstone, sandstone and mudstone; minor coal; 285 to 350 m thick		
	Monteith Fm.				Quartzite and sandstone; minor siltstone; 340 to 425 m thick		

Relationships between the various rock-units that occur within and adjacent to the Willow Creek Mine block are shown on the geological map (**Map 2-3**) accompanying this report. **Map 2-3** incorporates results of current drilling, together with historic drilling and geological mapping done by others, as cross-referenced in **Section 10** of this report. Geological contacts shown on the map are approximate to inferred, owing to the generally-discontinuous nature of bedrock exposures, and paucity of documented stratigraphic and structural fieldwork.

Rock-units are discussed in detail below, in order from youngest (generally nearest the ground surface) to oldest. Localised inversions of stratigraphic position have been induced by thrust-faulting, but the overall stratigraphic relations remain readily-recognisable, owing to distinctive geophysical and lithological characteristics of the various rock-units.

4.5 Drift (map-unit D)

Unconsolidated sediments, inferred to be of Quaternary age, form a patchy blanket at the ground surface throughout the Willow Creek Mine block. For reasons of clarity, Drift is not mapped as a separate entity within **Map 2-3**, except along the floor of the Pine River valley.

The most pervasive Drift cover consists of glacial till, usually less than 10 metres thick within the upland areas of the property. Patches of sandy, gravelly and bouldery alluvium are present within stream channels. McKechnie (1955) noted the presence of possibly-glaciolacustrine silt deposits within the southeastern portion of the Willow South area; although an extension of such deposits into Willow Creek Mine area is considered likely, the extent of such deposits has yet to be assessed in detail, owing to lack of lithological records in Drift-penetrating boreholes.

The Pine River valley is inferred to be floored and possibly flanked by valley-filling alluvial, glacial, and glaciolacustrine sediments. By inference with results of sparse drilling in other valleys within the Foothills of northeastern British Columbia, such deposits are inferred to be locally up to 150 metres thick.

4.6 Fort St. John Group (map-units 5, 4, and upper part of map-unit 3)

The uppermost of the Early Cretaceous rocks of the Fort St. John Group have been completely removed by erosion at Willow Creek Mine. Most of this erosion is likely to have occurred during a prolonged episode of regional uplift during the Tertiary era (Cant and Stockmal, 1989), followed by further glacial scouring during the Quaternary era, and continuing through fluvial down-cutting to the present time. Within the Group, the remainder of its constituent formations remain at least locally-present within the Willow Creek Mine map-area. From top down, these are the basal half of the Hasler Formation, and the entirety of the Boulder Creek, Hulcross, Gates, Moosebar and Bluesky formations.

4.6.1 Hasler Formation (map-unit 8a)

The Hasler Formation, of late Middle Albian to Late Albian age (Gibson, 1992b) forms subdued slopes within the upland area northeast of the Willow Creek Mine block. The Hasler Formation is not interpreted to form bedrock within the boundaries of the block, but its basal portion (at least 180 metres thick) is mapped as forming bedrock within the northeastern corner of the mapped area of **Map 2-3**, completely outside the property's extent.

The Hasler Formation comprises marine siltstone, overlain by dark grey to black marine mudstone with occasional bands of sideritic concretions. The complete, undeformed thickness of the formation is approximately 335 to 365 metres (Wickenden and Shaw, 1943). A few centimetres to decimetres of erosive-based cherty gritstone commonly mark the Hasler Formation's abrupt basal contact with the underlying Boulder Creek Formation (Wickenden and Shaw, *op.cit*., page 6).

4.6.2 Boulder Creek Formation (map-unit7)

The Boulder Creek Formation, of late Middle Albian age (Gibson, 1992b) forms prominent cliffs in the upland area, along and immediately to the northeast of the Willow Creek Mine block's northeastern boundary. The Boulder Creek Formation is the uppermost of the three formations (Boulder Creek, Hulcross, and Gates) formerly covered by the now-superseded Commotion Formation of Wickenden and Shaw (1943).

Regionally, conglomerate and sandstone are the predominant lithologies of the Boulder Creek Formation, but the Walton Creek Member of the formation also contains fine-grained rocks including siltstone, root-penetrated, variably-carbonaceous mudstone, and coal, some of which attains thicknesses of interest for underground mining. Conglomerate and sandstone are concentrated in the basal Cadotte Member of the formation, while fine-grained rocks are concentrated in the overlying Walton Creek Member (Gibson, 1992b). The uppermost regionally-mapped division of the Boulder Creek Formation, comprising the conglomerate of the Paddy Member, is not recognised within the Willow Creek Mine area.

The overall thickness of the Boulder Creek Formation is tentatively inferred to be 75 to 95 metres at Willow Creek Mine, of which the basal 30 to 45 metres comprises the Cadotte Member and the overlying 45 to 50 metres comprises the Walton Creek Member. The basal contact of the Boulder Creek Formation with the underlying Hulcross Formation is abrupt to erosional at local scale, and likely to be interfingering at regional scale.

4.6.2.1 Walton Creek Member

The Walton Creek Member of the Boulder Creek Formation comprises 45 to 50 metres of generally-recessive siltstone, variably-carbonaceous, locally root-penetrated mudstone and variably-thick coal beds, of which two or three appear to be laterally-continuous within Anglo-Pacific Group Plc's Trefi coal property (which lies to the southeast of the Willow Creek Mine block). The swale-forming fine-grained rocks of the Walton Creek Member are punctuated by cliff-forming lenses of sandstone, gritstone and pebble-conglomerate, inferred to be channel-fills. Gibson (1992b) considered the Walton Creek Member to be of probable Late Albian age, based on angiosperm flora. The basal contact of the Walton Creek Member with the underlying Cadotte Member is generally abrupt, and regarded by Gibson (*op. cit.*) as being conformable.

4.6.2.2 Cadotte Member

The Cadotte Member of the Boulder Creek Formation comprises 30 to 45 metres of cliff-forming sandstone and pebble-conglomerate with rare thin interbeds of siltstone. The Cadotte generally coarsens upward, with its sandstones being at its base and its conglomerates being in its middle and at its top. Other than isolated coalified logs, the Cadotte Member is devoid of coal. The basal contact of the Cadotte Member with the underlying Hulcross Formation is generally abrupt and therefore considered to be

conformable at local scale (Gibson, 1992b), although it may intertongue at regional scale.

4.6.3 Hulcross Formation (map-unit 6)

The Hulcross Formation, of middle Albian age within the Early Cretaceous (Stelck and Leckie, 1988) comprises thinly-interbedded, locally-concretionary grey siltstone, fine-grained sandstone and dark grey mudstone with occasional very thin but extremely-persistent interbeds of soft, light grey to white tuff (Kilby, 1985; Gibson, 1992b) and rare thin stringers of coal. Sideritic concretions are commonly found in isolated, laterally-persistent bands.

Within the area covered by **Map 2-3**, the Hulcross Formation forms a recessive band along the northeastern margin of the Willow Creek Mine block. The thickness of the Hulcross Formation at Willow Creek Mine is estimated to be 120 to 130 metres, based on borehole data and measured outcrop sections from nearby properties, as reported by Gibson (1992b). The formation's immediate base is characteristically marked by a thin (generally less than a metre thick) erosive-based bed of pebbly sandstone or gritstone, lying erosionally upon the underlying strata of the Notikewin Member of Gates Formation.

4.6.4 Gates Formation (map-unit 5)

The Gates Formation, of late Early Albian age within the Early Cretaceous, comprises thin to thick interbeds of sandstone, siltstone, conglomerate, and shale, locally accompanied by coal beds. Coals of the Gates Formation, and their enclosing sedimentary rocks, were deposited on the shoreline of the Clearwater Sea (part of the Western Interior Seaway) between 108.7 and 111.0 million years ago, as part of an extensive complex of coastal plains, deltas and estuaries collectively known as the Gates Delta.

At Willow Creek Mine, the Gates coal-measures are present along the northeastern margin of the property. No boreholes have yet penetrated the Gates Formation at or near Willow Creek Mine, and hence its coal potential is unknown in detail, although expected to be low on account of the well-established northward diminishment of coal content within the formation.

. Regionally, the Gates Formation may be readily subdivided into three members: the uppermost, dominantly fine-grained Notikewin coal-measures (90 to 120 metres thick?), the medial, dominantly coarse-grained conglomeratic Falher coal-measures (50 to 90 metres thick?), and the basal Torrens sandstone (30 to 40 metres thick?). The Notikewin, Falher and Torrens members can be reasonably-distinguished in the logs of oil and gas wells drilled to within the Highhat gasfield, situated to the southeast of Willow South, but these units cannot be easily mapped separately without the aid of detailed aerial imagery (which has only recently become available), so no attempt has been made to depict them separately on **Map 2-3**.

The Gates Formation is inferred to be 190 to 230 metres thick within the area covered by **Map 2-3**. The nature of its contact with the underlying Moosebar Formation appears to be abrupt at local scale, but likely to be interfingering at the regional scale.

4.6.5 Moosebar Formation (map-units 4c, 4b, 3d, and 3c)

The Moosebar Formation, of early Albian age (Stott, 1968) forms the basal part of the Fort St John Group. At and near Willow Creek Mine, the Moosebar Formation has a typical stratigraphic thickness of at least 165 metres (Wickenden and Shaw, 1943, page 4) and

perhaps 240 to 280 metres, although the latter figure likely indicates substantial structural thickening due to thrust-induced telescoping of the Moosebar rocks.

The Moosebar Formation comprises an overall coarsening-upward sequence, comprised of several lesser coarsening-upward cycles, of mudstone passing upward to sandy siltstone. A basal pebbly, locally-glauconitic gritstone occurs within the middle of the formation in some sections. Very thin (a few millimetres to a few decimetres) bands of tuff form conspicuous marker bands, generally concentrated within the basal 30 metres of the formation (Kilby, 1984a; 1985).

At Willow Creek Mine, the Moosebar Formation is inferred to form bedrock along the block's northeastern side, flanking the Gething coal-measures exposed within the northeastern limb of the Pine River Anticlinorium (**Map 2-3**).

Regionally, deep exploratory drilling for natural gas targets allows the recognition of five lithological subdivisions (from top down, the Spieker and Cowmoose members, the Green Marker, and the Chamberlain and Bullmoose members) within the Moosebar Formation of the Willow Creek Mine area. All but the uppermost of these subdivisions are present and recognisable at Willow Creek Mine, although one (the Green Marker, map-unit 4a) is consistently too thin to be mappable as anything other than a single line at the scale of **Map 2-3**.

Owing to the sparse extent of drilling within the Moosebar Formation, and the lack of detailed borehole records, no attempt has been made to map the subdivisions of the formation within the Willow Creek Mine block *per se*, although such mapping has been accomplished within the adjoining Willow West block.

4.6.5.1 Spieker Member (map-unit 4c)

The Spieker Member of the Moosebar Formation (Duff and Gilchrist, 1981), of early Albian age (Stott, 1968), comprises thinly-interbedded, coarsening-upward units of siltstone and very fine sandstone, within an overall coarsening-upward sequence. Bioturbation is pervasive and intense within the Spieker Member, which is interpreted to have formed as shallow-water turbidites within a proximal shelf setting in advance of the northward-prograding Gates paleodelta. The undeformed thickness of the Spieker Member at Willow Creek Mine is estimated to be 60 to 90 metres, possibly being locally thickened through thrust-induced structural telescoping.

The Spieker Member's existence at the latitude of the Willow Creek coal lease is established by drilling within the western part of the Willow West area (Cathyl-Huhn, 2015c), outside the extent of **Map 2-3**. The Spieker Member is also likely to be present within the northeastern part of the Willow Creek Mine block, but beyond the area which has been tested by drilling.

The basal contact of the Spieker Member with the underlying Cowmoose Member is abrupt, generally drawn at the base of an upward decrease in natural gamma radiation, which appears to coincide with an upward increase in the silt content of the rocks, and a concomitant passage from dark greyish-black to medium grey rock colour. The immediate base of the Spieker Member is in some sections marked by one or two metres of distinctly-sandy siltstone.

4.6.5.2 Cowmoose Member (map-unit 4b)

At and near Willow Creek Mine, the Cowmoose Member of the Moosebar Formation comprises 80 to 100 metres of rubbly-weathering, massive-appearing, dark greyish-black to black mudstone, punctuated by occasional bands crowded with ironstone concretions, and several very thin (a few millimetres to a few decimetres) but laterally-persistent bands of light olive drab to white tuff. The tuff bands are useful as local structural markers (Duff and Gilchrist, 1981; Kilby, 1984a; Jordan and Dawson, 1988). The Cowmoose mudstones are sparsely-bioturbated, and locally contain sparse to abundant burrow-fillings, irregular blebs and euhedral crystals of pyrite, indicative of overall anoxic depositional conditions. Pyrite is particularly abundant near the base of the Cowmoose Member.

The name ‘Cowmoose’ was introduced by Cathyl-Huhn and Singh (2014) as an informal and pragmatic stratigraphic name, for the purposes of Walter Canadian Coal Partnership's coal-assessment studies; these rocks were previously referred to as the ‘basal mudstone member’ of the Moosebar Formation or simply as the ‘mudstone member’ (Duff and Gilchrist, 1981). The recommended type-section of the Cowmoose Member (Cathyl-Huhn and Singh, 2014) is on the northeastern face of Cowmoose Mountain, situated between Sukunka River and the western fork of Bullmoose Creek. Within the Willow Creek Mine block, the Cowmoose Member is locally exposed in road-cuttings and shale-pits along access roads within the northeastern fringe of the block.

Without recourse to cored sections or gamma-neutron logs, isolated exposures of the Cowmoose Member would be quite similar in weathering-habit to, and therefore difficult to distinguish from, the basal part of the older Bullmoose Member. The Cowmoose Member is locally thickened to over 200 metres by thrust-induced structural telescoping (Cathyl-Huhn, 2015a; 2015b; Cathyl-Huhn *et al.*, 2015).

The age of the Cowmoose Member is Early Albian (as noted for the mudstones of the Moosebar Formation by Stott, 1968). The basal contact of the Cowmoose mudstones over the underlying Green Marker is gradational to abrupt, and generally easily-recognised on geophysical logs.

The basal contact of the Cowmoose Member with the underlying Green Marker (an informal lithostratigraphic unit previously designated as the 'Bluesky-S unit' by Kilby, 1984b) is abrupt, being readily recognised as a downward decrease of gamma-log counts, and the downward appearance of distinctively-greenish glauconitic sediments.

4.6.5.3 Green Marker (map-unit 4a)

The Green Marker (Cathyl-Huhn and Avery, 2014c) is a thin but regionally-persistent zone of erosive-based, pebbly, intensely-bioturbated, commonly-glauconitic sandstone, siltstone and mudstone. The Green Marker comprises zero to perhaps 3 metres of variably-glauconitic siltstone or chert-rich lithic arenite, locally containing stringers or lenses of gritstone or pebble-conglomerate. Owing to its minimal thickness, the Green Marker is depicted as a single line upon **Map 2-3**.

The Green Marker is locally altogether absent; hence its minimum thickness of ‘nil’ as given in **Table 4-1**. Glauconite development within this unit is patchy, in contrast with its more obvious presence in other parts of the Sukunka-Quintette coalfield.

Earlier reports (Wallis and Jordan, 1975; Jordan and Dawson, 1978) denoted this zone as the Bluesky Formation, on the grounds of its lithologic similarity to the typical Bluesky rocks of the Alberta Syncline and Deep Basin, but that correlation is now understood to be incorrect (Cathyl-Huhn and Singh, 2014). Although the lithology of the Green Marker is superficially similar to that of the older Bluesky Formation, these two glauconite-bearing zones are stratigraphically distinct, both in space and in time (Kilby, 1984b; Legun, 1990).

Kilby's (*op. cit.*) 'Bluesky-S unit' corresponds to the beds currently mapped as the Green Marker, whereas his older and stratigraphically-lower 'Bluesky-N' unit corresponds to beds here mapped as the Bluesky Formation.

The basal contact of the Green Marker with the underlying Chamberlain Member, or with the Bullmoose Member where the Chamberlain is absent, is characteristically abrupt and likely to at least locally be erosional.

4.6.5.4 Chamberlain Member (map-unit 3d)

At Willow Creek Mine, the Chamberlain Member of the Moosebar Formation is a geophysically-distinctive (moderately-low gamma-log responses) unit within the Moosebar, comprising a few (3 to perhaps 6) metres of rocks with a geophysical-log signature consistent with the regionally-known Chamberlain lithologies of interbedded sandstone and siltstone.

In contrast with the Chamberlain sections drilled in the Sukunka area (35 kilometres to the southwest of Willow Creek Mine), no coal has been found within the Chamberlain Member at Willow Creek Mine. Regionally, the Chamberlain Member is well-established as thinning to the east and northeast; it is locally altogether absent within oil and gas wells drilled at Highhat Mountain (a few tens of kilometres east of Willow Creek Mine), and in those wells the Cowmoose mudstones appear to directly overlie the Bullmoose siltstones. Although in its type area at Sukunka Colliery and Bullmoose Mountain, the Chamberlain Member is defined by Gibson (1992a) to belong to the Gething Formation, in the Willow Creek area its much-reduced thickness and non-coalbearing nature support its being more properly assigned to the Moosebar Formation.

The Chamberlain Member is not known to contain diagnostic fossils; it has therefore been assigned an Early Albian age by Gibson (1992) on the basis of fossils found within the overlying Cowmoose Member of the Moosebar Formation.

The basal contact of the Chamberlain Member with the underlying Bullmoose Member is gradational by interbedding, being drawn at the base of the Chamberlain’s sandstone. The Chamberlain-Bullmoose contact possibly rises stratigraphically, to the north and east (Cathyl-Huhn *et al.*, 2015), but available drilling does not suffice to confirm nor contradict this supposition.

4.6.5.5 Bullmoose Member (map-unit 3c)

The Bullmoose Member of the Willow Creek Mine block comprises 100 to 120 metres of thinly-interbedded, recessive-weathering mudstone, siltstone and minor sandstone of turbiditic aspect, forming several fining-upward sequences within an overall coarsening-upward sequence.

The geophysical log response of the Bullmoose Member is very distinct, as compared with the overlying Chamberlain Member and the underlying Bluesky Member; Bullmoose rocks have characteristically-higher natural-gamma log responses than its bounding rock-units. On the other hand, the Bullmoose Member is difficult to distinguish from the younger Cowmoose Member.

The Bullmoose Member is inferred to form extensive areas of bedrock along the northeastern margin of the Willow Creek Mine block, extending into the adjoining Willow South block (**Map 2-3**).

The Bullmoose Member does not contain any coal, other than isolated coalified logs and coarse, poorly-preserved 'plant trash', likely of drifted origin. The Bullmoose does, however, contain abundant molluscan fossils, including *Pecten (Entolium)* cf. *irenense* McLearn (Gibson, 1992a) and *Yoldia kissoumi* (Duff and Gilchrist, 1981), which, although not age-diagnostic, are locally-characteristic of the unit.

The Bullmoose Member likely corresponds with the 'Lower Silty Member' of the Moosebar Formation, as originally suggested and locally-recognised by Duff and Gilchrist (1981), within those areas (for example, the deep subsurface under Highhat Mountain, southeast of the Willow Creek Mine block) where the overlying Chamberlain Member is absent.

Geophysical logs of the Bullmoose Member show a characteristic high-gamma response at two horizons situated a few tens of metres above the Bullmoose/Bluesky contact. These gamma 'spikes' are interpreted to be thin bands of tuff, each of them one to two decimetres thick, with the lower of the two bands being more persistent. These bands provide a regionally-extensive geophysical marker throughout the Falling Creek region (Kilby, 1984a).

The basal contact of the Bullmoose Member of the Moosebar Formation, with the underlying Bluesky Formation, is drawn at the top of the underlying glauconitic sandy mudstone. In geophysical logs, the Bullmoose/Bluesky contact is readily recognised as a rapid downward change in log response to higher resistivity response, lower natural-gamma counts, and higher API neutron counts. This downward change is interpreted to correspond with a rapid downward passage from fine-grained mudstone of the basal Bullmoose, to the sandy mudstone and sandstone of the uppermost Bluesky.

The Bullmoose Member is of late Early Albian age (Gibson, 1992a). The original stratigraphic thickness of the Bullmoose is approximately 100 to 120 metres at Willow Creek Mine, although thicker sections (likely structurally-thickened by thrust-induced telescoping of the strata) are suspected to exist. Similar anomalous thickening was previous noted from the Highhat Mountain area, where the Bullmoose Member was found to be 189 and 237 metres thick, respectively, in natural-gas wells b-91-L and a-23-D (Cathyl-Huhn, 2015b).

4.6.6 Bluesky Formation (map-unit 3b)

The Bluesky Formation is a transitional unit between marine and non-marine facies. Accordingly, there has been considerable debate within the geological literature -- cogently summarised by Stott (1968), and further discussed by Kilby (1984b) and Legun (1990) -- as to

the Bluesky's stratigraphic affinities and proper ranking. In the present report, the Bluesky is considered to constitute a formation in its own right, bounded above by the Moosebar Formation, and beneath by the Gething Formation, following earlier workers (*cf.* Legun, 1990 and James, 1998). Further to the south within the Mink-Brazion coalfield, the Bluesky is considered to be a member within the Gething Formation (Cathyl-Huhn, 2015a; Cathyl-Huhn and Avery, 2014a; 2014b)

The Bluesky Formation generally consists of coarsening-upward cycles of interbedded mudstone, siltstone, and sandstone. The top of the Bluesky is characteristically marked by a glauconitic horizon, a few decimetres thick (observed to be 40 to 57 centimetres thick at the nearby Mink Creek coal property by Sultan and Cathyl-Huhn, 2014), comprising abundant fine-grained, green glauconite within sandy mudstone and argillaceous, locally-pebbly, sandstone. The base of the Bluesky is marked by a distinctive erosive-based chert- and quartz-pebble conglomerate up to a metre thick, grading to argillaceous sandstone with few randomly-distributed chert and quartz pebbles. The conglomerate horizon's presence has been noted on numerous historic borehole records at Willow Creek Mine.

Bluesky sediments likely represent the initial transgressive deposits of an early tongue of the Clearwater Sea, which shortly after deposition of the Bluesky had transgressed to a southerly limit several hundred kilometres southeast of the Willow Creek area (Gibson, 1992a). The Bluesky Formation, as-drilled at and near Willow Creek Mine, is 1 to 8 metres thick. The age of the Bluesky is not directly known, but inferred to be late Early Albian on the basis of the ages of its bounding strata. The basal contact of the Bluesky Formation within the underlying Gething Formation is almost always erosional, locally with substantial downward scour into the older Gething rocks.

4.7 Bullhead Group (map-units 3a and 2)

Both formations of the Bullhead Group -- the younger Gething and the older Cadomin -- are present at Willow Creek Mine, with the Gething containing all of the block's known potentially-mineable coal beds.

*4.7.1 **Gething Formation (map-unit 3a)***

The Gething Formation, of Hauterivian to late Early Albian age (Gibson, 1992a), comprises thin to thick interbeds of siltstone, sandstone, mudstone and coal, with lesser amounts of gritstone, pebble-conglomerate, ironstone and tuff.

The Gething Formation originated as a complex of non-marine to shallow-marine sedimentary deposits, laid down by meandering and braided streams and rivers within a widely-extensive belt of coastal deltas and an intervening marine-influenced bay, of which the basal delta (the coal-bearing Gaylard paleodelta) extended throughout the Mink-Brazion coalfield, including the Willow Creek Mine block. At the latitude of Willow Creek Mine, the overlying (and therefore younger) Chamberlain paleodelta is presumed to have been only represented by a thin, non-coal-bearing, fringe of sandy/silty delta-front to prodeltaic deposits (Gibson, 1992a).

The Gething Formation forms the top of the Bullhead Group (Stott, 1968, as used in the present report), and of the Crassier Group (*sensu* Hughes, 1964, as previously observed in the Mink Creek coal property by Sultan and Cathyl-Huhn, 2014).

During historic (pre-2007) as well as current (years-2007 through 2013) drilling within the Willow Creek Mine block, nearly every coal-exploration borehole has intersected some section of the Gething Formation, but the thickness of the formation can only be indirectly estimated from this work, owing to lack of drilling into the underlying Cadomin Formation, as well as the block's pervasive structural complexity.

The basal contact of the Gething Formation with the underlying Cadomin Formation is inferred to be abrupt to possibly erosional at the local scale (Cant, 1996) and interfingering at the regional scale (Stott, 1968; Gibson, 1992a), drawn at the top of a bed of coarse-grained, often gritty and occasionally pebbly sandstone which may laterally grade into more typical pebble-conglomerate or multi-storey sandstone characteristic of the underlying sub-Gething beds.

4.7.1.1 Gaylard Member

Only one member (the Gaylard Member) is recognised within the Gething Formation at Willow Creek Mine, the overlying Bullmoose and Chamberlain rocks being here assigned to the Moosebar Formation, instead of to the Gething Formation as has been the case in property studies of areas lying further to the southeast.

4.7.1.2 Subdivisions of the Gaylard Member)map-units 3a1 through 3a5)

The Gaylard Member may be conveniently divided into five informal subdivisions, on the basis of characteristic lithologies (chiefly changes in sand-shale ratio, with alternations of sandier and shalier sub-units), anchored by the presence of thick and laterally-extensive coal zones which likely formed atop regionally-extensive interfluves. The divisions of the Gaylard are numbered in upward succession from Division 1 at the base of the Gaylard, to Division 5 at the top of the Gaylard. Drilling has established that the thickest, and possibly more laterally-extensive, coals occur within the Divisions 3, 4 and 5 of the Gaylard Member, within the Willow Creek Mine block.

Table 4-1 (given above) summarises the subdivisions of the Gaylard Member. Major coal zones and other lithologies used as division markers are:

- No.4 coal zone, marking the base of Division 5;
- No.6 coal zone, marking the base of Division 4;
- No.8 coal zone, marking the base of Division 3;
- Heterolithic, mainly silty, strata forming Division 2; and
- Dominantly-sandy strata, comprising Division 1.

4.7.1.3 Sedimentological and cyclothemic details

The Gaylard Member is interpreted to consist predominantly of non-marine sedimentary rocks within the Willow Creek Mine block, although the presence of at least one coal zone with slightly-elevated sulphur content (within the adjoining Willow South block) suggests that some marine influence may have occurred. The coal zone in question, No.8, lies within the basal half of the Gaylard Member.

The Gaylard Member consists principally of many vertically-stacked, locally erosive-based, fining-upward bedsets, such as are typical of fluvial and deltaic

depositional settings.

A typical cyclic succession of Gaylard sediments commences with basal sandstone (rarely basal gritstone or pebble-conglomerate), passing upward through coarse- to fine-grained sandstone, siltstone, variably-carbonaceous mudstone, rooty seatearth mudstone and coal. Most, but not all, Gaylard cycles are capped by coal beds, although many of these coals are too thin, or too dirty, to be considered mineable. Coals frequently contain partings of siltstone or variably-carbonaceous mudstone, sometimes of tuff (the 'tonstein' bands of Kilby, 1984a and 1985), and rarely of nodular or banded ironstone. The coals split and coalesce laterally, likely in interaction to avulsive events within river distributaries, and concomitant crevasse-splay sedimentation atop the coeval coal-forming wetlands (Banerjee and others, 1996).

Gamma-log response of the Gaylard sandstones (within and between these cycles) are 'ragged' in detail, occasionally capped by an upward-increasing 'bell-shaped' log response. In contrast, the siliceous sandstones and conglomerates within the underlying Cadomin Formation display distinctly 'blockier' responses than those of the Gaylard sandstones.

4.7.1.4 Discussion concerning the thickness of the Gaylard Member

The thickness of the Gaylard Member is not directly known at Willow Creek Mine, owing to the lack of completely-drilled sections, and the pervasive presence of incompetent structures comprising folds and both small- and large-scale thrust-faults within the Gaylard's coal-measures. From incomplete, but apparently minimally-disturbed, sections the Gaylard is established to be at least 260 metres thick at Willow Creek Mine, and possibly up to 360 metres thick. Yet-greater thickness has not yet been ruled-out by ongoing structural and stratigraphic studies.

In contrast, within the nearby Highhat gasfield (15 kilometres to the southeast of Willow Creek Mine), complete sections of the Gething Formation are 475 to 720 metres thick (Cathyl-Huhn, 2015a), although some of that thickness is made up by marginal-marine deposits which are considered to be homotaxial with the basal part of the Moosebar Formation as found at Willow Creek Mine.

4.7.2 Cadomin Formation (map-unit 2)

The Cadomin Formation immediately underlies the Gething Formation, forming the basal part of the Bullhead Group (Stott, 1968). As such, the Cadomin Formation includes strata which may alternatively be assigned to the now-deprecated Dresser Formation of the Crassier Group *sensu* Hughes (1964) and Sultan (2015).

Regionally, the Cadomin Formation comprises one or more thick beds of coarse-grained, gritty to pebbly sandstone and pebble-conglomerate (McLean, 1977) with occasional lenses of siltstone and pebbly gritstone, and rare thin lenses of coal, several tens of metres thick overall.

The Cadomin Formation may be distinguished from the sandier parts of the Gaylard Member, upon the bases of the Cadomin Formation’s greater lateral continuity, the Cadomin's distinctly-'blocky' gamma-log response, and the frequent (but not universal,

cf. Cant and Abrahamson, 1996) presence of an intervening zone of fine-grained coal-measures strata.

Again regionally, the base of the Cadomin marks a northeastward-deepening angular unconformity, cutting down into successively-older rocks of the Minnes Group (Stott, 1973).

Locally, it remains uncertain whether the Cadomin Formation has been reached by any of the historic or current boreholes at Willow Creek Mine. By comparison with nearby properties, the Cadomin's basal contact with the underlying Bickford Formation of the Minnes Group is presumed to be erosional, with considerable local scour into the older sediments. The thickness of the Cadomin Formation at Willow Creek Mine is unknown, on account of lack of deep drilling. The estimated thickness of 2.5 to ca. 14 metres, as given in **Table 4-1** above, is derived from studies of the Gething and Cadomin formations within the adjoining Willow South coal property.

4.8 Minnes Group (map-unit 1)

The Minnes Group comprises 1000 to 1200 metres of clastic sedimentary rocks of latest Jurassic and earliest Cretaceous age, forming a poorly-exposed deltaic/shelfal/basinal complex which is overlain by the Bullhead Group. Four formations are locally recognised within the Minnes Group. From top down, they are the Bickford (equivalent to most of the now-deprecated Brenot Formation of Hughes, 1964), the Monach, the Beattie Peaks, and the Monteith formations (Stott, 1981; 1998). Coal is known to at least locally occur in all four of the Minnes Group's formations (Chowdry, 1980), but only the Bickford Formation is inferred to occur at reasonable depths within the Willow Creek Mine block, and therefore to be a credible (albeit thus-far apparently-untested) target for coal exploration.

5 Coal

As discussed above in **Section 4**, the Gething Formation contains numerous coal beds, some of which are sufficiently thick and apparently laterally-continuous to constitute reasonable exploratory and mining targets, within the Willow Creek Mine portion of the Willow Creek coal lease. All of the known Gething coals occur within that formation's Gaylard Member.

5.1 Regional correlations of major Gaylard coals

Regional correlations of Gaylard coals are here proposed, although not examined in detail:

- The 'Bird' zone at Willow Creek Mine may be correlative with the Lower Gething A zone at Sukunka Colliery. It is definitely not correlative with the type Bird Seam at Sukunka, which instead lies near the top of the Chamberlain Member of the Gething Formation.
- No.4 zone at Willow Creek Mine may be correlative with the Brenda Seam at Hasler Creek, F zone at Mink Creek, Seam C60 at Burnt River, and the Lower Gething B zone at Sukunka Colliery;
- No.6 zone at Willow Creek Mine may be correlative with the Upper Seam at Burnt River; and
- No.7 zone at Willow Creek Mine may be correlative with the Lower Seam at Burnt River.

Coals of the Gaylard Member at Willow Creek Mine, and their enclosing sedimentary rocks, were deposited during Hauterivian to late Early Albian time, between 112 and 133 million years ago, on the basis of regional plant-fossil and foraminiferal zonations, as presented by Gibson (1992a).

5.2 Local naming scheme for Gaylard coals

Table 5-1 depicts the overall correlation scheme for coal zones, coal beds, and lesser subdivisions of coal beds, at Willow Creek Mine. Coal zones are numbered downwards from No.1, near the top of the Gaylard Member, to No.12, postulated to lie close to the base of the Gaylard (or even, conceivably, within the older Bickford Formation although that supposition is not yet established). Each coal zone contains at least one major coal bed, and numerous subordinate and associated 'splits', 'stringers' and 'stringer plies'. Designations of the various major and minor coal beds have evolved with time from McKechnie's (1955) original concept of a series of numbered coal beds, into a more complex scheme of subordinate relationships. A system of split numbering was established by James (1998), who assigned odd terminal digits to subordinate coals lying above a major coal bed, and even terminal digits to those lying below a major coal bed.

5.2.1 Caveat concerning coal bed designations

The system of coal-bed designation presented within **Table 5-1** is not intended to imply that major ('00' terminal-digit) coal beds become completely split into subordinate beds. Furthermore, not all stringers necessarily originate as laterally-continuous extensions of major coal beds. Considerable work likely remains to fully-establish splitting and coalescent relationships of the Gaylard Member coals at Willow Creek Mine, and within the Willow Creek coal lease in general.

5.3 Coals intersected by current boreholes at Willow Creek Mine

The stratigraphic hierarchy of coal zones, coal beds, splits, stringers, and stringer plies of coal at Willow Creek Mine is presented as **Table 5-1**, within the context of the five-fold lithostratigraphic subdivision of the Gaylard Member of the Gething Formation.

Correlatable coal intersections within the more recently-drilled of the historic boreholes (those drilled in years-2001 and 2005) and the current boreholes (those drilled in years-2007 through 2013) are collated as **Table 5-2**. Most of the coal intersections listed in **Table 5-2** have been given identifying codes, such as '610', 'M3', or 'A3'. These codes have been assigned in aid of generating digital deposit models, subject to explicit hierarchical rules (presented graphically as **Table 5-1**) denoting their 'parent-child' relationships as the various coal zones and coal beds are interpreted to split and possibly rejoin laterally.

Uncorrelated coal intersections are simply marked as 'coal'; additionally, thicknesses of Drift, presence of marker-horizons such as high-gamma zones and the Moosebar and Bluesky formations, along with the positions of known fault zones, are given within this table. It should not be presumed that all faults have yet been found, as it is likely to be more difficult to identify bedding-parallel faults (where the usual cues of missing or repeated sections of strata may be absent).

Tables A-2 through A-9 (presented within **Appendix A**) break out coal intersections on a bed-by-bed basis, for the major correlatable coal beds.

