COAL ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TITLE OF REPORT:
Coal Assessment Report for the Perry Creek coal property, British Columbia

TOTAL COST: $8,719,610

AUTHOR(S): **C.G. Cathyl-Huhn P.Geo.**
SIGNATURE(S):
NOTICE OF WORK PERMIT NUMBER(S)/DATE(S):

YEAR OF WORK: **2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, and 2013**

PROPERTY NAME: **Perry Creek**

COAL LICENSE(S) AND/OR LEASES ON WHICH PHYSICAL WORK WAS DONE: Coal Licence **391198** and Lease **414696**

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: **93P 025**
MINING DIVISION: **Liard (Peace region)**
NTS / BCGS: **NTS 93P/3 BCGS 093P.004**
LATITUDE: **55° 15' 40" N**
LONGITUDE: **121° 06' 00" W** (at centre of work)
UTM Zone: **10N** EASTING: **611000** NORTHING: **6105000**

OWNER(S): **Wolverine Coal Partnership**
MAILING ADDRESS: **800-688 West Hastings Street, Vancouver, B.C. V6B 1P1**

OPERATOR(S): **Western Canadian Coal Corporation, Western Coal, Wolverine Coal Partnership**
MAILING ADDRESS: **800-688 West Hastings Street, Vancouver, B.C. V6B 1P1**

REPORT KEYWORDS
bituminous coal, conglomerate, sandstone, siltstone, mudstone, glauconite, tuff, Early Cretaceous, Aptian, Albian, Minnes Group, Bullhead Group, Cadomin Formation, Gething Formation, Gaylard Member, Bluesky Member, Bullmoose Member, Chamberlain Member, Moosebar Formation, Cowmoose Member, Spieker Member, Fort St. John Group, Gates Formation, Torrens Member, Falher Member, Notikewin Member, Hulcross Formation, Boulder Creek Formation, Hasler Formation, Goodrich Formation, Cruiser Formation, Quaternary, Drift, displacement transfer zones, thin-skinned décollement tectonics, bedding-plane detachment zones, vergence, folded thrusts, Mesa Thrust, Bullmoose Thrust, East Bullmoose Thrust, Perry Creek folds, Fortress Mountain folds, drilling

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:
Coal Assessment Reports 597, 606, 739, 746; Petroleum Assessment Report 863.

SUMMARY OF TYPES OF WORK IN THIS REPORT		EXTENT OF WORK (in metric units)	ON WHICH TENURES
GEOLOGICAL (scale, area)			
	Ground, mapping	**incidental to mining**	**414696**
	Photo interpretation	**incidental to mining**	**414696**
GEOPHYSICAL (line-kilometres)			
	Ground (Specify types)	**none**	
		none	
	Airborne (Specify types)	**none**	
		none	
	Borehole		
	Gamma	**24,926.18 metres**	**391198 and 414696**
	Resistivity	**22,994.13 metres**	**391198 and 414696**
	Caliper	**22,994.13 metres**	**391198 and 414696**
	Deviation	**21,545.88 metres**	**391198 and 414696**
	Dipmeter	**1,005.00 metres**	**414696**
	Others (specify types) **Sonic** **Density** **Neutron (with gamma)**	 **819.03 metres** **25,005.17 metres** **21,789.02 metres**	 **414696** **391198 and 414696** **391198 and 414696**
	Core – 157 boreholes	**11,247.76 metres**	**414696**
	Non-core – 132 boreholes	**18,897.03 metres**	**391198 and 414696**
SAMPLING AND ANALYSES			
Total # of Samples			
	Proximate	**195**	**414696**
	Ultimate	**32**	**414696**
	Petrographic	**35**	**414696**
	Vitrinite reflectance	**35**	**414696**
	Coking	**3 (in two reports)**	**414696**
	Wash tests (**float-sink tests**)	**139**	**414696**
PROSPECTING (scale/area)		**none**	
PREPARATORY/PHYSICAL		**none**	
Line/grid (km)		**none**	
Trench (number, metres)		**none**	
Bulk sample(s) **(taken by drilling at several sites)**		**metres**	**414696**

Section 5 (pages 59-62), a portion of Section 9, and appendices C, D, E, and F 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

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2 Introduction and situation

This report, titled *Coal Assessment Report for the Perry Creek coal property, British Columbia*, is intended to document current (years 2001 through 2013) exploratory work, within the context of a modern understanding of the structural and stratigraphic geology of a group of Crown coal tenures comprising one Coal Licence, numbered 391198, and one Coal Lease, numbered 414696.

These tenures were awarded by the Crown to Western Canadian Coal Corp. (WCCC) on December 11, 2001 and November 2, 2004, respectively, and subsequently acquired by Walter Energy Inc. and associated firms – including the Wolverine Coal Partnership (WCP) – in the course of a corporate merger in 2011.

Historic (prior to year-2001) exploratory work, comprising the drilling of 20 boreholes (with aggregate depth of 3423.68 metres, a considerable proportion of which was by means of coring), geological mapping, and supporting analytical work, was done by Denison Mines Ltd. and Quintette Coal Corporation, the previous owners of the Perry Creek property. Historic work is well-documented in several previously-submitted coal assessment reports (Chowdry, 1971; Parkes, 1971; Gormley, 1974; Johnson, 1988 and 1989). Full bibliographic details for these and other relevant technical references are presented within **Section 8** of the present report.

Historic work was performed within the boundaries of a much larger coal property (the Quintette Property), within which the Perry Creek coal property constitutes a smaller subset of contiguous coal tenures. Only those historic boreholes whose positions lie within the confines of the present Perry Creek property are here reported as on-tenure boreholes, as distinguished from nearby off-tenure boreholes whose relevance to the present study lies in their ‘gap-filling’ functionality in the course of structural and coal-correlation studies. Details of off-tenure boreholes may be found within the previously-mentioned historic coal assessment reports.

Current work, here-reported, comprises the drilling of 289 boreholes, as documented in **Appendix A** of the present report. Aggregate depth of drilling is 30,144.79 metres, of which 11,247.76 metres (in 157 boreholes) has been partially or completely by coring methods, and 18,897.03 metres (in 132 boreholes) has been by non-coring methods.

Appendices B through **D** present analytical details concerning raw (unwashed) coal samples, laboratory-scale washability studies on composites assembled from certain of the raw samples, and petrographic analyses on simulated clean coal products. **Appendix E** presents results of three coking tests (each of which was based upon bulk-sample materials), and **Appendix F** presents results of gas-desorption tests upon samples of coal and associated rocks recovered from two current boreholes (drilled in years 2001 and 2009).

Washability studies (**Appendix C**), petrographic data (**Appendix D**), coking test results (**Appendix E**) and gas desorption test results (**Appendix F**) are submitted on a confidential basis, in keeping with the provisions of the *Coal Act Regulation*.

Current exploration, done between years 2001 and 2013, has been intended to guide ongoing mine-planning for the Perry Creek coal property, with a particular focus on coal quality.

Western Canadian Coal Corporation (WCCC) and its successor companies have undergone a virtually-complete turnover of staff since WCCC was founded at the turn of the century. None of the licensed scientific and engineering staff currently employed by Walter

Energy Inc. and subsidiary firms were involved with the exploratory work conducted by WCCC in the early 2000s.

The author of the present report has made diligent efforts to reconstruct the exploratory database from a voluminous yet incomplete (and at times contradictory) collection of hard-copy and digital records. Amongst the various record series, work done in year-2008 and onwards appears to have been more thoroughly-documented.

2.1 Location and access

General location of the property is depicted as **Map 2-1.** Coal tenure (as set forth in **Table 2-1**) is depicted in relation to the local topographic setting of the Perry Creek coal property as **Map 2-2**.

2.1.1 Railway access

The Perry Creek coal property is traversed by the Tumbler Ridge branch-line of CN Rail (originally constructed and operated by a provincial Crown corporation, BC Rail). Adjacent to the colliery buildings, railway-sidings and a coal-loading facility are present. Sufficient siding length is available to handle unit-trains of coal-carrying freight cars, along with their associated locomotives. Although upon its construction and for some years thereafter the railway was electrified, most of the electrification infrastructure has since been dismantled or abandoned in place, and the railway is now operated by means of Diesel locomotives.

Older base-maps show a turning-wye, formerly used for facing the railway's electric locomotives, situated about a kilometre north of the colliery buildings. This wye has since been dismantled, and partially covered by tailings-storage and water-management facilities.

The Tumbler Ridge branch-line connects to CN Rail's northern transcontinental main-line, which in turn passes through the city of Prince George and onward to the Ridley Island coal port on the northern coastline of British Columbia. More southerly rail connections, on the CN Rail and CP Rail lines, allow for the possibility of shipping Perry Creek coal from terminals at Squamish, North Vancouver and Roberts Bank (**Map 2-1**).

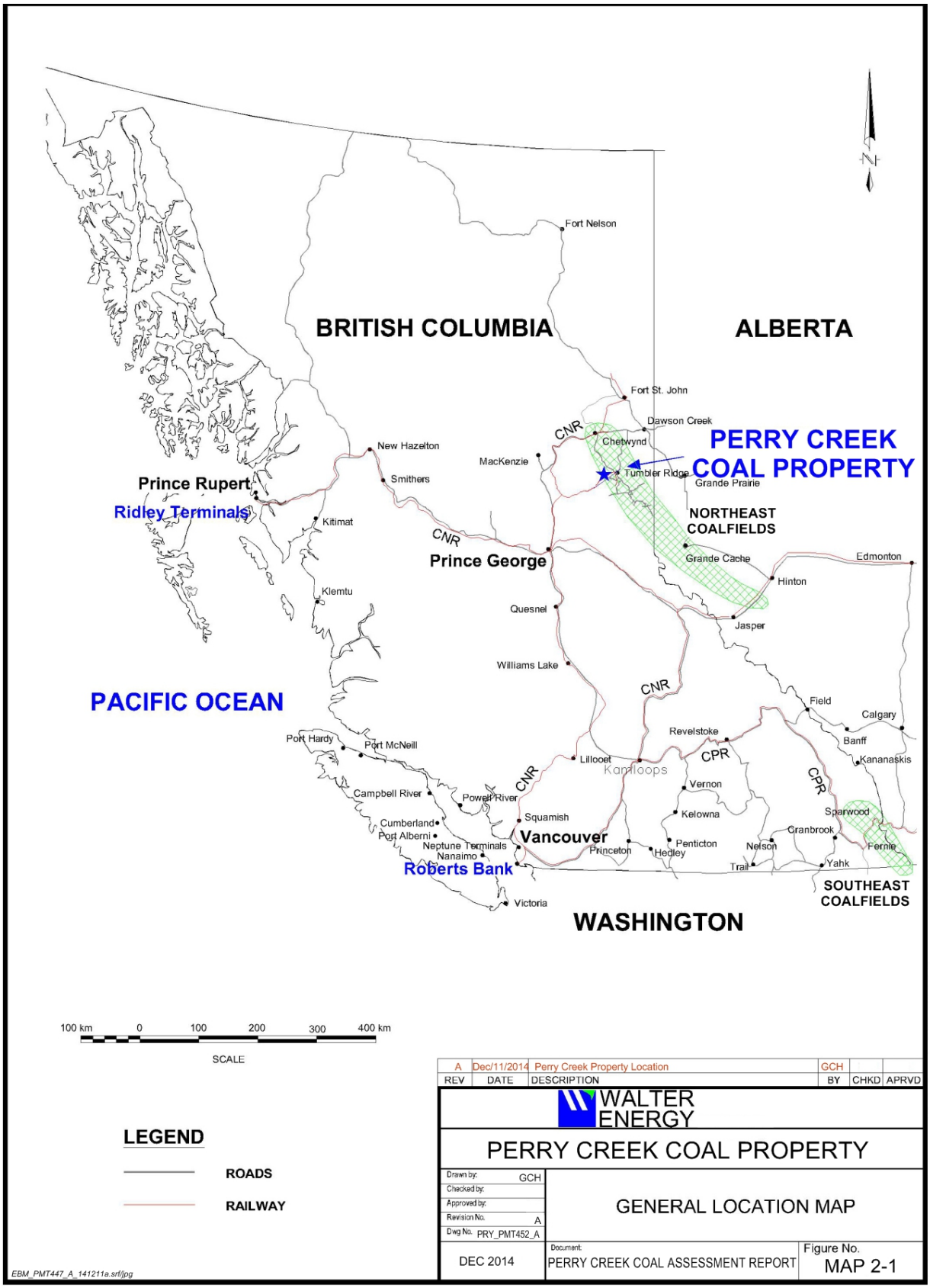
2.1.2 Road access

The Perry Creek coal property is accessible via all-weather highways and forest service roads, at a driving distance of 102 kilometres south from Chetwynd town, and 27 kilometres southwest from Tumbler Ridge town.