Table 5-1: Stratigraphic hierarchy of coal beds at Willow Creek Mine

Formation	Member	Division	Coal Zone	Coal Bed	Split	Stringer	Stringer Ply
Gething	Gaylard	Division 5	**Bird**	Bird			
			No.1			190	
						170	
						150	
						130	
						110	
					101		
				100			
			No.2		201		
				200			
					202		
			No.3			***330***	
						310	
					301		
				300			
						320	
						340	
						350	
			No.4			***450***	
						430	
						410	
					401		
				400			
					402		
						420	
						440	
						460	
							483
							481
						480	
							482
		Division 4	**A**				A71
						A7	
							A72
						A5	
						A3	
							A32
							A34
				M1			
				M2			
					M22		
					A11		
				A1			
							A12
						A2	
					A03		
					A01		
				A0			
					A02		
				A2			

Table 5-1: Stratigraphic hierarchy of coal beds at Willow Creek Mine (continued)

Formation	Member	Division	Coal Zone	Coal Bed	Split	Stringer	Stringer Ply
Gething (continued)	Gaylard (continued)	Division 4 (continued)				550	
							531
						530	
							532
						510	
			No.5		501		
				500			
					502		
						520	
							541
						540	
						560	
						580	
		Division 3				670	
						650	
							631
						630	
						610	
					601		
			No.6	600			
					602		
						620	
							641
						640	
							642
						660	
							662
						680	
						770	
						750	
							731
						730	
					703		
						710	
							712
					701		
				700			
			No.7		702		
							721
						720	
							722
						740	
						760	

Table 5-1: Stratigraphic hierarchy of coal beds at Willow Creek Mine (concluded)

Formation	Member	Division	Coal Zone	Coal Bed	Split	Stringer	Stringer Ply
Gething (continued)	Gaylard (continued)	Division 3 (continued)	**No.8**			830	
						810	
				800			
					802		
						820	
						840	
						880	
		Division 2	**No.9**			***910***	
				900			
						920	
						940	
						980	
		Division 1	**No.10**			1090	
						1070	
					1003		
						1010	
					1001		
				1000			
						1020	
						1060	
						1080	
			No.11			***1110***	
					1101		
				1100			
					1102		
							1121
						1120	
							1122
					1104		
						1140	
						1160	
						1180	
			No.12			***1210***	
				1200			
						1220	

*Note: table compiled by C.G. Cathyl-Huhn from Willow Creek Mine deposit-modelling files, based upon year-2001 through year-2013 data. Drilling of coal zones No.9 through No.12 is sparse; existence of No.12 zone in any of the year-2001 or more recent boreholes is not adequately established. Assignment of coal zones 12 to the Gething Formation is speculative, and merits further critical consideration. Coal beds shewn **thus** (bold-italic) have not yet been recognised by means of detailed correlation; such zones are, however, known to be present at Willow South and/or Willow West, and their local presence at Willow Creek Mine is therefore considered plausible although as-yet not established.*

Drift thickness, coal intersections, and faults within year-2001 and subsequent boreholes: **Table 5-2**

	downhole depths (m)				downhole depths (m)				downhole depths (m)				downhole depths (m)				downhole depths (m)		
Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit
WRH20011	0.00	3.60	Drift	WRH20017C	33.80	34.90	702	WRH200116	16.90	17.25	610	WC0502	15.00	16.90	720	WC0510	7.40	7.90	Coal
WRH20011	5.70	6.30	600	WRH20017C	36.15	36.50	721	WRH200116	19.00	22.50	600	WC0502	16.90	17.00	Fault	WC0510	11.60	11.80	Coal
WRH20011	7.70	10.85	600	WRH20017C	36.95	38.40	720	WRH200117	0.00	3.50	Drift	WC0502	19.10	20.00	721	WC0510	16.30	16.50	Coal
WRH20011	13.25	13.65	600	WRH20018C	0.00	1.50	Drift	WRH200117	6.80	7.75	Coal	WC0502	20.10	23.00	720	WC0510	17.60	17.90	Coal
WRH20011	20.80	21.65	600	WRH20018C	16.95	22.40	701	WRH200117	8.90	9.40	Coal	WC0503	25.60	25.80	710	WC0510	32.80	33.45	710
WRH20011	28.40	28.60	700	WRH20018C	22.55	24.30	700	WRH200117	18.70	19.20	610	WC0503	26.10	33.60	700	WC0510	33.45	35.45	701
WRH20011	38.25	38.80	700	WRH20018C	25.75	26.24	721	WRH200117	21.00	24.75	600	WC0503	35.40	35.90	721	WC0510	35.45	38.75	700
WRH20011	41.35	41.62	703	WRH20018C	27.20	29.39	720	WRH200117	35.70	36.00	730	WC0503	36.20	38.70	720	WC0510	38.75	40.20	702
WRH20011	41.78	46.05	701	WRH20019C	0.00	3.00	Drift	WRH200117	52.60	53.10	710	WC0504	27.50	27.90	Coal	WC0510	40.20	40.80	Fault
WRH20011	46.25	47.90	700	WRH20019C	9.80	10.50	730	WRH200117	55.55	58.85	701	WC0504	41.80	42.20	Coal	WC0510	40.80	42.65	701
WRH20011	49.75	50.20	721	WRH20019C	27.65	28.25	710	WRH200117	59.20	60.25	700	WC0504	55.30	62.90	700	WC0510	42.65	45.25	700
WRH20011	50.50	52.30	720	WRH20019C	30.50	34.20	701	WRH200117	61.75	62.15	721	WC0504	63.60	63.80	721	WC0510	45.25	46.80	702
WRH20012	0.00	3.00	Drift	WRH20019C	34.45	35.65	700	WRH200117	62.50	64.00	720	WC0504	64.20	65.70	720	WC0510	47.60	48.20	721
WRH20012	6.60	7.05	610	WRH20019C	36.30	36.75	721	WRH200118	0.00	1.50	Drift	WC0505	5.70	7.40	600	WC0510	48.60	51.50	720
WRH20012	8.65	11.65	600	WRH200110	3.73	3.99	600	WRH200118	7.60	9.15	Coal	WC0505	9.10	10.50	600	WC0510	51.50	51.90	Fault
WRH20012	14.10	14.45	620	WRH200110	4.21	6.81	600	WRH200118	13.50	14.10	Coal	WC0505	21.60	21.90	Coal	WC0510	51.90	54.00	720
WRH20012	21.40	22.30	640	WRH200111	0.00	1.20	Drift	WRH200118	17.55	23.30	Coal	WC0505	34.80	35.30	Coal	WC0511	0.00	1.00	Drift
WRH20012	29.00	29.15	730	WRH200111	9.65	10.50	730	WRH200120C	0.00	3.40	Drift	WC0505	49.30	52.40	700	WC0511	13.20	13.40	Coal
WRH20012	38.15	38.55	710	WRH200111	29.25	29.70	710	WRH200120C	177.80	185.50	Bsky	WC0505	52.70	53.70	702	WC0511	13.80	15.10	Coal
WRH20012	41.20	41.50	703	WRH200111	31.55	35.50	701	WRH200120C	198.90	200.10	Bird	WC0505	55.50	57.00	720	WC0511	16.00	16.60	Coal
WRH20012	41.60	45.25	701	WRH200111	35.80	37.00	700	WRH200120C	240.20	243.00	100	WC0506	7.00	7.90	Coal	WC0511	26.20	26.40	Coal
WRH20012	45.40	46.60	700	WRH200111	37.65	38.10	721	WRH200120C	254.20	255.90	201	WC0506	26.00	27.40	Coal	WC0511	40.00	40.20	Coal
WRH20012	48.55	48.95	721	WRH200111	38.60	40.15	720	WRH200120C	256.10	257.00	202	WC0506	44.50	50.50	700	WC0511	51.80	52.20	A1
WRH20012	49.20	50.80	720	WRH200112	0.00	8.50	Drift	WRH200120C	264.00	266.70	300	WC0506	52.00	53.90	720	WC0511	57.80	58.50	A0
WRH20013	0.00	1.75	Drift	WRH200112	9.65	10.25	730	WRH200120C	293.63	294.11	430	WC0507	0.00	4.20	299	WC0511	59.40	59.90	A0
WRH20013	1.75	2.20	620	WRH200112	26.80	27.40	710	WRH200121C	0.00	6.10	Drift	WC0507	7.90	9.40	299	WC0511	61.20	61.40	Coal
WRH20013	9.35	10.25	640	WRH200112	30.00	33.90	700	WRH200121C	30.00	34.10	100	WC0508	3.00	7.00	299	WC0511	94.20	94.30	510
WRH20013	17.50	17.75	730	WRH200112	34.20	35.30	702	WRH200121C	47.30	48.70	201	WC0508	9.10	11.50	299	WC0511	99.90	102.50	501
WRH20013	27.70	28.70	710	WRH200112	36.15	36.60	721	WRH200121C	48.80	50.20	202	WC0509	0.00	10.60	Drift	WC0511	102.50	103.20	502
WRH20013	30.65	31.00	703	WRH200112	37.15	38.65	720	WRH200121C	56.90	58.70	300	WC0509	16.40	16.80	Coal	WC0511	108.00	108.20	520
WRH20013	31.10	34.80	701	WRH200114	0.00	3.20	Drift	WRH200121C	87.70	88.70	410	WC0509	17.40	19.80	501	WC0511	109.60	109.80	520
WRH20013	34.95	36.15	700	WRH200114	10.80	11.00	710	WRH200121C	88.80	92.00	400	WC0509	19.80	20.70	502	WC0511	110.80	111.40	540
WRH20013	38.75	39.20	721	WRH200114	17.25	20.75	701	WRH200121C	219.10	220.90	500	WC0509	23.30	24.00	520	WC0512	11.80	12.00	Coal
WRH20013	39.45	41.05	720	WRH200114	21.00	22.25	700	WRH200121C	242.80	245.50	600	WC0509	34.90	35.10	Coal	WC0512	22.80	23.10	Coal
WRH20014	0.00	0.30	Drift	WRH200114	24.85	25.25	721	WRH200121C	278.20	279.00	710	WC0509	40.30	40.60	Coal	WC0512	39.10	45.90	700
WRH20015	0.00	3.30	Drift	WRH200114	25.50	27.10	720	WRH200121C	280.00	283.45	700	WC0509	42.70	47.00	600	WC0512	47.10	47.40	721
WRH20015	17.50	18.60	Coal	WRH200115	0.00	2.80	Drift	WRH200121C	284.70	286.15	720	WC0509	62.10	62.50	Coal	WC0512	47.90	49.20	720
WRH20015	18.80	19.40	Coal	WRH200115	15.00	15.55	710	WC0501	3.40	3.90	Coal	WC0509	76.80	77.30	Coal	WC0512	50.00	50.10	Fault
WRH20015	26.10	27.40	Coal	WRH200115	19.00	22.50	700	WC0501	24.70	28.90	700	WC0509	103.90	104.30	710	WC0512	55.20	55.40	721
WRH20015	29.30	29.75	Coal	WRH200115	22.90	23.90	702	WC0501	29.20	31.00	702	WC0509	104.30	106.00	701	WC0512	55.90	57.20	720
WRH20015	31.25	34.40	Coal	WRH200115	25.85	26.25	721	WC0501	32.10	32.50	721	WC0509	106.00	109.20	700	WC0513	8.00	9.10	510
WRH20017C	0.00	2.50	Drift	WRH200115	26.55	27.95	720	WC0501	32.80	34.50	720	WC0509	109.20	110.70	702	WC0513	15.10	16.50	501
WRH20017C	9.60	10.25	730	WRH200116	0.00	2.50	Drift	WC0502	6.60	11.70	700	WC0509	111.40	111.80	721	WC0513	16.50	18.00	502
WRH20017C	26.20	26.75	710	WRH200116	10.30	11.25	Coal	WC0502	12.00	13.20	702	WC0509	112.20	114.30	720	WC0513	21.50	21.80	520
WRH20017C	29.80	33.30	700	WRH200116	12.25	12.80	Coal	WC0502	14.30	14.60	721	WC0510	0.00	2.00	Drift	WC0513	22.70	23.20	540

Drift thickness, coal intersections, and faults within year-2001 and subsequent boreholes: **Table 5-2** (continued)

	downhole depths (m)				downhole depths (m)				downhole depths (m)				downhole depths (m)				downhole depths (m)		
Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit
WC0513	23.60	23.90	540	WC0516	18.00	18.80	Coal	WC0519	35.50	36.20	A5	WC0525	46.70	47.90	800	WC0702	107.00	107.50	721
WC0513	29.30	29.50	610	WC0516	20.00	20.40	Coal	WC0519	48.00	48.30	A3	WC0525	48.40	50.60	802	WC0702	109.10	111.05	720
WC0513	31.30	34.50	600	WC0516	41.40	43.30	Coal	WC0519	81.10	82.00	A1	WC0525	58.80	59.40	Coal	WC0703	27.30	27.85	730
WC0513	43.90	44.10	Coal	WC0516	47.50	49.60	Coal	WC0519	82.60	82.80	A1	WC0526	14.00	14.30	Coal	WC0703	41.80	42.15	710
WC0513	54.80	55.10	Coal	WC0516	70.00	71.00	A1	WC0519	84.30	85.30	A0	WC0526	23.20	29.30	700	WC0703	42.15	44.40	701
WC0513	72.25	72.55	710	WC0516	73.50	74.20	A0	WC0519	85.60	85.70	A0	WC0526	29.60	31.20	720	WC0703	44.40	48.75	700
WC0513	72.55	73.45	701	WC0517	0.00	1.00	Drift	WC0520	7.40	14.00	700	WC0526	31.70	31.90	722	WC0703	49.00	50.15	702
WC0513	73.45	76.20	700	WC0517	17.80	17.90	Coal	WC0520	14.30	14.40	700	WC0526	33.00	33.10	Fault	WC0703	58.50	58.80	721
WC0513	76.40	78.40	702	WC0517	18.50	19.00	Coal	WC0520	15.30	19.30	700	WC0526	33.80	34.10	710	WC0703	59.40	61.20	720
WC0513	79.70	80.00	721	WC0517	29.70	30.00	Coal	WC0520	19.70	20.00	700	WC0526	35.20	40.00	700	WC0704	19.30	21.70	501
WC0513	80.50	82.50	720	WC0517	45.70	45.80	Coal	WC0520	25.40	25.70	700	WC0527	8.60	19.70	700	WC0704	22.30	23.40	502
WC0513	83.00	83.10	Fault	WC0517	56.90	58.00	A1	WC0520	26.00	26.80	700	WC0527	20.10	23.80	702	WC0704	40.30	43.80	600
WC0513	83.30	85.20	720	WC0517	58.40	58.60	A1	WC0520	27.80	28.30	700	WC0527	29.20	29.90	721	WC0704	82.20	82.50	710
WC0514	7.00	7.20	Coal	WC0517	60.60	61.40	A0	WC0520	31.10	31.50	700	WC0527	30.30	31.80	720	WC0704	82.50	84.60	701
WC0514	15.20	15.90	A1	WC0517	61.80	62.00	A0	WC0521	36.50	37.60	A1	WC0528	1.20	3.00	600	WC0704	84.60	87.15	700
WC0514	18.20	19.00	A0	WC0517	104.20	104.40	510	WC0521	38.10	38.30	A1	WC0528	13.40	13.70	Coal	WC0704	87.30	88.50	702
WC0514	19.50	19.60	A0	WC0517	105.00	105.20	510	WC0521	40.10	40.80	A0	WC0528	25.40	25.70	Coal	WC0704	89.40	89.65	721
WC0514	49.50	50.70	501	WC0517	109.90	111.85	501	WC0521	41.10	41.30	A0	WC0528	40.20	43.50	700	WC0704	90.25	92.15	720
WC0514	50.70	51.75	502	WC0517	111.85	113.25	502	WC0521	64.80	65.10	510	WC0528	43.90	44.90	702	WC0705	0.00	2.10	Drift
WC0514	55.70	55.90	520	WC0517	114.60	116.40	Coal	WC0521	70.70	71.40	501	WC0528	46.00	47.80	720	WC0705	22.55	23.95	A1
WC0514	56.90	57.10	520	WC0517	121.20	121.60	520	WC0521	71.50	73.50	502	WC0701A	12.20	13.50	A1	WC0705	26.90	29.20	A0
WC0514	57.90	58.40	540	WC0517	122.10	122.50	520	WC0521	88.40	89.40	520	WC0701A	14.60	16.20	A0	WC0705	41.80	42.30	Fault
WC0514	59.20	59.80	540	WC0517	122.50	123.20	540	WC0521	89.90	90.50	540	WC0701A	44.30	45.30	501	WC0705	89.00	90.55	501
WC0514	61.10	61.90	540	WC0517	124.50	125.00	670	WC0521	91.10	91.40	670	WC0701A	46.40	48.10	502	WC0705	90.55	91.90	502
WC0514	70.00	70.50	610	WC0517	128.00	128.40	610	WC0521	96.80	97.40	610	WC0701A	55.25	57.60	600	WC0705	112.35	115.45	600
WC0514	73.25	76.10	600	WC0518	14.40	14.50	510	WC0521	100.00	104.70	600	WC0701A	81.10	85.00	700D	WC0706	41.10	42.45	A1
WC0514	85.90	86.10	Coal	WC0518	15.20	15.40	510	WC0522	15.20	15.40	Coal	WC0701A	86.00	87.50	720D	WC0706	49.10	50.50	A0
WC0514	105.50	106.40	Coal	WC0518	23.80	25.15	501	WC0522	24.10	24.30	Coal	WC0701B	83.70	84.30	A1?	WC0706	88.00	89.15	501
WC0514	134.80	135.10	710	WC0518	25.15	26.70	502	WC0522	37.90	38.40	Coal	WC0701B	86.80	88.30	A1?	WC0706	89.15	90.50	502
WC0514	135.10	135.75	701	WC0518	31.60	32.00	520	WC0522	44.10	44.50	710	WC0701B	119.70	120.15	A0?	WC0706	105.80	108.75	600
WC0514	135.75	135.85	Fault	WC0518	32.20	32.80	520	WC0522	44.70	47.30	701	WC0701B	140.40	141.55	510	WC0706	153.15	153.35	710
WC0514	170.50	171.30	700	WC0518	33.40	33.70	540	WC0522	47.30	50.40	700	WC0701B	143.10	146.70	500	WC0706	153.35	154.45	701
WC0514	172.30	173.10	700	WC0518	34.90	35.30	670	WC0522	50.50	52.20	702	WC0701B	148.20	148.70	Coal	WC0706	154.65	157.00	700
WC0514	173.40	173.80	700	WC0518	39.40	39.90	610	WC0522	54.30	54.80	721	WC0701B	149.20	149.40	Coal	WC0709	0.00	2.10	Drift
WC0515	0.00	2.40	Drift	WC0518	40.60	43.50	600	WC0522	55.70	57.70	720	WC0701B	150.05	152.50	540	WC0709	25.10	26.75	Fault
WC0515	13.30	13.50	Coal	WC0518	58.30	58.60	Coal	WC0523	24.60	31.40	700	WC0701B	153.10	153.80	560	WC0709	34.40	34.50	510
WC0515	18.30	18.50	Fault	WC0518	74.30	75.00	Coal	WC0523	34.20	34.50	721	WC0702	5.70	6.90	A1	WC0709	37.50	38.80	501
WC0515	37.80	38.40	Coal	WC0518	83.90	84.30	710	WC0523	35.30	37.10	720	WC0702	9.45	10.55	A0	WC0709	38.80	39.65	502
WC0515	39.00	39.40	Coal	WC0518	84.50	86.70	701	WC0524	23.90	24.10	710	WC0702	31.80	32.00	Fault	WC0709	42.00	42.15	520
WC0515	45.30	45.50	Coal	WC0518	86.70	90.20	700	WC0524	24.40	29.00	700	WC0702	44.15	46.20	501	WC0709	43.45	43.55	540
WC0515	56.20	56.80	A1	WC0518	90.50	92.30	702	WC0524	29.30	30.70	702	WC0702	46.20	47.55	502	WC0709	44.20	44.80	540
WC0515	60.90	61.50	A0	WC0518	94.20	94.70	721	WC0524	31.80	32.20	721	WC0702	65.50	69.70	600	WC0709	52.70	52.85	630
WC0516	0.00	1.00	Drift	WC0518	95.20	97.30	720	WC0524	32.60	34.80	720	WC0702	99.10	99.11	Fault	WC0709	54.95	55.05	610
WC0516	13.80	14.60	Coal	WC0518	97.80	98.20	722	WC0525	6.00	11.80	700	WC0702	103.60	105.35	700	WC0709	55.90	58.60	600
WC0516	16.20	17.10	Coal	WC0519	17.20	18.30	A7	WC0525	12.20	14.70	720	WC0702	105.35	106.30	702	WC0709	68.55	69.05	770

Drift thickness, coal intersections, and faults within year-2001 and subsequent boreholes: **Table 5-2** (continued)

	downhole depths (m)				downhole depths (m)				downhole depths (m)				downhole depths (m)				downhole depths (m)		
Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit
WC0709	69.45	69.55	750	WC0713	125.25	126.65	700	WC0717	14.95	15.75	502	WC0721	0.00	5.00	Drift	WC0724	88.25	89.05	702
WC0710	0.00	0.30	Drift	WC0713	126.65	127.40	702	WC0717	31.50	36.75	600	WC0721	25.25	27.00	501	WC0724	90.20	90.45	721
WC0710	0.30	2.00	A1	WC0713	128.40	129.70	720	WC0717	56.70	56.71	Fault	WC0721	27.20	27.85	502	WC0724	90.45	91.50	720
WC0710	7.30	8.50	A0	WC0713	133.90	133.91	Fault	WC0717	93.35	94.20	710	WC0721	42.40	44.80	600	WC0726	0.00	7.00	Drift
WC0710	55.35	57.20	501	WC0713	139.50	140.90	720	WC0717	94.50	95.45	701	WC0721	72.90	73.10	Fault	WC0726	26.00	27.30	501
WC0710	57.30	58.30	502	WC0714	0.00	2.00	Drift	WC0717	95.45	96.10	700	WC0721	89.75	90.45	710	WC0726	27.45	28.20	502
WC0710	76.20	78.90	600	WC0714	5.20	6.00	A1	WC0717	96.10	97.05	702	WC0721	90.80	91.35	701	WC0726	42.70	45.50	600
WC0710	88.30	88.50	Fault	WC0714	11.30	12.70	A0	WC0717	104.70	105.95	710	WC0721	91.35	91.85	700	WC0726	82.10	82.70	710
WC0710	123.50	124.55	701	WC0714	42.35	43.45	501	WC0717	105.95	106.85	701	WC0721	91.90	93.00	702	WC0726	84.25	85.30	701
WC0710	124.70	128.10	700	WC0714	43.60	44.40	502	WC0717	106.85	108.30	700	WC0721	93.35	93.65	721	WC0726	85.30	87.30	700
WC0710	128.10	129.20	702	WC0714	60.10	62.90	600	WC0717	108.30	109.15	702	WC0721	93.65	94.20	720	WC0726	87.80	89.20	702
WC0710	129.70	130.20	721	WC0714	97.80	98.10	Fault	WC0717	110.05	110.45	721	WC0721	114.70	115.00	Fault	WC0726	89.50	89.80	721
WC0710	131.05	132.70	720	WC0714	104.70	105.85	710?	WC0717	110.75	112.85	720	WC0721	128.00	131.30	800	WC0726	90.10	91.55	720
WC07101C	5.30	6.50	501	WC0714	106.05	109.20	700	WC0718	0.00	2.20	Drift	WC0722	0.00	2.00	Drift	WC0726	100.40	100.70	Fault
WC07101C	6.50	7.20	502	WC0714	109.35	110.65	702	WC0718	30.30	31.40	501	WC0722	15.45	16.60	501	WC0726	119.30	120.25	800
WC07101C	18.30	21.15	600	WC0714	111.40	111.60	721	WC0718	31.85	32.50	502	WC0722	16.95	17.55	502	WC0726	120.65	121.20	802
WC07101C	51.10	51.50	710	WC0714	112.20	114.00	720	WC0718	49.00	51.80	600	WC0722	33.45	36.05	600	WC0728	0.00	1.30	Drift
WC07101C	51.50	53.20	701	WC0715	0.00	3.00	Drift	WC0718	86.40	86.70	Fault	WC0722	77.30	78.05	710	WC0728	19.45	20.75	501
WC07101C	53.20	55.10	700	WC0715	17.10	17.30	510	WC0718	103.60	104.20	710	WC0722	78.95	79.85	710	WC0728	20.90	21.70	502
WC07101C	55.30	56.15	702	WC0715	21.30	22.00	501	WC0718	104.60	105.60	701	WC0722	80.55	81.80	701	WC0728	36.50	39.55	600
WC07101C	57.60	57.90	721	WC0715	22.00	23.00	502	WC0718	105.60	107.00	700	WC0722	81.80	83.10	700	WC0728	71.00	73.30	Fault
WC07101C	58.60	59.90	720	WC0715	24.50	24.60	520	WC0718	107.00	108.00	702	WC0722	83.20	84.20	702	WC0728	101.70	102.30	710
WC0711	0.00	2.00	Drift	WC0715	26.05	26.15	540	WC0718	108.80	109.10	721	WC0722	84.80	85.10	721	WC0728	103.30	104.40	701
WC0711	13.80	15.20	501	WC0715	27.10	27.60	540	WC0718	109.50	111.10	720	WC0722	85.70	87.10	720	WC0728	104.40	106.10	700
WC0711	15.20	15.95	502	WC0715	36.50	36.60	650	WC0719	0.00	2.40	Drift	WC0722	113.15	113.60	800	WC0728	106.20	107.40	702
WC0711	33.00	35.60	600	WC0715	40.45	40.90	630	WC0719	26.00	27.10	501	WC0722	114.10	114.55	802	WC0728	108.05	108.60	721
WC0711	66.55	66.56	Fault	WC0715	43.70	44.05	610	WC0719	27.40	28.05	502	WC0722	123.30	123.50	Fault	WC0728	108.80	110.35	720
WC0711	106.70	107.05	710	WC0715	44.65	51.10	600	WC0719	42.75	45.15	600	WC0723	0.00	1.70	Drift	WC0730	0.00	2.50	Drift
WC0711	107.20	108.05	701	WC0715	61.40	61.50	770	WC0719	90.25	90.90	710	WC0723	11.20	11.50	A1	WC0730	24.30	24.60	Fault
WC0711	108.15	111.75	700	WC0715	63.20	63.30	750	WC0719	91.50	92.50	702	WC0723	19.50	21.00	A0	WC0730	48.30	48.70	501
WC0711	111.95	113.35	702	WC0715	72.30	72.50	730	WC0719	92.50	93.70	700	WC0723	50.00	51.50	501	WC0730	48.85	49.80	502
WC0711	113.80	114.15	721	WC0715	95.30	95.90	710	WC0719	93.80	94.90	702	WC0723	51.80	53.00	502	WC0730	66.40	68.60	600
WC0711	115.55	117.55	720	WC0715	96.40	98.60	700	WC0719	95.60	95.90	721	WC0723	65.85	68.55	600	WC0731	0.00	0.50	Drift
WC0712	0.00	8.50	Drift	WC0715	98.80	101.55	702	WC0719	96.30	97.90	720	WC0723	105.70	106.20	710	WC0731	14.30	15.30	710
WC0712	20.20	21.00	701	WC0715	102.05	102.40	721	WC0720	0.00	3.10	Drift	WC0723	107.00	108.00	701	WC0731	16.40	18.25	700
WC0712	21.00	23.15	700	WC0715	103.25	106.10	720	WC0720	3.10	4.75	A0	WC0723	108.00	109.05	700	WC0731	18.50	18.95	702
WC0712	23.30	24.80	702	WC0716C	5.30	8.30	600	WC0720	32.95	34.25	501	WC0723	109.20	110.25	702	WC0731	19.75	21.45	720
WC0712	25.95	26.95	720	WC0716C	21.40	21.80	Fault	WC0720	34.25	34.95	502	WC0723	110.70	111.05	721	WC0731	48.95	49.85	800
WC0713	6.30	7.15	A1	WC0716C	70.70	71.50	710	WC0720	49.00	51.40	600	WC0723	111.70	113.20	720	WC0731	50.05	50.80	802
WC0713	23.20	24.75	A0	WC0716C	71.50	72.65	701	WC0720	95.70	96.30	710	WC0724	0.00	6.00	Drift	WC0732	0.00	2.80	Drift
WC0713	51.45	52.60	501	WC0716C	72.65	74.65	700	WC0720	96.75	97.90	701	WC0724	19.45	20.80	600	WC0732	11.75	12.85	501
WC0713	52.75	53.40	502	WC0716C	74.65	76.05	702	WC0720	97.90	99.40	700	WC0724	51.80	52.00	Fault	WC0732	13.05	13.70	502
WC0713	59.70	59.80	Fault	WC0716C	76.45	76.70	721	WC0720	99.50	100.70	702	WC0724	84.40	85.20	710	WC0732	33.25	36.20	600
WC0713	73.30	76.15	600	WC0716C	76.70	78.55	720	WC0720	101.20	101.45	721	WC0724	85.65	86.40	701	WC0732	73.30	74.05	710
WC0713	124.95	125.25	710	WC0717	13.30	14.60	501	WC0720	101.95	103.50	720	WC0724	86.40	88.00	700	WC0732	75.80	77.30	700

Drift thickness, coal intersections, and faults within year-2001 and subsequent boreholes: **Table 5-2** (continued)

	downhole depths (m)				downhole depths (m)				downhole depths (m)				downhole depths (m)				downhole depths (m)		
Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit
WC0732	77.60	78.40	702	WC0737	32.10	33.45	720	WC0745	16.75	22.65	100	WC0753	71.10	71.30	320	WC0765	4.10	4.30	710
WC0732	79.50	81.05	720	WC0737	56.75	57.60	800	WC0745	43.90	45.25	200D	WC0753	78.70	78.90	Fault	WC0765	16.70	18.00	700
WC0733	0.00	2.40	Drift	WC0737	57.60	58.25	802	WC0745	45.25	46.60	200D	WC0753	98.20	100.65	400	WC0765	18.75	19.65	702
WC0733	11.60	12.90	A1	WC0738	0.00	1.70	Drift	WC0745	55.50	57.00	300D	WC0753	111.50	111.75	440	WC0765	24.35	25.65	720
WC0733	17.30	18.60	A0	WC0738	9.45	10.55	501	WC0745	83.80	89.90	400D	WC0753	127.25	128.20	480	WC0765	48.00	49.00	800
WC0733	43.25	43.85	501	WC0738	11.40	12.10	502	WC0747	0.00	4.20	Drift	WC0755C	15.30	15.80	200	WC0765	49.00	49.75	802
WC0733	43.85	44.80	502	WC0738	33.70	36.55	600	WC0747	11.85	12.30	150	WC0755C	15.80	16.30	200	WC0766	0.00	1.40	Drift
WC0733	63.55	66.55	600	WC0738	60.50	61.25	710	WC0747	28.20	32.55	100	WC0755C	19.65	20.85	300	WC0766	25.65	28.60	600
WC0733	105.30	105.75	710	WC0738	67.95	69.75	700	WC0747	50.50	51.80	201	WC0755C	43.75	46.65	400	WC0766	51.20	51.40	710
WC0733	107.75	110.05	700	WC0738	70.25	71.05	702	WC0747	52.45	53.55	202	WC0761	0.00	2.00	Drift	WC0766	68.10	69.30	700
WC0733	110.45	111.10	702	WC0738	72.00	73.80	720	WC0747	60.40	61.30	300	WC0761	3.85	4.70	A0?	WC0766	69.85	70.70	702
WC0733	112.00	113.65	720	WC0739	0.00	2.30	Drift	WC0747	64.15	64.16	Fault	WC0761	25.35	26.45	501	WC0766	72.60	74.35	720
WC0734	0.00	0.50	Drift	WC0739	13.90	14.75	A1	WC0747	65.25	65.95	300	WC0761	27.20	28.00	502	WC0766	102.00	102.90	800
WC0734	0.50	2.75	600	WC0739	16.70	18.55	A0	WC0747	69.10	69.40	320	WC0761	55.25	58.10	600	WC0766	102.90	103.70	802
WC0734	35.30	35.90	710	WC0739	46.20	47.40	501	WC0747	94.20	100.60	400	WC0761	82.40	83.60	710	WC0767	0.00	12.60	Drift
WC0734	38.45	40.30	700	WC0739	48.30	49.05	502	WC0747	106.85	107.60	440	WC0761	92.10	94.30	700	WC0767	25.00	25.50	A1
WC0734	40.65	41.50	702	WC0739	76.60	79.85	600	WC0748	0.00	2.20	Drift	WC0761	94.70	96.35	702	WC0767	26.15	27.40	A0
WC0734	42.40	44.10	720	WC0739	105.80	106.30	710	WC0748	6.10	6.25	320?	WC0761	97.25	99.40	720	WC0767	49.20	50.50	501
WC0734	77.65	78.95	800	WC0739	121.70	123.80	700	WC0748	29.70	31.45	400	WC0761	124.10	125.55	800	WC0767	51.20	52.10	502
WC0735	0.00	5.20	Drift	WC0739	124.20	125.25	702	WC0748	37.40	38.40	440	WC0761	125.55	126.55	802	WC0767	75.20	77.70	600
WC0735	13.10	13.75	A5	WC0739	125.95	128.00	720	WC0749	0.00	2.50	Drift	WC0762	0.00	1.00	Drift	WC0767	95.65	95.85	710
WC0735	15.40	15.41	Fault	WC0740	0.00	0.20	100?	WC0749	12.40	15.45	100	WC0762	5.85	6.10	710	WC0767	112.25	113.80	700
WC0735	16.95	17.70	A5	WC0740	14.65	15.65	201	WC0749	33.65	34.85	201	WC0762	16.00	17.30	700	WC0767	114.25	115.05	702
WC0735	38.40	39.35	A1	WC0740	16.80	17.75	202	WC0749	35.45	36.55	202	WC0762	18.20	19.20	702	WC0767	115.50	117.30	720
WC0735	42.30	43.40	A0	WC0740	32.35	33.05	300	WC0749	41.35	42.40	300	WC0762	22.00	22.20	Fault	WC0768	0.00	8.00	Drift
WC0735	68.00	69.05	501	WC0740	36.00	36.20	320	WC0749	45.95	46.40	320	WC0762	23.90	24.90	720	WC0768	12.50	12.75	420
WC0735	69.50	70.20	502	WC0740	62.45	66.55	400	WC0749	71.80	77.20	400	WC0762	47.90	48.60	800	WC0768	15.90	16.95	440
WC0735	93.15	96.25	600	WC0740	70.95	71.20	Fault	WC0749	77.20	77.30	Fault	WC0762	48.60	49.40	802	WC0768	29.15	30.05	480
WC0735	127.20	127.85	710	WC0740	71.85	72.40	Coal	WC0749	77.30	81.10	400	WC0763	0.00	1.70	Drift	WC0768	41.20	42.00	A7
WC0735	129.85	131.25	700	WC0740	75.35	76.35	440	WC0751	24.45	25.65	400	WC0763	8.00	9.00	501	WC0768	59.30	60.05	A5
WC0735	131.40	132.30	702	WC0740	92.00	92.15	Coal	WC0751	34.35	34.70	440	WC0763	10.25	10.90	502	WC0768	75.30	75.50	A1
WC0735	132.90	134.20	720	WC0740	100.30	100.90	480	WC0752	8.70	11.55	100	WC0763	33.45	36.25	600	WC0768	76.85	78.00	A0
WC0736	0.00	2.50	Drift	WC0743	0.00	1.40	Drift	WC0752	27.10	28.15	201	WC0763	57.00	57.35	710	WC0768	94.80	95.85	501
WC0736	3.50	4.95	A0	WC0743	2.60	5.25	100	WC0752	28.60	29.55	202	WC0763	69.20	70.60	700	WC0768	97.15	97.80	502
WC0736	37.45	38.85	501	WC0743	20.35	21.35	201	WC0752	33.50	35.30	300	WC0763	70.95	71.80	702	WC0768	119.15	121.95	600
WC0736	39.95	40.40	502	WC0743	22.40	23.25	202	WC0752	58.70	62.50	400	WC0763	72.40	74.15	720	WC0769	0.00	0.50	Drift
WC0736	66.10	70.95	600	WC0743	29.70	30.00	Coal	WC0752	71.35	71.55	440	WC0764	0.00	2.20	Drift	WC0769	9.09	9.10	Fault
WC0736	101.85	102.65	710	WC0743	35.70	36.05	300	WC0752	85.30	86.00	480	WC0764	15.90	16.85	501	WC0769	9.10	12.50	600D
WC0736	108.15	109.90	700	WC0743	38.10	38.40	320	WC0752	97.00	97.70	A7?	WC0764	17.80	18.50	502	WC0769	35.09	35.10	Fault
WC0736	110.20	111.10	702	WC0743	64.95	70.75	400	WC0753	22.50	22.70	150	WC0764	41.35	43.50	600	WC0769	35.10	38.10	710D
WC0736	111.45	113.20	720	WC0743	74.20	74.85	440	WC0753	40.20	44.30	100	WC0764	65.60	65.95	710	WC0770	0.00	9.90	Drift
WC0737	0.00	2.00	Drift	WC0745	0.00	1.80	Drift	WC0753	62.40	62.95	200	WC0764	78.85	80.40	700	WC0770	11.95	12.20	A1
WC0737	19.95	20.65	710	WC0745	5.00	5.10	Fault	WC0753	62.95	63.45	200	WC0764	80.70	81.65	702	WC0770	13.60	15.10	A0
WC0737	26.05	28.05	700	WC0745	6.65	7.25	150	WC0753	67.60	68.30	300	WC0764	82.40	84.35	720	WC0770	36.15	37.20	501
WC0737	28.50	29.40	702	WC0745	8.95	9.40	130	WC0753	68.80	69.05	300	WC0765	0.00	1.80	Drift	WC0770	37.40	38.10	502

Drift thickness, coal intersections, and faults within year-2001 and subsequent boreholes: **Table 5-2** (continued)

	downhole depths (m)				downhole depths (m)				downhole depths (m)				downhole depths (m)				downhole depths (m)		
Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit
WC0770	59.80	62.60	600	WC0779	18.60	19.20	480	WC0784	39.90	41.50	Coal	WC0789	73.13	73.92	410	WC0792	22.10	22.30	Coal
WC0770	79.25	79.55	710	WC0779	29.35	29.75	A7	WC0784	61.90	64.90	500D	WC0789	74.75	76.70	401	WC0792	23.50	24.55	A7
WC0770	100.90	101.90	700	WC0779	37.60	38.00	Coal	WC0784	72.80	74.40	Coal	WC0789	76.80	77.65	400	WC0792	40.70	41.45	A5
WC0770	102.45	103.35	702	WC0779	47.00	47.45	A5	WC0784	94.20	96.00	600D	WC0789	78.30	78.55	420	WC0792	53.20	53.80	A1
WC0770	103.95	105.85	720	WC0779	59.20	59.80	A1	WC0784	96.90	99.40	600D	WC0789	82.30	83.15	440	WC0792	54.60	55.00	A0
WC0771	0.00	1.00	Drift	WC0779	61.10	62.10	A0	WC0784	127.70	130.10	Coal	WC0790	0.00	1.00	Drift	WC0792	55.50	55.70	A0
WC0771	19.45	20.65	700	WC0779	82.80	83.90	501	WC0784	137.20	137.30	CS	WC0790	16.00	16.50	A1	WC0792	77.00	78.25	501
WC0771	22.15	22.75	702	WC0779	84.25	85.15	502	WC0784	155.40	155.50	**Fault**	WC0790	17.20	17.60	A0	WC0792	78.45	79.15	502
WC0771	23.55	25.20	720	WC0779	105.00	105.21	**Fault**	WC0784	167.60	174.00	700D	WC0790	18.25	18.50	A0	WC0792	85.25	85.55	540
WC0771	47.20	48.05	800	WC0779	137.40	147.75	600	WC0785	0.00	1.00	Drift	WC0790	36.30	37.30	501	WC0792	100.10	100.40	**Fault**
WC0771	48.05	48.90	802	WC0780	0.00	0.30	Drift	WC0785	16.45	17.00	150	WC0790	37.60	38.35	502	WC0792	132.85	134.65	601
WC0772	0.00	5.10	Drift	WC0780	8.05	9.00	201	WC0785	23.90	26.05	100	WC0790	42.80	43.10	540	WC0792	135.00	136.85	600
WC0772	17.20	21.00	600	WC0780	10.80	11.70	202	WC0785	29.95	30.70	201	WC0790	50.30	50.50	630	WC0792	147.10	147.40	Coal
WC0772	43.20	43.75	710	WC0780	23.00	23.01	**Fault**	WC0785	34.25	35.30	202	WC0790	50.70	50.90	630	WC0792	160.50	160.70	710
WC0772	68.15	69.30	700	WC0780	30.30	30.55	300	WC0785	47.00	47.70	300	WC0790	53.65	53.75	610	WC0792	177.50	178.00	700
WC0772	70.40	71.45	702	WC0780	33.40	33.55	320	WC0785	51.60	51.75	320	WC0790	54.65	55.80	601	WC0795	0.00	1.00	Drift
WC0772	73.40	74.20	721	WC0780	56.70	59.60	400	WC0785	76.00	77.00	400	WC0790	56.00	57.20	600	WC0795	108.40	109.30	A1
WC0772	74.20	75.50	720	WC0780	63.00	63.20	**Fault**	WC0785	84.60	86.30	400?	WC0790	73.50	73.80	710	WC0795	110.70	111.50	A0
WC0773	0.00	0.50	Drift	WC0781	0.00	0.25	Drift	WC0785	88.05	91.95	400?	WC0790	96.35	97.25	700	WC0795	123.70	124.40	501
WC0773	18.10	18.90	700	WC0781	18.30	19.15	480	WC0787	0.00	1.00	Drift	WC0790	98.10	98.95	702	WC0795	124.40	125.85	502
WC0773	22.10	22.95	702	WC0781	29.25	29.90	A7	WC0787	16.80	17.05	300	WC0790	99.75	100.30	721	WC0797	22.20	22.70	Coal
WC0773	23.60	24.30	721	WC0781	47.35	47.90	A5	WC0787	48.05	50.20	400	WC0790	100.40	101.40	720	WC0797	57.00	60.00	**Fault**
WC0773	24.30	25.50	720	WC0781	59.20	59.60	A1	WC0787	50.20	50.50	**Fault**	WC0791	0.00	1.00	Drift	WC0797	83.70	84.55	A1
WC0773	48.75	49.65	800	WC0781	60.60	61.80	A0	WC0787	50.50	54.50	400	WC0791	9.05	9.95	480	WC0797	86.90	88.10	A0
WC0773	49.65	50.50	802	WC0781	84.40	85.50	501	WC0787	58.05	59.10	440	WC0791	16.30	16.75	A7	WC0797	133.30	134.65	501
WC0774	0.00	4.50	Drift	WC0781	87.00	87.65	502	WC0788	0.00	1.00	Drift	WC0791	31.35	32.55	A5	WC0797	134.65	136.35	502
WC0774	4.70	7.50	600D	WC0781	107.00	107.30	600	WC0788	11.30	12.05	110	WC0791	45.20	45.85	A1	WC0797	141.70	143.50	540
WC0774	24.40	24.60	710	WC0781	107.60	107.70	**Fault**	WC0788	19.95	22.30	100	WC0791	46.40	46.70	A0	WC0797	143.95	144.75	540
WC0774	44.60	45.20	700	WC0781	134.35	135.25	630	WC0788	27.65	28.40	201	WC0791	47.35	47.65	A0	WC0797	155.50	159.20	600
WC0774	46.60	47.45	702	WC0781	141.85	142.70	610	WC0788	32.40	33.30	202	WC0791	63.95	64.05	530	WC0799	24.20	26.00	700
WC0774	51.00	51.55	721	WC0781	145.70	153.20	600	WC0788	46.40	47.35	300	WC0791	67.05	68.05	501	WC0799	29.40	31.50	700
WC0774	51.75	52.75	720	WC0781	173.80	174.25	710	WC0788	50.10	50.35	320	WC0791	68.45	69.20	502	WC0799	33.30	33.40	**Fault**
WC0776	21.05	21.30	430	WC0783	0.00	0.50	Drift	WC0788	76.95	77.55	410	WC0791	73.95	74.30	540	WC0799	84.40	84.41	**Fault**
WC0776	22.40	23.00	410	WC0783	9.70	10.25	150	WC0788	77.55	77.75	**Fault**	WC0791	81.70	82.00	630	WC0799	106.50	106.80	**Fault**
WC0776	24.35	27.65	400	WC0783	11.00	11.40	150	WC0788	77.75	81.15	400	WC0791	82.15	82.35	630	WC0799	118.70	118.90	**Fault**
WC0776	30.20	30.30	420	WC0783	21.90	25.05	100	WC0788	85.60	86.50	440	WC0791	85.45	86.60	601	WC0799	129.20	129.80	A1?
WC0776	48.85	49.15	440	WC0783	29.95	30.80	201	WC0789	0.00	3.00	Drift	WC0791	86.90	88.05	600	WC0799	131.05	132.45	A0?
WC0776	58.40	58.41	**Fault**	WC0783	32.30	33.25	202	WC0789	7.50	8.41	101	WC0791	103.55	103.85	710	WC0801	0.00	1.90	Drift
WC0778	0.00	2.20	Drift	WC0783	44.40	45.20	300	WC0789	8.46	10.00	100	WC0791	126.55	127.55	700	WC0801	7.90	8.10	710
WC0778	16.95	20.05	400	WC0783	47.60	47.85	320	WC0789	15.30	16.20	201	WC0791	128.25	129.05	702	WC0801	28.15	28.80	700
WC0778	23.65	24.40	440	WC0783	79.40	84.10	400	WC0789	19.10	19.50	202	WC0791	129.65	130.25	721	WC0801	31.50	32.25	702
WC0778	44.65	45.35	480	WC0783	86.70	87.50	440	WC0789	19.60	20.05	202	WC0791	130.35	131.25	720	WC0801	33.35	33.90	721
WC0778	54.45	54.80	A7?	WC0784	0.00	0.50	Drift	WC0789	40.30	40.75	300	WC0792	0.00	1.00	Drift	WC0801	34.05	34.55	720
WC0779	0.00	3.30	Drift	WC0784	8.50	14.60	Coal	WC0789	44.45	44.75	320	WC0792	15.35	15.55	480	WC0802	0.00	1.70	Drift
WC0779	10.35	11.00	C	WC0784	23.80	26.20	Coal	WC0789	70.60	70.85	430	WC0792	15.55	16.35	480	WC0802	9.60	9.75	710