Highway access from Chetwynd is via route BC-29 towards (but not entering) Tumbler Ridge. At a distance of 85 kilometres from Chetwynd, turn right (westward) onto the Wolverine forest service road (FSR). The Wolverine FSR is an unpaved but well-constructed all-weather, radio-controlled industrial road. Perry Creek Mine and the associated buildings and coal-processing and loading facilities of Wolverine Colliery are situated at kilometre 17.3 of the Wolverine FSR.

2.1.3 Airborne access

An unattended, paved airstrip is situated south of Tumbler Ridge. The municipal airstrip is served by various chartered air-transportation firms, from airports at Prince George, Chetwynd and Dawson Creek. An abandoned grass airstrip, now overgrown and non-functional, lies within the valley-bottom of Wolverine River, northeast of Perry Creek Mine.


BRITISH COLUMBIA
ALBERTA
PACIFIC OCEAN
WASHINGTON
Fort Nelson
Fort St. John
Dawson Creek
Chetwynd
PERRY CREEK COAL PROPERTY
Tumbler Ridge
Grande Prairie
MacKenzie
New Hazelton
Smithers
Prince Rupert
Ridley Terminals
Kitimat
Klemtu
Prince George
CNR
NORTHEAST COALFIELDS
Grande Cache
Edmonton
Hinton
Jasper
Quesnel
Williams Lake
Field
Calgary
Revelstoke
Banff
Kananaskis
Port Hardy
Port McNeill
Lillooet
Kamloops
CPR
Campbell River
Powell River
Vernon
Kelowna
Sparwood
Cumberland
Port Alberni
Squamish
Vancouver
Cranbrook
Neptune Terminals
Nanaimo
Roberts Bank
Princeton
Penticton
Hedley
Nelson
Fernie
Trail
Yahk
SOUTHEAST COALFIELDS
Victoria
N
100 km 0 100 200 300 400 km
SCALE
LEGEND
ROADS
RAILWAY
A Dec/11/2014 Perry Creek Property Location GCH
REV DATE DESCRIPTION BY CHKD APRVD
WALTER ENERGY
PERRY CREEK COAL PROPERTY
Drawn by: GCH
Checked by:
Approved by:
Revision No. A
Dwg No. PRY_PMT452_A
GENERAL LOCATION MAP
DEC 2014
Document: PERRY CREEK COAL ASSESSMENT REPORT
Figure No. MAP 2-1
EBM_PMT447_A_141211a.srf/jpg

2.1.4 Regulatory setting of surface access

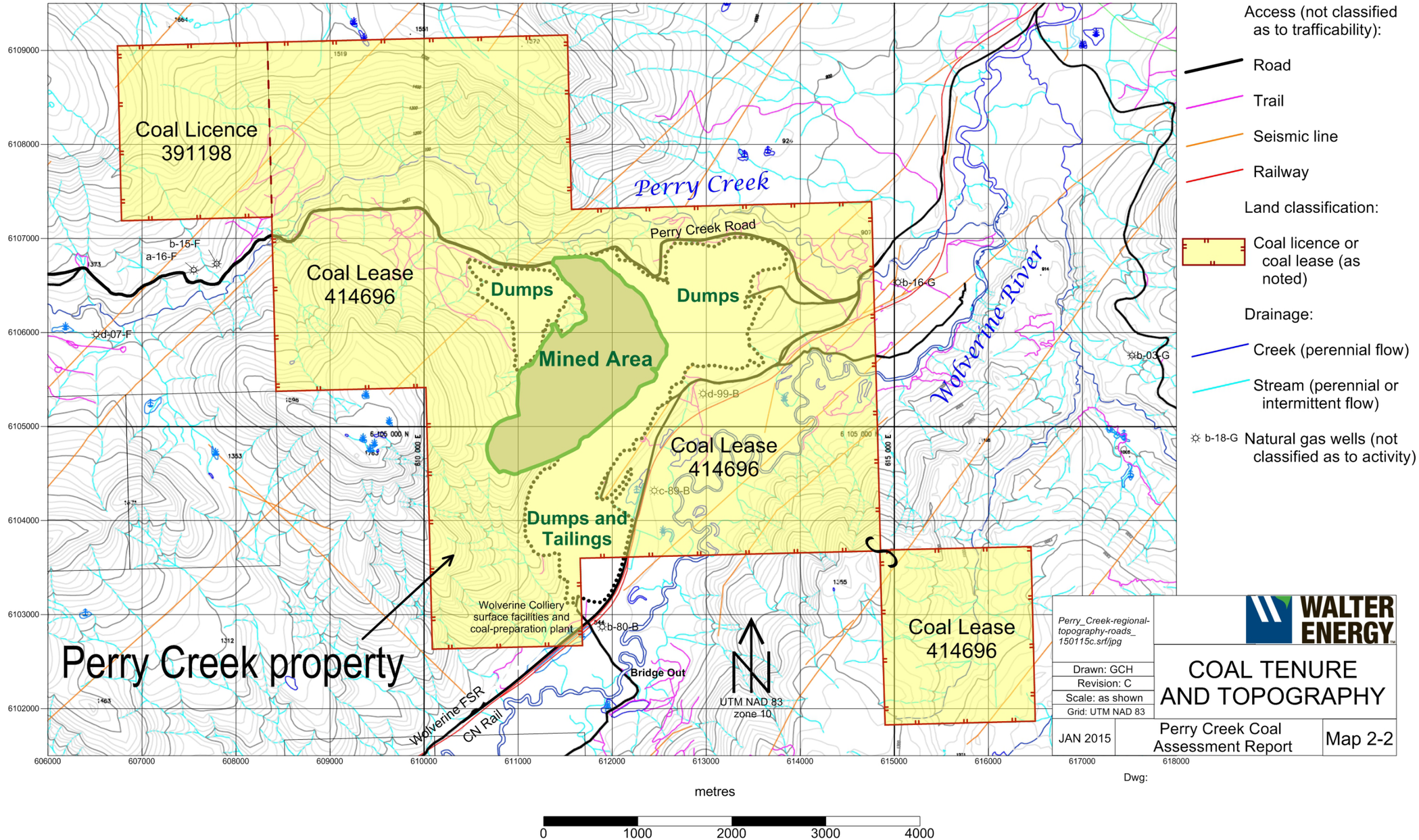
Surface access for drilling and other exploratory works is regulated by the provincial government, subject to the *Coal Act Regulations* and the *Mines Act*. The property is situated within the Dawson Creek Land and Resource Management Plan area, and the Foothills Resource Management Zone, allowing for multiple resource uses, including coal-mining. Oil and gas tenures exist throughout the Perry Creek coal property, and natural gas is being actively produced from a wellhead (b-80-B/93-P-3) situated approximately 250 metres southeast of the colliery offices.

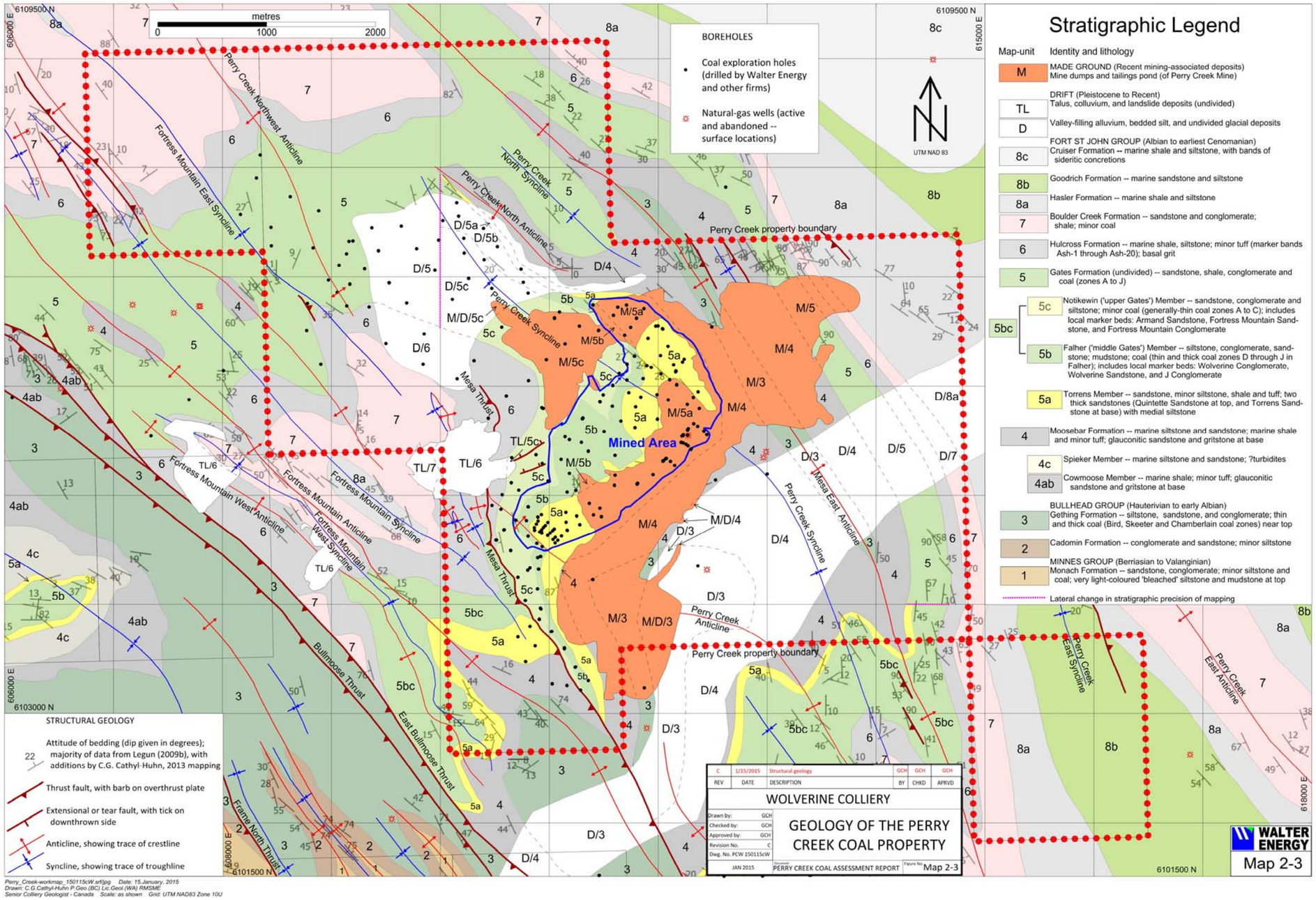
2.2 Property description

The Perry Creek property comprises one coal licence and one coal lease (**Maps 2-2 and 2-3**) which were acquired from the Crown by Western Canadian Coal in years 2001 and 2004 respectively, and subsequently acquired by Walter Energy after its acquisition of Western Coal. **Table 2-1** presents details of these coal tenures, whose aggregate area is 3,424 hectares, and whose annual rental cost is $35,720. Exploration has taken place between the years 1971 and 1989 (‘historic work’) and again between the years 2001 and 2013 (‘current’ work).

Table 2-1: Coal tenures comprising the Perry Creek coal property

Land description			Area (ha)	Dates		Annual rental rate ($/ha)	Annual rental fee (rate x area)
Tenure	Blocks	Units		Issued on	Renew by		
Licence 391198	93P/3 Block F	3, 4, 13, 14	(4 units) 296 hectares	Dec.11, 2001	Dec.11, 2014	$15	$4,440
Lease 414696	93P/3 Block B	65, 66, 75, 76, 87, 88, 89, 90, 97, 98, 99, 100	(42 units) 3,128 hectares	Nov. 2, 2004	Nov. 2, 2014 (term expiry date Nov. 2, 2034)	$10	$31,280
	93P/3 Block C	71, 72, 81, 82, 91, 92					
	93P/3 Block F	1, 2, 3, 4, 11, 12, 13, 14, 21, 22, 23, 24, 31, 32, 33, 34					
	93P/3 Block G	7, 8, 9, 10, 17, 18, 19, 20					
2 tenures / 46 units			3,424 ha				$35,720


Coal Licence
391198
Coal Lease
414696
Perry Creek
Perry Creek Road
Dumps
Dumps
Mined Area
Dumps and
Tailings
Coal Lease
414696
Coal Lease
414696
Wolverine River
Wolverine Colliery
surface facilities and
coal-preparation plant
Bridge Out
Wolverine FSR
CN Rail
Perry Creek property
b-15-F
a-16-F
d-07-F
b-16-G
b-03-G
d-99-B
c-89-B
b-80-B
UTM NAD 83
zone 10
6109000
6108000
6107000
6106000
6105000
6104000
6103000
6102000
606000
607000
608000
609000
610000
611000
612000
613000
614000
615000
616000
617000
618000
metres
0
1000
2000
3000
4000
Access (not classified as to trafficability):
Road
Trail
Seismic line
Railway
Land classification:
Coal licence or coal lease (as noted)
Drainage:
Creek (perennial flow)
Stream (perennial or intermittent flow)
b-18-G Natural gas wells (not classified as to activity)
Perry_Creek-regional-topography-roads_150115c.srf/jpg
Drawn: GCH
Revision: C
Scale: as shown
Grid: UTM NAD 83
WALTER ENERGY
COAL TENURE AND TOPOGRAPHY
JAN 2015
Perry Creek Coal Assessment Report
Map 2-2
Dwg:


metres
0
1000
2000
6109500 N
606000 E
615000 E
6103000 N
6101500 N
608000 E
618000 E
BOREHOLES
Coal exploration holes (drilled by Walter Energy and other firms)
Natural-gas wells (active and abandoned -- surface locations)
UTM NAD 83
Perry Creek property boundary
Mined Area
Fortress Mountain East Syncline
Perry Creek Northwest Anticline
Perry Creek North Syncline
Perry Creek North Anticline
Perry Creek Syncline
Mesa Thrust
Fortress Mountain West Anticline
Fortress Mountain Anticline
Fortress Mountain West Syncline
Fortress Mountain Syncline
Bullmoose Thrust
East Bullmoose Thrust
Frame North Thrust
Perry Creek Anticline
Mesa East Anticline
Perry Creek East Syncline
Perry Creek East Anticline
STRUCTURAL GEOLOGY
Attitude of bedding (dip given in degrees); majority of data from Legun (2009b), with additions by C.G. Cathyl-Huhn, 2013 mapping
Thrust fault, with barb on overthrust plate
Extensional or tear fault, with tick on downthrown side
Anticline, showing trace of crestline
Syncline, showing trace of troughline
Stratigraphic Legend
Map-unit
Identity and lithology
M
MADE GROUND (Recent mining-associated deposits)
Mine dumps and tailings pond (of Perry Creek Mine)
DRIFT (Pleistocene to Recent)
TL
Talus, colluvium, and landslide deposits (undivided)
D
Valley-filling alluvium, bedded silt, and undivided glacial deposits
FORT ST JOHN GROUP (Albian to earliest Cenomanian)
8c
Cruiser Formation -- marine shale and siltstone, with bands of sideritic concretions
8b
Goodrich Formation -- marine sandstone and siltstone
8a
Hasler Formation -- marine shale and siltstone
7
Boulder Creek Formation -- sandstone and conglomerate; shale; minor coal
6
Hulcross Formation -- marine shale, siltstone; minor tuff (marker bands Ash-1 through Ash-20); basal grit
5
Gates Formation (undivided) -- sandstone, shale, conglomerate and coal (zones A to J)
5bc
5c
Notikewin ('upper Gates') Member -- sandstone, conglomerate and siltstone; minor coal (generally-thin coal zones A to C); includes local marker beds: Armand Sandstone, Fortress Mountain Sandstone, and Fortress Mountain Conglomerate
5b
Falher ('middle Gates') Member -- siltstone, conglomerate, sandstone; mudstone; coal (thin and thick coal zones D through J in Falher); includes local marker beds: Wolverine Conglomerate, Wolverine Sandstone, and J Conglomerate
5a
Torrens Member -- sandstone, minor siltstone, shale and tuff; two thick sandstones (Quintette Sandstone at top, and Torrens Sandstone at base) with medial siltstone
4
Moosebar Formation -- marine siltstone and sandstone; marine shale and minor tuff; glauconitic sandstone and gritstone at base
4c
Spieker Member -- marine siltstone and sandstone; ?turbidites
4ab
Cowmoose Member -- marine shale; minor tuff; glauconitic sandstone and gritstone at base
BULLHEAD GROUP (Hauterivian to early Albian)
3
Gething Formation -- siltstone, sandstone, and conglomerate; thin and thick coal (Bird, Skeeter and Chamberlain coal zones) near top
2
Cadomin Formation -- conglomerate and sandstone; minor siltstone
MINNES GROUP (Berriasian to Valanginian)
1
Monach Formation -- sandstone, conglomerate; minor siltstone and coal; very light-coloured 'bleached' siltstone and mudstone at top
Lateral change in stratigraphic precision of mapping
C 1/15/2015 Structural geology GCH GCH GCH
REV DATE DESCRIPTION BY CHKD APRVD
WOLVERINE COLLIERY
Drawn by: GCH
Checked by: GCH
Approved by: GCH
Revision No. C
Dwg. No. PCW 150115cW
GEOLOGY OF THE PERRY CREEK COAL PROPERTY
JAN 2015
PERRY CREEK COAL ASSESSMENT REPORT
Figure No. Map 2-3
WALTER ENERGY
Map 2-3
Perry_Creek-workmap_150115cW.srf.jpg Date: 15 January, 2015
Drawn: C.G.Cathyl-Huhn P.Geo.(BC) Lic.Geol.(WA) RMSME
Senior Colliery Geologist - Canada Scale: as shown Grid: UTM NAD83 Zone 10U

Coal licences grant to their holder the exclusive right to explore for coal, subject to consultation with local First Nations, coordination of access with other tenure-holders (such as oil and gas firms, other mineral-tenure holders, guide-outfitters, trappers, and timber companies), and the successful submission of an exploratory work plan. Coal licences do not, in and of themselves, confer the ownership of coal upon their holder (as the coal remains the property of the Crown via the province of British Columbia), but they can under appropriate circumstances be converted into coal leases, upon which a scheme of mining may be established. Perry Creek Mine operates under the terms of an agreed plan of operations and reclamation, within Coal Lease 414696.

The term of coal licences is one year, which may normally be extended upon the payment of an area-based annual rental fee as prescribed by the provincial Coal Act Regulation. Coal licences and coal leases both require the payment of annual area-based rental fees, as set forth in **Table 2-1**.

2.3 Infrastructure and geomatics

Electrical power is available from B.C. Hydro's Tumbler Ridge substation, served by 230-KV transmission line 2L323. Sub-transmission lines formerly ran along the railway tracks (in conjunction with BC Rail's electrification scheme), but power service to Perry Creek Mine is now via a wooden-pole three-phase 25-KV distribution line which follows the Wolverine FSR, terminating at a metering-station adjacent the coal-preparation plant, at kilometre 17.5 on the FSR.

Telecommunications are available via satellite and cellular telephone systems. Satellite access is excellent in upland areas, but unreliable in the heavily-wooded hillsides. Cellular coverage is also inconsistent, owing to distance from transmitters, and issues of line-of-sight in mountainous country. In the interests of safety, use of cellular telephones is forbidden at Perry Creek Mine, save with prior permission from the mine manager.

Base-mapping for Perry Creek is freely available from the provincial government's Base Map Online Store, which affords a facility for downloading shaded-relief topographic maps of the British Columbia Geographic System (BCGS) at 1:20,000 scale. BCGS map-sheets 093P.004 and 093P.014 cover the property and adjoining areas. The Canadian federal government also maintains publicly-available topographic mapping, at a scale of 1:50,000, under the National Topographic System (NTS). NTS map-sheet 93P/3 covers the Perry Creek property.

Georeferenced satellite photography is freely available via the *Google Earth* web-service. In general, this imagery is sufficiently detailed for studies of gross geological and geomorphological structure, and for the general tracing of roadways and vehicular access trails, but its level of detail is insufficient to allow for trafficability determinations.

LIDAR imagery of various vintages is also available for the working area of Perry Creek Mine and immediate surroundings.

2.4 Physiography, landscapes and climate of the Perry Creek property

Terrain (**Map 2-2**) is mountainous, with very steep hillslopes, dissected by steep gullies and ravines. Two tributaries of Wolverine River (east-flowing Perry Creek and southeast-flowing W14 Creek). Lesser tributaries, designated as W6, W8, W10 and W12, have now been largely redirected into ditches, culverts and constructed rock-drains whose construction was concomitant

with mine development.

The southwestern portion of the property extends up the northeastern flank of Fortress Mountain (the commonly-used local name for what, officially, is designated as Mt. Terry). Coniferous forest covers the lower slopes of Fortress Mountain and adjoining ridgelines, declining in size and vigour with increasing altitude and wind-exposure. Soil cover is generally patchy, consisting mainly, till, alluvium and peat at lower elevations, and talus and colluvium, including possible landslide deposits, at higher elevations. Thicker soils (including great thicknesses of unconsolidated parent materials) are known to be present within the deep, glacially-rounded valley of Wolverine River, and along the southern bank of Perry Creek.

The Perry Creek property has a continental montane to alpine climate, characterised by long, moderately cold, snowy winters and short, rainy, warm summers. Snow and frost may occur in any month of the year, and isolated snowfields persist on well-shaded north-and east-facing slopes into July. The coldest weather usually occurs from January through March, when temperatures of –40C occasionally occur. Winds are generally gusty and ongoing, with rare calm periods. Convective thunderstorms frequently occur during summer months, bringing intense rain-showers and occasional hail.

2.5 Historic work

Geological mapping and exploratory drilling of the Perry Creek property was undertaken by staff of Denison Mines and Quintette Coal between 1971 and 1989. Cross-references to the Coal Assessment Reports, within which this work is documented, are given in **Table 2-2**.

During Denison Mines' and Quintette Coal's ownership of the property. 20 boreholes were drilled (with aggregate depth of 3423.68 metres, a considerable proportion of which was by means of coring). **Table 2-2** incorporates basic data (with some positional corrections) concerning these boreholes, as has been retrieved from the B.C. Geological Survey Branch's *COALFILE* database. Positions of historic boreholes are depicted by **Map 2-4**.