Drift thickness, coal intersections, and faults within year-2001 and subsequent boreholes: **Table 5-2** (continued)

	downhole depths (m)				downhole depths (m)				downhole depths (m)				downhole depths (m)				downhole depths (m)		
Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit
WC0802	30.00	30.60	700	WC0806	38.25	39.00	201	WC0809	58.30	58.50	Fault	WC0811	18.10	18.45	710	WC0814	118.90	119.10	540
WC0802	32.20	33.00	702	WC0806	41.50	42.55	202	WC0809	77.90	78.00	550	WC0811	26.80	27.65	700	WC0814	124.00	124.80	630
WC0802	36.30	36.75	721	WC0806	59.85	60.55	300	WC0809	88.60	88.95	530	WC0811	35.10	35.75	702	WC0814	131.80	132.20	Fault
WC0802	37.25	38.10	720	WC0806	63.80	64.25	320	WC0809	98.15	99.10	501	WC0811	36.40	36.85	721	WC0814	134.70	135.05	601
WC0804	0.00	1.10	Drift	WC0806	94.90	95.50	430	WC0809	99.55	100.50	502	WC0811	41.40	42.35	720	WC0814	146.40	147.00	600
WC0804	6.70	7.30	A5	WC0806	98.85	99.45	410	WC0809	108.20	108.50	540	WC0811A	11.25	13.00	500	WC0815	0.00	2.50	Drift
WC0804	20.00	20.55	A1	WC0806	100.00	100.50	401	WC0809	114.70	115.50	630	WC0811A	26.10	26.50	610	WC0815	9.10	9.80	150
WC0804	20.75	21.25	A1	WC0806	100.51	101.85	400	WC0809	123.20	124.00	601	WC0811A	26.70	29.00	600	WC0815	15.30	15.40	130
WC0804	22.95	23.50	A0	WC0806	102.50	103.00	420	WC0809	125.25	126.30	600	WC0811A	62.40	66.65	700	WC0815	17.95	18.95	110
WC0804	39.40	39.70	530	WC0806	104.90	105.35	440	WC0810	0.00	2.70	Drift	WC0811A	70.20	71.75	720	WC0815	19.50	20.25	101
WC0804	43.95	45.05	501	WC0806	105.45	105.90	440	WC0810	5.00	5.25	Coal	WC0813	0.00	2.00	Drift	WC0815	20.35	22.50	100
WC0804	45.10	46.00	502	WC0806	107.10	107.40	Coal	WC0810	13.35	14.40	150	WC0813	7.70	7.85	A5	WC0815	25.50	26.50	201
WC0804	52.00	52.20	540	WC0807	0.00	2.50	Drift	WC0810	21.95	23.10	110	WC0813	15.00	15.90	A1	WC0815	27.90	28.85	202
WC0804	61.25	62.00	630	WC0807	10.95	11.75	700	WC0810	24.00	24.75	101	WC0813	24.00	25.25	A0	WC0815	41.15	42.00	300
WC0804	63.50	63.80	610	WC0807	19.20	20.00	702	WC0810	24.78	27.35	100	WC0813	26.05	26.40	A2	WC0815	45.05	45.30	320
WC0804	65.25	66.70	601	WC0807	20.80	21.45	721	WC0810	30.30	31.05	201	WC0813	49.60	49.70	530	WC0815	69.30	69.80	430
WC0804	66.95	67.80	600	WC0807	22.75	24.00	720	WC0810	33.10	34.05	202	WC0813	52.75	53.85	501	WC0815	74.70	75.55	410
WC0804	104.05	104.50	700	WC0807	44.90	45.60	800	WC0810	48.50	48.95	300	WC0813	54.20	54.75	502	WC0815	76.65	77.10	401
WC0804	106.20	106.70	702	WC0807	45.90	46.90	802	WC0810	51.10	51.30	320	WC0813	61.20	61.55	540	WC0815	81.30	83.05	400
WC0804	111.90	112.20	721	WC0807	64.00	65.00	Fault	WC0810	79.15	79.65	430	WC0813	67.25	68.00	630	WC0815	84.00	84.85	440
WC0804	112.30	113.00	720	WC0807	86.40	87.05	900	WC0810	83.30	84.30	410	WC0813	75.90	76.35	601	WC0815	85.20	85.60	440
WC0804	133.40	134.30	Fault	WC0807	106.50	106.75	980	WC0810	85.35	86.55	401	WC0813	79.70	80.65	600	WC0815	101.60	101.80	C
WC0804A	32.20	35.30	500	WC0807	129.40	129.95	1010	WC0810	88.75	90.75	400	WC0813	111.55	112.75	700	WC0815	108.50	109.35	480
WC0804A	47.70	48.80	600	WC0807	138.25	139.90	1000	WC0810	92.10	93.00	440	WC0813	114.25	115.10	702	WC0815	114.30	114.50	Coal
WC0804A	80.40	84.90	700	WC0808	0.00	2.40	Drift	WC0810	93.95	94.35	440	WC0813	115.85	116.30	721	WC0815	118.35	118.90	A7
WC0804A	85.25	85.50	700	WC0808	13.55	13.70	730	WC0810	109.70	109.90	Coal	WC0813	119.85	120.75	720	WC0815	126.30	126.85	A5
WC0805	0.00	2.50	Drift	WC0808	19.40	19.50	710	WC0810	116.75	117.80	480	WC0814	0.00	2.50	Drift	WC0815	132.00	132.40	A3
WC0805	7.30	8.40	201	WC0808	33.30	34.05	700	WC0810	122.45	122.95	Coal	WC0814	12.80	13.10	430	WC0815	135.50	136.30	A1
WC0805	10.40	11.40	202	WC0808	36.70	37.40	702	WC0810	124.80	125.20	A7	WC0814	17.05	17.90	410	WC0817	0.00	4.20	Drift
WC0805	29.00	29.70	300	WC0808	40.80	41.05	721	WC0810	126.60	126.90	Coal	WC0814	19.20	20.20	401	WC0817	7.60	7.95	A3
WC0805	32.90	33.35	320	WC0808	42.60	43.55	720	WC0810	133.50	133.95	A5	WC0814	26.20	28.00	400	WC0817	8.40	8.70	A3
WC0805	57.90	58.30	430	WC0808	62.30	63.00	800	WC0810	139.00	139.25	A3	WC0814	28.65	29.50	440	WC0817	9.25	11.05	A1
WC0805	61.15	62.10	410	WC0808	63.15	63.45	802	WC0810	143.05	143.90	A1	WC0814	29.95	30.35	440	WC0817	11.80	11.95	Coal
WC0805	63.10	64.15	401	WC0808	63.60	64.00	802	WC0810	147.00	148.45	A0	WC0814	46.35	46.60	Coal	WC0817	44.70	44.80	A03
WC0805	64.25	66.00	400	WC0809	0.00	1.30	Drift	WC0810	167.30	167.50	530	WC0814	51.60	51.90	480	WC0817	45.10	46.45	A0
WC0805	66.45	66.85	420	WC0809	6.60	7.10	A7	WC0810	174.10	174.70	501	WC0814	52.00	52.55	480	WC0817	48.15	48.25	A2
WC0805	68.75	69.70	440	WC0809	8.25	8.70	A7	WC0810	176.05	176.60	502	WC0814	56.85	57.20	Coal	WC0817	48.65	49.25	A2
WC0805	71.25	71.60	Coal	WC0809	27.30	27.50	Fault	WC0810	179.10	179.20	520	WC0814	60.55	60.95	A7	WC0817	80.00	80.30	501
WC0805	74.00	74.25	Coal	WC0809	40.50	40.90	A3	WC0810	181.45	181.90	540	WC0814	68.30	68.75	A5	WC0817	82.20	82.60	502
WC0805	82.40	82.65	Coal	WC0809	43.00	44.25	A1	WC0810	187.35	188.20	630	WC0814	75.95	76.55	A3	WC0817	95.25	95.40	630
WC0806	0.00	5.80	Drift	WC0809	50.60	50.70	Fault	WC0810	191.45	192.45	601	WC0814	77.90	78.70	A1	WC0817	104.50	104.90	601
WC0806	7.00	8.80	CD	WC0809	52.20	52.80	A0	WC0810	193.65	193.80	Coal	WC0814	81.75	82.90	A0	WC0817	106.90	107.85	600
WC0806	21.90	24.10	150D	WC0809	53.00	53.70	A0	WC0810	195.00	195.20	Fault	WC0814	100.00	100.30	530	WC0817	132.55	133.25	700
WC0806	30.10	31.60	110D	WC0809	53.75	55.10	A0	WC0810	197.50	198.00	600?	WC0814	110.20	110.80	501	WC0818	0.00	2.30	Drift
WC0806	32.10	33.50	100D	WC0809	56.50	56.80	A2	WC0811	0.00	1.80	Drift	WC0814	112.55	113.15	502	WC0818	5.70	6.00	A5

Drift thickness, coal intersections, and faults within year-2001 and subsequent boreholes: **Table 5-2** (continued)

	downhole depths (m)				downhole depths (m)				downhole depths (m)				downhole depths (m)				downhole depths (m)		
Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit
WC0818	13.00	13.20	A3	WC0820	70.00	70.85	410	WC0823	10.00	10.30	A5	WC0826	47.80	48.25	202	WC0828	161.10	161.35	1003
WC0818	13.80	14.65	A1	WC0820	71.80	72.95	401	WC0823	15.45	16.00	A3	WC0826	54.65	55.80	300	WC0828	164.80	165.00	1001
WC0818	20.25	21.50	A0	WC0820	74.60	76.55	400	WC0823	16.00	16.80	A1	WC0826	58.65	58.90	320	WC0828	165.45	166.50	1000
WC0818	22.45	22.80	A2	WC0820	77.50	78.35	440	WC0823	28.25	29.60	A0	WC0826	66.75	66.95	340	WC0828	167.50	168.20	1000
WC0818	43.50	43.70	530	WC0820	78.60	79.05	440	WC0823	29.70	30.10	A2	WC0826	76.85	77.40	430	WC0829	0.00	5.30	Drift
WC0818	46.05	47.15	501	WC0820	92.80	93.00	Coal	WC0823	54.60	55.70	501	WC0826	83.60	84.00	410	WC0829	24.65	24.80	A5
WC0818	48.35	48.90	502	WC0820	98.65	99.35	480	WC0823	58.95	59.25	502	WC0826	84.45	85.75	401	WC0829	29.50	29.65	A3
WC0818	56.10	56.40	540	WC0820	99.45	99.75	480	WC0823	66.60	66.90	540	WC0826	87.00	89.00	400	WC0829	30.05	30.75	A1
WC0818	61.00	62.00	630	WC0820	105.30	105.55	Coal	WC0823	69.30	70.20	630	WC0826	90.10	90.90	440	WC0829	41.95	43.40	A0
WC0818	69.50	69.90	601	WC0820	109.50	109.90	A7	WC0823	81.60	82.80	600	WC0826	91.10	91.50	440	WC0829	43.50	43.90	A2
WC0818	71.70	72.55	600	WC0820	119.80	120.20	A5	WC0823	92.10	92.30	730	WC0826	99.50	99.90	Coal	WC0829	70.80	71.55	501
WC0818	103.40	104.25	700	WC0820	126.00	126.50	A3	WC0823	97.50	97.70	710	WC0826	107.50	107.95	480	WC0829	76.75	77.00	502
WC0818	106.35	107.00	702	WC0820	127.70	128.60	A1	WC0823	101.30	102.10	700	WC0826	118.50	118.95	A7	WC0829	83.00	83.10	540
WC0818	107.50	107.75	721	WC0820	132.25	133.85	A0	WC0823	117.60	118.65	702	WC0826	128.95	129.30	A5	WC0829	84.15	85.15	630
WC0818	113.45	114.15	720	WC0821	0.00	2.70	Drift	WC0823	120.80	121.00	721	WC0826	133.30	134.00	A3	WC0829	91.65	92.05	601
WC0819	0.00	2.30	Drift	WC0821	2.70	8.30	Mbar	WC0823	122.70	123.50	720	WC0826	135.00	135.70	A1	WC0829	93.65	94.70	600
WC0819	14.70	14.90	A3	WC0821	8.30	12.70	Bsky	WC0823	139.55	139.70	Coal	WC0826	138.60	140.05	A0	WC0829	103.90	104.20	730
WC0819	15.80	16.80	A1	WC0821	12.70	13.50	Bird	WC0823	140.50	141.10	800	WC0827	0.00	2.50	Drift	WC0829	108.40	108.60	710
WC0819	20.75	22.30	A0	WC0821	34.70	35.50	150	WC0824	0.00	2.40	Drift	WC0827	32.30	33.50	CD	WC0829	111.80	112.55	700
WC0819	24.00	24.20	A2	WC0821	46.40	47.65	110	WC0824	5.30	5.60	A5	WC0827	54.30	55.50	CD	WC0829	128.30	128.90	702
WC0819	43.90	43.95	530	WC0821	47.75	48.60	101	WC0824	10.95	11.25	A3	WC0827	56.40	57.00	CD	WC0829	129.95	130.10	721
WC0819	48.15	48.80	501	WC0821	50.75	52.50	100	WC0824	11.60	12.60	A1	WC0827	64.00	64.60	CD	WC0829	131.05	132.00	720
WC0819	51.80	52.10	502	WC0821	56.70	57.50	201	WC0824	20.50	21.15	A0	WC0827	66.10	67.10	CD	WC0829	148.00	148.50	800
WC0819	60.40	60.70	540	WC0821	59.00	60.10	202	WC0824	22.10	22.45	A2	WC0827	67.70	69.50	CD	WC0829	148.70	149.10	802
WC0819	66.65	69.45	630	WC0821	71.30	72.40	300	WC0824	46.70	47.80	501	WC0827	70.10	72.50	CD	WC0830	0.00	2.00	Drift
WC0819	72.45	72.65	610	WC0821	75.40	75.60	320	WC0824	53.00	53.40	502	WC0827	73.20	73.80	CD	WC0830	5.60	5.75	A1
WC0819	84.45	84.70	601	WC0821	86.60	86.85	340	WC0824	60.60	61.00	540	WC0827	78.30	79.60	CD	WC0830	9.30	9.50	Fault
WC0819	88.35	89.60	600	WC0821	94.70	95.35	430	WC0824	68.75	69.05	630	WC0827	83.80	85.30	CD	WC0830	10.50	11.00	A3
WC0819	93.20	93.35	750	WC0821	99.95	100.90	410	WC0824	70.80	71.05	610	WC0827	125.00	131.10	CD	WC0830	11.40	12.00	A1
WC0819	112.00	113.60	730	WC0821	101.10	102.50	401	WC0824	79.45	79.80	601	WC0828	0.00	1.60	Drift	WC0830	17.60	18.90	A0
WC0819	118.90	119.15	710	WC0821	104.00	106.15	400	WC0824	81.30	82.35	600	WC0828	4.50	4.75	540	WC0830	20.15	20.30	A2
WC0819	123.10	123.40	712	WC0821	107.35	108.15	440	WC0824	98.50	98.75	710	WC0828	5.50	6.75	630	WC0830	35.90	36.30	Fault
WC0820	0.00	2.70	Drift	WC0821	108.50	108.95	440	WC0824	102.50	103.15	700	WC0828	7.80	7.85	610	WC0830	52.80	53.45	501
WC0820	4.00	4.50	150	WC0822	0.00	1.20	Drift	WC0824	112.95	113.45	702	WC0828	11.05	11.65	601	WC0830	57.15	57.40	502
WC0820	4.65	5.10	150	WC0822	19.20	19.75	702	WC0824	114.20	114.50	721	WC0828	13.20	14.20	600	WC0830	63.15	63.30	540
WC0820	12.65	12.80	130	WC0822	20.50	20.90	721	WC0824	115.90	116.60	720	WC0828	25.85	26.15	730	WC0830	74.75	75.55	630
WC0820	14.85	16.15	110	WC0822	22.70	23.45	720	WC0824	147.20	148.25	800	WC0828	30.60	30.85	710	WC0830	86.60	87.00	601
WC0820	16.95	17.35	101	WC0822	35.25	35.30	Coal	WC0824	148.50	148.80	802	WC0828	33.95	34.60	700	WC0830	87.70	87.95	601
WC0820	19.90	22.00	100	WC0822	40.10	40.70	800	WC0826	0.00	2.30	Drift	WC0828	53.75	54.30	702	WC0830	97.35	98.40	600
WC0820	25.65	26.50	201	WC0822	42.40	42.55	802	WC0826	19.00	19.70	150	WC0828	55.30	55.35	721	WC0830	105.40	105.60	750
WC0820	28.60	29.55	202	WC0822	81.20	81.75	900	WC0826	29.55	30.40	110	WC0828	56.20	57.05	720	WC0830	111.20	111.40	730
WC0820	38.45	39.95	300	WC0822	123.60	123.90	1003	WC0826	30.90	32.15	101	WC0828	74.00	74.55	800	WC0831	0.00	5.00	Drift
WC0820	42.85	43.20	320	WC0822	126.20	126.65	1001	WC0826	33.90	35.60	100	WC0828	114.35	114.80	900	WC0831	14.25	15.20	110
WC0820	54.65	54.95	340	WC0822	127.45	129.50	1000	WC0826	44.05	44.80	201	WC0828	135.75	136.00	1090	WC0831	15.80	16.10	101
WC0820	64.15	64.60	430	WC0823	0.00	1.80	Drift	WC0826	47.15	47.70	202	WC0828	136.65	136.95	1070	WC0831	16.40	17.30	101

Drift thickness, coal intersections, and faults within year-2001 and subsequent boreholes: **Table 5-2** (continued)

	downhole depths (m)				downhole depths (m)				downhole depths (m)				downhole depths (m)				downhole depths (m)		
Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit
WC0831	19.30	19.85	100	WC0833	25.60	26.90	630	WC0835	129.75	130.45	730	WC0844	16.45	17.20	700	WC0849	92.50	92.70	730
WC0831	19.95	21.00	100	WC0833	29.70	30.20	601	WC0838	0.00	18.30	Drift	WC0844	20.50	21.25	702	WC0849	97.60	97.95	710
WC0831	35.05	35.80	201	WC0833	33.15	34.05	600	WC0838	27.80	28.35	150	WC0844	22.40	22.80	721	WC0849	112.45	113.55	700
WC0831	38.20	38.80	202	WC0833	48.90	49.10	730	WC0838	28.70	29.10	150	WC0844	24.00	24.80	720	WC0849	114.75	115.50	702
WC0831	38.90	39.30	202	WC0833	53.45	53.50	710	WC0838	42.50	43.30	110	WC0845	0.00	5.00	Drift	WC0849	116.00	116.40	721
WC0831	46.10	47.30	300	WC0833	56.40	57.55	700	WC0838	44.30	44.60	101	WC0845	9.10	16.80	CD	WC0849	117.90	118.80	720
WC0831	50.65	51.00	320	WC0833	69.20	69.70	702	WC0838	44.90	45.90	101	WC0845	17.40	18.30	CD	WC0849	140.40	140.60	800
WC0831	57.25	57.60	340	WC0833	71.10	71.50	721	WC0838	47.75	49.55	100	WC0846	0.00	2.20	Drift	WC0849	142.20	142.45	802
WC0831	69.60	70.30	430	WC0833	71.50	72.30	720	WC0838	55.85	56.50	201	WC0846	29.20	31.05	501	WC0850	0.00	10.20	Drift
WC0831	72.30	72.75	410	WC0834	0.00	4.00	Drift	WC0838	63.85	64.05	202	WC0846	31.35	32.70	502	WC0850	14.20	14.25	530
WC0831	73.65	74.95	401	WC0834	18.45	18.75	A5	WC0838	73.45	74.60	300	WC0846	41.20	42.10	540	WC0850	18.45	19.45	501
WC0831	76.00	78.10	400	WC0834	21.25	22.10	A3	WC0838	77.70	78.00	320	WC0846	54.35	54.70	631	WC0850	19.95	20.50	502
WC0831	79.30	80.30	440	WC0834	22.10	22.90	A1	WC0838	84.10	84.50	340	WC0846	55.40	55.80	630	WC0850	25.50	25.75	540
WC0831	80.40	80.80	440	WC0834	30.15	30.20	Coal	WC0838	102.15	102.85	430	WC0846	61.40	63.40	601	WC0850	33.55	33.90	630
WC0831	87.75	88.15	Coal	WC0834	33.30	34.25	A0	WC0838	102.85	103.55	410	WC0846	64.10	66.90	600	WC0850	44.25	44.70	601
WC0831	95.10	95.40	480	WC0834	34.25	34.70	A02	WC0838	103.65	104.90	401	WC0847	0.00	2.20	Drift	WC0850	45.70	46.80	600
WC0831	107.60	108.00	A7	WC0834	34.70	35.05	A2	WC0838	105.95	106.90	400	WC0847	7.30	7.40	710	WC0850	72.50	73.25	700
WC0831	124.20	125.10	A3	WC0834	65.25	66.25	501	WC0838	107.00	108.05	400	WC0847	17.15	17.75	700	WC0850	79.70	80.35	702
WC0831	126.70	127.50	A1	WC0834	71.60	71.80	502	WC0838	108.95	109.85	440	WC0847	25.15	25.80	702	WC0850	82.85	83.00	721
WC0831	132.60	134.10	A0	WC0834	78.00	78.10	540	WC0838	109.95	110.50	440	WC0847	26.80	27.15	721	WC0850	90.60	91.40	720
WC0832C	0.00	14.70	Drift	WC0834	78.85	80.40	630	WC0838	114.70	115.00	Coal	WC0847	29.70	30.50	720	WC0851	0.00	5.00	Drift
WC0832C	14.70	32.00	Mbar	WC0834	83.15	83.70	601	WC0838	136.20	136.50	A7	WC0847	48.90	49.55	800	WC0851	11.60	11.70	A3
WC0832C	32.00	40.35	Bsky	WC0834	87.00	88.00	600	WC0838	149.40	150.90	CD	WC0847	50.20	51.00	802	WC0851	12.50	13.45	A1
WC0832C	40.35	41.00	Bird	WC0834	100.30	100.60	730	WC0841	5.80	6.00	Fault	WC0848	0.00	2.00	Drift	WC0851	25.00	26.25	A0
WC0832C	68.30	68.80	150	WC0834	105.20	105.45	710	WC0841	21.80	22.25	A01	WC0848	9.95	10.80	601	WC0851	26.75	27.60	A2
WC0832C	81.15	82.30	110	WC0834	108.20	109.10	700	WC0841	24.00	24.40	A0	WC0848	11.40	12.70	600	WC0851	55.50	56.85	501
WC0832C	83.10	84.35	101	WC0834	123.70	124.25	702	WC0841	24.70	25.40	A0	WC0848	17.65	17.80	750	WC0851	57.50	58.25	502
WC0832C	86.10	88.20	100	WC0834	125.35	125.50	721	WC0841	26.60	26.90	A2	WC0848	25.05	25.30	730	WC0851	67.45	68.20	540
WC0832C	102.35	103.20	201	WC0834	126.10	127.15	720	WC0841	59.10	59.95	501	WC0848	32.00	32.20	710	WC0851	78.80	80.00	630
WC0832C	106.30	107.30	202	WC0835	0.00	1.70	Drift	WC0841	66.00	66.60	502	WC0848	43.70	44.25	700	WC0851	81.55	81.90	610
WC0832C	117.40	118.00	300	WC0835	15.25	15.50	A5	WC0841	81.45	81.70	520	WC0848	48.00	48.70	702	WC0851	92.75	93.25	601
WC0832C	118.15	119.00	300	WC0835	16.40	17.25	A3	WC0841	94.95	95.25	540	WC0849	0.00	1.80	Drift	WC0851	96.00	97.30	600
WC0832C	123.20	123.55	320	WC0835	17.60	18.55	A1	WC0841	96.60	98.20	630	WC0849	9.30	9.50	A5	WC0854	0.00	2.00	Drift
WC0832C	130.45	130.80	340	WC0835	25.70	26.75	A0	WC0841	106.00	106.20	601	WC0849	15.60	16.70	A1	WC0854	5.85	6.25	A5
WC0832C	149.75	150.60	430	WC0835	27.90	28.20	A2	WC0841	108.60	110.40	600	WC0849	26.00	27.00	A0	WC0854	12.15	12.35	A3
WC0832C	151.40	152.25	410	WC0835	28.50	28.80	A2	WC0842	0.00	2.50	Drift	WC0849	27.90	28.20	A2	WC0854	13.00	13.85	A1
WC0832C	152.26	153.75	401	WC0835	61.20	62.65	501	WC0842	4.10	4.35	A1	WC0849	38.00	38.20	Fault	WC0854	20.75	21.10	A01
WC0832C	154.50	157.00	400	WC0835	70.30	70.80	502	WC0842	11.10	11.35	A01	WC0849	49.00	49.10	530	WC0854	21.10	21.90	A0
WC0832C	158.40	160.15	440	WC0835	82.20	83.00	540	WC0842	13.50	14.30	A0	WC0849	53.80	54.95	501	WC0854	22.80	23.10	A2
WC0832C	166.20	166.75	Coal	WC0835	84.30	84.50	Fault	WC0842	18.45	18.80	A2	WC0849	55.20	55.80	502	WC0854	45.35	46.30	501
WC0833	0.00	1.70	Drift	WC0835	85.10	85.30	540	WC0842	35.50	36.60	501	WC0849	62.40	62.75	540	WC0854	48.40	48.90	502
WC0833	11.40	12.25	501	WC0835	89.10	90.80	630	WC0842	41.50	41.60	502	WC0849	69.90	70.90	630	WC0854	56.05	56.45	540
WC0833	18.40	18.60	502	WC0835	109.20	109.45	601	WC0842	51.45	51.65	540	WC0849	75.75	76.60	601	WC0854	64.95	65.45	630
WC0833	19.90	19.95	520	WC0835	113.05	113.80	600	WC0842	54.60	55.55	630	WC0849	78.20	79.15	600	WC0854	73.60	73.70	601
WC0833	24.90	24.95	540	WC0835	120.30	120.60	750	WC0844	0.00	2.30	Drift	WC0849	85.60	85.70	750	WC0854	75.50	76.40	600

Drift thickness, coal intersections, and faults within year-2001 and subsequent boreholes: **Table 5-2** (continued)

	downhole depths (m)				downhole depths (m)				downhole depths (m)				downhole depths (m)				downhole depths (m)		
Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit
WC0854	97.30	97.70	710	WC0864	0.00	4.20	Drift	WC0869C	131.25	133.00	400	WC0907P	20.30	21.03	802	WC0915	23.60	23.90	Coal
WC0854	102.25	103.10	700	WC0864	8.35	8.45	A5	WC0869C	134.45	135.50	440	WC0908P	0.00	2.70	Drift	WC0915	57.55	57.90	1001
WC0854	107.15	107.80	702	WC0864	17.00	17.10	A3	WC0869C	135.90	136.45	440	WC0908P	23.44	24.58	700	WC0915	66.75	68.34	1000
WC0854	108.45	108.80	721	WC0864	18.45	19.40	A1	WC0870C	3.40	4.00	Coal	WC0908P	28.15	29.15	702	WC0916	0.00	8.80	Drift
WC0854	111.30	112.00	720	WC0864	24.35	25.70	A0	WC0870C	6.00	6.70	Coal	WC0908P	30.30	30.85	721	WC0916	19.20	19.80	150
WC0857	0.00	3.00	Drift	WC0864	46.00	46.15	530	WC0870C	12.70	13.30	Coal	WC0908P	31.00	32.40	720	WC0916	20.00	20.27	150
WC0857	5.60	5.70	A5	WC0864	51.25	52.20	501	WC0870C	14.30	15.00	Coal	WC0909P	0.00	4.60	Drift	WC0916	30.65	31.80	110
WC0857	11.30	12.70	A3	WC0864	53.00	53.60	502	WC0870C	16.00	16.50	Coal	WC0909P	16.10	16.90	110	WC0916	33.00	33.25	101
WC0857	13.85	15.25	A1	WC0864	60.75	61.10	540	WC0870C	20.80	24.50	500	WC0909P	18.40	21.70	100	WC0916	33.65	34.33	101
WC0857	18.60	19.20	Fault	WC0864	67.05	67.90	630	WC0870C	30.00	37.70	600	WC0909P	27.00	27.90	201	WC0916	37.18	38.65	100
WC0857	19.45	20.20	A3	WC0864	79.90	80.20	601	WC0870C	55.50	56.10	Coal	WC0909P	30.80	32.00	202	WC0916	43.47	44.00	201
WC0857	21.00	21.85	A1	WC0864	84.45	85.00	600	WC0870C	66.80	67.10	Coal	WC0910P	0.00	2.70	Drift	WC0916	51.45	51.62	202
WC0857	26.35	27.50	A0	WC0864	85.10	85.70	600	WC0870C	89.00	89.80	710	WC0910P	13.84	14.04	430	WC0916	60.28	61.15	300
WC0857	27.50	28.00	A02	WC0864	92.15	92.30	750	WC0870C	90.30	96.70	700	WC0910P	16.83	17.75	410	WC0916	72.80	72.90	340
WC0857	33.90	34.00	Fault	WC0865	0.00	6.10	Drift	WC0870C	96.90	98.55	702	WC0910P	18.80	20.20	401	WC0916	72.90	73.10	340
WC0857	42.50	42.60	Fault	WC0865	20.15	21.00	A1	WC0870C	99.15	99.50	721	WC0910P	20.22	23.00	400	WC0916	91.58	92.62	430
WC0857	62.00	62.60	501	WC0865	26.40	27.15	A0	WC0870C	99.60	101.60	720	WC0910P	23.00	23.50	420	WC0916	93.10	93.35	410
WC0857	66.60	66.85	502	WC0865	40.40	40.55	550	WC0870C	130.60	131.70	800	WC0910P	25.15	25.60	440	WC0916	94.05	94.30	401
WC0857	72.10	72.30	540	WC0865	41.80	42.15	Fault	WC0870C	131.80	132.70	802	WC0910P	25.73	26.13	440	WC0916	95.25	97.20	400
WC0857	79.30	80.30	630	WC0865	48.20	48.45	530	WC0901P	10.22	10.85	730	WC0910P	29.20	30.95	460	WC0916	98.25	99.10	440
WC0857	89.20	89.40	601	WC0865	61.40	67.20	501	WC0901P	19.30	19.45	710	WC0911P	0.00	2.50	Drift	WC0916	99.25	99.70	440
WC0857	99.50	100.40	600	WC0865	68.60	72.30	502	WC0901P	19.95	23.10	700	WC0911P	15.80	16.30	Coal	WC0916	103.40	103.60	Coal
WC0857	107.60	107.75	750	WC0865	74.20	74.70	Fault	WC0901P	23.20	24.45	702	WC0911P	26.20	26.50	410	WC0950	0.00	8.60	Drift
WC0857	111.70	112.25	730	WC0865	87.60	88.60	630	WC0901P	27.30	27.55	721	WC0911P	27.90	28.95	401	WC0950	42.40	42.55	1003
WC0857	122.80	123.00	Fault	WC0865	89.20	89.60	610	WC0901P	28.20	29.90	720	WC0911P	30.24	32.35	400	WC0950	45.20	45.40	1001
WC0857	126.50	126.65	710	WC0865	92.65	95.30	601	WC0902P	4.40	6.93	500	WC0911P	34.05	34.45	440	WC0950	45.70	46.10	1001
WC0857	131.10	132.55	700	WC0865	95.60	96.90	600	WC0902P	10.65	10.90	Coal	WC0911P	34.87	35.40	440	WC0950	47.00	47.60	1000
WC0857	147.75	148.80	702	WC0865	105.40	105.70	750	WC0902P	11.65	11.87	Coal	WC0912P	0.00	1.80	Drift	WC0950	47.90	48.25	1000
WC0857	149.90	150.30	721	WC0869C	0.00	6.10	Drift	WC0902P	12.70	13.12	Coal	WC0912P	17.20	18.10	110	WC0950	48.60	49.00	1000
WC0857	152.20	157.00	720	WC0869C	6.10	8.30	Mbar	WC0902P	23.82	26.70	600	WC0912P	18.90	19.06	101	WC0950	49.35	50.15	1000
WC0857	181.60	182.25	800	WC0869C	8.30	12.85	Bsky	WC0904P	0.00	4.50	Drift	WC0912P	19.40	20.10	101	WC0950	51.45	51.65	1020
WC0857	182.50	182.70	802	WC0869C	12.85	14.15	Bird	WC0904P	14.90	15.65	201	WC0912P	22.25	24.25	100	WC0950	89.10	89.30	1060
WC0863	0.00	1.80	Drift	WC0869C	40.80	41.20	150	WC0904P	15.65	16.20	202	WC0913P	0.00	0.90	Drift	WC0951	0.00	4.80	Drift
WC0863	27.25	28.00	A3	WC0869C	47.40	47.60	130	WC0904P	18.80	20.80	300	WC0913P	14.94	15.56	201	WC0951	36.75	37.20	1060
WC0863	28.60	29.50	A1	WC0869C	50.05	51.25	110	WC0905P	0.00	2.00	Drift	WC0913P	18.70	19.15	202	WC0951	43.85	44.30	1080
WC0863	39.75	40.00	A0	WC0869C	52.10	52.98	101	WC0905P	12.20	12.62	Coal	WC0913P	19.50	19.76	202	WC0951	114.25	116.20	1101
WC0863	60.40	61.10	501	WC0869C	53.02	55.70	100	WC0905P	18.07	20.41	100	WC0913P	26.40	27.44	300	WC0951	116.90	117.45	1102
WC0863	65.85	65.90	502	WC0869C	59.55	60.60	201	WC0905P	35.02	35.90	201	WC0914	0.00	2.60	Drift	WC0952	0.00	4.50	Drift
WC0863	75.80	75.90	540	WC0869C	62.30	62.90	202	WC0905P	36.94	37.35	202	WC0914	26.85	27.20	900	WC0952	5.50	6.50	1101
WC0863	77.30	78.25	630	WC0869C	63.00	63.40	202	WC0905P	37.65	37.95	202	WC0914	67.95	68.10	Coal	WC0952	7.00	7.70	1102
WC0863	85.60	85.85	601	WC0869C	82.25	82.70	300	WC0906P	0.00	2.50	Drift	WC0914	70.18	70.80	1001	WC0952	27.30	27.90	1120
WC0863	93.30	93.75	600	WC0869C	85.40	85.95	320	WC0906P	20.15	20.50	610	WC0914	71.00	71.40	1001	WC0952	51.40	51.85	1140
WC0863	103.60	103.65	730	WC0869C	116.25	116.90	430	WC0906P	21.75	25.10	600	WC0914	79.85	81.70	1000	WC0952	55.10	55.30	1160
WC0863	111.70	111.90	710	WC0869C	121.10	122.00	410	WC0907P	0.00	2.50	Drift	WC0915	10.85	11.65	900	WC0953	0.00	17.30	Drift
WC0863	114.25	115.00	700	WC0869C	122.40	123.70	401	WC0907P	19.15	20.30	800	WC0915	22.30	22.50	Coal	WC0953	45.20	46.35	1101