Table 2-2: Historic drilling

Borehole	NAD83 UTM		Metres		Drilling Method	Cross-reference to Coal Assessment Reports
	Easting	Northing	Elevation	Total Depth		
QPD88001	611780.447	6106274.342	1071.41	171	Coring	CAR-746 (Johnson, 1989)
QPD88002	611465.309	6105857.476	1099.5	194.15	Coring	
QPR87001	612301.229	6105420.397	918.56	73.5	Rotary	CAR-739 (Johnson, 1988)
QPR87002	611953.452	6105188.683	954.5	60.5	Rotary	
QPR87003	612068.93	6105337.11	945.01	44.4	Rotary	
QPR87004	612211.088	6105482.99	930.30	37.9	Rotary	
QPR87005	612326.404	6105655.328	923.47	43.3	Rotary	
QPR88001	611047.198	6106622.378	1135.05	181.8	Rotary	CAR-746 (Johnson, 1989)
QPR88002	611452.59	6106511.36	1101.47	171.3	Rotary	
QPR88003	612106.144	6106057.532	1055.31	137.1	Rotary	
QPR88004	611401.01	6106741.08	1092.31	70.82	Rotary	
QWD7112	612526.46	6105138.86	872.61	308.4	Coring	CAR-597 (Parkes, 1971)
QWD7115	610309.07	6106232.43	1269.63	444.55	Coring	

Table 2-2: Historic drilling (concluded)

Borehole	NAD83 UTM		Metres		Drilling Method	Cross-reference to Coal Assessment Reports (CAR-)
	Easting	Northing	Elevation	Total Depth		
QWD7117	609529.7	6106946.04	1286.4	397	Coring	CAR-597 (Parkes, 1971)
QWD7118	610258.85	6106986.05	1181.5	175.87	Coring	
QWD7119	610943.87	6105793.52	1212.5	197.21	Coring	
QWD7120	609984.96	6107334.74	1206.3	191.11	Coring	
QWD7121	609198.57	6107326.68	1219.2	169.77	Coring	
QWD7402	611238.57	6103426.68	982	124	Coring	CAR-606 (Gormley, 1974)
WDH1	611398.24	6104225.2	953.51	230	Coring	CAR-597

2.6 Current work

'Current work', for the purposes of this report, comprises drilling (**Maps 2-5 through 2-9**, and **Tables 2-3 through 2-12**) and ancillary geological and coal-quality studies conducted by Western Canada Coal Corporation and its successor companies Western Coal and Walter Energy (acting through its various subsidiaries, including the Walter Canadian Coal Partnership and Wolverine Coal Partnership). This work has ultimately led to resource/reserve estimation (discussed in **Section 5** of this report), a feasibility study, a conceptual plan for an as-yet unbuilt underground mine, and the commencement of surface-mining operations within the Perry Creek Mine.

Current exploratory work commenced with the year-2001 drilling programme and has culminated in the recently-completed year-2013 programme. Results are here discussed (and documented in the Appendices of this report) for work done in years 2001 through 2009, and in year-2013. No disturbant exploration work is known to have been done during years 2010 through 2012, although mining operations were underway at the time.

Table 2-3: Year-2001 drilling

Borehole	NAD83 UTM		Metres		Drilling Method	Notes
	Easting	Northing	Elevation	Total Depth		
PRH01-1C	611307.81	6105706.74	1126.29	162.5	Coring	
PRH01-2	611583.33	6106005.5	1063.53	196.29	Rotary	
PRH01-3C	612268.41	6105549.4	925.71	272.1	Coring	
PRH01-4C	611906.71	6106435.63	1101.73	104.55	Coring	
PRH01-5	611714.25	6106200.09	1036.96	163.7	Rotary	
PRH01-6	610605.68	6105910.36	1297.57	194.29	Rotary	
PRH01-7	610809.7	6106046.93	1227.59	209.09	Rotary	
PRH01-8	610974.34	6106241.94	1172.7	200.44	Rotary	
PRH01-9	611603.25	6105367.67	1066.33	130.19	Rotary	
PRH01-10	611244.07	6105044.59	1169.06	124	Rotary	
PRH01-11	611992.3	6105697.01	979.29	105	Rotary	
PRH01-12	611787.1	6105618.79	1015.08	116.99	Rotary	

Table 2-3: Year-2001 drilling (concluded)

Borehole	NAD83 UTM		Metres		Drilling Method	Notes
	Easting	Northing	Elevation	Total Depth		
PRH01-13	611185.34	6105507.61	1165.41	188.93	Rotary	
PRH01-14	611276.49	6106550.05	1117.52	190	Rotary	
PRH01-15	610877.31	6105374	1270.18	190	Rotary	
PRH01-16C	611145.68	6106385.59	1121.3	208.99	Coring	
PRH01-17C	612073.79	6105338.88	945.03	33.44	Coring	

Table 2-4: Year-2002 drilling

Borehole	NAD83 UTM		Metres		Drilling Method	Notes
	Easting	Northing	Elevation	Total Depth		
BS2002-1	612043.73	6105313.24	952.4	38.86	Coring	Bulk sample; not logged
BS2002-2	612044.92	6105314.67	952.3	38.71	Coring	Bulk sample
BS2002-3	612046	6105315.8	952.17	38.4	Coring	Bulk sample; not logged
BS2002-4	612047.2	6105316.8	952.19	38		
BS2002-5	612048.5	6105318.5	951.91	38.05		
BS2002-6	612049.4	6105320.1	951.8	37.85		
BS2002-7	612041.9	6105315.3	952.56	38.2		
BS2002-8	612043.7	6105316	952.25	38.1		
BS2002-9	612044.8	6105317.3	952.14	38.48		
BS2002-10	612046.5	6105318.5	952.03	37.87		
BS2002-11	612047.8	6105319.7	951.92	38.18		
BS2002-12	612277.4	6105609.7	929.92	37.64		
BS2002-13	612273.4	6105604.1	929.89	36.42		
BS2002-14	612272.62	6105602.58	929.75	36.12		
BS2002-15	612271.8	6105600.7	929.77	36.04		
BS2002-16	612270.8	6105599	929.67	35.89		
BS2002-17	612269.7	6105597.3	929.64	35.89		
BS2002-18	612268.9	6105595.5	929.66	35.66		
BS2002-19	612231.7	6105551.4	934.74	35.69		
BS2002-20	612230.8	6105550	934.65	35.41		
BS2002-21	612229.92	6105548.33	934.53	35.31		
BS2002-22	612229.4	6105546.7	934.41	35.15		
BS2002-23	612228.2	6105544.5	934.37	34.9		
BS2002-24	611805.7	6105101.6	987.73	30.94		
BS2002-25	611807.4	6105104	987.45	31.47		
BS2002-26	611808.49	6105105.61	987.38	31.39		
BS2002-27	611809.8	6105106.9	987.24	31.55		
BS2002-28	611811.02	6105108.13	987.21	32.41		
PRH02-01	612255.39	6105465.17	920.87	16.16	Rotary	

Table 2-4: Year-2002 drilling (concluded)

Borehole	NAD83 UTM		Metres		Drilling Method	Notes
	Easting	Northing	Elevation	Total Depth		
PRH02-02	612273.93	6105451.04	919.01	13.11	Rotary	
PRH02-03	612149.97	6105274.52	923.73	10.4	Rotary	
PRH02-04	612113.59	6105311.87	928.49	15.92	Rotary	
PRH02-05	612419.36	6105586.61	912.13	19.2	Rotary	
PRH02-06	612446.6	6105553.58	910.59	16.15	Rotary	
PRH02-07	612363.21	6105629.63	917.54	31.4	Rotary	
PRH02-08C	612228.86	6105477.37	927.23	24.38	Coring	
PRH02-09	611589.71	6106645.54	1099.01	71.3	Rotary	
PRH02-10C	611629.28	6106719.71	1089.53	62.75	Coring	
PRH02-11	610515.46	6104589.1	1375.19	118.8	Rotary	
PRH02-12	610586.29	6104684.51	1366.63	97.29	Rotary	
PRH02-13	610693.81	6104772.58	1326.72	113.8	Rotary	
PRH02-14	610805.7	6104892.86	1306.88	125.6	Rotary	
PRH02-15	610931.29	6104656.38	1287.63	56.79	Rotary	
PRH02-16	610934.57	6104528.7	1289.57	52.5	Rotary	
PRH02-17	610893.31	6104429.85	1296.69	71.02	Rotary	
PRH02-18C	610932.26	6104655.55	1287.11	53.4	Coring	
PRH02-19	611998.87	6106553.42	1098.63	48.55	Rotary	
PRH02-20C	611976.92	6106550.65	1100.97	19	Coring	

Table 2-5: Year-2003 drilling

Borehole	NAD83 UTM		Metres		Drilling Method	Notes
	Easting	Northing	Elevation	Total Depth		
BS2003-1	611896.475	6106185.783	1064.85	55.69	Coring	Bulk sample
BS2003-2	location unknown; BS2003-2 and -3 not logged; logs are missing for BS2003-4			55.37	Coring	Bulk sample
BS2003-3				45.77	Coring	Bulk sample
BS2003-4				55.76	Coring	Bulk sample
BS2003-5	611896.475	6106185.783	1064.85	37.48	Coring	Bulk sample
BS2003-6	611896.475	6106185.783	1064.85	36.08	Coring	Bulk sample
BS2003-7	611896.475	6106185.783	1064.85	35.07	Coring	Bulk sample
PRH2003-1C	611494.8	6105919.27	1095.66	195.84	Coring	
PRH2003-2C	611303.99	6105701.7	1125.97	105.53	Coring	
PRH2003-3	611792.16	6105810.05	1000.8	132	Rotary	
PRH2003-4	612169.59	6106012.38	1055.93	122.94	Rotary	
PRH2003-5	612492.876	6106543.346	990.41	81.29	Rotary	

Table 2-6: Year-2004 drilling

Borehole	NAD83 UTM		Metres		Drilling Method	Notes
	Easting	Northing	Elevation	Total Depth		
PCBS2004-1C	612217.6984	6105529.134	933.89	34.8	Coring	Bulk sample
PCBS2004-2C	612220.2169	6105530.424	933.91	32.76	Coring	Bulk sample
PCBS2004-3C	612220.5311	6105533.264	933.93	35.05	Coring	Bulk sample
PCBS2004-4C	612221.7108	6105534.683	933.91	35.05	Coring	Bulk sample
PCBS2004-5C	612223.1702	6105536.548	933.8	34.13	Coring	Bulk sample
PCBS2004-6C	612224.7096	6105539.003	933.74	35.05	Coring	Bulk sample
PCBS2004-7C	612226.1626	6105541.523	933.66	34.74	Coring	Bulk sample
PCBS2004-8C	612227.2476	6105543.752	933.79	35.44	Coring	Bulk sample
PCBS2004-9C	612228.8292	6105545.423	933.68	36.36	Coring	Bulk sample
PCBS2004-10C	612240.4832	6105559.888	932.66	35.92	Coring	Bulk sample
PCBS2004-11C	612243.1938	6105562.575	932.33	36.02	Coring	Bulk sample
PCBS2004-12C	612243.75	6105565.192	932.28	36.07	Coring	Bulk sample
PCBS2004-13C	612245.937	6105563.698	932.11	35.42	Coring	Bulk sample
PCBS2004-14C	612247.1241	6105565.723	931.75	35.96	Coring	Bulk sample
PCBS2004-15C	612245.6032	6105567.268	931.81	35.96	Coring	Bulk sample
PCBS2004-16C	612248.3441	6105566.857	931.77	35.76	Coring	Bulk sample
PCBS2004-17C	612249.2746	6105571.074	931.38	37.86	Coring	Bulk sample
PCBS2004-18C	612323.6771	6105632.78	921.78	35.01	Coring	Bulk sample
PCBS2004-19C	612253.0121	6105574.346	930.99	33.68	Coring	Bulk sample
PCBS2004-20C	612262.3702	6105588.298	929.58	33.23	Coring	Bulk sample
PCBS2004-21C	612218	6105541	not individually surveyed	60.86	Coring	Bulk sample
PCBS2004-22C	612218	6105541		61.47	Coring	Bulk sample
PCBS2004-23C	612218	6105541		58.91	Coring	Bulk sample
PCBS2004-24C	612218	6105541		62.98	Coring	Bulk sample
PCBS2004-25C	612218	6105541		60.33	Coring	Bulk sample
PCBS2004-26C	612218	6105541		50.88	Coring	Bulk sample
PCBS2004-27C	612218	6105541		59.8	Coring	Bulk sample

Table 2-7: Year-2005 drilling

Borehole	NAD83 UTM		Metres		Drilling Method	Notes
	Easting	Northing	Elevation	Total Depth		
PCR2005-1	611287.37	6103215.57	910.04	61.93		
PCR2005-2	611357.7	6103302	926.03	107.3		

Table 2-8: Year-2006 drilling

Borehole	NAD83 UTM		Metres		Drilling Method	Notes
	Easting	Northing	Elevation	Total Depth		
PC2006-01	611367.6	6104923	1141.54	106.43	Coring	
DH2	611153.4	6104842	1212.36	109.7	Coring	
DH2006-3	610895.5	6104799	1283.74	109.7	Coring	
DH7	611025	6104620	1249.07	10	Coring	Not logged
DH2006-8	610807.4	6104892	1301.33	124.9	Coring	
DH2006-09	610790.7	6104770	1300.79	91.44	Coring	
DH2006-10	610865.6	6104680	1301.92	70.1	Coring	
DH2006-11	610885.9	6104560	1302.97	82.3	Coring	
DH2006-13	610804.8	6104626	1301.31	67	Coring	
PR2006-01	610645.83	6104494.33	1304.6	173.73	Rotary	
PR2006-02	610801.17	6104311.07	1269.31	138.68	Rotary	
PR2006-03	610891.53	6104143.31	1206.73	138.68	Rotary	
PR2006-04	610712.91	6104247.01	1223.8	138.68	Rotary	
PR2006-05	610780.05	6104037.42	1147.7	163.06	Rotary	
PR2006-06	610778.74	6104036.71	1147.63	184.4	Rotary	
PR2006-07	610918.62	6103965.89	1124.38	123.44	Rotary	
PR2006-08	610924.35	6103957.97	1122.83	129.54	Rotary	
PR2006-09	610908.81	6103865.35	1068.1	118.87	Rotary	
PR2006-10	610908.13	6103864.43	1068.19	167.9	Rotary	
PR2006-11	611023.42	6103750.95	1046.58	112.7	Rotary	
PR2006-12	611018.24	6103748.81	1046.42	97.5	Rotary	
PR2006-13	611139.76	6103594.25	1014.08	170.38	Rotary	
PR2006-14	611139.19	6103600.75	1014.04	83.82	Rotary	
PR2006-15	611162.124	6103257.487	952.67	79.94	Rotary	
PR2006-16	610822.123	6103799.73	1058.63	156.9	Rotary	
PR2006-17	610870.533	6103620.425	1059.49	189.51	Rotary	
PR2006-18	610712.166	6103702.708	1103.28	195.94	Rotary	
PR2006-19	610782	6103479.109	1086.15	173.7	Rotary	
PR2006-20	611026.724	6103273.13	988.73	150	Rotary	Not logged
PR2006-21	608831.903	6107263.178	1216.47	108.2	Rotary	
PR2006-22	609070.388	6107107.83	1261.7	74.7	Rotary	
PR2006-22A	not	surveyed		141.7	Rotary	
PR2006-23	608883.211	6107604.02	1208.45	153.92	Rotary	
PR2006-24	608622.536	6107736.064	1256.73	145	Rotary	
PR2006-25	609345.897	6108116.22	1359.16	154	Rotary	
PR2006-26	608311.773	6107904.126	1347.11	151	Rotary	
PR2006-27	608448.182	6107283.328	1225.6	129.54	Rotary	
PR2006-28	608445.135	6107454.185	1238.21	135.6	Rotary	
PR2006-29	608164.54	6107570.968	1324.58	163.06	Rotary	
TDH-1	610832.77	6104666.97	1270	40	Coring?	Not logged
TDH-2	610966.24	6104595.51	1270.3	40	Coring?	Not logged
TDH-3	610851.09	6104860.59	1272	50	Coring?	Not logged
TDH-4	not drilled					
TDH-5	610836.87	6104801.62	1272	40	Coring?	Not logged

Table 2-9: Year-2007 drilling

Borehole	NAD83 UTM		Metres		Drilling Method	Notes
	Easting	Northing	Elevation	Total Depth		
PC2007-01C	610849.6	6104688	1240.3	9.14	Coring	Not logged
PC2007-02C	610862.24	6104704.94	1240.58	19.3	Coring	
PC2007-03C	610881.33	6104736.87	1240.69	40.48	Coring	
PC2007-04C	610896.72	6104764.4	1240.3	51.82	Coring	
PC2007-05C	610912.41	6104663.83	1240.51	19.81	Coring	
PC2007-06C	610929.07	6104682.84	1240.23	19.81	Coring	
PC2007-07C	610946.95	6104705.77	1240.12	39.6	Coring	
PC2007-08C	610964.03	6104724.19	1240.04	52.83	Coring	
PC2007-09C	611030.09	6104675.83	1239.95	44.2	Coring	
PC2007-10C	611007.91	6104654.06	1239.36	24.38	Coring	
PC2007-11C	611054.78	6104616	1239.4	20.96	Coring	
PC2007-12C	611034.05	6104595.44	1239.36	15.24	Coring	
PC2007-13C	611079.01	6104588.12	1238.12	22.27	Coring	
PC2007-14C	611052.62	6104564.06	1238.73	13.72	Coring	
PC2007-15C	611068.6	6104636	1237.86	9.14	Coring	
PC2007-16C	610985.3	6104634	1239.35	9.14	Coring	
PC2007-17C	610987.4	6104752	1240.17	67.88	Coring	
PC2007-18C	610928.5	6104821	1240	72.38	Coring	
PC2007-19C	611046.46	6104691.49	1243.21	66.35	Coring	
PC2007-20	611603.83	6105183.35	1072.64	112.17	Coring	
PC2007-21	611478.82	6105326	1093.83	118.87	Coring	
PC2007-22C	611598.07	6105090.88	1075.3	91.44	Coring	
PC2007-23C	611250.78	6104808.64	1175.29	87.62	Coring	
PC2007-24C	611154.23	6104754.73	1206.86	80.77	Coring	
PC2007-25C	611165.11	6104680.38	1207.02	60.96	Coring	
PC2007-26C	611112.12	6104628.41	1218.86	51.82	Coring	
PC2007-27C	611132.47	6104655	1212.4	50	Coring	Not logged
PC2007-28C	611147.74	6104668	1211.25	60	Coring	
PC2007-29C	611163.71	6104681.85	1206.88	83.82	Coring	
PC2007-30C	611279.97	6104730.09	1159.53	62.48	Coring	
PC2007-31C	611279.97	6104730.09	1159.53	76.2	Coring	
PC2007-32C	611406.43	6104818.5	1097.6	53.34	Coring	
PC2007-33C	611409.3	6104817	1097.2	76.2	Coring	
PC2007-34C	611465.29	6104879.32	1080.23	51.82	Coring	
PC2007-35C	611478.51	6104804.18	1050.9	16.76	Coring	
PC2007-36	611799.7	6106621.84	1101.9	96.01	Coring	
PC2007-37	611747.66	6106539.66	1107.21	108.2	Coring	
PC2007-38	612090.67	6106362.9	1102.83	91.44	Coring	

Table 2-9: Year-2007 drilling (concluded)

Borehole	NAD83 UTM		Metres		Drilling Method	Notes
	Easting	Northing	Elevation	Total Depth		
PC2007-39	612222.97	6106220.11	1088.65	84.12	Coring	
PC2007-40	611935.84	6106169.92	1062.24	150.88	Coring	
PC2007-41	612322.16	6105896.62	1012.71	74.68	Coring	
PC2007-42	611861.27	6106066.25	1019.89	149.35	Coring	
PC2007-43	612266.4	6105833.08	963.91	74.29	Coring	
PC2007-44	611839.53	6105899.15	989.83	134.11	Coring	
PC2007-45	611642.86	6106114.78	1037.62	192.02	Coring	
PC2007-46	611868	6106706.06	1101.65	51.82	Coring	
PC2007-47	612021.06	6106279.22	1101.54	138.68	Coring	
PC2007-48C	612163.92	6106134.66	1105.8	85.34	Coring	
PC2007-49C	612162.24	6106136.46	1106.2	120.39	Coring	
PC2007-50C	611709.06	6106739.55	1093.93	59.44	Coring	
PC2007-51C	612041.42	6106524.86	1097.04	44.19	Coring	
PC2007-52C	612238.44	6106245.73	1078.35	28.96	Coring	
PC2007-53C	611691.04	6106464.74	1095.18	124.97	Coring	
PC2007-54C	611709.41	6106739.82	1096.13	67.01	Coring	
PC2007-55C	612161	6106128	1104	137.47	Coring	
PC2007-56C	612367.17	6105947.64	1023.12	39.62	Coring	
PC2007-57C	612378.27	6105793.96	965.74	42.67	Coring	
PC2007-58C	611729.28	6105940.33	1017.66	161.54	Coring	
PC2007-59C	612037.93	6106528.41	1096.99	43.59	Coring	
PC2007-60C	612140.66	6106194.72	1120.94	86.87	Coring	
PC2007-61C	612266.69	6105830	963.84	80.77	Coring	
PC2007-62C	612024.37	6106110.68	1060.69	94.49	Coring	
PC2007-63C	610823.16	6104333.5	1284.05	110.03	Coring	
PC2007-64C	610918.21	6104440.49	1286.11	52.12	Coring	
PC2007-65C	610902.77	6104321.29	1276.4	81.99	Coring	
PC2007-66C	610921.29	6104440.38	1286.03	64.02	Coring	
PC2007-67C	610901.68	6104321.21	1276.44	76.5	Coring	
PC2007-68C	610920.52	6104440.37	1286.02	58.22	Coring	
PCS2007-1C	612091.07	6105874.11	965.48	108.79	Coring	Not logged
PCS2007-02C-1	611991.2	6105921	976.6	106.68	Coring	
PCS2007-02C-2	611988.15	6105922.51	976.71	132.59	Coring	

Table 2-10: Year-2008 drilling

Borehole	NAD83 UTM		Metres		Drilling Method	Notes
	Easting	Northing	Elevation	Total Depth		
PC-08-01	609138.65	6107211.95	1238	195.07	Rotary	
PC-08-02	609432.87	6107238.34	1214.27	85.34	Rotary	
PC-08-03	609781.88	6107255.63	1226.74	170	Rotary	
PC-08-04	609950.66	6107062.27	1216.98	152.4	Rotary	
PC-08-05C	610111.11	6106792.22	1228.78	127.4	Coring	
PC-08-06C	609690.75	6106758.48	1290.2	139.6	Coring	
PC-08-07	609346.38	6106722.68	1333.82	187.02	Rotary	
PC-08-08C	609168.15	6106934.62	1301.54	165.5	Coring	
PC-08-09	609850.72	6106479.14	1305.36	164.5	Rotary	
PC-08-10	610564.06	6106540.68	1189.45	200.03	Rotary	
PC-08-11	610806.39	6106852.14	1122.18	158.49	Rotary	
PC-08-12	610402.71	6107159.15	1136.59	172.49	Rotary	
PC-08-13	not drilled					
PC-08-14	610022.73	6107516.28	1177.62	167.64	Rotary	
PC-08-14B	610022.73	6107516.28	1177.62	186	Rotary	
PC-08-15	609642.32	6107466	1185.88	135	Rotary	
PC-08-16	610153.28	6106065.69	1384.13	256.03	Rotary	
PC-08-17	610439.81	6105704.83	1363.96	243.84	Rotary	
PC-08-18	610655.07	6105346.41	1320.47	259.08	Rotary	
WBS-08-01 (PC2008-01C)	unknown	location	unknown	13.71	Coring	Not surveyed?
WR-08-01 (PC08-03R)	611163	6105030.04	1145.34	85.34	Rotary	