Drift thickness, coal intersections, and faults within year-2001 and subsequent boreholes: **Table 5-2** (continued)

	downhole depths (m)				downhole depths (m)				downhole depths (m)				downhole depths (m)				downhole depths (m)		
Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit
WC0953	46.75	47.60	1102	WC0959	91.45	91.70	Coal	WC1101	68.19	68.36	410	WC1103	179.62	180.58	720	WC1105	93.20	93.30	610
WC0953	65.65	66.30	1120	WC0960	0.00	0.70	Drift	WC1101	69.52	71.40	400	WC1104	4.50	4.60	420	WC1105	95.00	96.06	600
WC0953	88.60	89.00	1140	WC0960	28.55	28.95	1101	WC1101	71.40	71.52	Clay	WC1104	14.50	14.60	440	WC1105	103.10	103.20	770
WC0953	96.70	97.10	1180	WC0960	31.70	33.05	1102	WC1101	72.70	72.75	420	WC1104	15.60	15.70	Fault	WC1105	103.90	104.00	750
WC0954	0.00	5.90	Drift	WC0960	49.25	49.65	1120	WC1102	10.26	10.96	201	WC1104	17.35	17.45	440	WC1105	108.00	108.10	730
WC0954	22.55	22.80	1003	WC0960	71.65	71.80	1140	WC1102	11.38	11.64	202	WC1104	21.00	21.42	460	WC1105	117.20	119.24	700
WC0954	25.15	26.05	1001	WC0960	74.85	75.05	1160	WC1102	11.96	12.40	202	WC1104	28.60	28.70	481	WC1105	122.45	123.24	721
WC0954	27.15	27.55	1000	WC0960	76.90	77.20	1180	WC1102	18.30	18.46	310	WC1104	32.08	32.61	480	WC1105	124.80	131.41	700
WC0954	28.60	29.95	1000	WC0960	107.10	107.25	Coal	WC1102	18.80	20.27	300	WC1104	37.75	38.00	A7	WC1105	166.50	166.70	Fault
WC0954	30.40	30.70	1000	SRK1002	0.00	16.50	Drift	WC1102	23.02	23.07	320	WC1104	38.35	38.68	A7	WC1105	183.50	183.60	731
WC0954	76.95	77.35	1060	SRK1002	33.74	33.79	130	WC1102	24.77	24.82	340	WC1104	45.40	45.50	A5	WC1105	187.10	187.20	730
WC0954	85.15	85.50	1080	SRK1002	38.45	40.40	110	WC1102	41.44	41.70	430	WC1104	59.55	59.75	A3	WC1105	197.00	199.65	700
WC0955	0.00	1.50	Drift	SRK1002	41.92	42.12	101	WC1102	42.93	43.43	410	WC1104	69.90	70.30	A1	WC1105	199.82	200.20	721
WC0955	26.85	27.10	1060	SRK1002	43.08	43.51	101	WC1102	44.76	46.48	400	WC1104	71.52	71.78	A0	WC1105	201.14	202.50	720
WC0955	33.60	33.80	1080	SRK1002	43.56	43.87	101	WC1102	47.00	47.80	Clay	WC1104	81.30	81.40	510	WC1106	36.42	36.57	430
WC0955	92.30	93.20	1101	SRK1002	46.87	48.97	100	WC1103	6.56	6.64	430	WC1104	92.48	93.61	500	WC1106	37.80	38.27	410
WC0955	93.20	94.15	1100	SRK1002	54.72	55.19	201	WC1103	8.22	9.09	410	WC1104	94.30	94.48	520	WC1106	40.17	41.84	400
WC0955	95.00	95.45	1104	SRK1002	60.06	60.22	202	WC1103	11.20	13.05	400	WC1104	95.15	95.38	540	WC1106	41.84	42.20	Clay
WC0956	0.00	8.30	Drift	SRK1002	69.89	70.11	Coal	WC1103	13.05	13.22	Clay	WC1104	96.35	96.40	630	WC1106	42.95	43.05	420
WC0956	17.60	18.70	1101	SRK1002	71.94	72.37	300	WC1103	14.42	14.46	420	WC1104	97.18	97.22	610	WC1107	5.82	6.15	A7
WC0956	18.70	19.75	1102	SRK1002	72.40	72.51	300	WC1103	29.80	29.90	440	WC1104	98.91	99.51	600	WC1107	6.31	6.50	A7
WC0956	20.85	21.20	1104	SRK1003	0.00	5.20	Drift	WC1103	33.85	33.95	460	WC1104	109.50	109.60	770	WC1107	17.45	17.60	A5
WC0956	36.35	36.55	1120	WC1004C	0.00	6.10	Drift	WC1103	44.82	44.91	481	WC1104	110.50	110.60	750	WC1107	60.30	60.40	A3
WC0957	0.00	0.50	Drift	WC1004C	112.90	120.15	Bsky	WC1103	48.90	49.57	480	WC1104	116.70	116.80	730	WC1107	71.68	72.53	A1
WC0957	20.40	20.65	Coal	WC1004C	120.38	121.12	Bird	WC1103	54.18	54.25	A71	WC1104	128.80	129.12	710	WC1107	74.40	74.80	A0
WC0957	40.00	40.80	1101	WC1004C	121.65	121.77	Coal	WC1103	59.00	59.30	A7	WC1104	129.12	130.80	700	WC1107	99.70	100.00	510
WC0957	42.50	43.40	1102	WC1004C	127.50	127.55	190	WC1103	66.05	66.15	A5	WC1104	130.80	131.80	702	WC1107	109.30	111.98	500
WC0957	44.50	44.75	1104	WC1004C	142.65	142.80	170	WC1103	81.15	81.25	A3	WC1104	131.80	132.30	721	WC1107	112.10	112.30	Fault
WC0957	66.40	66.70	1120	WC1004C	149.00	149.20	150	WC1103	94.70	95.20	A1	WC1104	137.10	138.08	720	WC1107	128.76	130.40	500
WC0957	91.05	91.45	1140	WC1004C	158.85	158.95	130	WC1103	98.95	99.05	A0	WC1104	159.65	159.75	800	WC1107	131.70	131.86	520
WC0957	98.30	99.10	1180	WC1004C	160.95	161.76	110	WC1103	114.90	115.00	510	WC1104	162.00	162.10	802	WC1107	132.43	133.42	540
WC0958	25.30	25.85	1101	WC1004C	162.92	163.93	101	WC1103	122.20	123.75	500	WC1104	177.40	177.50	900	WC1107	135.05	135.22	560
WC0958	27.65	28.25	1102	WC1004C	165.94	168.12	100	WC1103	125.87	126.00	520	WC1104	196.75	196.85	920	WC1107	139.40	139.45	630
WC0958	44.10	44.50	1120	WC1004C	169.67	169.75	HG	WC1103	127.41	127.81	540	WC1104	212.70	212.90	1000	WC1107	141.00	141.07	610
WC0958	65.00	65.15	1140	WC1101	4.12	4.95	201	WC1103	128.93	129.70	560	WC1104	223.00	223.20	1020	WC1107	143.16	145.27	600
WC0958	70.10	70.20	1160	WC1101	5.45	5.80	202	WC1103	134.68	134.73	630	WC1105	14.20	14.30	440	WC1107	158.35	158.45	770
WC0958	71.60	72.20	1180	WC1101	6.10	6.42	202	WC1103	136.10	136.20	610	WC1105	17.70	17.85	460	WC1107	159.50	159.60	750
WC0958	100.95	101.20	Coal	WC1101	27.98	28.27	Coal	WC1103	137.40	139.00	600	WC1105	31.42	32.05	480	WC1107	166.95	167.05	730
WC0959	0.00	1.40	Drift	WC1101	29.22	29.65	310	WC1103	150.40	150.50	770	WC1105	36.10	36.22	A7	WC1107	179.18	182.60	700
WC0959	17.60	18.50	1101	WC1101	30.20	33.05	300	WC1103	151.35	151.42	750	WC1105	36.80	37.10	A7	WC1107	182.60	183.86	702
WC0959	19.80	20.35	1102	WC1101	33.40	33.50	Coal	WC1103	158.30	158.40	730	WC1105	42.95	43.05	A5	WC1107	184.36	184.50	721
WC0959	36.60	37.10	1120	WC1101	34.06	36.86	300	WC1103	174.53	175.10	710	WC1105	56.85	56.95	A3	WC1107	185.49	186.85	720
WC0959	59.70	59.90	1140	WC1101	40.95	41.00	320	WC1103	175.33	177.10	700	WC1105	79.80	80.59	500	4N1-13-1	36.85	38.10	410
WC0959	62.95	63.15	1160	WC1101	43.10	43.15	340	WC1103	177.10	178.03	702	WC1105	85.30	85.60	540	4N1-13-1	38.80	39.50	401
WC0959	64.70	65.15	1180	WC1101	67.20	67.25	430	WC1103	178.65	178.75	721	WC1105	92.25	92.35	630	4N1-13-1	40.50	41.95	400

Drift thickness, coal intersections, and faults within year-2001 and subsequent boreholes: **Table 5-2** (concluded)

	downhole depths (m)				downhole depths (m)				downhole depths (m)				downhole depths (m)				downhole depths (m)		
Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit	Borehole	from	to	Unit
4N1-13-1	43.55	44.45	440	4N1-13-5	27.40	27.70	101	4N1-13-6	135.90	136.30	201	4N1-13-7	172.80	175.50	410	7N2-13-5	54.50	58.35	400
4N1-13-1	44.60	44.80	440	4N1-13-5	35.00	36.20	100	4N1-13-6	138.40	139.00	202	4N1-13-7	176.20	177.50	401	7N2-13-6	9.40	10.30	201
4N1-13-2	4.20	4.45	300	4N1-13-5	50.30	50.40	201	4N1-13-6	154.40	154.60	300	4N1-13-7	179.20	180.80	400	7N2-13-6	10.65	11.25	202
4N1-13-2	9.10	9.30	320	4N1-13-5	61.50	62.10	Coal	4N1-13-6	171.60	174.10	401	4N1-13-7	186.20	186.50	480	7N2-13-6	11.50	12.90	202
4N1-13-2	27.65	27.75	340	4N1-13-5	69.40	69.85	410	4N1-13-6	174.40	175.15	401	7N2-13-1	44.10	45.35	400	7N2-13-6	28.70	29.45	300
4N1-13-2	32.20	32.60	430	4N1-13-5	70.60	71.90	401	4N1-13-6	176.50	179.10	400	7N2-13-1	46.82	47.35	480	7N2-13-6	34.20	34.40	320
4N1-13-2	36.80	37.15	410	4N1-13-5	73.40	74.20	400	4N1-13-6	180.90	182.30	440	7N2-13-2	6.20	6.85	300	7N2-13-6	61.60	61.95	410
4N1-13-2	38.35	39.40	401	4N1-13-5	74.60	75.80	400	4N1-13-6	187.60	187.80	480	7N2-13-2	10.35	10.55	320	7N2-13-7	9.05	10.00	201
4N1-13-2	40.70	42.70	400	4N1-13-5	77.30	77.90	440	4N1-13-7	52.30	52.80	Coal	7N2-13-2	39.75	45.75	400	7N2-13-7	10.95	11.35	202
4N1-13-2	44.15	45.15	440	4N1-13-5	77.90	78.90	440	4N1-13-7	75.20	75.30	Bird	7N2-13-3	6.00	6.45	300	7N2-13-7	11.65	12.00	202
4N1-13-2	45.30	45.50	440	4N1-13-5	81.15	81.35	Coal	4N1-13-7	97.40	98.60	110	7N2-13-3	8.85	9.19	320	7N2-13-7	24.20	24.80	300
4N1-13-3	17.55	18.50	300	4N1-13-5	87.35	87.60	480	4N1-13-7	100.10	100.40	101	7N2-13-3	36.85	41.90	400	7N2-13-7	28.10	28.45	320
4N1-13-3	32.10	32.20	340	4N1-13-6	48.90	49.90	Bird	4N1-13-7	100.40	101.20	101	7N2-13-3	46.20	46.40	480	7N2-13-7	66.15	66.55	400
4N1-13-3	54.50	55.82	410	4N1-13-6	50.30	50.50	Bird	4N1-13-7	103.40	103.85	100	7N2-13-3	46.65	46.80	480	7N2-13-7	66.80	67.30	400
4N1-13-3	56.42	57.35	401	4N1-13-6	77.40	77.70	Coal	4N1-13-7	103.85	105.30	100	7N2-13-4	20.45	24.18	400	7N2-13-7	68.50	68.85	420
4N1-13-3	58.35	58.85	400	4N1-13-6	96.50	97.60	110	4N1-13-7	113.40	113.80	Coal	7N2-13-4	29.45	29.70	480	7N2-13-8	10.30	10.60	300
4N1-13-3	59.15	59.45	400	4N1-13-6	98.75	99.36	110	4N1-13-7	135.40	135.40	201	7N2-13-4	29.90	30.15	480	7N2-13-8	44.55	44.75	Coal
4N1-13-3	60.35	61.50	440	4N1-13-6	99.80	100.50	101	4N1-13-7	136.70	136.70	202	7N2-13-5	10.25	10.80	300	7N2-13-8	46.58	47.50	401?
4N1-13-5	4.64	5.48	Bird	4N1-13-6	102.70	103.38	100	4N1-13-7	142.00	142.00	Coal	7N2-13-5	47.15	50.70	400	7N2-13-8	48.10	49.50	400
4N1-13-5	22.70	23.50	110	4N1-13-6	103.38	104.90	100	4N1-13-7	150.20	150.20	300	7N2-13-5	52.75	53.45	420	7N2-13-8	55.55	56.35	480
4N1-13-5	26.40	27.00	101	4N1-13-6	110.70	111.20	Coal												

*Notes: 'Coal' denotes uncorrelated coal intersections. '**Drift**' refers to unconsolidated material overlying bedrock. '**Clay**' refers to a notable clay zone. ' **Bsky**' refers to the Bluesky Formation. '**Mbar**' refers to the Moosebar Formation. '**HG**' refers to a zone with notably-high natural-gamma log response. All depths are given in metres, as measured along the length of the boreholes. Boreholes of WRH2001-series and WC05-series are historic; all others are current. Compilation by L.R. LeMay; edited by C.G. Cathyl-Huhn.*

6 Coal quality

Available current site-specific coal-quality data (from borehole core samples) are presented within **Appendix B**, **Appendix C**, and **Appendix D** of this report. More generalised data series, such as analytical reports on sea-borne shipments of Willow Creek's clean coal product, have been excluded from consideration, as they do not relate to coal exploration results, nor are they site-specific.

6.1 Scope of current coal-quality data

Several current boreholes were cored, generally at known locations within the Willow Creek Mine block of the Willow Creek coal lease. Of these boreholes, only the certain of the years-2008 through 2010 holes, and all of the year-2013 holes (reported by Avery and Voyle, 2013), have adequate documentation of samples and resultant analyses.

Raw-coal and clean-coal analyses are presented within **Appendix B** and confidential **Appendix C** of the present report. A large number of petrographic and reflectometric analyses were done on the year-2013 samples, as reported in confidential **Appendix D** of this report.

A complete compilation of current analytical data for the Willow Creek Mine block has not yet been found within operational or technical files.

6.2 Cross-reference to historic coal-quality data

A considerable volume of historic (pre-2007) coal quality data is available; these data are presented within prior reports by third parties, as referenced in **Section 10** of this report.

6.2.1 Note concerning positional uncertainty of certain year-1997 coal-quality data points

Not all of the historic coal-quality data can be satisfactorily referenced to the spatial location of the core samples upon which the data are based. This inadequacy is due to missing positional-survey information for numerous cored boreholes from the year-1997 drilling programme. Only generalised positions are available for some of these boreholes (as depicted graphically within a map included in an unsigned year-1997 technical report for Pine Valley Coal -- referenced as Anonymous, 1997).

8 Reclamation

Drilling at Willow Creek Mine in years-2007 through 2013 required the construction or reoccupation of 195 drill sites, mostly situated along a combination of pre-existing and newly-built exploration trails, or within existing benches of the then-active mine-workings.

Some sites were accessed directly from existing high-grade roads, while others were reached via re-activated seismic lines, logging trails, spur-roads, or minesite haulage-roads. As per usual practice, the drill sites were cleared of equipment, supplies and trash prior to removal of the drilling rig, and appropriate revegetation seed mix was applied to those sites which were not scheduled for mining in the near future. The extent of reclamation of access trails is unknown, although some natural revegetation is considered likely to have taken place.

9 Statement of costs

‘Current work’ at Willow Creek Mine, for purposes of the present report, comprises exploratory work done in years-2007 through 2013, with the exception of year-2012 (in which no exploratory work is known to have been done). Work consisted mainly of drilling, by means of rotary (non-coring) methods. Nearly all of the boreholes were logged by means of downhole geophysical surveys (as discussed in **Appendix A** of this report).

Owing to near-complete turnover of technical and operational staff, multiple office-moves, and the closure of Walter Energy's former Canadian regional corporate office in Vancouver, British Columbia, detailed cost data have not been found for the current work. Costs given below in **Table 9-1** (given on the following page) are therefore estimated, based upon provincial average unit-costs on a per-metre basis relative to the overall total depth of drilling and geophysical surveying. Drilling and geophysical depths have been compiled from a collection of individual records, aggregated as hole-by-hole running totals.

Overall cost of current work is estimated to have been $5,258, 624.18.

Table 9-1: Estimated exploratory cost breakdown by activity and year within Willow Creek Mine block

Year	Rotary Drilling		Core Drilling		Geophysical Logging		Lab Analysis		Road work		Personnel		Yearly Cost Totals
	metres	Cost ($201.53/m)	metres	Cost ($210.34/m)	metres	Cost ($17.56/m)	metres	Cost ($79.63/m)	metres	Cost ($23.30/m)	metres	Cost ($20.49/m)	
2007	8079.65	$1,628,291.87	201.16	$42,311.99	7574.82	$133,013.84	unknown	unknown	8280.81	$192,942.87	8280.81	$169,673.80	$2,166,234.37
2008	5887.68	$1,186,544.15	475.3	$99,974.60	6000.71	$105,372.47	unknown	unknown	6362.98	$148,257.43	6362.98	$130,377.46	$1,670,526.11
2009	1983.15	$399,664.22	380	$79,929.20	1901.82	$33,395.96	380	$30,259.40	2363.15	$55,061.40	2363.15	$48,420.94	$646,731.12
2010	13	$2,619.89	493.05	$103,708.14	396.7	$6,966.05	unknown	unknown	506.05	$11,790.97	506.05	$10,368.96	$135,454.01
2011	1024.35	$206,437.26	0	$ nil	975.04	$17,121.70	unknown	unknown	1024.35	$23,867.37	1024.35	$20,988.93	$268,415.24
2012	0	$ nil	0	$ nil	0	$ nil	$ nil	0	0	$ nil	0	$ nil	$ nil
2013	0	$ nil	1083.83	$227,972.80	542.38	$9,524.19	1083.83	$86,305.38	1083.83	$25,253.24	1083.83	$22,207.68	$371,263.29
Totals	16987.83	$3,423,557.40	2633.34	$553,896.74	17391.47	$305,394.21	1083.83	$116,564.78	19621.17	$457,173.26	9692.85	$402,037.77	$5,258,624.18

Notes: unit costs are on per-metre drilled length basis, derived from provincial average unit-costs, vide Bouchard (2011) report on behalf of Natural Resources Canada. Geophysical log metreage is slightly lower than drilled metreage, as the boreholes could not be logged to their total depths. Roadwork cost is derived from overall length of drilling, not scaled length of access trails. Analytical files for years-2007 through 2011 have not yet been located; analytical costs are therefore set at zero for those years. Row and column totals contain slight rounding errors.

10 References

The following reference materials were used in the compilation of this report, with citations given at relevant points within the report's text. All coal-assessment reports here cited are available in digital versions via the British Columbia Geological Survey Branch's webspace, with the exception that year-2014 and year-2015 reports are still confidential at the time of this writing, with expected public release in 2017 and 2018.

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11 Conclusions

Coal occurrences, known to include coals of workable thickness and variable amenability to the manufacture of coke, occur within the Willow Creek Mine block of the Willow Creek coal property. These coals are contained within the Gaylard Member of the Lower Cretaceous (Hauterivian to Early Albian) Gething Formation. The Gaylard coal-measures have a stratigraphic thickness of at least 260 metres, possibly 360 metres or more. Numerous coal zones, each containing one or more major coal beds, are present within the Gaylard Member. Coal beds split and coalesce laterally, complicating their correlation and tracing throughout the Willow Creek Mine block.

Rocks at Willow Creek Mine have been dislocated by several southwest-verging thrust faults, likely accompanied by incompetent mesoscale folds, within an overall passive-roof duplex (triangle-zone) structural style consisted with lying within the northeastern leading edge of the Pine River Anticlinorium.

In all, 531 historic boreholes, totalling at 31,080.36 metres' length, have been drilled during years-1980 through 2005 within the Willow Creek Mine block of the Willow Creek coal lease. An additional 195 current boreholes (here-reported for the first time), with overall length of 19,621.17 metres, were drilled on the property in years-2007 through 2013. No drilling was done in 2012, nor in 2014. Overall drilling totals to date are 726 boreholes and 50,701.53 metres. This total does not include drilling (at locations not yet confirmed by site surveys, and for which logs are as-yet unavailable) of boreholes by the British Columbia Department of Mines in years-1946 through 1951.

Drilling at Willow Creek Mine is regarded as sufficient to support the determination of coal-resources to current Canadian geometric standards (Hughes *et al.*, 1989), with the caveat that lack of an updated coal-quality model precludes determination of the relative proportions of coking-coal, PCI coal, and thermal-coal within the deposit. Furthermore, the existing year-2010 resource/reserve estimate (by Morris et al., 2010) requires reconciliation with the mine's production since its time of compilation.

Estimated current exploratory costs to date, covering years-2007 through 2013 activities, are $5,258,624.18. The Willow Creek Mine block is regarded as being a property of merit, although requiring further study of coal quality, owing to lack of available site-specific coal-quality data.

12 Statements of qualifications

I, Preetpal Singh M.A.Sc., do hereby certify that:

a) I am currently employed on a full-time basis by Walter Canadian Coal Partnership, a subsidiary of Walter Energy, in their Canadian head office in Tumbler Ridge, British Columbia.

b) This certificate applies to the current report, titled *Coal Assessment Report for the Willow Creek coal lease -- Volume 3: Willow Creek Mine area*, dated June 17, 2015.

c) I am a member of the IEEE Computer Society since 2006.

d) I am in the process of applying for registration with the Association of Professional Engineers and Geoscientists of British Columbia.

e) I received my Bachelor of Science in Computer Science from Laurentian University in 2008, and my Master's of Applied Science in Mineral Resource Engineering, also from Laurentian University, in 2012.

f) I have worked as a data analyst for Walter Canadian Coal Partnership since July of 2013.

g) I am a contributing author of this report, titled *Coal Assessment Report for the Willow Creek coal lease -- Volume 3: Willow Creek Mine area*, dated June 17, 2015, concerning the Willow Creek Mine block of the Willow Creek coal property.

I, Laura Rose LeMay B.Sc. B.Ed., do hereby certify that:

a) I was employed on a full-time basis by (and currently on maternity leave from) Walter Canadian Coal Partnership, a subsidiary of Walter Energy, in their Northeast British Columbia office in Chetwynd, British Columbia.

b) This certificate applies to the current report, titled *Coal Assessment Report for the Willow Creek coal lease -- Volume 3: Willow Creek Mine area*, dated June 17, 2015.

c) I am in the process of applying for registration with the Association of Professional Engineers and Geoscientists of British Columbia.

d) I received my Bachelor of Science from Saint Mary's University in Halifax in 2006.

e) I have worked in the coal industry for 3 years and 8 months.

f) I have been pit geologist for the Brazion group of mines since March 2012.

g) I am a contributing author of this report, titled *Coal Assessment Report for the Willow Creek coal lease -- Volume 3: Willow Creek Mine area*, dated June 17, 2015, concerning the Willow Creek Mine block of the Willow Creek coal property.

I, C.G. Cathyl-Huhn P.Geo.(BC) Lic.Geol.(WA) RMSME, do hereby certify that:

a) I am currently employed on a full-time basis by Walter Canadian Coal Partnership, a subsidiary of Walter Energy, in their Canadian head office in 200-235 Front Street (PO Box 2140), Tumbler Ridge, British Columbia, V0C 2W0 Canada, with permanent domicile at P.O. Box 40, Cumberland, British Columbia V0R 1S0 Canada.

b) This certificate applies to the current report, titled *Coal Assessment Report for the Willow Creek coal lease -- Volume 3: Willow Creek Mine area*, dated June 17, 2015.

c) I am a member (Professional Geoscientist, Licence No.20550) of the Association of Professional Engineers and Geoscientists of British Columbia, licensed as a geologist (Licence No.2089) in Washington State, and a founding Registered Member of the Society for Mining, Metallurgy and Exploration (SME, Member No.518350). I have worked as a colliery geologist in several countries for 37 years since my graduation from university.

d) I certify that by reason of my education, affiliation with professional associations, and past relevant work experience, having written numerous published and private reports and technical papers concerning coalfield geology, coal-mining geology and coal-resource estimation, that I am qualified as a Qualified Person as defined by Canadian *National Instrument 43-101* and a Competent Person as defined by the Australian *JORC Code*.

e) My most recent visit to the Willow Creek Mine block of the Willow Creek coal property was in the summer of 2014.

f) I am principal author of this report, titled *Coal Assessment Report for the Willow Creek coal lease -- Volume 3: Willow Creek Mine area*, dated June 17, 2015, concerning the Willow Creek Mine block of the Willow Creek coal property.

g) As of the date of the writing of this report, I am not independent of Willow Creek Coal Partnership or Pine Valley Coal Ltd., pursuant to the tests in Section 1.4 of *National Instrument 43-101*.

"original signed and sealed by"
Dated this 17th day of June, 2015.

C.G. Cathyl-Huhn P.Geo. (BC) Lic.Geol. (WA) RMSME

Geophysical logs and borehole statistics: **Appendix A**

Geophysical logging and the pertinent statistics of the current (years-2007 through 2013) boreholes at Willow Creek Mine are summarised in **Table A-1** (commencing on the following page). Copies of the geophysical logs are submitted as digital files on a CD (optically-readable compact disk) accompanying this report, in LAS, TIF, and/or PDF formats. Table A-1 notes the availability of LAS files (Log ASCII Standard), which are the preferred Canadian format for archiving and digital processing of downhole geophysical log data.

LAS and TIF are the primary digital formats within which geophysical logs are customarily (in modern practice) provided by borehole-logging service companies; PDF is a secondary format, derived from scanning of hard-copy logs in those fewer cases in which digital logs have not been found within Walter Energy's files.

Geophysical logs are obtained by lowering a self-contained cylindrical sonde to the bottom of a borehole (or as close to the bottom as is safely practicable, given borehole wall stability conditions), and then drawing the sonde upward by means of a cable which contains power and data-transfer conductors. Depth reference on each log is based upon readings of a depth transponder connected to the geophysical logging system's drawworks. A very small amount of cable stretch may occur, depending upon the weight and diameter of each sonde; this accounts for slight variations in reported depths of log measurements as compared from one log suite to another.

Ordinarily, geophysical logs are run within boreholes once the drilling rods have been withdrawn. This practice allows for measurement of borehole diameter with a caliper instrument, and further allows for the effective collection of properly-calibrated log measurements. In some occasions, logs have been run within the drill rods, owing to concerns regarding borehole stability; these logs may or may not be subsequently be re-run with the rods withdrawn, again depending upon borehole conditions.

Positional and elevation data for boreholes are given in metres. Depths given on all geophysical logs are also given in metres, below the datum points mentioned in the headers of each log. Downhole depths reached by individual logging suites will vary, according to the length of each sonde, and also according to the source/detector geometry (and hence the measurement reference point) of each sonde. Geophysical log depth is therefore generally slightly less than driller's reported depth of each hole.

Table A-2 presents interpretations of principal correlatable coal beds within selected historic (years-2001 and 2005 only) and current (years-2007 through 2013) boreholes at Willow Creek Mine. All depths presented within this table are given in terms of downhole depth (along the boreholes' trajectories) in metres.

Geophysical logs run in current (years-2007 to 2013) boreholes: **Table A-1**

Borehole	UTM (NAD83 Zone 10)		metres		degrees		Year drilled	Drilling method	LAS file?	Dens/Gam/ Cal/Res	Gam/Dens/ thru rods	Gam/Neu	Dip-meter	Devi-ation
	Easting	Northing	Elevation	Depth	Azimuth	Dip								
Year-2007														
WC07-01A	550595.98	6161480.66	1098.76	97.54	224	-58.5	2007	Rotary	Y	81.65		69.27		69.26
WC07-01B	550596.52	6161481.34	1098.8	167.64	38	-59.2	2007	Rotary	Y	164.1		164.08		164.08
WC07-02	550543.1	6161568.61	1097.35	121.92	260	-87.9	2007	Rotary	Y	121.03		120.99		121
WC07-03	550373.68	6161678.73	1087.67	70.1	321.4	-88	2007	Rotary	Y	69.55		69.47		69.48
WC07-04	550414.85	6161723.48	1087.51	100.58	200	-89.2	2007	Rotary	Y	99.84		99.9		99.9
WC07-05	550487.45	6161873.15	1129.02	170.25	220.3	-89.2	2007	Rotary	Y	170.2		170.22		170.22
WC07-06	550419.22	6161800.41	1098.82	185.93	320.2	-85.9	2007	Rotary	Y	182.2		182.26		182.26
WC07-07	not	drilled?												
WC07-08	not	drilled?												
WC07-09	550427.4	6162036.14	1129.61	73	119.2	-88.3	2007	Rotary	Y	72.08		72.2		72.2
WC07-10	550383.37	6161975.78	1115.5	146.3	27.5	-88.5	2007	Rotary	Y	145.77		145.81		145.82
WC07-11	550410.53	6162012.2	1122.95	131.06	178.1	-87.3	2007	Rotary	Y	130.66		130.66		130.66
WC07-12	550183.23	6161913.2	1063.67	54.86	227.1	-58	2007	Rotary	Y	54.01		54.01		54.02
WC07-13	550248.05	6161978.33	1087.42	161	222.5	-84.9	2007	Rotary	Y	155.52		156.06		156.06
WC07-14	550302.01	6162039.58	1107.15	128	59.1	-89.2	2007	Rotary		123.94		123.96		123.78
WC07-15	550343.41	6162085.24	1119.08	122	164.3	-87.3	2007	Rotary		118.37		118.37		118.2
WC07-16C	550126.11	6161994.02	1078.67	85.34	207.2	-86.7	2007	Core	Y	85.11		85.07		85.08
WC07-17	550166.31	6162043.81	1080.74	131.4	300.9	-82.2	2007	Rotary	Y	118.86		118.94		118.94
WC07-18	550204.64	6162083.4	1096.8	118.87	276.3	-89.8	2007	Rotary	Y	118.21		118.29		118.3
WC07-19	550242.95	6162127.61	1105.3	99	133.5	-89.1	2007	Rotary	Y	98.82		98.64		98.64
WC07-20	550278.09	6162157.55	1106.41	115.5	200.1	-86.9	2007	Rotary	Y	109.27		109.17		109.18
WC07-21	550088.2	6162088.3	1077.08	140.2	unknown	unknown	2007	Rotary		not logged?		not logged?		not logged?
WC07-22	550186.99	6162156.1	1094.44	128	62	-89.5	2007	Rotary		124.38		123.94		123.76
WC07-23	550214.59	6162220.07	1097.57	131.1	140.3	-89	2007	Rotary		124.14		123.98		123.8
WC07-24	549994.88	6162136.46	1067.1	97.5	221.5	-49.6	2007	Rotary	Y	96.91		96.87		96.88
WC07-25	not	drilled?												
WC07-26	550085.91	6162249.64	1095.31	140	287.8	-87.9	2007	Rotary	Y	137.01		136.99		137
WC07-27	not	drilled?												
WC07-28	550048.96	6162214.4	1098.69	121.9	39.9	-83.9	2007	Rotary	Y	121.69		121.65		121.66
WC07-29	not	drilled?												
WC07-30	549847.85	6162285	1111.38	79.2	234.5	-59.7	2007	Rotary		77.73		77.97		77.8
WC07-31	549670.28	6162245.67	1112.4	57.9	234.8	-57.9	2007	Rotary		56.68		56.68		56.5

Geophysical logs run in current (years-2007 to 2013) boreholes: **Table A-1** (continued)

Borehole	UTM (NAD83 Zone 10)		metres		degrees		Year drilled	Drilling method	LAS file?	Dens/Gam/ Cal/Res	Gam/Dens/ thru rods	Gam/Neu	Dip-meter	Devi-ation
	Easting	Northing	Elevation	Depth	Azimuth	Dip								
WC07-32	549743.39	6162323.44	1109.3	91.5	229.8	-53.6	2007	Rotary	Y	90.6		90.86		90.86
WC07-33	549775.31	6162354.05	1110.7	118.9	220.8	-59.2	2007	Rotary	Y	115.84		115.82		115.82
WC07-34	549629.47	6162344.61	1110.52	88.4	235.7	-60	2007	Rotary		87.08		86.96		86.78
WC07-35	549735.06	6162461.01	1089.9	146.3	212	-61.2	2007	Rotary	Y	141.11		140.93		140.94
WC07-36	549651.03	6162513.65	1068.4	131.1	235.7	-58.5	2007	Rotary	Y	130.44		130.4		130.4
WC07-37	549448.53	6162444.99	1108.34	67.1	232.1	-58.5	2007	Rotary		66.15		66.01		65.84
WC07-38	549516.51	6162523.26	1088.91	82.3	224.5	-58	2007	Rotary	Y	81.31		not-run?		81.24
WC07-39	549592.2	6162598.86	1045.13	134	230	-81.3	2007	Rotary	Y	133.81		133.65		133.66
WC07-40	549864.26	6162892.43	1092.31	106.7	224.9	-60.3	2007	Rotary		104		103.26		103.08
WC07-41	not	drilled?												
WC07-42	not	drilled?												
WC07-43	549924.91	6162805.26	1100.42	82.3	230.3	-59.8	2007	Rotary		81.37		81.19		81.02
WC07-44	not	drilled?												
WC07-45	550008.62	6162749.06	1114.34	103.6	230.8	-59.5	2007	Rotary		40.16		39.72		39.54
WC07-46	not	drilled?												
WC07-47	550093.06	6162694.81	1126.88	115.8	237.4	-58.3	2007	Rotary		114.8		114.74		114.56
WC07-48	550089.8	6162543.81	1105.81	39.6	237.9	-61.1	2007	Rotary		38.05		37.51		37.32
WC07-49	550149.06	6162608.19	1121.43	88.4	236.3	-58.3	2007	Rotary		86.86		86.58		86.4
WC07-50	not	drilled?												
WC07-51	550253.91	6162429.9	1112.43	45.72	215.5	-58	2007	Rotary	Y	46.43		46.61		46.62
WC07-52	550296.97	6162475.53	1118.21	99.06	227.6	-60	2007	Rotary	Y	98.27		98.15		98.16
WC07-53	550344.52	6162526.52	1120.73	129.54	210.3	-61.2	2007	Rotary	Y	128.51		128.91		128.92
WC07-54	not	drilled?												
WC07-55C	550363.97	6162401.51	1117.5	51.82	unknown	-60	2007	Core	Y		51.62	51.62		not-run?
WC07-56	not	drilled?												
WC07-57	not	drilled?												
WC07-58	not	drilled?												
WC07-59	not	drilled?												
WC07-60	not	drilled?												
WC07-61	549567.17	6162571.26	1060.88	131.1	200.5	-60.3	2007	Rotary	Y	130.27		130.17		130.16
WC07-62	549375.9	6162512.1	1093.55	57.9	232	-58.9	2007	Rotary		56.46		56.42		56.24
WC07-63	549472.8	6162617.06	1056.92	97.5	210.1	-59.9	2007	Rotary	Y	96.42		96.42		96.42

Geophysical logs run in current (years-2007 to 2013) boreholes: **Table A-1** (continued)

Borehole	UTM (NAD83 Zone 10)		metres		degrees		Year drilled	Drilling method	LAS file?	Dens/Gam/ Cal/Res	Gam/Dens/ thru rods	Gam/Neu	Dip-meter	Devi-ation
	Easting	Northing	Elevation	Depth	Azimuth	Dip								
WC07-64	549517.97	6162665.06	1020.81	88.4	225.8	-58.5	2007	Rotary		87.26		87.14		86.96
WC07-65	549317.96	6162596.53	1077.24	57.9	222.6	-58.3	2007	Rotary	Y	56.85				56.84
WC07-66	549378.68	6162669.93	1059.95	122	190.3	-85	2007	Rotary	Y	117.55		115.56		115.56
WC07-67	549482.8	6162770.4	993.28	125	unknown	-60	2007	Rotary		124.16		124.22		not-run?
WC07-68	549589.8	6162744.88	1016.01	131	140.5	-88.4	2007	Rotary	Y	129.97		130.11		129.94
WC07-69	549348.1	6162777.48	1003.63	42.7	unknown	unknown	2007	Rotary		not logged?		not logged?		not logged?
WC07-70	549409.27	6162834.55	975.49	122	215.4	-88	2007	Rotary		115.28		115.28		115.1
WC07-71	549193.48	6162756.96	1049.24	60.9	225.6	-58	2007	Rotary	Y	59.08		58.98		58.98
WC07-72	549271.77	6162859.91	978.37	88.3	183.2	-88.6	2007	Rotary		84.61		84.61		84.44
WC07-73	549130.32	6162835.45	1030.99	60.9	210	-54.5	2007	Rotary	Y	59.86		59.74		59.74
WC07-74	549229.25	6162943.59	953.35	70.1	230.4	-60.8	2007	Rotary	Y	66.35		66.35		66.16
WC07-75	not	drilled?												
WC07-76	550420.59	6162313.99	1118.54	62.48	215.5	-61.2	2007	Rotary	Y	61.33		61.13		61.14
WC07-77	not	drilled?												
WC07-78	549927.47	6162662.81	1094.85	60	244.9	-59.5	2007	Rotary		56.58		55.86		55.68
WC07-79	549769.05	6162639.67	1091.62	154	173	-86.4	2007	Rotary	Y	153.56		153.47		153.48
WC07-80	549754.94	6162924.1	1095.82	102	243.7	-59	2007	Rotary		71.86		71.58		71.4
WC07-81	549651.13	6162805.13	1036.8	182.8	150.5	-89.3	2007	Rotary	Y	182.26		182.24		182.24
WC07-82	not	drilled?												
WC07-83	549839.51	6163162.56	997.98	91.4	209.9	-59.4	2007	Rotary	Y	90.82		90.82		90.82
WC07-84	549544.12	6162989.38	1015.16	180	unknown	unknown	2007	Rotary		not logged?		not logged?		not logged?
WC07-85	549726.3	6163181.59	1031.16	97.5	233	-57.5	2007	Rotary	Y	95.24		94.66		94.48
WC07-86	not	drilled?												
WC07-87	549609.05	6163199.96	1028.15	60	224.8	-59.1	2007	Rotary	Y	63.54		63.46		63.28
WC07-88	549723.31	6163317.91	980.26	97.5	210.8	-85.2	2007	Rotary	Y	101.57		101.23		101.06
WC07-89	549651.03	6163391.4	965.69	88.4	344.4	-88.3	2007	Rotary	Y	84.28		83.46		83.28
WC07-90	549355.54	6163076.45	932.39	109.7	unknown	unknown	2007	Rotary		not logged?		not logged?		not logged?
WC07-91	549392.48	6163119.96	939.62	137.1	230.5	-59.1	2007	Rotary	Y	139.38		139.34		139.16
WC07-92	549486.55	6163220.36	984.6	182.8	239.6	-60.3	2007	Rotary	Y	180.26		179.42		179.24
WC07-93	not	drilled?												
WC07-94	not	drilled?												
WC07-95	550645.79	6161462.32	1103.09	152.4	106.7	-88.1	2007	Rotary		148.67		148.49		148.32

Geophysical logs run in current (years-2007 to 2013) boreholes: **Table A-1** (continued)