Table 2-11: Year-2009 drilling

Borehole	NAD83 UTM		Metres		Drilling Method	Notes
	Easting	Northing	Elevation	Total Depth		
PC-09-01	611578.44	6105814.73	1060.92	163.06	Rotary	
PC-09-02	611658.34	6105680.78	1037.34	135.63	Rotary	
PC-09-03	611712.91	6106053.43	1022.43	181.35	Rotary	
PC-09-04	611502.67	6105582.19	1074.89	134.11	Rotary	
PC-09-05	611357.96	6105402.73	1130.16	144.78	Rotary	
PC-09-06	611295.55	6105483.88	1138.84	150.87	Rotary	
PC-09-07	611144.95	6105535.45	1172.71	160.02	Rotary	
PC-09-08	611185.06	6105198.81	1188.42	150.87	Rotary	
PC-09-09	611108.32	6105330.49	1207.16	163.06	Rotary	
PC-09-10	610934.45	6105292.17	1255.82	172.21	Rotary	
PC-09-11	610989.28	6105128.43	1260.68	169.16	Rotary	

Table 2-11: Year-2009 drilling (concluded)

Borehole	NAD83 UTM		Metres		Drilling Method	Notes
	Easting	Northing	Elevation	Total Depth		
PC-09-12	610474.79	6104904.67	1416.87	240.79	Rotary	
PC-09-13	610566.66	6105005.3	1385.49	196.55	Rotary	
PC-09-14	610556.06	6104869.52	1372.17	178.3	Rotary	
PC-09-15	610651.87	6105114.23	1349.49	181.36	Rotary	
PC-09-16	610720.18	6105047.47	1348.6	178.3	Rotary	
PC-09-17	610582.69	6104684.33	1365.83	178.3	Rotary	
PC-09-18	610509.65	6104589.39	1374.26	214.88	Rotary	
PC-09-19	610932.08	6105802.17	1214.37	184.4	Rotary	
PC-09-20	610151.03	6107678.07	1154.97	146	Rotary	
PC-09-21	610167.9	6107554.79	1162.53	176.78	Rotary	
PC-09-22	610522.84	6107274.77	1129.29	117	Rotary	
PC-09-23	610396.41	6107445.24	1144.14	140	Rotary	
PC-09-24	610215.18	6107350.21	1174.64	153	Rotary	
PC-09-25	609371.09	6107449.25	1192.53	85	Rotary	
PC-09-26	609304.3	6107074.14	1258.15	93	Rotary	
PC-09-27	608973.46	6106970.31	1295.31	178	Rotary	
PC-09-28	608781.03	6106755.44	1324.5	273.48	Rotary	
PC-09-29	609052.34	6106860.28	1338.61	227.14	Rotary	
PC-09-30	608773.24	6106511.5	1385.3	239.33	Rotary	
PC-09-31	609139.97	6106731.76	1371.18	263.72	Rotary	
PC-09-32	608903.01	6106200.62	1421.43	187.45	Rotary	
PC-09-33	609499.67	6106387.88	1410.67	274.32	Rotary	
PC-09-34	609841.39	6106199.91	1387.52	245	Rotary	
PC-09-35	610740.81	6107070.2	1083.39	176.78	Rotary	
PC-09-36	611092.71	6106676.18	1123.94	164.59	Rotary	
PC-09-37	610762.58	6106948.47	1108.5	118.87	Rotary	
PC-09-38	610472.44	6106896.29	1164.43	179.83	Rotary	
PC-09-UC	610218.6	6107219	1169.1	173.73	Coring	Gas tests

Table 2-12: Year-2013 drilling

Borehole	NAD83 UTM		Metres		Drilling Method	Notes
	Easting	Northing	Elevation	Total Depth		
PC13-01c	610956	6105246.44	1259.2	171.5	Coring	
PC13-02c	610722	6104794.82	1300.34	110.33	Coring	
PC13-03c	610424.4	6104922.5	1425.4	1091.2	Coring	
PC13-04c	610392.9	6104690.04	1425.17	121.71	Coring	
PC13-05c	610550.3	6105079.67	1383.23	180.41	Coring	
PC13-AR01c	610755.6	6105069.73	1336.4	172.99	Coring	
PC13-AR02	610938.5	6105537.47	1234.69	148.37	Rotary	
PC13-AR03c	610724.9	6105314.71	1308.07	179.82	Coring	
PC13-AR04c	611176.5	6105932	1184.3	216.08	Coring	
PC13-AR05c	611391.6	6106152	1115.59	220.49	Coring	

2.6.1 Drilled and trenched bulk samples

Bulk samples were taken by means of large-diameter drilling in years 2002 (Anonymous, 2002), 2003 and 2004. A bulk sample was also taken by trenching at an as-yet-unknown location in 2005.

2.6.1.1 Year-2002 sampling

Initially, the year-2002 bulk sample was scheduled to have been taken from an adit, to be driven into the conjoint J12 coal bed. However, the chosen adit contractor was delayed by the need to obtain insurance, and so the decision was taken to drill a series of diamond-cored boreholes, as clusters of closely-spaced boreholes at four sites. By this means, approximately four tonnes of coal and associated coaly rock (parting material) was recovered from the J12 and J3 coal beds. Locations, elevations and depths of these boreholes are presented in **Table 2-4**. In all, twenty-eight bulk-sample boreholes (designated BS2002-1 through BS2002-28), with an aggregate length of 1008.58 metres, were drilled amongst the four sites (as called-out within **Map 2-5**)

Selection of the J-zone alone for sampling was likely predicated upon the contemporary (Perry *et al*, 2003) consideration of this zone for an underground mine and associated starter pit, at Perry Creek.

2.6.1.2 Year-2003 sampling

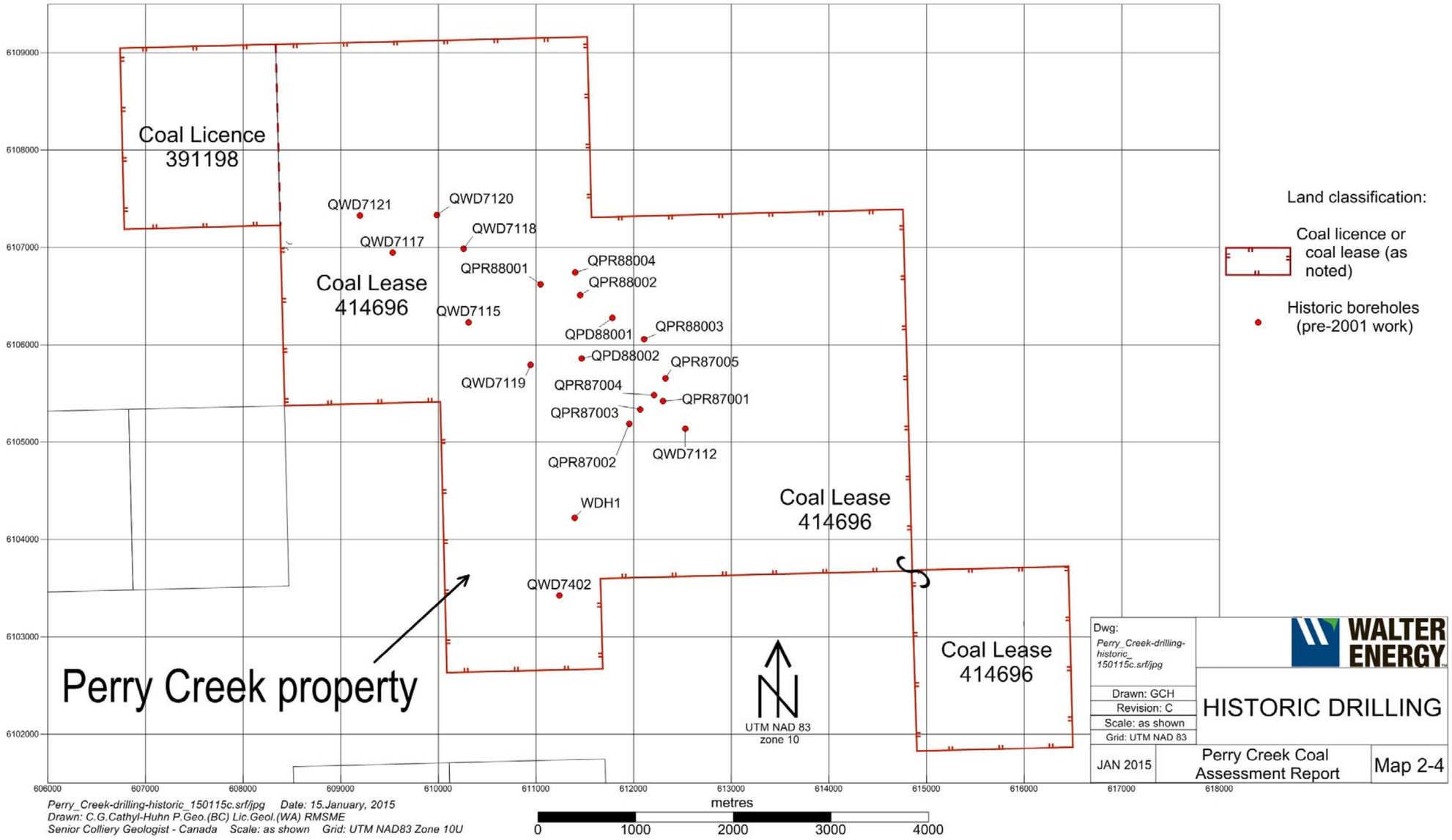
In 2003, a further seven boreholes (designated as BS2003-1 through BS2003-7) were drilled at one or more sites. The year-2003 bulk-sample drilling programme is more poorly-documented than the previous work in year-2002 and the subsequent work in year-2004, and there remains some uncertainty as to exactly where all of the year-2003 holes were drilled. Aggregate length of the year-2003 boreholes was 321.22 metres.

2.6.1.3 Year-2004 sampling

Further bulk-sampling was done by means of drilling in year-2004. In all, twenty-seven boreholes were drilled, with an aggregate length of 1119.5 metres. Most of the year-2004 boreholes are reasonably well-documented, although the final seven boreholes of the programme do not appear to have been individually surveyed, and they have one lower-precision positional value given for all seven holes. In contrast to the year-2002 work, the year-2004 bulk sample drilling recovered samples of the E2, E3, F, G, J1, J2 and J3 coal beds, thus allowing for the preparation and testing of bulk samples based on all of the Gates Formation coal beds then-considered as mineable at Perry Creek.