Borehole	UTM (NAD83 Zone 10)		metres		degrees		Year drilled	Drilling method	LAS file?	Dens/Gam/ Cal/Res	Gam/Dens/ thru rods	Gam/Neu	Dip-meter	Devi-ation
	Easting	Northing	Elevation	Depth	Azimuth	Dip								
WC07-96	not	drilled?												
WC07-97	550553.92	6161577.23	1097.21	167.64	35.2	-63.3	2007	Rotary	Y	165.99		167.08		167.08
WC07-98	not	drilled?												
WC07-99	550579.48	6161679.42	1120.38	137.16	42.1	-88.5	2007	Rotary		136.49		136.65		136.66
WC07-100	not	drilled?												
WC07-101C	550498.85	6161592.93	1087.71	64	232	-60.4	2007	Core	Y	64.73		64.69		64.7
Year-2008														
WC08-01	549144.63	6162984.25	952.72	39	253.4	-62.9	2008	Rotary	Y	39		39		39
WC08-02	549214.78	6163077.35	908.64	47.45	214.5	-61.4	2008	Rotary	Y	47.45		47.45		47.45
WC08-03	not	drilled												
WC08-04	549398.17	6163273.17	931.67	151.5	202.1	-69.1	2008	Rotary	Y	151.5		151.5		151.5
WC08-04A	550793.7	6161543.25	1140.77	88.5	185.7	-86.5	2008	Rotary	Y	88.46		88.48		88.3
WC08-05	549608.52	6163497.97	925.48	97	225.2	-63.3	2008	Rotary	Y	94.51		94.51		94.51
WC08-05A	550846.1	6161452	1114.32	52.7	256.5	-88	2008	Rotary	Y	52.73		50.84		50.66
WC08-06	549703	6163592.78	876.6	119.6	230.7	-63.8	2008	Rotary	Y	129				129
WC08-06A	550871.7	6161489	1122.21	101	182.4	-89	2008	Rotary	Y	100.99		100.83		100.66
WC08-07	549060.97	6163199.18	903.89	143	32.9	-86.4	2008	Rotary	Y	141.4		141.4		141.4
WC08-08	549148.87	6163296.42	856.97	84.36	243	-58	2008	Rotary	Y	83		83		83
WC08-09	549366.68	6163531.53	895.58	130.1	189.1	-66	2008	Rotary	Y	129		129		129
WC08-10	549574.89	6163744.47	862.33	203	219.9	-63.4	2008	Rotary	Y	129		129		29
WC08-11	549016.18	6163447.74	856.53	46.7	243	-57.8	2008	Rotary	Y	45		45		45
WC08-11A	550752.15	6161569.1	1140.9	73.6	205.8	-84.9	2008	Rotary	Y	73.61		73.63		73.44
WC08-12	not	drilled												
WC08-13	549173.52	6163612.79	832.03	136.5	78.4	-87.4	2008	Rotary	Y	136.01		136.01		136.01
WC08-14	549381.69	6163840.27	838.41	151.5	227.7	-60.9	2008	Rotary	Y	151.01		151.01		151.01
WC08-15	549470.92	6163931.85	821.65	139	197.13	-65.7	2008	Rotary	Y	138.5		138.5		138.5
WC08-16	not	drilled												
WC08-17	548995.52	6163712.64	781.02	141.01	275.2	-60.5	2008	Rotary	Y	140		140.7		140
WC08-18	549072.56	6163802.11	797.76	126.23	212.3	-88.3	2008	Rotary	Y	125		125.6		125
WC08-19	549153.63	6163891.29	816.34	142	124.6	-88.9	2008	Rotary	Y	140.01		140.01		140.01
WC08-20	549305.1	6164052.72	821.74	159.16	233.4	-59.6	2008	Rotary	Y	158		158		158
WC08-21	549387.07	6164124.33	790.49	125.01	237	-62.3	2008	Rotary	Y	124		124.53		125

Geophysical logs run in current (years-2007 to 2013) boreholes: **Table A-1** (continued)

Borehole	UTM (NAD83 Zone 10)		metres		degrees		Year drilled	Drilling method	LAS file?	Dens/Gam/ Cal/Res	Gam/Dens/ thru rods	Gam/Neu	Dip-meter	Devi-ation
	Easting	Northing	Elevation	Depth	Azimuth	Dip								
WC08-22	548725.77	6163729.91	759.41	164.39	270.5	-59.6	2008	Rotary	Y	163		163.2		163
WC08-23	548839.25	6163843.3	749.01	173.18	253.8	-59.2	2008	Rotary	Y	172		171.6		172
WC08-24	548914.53	6163929.66	750.92	165.15	241.6	-88.6	2008	Rotary	Y	163		163.52		162
WC08-25	not	drilled												
WC08-26	549227.73	6164264.78	768.91	147.01	236.4	-58.9	2008	Rotary	Y	146		146.6		146
WC08-27	549288.9	6164327.06	754.94	155.4	unknown	unknown	2007	Rotary		not logged?		not logged?		not logged?
WC08-28	548640.96	6163925.98	736.86	185.23	203.5	-59	2008	Rotary	Y	183.9		184.6		184
WC08-29	548734.88	6164023.4	733.48	162.09	182.7	-54.4	2008	Rotary	Y	161		161.6		161
WC08-30	548899.61	6164195.69	754.01	121.21	260.4	-89.1	2008	Rotary	Y	115		115.53		115.9
WC08-31	549088.66	6164421.74	736.46	146.64	271.1	-62.2	2008	Rotary	Y	145		145.52		146.4
WC08-32C	549174.63	6164493.5	720.64	172.9	234.5	-88.5	2008	Core	Y	168.5		169.1		169.2
WC08-33	548552.59	6164127.57	704.51	81.09	228.7	-59.4	2008	Rotary	Y	80		80.6		80
WC08-34	548613.74	6164197.04	703.46	141.48	228.2	-57.4	2008	Rotary	Y	140		140.7		140
WC08-35	548696.92	6164279.87	712.71	138.4	40	-65.7	2008	Rotary	Y	137		137.7		137
WC08-36	not	drilled												
WC08-37	not	drilled												
WC08-38	549014.38	6164606.49	702.04	166	211.8	-59.7	2008	Rotary	Y	140		140.65		142
WC08-39	not	drilled?												
WC08-40	not	drilled?												
WC08-41	548570.88	6164439.21	659	112.8	285.9	-59.2	2008	Rotary	Y	111		111.7		111
WC08-42	548656.08	6164528.99	660.2	60.9	68.2	-87	2008	Rotary	Y	59		59.6		59
WC08-43	not	drilled												
WC08-44	549133.82	6163138.62	902.73	29.65	220	-62.3	2008	Rotary	Y	28		28		28
WC08-45	549198.25	6163210.53	869.55	30.48	unknown	unknown	2007	Rotary		not logged?		not logged?		not logged?
WC08-46	549283.28	6163293.76	863.92	81.47	190.8	-89.1	2008	Rotary	Y	80		80		80
WC08-47	549045.16	6163321.13	864.32	69.43	230.9	-58.6	2008	Rotary	Y	67.5		67.5		67.5
WC08-48	549094.79	6163393.86	838.62	50	unknown	unknown	2008	Rotary	Y	49		49		not-run
WC08-49	549233.57	6163539.39	855.24	151.5	52.3	-87	2008	Rotary	Y	151.01		151.01		151.01
WC08-50	549012.96	6163587.22	804.87	102	251.9	-59	2008	Rotary	Y	101.5		101.5		101.5
WC08-51	549062.69	6163633.05	803.65	103	184.7	-89.2	2008	Rotary	Y	102.51		102.51		102.51
WC08-52	not	drilled?												
WC08-53	not	drilled?												

Geophysical logs run in current (years-2007 to 2013) boreholes: **Table A-1** (continued)

Borehole	UTM (NAD83 Zone 10)		metres		degrees		Year drilled	Drilling method	LAS file?	Dens/Gam/ Cal/Res	Gam/Dens/ thru rods	Gam/Neu	Dip-meter	Devi-ation
	Easting	Northing	Elevation	Depth	Azimuth	Dip								
WC08-54	548990.89	6163861.34	770.81	123.12	100.2	-89	2008	Rotary	Y	120		120.06		120
WC08-55	not	drilled?												
WC08-56	not	drilled?												
WC08-57	548966.33	6164132.88	763.4	191.51	294.2	-89.3	2008	Rotary	Y	183.5		184.1		191
WC08-58	not	drilled?												
WC08-59	not	drilled?												
WC08-60	not	drilled?												
WC08-61	not	drilled?												
WC08-62	not	drilled?												
WC08-63	548688.09	6164711.91	640.66	122	240.3	-62.2	2008	Rotary	Y	120.51		120.51		120.51
WC08-64	549260.58	6163702.75	867.48	102.51	283	-89.5	2008	Rotary	Y	101		101		101
WC08-65	549326.08	6163635.42	860.97	112.12	260.6	-59.4	2008	Rotary	Y	107		107.54		107
WC08-66	not	drilled?												
WC08-67	not	drilled?												
WC08-68	not	drilled?												
WC08-69C	549618.7	6163822.82	848.85	144.8	340.9	-88	2008	Core	Y	140.5		141.1		140.5
WC08-70C	549997.71	6162139.84	1067.26	157.6	230	-73.4	2008	Core	Y	147.1		147		143.6
WC08-71	not	drilled												
WC08-72	not	drilled												
WC08-73	not	drilled												
WC08-74	not	drilled												
WC08-75	not	drilled												
WC08-76	not	drilled												
WC08-77	not	drilled												
WC08-78	not	drilled												
WC08-79	not	drilled												
WC08-80	not	drilled												
WC08-81	not	drilled												
WC08-82	not	drilled												
WC08-83	not	drilled												

Geophysical logs run in current (years-2007 to 2013) boreholes: **Table A-1** (continued)

Borehole	UTM (NAD83 Zone 10)		metres		degrees		Year drilled	Drilling method	LAS file?	Dens/Gam/ Cal/Res	Gam/Dens/ thru rods	Gam/Neu	Dip-meter	Devi-ation
	Easting	Northing	Elevation	Depth	Azimuth	Dip								
WC08-84	not	drilled												
WC08-85	not	drilled												
WC08-86	not	drilled												
WC08-87	not	drilled												
WC08-88	not	drilled												
WC08-89	not	drilled												
WC08-90	not	drilled												
WC08-91	not	drilled												
WC08-92	not	drilled												
WC08-93	not	drilled												
WC08-94	not	drilled												
WC08-95	not	drilled												
WC08-96	not	drilled												
WC08-97	not	drilled												
WC08-98	not	drilled												
WC08-99	not	drilled												
Year-2009														
WC09-01P	550418	6161607	1086	39.62	162.5	-88.7	2009	Rotary	Y	32.8		32.8		32.64
WC09-01C	550418	6161608	1086	31	unknown	unknown	2009	Core		not logged		not logged		not logged
WC09-02P	550407	6161707	1081	33.52	157.3	-89	2009	Rotary	Y	32.84		32.84		32.66
WC09-02C	550409	6161709	1081	30	unknown	unknown	2009	Core		not logged		not logged		not logged
WC09-03	not	drilled?												
WC09-04P	550368	6162397	1116	25	120.7	-89.9	2009	Rotary	Y	23.64		23.6		23.42
WC09-04C	550366	6162400	1116	14	unknown	unknown	2009	Core		not logged		not logged		not logged
WC09-05	549944	6162828	1102	42.67	99.4	-87.7	2009	Rotary	Y	41.95		41.95		41.78
WC09-05C	549944	6162828	1102	39	unknown	unknown	2009	Core		not logged		not logged		not logged
WC09-06P	549570	6162424	1107	30.48	51.5	-89	2009	Rotary	Y	29.73		29.71		29.54
WC09-06C	549570	6162422	1109	26	unknown	unknown	2009	Core		not logged		not logged		not logged
WC09-07P	549342	6162477	1092	30.48	193.5	-89	2009	Rotary	Y	29.35		29.33		29.14
WC09-07C	549341	6162478	1092	24	unknown	unknown	2009	Core		not logged		not logged		not logged
WC09-08P	549129	6162833	1030	38.62	161.1	-89.7	2009	Rotary	Y	39		38.94		38.76

Geophysical logs run in current (years-2007 to 2013) boreholes: **Table A-1** (continued)

Borehole	UTM (NAD83 Zone 10)		metres		degrees		Year drilled	Drilling method	LAS file?	Dens/Gam/ Cal/Res	Gam/Dens/ thru rods	Gam/Neu	Dip-meter	Devi-ation
	Easting	Northing	Elevation	Depth	Azimuth	Dip								
WC09-08C	549126	6162838	1030	33	unknown	unknown	2009	Core		not logged		not logged		not logged
WC09-09P	549627	6163542	914	30	unknown	unknown	2009	Rotary		files missing		files missing		files missing
WC09-09C	549628	6163544	914	30	unknown	unknown	2009	Core		not logged		not logged		not logged
WC09-10P	549514	6163281	980	33.52	105.3	-88.7	2009	Rotary	Y	32.76		32.7		32.52
WC09-10C	549514	6163281	980	34	unknown	unknown	2009	Core		not logged		not logged		not logged
WC09-11P	549107	6164240	756	42.67	199.1	-89.6	2009	Rotary	Y	41.99		41.91		41.74
WC09-11C	549106	6164237	754	38	unknown	unknown	2009	Core		not logged		not logged		not logged
WC09-12	549156	6164331	748	30.48	203.6	-89.9	2009	Rotary	Y	29.65		29.61		29.44
WC09-12C	549153	6164331	748	23	unknown	unknown	2009	Core		not logged		not logged		not logged
WC09-13P	549127	6164301	751	36.57	119.5	-89.7	2009	Rotary	Y	35.86		35.9		35.72
WC09-13C	549126	6164302	749	28	unknown	unknown	2009	Core		not logged		not logged		not logged
WC09-14	549049	6162774	1040	88.39	225.8	-57	2009	Rotary	Y	86.84		86.73		86.56
WC09-15	549304	6162429	1088	109.7	216.4	-58.7	2009	Rotary	Y	108.59		108		107.82
WC09-16	548876	6164765	670	109.7	232	-54.9	2009	Rotary	Y	106.5		106.47		106.3
WC09-17	not	drilled												
WC09-18	not	drilled												
WC09-19	not	drilled												
WC09-20	not	drilled												
WC09-21	not	drilled												
WC09-22	not	drilled												
WC09-23	not	drilled												
WC09-24	not	drilled												
WC09-25	not	drilled												
WC09-26	not	drilled												
WC09-27	not	drilled												
WC09-28	not	drilled												
WC09-29	not	drilled												
WC09-30	not	drilled												
WC09-31	not	drilled												
WC09-32	not	drilled												
WC09-33	not	drilled												

Geophysical logs run in current (years-2007 to 2013) boreholes: **Table A-1** (continued)

Borehole	UTM (NAD83 Zone 10)		metres		degrees		Year drilled	Drilling method	LAS file?	Dens/Gam/ Cal/Res	Gam/Dens/ thru rods	Gam/Neu	Dip-meter	Devi-ation
	Easting	Northing	Elevation	Depth	Azimuth	Dip								
WC09-34	not	drilled												
WC09-35	not	drilled												
WC09-36	not	drilled												
WC09-37	not	drilled												
WC09-38	not	drilled												
WC09-39	not	drilled												
WC09-40	not	drilled												
WC09-41	not	drilled												
WC09-42	not	drilled												
WC09-43	not	drilled												
WC09-44	not	drilled												
WC09-45	not	drilled												
WC09-46	not	drilled												
WC09-47	not	drilled												
WC09-48	not	drilled												
WC09-49	not	drilled												
WC09-50	548657	6163595	778	100.58	189.7	-89	2009	Rotary	Y	99.72		99.66		99.48
WC09-51	548531	6163598	771	109.73	204.9	-89.8	2009	Rotary	Y	108.42		108.04		107.86
WC09-52	548295	6163449	777	97.53	140.6	-88.2	2009	Rotary	Y	97.05		96.97		96.8
WC09-53	548394	6163443	779	118.87	319.2	-89.7	2009	Rotary	Y	118.05		118.05		117.88
WC09-54	548766	6163383	826	127.12	267.5	-88.5	2009	Rotary	Y	127.12		127.12		126.94
WC09-55	548695	6163313	845	125	277.5	-89.6	2009	Rotary	Y	123.12		123.06		122.88
WC09-56	548598	6163221	831	110	124.8	-88.8	2009	Rotary	Y	57.13		57.03		56.86
WC09-57	548513	6163123	852	109.72	196.2	-89.8	2009	Rotary	Y	108.71		108.75		108.58
WC09-58	548330	6162928	931	131.06	137.5	-89.7	2009	Rotary	Y	130.38		130.33		130.16
WC09-59	548159	6163031	904	131.06	151.6	-88.5	2009	Rotary	Y	130.33		130.33		130.16
WC09-60	548285	6163176	882	131.06	127.8	-89.6	2009	Rotary	Y	130.29		130.23		130.04
Year-2010														
SRK10-01	547353	6164804	626	20	0	-90	2010	Rotary		not logged?		not logged?		not logged?
SRK10-02	548789	6164874	646	96	0	-90	2010	Core		files missing		files missing		files missing
SRK10-03	548818	6164872	651	13	unknown	unknown	2010	Rotary		files missing		files missing		files missing
WC10-01C	location	unknown		55.12	239.6	-60	2010	Core		55.08		55.12		55.12

Geophysical logs run in current (years-2007 to 2013) boreholes: **Table A-1** (concluded)

Borehole	UTM (NAD83 Zone 10)		metres		degrees		Year drilled	Drilling method	LAS file?	Dens/Gam/ Cal/Res	Gam/Dens/ thru rods	Gam/Neu	Dip-meter	Devi-ation
	Easting	Northing	Elevation	Depth	Azimuth	Dip								
WC10-02C	location	unknown		49.03	238.9	-57.1	2010	Core		48.97		49.03		49.04
WC10-03C	location	unknown		119.32	229.7	-60.6	2010	Core		119.32		119.32		119.32
WC10-04C	549315.08	6164481.61	737.76	173.58	22.3	-89.8	2010	Core	Y	173.33		173.59		173.4
WC10-21	not	drilled?												
WC10-38	not	drilled?												
WC10-44	not	drilled												
WC10-50	not	drilled?												
WC10-51	not	drilled?												
Year-2011														
WC11-01	550470.54	6162363.95	1101.84	79.24	208.5	-57.5	2011	Rotary	Y	77.71		77.71		77.5
WC11-02	550581.43	6162260.41	1112.1	60.96	222.6	-60	2011	Rotary	Y	58.15		58.21		58.22
WC11-03	550557.71	6162164.2	1103.63	195.07	232	-59.5	2011	Rotary	Y	188.57		188.43		188.44
WC11-04	550728.22	6162051.83	1104.26	234.94	219.9	-58	2011	Rotary	Y	206.4		234.86		234.86
WC11-05	550801.4	6161986.22	1106.38	210.31	216.9	-59	2011	Rotary	Y	202.78		202.7		202.7
WC11-06	550537.7	6162220.24	1111.09	48.76	233	-58.6	2011	Rotary	Y	47.52		47.52		47.52
WC11-07	550652.17	6161973.82	1151.31	195.07	219.1	-59.4	2011	Rotary	Y	193.91		193.97		193.98
Year-2013														
4N1-13-1	548872.6	6164612	686.8	48.2	278.8	-88	2013	Core	Y	47.7		47.74		47.54
4N1-13-2	549042.5	6164354.5	739.6	49.7	237.2	-89	2013	Core	Y	49.47		49.51		49.32
4N1-13-3	548893.44	6164634.25	689.11	65.8	190.2	-87	2013	Core	Y	65.21		65.13		64.92
4N1-13-4	not	drilled												
4N1-13-5	549145.43	6164318.19	752.76	94.18	unknown	unknown	2010	Core		files missing		files missing		files missing
4N1-13-6	548979.9	6164724	692.37	191.71	unknown	unknown	2010	Core		files missing		files missing		files missing
4N1-13-7	549085.4	6164607	707.46	191.7	unknown	unknown	2010	Core		files missing		files missing		files missing
7N2-13-1	549650.3	6163028.9	1058	52.1	116	-89	2013	Core	Y	51.66		51.68		51.48
7N2-13-2	549853.1	6162879.7	1069.96	50	285.8	-89	2013	Core	Y	49.77		49.69		49.5
7N2-13-3	549918.3	6162803.15	1070.2	49.4	300.2	-88.8	2013	Core	Y	49.03		48.91		48.72
7N2-13-4	549816.5	6162840.4	1070.4	32	228	-89	2013	Core	Y	31.76		31.7		31.5
7N2-13-5	549676	6163056.4	1058	61.6	213	-87.9	2013	Core	Y	60.81		60.75		60.56
7N2-13-6	549875.81	6162903.98	1070.81	71.3	235.8	-86	2013	Core	Y	71.54		70.72		70.52
7N2-13-7	549875.8	6162904	1070.23	66.1	259.2	-89	2013	Core	Y	65.43		65.35		65.14
7N2-13-8	549632.19	6163082.75	1058	60.04	unknown	unknown	2010	Core		files missing		files missing		files missing

Notes: Dens: density; Gam: gamma; Cal: caliper; Res: resistivity; LAS: Log ASCII Standard (Canadian standard format for digital geophysical logs).

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Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of Bird coal bed to floor of coal bed 202): **Table A-2**

Borehole	Drift	Bird Roof	Bird Floor	190 Roof	190 floor	170 Roof	170 floor	150 Roof	150 floor	130 Roof	130 Floor	110 Roof	110 Floor	101 Roof	101 Floor	100 Roof	100 Floor	201 Roof	201 Floor	202 Roof	202 Floor
WRH20011	3.6																				
WRH20012	3																				
WRH20013	1.75																				
WRH20014	0.3																				
WRH20015	3.3																				
WRH20017C	2.5																				
WRH20018C	1.5																				
WRH20019C	3																				
WRH200110																					
WRH200111	1.2																				
WRH200112	8.5																				
WRH200113																					
WRH200114	3.2																				
WRH200115	2.8																				
WRH200116	2.5																				
WRH200117	3.5																				
WRH200118	1.5																				
WRH200119																					
WRH200120C	3.4	198.9	200.1													240.2	243	254.2	255.9	256.1	257
WRH200121C	6.1															30	34.1	47.3	48.7	48.8	50.2
WC0501																					
WC0502																					
WC0503																					
WC0504																					
WC0505																					
WC0506																					
WC0507																					
WC0508																					
WC0509	10.6																				
WC0510	2																				
WC0511	1																				
WC0512																					
WC0513																					
WC0514																					
WC0515	2.4																				
WC0516	1																				
WC0517	1																				
WC0518																					

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of Bird coal bed to floor of coal bed 202): **Table A-2** (continued)

Borehole	Drift	Bird Roof	Bird Floor	190 Roof	190 floor	170 Roof	170 floor	150 Roof	150 floor	130 Roof	130 Floor	110 Roof	110 Floor	101 Roof	101 Floor	100 Roof	100 Floor	201 Roof	201 Floor	202 Roof	202 Floor
WC0519																					
WC0520																					
WC0521																					
WC0522																					
WC0523																					
WC0524																					
WC0525																					
WC0526																					
WC0527																					
WC0528																					
WC0701A																					
WC0701B																					
WC0702																					
WC0703																					
WC0704																					
WC0705	2.1																				
WC0706																					
WC0709	2.1 ~																				
WC0710	0.3																				
WC07101C																					
WC0711	2																				
WC0712	8.5																				
WC0713																					
WC0714	2																				
WC0715	3																				
WC0716C																					
WC0717																					
WC0718	2.2																				
WC0719	2.4																				
WC0720	3.1																				
WC0721	5																				
WC0722	2																				
WC0723	1.7																				
WC0724	6																				
WC0726	7																				
WC0728	1.3																				
WC0730	2.5																				
WC0731	0.5																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of Bird coal bed to floor of coal bed 202): **Table A-2** (Continued)

Borehole	Drift	Bird Roof	Bird Floor	190 Roof	190 floor	170 Roof	170 floor	150 Roof	150 floor	130 Roof	130 Floor	110 Roof	110 Floor	101 Roof	101 Floor	100 Roof	100 Floor	201 Roof	201 Floor	202 Roof	202 Floor
WC0732	2.8																				
WC0733	2.4																				
WC0734	0.5																				
WC0735	5.2																				
WC0736	2.5																				
WC0737	2																				
WC0738	1.7																				
WC0739	2.3																				
WC0740																0	0.2	14.65	15.65	16.8	17.75
WC0743	1.4															2.6	5.25	20.35	21.35	22.4	23.25
WC0745	1.8~							6.65	7.25	8.95	9.4					16.75	22.65	43.9	45.25	45.25	46.6
WC0747	4.2							11.85	12.3							28.2	32.55	50.5	51.8	52.45	53.55
WC0748	2.2																				
WC0749	2.5															12.4	15.45	33.65	34.85	35.45	36.55
WC0751																					
WC0752																8.7	11.55	27.1	28.15	28.6	29.55
WC0753								22.5	22.7							40.2	44.3	62.4	62.95	62.95	63.45
WC0755C																		15.3	15.8	15.8	16.3
WC0761	2																				
WC0762	1																				
WC0763	1.7																				
WC0764	2.2																				
WC0765	1.8																				
WC0766	1.4																				
WC0767	12.6																				
WC0768	8																				
WC0769	0.5																				
WC0770	9.9																				
WC0771	1																				
WC0772	5.1																				
WC0773	0.5																				
WC0774	4.5																				
WC0776																					
WC0778	2.2																				
WC0779	3.3																				
WC0780	0.3																	8.05	9	10.8	11.7~
WC0781	0.25																				
WC0783	0.5							9.7*	11.4*							21.9	25.05	29.95	30.8	32.3	33.25
WC0784	0.5																				
WC0785	1							16.45	17							23.9	26.05	29.95	30.7	34.25	35.3

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of Bird coal bed to floor of coal bed 202): **Table A-2** (Continued)

Borehole	Drift	Bird Roof	Bird Floor	190 Roof	190 floor	170 Roof	170 floor	150 Roof	150 floor	130 Roof	130 Floor	110 Roof	110 Floor	101 Roof	101 Floor	100 Roof	100 Floor	201 Roof	201 Floor	202 Roof	202 Floor
WC0787	1																				
WC0788	1											11.3	12.05			19.95	22.3	27.65	28.4	32.4	33.3
WC0789	3													7.5	8.41	8.46	10	15.3	16.2	19.1*	20.05*
WC0790	1																				
WC0791	1																				
WC0792	1																				
WC0795	1																				
WC0797																					
WC0799																					
WC0801	1.9																				
WC0802	1.7																				
WC0804	1.1																				
WC0804A																					
WC0805	2.5																	7.3	8.4	10.4	11.4
WC0805A																					
WC0806	5.8							21.9	24.1			30.1	31.6			32.1	33.5	38.25	39	41.5	42.55
WC0806A																					
WC0807	2.5																				
WC0808	2.4																				
WC0809	1.3																				
WC0810	2.7							13.35	14.4			21.95	23.1	24	24.75	24.78	27.35	30.3	31.05	33.1	34.05
WC0811	1.8																				
WC0811A																					
WC0813	2																				
WC0814	2.5																				
WC0815	2.5							9.1	9.8	15.3	15.4	17.95	18.95	19.5	20.25	20.35	22.5	25.5	26.5	27.9	28.85
WC0817	4.2																				
WC0818	2.3																				
WC0819	2.3																				
WC0820	2.7							4*	5.1*	12.65	12.8	14.85	16.15	16.95	17.35	19.9	22	25.65	26.5	28.6	29.55
WC0821	2.7	12.7	13.5					34.7	35.5			46.4	47.65	47.75	48.6	50.75	52.5	56.7	57.5	59	60.1
WC0822	1.2																				
WC0823	1.8																				
WC0824	2.4																				
WC0826	2.3							19	19.7			29.55	30.4	30.9	32.15	33.9	35.6	44.05	44.8	47.15*	48.25*
WC0827	2.5	*All coal is undetermined																			
WC0828	1.6																				
WC0829	5.3																				
WC0830	2																				
WC0831	5											14.25	15.2	15.8*	17.3*	19.3*	21*	35.05	35.8	38.2*	39.3*

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of Bird coal bed to floor of coal bed 202): **Table A-2** (Continued)

Borehole	Drift	Bird Roof	Bird Floor	190 Roof	190 floor	170 Roof	170 floor	150 Roof	150 floor	130 Roof	130 Floor	110 Roof	110 Floor	101 Roof	101 Floor	100 Roof	100 Floor	201 Roof	201 Floor	202 Roof	202 Floor
WC0832C	14.7	40.35	41					68.3	68.8			81.15	82.3	83.1	84.35	86.1	88.2	102.35	103.2	106.3	107.3
WC0833	1.7																				
WC0834	4																				
WC0835	1.7																				
WC0838	18.3							27.8*	29.1*			42.5	43.3	44.3*	45.9*	47.75	49.55	55.85	56.5	63.85	64.05
WC0841																					
WC0842	2.5																				
WC0844	2.3																				
WC0845	5	*All coal is undetermined																			
WC0846	2.2																				
WC0847	2.2																				
WC0848	2																				
WC0849	1.8																				
WC0850	10.2																				
WC0851	5																				
WC0854	2																				
WC0857	3																				
WC0863	1.8																				
WC0864	4.2																				
WC0865	6.1																				
WC0869C	6.1	12.85	14.15					40.8	41.2	47.4	47.6	50.05	51.25	52.1	52.98	53.02	55.7	59.55	60.6	62.3*	63.4*
WC0870C																					
WC0901P																					
WC0902P																					
WC0904P	4.5																	14.9	15.65	15.65	16.2
WC0905P	2															18.07	20.41	35.02	35.9	36.94*	37.95*
WC0906P	2.5																				
WC0907P	2.5																				
WC0908P	2.7																				
WC0909P	4.6											16.1	16.9			18.4	21.7	27	27.9	30.8	32
WC0910P	2.7																				
WC0911P	2.5																				
WC0912P	1.8											17.2	18.1	18.9*	20.1*	22.25	24.25				
WC0913P	0.9																	14.94	15.56	18.7*	19.76*
WC0914	2.6																				
WC0915																					
WC0916	8.8							19.2*	20.27*			30.65	31.8	33*	34.33*	37.18	38.65	43.47	44	51.45	51.62
WC0950	8.6																				
WC0951	4.8																				
WC0952	4.5																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of Bird coal bed to floor of coal bed 202): **Table A-2** (Concluded)

Borehole	Drift	Bird Roof	Bird Floor	190 Roof	190 floor	170 Roof	170 floor	150 Roof	150 floor	130 Roof	130 Floor	110 Roof	110 Floor	101 Roof	101 Floor	100 Roof	100 Floor	201 Roof	201 Floor	202 Roof	202 Floor
WC0953	17.3																				
WC0954	5.9																				
WC0955	1.5																				
WC0956	8.3																				
WC0957	0.5																				
WC0958																					
WC0959	1.4																				
WC0960	0.7																				
SRK1002	16.5									33.74	33.79	38.45	40.4	41.92**	43.87**	46.87	48.97	54.72	55.19	60.06	60.22
SRK1003	5.2																				
WC1004C	6.1	120.38	121.12	127.5	127.55	142.65	142.8	149	149.2	158.85	158.95	160.95	161.76	162.92	163.93	165.94	168.94				
WC1101																		4.12	4.95	5.45*	6.42*
WC1102																		10.26	10.96	11.38*	12.4*
WC1103																					
WC1104																					
WC1105																					
WC1106																					
WC1107																					
4N1-13-1																					
4N1-13-2																					
4N1-13-3																					
7N2-13-1																					
7N2-13-2																					
7N2-13-3																					
7N2-13-4																					
7N2-13-5																					
7N2-13-6																		9.4	10.3	10.65*	12.9*
7N2-13-7																		9.05	10	10.95*	12*

Note: this table is compiled by L.R. LeMay. Number of asterisks (*) indicates number of partings within a given coal bed. A tilde (~) indicates that more than one intersection of a given coal bed is present within the borehole due a fault and/or repeat of the coal beds; only the topmost section is recorded here. All depths are downhole depths, along borehole trajectory, given in meters below the borehole's collar.

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 310 to floor of coal bed 440): Table A-3

Borehole	310 Roof	310 Floor	300 Roof	300 Floor	320 Roof	320 Floor	340 Roof	340 Floor	430 Roof	430 Floor	410 Roof	410 Floor	401 Roof	401 Floor	400 Roof	400 Floor	420 Roof	420 Floor	440 Roof	440 Floor
WRH20011																				
WRH20012																				
WRH20013																				
WRH20014																				
WRH20015																				
WRH20017C																				
WRH20018C																				
WRH20019C																				
WRH200110																				
WRH200111																				
WRH200112																				
WRH200113																				
WRH200114																				
WRH200115																				
WRH200116																				
WRH200117																				
WRH200118																				
WRH200119																				
WRH200120C			264	266.7					293.63	294.11										
WRH200121C			56.9	58..7							87.7	88.7			88.8	92				
WC0501																				
WC0502																				
WC0503																				
WC0504																				
WC0505																				
WC0506																				
WC0507																				
WC0508																				
WC0509																				
WC0510																				
WC0511																				
WC0512																				
WC0513																				
WC0514																				
WC0515																				
WC0516																				
WC0517																				
WC0518																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 310 to floor of coal bed 440): Table A-3 (continued)

Borehole	310 Roof	310 Floor	300 Roof	300 Floor	320 Roof	320 Floor	340 Roof	340 Floor	430 Roof	430 Floor	410 Roof	410 Floor	401 Roof	401 Floor	400 Roof	400 Floor	420 Roof	420 Floor	440 Roof	440 Floor
WC0519																				
WC0520																				
WC0521																				
WC0522																				
WC0523																				
WC0524																				
WC0525																				
WC0526																				
WC0527																				
WC0528																				
WC0701A																				
WC0701B																				
WC0702																				
WC0703																				
WC0704																				
WC0705																				
WC0706																				
WC0709																				
WC0710																				
WC07101C																				
WC0711																				
WC0712																				
WC0713																				
WC0714																				
WC0715																				
WC0716C																				
WC0717																				
WC0718																				
WC0719																				
WC0720																				
WC0721																				
WC0722																				
WC0723																				
WC0724																				
WC0726																				
WC0728																				
WC0730																				
WC0731																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 310 to floor of coal bed 440): Table A-3 (continued)

Borehole	310 Roof	310 Floor	300 Roof	300 Floor	320 Roof	320 Floor	340 Roof	340 Floor	430 Roof	430 Floor	410 Roof	410 Floor	401 Roof	401 Floor	400 Roof	400 Floor	420 Roof	420 Floor	440 Roof	440 Floor
WC0732																				
WC0733																				
WC0734																				
WC0735																				
WC0736																				
WC0737																				
WC0738																				
WC0739																				
WC0740			32.35	33.05	36	36.2									62.45	66.55~			75.35	76.35
WC0743			35.7	36.05	38.1	38.4									64.95	70.75			74.2	74.85
WC0745			55.5	57											83.8	89.9				
WC0747			60.4	61.3~	69.1	69.4									94.2	100.6			106.85	107.6
WC0748					6.1	6.25									29.7	31.45			37.4	38.4
WC0749			41.35	42.4	45.95	46.4									71.8	77.2~				
WC0751															24.45	25.65			34.35	34.7
WC0752			33.5	35.3											58.7	62.5			58.7	62.5
WC0753			67.6*	69.05*	71.1	7.3~									98.2	100.65			111.5	111.75
WC0755C			19.65	20.85											43.75	46.65				
WC0761																				
WC0762																				
WC0763																				
WC0764																				
WC0765																				
WC0766																				
WC0767																				
WC0768																	12.5	12.75	15.9	16.95
WC0769																				
WC0770																				
WC0771																				
WC0772																				
WC0773																				
WC0774																				
WC0776									21.05	21.3	22.4	23			24.35	27.65	30.2	30.3	48.85	49.15~
WC0778															16.95	20.05			23.65	24.4
WC0779																				
WC0780			30.3	30.55	33.4	33.55									56.7	59.6~				
WC0781																				
WC0783			44.4	45.2	47.6	47.85									79.4	84.1			86.7	87.5
WC0784																				
WC0785			47	47.7	51.6	51.75									76**	91.95**				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 310 to floor of coal bed 440): Table A-3 (continued)

Borehole	310 Roof	310 Floor	300 Roof	300 Floor	320 Roof	320 Floor	340 Roof	340 Floor	430 Roof	430 Floor	410 Roof	410 Floor	401 Roof	401 Floor	400 Roof	400 Floor	420 Roof	420 Floor	440 Roof	440 Floor
WC0787			16.8	17.05											48.05	50.2~			58.05	59.1
WC0788			46.4	47.35	50.1	50.35					76.95	77.55~			77.75	81.15			85.6	86.5
WC0789			40.3	40.75	44.45	44.75			70.6	70.85	73.13	73.92	74.75	76.7	76.8	77.65	78.3	78.55	82.3	83.15
WC0790																				
WC0791																				
WC0792																				
WC0795																				
WC0797																				
WC0799																				
WC0801																				
WC0802																				
WC0804																				
WC0804A																				
WC0805			29	29.7	32.9	33.35			57.9	58.3	61.15	62.1	63.1	64.15	64.25	66	66.45	66.85	68.75	69.7
WC0805A																				
WC0806			58.85	60.55	63.8	64.25			94.9	95.5	98.85	99.45	100	100.5	100.51	101.85	102.5	103	104.9*	105.9*
WC0806A																				
WC0807																				
WC0808																				
WC0809																				
WC0810			48.5	48.95	51.1	51.3			79.15	79.65	83.3	84.3	85.35	86.55	88.75	90.75			92.1*	94.35
WC0811																				
WC0811A																				
WC0813																				
WC0814									12.8	13.1	17.05	17.9	19.2	20.2	26.2	28			28.65*	30.35*
WC0815			41.15	42	45.05	45.3			69.3	69.8	74.7	75.55	76.65	77.1	81.3	83.05			84*	85.6*
WC0817																				
WC0818																				
WC0819																				
WC0820			38.45	39.95	42.85	43.2	54.65	54.95	64.15	64.5	70	70.85	71.8	72.95	74.6	76.55			77.5*	79.05*
WC0821			71.3	72.4	75.4	75.6	86.6	86.85	94.7	95.35	99.95	100.9	101.1	102.5	104	106.5			107.35*	108.95*
WC0822																				
WC0823																				
WC0824																				
WC0826			54.65	55.8	58.65	58.9	66.75	66.95	76.85	77.4	83.6	84	84.45	85.75	87	89			90.1*	91.5*
WC0827																				
WC0828																				
WC0829																				
WC0830																				
WC0831			46.1	47.3	50.65	51	57.25	57.6	69.6	70.3	72.3	72.75	73.65	74.95	75	78.1			79.3*	80.8*

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 310 to floor of coal bed 440): Table A-3 (continued)

Borehole	310 Roof	310 Floor	300 Roof	300 Floor	320 Roof	320 Floor	340 Roof	340 Floor	430 Roof	430 Floor	410 Roof	410 Floor	401 Roof	401 Floor	400 Roof	400 Floor	420 Roof	420 Floor	440 Roof	440 Floor
WC0832C			117.4*	119*	123.2	123.5	130.45	130.8	149.75	150.6	151.4	152.25	152.26	153.75	154.5	157			158.4	160.15
WC0833																				
WC0834																				
WC0835																				
WC0838			73.45	74.6	77.7	78	84.1	84.5	102.15	102.85	102.85	103.55	103.65	104.9	105.95*	108.05			108.95*	110.5*
WC0841																				
WC0842																				
WC0844																				
WC0845																				
WC0846																				
WC0847																				
WC0848																				
WC0849																				
WC0850																				
WC0851																				
WC0854																				
WC0857																				
WC0863																				
WC0864																				
WC0865																				
WC0869C			82.25	82.7	85.4	85.95			116.25	116.9	121.1	122	122.4	123.7	131.25	133			134.45*	136.45*
WC0870C																				
WC0901P																				
WC0902P																				
WC0904P			18.8	20.8																
WC0905P																				
WC0906P																				
WC0907P																				
WC0908P																				
WC0909P																				
WC0910P									13.84	14.04	16.83	17.75	18.8	20.2	20.22	23	23	23.5	25.15*	26.13*
WC0911P											26.2	26.5	27.9	28.95	30.24	32.35			34.05*	35.4
WC0912P																				
WC0913P			26.4	27.44																
WC0914																				
WC0915																				
WC0916			60.28	61.15			72.8*	73.1*	91.58	92.62	93.1	93.35	94.05	94.3	95.25	97.2			98.25*	99.7*
WC0950																				
WC0951																				
WC0952																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 310 to floor of coal bed 440): Table A-3 (concluded)

Borehole	310 Roof	310 Floor	300 Roof	300 Floor	320 Roof	320 Floor	340 Roof	340 Floor	430 Roof	430 Floor	410 Roof	410 Floor	401 Roof	401 Floor	400 Roof	400 Floor	420 Roof	420 Floor	440 Roof	440 Floor
WC0953																				
WC0954																				
WC0955																				
WC0956																				
WC0957																				
WC0958																				
WC0959																				
WC0960																				
SRK1002			71.94*	72.51*																
SRK1003																				
WC1004C																				
WC1101	29.22	29.65	30.2	33.05~	40.95	41	43.1	43.15	67.2	67.25	68.19	68.36			69.52	71.4	72.7	72.75		
WC1102	18.3	18.46	18.8	20.27	23.02	23.07	24.77	24.82	41.44	41.7	42.93	43.43			44.76	46.48				
WC1103									6.56	6.64	8.22	9.09			11.2	13.05	14.42	14.46	29.8	29.9
WC1104																	4.5	4.6	14.5	14.6~
WC1105																			14.2	14.3
WC1106									36.42	36.57	37.8	38.27			40.17	41.84	42.95	43.05		
WC1107																				
4N1-13-1											36.85	38.1	38.8	39.5	40.5	41.95			43.55*	448*
4N1-13-2			4.2	4.45	9.1	9.3	27.65	27.75	32.2	32.6	36.8	37.15	38.35	39.4	40.7	42.7			44.15*	45.5*
4N1-13-3			17.55	18.5			32.1	32.2			54.5	55.82	56.42	57.35	58.35*	59.45*			60.35	61.5
7N2-13-1															44.1	45.35				
7N2-13-2			6.2	6.85	10.35	10.55									39.75	45.75				
7N2-13-3			6	6.45	8.85	9.19									36.85	41.9				
7N2-13-4															20.45	24.18				
7N2-13-5			10.25	10.8											47.15	50.7	52.75	53.45~		
7N2-13-6			28.7	29.45	34.2	34.4					61.6	61.95			66.15*	67.3*	68.5	68.85		
7N2-13-7			24.2	24.8	28.1	28.45									58.45	61.85				

Note: this table is compiled by L.R. LeMay. Number of asterisks (*) indicates number of partings within a given coal bed. A tilde (~) indicates that more than one intersection of a given coal bed is present within the borehole due a fault and/or repeat of the coal beds; only the topmost section is recorded here. All depths are downhole depths, along borehole trajectory, given in meters below the borehole's collar.

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 480 to floor of coal bed 530): Table A-4

Borehole	480 Roof	480 Floor	A71 Roof	A71 Floor	A7 Roof	A7 Floor	A5 Roof	A5 Floor	A3 Roof	A3 Floor	A1 Roof	A1 Floor	A0 Roof	A0 Floor	A2 Roof	A2 Floor	550 Roof	550 Floor	530 Roof	530 Floor
WRH20011																				
WRH20012																				
WRH20013																				
WRH20014																				
WRH20015																				
WRH20017C																				
WRH20018C																				
WRH20019C																				
WRH200110																				
WRH200111																				
WRH200112																				
WRH200113																				
WRH200114																				
WRH200115																				
WRH200116																				
WRH200117																				
WRH200118																				
WRH200119																				
WRH200120C																				
WRH200121C																				
WC0501																				
WC0502																				
WC0503																				
WC0504																				
WC0505																				
WC0506																				
WC0507																				
WC0508																				
WC0509																				
WC0510																				
WC0511											51.8	52.2	57.8*	59.9*						
WC0512																				
WC0513																				
WC0514											15.2	15.9	18.2*	19.6*						
WC0515											56.2	56.8	60.9	61.5						
WC0516											70	71	73.5	74.2						
WC0517											56.9*	58.6*	60.6*	62*						
WC0518																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 480 to floor of coal bed 530): Table A-4 (continued)

Borehole	480 Roof	480 Floor	A71 Roof	A71 Floor	A7 Roof	A7 Floor	A5 Roof	A5 Floor	A3 Roof	A3 Floor	A1 Roof	A1 Floor	A0 Roof	A0 Floor	A2 Roof	A2 Floor	550 Roof	550 Floor	530 Roof	530 Floor
WC0519					17.2	18.3	35.5	36.2	48	18.3	81.1*	82.8	84.3*	85.7*						
WC0520																				
WC0521											36.5*	38.3*	40.1*	41.3*						
WC0522																				
WC0523																				
WC0524																				
WC0525																				
WC0526																				
WC0527																				
WC0528																				
WC0701A											12.2	13.5	14.6	16.2						
WC0701B											83.7*	88.3*	119.7	120.15						
WC0702											5.7	6.9	9.45	10.55~						
WC0703																				
WC0704																				
WC0705											22.55	23.95	26.9	29.2~						
WC0706											41.1	42.45	49.1	50.5						
WC0709																				
WC0710											0.3	2	7.3	8.5						
WC07101C																				
WC0711																				
WC0712																				
WC0713											6.3	7.15	23.2	24.75						
WC0714											5.2	6	11.3	12.7						
WC0715																				
WC0716C																				
WC0717																				
WC0718																				
WC0719																				
WC0720													3.1	4.75						
WC0721																				
WC0722																				
WC0723											11.2	11.5	19.5	21						
WC0724																				
WC0726																				
WC0728																				
WC0730																				
WC0731																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 480 to floor of coal bed 530): Table A-4 (continued)

Borehole	480 Roof	480 Floor	A71 Roof	A71 Floor	A7 Roof	A7 Floor	A5 Roof	A5 Floor	A3 Roof	A3 Floor	A1 Roof	A1 Floor	A0 Roof	A0 Floor	A2 Roof	A2 Floor	550 Roof	550 Floor	530 Roof	530 Floor
WC0732																				
WC0733											11.6	12.9	17.3	18.6						
WC0734																				
WC0735							13.1	13.75~			38.4	39.35	42.3	43.4						
WC0736													3.5	4.95						
WC0737																				
WC0738																				
WC0739											13.9	14.75	16.7	18.55						
WC0740	100.3	100.9																		
WC0743																				
WC0745																				
WC0747																				
WC0748																				
WC0749																				
WC0751																				
WC0752	85.3	86			97	97.7														
WC0753	127.25	128.2																		
WC0755C																				
WC0761													3.85	4.7						
WC0762																				
WC0763																				
WC0764																				
WC0765																				
WC0766																				
WC0767											25	25.5	26.15	27.4						
WC0768	29.15				41.2	42	59.3	60.05			75.3	75.5	76.85	78						
WC0769																				
WC0770											11.95	12.2	13.6	15.1						
WC0771																				
WC0772																				
WC0773																				
WC0774																				
WC0776																				
WC0778	44.65	45.35			54.45	54.8														
WC0779	18.6	19.2			29.35	29.75	47	47.45			59.2	59.8	61.1	62.1						
WC0780																				
WC0781	18.3	19.15			29.25	29.9	47.35	47.9			59.2	59.6	60.6	61.8						
WC0783																				
WC0784																				
WC0785																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 480 to floor of coal bed 530): Table A-4 (continued)

Borehole	480 Roof	480 Floor	A71 Roof	A71 Floor	A7 Roof	A7 Floor	A5 Roof	A5 Floor	A3 Roof	A3 Floor	A1 Roof	A1 Floor	A0 Roof	A0 Floor	A2 Roof	A2 Floor	550 Roof	550 Floor	530 Roof	530 Floor
WC0787																				
WC0788																				
WC0789																				
WC0790											16	16.5	17.2*	18.5*						
WC0791	9.05	9.95			16.3	16.75	31.35	32.55			45.2	45.85	46.4*	47.65					63.95	64.05
WC0792	15.35*	16.35*			23.5	24.55	40.7	41.45			53.2	53.8	54.6*	55.7*						
WC0795											108.4	109.3	110.7	111.5						
WC0797											83.7	84.55	86.9	88.1						
WC0799																				
WC0801																				
WC0802																				
WC0804							6.7	7.3			20	21.25	22.95	23.5					39.4	39.7
WC0804A																				
WC0805																				
WC0805A																				
WC0806																				
WC0806A																				
WC0807																				
WC0808																				
WC0809					6.6*	8.7*~			40.5	40.9	43	44.25~	52.2**	55.1**	56.5	56.8~	77.9	78	88.6	88.95
WC0810	116.75	117.8			124.8	125.2	133.5	133.95	139	139.25	143.05	143.9	147	148.45					167.3	167.5
WC0811																				
WC0811A																				
WC0813							7.7	7.85			15	15.9	24	25.25	26.02	26.4			49.6	49.7
WC0814	51.6*	52.55*			60.55	60.95	68.3	68.75	75.95	76.55	77.9	78.7	81.75	82.9					100	100.3
WC0815	108.5	109.35			118.35	118.9	126.3	126.85	132	132.4	135	136.3								
WC0817									7.6*	8.7*	9.25	11.05	45.1	46.45	48.15*	49.25*				
WC0818							5.7	6	13	13.2	13.8	14.65	20.25	21.5	22.45	22.8			43.5	43.7
WC0819									14.7	14.9	15.8	16.8	20.75	22.3	24	24.2			43.9	43.95
WC0820	98.65*	99.75*			109.5	109.9	119.8	120.2	126	126.5	127.7	128.6	132.25	133.85						
WC0821																				
WC0822																				
WC0823							10	10.3	15.45	16	16	16.8	28.25	29.6	29.7	30.1				
WC0824							5.3	5.6	10.95	11.25	11.6	12.6	20.5	21.15	22.1	22.45				
WC0826	107.5	107.95			118.5	118.95	128.95	129.3	133.3	134	135	135.7	138.6	140.05						
WC0827																				
WC0828																				
WC0829							24.65	24.8	29.5	29.65	30.05	30.75	41.95	43.4	43.5	43.9				
WC0830											5.6	5.75~	17.6	18.9	20.15	20.3~				
WC0831	95.1	95.4			107.6	108			124.2	125.1	126.7	127.5	132.6	134.1						

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 480 to floor of coal bed 530): Table A-4 (continued)

Borehole	480 Roof	480 Floor	A71 Roof	A71 Floor	A7 Roof	A7 Floor	A5 Roof	A5 Floor	A3 Roof	A3 Floor	A1 Roof	A1 Floor	A0 Roof	A0 Floor	A2 Roof	A2 Floor	550 Roof	550 Floor	530 Roof	530 Floor
WC0832C																				
WC0833																				
WC0834							18.45	18.75	21.25	22.1	22.1	22.9	33.3	34.25	34.25	35.05				
WC0835							15.25	15.5	16.4	17.25	17.6	18.55	25.7	26.75	27.9*	28.8*				
WC0838					136.2	136.5														
WC0841													21.8**	25.4**	26.6	26.9				
WC0842											4.1	4.35	11.7*	14.3	18.45	18.8				
WC0844																				
WC0845																				
WC0846																				
WC0847																				
WC0848																				
WC0849							9.3	9.5			15.6	16.7	26	27	27.9	28.2~			49	49.1
WC0850																			14.2	14.25
WC0851									11.6	11.7	12.5	13.45	25	26.25	26.75	27.6				
WC0854							5.85	6.25	12.15	12.35	13	13.85	20.75*	21.9*	22.8	23.1				
WC0857							5.6	5.7	11.3	12.7	13.85	15.25~	26.35	27.5	27.5	28~				
WC0863									27.25	28	28.6	29.5	39.75	40						
WC0864							8.35	8.45	17	17.1	18.45	19.4	24.35	25.7					46	46.15
WC0865											20.15	21	26.4	27.15			40.4	40.55~	48.2	48.45
WC0869C																				
WC0870C																				
WC0901P																				
WC0902P																				
WC0904P																				
WC0905P																				
WC0906P																				
WC0907P																				
WC0908P																				
WC0909P																				
WC0910P	29.2	30.95																		
WC0911P																				
WC0912P																				
WC0913P																				
WC0914																				
WC0915																				
WC0916																				
WC0950																				
WC0951																				
WC0952																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 480 to floor of coal bed 530): Table A-4 (concluded)

Borehole	480 Roof	480 Floor	A71 Roof	A71 Floor	A7 Roof	A7 Floor	A5 Roof	A5 Floor	A3 Roof	A3 Floor	A1 Roof	A1 Floor	A0 Roof	A0 Floor	A2 Roof	A2 Floor	550 Roof	550 Floor	530 Roof	530 Floor
WC0953																				
WC0954																				
WC0955																				
WC0956																				
WC0957																				
WC0958																				
WC0959																				
WC0960																				
SRK1002																				
SRK1003																				
WC1004C																				
WC1101																				
WC1102																				
WC1103	48.9	49.57	54.18	54.25	59	59.3	66.05	66.15	81.15	81.25	94.7	95.2	98.95	99.05						
WC1104	32.08	32.61			37.75*	38.68*	45.4	45.5	59.55	59.75	69.9	70.3	71.52	71.78						
WC1105	31.42	32.05			36.1*	37.1*	43.95	43.05	56.85	56.95										
WC1106																				
WC1107					5.82*	6.5*	17.45	17.6	60.3	60.4	71.68	72.53	74.4	74.8						
4N1-13-1																				
4N1-13-2																				
4N1-13-3																				
7N2-13-1	46.82	47.35																		
7N2-13-2																				
7N2-13-3	46.2	46.8																		
7N2-13-4	29.45*	30.15*																		
7N2-13-5																				
7N2-13-6																				
7N2-13-7																				

Note: this table is compiled by L.R. LeMay. Number of asterisks (*) indicates number of partings within a given coal bed. A tilde (~) indicates that more than one intersection of a given coal bed is present within the borehole due a fault and/or repeat of the coal beds; only the topmost section is recorded here. All depths are downhole depths, along borehole trajectory, given in meters below the borehole's collar.

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 510 to floor of coal bed 630): Table A-5

Borehole	510 Roof	510 Floor	501 Roof	501 Floor	500 Roof	500 Floor	502 Roof	502 Floor	520 Roof	520 Floor	540 Roof	540 Floor	560 Roof	560 Floor	670 Roof	670 Floor	650 Roof	650 Floor	630 Roof	630 Floor
WRH20011																				
WRH20012																				
WRH20013																				
WRH20014																				
WRH20015																				
WRH20017C																				
WRH20018C																				
WRH20019C																				
WRH200110																				
WRH200111																				
WRH200112																				
WRH200113																				
WRH200114																				
WRH200115																				
WRH200116																				
WRH200117																				
WRH200118																				
WRH200119																				
WRH200120C																				
WRH200121C					219.1	220.9														
WC0501																				
WC0502																				
WC0503																				
WC0504																				
WC0505																				
WC0506																				
WC0507																				
WC0508																				
WC0509			17.4	19.8			19.8	20.7	23.3	24										
WC0510																				
WC0511	94.2	94.3	99.9	102.5			102.5	103.5	108*	109.8*	110.8	111.4								
WC0512																				
WC0513	8	9.1	15.1	16.5			16.5	18	21.5	21.8	22.7*	23.9*								
WC0514			49.5	50.7			50.7	51.75	55.7*	57.1*	57.9**	61.9**								
WC0515																				
WC0516																				
WC0517	104.2*	105.2*	109.9	111.85			111.85	113.25	121.2*	122.5*	122.5	123.2			124.5	125				
WC0518	14.4*	15.4*	23.8	25.15			25.15	26.7	31.6*	32.8*	33.4	33.7			34.9	35.3				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 510 to floor of coal bed 630): Table A-5 (continued)

Borehole	510 Roof	510 Floor	501 Roof	501 Floor	500 Roof	500 Floor	502 Roof	502 Floor	520 Roof	520 Floor	540 Roof	540 Floor	560 Roof	560 Floor	670 Roof	670 Floor	650 Roof	650 For	630 Roof	630 Floor
WC0519																				
WC0520																				
WC0521	64.8	65.1	70.7	71.4			71.5	73.5	88.4	89.4	89.9	90.5			91.1	91.4				
WC0522																				
WC0523																				
WC0524																				
WC0525																				
WC0526																				
WC0527																				
WC0528																				
WC0701A			44.3	45.3			46.4	48.1												
WC0701B	140.4	141.55			143.1	146.7					150.05	152.5	153.1	153.8						
WC0702			44.15	46.2			46.2	47.55												
WC0703																				
WC0704			19.3	21.7			22.3	23.4												
WC0705			89	90.55			90.55	91.9												
WC0706			88	89.15			89.15	90.5												
WC0709	34.4	34.5	37.5	38.8			38.8	39.65	42	42.15	43.45*	44.8*							52.7	52.85
WC0710			55.35	57.2			57.3	58.3												
WC07101C			5.3	6.5			6.5	7.2												
WC0711			13.8	15.2			15.2	15.95												
WC0712																				
WC0713			51.45	52.6			52.75	53.4~												
WC0714			42.35	43.45			43.6	44.4												
WC0715	17.1	17.3	21.3	22			22	23	24.5	24.6	26.05*	27.6*					36.5	36.6	40.45	40.9
WC0716C																				
WC0717			13.3	14.6			14.95	15.75												
WC0718			30.3	31.4			31.85	32.5												
WC0719			26	27.1			27.4	28.05												
WC0720			32.95	34.25			34.25	34.95												
WC0721			25.25	27			27.2	27.85												
WC0722			15.45	16.6			16.95	17.55												
WC0723			50	51.5			51.8	53												
WC0724																				
WC0726			26	27.3			27.45	28.2												
WC0728			19.45	20.75			20.9	21.7												
WC0730			48.3	48.7			48.85	49.8												
WC0731																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 510 to floor of coal bed 630): Table A-5 (continued)

Borehole	510 Roof	510 Floor	501 Roof	501 Floor	500 Roof	500 Floor	502 Roof	502 Floor	520 Roof	520 Floor	540 Roof	540 Floor	560 Roof	560 Floor	670 Roof	670 Floor	650 Roof	650 For	630 Roof	630 Floor
WC0732			11.75	12.85			13.05	13.7												
WC0733			43.25	43.85			43.85	44.8												
WC0734																				
WC0735			68	69.05			69.5	70.2												
WC0736			37.45	38.85			39.95	40.4												
WC0737																				
WC0738			9.45	10.55			11.4	12.1												
WC0739			46.2	47.4			48.3	49.05												
WC0740																				
WC0743																				
WC0745																				
WC0747																				
WC0748																				
WC0749																				
WC0751																				
WC0752																				
WC0753																				
WC0755C																				
WC0761			25.35	26.45			27.2	28												
WC0762																				
WC0763			8	9			10.25	10.9												
WC0764			15.9	16.85			17.8	18.5												
WC0765																				
WC0766																				
WC0767			49.2	50.5			51.2	52.1												
WC0768			94.8	95.85			97.15	97.8												
WC0769																				
WC0770			36.15	37.2			37.4	38.1												
WC0771																				
WC0772																				
WC0773																				
WC0774																				
WC0776																				
WC0778																				
WC0779			82.8	83.9			84.25	85.15~												
WC0780																				
WC0781			84.4	85.5			87	87.65												
WC0783																				
WC0784					61.9	64.9														
WC0785																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 510 to floor of coal bed 630): Table A-5 (continued)

Borehole	510 Roof	510 Floor	501 Roof	501 Floor	500 Roof	500 Floor	502 Roof	502 Floor	520 Roof	520 Floor	540 Roof	540 Floor	560 Roof	560 Floor	670 Roof	670 Floor	650 Roof	650 For	630 Roof	630 Floor
WC0787																				
WC0788																				
WC0789																				
WC0790			36.3	37.3			37.6	38.35			42.8	43.1							50.3*	50.9*
WC0791			67.05	68.05			68.45	69.2			73.95	74.3							81.7*	82.35*
WC0792			77	78.25			78.45	79.15			88.25	85.55~								
WC0795			123.7	124.4			124.4	125.85												
WC0797			133.3	134.65			134.65	136.35			141.7*	144.75*								
WC0799																				
WC0801																				
WC0802																				
WC0804			43.95	45.05			45.1	46			52	52.2							61.25	62
WC0804A					32.2	35.3														
WC0805																				
WC0805A																				
WC0806																				
WC0806A																				
WC0807																				
WC0808																				
WC0809			98.15	99.1			99.55	100.5			108.2	108.5							114.7	115.5
WC0810			174.1	174.7			176.05	176.6	179.1	179.2	181.45	181.9							187.35	188.2
WC0811																				
WC0811A					11.25	13														
WC0813			52.75	53.85			54.2	54.75			61.2	61.55							67.25	68
WC0814			110.2	110.8			112.55	113.15			118.9	119.1							124	124.8~
WC0815																				
WC0817			80	80.3			82.2	82.6											95.25	95.4
WC0818			46.05	47.15			48.35	48.9			56.1	56.4							61	62
WC0819			48.15	48.8			51.8	52.1			60.4	60.7							66.65	69.45
WC0820																				
WC0821																				
WC0822																				
WC0823			54.6	55.7			58.95	59.25			66.6	66.9							69.3	70.2
WC0824			46.7	47.8			53	53.4			60.6	61							68.75	69.05
WC0826																				
WC0827																				
WC0828											4.5	4.75							5.5	6.75
WC0829			70.8	71.55			76.75	77			83	83.1							84.15	85.15
WC0830			52.8	53.45			57.15	57.4			63.15	63.3							74.75	75.55
WC0831																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 510 to floor of coal bed 630): Table A-5 (continued)

Borehole	510 Roof	510 Floor	501 Roof	501 Floor	500 Roof	500 Floor	502 Roof	502 Floor	520 Roof	520 Floor	540 Roof	540 Floor	560 Roof	560 Floor	670 Roof	670 Floor	650 Roof	650 For	630 Roof	630 Floor
WC0832C																				
WC0833			11.4	12.25			18.4	18.6	19.9	19.95	24.9	24.95							25.6	26.9
WC0834			65.25	66.25			71.6	71.8			78	78.1							78.85	80.4
WC0835			61.2	62.65			70.3	70.8			82.2	83~							89.1	90.8
WC0838																				
WC0841			59.1	59.95			66	66.6	81.45	81.7	94.95	95.25							96.6	98.2
WC0842			35.5	36.6			41.5	41.6			51.45	51.65							54.6	55.55
WC0844																				
WC0845																				
WC0846			29.2	31.05			31.35	32.7			41.2	42.1							54.35*	55.8*
WC0847																				
WC0848																				
WC0849			53.8	54.95			55.2	55.8			62.4	62.75							69.9	70.9
WC0850			18.45	19.45			19.95	20.5			25.5	25.75							33.55	33.9
WC0851			55.5	56.85			57.5	58.25			67.45	68.2							78.8	80
WC0854			45.35	46.3			48.4	48.9			56.05	56.45							64.95	65.45
WC0857			62	62.6			66.6	66.85			72.1	72.3							79.3	80.3
WC0863			60.4	61.1			65.85	65.9			75.8	75.9							77.3	78.25
WC0864			51.25	52.2			53	53.6			60.75	61.1							67.05	67.9
WC0865			61.4	67.2			68.6	72.3~											87.6	88.6
WC0869C																				
WC0870C					20.8	24.5														
WC0901P																				
WC0902P					4.4	6.93														
WC0904P																				
WC0905P																				
WC0906P																				
WC0907P																				
WC0908P																				
WC0909P																				
WC0910P																				
WC0911P																				
WC0912P																				
WC0913P																				
WC0914																				
WC0915																				
WC0916																				
WC0950																				
WC0951																				
WC0952																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 510 to floor of coal bed 630): Table A-5 (concluded)

Borehole	510 Roof	510 Floor	501 Roof	501 Floor	500 Roof	500 Floor	502 Roof	502 Floor	520 Roof	520 Floor	540 Roof	540 Floor	560 Roof	560 Floor	670 Roof	670 Floor	650 Roof	650 For	630 Roof	630 Floor
WC0953																				
WC0954																				
WC0955																				
WC0956																				
WC0957																				
WC0958																				
WC0959																				
WC0960																				
SRK1002																				
SRK1003																				
WC1004C																				
WC1101																				
WC1102																				
WC1103	114.9	115			122.2	123.75			125.87		127.41	127.81	128.93	129.7					134.68	134.73
WC1104	81.3	81.4			92.48	93.61			94.3	94.48	95.15	95.38							96.35	96.4
WC1105					79.8	80.59					85.3	85.6							92.25	92.35
WC1106																				
WC1107	99.7	100			109.3	111.98~			131.7	131.86	132.43	133.42	135.05	135.22					139.4	139.45
4N1-13-1																				
4N1-13-2																				
4N1-13-3																				
7N2-13-1																				
7N2-13-2																				
7N2-13-3																				
7N2-13-4																				
7N2-13-5																				
7N2-13-6																				
7N2-13-7																				

Note: this table is compiled by L.R. LeMay. Number of asterisks (*) indicates number of partings within a given coal bed. A tilde (~) indicates that more than one intersection of a given coal bed is present within the borehole due a fault and/or repeat of the coal beds; only the topmost section is recorded here. All depths are downhole depths, along borehole trajectory, given in meters below the borehole's collar.

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 610 to floor of coal bed 703) : Table A-6

Borehole	610 Roof	610 Floor	601 Roof	601 Floor	600 roof	600 Floor	620 Roof	620 Floor	640 Roof	640 Floor	770 roof	770 Floor	750 Roof	750 Floor	730 Roof	730 Floor	710 Roof	710 Floor	703 Roof	703 Floor
WRH20011					5.7***	21.65***														
WRH20012	6.6	7.05			8.65	11.65	14.1	14.45	21.4	22.3					29	29.15	38.15	38.55	41.2	41.5
WRH20013							1.75	2.2	9.35	10.25					17.5	17.75	27.7	28.7	30.65	31
WRH20014																				
WRH20015																				
WRH20017C															9.6	10.25	26.2	26.75		
WRH20018C																				
WRH20019C															9.8	10.5	27.65	28.25		
WRH200110					3.73*	6.81*														
WRH200111															9.65	10.5	29.25	29.7		
WRH200112															9.65	10.25	26.8	27.4		
WRH200113																				
WRH200114																	10.8	11		
WRH200115																	15	15.55		
WRH200116	16.9	17.25			19	22.5														
WRH200117	18.7	19.2			21	24.75									35.7	36	52.6	53.1		
WRH200118																				
WRH200119																				
WRH200120C																				
WRH200121C					242.8	245.5											278.2	279		
WC0501																				
WC0502																				
WC0503																	25.6	25.8		
WC0504																				
WC0505					5.7*	10.5*														
WC0506																				
WC0507																				
WC0508																				
WC0509					42.7	47											103.9	104.3		
WC0510																	32.8	33.45		
WC0511																				
WC0512																				
WC0513	29.3	29.5			31.3	34.5											72.25	72.55		
WC0514	70	70.5			73.25	76.1											134.8	135.1		
WC0515																				
WC0516																				
WC0517	128	128.4																		
WC0518	39.4	39.9			40.6	43.5											83.9	84.3		

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 610 to floor of coal bed 703) : Table A-6 (continued)

Borehole	610 Roof	610 Floor	601 Roof	601 Floor	600 roof	600 Floor	620 Roof	620 Floor	640 Roof	640 Floor	770 roof	770 Floor	750 Roof	750 Floor	730 Roof	730 Floor	710 Roof	710 Floor	703 Roof	703 Floor
WC0519																				
WC0520																				
WC0521	96.8	97.4			100	104.7														
WC0522																	44.1	44.5		
WC0523																				
WC0524																	23.9	24.1		
WC0525																				
WC0526																				
WC0527																				
WC0528					1.2	3														
WC0701A					55.25	57.6														
WC0701B																				
WC0702					65.5	69.7~														
WC0703															27.3	27.85	41.8	42.15		
WC0704					40.3	43.8											82.2	82.5		
WC0705					112.35	115.45														
WC0706					105.8	108.75											153.15	153.35		
WC0709	54.95	55.05			55.9	58.6					68.55	69.05	69.45	69.55						
WC0710					76.2	78.9~														
WC07101C					18.3	21.15											51.1	51.5		
WC0711					33	35.6~											106.7	107.05		
WC0712																				
WC0713					73.3	76.15											124.95	125.25		
WC0714					60.1	62.9~											104.7	105.85		
WC0715	43.7	44.05			44.65	51.1					61.4	61.5	63.2	63.3	72.3	72.5	95.3	95.9		
WC0716C					5.3	8.3~											70.7	71.5		
WC0717					31.5	36.75~											93.35	94.2		
WC0718					49	51.8~											103.6	104.2		
WC0719					42.75	45.15											90.25	90.9		
WC0720					49	51.4											95.7	96.3		
WC0721					42.4	44.8~											89.75	90.45		
WC0722					33.45	36.05											77.3*	79.85*		
WC0723					65.85	68.55											105.7	106.2		
WC0724					19.45	20.8~											84.4	85.2		
WC0726					42.7	45.5											82.1	82.7		
WC0728					36.5	39.55~											101.7	102.3		
WC0730					66.4	68.6														
WC0731																	14.3	15.3		

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 610 to floor of coal bed 703) : Table A-6 (continued)

Borehole	610 Roof	610 Floor	601 Roof	601 Floor	600 roof	600 Floor	620 Roof	620 Floor	640 Roof	640 Floor	770 roof	770 Floor	750 Roof	750 Floor	730 Roof	730 Floor	710 Roof	710 Floor	703 Roof	703 Floor
WC0732					33.25	36.2											73.3	74.05		
WC0733					63.55	66.55											105.3	105.75		
WC0734					0.5	2.75											36.3	35.9		
WC0735					93.15	96.25											127.2	127.85		
WC0736					66.1	70.95											101.85	102.65		
WC0737																	19.95	20.65		
WC0738					33.7	36.55											60.5	61.25		
WC0739					76.6	79.85											105.8	106.3		
WC0740																				
WC0743																				
WC0745																				
WC0747																				
WC0748																				
WC0749																				
WC0751																				
WC0752																				
WC0753																				
WC0755C																				
WC0761					55.25	58.1											82.4	83.6		
WC0762																	5.85	6.1		
WC0763					33.45	36.25											57	57.35		
WC0764					41.35	43.5											65.6	65.95		
WC0765																	4.1	4.3		
WC0766					25.65	28.6											51.2	51.4		
WC0767					75.2	77.7											95.65	95.85		
WC0768					119.15	121.95														
WC0769					9.1	12.5~											35.1	38.1		
WC0770					59.8	62.6											79.25	79.55		
WC0771																				
WC0772					17.2	21											43.2	43.75		
WC0773																				
WC0774					4.7	7.5											24.4	24.6		
WC0776																				
WC0778																				
WC0779					137.4	147.75														
WC0780																				
WC0781					107	107.3~											173.8	174.25		
WC0783																				
WC0784					94.2*	99.4*~														
WC0785																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 610 to floor of coal bed 703) : Table A-6 (continued)

Borehole	610 Roof	610 Floor	601 Roof	601 Floor	600 roof	600 Floor	620 Roof	620 Floor	640 Roof	640 Floor	770 roof	770 Floor	750 Roof	750 Floor	730 Roof	730 Floor	710 Roof	710 Floor	703 Roof	703 Floor
WC0787																				
WC0788																				
WC0789																				
WC0790	53.65	53.75	54.65	55.8	56	57.2											73.5	73.8		
WC0791			85.45	86.6	86.9	88.05											103.55	103.85		
WC0792			132.85	134.65	135	136.85											160.5	160.7		
WC0795																				
WC0797					155.5	159.2														
WC0799																				
WC0801																	7.9	8.1		
WC0802																	9.6	9.75		
WC0804	63.5	63.8	65.25	66.7	66.95	67.8														
WC0804A					47.4	48.8														
WC0805																				
WC0805A																				
WC0806																				
WC0806A																				
WC0807																				
WC0808															13.55	13.7	19.4	19.5		
WC0809			123.2	124	125.25	126.3														
WC0810			191.45	192.45~	197.5	198														
WC0811																	18.1	18.45		
WC0811A	26.1	26.5			26.7	29														
WC0813			75.9	76.35	79.7	80.65														
WC0814			134.7	135.05	146.4	147														
WC0815																				
WC0817			104.5	104.9	106.9	107.85														
WC0818			69.5	39.9	71.7	72.55														
WC0819	72.45	72.65	84.45	84.7	88.3	89.6							93.2	93.35	112	113.6	118.9	119.15		
WC0820																				
WC0821																				
WC0822																				
WC0823					81.6	82.8									92.1	92.3	97.5	97.7		
WC0824	70.8	71.05	79.45	79.8	81.3	82.35											98.5	98.75		
WC0826																				
WC0827																				
WC0828	7.8	7.85	11.05	11.65	13.2	14.2									28.85	26.15	30.6	30.85		
WC0829			91.65	92.05	93.65	94.7									103.9	104.2	108.4	108.6		
WC0830			86.6*	87.95*	97.35	98.4							105.4	105.6	111.2	111.4				
WC0831																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 610 to floor of coal bed 703) : Table A-6 (continued)

Borehole	610 Roof	610 Floor	601 Roof	601 Floor	600 roof	600 Floor	620 Roof	620 Floor	640 Roof	640 Floor	770 roof	770 Floor	750 Roof	750 Floor	730 Roof	730 Floor	710 Roof	710 Floor	703 Roof	703 Floor
WC0832C																				
WC0833			29.7	30.2	33.15	34.05									48.9	49.1	53.45	53.5		
WC0834			83.15	83.7	87	88									100.3	100.6	105.2	105.45		
WC0835			109.2	109.45	113.05	113.8							120.3	120.6	129.75	130.45				
WC0838																				
WC0841			106	106.2	108.6	110.4														
WC0842																				
WC0844																				
WC0845																				
WC0846			61.4	63.4	64.1	66.9														
WC0847																	7.3	7.4		
WC0848			9.95	10.8	11.4	12.7							17.65	17.8	25.05	25.3	32	32.2		
WC0849			75.75	76.6	78.2	79.15							85.6	85.7	92.5	92.7	97.6	97.95		
WC0850			44.25	44.7	45.7	46.8														
WC0851	81.55	81.9	92.75	93.25	96	97.3														
WC0854			73.6	73.7	75.5	76.4											97.3	97.7		
WC0857			89.2	89.4	99.5	100.4							107.6	107.75	111.7	112.25~	126.5	126.65		
WC0863			85.6	85.85	93.3	93.75									103.6	103.65	111.7	111.9		
WC0864			79.9	80.2	84.45*	85.7*							92.15	92.3						
WC0865	89.2	89.6	92.65	95.3	95.6	96.9							105.4	105.7						
WC0869C																				
WC0870C					30	37.7											89	89.8		
WC0901P															10.22	10.85	19.3	19.45		
WC0902P					23.82	26.7														
WC0904P																				
WC0905P																				
WC0906P	20.15	20.5			21.75	25.1														
WC0907P																				
WC0908P																				
WC0909P																				
WC0910P																				
WC0911P																				
WC0912P																				
WC0913P																				
WC0914																				
WC0915																				
WC0916																				
WC0950																				
WC0951																				
WC0952																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 610 to floor of coal bed 703) : Table A-6 (concluded)

Borehole	610 Roof	610 Floor	601 Roof	601 Floor	600 roof	600 Floor	620 Roof	620 Floor	640 Roof	640 Floor	770 roof	770 Floor	750 Roof	750 Floor	730 Roof	730 Floor	710 Roof	710 Floor	703 Roof	703 Floor
WC0953																				
WC0954																				
WC0955																				
WC0956																				
WC0957																				
WC0958																				
WC0959																				
WC0960																				
SRK1002																				
SRK1003																				
WC1004C																				
WC1101																				
WC1102																				
WC1103	136.1	136.2			137.4	139					150.4	150.5	151.35	151.42	158.3	158.4	174.53	175.1		
WC1104	97.18	97.22			98.91	99.51					109.5	109.6	110.5	110.6	116.7	116.8	128.8.	129.12		
WC1105	93.2	93.3			95	96.06					103.1	103.2	103.9	104	108	108.1				
WC1106																				
WC1107	141	141.07			143.16						158.35	158.45	159.5	159.6	166.95	167.05				
4N1-13-1																				
4N1-13-2																				
4N1-13-3																				
7N2-13-1																				
7N2-13-2																				
7N2-13-3																				
7N2-13-4																				
7N2-13-5																				
7N2-13-6																				
7N2-13-7																				

Note: this table is compiled by L.R. LeMay. Number of asterisks (*) indicates number of partings within a given coal bed. A tilde (~) indicates that more than one intersection of a given coal bed is present within the borehole due a fault and/or repeat of the coal beds; only the topmost section is recorded here. All depths are downhole depths, along borehole trajectory, given in meters below the borehole's collar.