2.6.1.4 Year-2005 sampling

In year-2005, an additional bulk-sample was taken of the E2, E3, F, G, J12, and J3 coals, presumably by trenching at one or more sites, as no bulk-sample boreholes are known to have been drilled in that year. Some analytical results are available for this work, but as it cannot yet be related to known sample sites, its utility is therefore diminished.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UTM NAD 83
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6103000
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WALTER ENERGY
HISTORIC DRILLING
JAN 2015
Perry Creek Coal Assessment Report
Map 2-4
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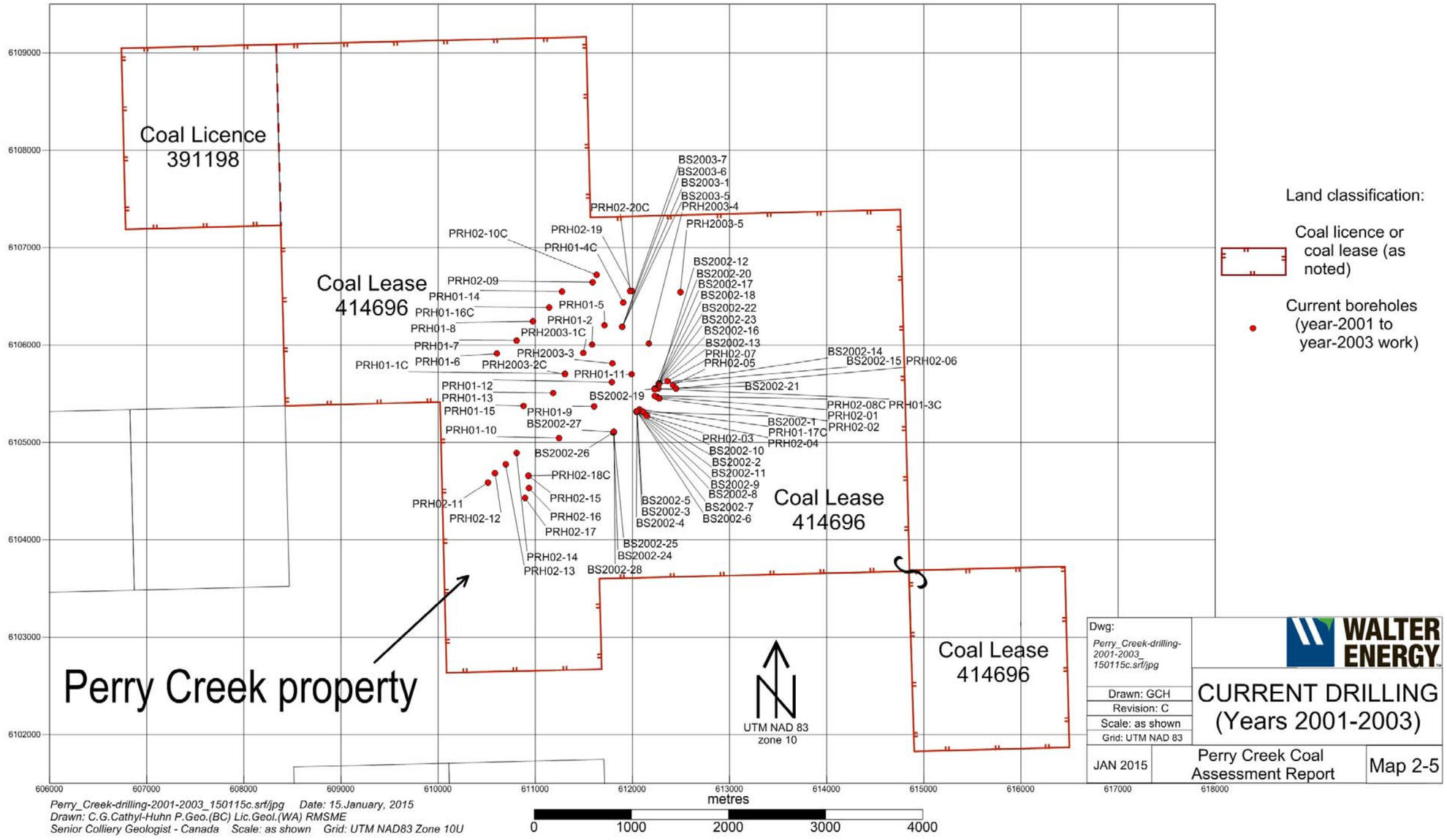
Drawn: C.G.Cathyl-Huhn P.Geo.(BC) Lic.Geol.(WA) RMSME
Senior Colliery Geologist - Canada Scale: as shown Grid: UTM NAD83 Zone 10U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Grid: UTM NAD 83
WALTER ENERGY
CURRENT DRILLING
(Years 2001-2003)
JAN 2015
Perry Creek Coal Assessment Report
Map 2-5
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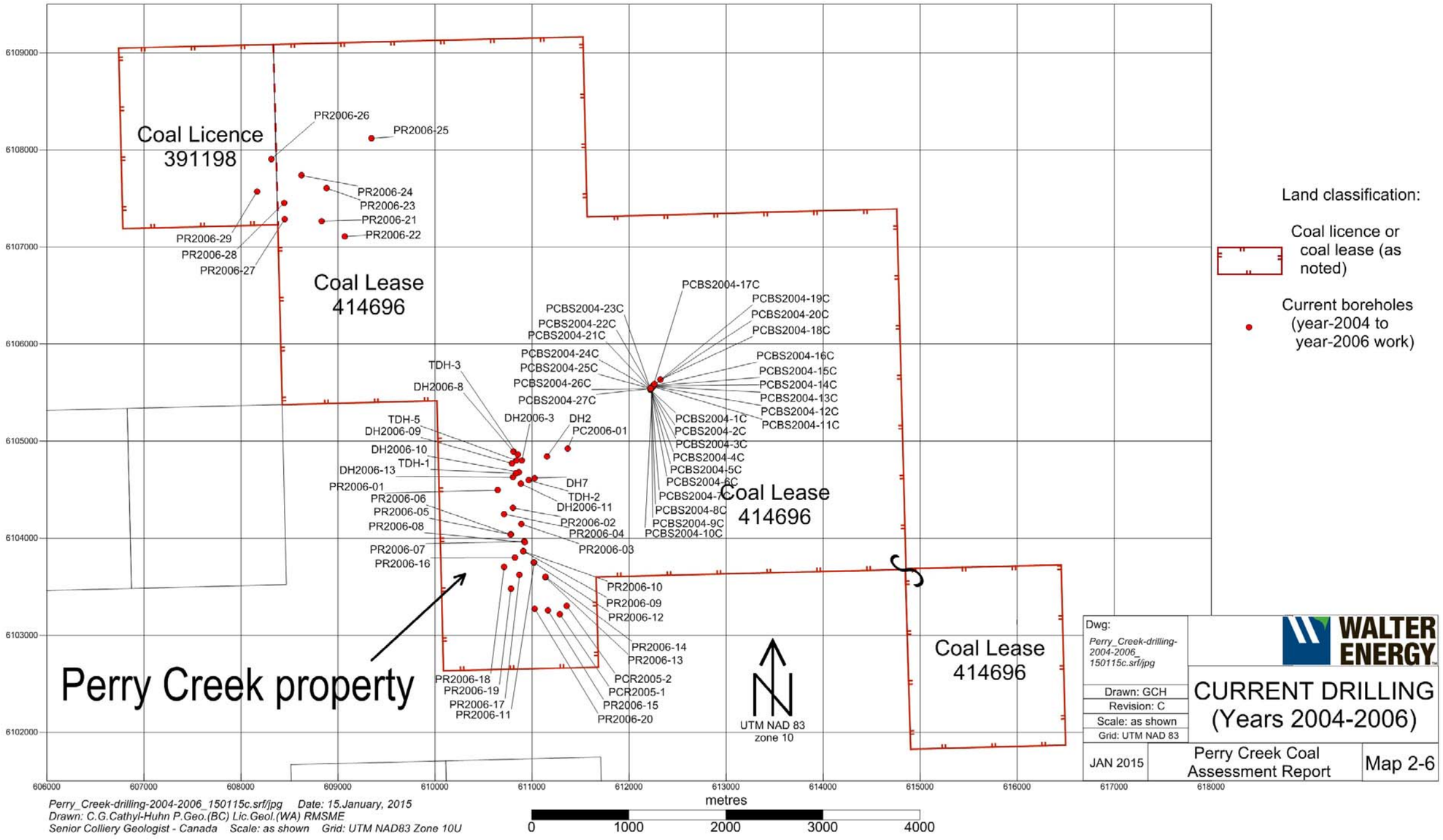
Senior Colliery Geologist - Canada Scale: as shown Grid: UTM NAD83 Zone 10U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(Years 2004-2006)
JAN 2015
Perry Creek Coal Assessment Report
Map 2-6
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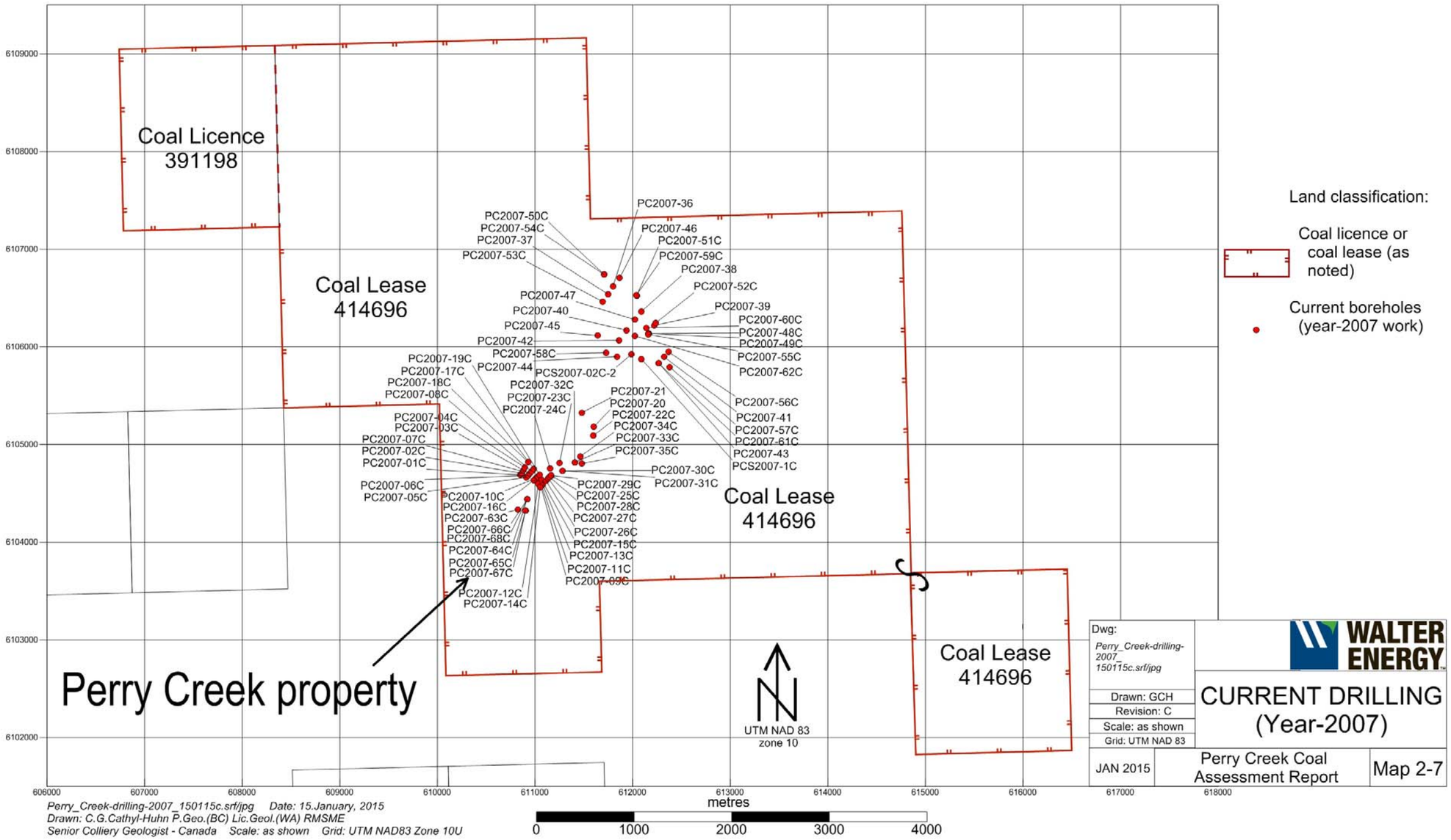
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Grid: UTM NAD 83
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(Year-2007)
JAN 2015
Perry Creek Coal Assessment Report
Map 2-7
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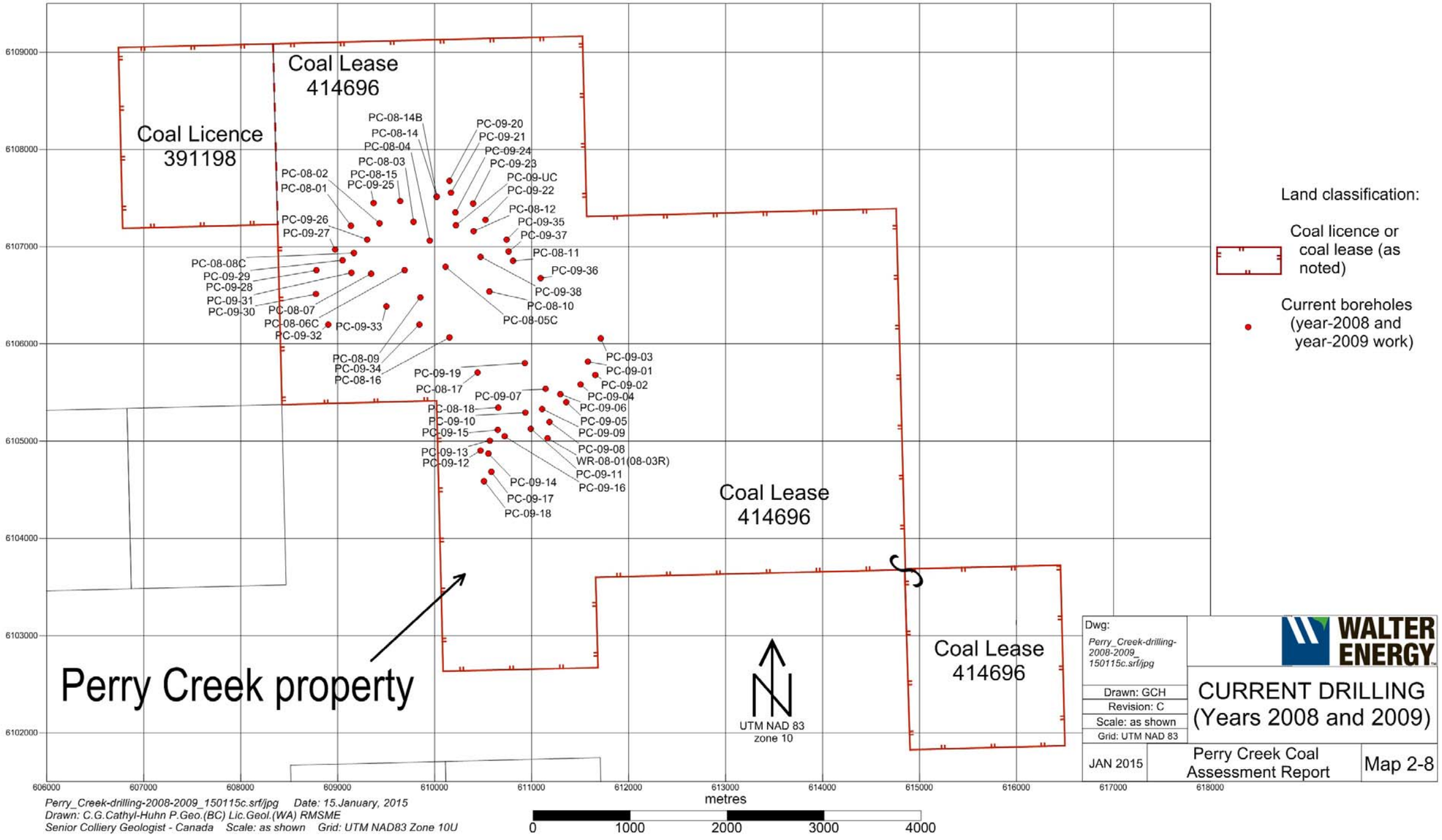
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PC-09-29
PC-09-28
PC-09-31
PC-09-30
PC-08-07
PC-08-06C
PC-09-32
PC-09-33
PC-08-09
PC-09-34
PC-08-16
PC-09-20
PC-09-21
PC-09-24
PC-09-23
PC-09-UC
PC-09-22
PC-08-12
PC-09-35
PC-09-37
PC-08-11
PC-09-36
PC-09-38
PC-08-10
PC-08-05C
PC-09-19
PC-08-17
PC-09-07
PC-08-18
PC-09-10
PC-09-15
PC-09-13
PC-09-12
PC-09-14
PC-09-17
PC-09-18
PC-09-03
PC-09-01
PC-09-02
PC-09-04
PC-09-06
PC-09-05
PC-09-09
PC-09-08
WR-08-01(08-03R)
PC-09-11
PC-09-16
Coal Lease
414696
Perry Creek property
Coal Lease
414696
UTM NAD 83
zone 10
6109000
6108000
6107000
6106000
6105000
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6103000
6102000
606000
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608000
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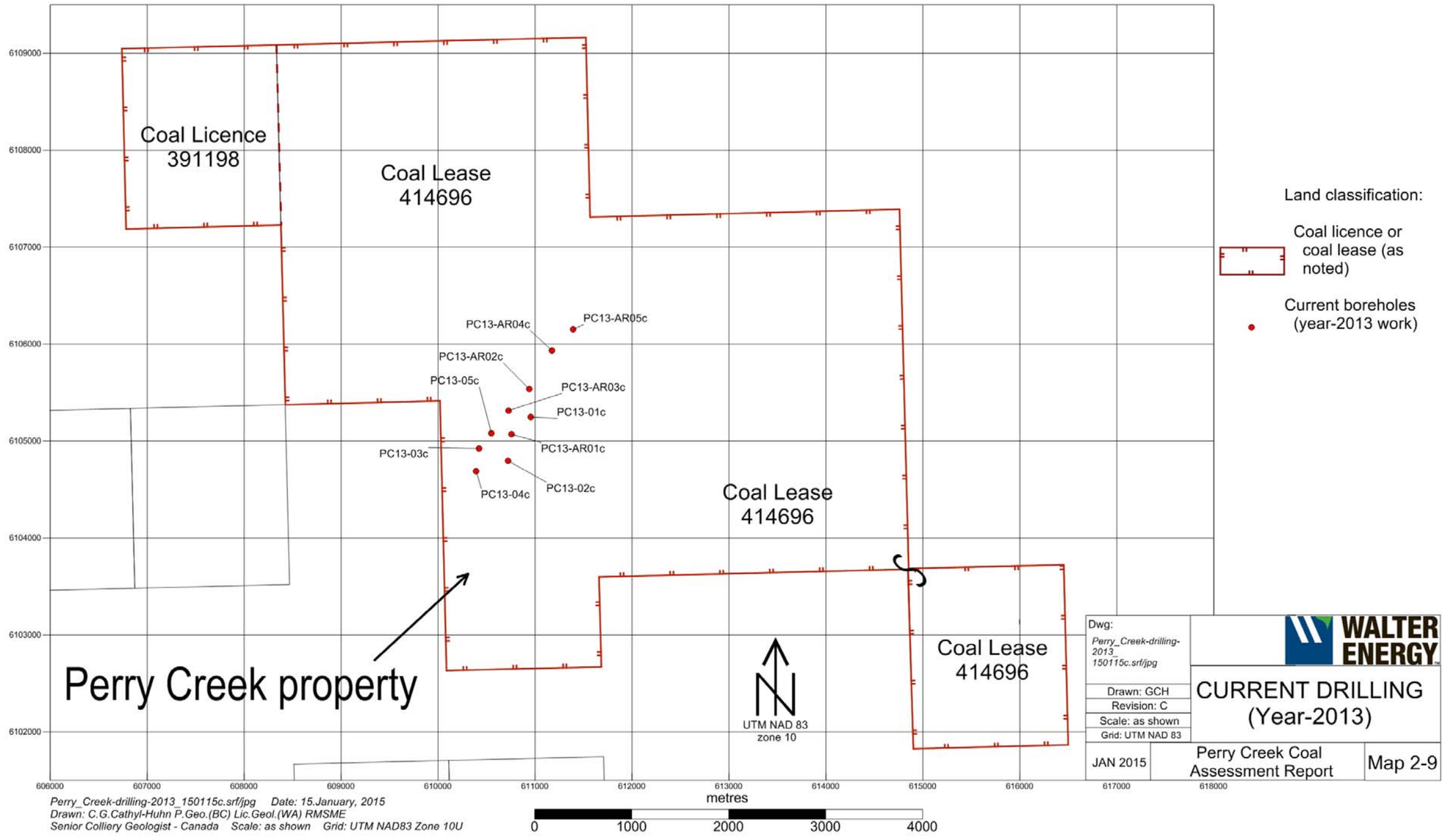
metres
0
1000
2000
3000
4000
Land classification:
Coal licence or coal lease (as noted)
Current boreholes (year-2008 and year-2009 work)
Dwg:
Perry_Creek-drilling-2008-2009_150115c.srf/jpg
Drawn: GCH
Revision: C
Scale: as shown
Grid: UTM NAD 83
WALTER ENERGY
CURRENT DRILLING
(Years 2008 and 2009)
JAN 2015
Perry Creek Coal Assessment Report
Map 2-8
Perry_Creek-drilling-2008-2009_150115c.srf/jpg Date: 15.January, 2015
Drawn: C.G.Cathyl-Huhn P.Geo.(BC) Lic.Geol.(WA) RMSME
Senior Colliery Geologist - Canada Scale: as shown Grid: UTM NAD83 Zone 10U