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 701 to floor of coal bed 920): Table A-7

Borehole	701 Roof	701 Floor	700 roof	700 Floor	702 Roof	702 Floor	721 Roof	721 Floor	720 Roof	720 Floor	722 Roof	722 Floor	800 Roof	800 Floor	802 Roof	802 Floor	900 Roof	900 Floor	920 Roof	920 Floor
WRH20011			28.4	38.8~			49.75	50.2	50.5	52.3										
WRH20012	41.6	45.25	45.4	46.6			48.55	48.95	49.2	50.8										
WRH20013	31.1	34.8	34.95	36.15			38.75	39.2	39.45	41.05										
WRH20014																				
WRH20015																				
WRH20017C			29.8	33.3	33.8	34.9	36.15	36.5	36.95	38.4										
WRH20018C	16.95	22.4	22.55	24.3			25.75	26.24	27.2	29.39										
WRH20019C	30.5	34.2	34.45	35.65			36.3	36.75												
WRH200110																				
WRH200111	31.55	35.5	35.8	37			37.65	38.1	38.6	40.15										
WRH200112			30	33.9	34.2	35.3	36.15	36.6	37.15	38.65										
WRH200113																				
WRH200114	17.25	20.75	21	22.25			24.85	25.25	25.5	27.1										
WRH200115			19	22.5	22.9	23.9	25.85	26.25	26.55	27.95										
WRH200116																				
WRH200117	55.55	58.85	59.2	60.25			60.75	62.15	62.5	64										
WRH200118																				
WRH200119																				
WRH200120C																				
WRH200121C			280	283.45					284.7	286.15										
WC0501			24.7	28.9	29.2	31	32.1	32.5	32.8	34.5										
WC0502			6.6	11.7	12	13.2	14.3	14.6	15	16.9~										
WC0503			26.1	33.6			35.4	35.9	36.2	38.7										
WC0504			55.3	62.9			63.6	63.8	64.2	65.7										
WC0505			49.3	52.4	52.7	53.7			55.5	57										
WC0506			44.5	50.5					52	53.9										
WC0507																				
WC0508																				
WC0509	104.3	106	106	109.2	109.2	110.7	111.4	111.8	112.2	114.3										
WC0510	33.45	35.45	35.45	38.75	38.75	40.2~	47.6	48.2	48.6	51.5~										
WC0511																				
WC0512			39.1	45.9			47.1	47.4	47.9	49.2~										
WC0513	72.55	73.45	73.45	76.2	76.4	78.4	79.7	80	80.5	82.5~										
WC0514	135.1	135.75~	170.5**	173.8**																
WC0515																				
WC0516																				
WC0517																				
WC0518	84.5	86.7	86.7	90.2	90.5	92.3	94.2	94.7	95.2	97.3	97.8	98.2								

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 701 to floor of coal bed 920): Table A-7 (continued)

Borehole	701 Roof	701 Floor	700 roof	700 Floor	702 Roof	702 Floor	721 Roof	721 Floor	720 Roof	720 Floor	722 Roof	722 Floor	800 Roof	800 Floor	802 Roof	802 Floor	900 Roof	900 Floor	920 Roof	920 Floor
WC0519																				
WC0520			7.4*[7]	31.5*[7]																
WC0521																				
WC0522	44.7	47.3	47.3	50.4	50.5	52.2	54.3	54.8	55.7	57.7										
WC0523			24.6	31.4			34.2	34.5	35.3	37.1										
WC0524			24.4	29	29.3	30.7	31.8	32.2	32.6	34.8										
WC0525			6	11.8					12.2	14.7			46.7	47.9	48.4	50.6				
WC0526			23.2	29.3					29.3	31.2	31.7	31.9~								
WC0527			8.6	19.7	20.1	23.8	29.2	29.9	30.3	31.8										
WC0528			40.2	43.5	43.9	44.9			46	47.8										
WC0701A			81.1	85					86	87.5										
WC0701B																				
WC0702			103.6	105.35	105.35	106.3	107	107.5	109.1	111.05										
WC0703	42.15	44.4	44.4	48.75	49	50.15	58.5	58.8	59.4	61.2										
WC0704	82.5	84.6	84.6	87.15	87.3	88.5	89.4	89.65	90.25	92.15										
WC0705																				
WC0706	153.35	154.45	154.65	157																
WC0709																				
WC0710	123.5	124.55	124.7	128.1	128.1	129.2	129.7	130.2	131.05	132.7										
WC07101C	51.5	53.2	53.2	55.1	55.3	56.15	57.6	57.9	58.6	59.9										
WC0711	107.2	108.05	108.15	111.75	111.95	113.35	113.8	114.15	115.55	117.55										
WC0712	20.2	21	21	23.15	23.3	24.8			25.95	26.95										
WC0713			125.25	126.65	126.65	127.4			128.4	129.7~										
WC0714			106.05	109.2	109.35	110.65	111.4	111.6	112.2	114										
WC0715			96.4	98.6	98.8	101.55	102.05	102.4	103.25	106.1										
WC0716C	71.5	72.65	72.65	74.65	74.65	76.05	76.45	76.7	76.7	78.55										
WC0717	94.5	95.45	95.45	96.1	96.1	97.05~	110.05	110.45	110.75	112.85										
WC0718	104.6	105.6	105.6	107	107	108	108.8	109.1	109.5	111.1										
WC0719	91.5	92.5	92.5	93.7	93.8	94.9	95.6	95.9	96.3	97.9										
WC0720	96.75	97.9	97.9	99.4	99.5	100.7	101.2	101.45	101.95	103.5										
WC0721	90.8	91.35	91.35	91.85	91.9	93	93.35	93.65	93.65	94.2~			128	131.3						
WC0722	80.55	81.8	81.8	83.1	83.2	84.2	84.8	85.1	85.7	87.1			113.15	113.6	114.1	114.55~				
WC0723	107	108	108	109.05	109.2	110.25	110.7	111.05	111.7	113.2										
WC0724	85.65	86.4	86.4	88	88.25	89.05	90.2	90.45	90.45	91.5										
WC0726	84.25	85.3	85.3	87.3	87.8	89.2	89.5	89.8	90.1	91.55~			119.3	120.25	120.65	121.2				
WC0728	103.3	104.4	104.4	106.1	106.2	107.4	108.05	108.6	108.8	110.35										
WC0730																				
WC0731			16.4	18.25	18.5	18.95			19.75	21.45			48.95	49.85	50.05	50.8				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 701 to floor of coal bed 920): Table A-7 (continued)

Borehole	701 Roof	701 Floor	700 roof	700 Floor	702 Roof	702 Floor	721 Roof	721 Floor	720 Roof	720 Floor	722 Roof	722 Floor	800 Roof	800 Floor	802 Roof	802 Floor	900 Roof	900 Floor	920 Roof	920 Floor
WC0732			75.8	77.3	77.6	78.4			79.5	81.05										
WC0733			107.75	110.05	110.45	111.1			112	113.65										
WC0734			38.45	40.3	40.65	41.5			42.4	44.1			77.65	78.95						
WC0735			129.85	131.25	131.4	132.3			132.9	134.2										
WC0736			108.15	109.9	110.2	111.1			111.45	113.2										
WC0737			26.05	28.05	28.5	29.4			32.1	33.45			56.75	57.6	57.6	58.25				
WC0738			67.95	69.75	70.25	71.05			72	73.8										
WC0739			121.7	123.8	124.2	125.25			125.95	128										
WC0740																				
WC0743																				
WC0745																				
WC0747																				
WC0748																				
WC0749																				
WC0751																				
WC0752																				
WC0753																				
WC0755C																				
WC0761			92.1	94.3	94.7	96.35			97.25	99.4			124.1	125.55	126.55					
WC0762			16	17.3	18.2	19.2~			23.9	24.9			47.9	48.6	48.6	49.4				
WC0763			69.2	70.6	70.95	71.8			72.4	74.15										
WC0764			78.85	80.4	80.7	81.65			82.4	84.35										
WC0765			16.7	18	18.75	19.65			24.35	25.65			48	49	49	49.75				
WC0766			68.1	69.3	69.85	70.7			72.6	74.35			102	102.9	102.9	103.7				
WC0767			112.25	113.8	114.25	115.05			115.5	117.3										
WC0768																				
WC0769																				
WC0770			100.8	101.9	102.45	103.35			103.95	108.85										
WC0771			19.45	20.65	22.15	22.75			23.55	25.2			47.2	48.05	48.05	48.9				
WC0772			68.15	69.3	70.4	71.45	73.4	74.2	74.2	75.5										
WC0773			18.1	18.9	22.1	22.95	23.6	24.3	24.3	25.5			48.75	49.65	49.65	50.5				
WC0774			44.6	45.2	46.6	47.45	51	51.55	51.75	52.75										
WC0776																				
WC0778																				
WC0779																				
WC0780																				
WC0781																				
WC0783																				
WC0784			167.6	174																
WC0785																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 701 to floor of coal bed 920): Table A-7 (continued)

Borehole	701 Roof	701 Floor	700 roof	700 Floor	702 Roof	702 Floor	721 Roof	721 Floor	720 Roof	720 Floor	722 Roof	722 Floor	800 Roof	800 Floor	802 Roof	802 Floor	900 Roof	900 Floor	920 Roof	920 Floor
WC0787																				
WC0788																				
WC0789																				
WC0790			96.35	97.25	98.1	98.95	99.75	100.3	100.4	101.4										
WC0791			126.55	127.55	128.25	129.05	129.65	130.25	130.35	131.25										
WC0792			177.5	178																
WC0795																				
WC0797																				
WC0799			24.2*	31.5*~																
WC0801			28.15	28.8	31.5	32.25	33.35	33.9	34.05	34.55										
WC0802			30	30.6	32.2	33	36.3	36.75	37.25	38.1										
WC0804			104.05	104.5	106.2	106.7	111.9	112.2	112.3	113~										
WC0804A			80.4*	85.5*																
WC0805																				
WC0805A																				
WC0806																				
WC0806A																				
WC0807			10.95	11.75	19.2	20	20.8	21.45	22.75	24			44.9	45.6	45.9	46.9~	86.4	87.05		
WC0808			33.3	34.05	36.7	37.4	40.8	41.05	42.6	43.55			62.3	63	63.15*	64*				
WC0809																				
WC0810																				
WC0811			26.8	27.65	35.1	35.75	36.4	36.85	41.4	42.35										
WC0811A			62.4	66.65					70.2	71.75										
WC0813			111.55	112.75	114.25	115.1	115.85	116.3	119.85	20.75										
WC0814																				
WC0815																				
WC0817			132.55	133.25																
WC0818			103.4	104.25	106.35	107	107.5	107.75	113.45	114.15										
WC0819																				
WC0820																				
WC0821																				
WC0822					19.2	19.75	20.5	20.9	22.7	23.45			40.1	40.7	42.4	42.55	81.2	81.75		
WC0823			101.3	102.1	117.6	118.65	120.8	121	133.7	123.5			140.5	141.1						
WC0824			102.5	103.15	112.95	113.45	114.2	114.5	115.9	116.6			147.2	148.25	148.5	148.8				
WC0826																				
WC0827																				
WC0828			33.95	34.6	53.75	54.3	55.3	55.35	56.2	57.05			74	74.55			114.35	114.8		
WC0829			111.8	112.55	128.3	128.9	129.95	130.1	131.05	132			148	148.5	148.7	149.1				
WC0830																				
WC0831																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 701 to floor of coal bed 920): Table A-7 (continued)

Borehole	701 Roof	701 Floor	700 roof	700 Floor	702 Roof	702 Floor	721 Roof	721 Floor	720 Roof	720 Floor	722 Roof	722 Floor	800 Roof	800 Floor	802 Roof	802 Floor	900 Roof	900 Floor	920 Roof	920 Floor
WC0832C																				
WC0833			56.4	57.55	69.2	69.7	71.1	71.5	71.5	72.3										
WC0834			108.2	109.1	123.7	124.25	125.35	125.5	126.1	127.15										
WC0835																				
WC0838																				
WC0841																				
WC0842																				
WC0844			16.45	17.2	20.5	21.25	22.4	22.8	24	24.8										
WC0845																				
WC0846																				
WC0847			17.15	17.75	25.15	25.8	26.8	27.15	29.7	30.5			48.9	49.55	50.2	51				
WC0848			43.7	44.25	48	48.7														
WC0849			112.45	113.55	114.75	115.5	116	116.4	117.9	118.8			140.4	140.6	142.2	142.45				
WC0850			72.5	73.25	79.7	80.35	82.85	83	90.6	91.4										
WC0851																				
WC0854			102.25	103.1	107.15	107.8	108.45	108.8	111.3	112										
WC0857			131.1	132.55	147.75	148.8	149.9	150.3	152.2	157			181.6	182.25	182.5	182.7				
WC0863			114.25	115																
WC0864																				
WC0865																				
WC0869C																				
WC0870C			90.3	96.7	96.9	98.55	99.15	99.5	99.6	101.6			130.6	131.7	131.8	132.7				
WC0901P			19.95	23.1	23.2	24.45	27.3	27.55	28.2	29.9										
WC0902P																				
WC0904P																				
WC0905P																				
WC0906P																				
WC0907P													19.15	20.3	20.3	21.03				
WC0908P			23.44	24.58	28.15	29.15	30.3	30.85	31	32.4										
WC0909P																				
WC0910P																				
WC0911P																				
WC0912P																				
WC0913P																				
WC0914																	26.85	27.2		
WC0915																	10.85	11.65		
WC0916																				
WC0950																				
WC0951																				
WC0952																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 701 to floor of coal bed 920): **Table A-7** (continued)

Borehole	701 Roof	701 Floor	700 roof	700 Floor	702 Roof	702 Floor	721 Roof	721 Floor	720 Roof	720 Floor	722 Roof	722 Floor	800 Roof	800 Floor	802 Roof	802 Floor	900 Roof	900 Floor	920 Roof	920 Floor
WC0953																				
WC0954																				
WC0955																				
WC0956																				
WC0957																				
WC0958																				
WC0959																				
WC0960																				
SRK1002																				
SRK1003																				
WC1004C																				
WC1101																				
WC1102																				
WC1103			175.33	177.1	177.1	178.03	178.65	178.75	179.62	180.58										
WC1104			129.12	130.8	130.8	131.8	131.8	132.3	137.1	138.08			159.65	159.75	162	162.1	177.4	177.5	196.75	196.85
WC1105			117.2	119.24			122.45	123.24~	201.14	202.5										
WC1106																				
WC1107			179.18	182.6	182.6	183.86	184.36	184.5	185.49	186.85										
4N1-13-1																				
4N1-13-2																				
4N1-13-3																				
7N2-13-1																				
7N2-13-2																				
7N2-13-3																				
7N2-13-4																				
7N2-13-5																				
7N2-13-6																				
7N2-13-7																				

Note: this table is compiled by L.R. LeMay. Number of asterisks (*) indicates number of partings within a given coal bed. A tilde (~) indicates that more than one intersection of a given coal bed is present within the borehole due a fault and/or repeat of the coal beds; only the topmost section is recorded here. All depths are downhole depths, along borehole trajectory, given in meters below the borehole's collar.

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 980 to floor of coal bed 1080): **Table A-8**

Borehole	980 Roof	980 Floor	1090 Roof	1090 Floor	1070 Roof	1070 Floor	1010 Roof	1010 Floor	1003 Roof	1003 Floor	1001 Roof	1001 Floor	1000 Roof	1000 Floor	1020 Roof	1020 Floor	1060 Roof	1060 Floor	1080 Roof	1080 Floor
WRH20011																				
WRH20012																				
WRH20013																				
WRH20014																				
WRH20015																				
WRH20017C																				
WRH20018C																				
WRH20019C																				
WRH200110																				
WRH200111																				
WRH200112																				
WRH200113																				
WRH200114																				
WRH200115																				
WRH200116																				
WRH200117																				
WRH200118																				
WRH200119																				
WRH200120C																				
WRH200121C																				
WC0501																				
WC0502																				
WC0503																				
WC0504																				
WC0505																				
WC0506																				
WC0507																				
WC0508																				
WC0509																				
WC0510																				
WC0511																				
WC0512																				
WC0513																				
WC0514																				
WC0515																				
WC0516																				
WC0517																				
WC0518																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 980 to floor of coal bed 1080): **Table A-8** (continued)

Borehole	980 Roof	980 Floor	1090 Roof	1090 Floor	1070 Roof	1070 Floor	1010 Roof	1010 Floor	1003 Roof	1003 Floor	1001 Roof	1001 Floor	1000 Roof	1000 Floor	1020 Roof	1020 Floor	1060 Roof	1060 Floor	1080 Roof	1080 Floor
WC0519																				
WC0520																				
WC0521																				
WC0522																				
WC0523																				
WC0524																				
WC0525																				
WC0526																				
WC0527																				
WC0528																				
WC0701A																				
WC0701B																				
WC0702																				
WC0703																				
WC0704																				
WC0705																				
WC0706																				
WC0709																				
WC0710																				
WC07101C																				
WC0711																				
WC0712																				
WC0713																				
WC0714																				
WC0715																				
WC0716C																				
WC0717																				
WC0718																				
WC0719																				
WC0720																				
WC0721																				
WC0722																				
WC0723																				
WC0724																				
WC0726																				
WC0728																				
WC0730																				
WC0731																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 980 to floor of coal bed 1080): **Table A-8** (continued)

Borehole	980 Roof	980 Floor	1090 Roof	1090 Floor	1070 Roof	1070 Floor	1010 Roof	1010 Floor	1003 Roof	1003 Floor	1001 Roof	1001 Floor	1000 Roof	1000 Floor	1020 Roof	1020 Floor	1060 Roof	1060 Floor	1080 Roof	1080 Floor
WC0732																				
WC0733																				
WC0734																				
WC0735																				
WC0736																				
WC0737																				
WC0738																				
WC0739																				
WC0740																				
WC0743																				
WC0745																				
WC0747																				
WC0748																				
WC0749																				
WC0751																				
WC0752																				
WC0753																				
WC0755C																				
WC0761																				
WC0762																				
WC0763																				
WC0764																				
WC0765																				
WC0766																				
WC0767																				
WC0768																				
WC0769																				
WC0770																				
WC0771																				
WC0772																				
WC0773																				
WC0774																				
WC0776																				
WC0778																				
WC0779																				
WC0780																				
WC0781																				
WC0783																				
WC0784																				
WC0785																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 980 to floor of coal bed 1080): **Table A-8** (continued)

Borehole	980 Roof	980 Floor	1090 Roof	1090 Floor	1070 Roof	1070 Floor	1010 Roof	1010 Floor	1003 Roof	1003 Floor	1001 Roof	1001 Floor	1000 Roof	1000 Floor	1020 Roof	1020 Floor	1060 Roof	1060 Floor	1080 Roof	1080 Floor
WC0787																				
WC0788																				
WC0789																				
WC0790																				
WC0791																				
WC0792																				
WC0795																				
WC0797																				
WC0799																				
WC0801																				
WC0802																				
WC0804																				
WC0804A																				
WC0805																				
WC0805A																				
WC0806																				
WC0806A																				
WC0807	106.5	106.75					129.4	129.95					138.25	139.9						
WC0808																				
WC0809																				
WC0810																				
WC0811																				
WC0811A																				
WC0813																				
WC0814																				
WC0815																				
WC0817																				
WC0818																				
WC0819																				
WC0820																				
WC0821																				
WC0822													127.45	129.5						
WC0823																				
WC0824																				
WC0826																				
WC0827																				
WC0828			135.75	136	136.65	136.95			161.1	161.35	164.8	165	165.45*	168.2*						
WC0829																				
WC0830																				
WC0831																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 980 to floor of coal bed 1080): **Table A-8** (continued)

Borehole	980 Roof	980 Floor	1090 Roof	1090 Floor	1070 Roof	1070 Floor	1010 Roof	1010 Floor	1003 Roof	1003 Floor	1001 Roof	1001 Floor	1000 Roof	1000 Floor	1020 Roof	1020 Floor	1060 Roof	1060 Floor	1080 Roof	1080 Floor
WC0832C																				
WC0833																				
WC0834																				
WC0835																				
WC0838																				
WC0841																				
WC0842																				
WC0844																				
WC0845																				
WC0846																				
WC0847																				
WC0848																				
WC0849																				
WC0850																				
WC0851																				
WC0854																				
WC0857																				
WC0863																				
WC0864																				
WC0865																				
WC0869C																				
WC0870C																				
WC0901P																				
WC0902P																				
WC0904P																				
WC0905P																				
WC0906P																				
WC0907P																				
WC0908P																				
WC0909P																				
WC0910P																				
WC0911P																				
WC0912P																				
WC0913P																				
WC0914											70.18*	71.4*	79.85	81.7						
WC0915											57.55	57.9	66.75	68.34						
WC0916																				
WC0950									42.4	42.55	45.2*	46.1*	47***	50.15***	51.45	51.65	89.1	89.3		
WC0951																	36.75	37.2	43.85	44.3
WC0952																				

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 980 to floor of coal bed 1080): **Table A-8** (concluded)

Borehole	980 Roof	980 Floor	1090 Roof	1090 Floor	1070 Roof	1070 Floor	1010 Roof	1010 Floor	1003 Roof	1003 Floor	1001 Roof	1001 Floor	1000 Roof	1000 Floor	1020 Roof	1020 Floor	1060 Roof	1060 Floor	1080 Roof	1080 Floor
WC0953																				
WC0954									22.55	22.8	25.15	26.05	27.15**	30.7**			76.95	77.35	85.15	85.5
WC0955																	26.85	27.1	33.6	33.8
WC0956																				
WC0957																				
WC0958																				
WC0959																				
WC0960																				
SRK1002																				
SRK1003																				
WC1004C																				
WC1101																				
WC1102																				
WC1103																				
WC1104													212.7	212.9	223	233.2				
WC1105																				
WC1106																				
WC1107																				
4N1-13-1																				
4N1-13-2																				
4N1-13-3																				
7N2-13-1																				
7N2-13-2																				
7N2-13-3																				
7N2-13-4																				
7N2-13-5																				
7N2-13-6																				
7N2-13-7																				

Note: this table is compiled by L.R. LeMay. Number of asterisks (*) indicates number of partings within a given coal bed. A tilde (~) indicates that more than one intersection of a given coal bed is present within the borehole due a fault and/or repeat of the coal beds; only the topmost section is recorded here. All depths are downhole depths, along borehole trajectory, given in meters below the borehole's collar.

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 1101 to floor of coal bed 1160): **Table A-9**

Borehole	1101 Roof	1101 Floor	1100 Roof	1100 Floor	1102 Roof	1102 Floor	1120 Roof	1120 Floor	1140 Roof	1140 Floor	1160 Roof	1160 Floor	TD
WRH20011													58
WRH20012													66
WRH20013													57
WRH20014													33
WRH20015													40
WRH20017C													42
WRH20018C													30
WRH20019C													43
WRH200110													9
WRH200111													42
WRH200112													42
WRH200113													13
WRH200114													38
WRH200115													29
WRH200116													28
WRH200117													69
WRH200118													28
WRH200119													25
WRH200120C													294
WRH200121C													300
WC0501													44
WC0502													44
WC0503													44
WC0504													74
WC0505													62
WC0506													54
WC0507													9
WC0508													12
WC0509													123
WC0510													62
WC0511													117
WC0512													62
WC0513													98
WC0514													190
WC0515													74
WC0516													80
WC0517													129
WC0518													104

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 1101 to floor of coal bed 1160): **Table A-9 (continued)**

Borehole	1101 Roof	1101 Floor	1100 Roof	1100 Floor	1102 Roof	1102 Floor	1120 Roof	1120 Floor	1140 Roof	1140 Floor	1160 Roof	1160 Floor	TD
WC0519													92
WC0520													37
WC0521													110
WC0522													62
WC0523													44
WC0524													43
WC0525													62
WC0526													50
WC0527													38
WC0528													56
WC0701A													98
WC0701B													168
WC0702													122
WC0703													70
WC0704													101
WC0705													170
WC0706													186
WC0709													73
WC0710													146
WC07101C													64
WC0711													131
WC0712													55
WC0713													161
WC0714													128
WC0715													122
WC0716C													85
WC0717													131
WC0718													119
WC0719													99
WC0720													116
WC0721													140
WC0722													128
WC0723													131
WC0724													98
WC0726													140
WC0728													122
WC0730													79
WC0731													58

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 1101 to floor of coal bed 1160): **Table A-9 (continued)**

Borehole	1101 Roof	1101 Floor	1100 Roof	1100 Floor	1102 Roof	1102 Floor	1120 Roof	1120 Floor	1140 Roof	1140 Floor	1160 Roof	1160 Floor	TD
WC0732													92
WC0733													119
WC0734													88
WC0735													146
WC0736													131
WC0737													67
WC0738													82
WC0739													134
WC0740													107
WC0743													82
WC0745													104
WC0747													116
WC0748													40
WC0749													88
WC0751													46
WC0752													99
WC0753													130
WC0755C													52
WC0761													131
WC0762													58
WC0763													98
WC0764													88
WC0765													58
WC0766													122
WC0767													125
WC0768													131
WC0769													43
WC0770													122
WC0771													61
WC0772													88
WC0773													61
WC0774													70
WC0776													62
WC0778													60
WC0779													154
WC0780													73
WC0781													183
WC0783													91

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 1101 to floor of coal bed 1160): **Table A-9 (continued)**

Borehole	1101 Roof	1101 Floor	1100 Roof	1100 Floor	1102 Roof	1102 Floor	1120 Roof	1120 Floor	1140 Roof	1140 Floor	1160 Roof	1160 Floor	TD
WC0784													180
WC0785													98
WC0787													60
WC0788													98
WC0789													88
WC0790													110
WC0791													137
WC0792													183
WC0795													152
WC0797													168
WC0799													137
WC0801													39
WC0802													47
WC0804													152
WC0804A													88
WC0805													97
WC0805A													53
WC0806													120
WC0806A													101
WC0807													143
WC0808													84
WC0809													130
WC0810													203
WC0811													47
WC0811A													74
WC0813													136
WC0814													152
WC0815													139
WC0817													141
WC0818													126
WC0819													142
WC0820													159
WC0821													125
WC0822													164
WC0823													173
WC0824													165
WC0826													147
WC0827													155

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 1101 to floor of coal bed 1160): **Table A-9 (continued)**

Borehole	1101 Roof	1101 Floor	1100 Roof	1100 Floor	1102 Roof	1102 Floor	1120 Roof	1120 Floor	1140 Roof	1140 Floor	1160 Roof	1160 Floor	TD
WC0828													185
WC0829													162
WC0830													121
WC0831													147
WC0832C													173
WC0833													81
WC0834													141
WC0835													138
WC0838													166
WC0841													113
WC0842													61
WC0844													30
WC0845													30
WC0846													81
WC0847													69
WC0848													50
WC0849													152
WC0850													102
WC0851													103
WC0854													123
WC0857													192
WC0863													122
WC0864													103
WC0865													112
WC0869C													145
WC0870C													158
WC0901P													40
WC0902P													34
WC0904P													25
WC0905P													43
WC0906P													30
WC0907P													30
WC0908P													39
WC0909P													30
WC0910P													34
WC0911P													43
WC0912P													30
WC0913P													37

Coalbed roofs and floors in selected historic boreholes and in current boreholes (roof of coal bed 1101 to floor of coal bed 1160): **Table A-9 (concluded)**

Borehole	1101 Roof	1101 Floor	1100 Roof	1100 Floor	1102 Roof	1102 Floor	1120 Roof	1120 Floor	1140 Roof	1140 Floor	1160 Roof	1160 Floor	TD
WC0914													88
WC0915													110
WC0916													110
WC0950													101
WC0951	114.25	116.2			116.9	117.45							118
WC0952	5.5	6.5			7	7.7	27.3	27.9	51.4	51.85	55.1	55.3	98
WC0953	45.2	46.35			46.75	47.6	65.65	66.3	88.6	89	96.7	97.1	119
WC0954													127
WC0955	92.3	93.2	93.2	94.15	95	95.45							125
WC0956	17.6	18.7			18.7*	21.2*	36.35	36.55					110
WC0957	40	40.8			42.5*	44.75*	66.4	66.7	91.05	91.45	98.3	99.1	110
WC0958	25.3	25.85			27.65	28.25	44.1	44.5	65	65.15	70.1*	72.2*	131
WC0959	17.6	18.5			19.8	20.35	36.6	37.1	59.7	59.9	62.95*	65.15*	131
WC0960	28.55	28.95			31.7	33.05	49.25	49.65	71.65	71.8	74.85*	77.2*	131
SRK1002													96
SRK1003													13
WC1004C													173
WC1101													79
WC1102													61
WC1103													195
WC1104													235
WC1105													210
WC1106													49
WC1107													195
4N1-13-1													48
4N1-13-2													50
4N1-13-3													66
7N2-13-1													52
7N2-13-2													50
7N2-13-3													49
7N2-13-4													32
7N2-13-5													62
7N2-13-6													71
7N2-13-7													66

Note: this table is compiled by L.R. LeMay. Number of asterisks (*) indicates number of partings within a given coal bed. A tilde (~) indicates that more than one intersection of a given coal bed is present within the borehole due a fault and/or repeat of the coal beds; only the topmost section is recorded here. All depths are downhole depths, along borehole trajectory, given in meters below the borehole's collar. 'TD' denotes total depth of borehole, rounded to nearest metre.

Raw-coal quality data: Appendix B

Raw-coal quality data have been located, and are here-presented, for core samples taken in the course of year-2008, year-2009, year-2010, and year-2013 drilling programmes.

Year-2008 raw-coal quality data are available for the following boreholes:

- WC08-32C, and WC08-69C

Neither sample inventories, nor core logs, have yet been found for these boreholes, whose analytical results are therefore submitted only as a scanned copy of the analytical report from Birtley Coal & Minerals Testing.

Year-2009 raw-coal quality data are available for the following boreholes:

- WC09-01C, WC09-02C, WC09-05C, WC09-06C, WC09-07C, and WC09-08C;
- WC09-09C, WC09-10C, WC09-11C, WC09-12C, and WC09-13C.

Neither sample inventories, nor core logs, have yet been found for these boreholes, whose analytical results are therefore submitted only as a scanned copy of the analytical report from Birtley Coal & Minerals Testing.

Year-2010 raw-coal quality data are available for the following borehole:

- SRK 10-02

Neither sample inventory, nor core log, have yet been found for this borehole, whose analytical results are therefore submitted only as a scanned copy of the analytical report from Birtley Coal & Minerals Testing.

Year-2013 raw-coal quality data are available for the following boreholes:

- 4N1-13-1, 4N1-13-2, 4N1-13-3, 4N1-13-5, 4N1-13-6, and 4N1-13-7;
- 7N2-13-1, 7N2-13-2, 7N2-13-3, 7N2-13-4, 7N2-13-5, 7N2-13-6, 7N2-13-7, and 7N2-13-8

With the exception of petrographic and reflectometric work, which was done by Pearson Coal Petrography, analyses during year-2013 are believed to have been done in-house. Analytical certificates therefore are unlikely to exist.

Year-2013 data are only available in spreadsheet format, presented as an appendix to an internal company report (Avery and Voyle, 2013). **Table B-1**, given below, is based upon that spreadsheet, with the addition of cross-references to reports by Pearson Coal Petrography (which are presented in scanned format, as confidential **Appendix D** to the present report).

Year-2013 sample inventory and raw-coal quality data: **Table B-1**

	Geophysical log interpretation				Core data			Pearson petrographic lab number	Laboratory analysis								
Borehole	Seam	Depths in metres		metres	metres	Core recovery %	Sample No.		Date	Sample No.	FSI	% dry basis		ddpm	%	% dry basis	
		From	To	Thickness	Recovered length							Quick ash	Volatile matter	maximum Gieseler fluidity	Light transmission	Sulphur	
4N1-13-1	410	36.9	37.5	0.6	0.35	58	4N1 - 13 -1 - 1532	P-27287	14-Feb-13	4N1 - 13 -1 - 1532	1.0	4.12	18.98		99.4	0.657	
4N1-13-1	401	39	39.35	0.35	0.49	100	4N1 - 13 -1 - 1533	P-27288	14-Feb-13	4N1 - 13 -1 - 1533	1.0	36.50	15.02		99.0	0.362	
4N1-13-1	400	40.75	41.45	0.7	0.41	59	4N1 - 13 -1 - 1534	P-27289	14-Feb-13	4N1 - 13 -1 - 1534	1.0	54.43	14.52		99.4	0.287	
4N1-13-1	400	41.75	41.95	0.2	0	0	No Sample										
4N1-13-1	440	43.5	44.3	0.8	0.76	95	4N1 - 13 -1 - 1535	P-27290	14-Feb-13	4N1 - 13 -1 - 1535	3.0	5.89	21.40		99.3	0.484	
4N1-13-1	460	44.7	44.85	0.15	0	0	No Sample										
4N1-13-1							Float		14-Feb-13	4N1-13-1-1533 - Float 1.60g	1.0	9.96	19.89		99.4	0.487	
4N1-13-1							Float		14-Feb-13	4N1-13-1-1534 - Float 1.60g	1.0	5.63	22.47		99.8	0.482	
4N1-13-2	430	32.2	32.55	0.35	0.36	100	4N1-13-2 1526	P-27291	13-Feb-13	4N1-13-2 1526	1.0	12.12	18.76	38	95.6	0.913	
4N1-13-2	410	36.8	37.05	0.25	0.26	100	4N1-13-2 1527		13-Feb-13	4N1-13-2 1527	5.5	29.91	28.2	N/A	89.6	0.994	
4N1-13-2	401	38.4	38.8	0.4	0.93	98	4N1-13-2 1528	P-27292	13-Feb-13	4N1-13-2 1528	4.0	4.96	20.51	58	96.5	0.629	
4N1-13-2	401P	38.8	38.9	0.1													
4N1-13-2	401	38.9	39.35	0.45													
4N1-13-2	400	40.65	41.35	0.7		11	4N1-13-2 1529	P-27293	13-Feb-13	4N1-13-2 1529	4.5	3.24	22.4	7	99.8	0.520	
4N1-13-2	400P	41.35	41.6	0.25	0.1												
4N1-13-2	400	41.6	42.7	1.1	0.3	27	4N1-13-2 1530	P-27294	13-Feb-13	4N1-13-2 1530	3.0	9.30	23.41	242	97.5	0.463	
4N1-13-2	440	44.3	44.85	0.55	0.3	55	4N1-13-2 1531	P-27295	13-Feb-13	4N1-13-2 1531	1.0	62.84	13.23	N/A	99.4	0.460	
4N1-13-2	460	45.2	45.5	0.3	0.05	17	No Sample										
4N1-13-3	410	54.45	55.05				No Sample										
4N1-13-3	410	55.5	55.85	0.95	0.67	71	4N1-13-3-A 1565	P-27476	22-Feb-13	4N1-13-3-A 1565	4.5	4.93	21.62	*waiting for results*	98.3	0.623	
4N1-13-3	401	56.4	56.7				4N1-13-3-B 1566		22-Feb-13	4N1-13-3-B 1566	1.0	8.43	20.05		97.5	0.493	
4N1-13-3	401	58.3	58.95	0.55	0.21	38	No Sample										
4N1-13-3	400	57.1	57.35	0.65	0.4	62	4N1-13-3-C 1568	P-27296	22-Feb-13	4N1-13-3-C 1568	1.0	24.81	26.82		97.9	0.339	
4N1-13-3	440				0.36		4N1-13-3-D1 1570	P-27297	22-Feb-13	4N1-13-3-D1 1570	2.0	3.85	19.98		97.9	0.455	
4N1-13-3	440	60.4	61.5	1.1	0.3	60	4N1-13-3-D2 1569	P-27298	22-Feb-13	4N1-13-3-D2 1569	8.0	11.19	22.68	232	98.1	0.493	
4N1-13-3	460	62.1	62.3	0.2	0.02	10	No Sample										
7N2-13-1	410	43.5	43.6	0.1	0.08	80	7N2-13-1-1553		17-Feb-13	7N2-13-1-1553	7.0	7.09	*waiting for results*	*waiting for results*	*waiting for results*	*waiting for results*	
7N2-13-1	400	44.1	44.55	0.45		0	No Sample										
7N2-13-1	400	44.9	45.3	0.4		0	No Sample										
7N2-13-1	420	47.05	47.35	0.3	0.61	100	7N2-13-1-1554	P-27299	17-Feb-13	7N2-13-1-1554	4.0	9.10	19.77	165	99.6	0.651	
7N2-13-2	400	39.85	40.9	1.05			7N2-13-2-1540	P-27300	15-Feb-13	7N2-13-2-1540	1.0	3.34	20.50		88.20	0.45	
7N2-13-2	400P	40.9	41.1	0.2	2.04		No Sample										
7N2-13-2	400	41.1	43.3	2.2			7N2-13-2-1541	P-27301	15-Feb-13	7N2-13-2-1541	6.0	7.15	22.27	6.00	98.60	0.478	
7N2-13-2							*Composite 1540:1541*	P-27347		*Composite 1540:1541*		4.50				0.46	
7N2-13-2	400 FW	43.3	43.8	0.5	1.04	78	No Sample										

Year-2013 sample inventory and raw-coal quality data: **Table B-1** (continued)

	Geophysical log interpretation				Core data			Pearson petrographic lab number	Laboratory analysis							
Borehole	Seam	Depths in metres		metres	metres	Core recovery %	Sample No.		Date	Sample No.	FSI	% dry basis		ddpm	%	% dry basis
		From	To	Thickness	Recovered length							Quick ash	Volatile matter	maximum Gieseler fluidity	Light transmission	Sulphur
7N2-13-3	401	36.05	36.45	0.4	0		No Sample									
7N2-13-3	400	36.95	38.95	2	0.13	85	7N2-13-3-1542	P-27302	16-Feb-13	7N2-13-3-1542	0.5	1.33	18.75		96.20	0.552
7N2-13-3					0.4		7N2-13-3-1543		16-Feb-13	7N2-13-3-1543	1.0	See composite results				
7N2-13-3					0.4		7N2-13-3-1544		16-Feb-13	7N2-13-3-1544	1.5					
7N2-13-3					0.4		7N2-13-3-1545		16-Feb-13	7N2-13-3-1545	1.5					
7N2-13-3					0.37		7N2-13-3-1546		16-Feb-13	7N2-13-3-1546	2.0					
7N2-13-3	400	39.4	41.95	2.55	0.55	66	7N2-13-3-1547		16-Feb-13	7N2-13-3-1547	4.5					
7N2-13-3					0.55		7N2-13-3-1548		16-Feb-13	7N2-13-3-1548	2.5					
7N2-13-3					0.56		7N2-13-3-1549		16-Feb-13	7N2-13-3-1549	7.0					
7N2-13-3	420	42.9	43.25	0.35	0.05	14	7N2-13-3-1550		16-Feb-13	7N2-13-3-1550	5.5	23.63	19.52	14	97.8	0.583
7N2-13-3	480	46.2	46.45	0.25	0.2	80	7N2-13-3-1551	P-27310	16-Feb-13	7N2-13-3-1551	1.5	5.36	19.06		97.2	0.618
7N2-13-3	480	46.65	47	0.35	0.33	94	7N2-13-3-1552	P-27311	16-Feb-13	7N2-13-3-1552	4.0	8.27	19.95	66	99.8	0.654
7N2-13-3							Composite		16-Feb-13	Comp-7N2-13-3	2.0	ASTM-2.98	20.46		98.0	0.487
7N2-13-4	410	15.9	16.1	0.2	0	0	No Sample									
7N2-13-4	401	19.45	19.8	0.35	0	0	No Sample									
7N2-13-4	400	20.45	21.6	1.15	0.51	44	7N2-13-4-1536		15-Feb-13	7N2-13-4-1536	1.0	7.94	21.11		98.40	0.498
7N2-13-4	400	21.75	22.45	0.7			7N2-13-4-1537	P-27312	15-Feb-13	7N2-13-4-1537	3.5	4.96	22.18	63.00	97.60	0.443
7N2-13-4							*Composite 1536:1537*	P-27345		*Composite 1536:1537*		6.83				0.47
7N2-13-4	400P	22.45	22.5	0.05	1.83		No Sample									
7N2-13-4	400	22.5	22.65	0.15	(scrubbed parting)		No Sample									
7N2-13-4	400P	22.65	22.8	0.15			No Sample									
7N2-13-4		22.8	24.05	1.25		80	No Sample									
7N2-13-4		24.6	25	0.4	0	0	No Sample									
7N2-13-4		29.5	29.7	0.2	0.15	75	7N2-13-4-1538	P-27313	15-Feb-13	7N2-13-4-1538	1.5	8.73	18.62		99.00	0.559
7N2-13-4		29.9	30.1	0.2	0.2	100	7N2-13-4-1539	P-27314	15-Feb-13	7N2-13-4-1539	1.0	30.15	15.61		95.00	0.446
7N2-13-5	401	45.8	46.2	0.4	0	0	No Sample									
7N2-13-5	400	47.15	49.8	2.65	1.47		7N2-13-5-1555	P-27316	18-Feb-13	7N2-13-5-1555	1.5	7.19	20.54		99.20	0.510
7N2-13-5	400	50.15	50.6	0.45	0.84	55	7N2-13-5-1556	P-27317	18-Feb-13	7N2-13-5-1556	3.5	3.60	21.7		99.40	0.430
7N2-13-5							*Composite 1555:1556*	P-27346		*Composite 1555:1556*		3.83				0.47
7N2-13-5	420	52.8	53.45	0.65	0.76	100	7N2-13-5-1557	P-27318	18-Feb-13	7N2-13-5-1557	1.0	8.92	19.12		97.90	0.531
7N2-13-5	400R	54.55	55.8	1.25	0.66	53	7N2-13-5-1558	P-27319	18-Feb-13	7N2-13-5-1558	2.5	3.78	19.84		98.60	0.437
7N2-13-5	400R	56.1	58.35	2.25	0.2	9	7N2-13-5-1559	P-27320	18-Feb-13	7N2-13-5-1559	9.0	1.73	23.78	33	98.80	0.471
7N2-13-6	400	61.7	61.95	0.25	0	0	No Sample									
7N2-13-6	420	62.3	62.95	0.65	0	0	No Sample									
7N2-13-6	400R	65.15	66.45	1.3			7N2-13-6-1560	P-27321	20-Feb-13	7N2-13-6-1560	1.0	21.27	19.14		99.2	0.588
7N2-13-6	400R	66.8	67.3	0.5	0.29	16	No Sample									
7N2-13-6	420	68.5	68.8	0.3	0	0	No Sample									
7N2-13-7	401	57.4	57.75	0.35	0	0	No Sample									
7N2-13-7	400	58.4	59.25	0.85	0.91	0.96	7N2-13-7-1561		21-Feb-13	7N2-13-7-1561	0.5	8.16	18.63		*waiting for results*	0.489
7N2-13-7	400 P	59.25	59.35	0.1												
7N2-13-7	400				0.97		7N2-13-7-1562	P-27322	21-Feb-13	7N2-13-7-1562	2.5	3.89	21.2		*waiting for results*	0.443

Year-2013 sample inventory and raw-coal quality data: **Table B-1** (continued)

	Geophysical log interpretation				Core data			Pearson petrographic lab number	Laboratory analysis								
Borehole	Seam	Depths in metres		metres	metres	Core recovery %	Sample No.		Date	Sample No.	FSI	% dry basis		ddpm	%	% dry basis
		From	To	Thickness	Recovered length							Quick ash	Volatile matter	maximum Gieseler fluidity	Light transmission	Sulphur
7N2-13-7	400	59.35	61.85	2.5	0.63	64	7N2-13-7-1563		21-Feb-13	7N2-13-7-1563	7.0	17.11	21.29	30	97	0.527
7N2-13-7	420	62.9	63.3	0.4	0	0	No Sample									
7N2-13-7	480	65	65.5	0.5	0.16	32	7N2-13-7-1564	P-27323	21-Feb-13	7N2-13-7-1564	5.0	37.23	17.43	7	*waiting for results*	0.514
7N2-13-8	300	10.3	10.6	0.3	0.3	100	7N2-13-8-8206	P-27324	20-Mar-13	7N2-13-8-8206	5.5	10.60	26.4	*waiting for results*	97.9	0.819
7N2-13-8		44.55	44.75	0.2	0.2	100	7N2-13-8-8207		20-Mar-13	7N2-13-8-8207	0.5	69.86	8.93		96.2	0.345
7N2-13-8	401?	46.58	47.5	0.92	0	0	No Sample									
7N2-13-8	400	48.1	49.5	1.4	0.1	7	No Sample									
7N2-13-8	480	55.55	56.35	0.8	0.68	85	7N2-13-8-8208	P-27325	20-Mar-13	7N2-13-8-8208	4.5	11.26	19.27		97.9	0.671
4N1-13-5	Bird	4.64	5.48	0.84	0.84	100	4N1-13-5-1771	P-27326	3-Apr-13	4N1-13-5-1771	9.0	18.33	22.85	387.50	*waiting for results*	0.792
4N1-13-5	110	22.7	23.5	0.80	0.80	100	4N1-13-5-1772	P-27327	3-Apr-13	4N1-13-5-1772	1.0	23.11	17.74		*waiting for results*	0.849
4N1-13-5	101	26.4	27	0.60	0.57	95.0	4N1-13-5-1773	P-27328	3-Apr-13	4N1-13-5-1773	3.0	7.97	19.67		*waiting for results*	0.809
4N1-13-5	101	27.4	27.7	0.30	0.30	100	4N1-13-5-1774	P-27329	3-Apr-13	4N1-13-5-1774	8.0	8.38	22.96	349.00	*waiting for results*	0.961
4N1-13-5	100	35	36.2	1.20	1.20	100	4N1-13-5-1775	P-27330	3-Apr-13	4N1-13-5-1775	2.5	20.51	19.01		*waiting for results*	0.621
4N1-13-5	201	50.3	50.4	0.10	0.10	100	No Sample									
4N1-13-5		61.5	62.1	0.60	0.60	100	4N1-13-5-1793	P-27477	3-Apr-13	4N1-13-5-1793	3.0	6.44	19.62		*waiting for results*	0.958
4N1-13-5	410	69.4	69.85	0.45	0.45	100	4N1-13-5-1794	P-27478	3-Apr-13	4N1-13-5-1794	9.0	5.44	22.90	372.50	*waiting for results*	0.806
4N1-13-5	401	70.6	71.9	1.30	1.30	100	4N1-13-5-1795		3-Apr-13	4N1-13-5-1795	3.5	7.27	19.27		*waiting for results*	0.583
4N1-13-5	400	73.4	74.2	0.80	0.80	100	4N1-13-5-1796	P-27331	3-Apr-13	4N1-13-5-1796	4.0	2.33	20.59		*waiting for results*	0.521
4N1-13-5	400	74.6	75.8	1.20	1.20	100	4N1-13-5-1797	P-27332	3-Apr-13	4N1-13-5-1797	4.5	23.60	19.09	52.50	*waiting for results*	0.421
4N1-13-5	440	77.3	77.9	0.60	0.60	100	4N1-13-5-1798	P-27333	3-Apr-13	4N1-13-5-1798	4.0	7.93	19.91		*waiting for results*	0.564
4N1-13-5	440	77.9	78.9	1.00	1.00	100	4N1-13-5-1799	P-27479	3-Apr-13	4N1-13-5-1799	7.5	11.81	23.16	*waiting for results*	*waiting for results*	0.615
4N1-13-5		81.15	81.35	0.20	0.20	100	No Sample									
4N1-13-5	480	87.35	87.6	0.25	0.25	100	4N1-13-5-1800	P-27334	3-Apr-13	4N1-13-5-1800	9.0	6.38	21.12	245.50	*waiting for results*	1.04
4N1-13-6	Bird	48.9	49.9	1	0.00	0.00										
4N1-13-6	Bird	50.3	50.5	0.2	0.00	0.00										
4N1-13-6		77.4	77.7	0.3	0.00	0.00										
4N1-13-6	110	96.5	97.6	1.1	1.10	100.00	4N1-13-6-1764	P-27480	3-Apr-13	4N1-13-6-1764	4.5	9.49	25.37	*waiting for results*	*waiting for results*	0.733
4N1-13-6	110	98.75	99.36	0.61	0.22	36.07	4N1-13-6-1765		3-Apr-13	4N1-13-6-1765	8.5	7.00	22.41	*waiting for results*	*waiting for results*	0.760
4N1-13-6	101	99.8	100.5	0.7	0.70	100.00	4N1-13-6-1766	P-27335	3-Apr-13	4N1-13-6-1766	6.0	17.50	22.64	27.50	*waiting for results*	0.595
4N1-13-6	100	102.7	103.38	0.68	0.68	100.00	4N1-13-6-1767	P-27336	3-Apr-13	4N1-13-6-1767	1.0	24.65	19.33		*waiting for results*	0.430
4N1-13-6	100	103.38	104.9	1.52	0.68	44.74	4N1-13-6-1768		3-Apr-13	4N1-13-6-1768	9.0	8.09	23.73	*waiting for results*	*waiting for results*	0.468
4N1-13-6		110.7	111.2	0.5	0.07	14.00	No Sample									
4N1-13-6	201	135.9	136.3	0.4	0.11	27.50	No Sample									
4N1-13-6	202	138.4	139	0.6	0.60	100.00	4N1-13-6-1769	P-27337	3-Apr-13	4N1-13-6-1769	1.0	14.19	20.59		*waiting for results*	0.859
4N1-13-6	300	154.4	154.6	0.2	0.20	100.00	4N1-13-6-1770		3-Apr-13	4N1-13-6-1770	5.0	30.18	17.30	*waiting for results*	*waiting for results*	0.790
4N1-13-6	401	171.6	174.1	2.5	1.15	46.00	4N1-13-6-1516	P-27338	3-Apr-13	4N1-13-6-1516	1.5	2.46	18.40		*waiting for results*	0.512
4N1-13-6	401	174.4	175.15	0.75	0.40	53.33	4N1-13-6-1517	P-27339	3-Apr-13	4N1-13-6-1517	1.5	17.45	17.44		*waiting for results*	0.401
4N1-13-6	400	176.5	179.1	2.6	0.00	0.00										
4N1-13-6	440	180.9	182.3	1.4	1.09	77.86	4N1-13-6-1518	P-27340	3-Apr-13	4N1-13-6-1518	1.0	9.61	21.82		*waiting for results*	0.447
4N1-13-6	480	187.6	187.8	0.2	0.20	100.00	4N1-13-6-1519		3-Apr-13	4N1-13-6-1519	1.0	21.76	19.94		*waiting for results*	0.799
4N1-13-7		52.3	52.8	0.50	0.50	100.00	4N1-13-5-1501	P-27481	3-Apr-13	4N1-13-7-1501	4.5	56.24	15.52	*waiting for results*	97.1	2.170
4N1-13-7	Bird	75.2	75.3	0.10	0.10	100.00	No Sample									

Year-2013 sample inventory and raw-coal quality data: **Table B-1** (concluded)

	Geophysical log interpretation				Core data			Pearson petrographic lab number	Laboratory analysis							
Borehole	Seam	Depths in metres		metres	metres	Core recovery %	Sample No.		Date	Sample No.	FSI	% dry basis		ddpm	%	% dry basis
		From	To	Thickness	Recovered length							Quick ash	Volatile matter	maximum Gieseler fluidity	Light transmission	Sulphur
4N1-13-7	110	97.4	98.60	1.20	1.15	95.83	4N1-13-5-1502	P-27482	3-Apr-13	4N1-13-7-1502	5.0	11.16	22.69	*waiting for results*	98.6	0.707
4N1-13-7	101	100.1	100.40	0.30	0.30	100.00	4N1-13-5-1503	P-27483	3-Apr-13	4N1-13-7-1503	6.5	29.35	17.67	*waiting for results*	96.1	0.803
4N1-13-7	101	100.4	101.20	0.80	0.80	100.00	4N1-13-5-1504	P-27341	3-Apr-13	4N1-13-7-1504	4.5	25.55	20.36	*waiting for results*	98.4	0.585
4N1-13-7	100	103.4	103.85	0.45	0.45	100.00	4N1-13-5-1505	P-27484	3-Apr-13	4N1-13-7-1505	9.0	7.46	18.08	*waiting for results*	98.1	0.529
4N1-13-7	100	103.85	105.30	1.45	1.45	100.00	4N1-13-5-1506	P-27485	3-Apr-13	4N1-13- 7-1506	8.0	16.37	22.83	*waiting for results*	96.7	0.549
4N1-13-7		113.4	113.80	0.40	0.40	100.00	4N1-13-5-1507	P-27486	3-Apr-13	4N1-13- 7-1507	7.0	19.99	21.97	*waiting for results*	98.2	0.763
4N1-13-7	201	135.4	135.80	0.40	0.40	100.00	4N1-13-5-1508	P-27342	3-Apr-13	4N1-13- 7-1508	2.5	22.81	18.08	*waiting for results*	97.1	0.625
4N1-13-7	202	136.7	137.35	0.65	0.65	100.00	4N1-13-5-1509	P-27487	3-Apr-13	4N1-13- 7-1509	6.0	24.86	18.63	*waiting for results*	98.1	0.678
4N1-13-7		142	142.30	0.30	0.30	100.00	4N1-13-5-1510	P-27488	3-Apr-13	4N1-13- 7-1510	8.0	17.27	19.87	*waiting for results*	98.5	0.916
4N1-13-7	300	150.2	150.50	0.30	0.30	100.00	4N1-13-5-1511	P-27489	3-Apr-13	4N1-13- 7-1511	8.0	19.53	19.07	*waiting for results*	98.6	0.971
4N1-13-7	410	172.8	175.50	2.70	1.50	55.56	4N1-13-5-1512	P-27343	3-Apr-13	4N1-13- 7-1512	1.0	4.95	18.35	*waiting for results*	96.8	0.462
4N1-13-7	401	176.2	177.50	1.30	0.55	42.31	4N1-13-5-1513	P-27344	3-Apr-13	4N1-13- 7-1513	1.0	4.91	19.40	*waiting for results*	99.6	0.534
4N1-13-7	400	179.2	180.80	1.60	1.60	100.00	4N1-13-5-1514	P-27490	3-Apr-13	4N1-13- 7-1514	5.5	7.91	23.02	*waiting for results*	98.8	0.506
4N1-13-7	480	186.2	186.50	0.30	0.30	100.00	4N1-13-5-1515		3-Apr-13	4N1-13- 7-1515	5.0	33.18	17.11	*waiting for results*	98.7	0.865

Notes: data as presented by Avery and Voyle (2013), with addition of cross-reference to petrographic and reflectometric reports by Pearson Coal Petrography (as presented in Appendix D of the present report). Sample numbers shewn in boldface (thus) denote those samples considered by Avery and Voyle to be hard coking coal. 'Waiting for results' is as indicated in original year-2013 report; Gieseler fluidity tests were only done on coals with an FSI (free swelling index) of at least 4.5. Composite samples shewn (thus) are as-reported by Pearson Coal Petrography.

Access:

Road (main)

Road (other)

Trail

Seismic line

Drainage:

River or creek

Stream (perennial or intermittent flow)

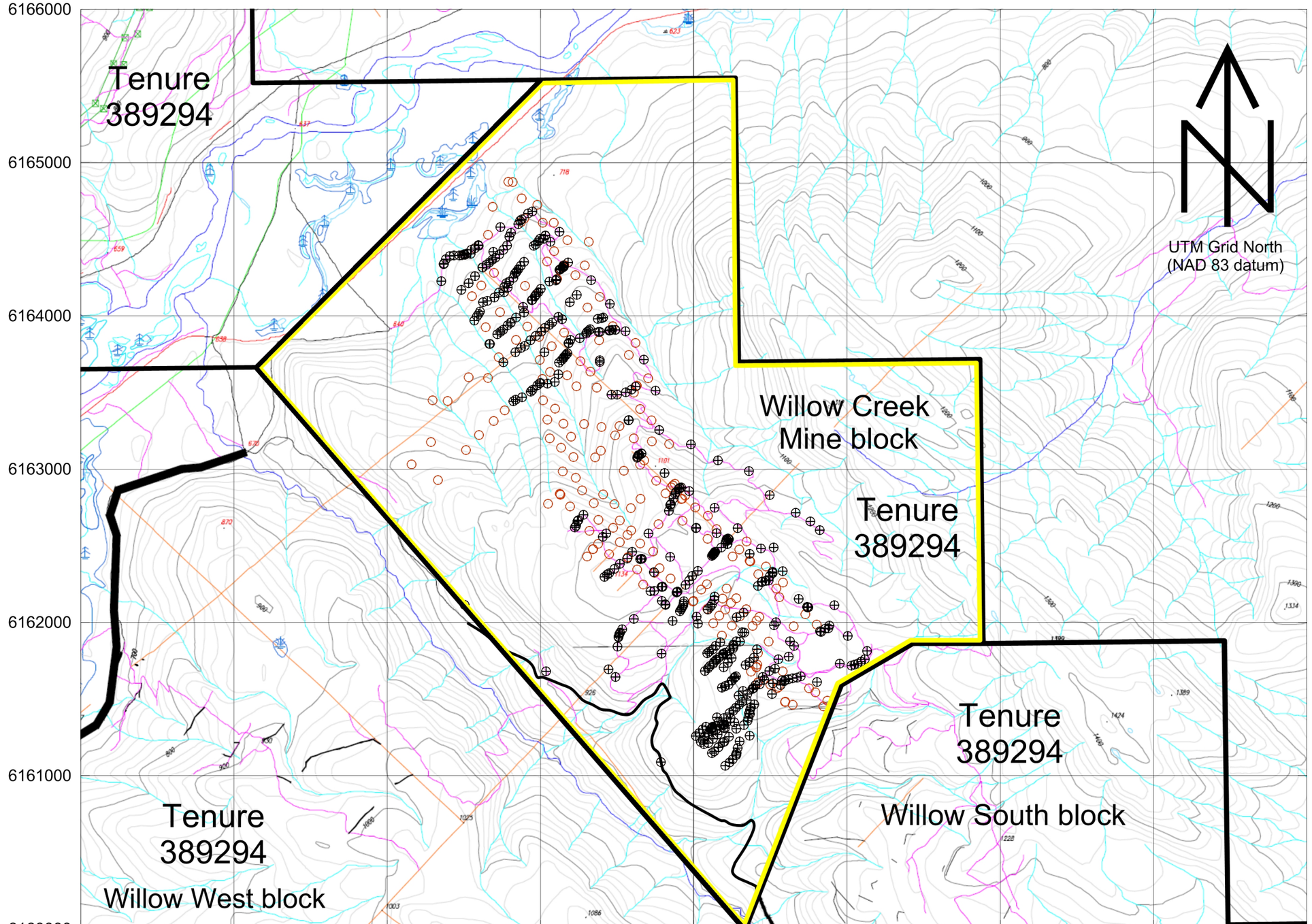
Outline of Willow Creek Mine block within Willow Creek coal lease

Boreholes:

⊕ Historic (pre-2007)

○ Current (2007 to 2013)

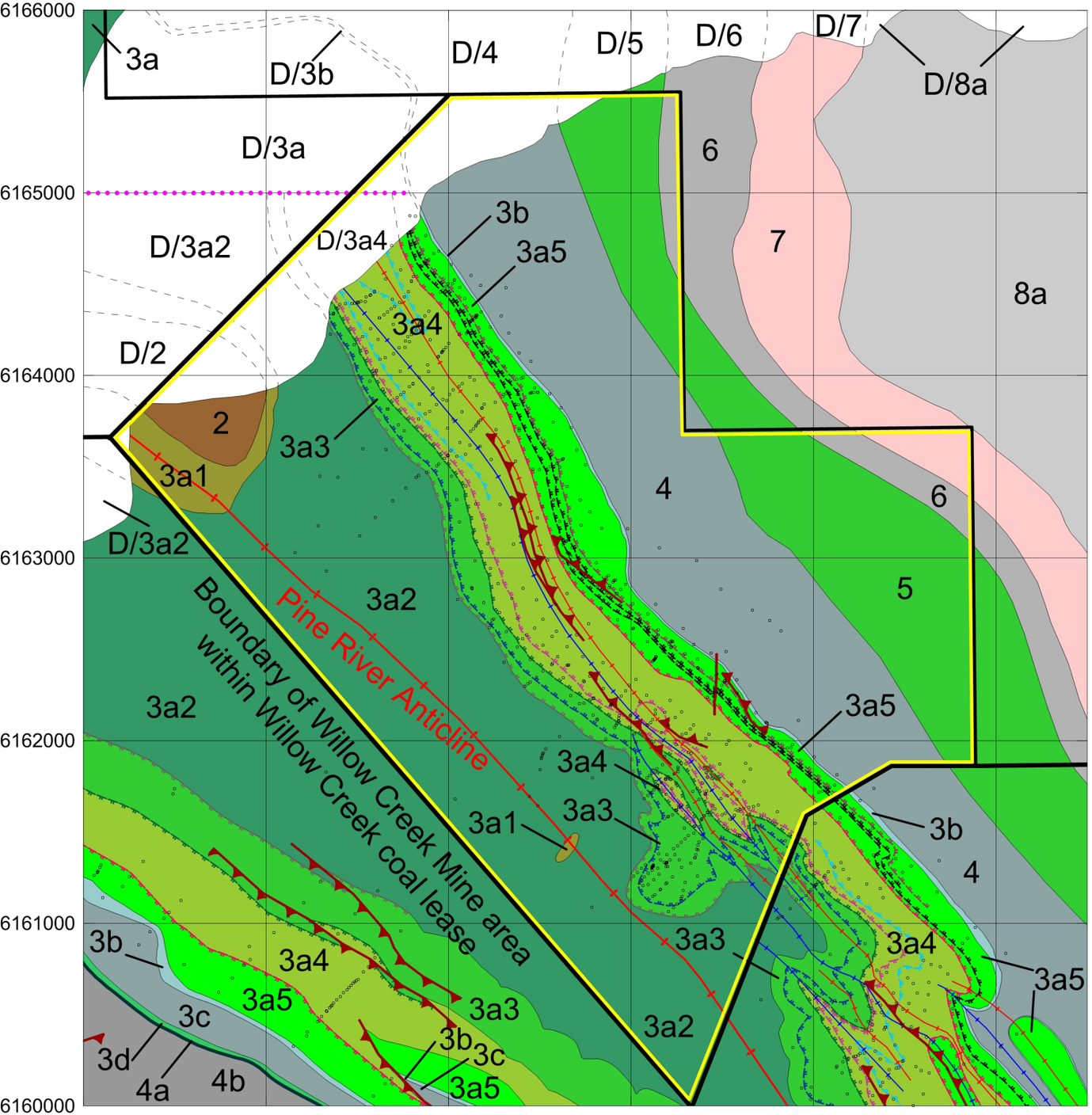
Base mapping: British Columbia government TRIM-series map sheets, at original scale of 1:20,000. Elevations are in metres above geodetic datum; contour interval is 20 metres.



Drawing: Willow_Mine-topography_150612d.srf/jpg
Drawn: C.G. Cathyl-Huhn, P.Geo.(BC) Lic.Geol.(WA) RMSME
Date: 12.June, 2015 Scale: as shown by bar scale
Grid: UTM Zone 10 to North American Datum of 1983, in metres

WALTER ENERGY

Map 2-2:
Coal Tenure and Topography



Drawing: Willow_Mine-local-geology-tracing-base-NAD83_150616c.srf/jpg
Drawn: C.G. Cathyl-Huhn, P.Geo.(BC) Lic.Geol.(WA) RMSME
Date: 16.June, 2015 Scale: as shown by bar scale
Grid: UTM Zone 10 to North American Datum of 1983, in metres

STRATIGRAPHIC LEGEND:

QUATERNARY

D — Alluvium and colluvium -- fluvial and glaciolacustrine deposits; moraines; talus; possible landslide deposits

FORT ST JOHN GROUP (Albian)

8a — Hasler Formation -- siltstone and mudstone; minor sandstone; ironstone as bands of concretions

7 — Boulder Creek Formation -- conglomerate, sandstone, and siltstone; coal

6 — Hulcross Formation -- siltstone and mudstone; minor sandstone and tuff; ironstone; basal pebbly gritstone

5 — Gates Formation -- siltstone, sandstone, conglomerate; minor coal

4 — Moosebar Formation:

- 4c — Spieker Member -- siltstone, sandstone; minor mudstone
- 4b — Cowmoose Member -- mudstone, minor tuff and ironstone
- 4a — Green Marker -- erosive-based, locally-pebbly, glauconitic mudstone and sandstone
- 3d — Chamberlain Member -- sandstone and siltstone
- 3c — Bullmoose Member -- siltstone and sandstone; mudstone; minor tuff

3b — Bluesky Formation -- glauconitic sandstone and gritstone; siltstone and mudstone

BULLHEAD GROUP (Hauterivian to Early Albian)

3 — Gething Formation:

- 3a — Gaylard Member -- siltstone, sandstone and coal; minor conglomerate, minor tuff
  - 3a5 — Division 5 -- siltstone, sandstone and mudstone; coal (zones 1, 2, 3 and 4)
  - 3a4 — Division 4 -- siltstone, mudstone and sandstone; coal (zones A, M, 5 and 6)
  - 3a3 — Division 3 -- sandstone and siltstone; minor mudstone; coal (zones 7 and 8)
  - 3a2 — Division 2 -- siltstone and mudstone; minor sandstone and coal (zone 9)
  - 3a1 — Division 1 -- sandstone; minor siltstone, mudstone, and conglomerate (zones 10 through 12?)

2 — Cadomin Formation -- sandstone; minor conglomerate

MINNES GROUP (Tithonian to Valanginian)

1 — [Older clastic sedimentary rocks -- present only at depth, not known to outcrop or subcrop within map-area]

Coal Zones:

No.1 zone
No.2 zone
No.3 zone
No.4 zone
A-zone
No.5 zone
No.6 zone
No.7 zone
No.8 zone

not shown owing to sparse control

No.9 zone
No.10 zone
No.11 zone
No.12 zone

Lateral change in stratigraphic detail

Structure:

Anticlinal trace

Synclinal trace

Thrust-fault (with barbs on over-thrust plate)

Control:

Borehole

WALTER ENERGY

Willow Creek Mine Coal Assessment Report

Map 2-3:
Bedrock geology of Willow Creek Mine block

Outline of Willow Creek Mine block within Willow Creek coal lease

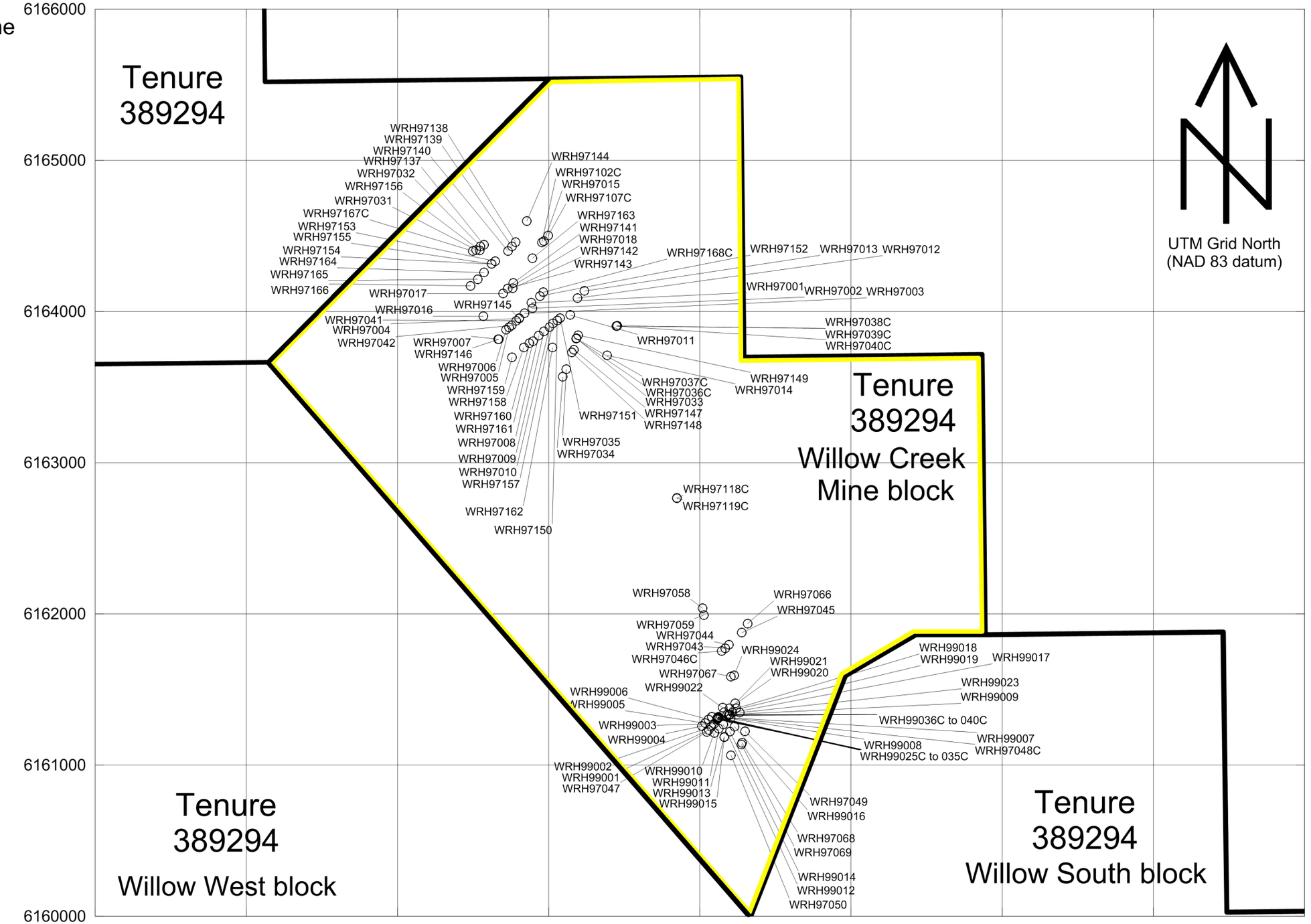
Boreholes:

○ Years-1997 and 1999

Note: positions are unavailable for numerous cored coal-quality boreholes drilled in 1997, other than as very approximate positions depicted in a plan (Anonymous, 1997, Figure 6) dated August 31, 1997, contained within a report dated November 27, 1997, prepared by Pine Valley Coal Ltd.

Positions are lacking for the following WRH97-series boreholes:

101C, 103C to 106C, 108C to 117C, 117.1C, 120C to 136C, 169C to 194C; also lacking for borehole WSH97008.



Drawing: Willow_Mine-1997-99-drilling_150614d.srf/jpg
Drawn: C.G. Cathyl-Huhn, P.Geo.(BC) Lic.Geol.(WA) RMSME
Date: 14.June, 2015 Scale: as shown by bar scale
Grid: UTM Zone 10 to North American Datum of 1983, in metres

WALTER ENERGY

Willow Creek Mine Coal Assessment Report

Map 2-4:
Historic (1997-99) drilling

Outline of Willow Creek Mine block within Willow Creek coal lease

Boreholes:

- Years-2001 and 2005

Tenure 389294

Tenure 389294

Willow Creek Mine block

Tenure 389294

Willow West block

Tenure 389294

Willow South block

UTM Grid North (NAD 83 datum)

WC05-11
WC05-09
WC05-10
WC05-24
WC05-25
WC05-01
WC05-28
WC05-05
WC05-06
WRH2001-21C
WRH2001-20C
WC05-03
WC05-04
WC05-15
WC05-14
WC05-13
WC05-12
WC05-16
WC05-02
WC05-26
WRH2001-16
WC05-27
WRH2001-7C
WRH2001-15
WC05-08
WRH2001-2
WC05-17
WC05-18
WC05-20
WC05-19
WC05-21
WC05-07
WRH2001-17
WRH2001-1
WC05-23
WC05-22
WRH2001-14
WRH2001-8C
WRH2001-3
WRH2001-19
WRH2001-4
WRH2001-18
WRH2001-10
WRH2001-13
WRH2001-12
WRH2001-9C
WRH2001-11
WRH2001-5

6166000
6165000
6164000
6163000
6162000
6161000
6160000

546000
547000
548000
549000
550000
551000
552000
553000
554000

metres

0 1000 2000 3000

Drawing: Willow_Mine-2001-05-drilling_150614d.srf/jpg
Drawn: C.G. Cathyl-Huhn, P.Geo.(BC) Lic.Geol.(WA) RMSME
Date: 14.June, 2015 Scale: as shown by bar scale
Grid: UTM Zone 10 to North American Datum of 1983, in metres

WALTER ENERGY

Willow Creek Mine Coal Assessment Report

Map 2-5:
Historic (2001-05) drilling

Outline of Willow Creek Mine block within Willow Creek coal lease

Boreholes:

- Years-2007 and 2008

Tenure 389294

Willow Creek Mine block

Tenure 389294

Tenure 389294

Willow West block

Willow South block

UTM Grid North (NAD 83 datum)

6166000
6165000
6164000
6163000
6162000
6161000
6160000

546000 547000 548000 549000 550000 551000 552000 553000 554000

metres

0 1000 2000 3000

Drawing: Willow_Mine-2007-8-drilling_150614d.srf/jpg
Drawn: C.G. Cathyl-Huhn, P.Geo.(BC) Lic.Geol.(WA) RMSME
Date: 14.June, 2015 Scale: as shown by bar scale
Grid: UTM Zone 10 to North American Datum of 1983, in metres

WALTER ENERGY

Willow Creek Mine Coal Assessment Report

Map 2-6:
Current (2007-08) drilling

Outline of Willow Creek Mine block within Willow Creek coal lease

Boreholes:

- Years-2009 through 2013

Tenure 389294

Willow Creek Mine block

Tenure 389294

Tenure 389294

Willow West block

Tenure 389294

Willow South block

SRK10-02
SRK10-03
4N1-13-6
WC09-16
4N1-13-7
4N1-13-3
WC10-04C
4N1-13-1
4N1-13-2
WC09-12
WC09-12C
WC09-13
4N1-13-5
WC09-11C
WC09-13C
WC09-11

WC09-50
WC09-51
WC09-53
WC09-52
WC09-54
WC09-55
WC09-56
WC09-60
WC09-57
WC09-59
WC09-58
WC09-08P
WC09-14
WC09-07C
WC09-07P
WC09-15

WC09-09P
WC09-09C
WC09-10
WC09-10C
7N2-13-5
7N2-13-8
7N2-13-6
7N2-13-1
7N2-13-2
7N2-13-7
WC09-05C
WC09-08C
WC09-05
7N2-13-4
7N2-13-3
WC09-06C
WC09-06P

WC09-04C
WC09-04P
WC11-01
WC11-02
WC11-06
WC11-04
WC11-03
WC11-05
WC11-07
WC09-02C
WC09-02P
WC09-01C
WC09-01P

UTM Grid North
(NAD 83 datum)

6166000
6165000
6164000
6163000
6162000
6161000
6160000

546000
547000
548000
549000
550000
551000
552000
553000
554000

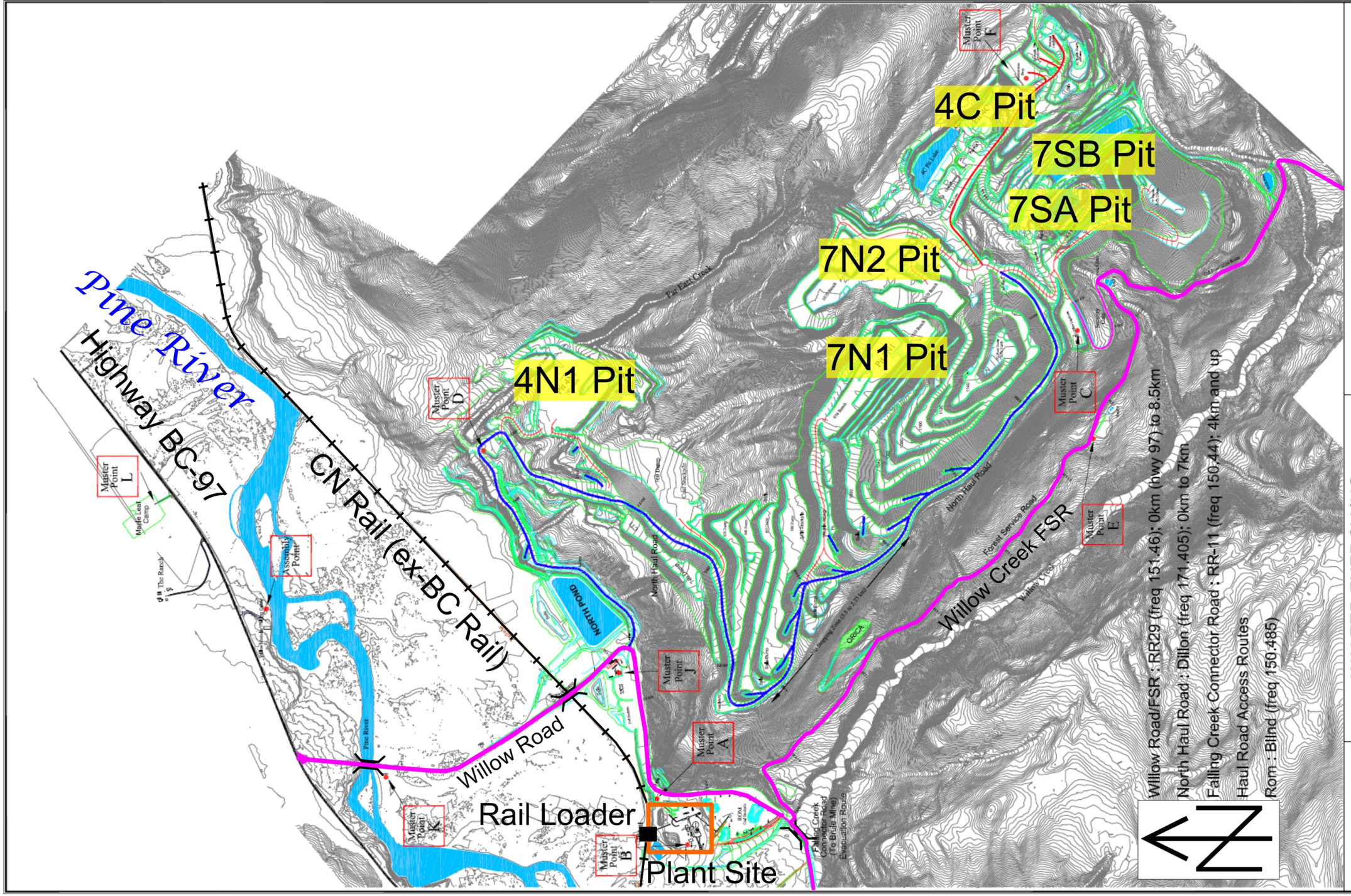
metres
0
1000
2000
3000

Drawing: Willow_Mine-2009-13-drilling_150614d.srf/jpg
Drawn: C.G. Cathyl-Huhn, P.Geo.(BC) Lic.Geol.(WA) RMSME
Date: 14.June, 2015 Scale: as shown by bar scale
Grid: UTM Zone 10 to North American Datum of 1983, in metres

WALTER ENERGY

Willow Creek Mine Coal Assessment Report

Map 2-7:
Current (2009-13) drilling



WILLOW CREEK MINE

Not to scale

Base mapping:
Walter Energy LIDAR

Drawing: Willow_Mine-layout_150615b.srf/jpg
Drawn: C.G. Cathyl-Huhn, P.Geo.(BC) Lic.Geol.(WA) RMSME
Date: 15.June, 2015 Scale: none Grid: none

Layout as of May 2014

Willow Creek Mine Coal Assessment Report

Map 2-8:
Willow Creek Mine