Coal Licence
391198
Coal Lease
414696
Coal Lease
414696
Coal Lease
414696
PC13-AR04c
PC13-AR05c
PC13-AR02c
PC13-05c
PC13-AR03c
PC13-01c
PC13-03c
PC13-AR01c
PC13-04c
PC13-02c
Perry Creek property
UTM NAD 83
zone 10
Land classification:
Coal licence or coal lease (as noted)
Current boreholes (year-2013 work)
6109000
6108000
6107000
6106000
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6104000
6103000
6102000
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metres
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Dwg:
Perry_Creek-drilling-2013_150115c.srf/jpg
Drawn: GCH
Revision: C
Scale: as shown
Grid: UTM NAD 83
WALTER ENERGY
CURRENT DRILLING (Year-2013)
JAN 2015
Perry Creek Coal Assessment Report
Map 2-9
Perry_Creek-drilling-2013_150115c.srf/jpg Date: 15.January, 2015
Drawn: C.G.Cathyl-Huhn P.Geo.(BC) Lic.Geol.(WA) RMSME
Senior Colliery Geologist - Canada Scale: as shown Grid: UTM NAD83 Zone 10U

2.6.2 Cross-reference to analytical results and coking tests

Available analytical records are presented in **Appendices B** (raw coal) and **C** (clean coal following washability tests) of this report. Records of the year-2004 bulk-sample programme are the most complete, followed by those of the year-2002 programme. Year-2003 results are still incomplete, despite a lengthy search for records, and the year-2005 work is also poorly-documented.

Year-2004 coking test results, as presented in **Appendix E**, appear to be confidently correlatable to the year-2004 bulk sampling, although no overall flowsheet connecting these two programmes of work has yet been found.

2.7 Acknowledgements and professional responsibility

Preetpal Singh scanned and organised the geophysical logs and other supporting data, for those of the current (year-2001 and more recent) boreholes for which digital records were not readily available. Scanned materials are incorporated within their appropriate appendices within this report. Wayde Bosman EIT, Michael Tuters EIT and Tony Ryhardjo EIT provided detailed maps and production statistics for Perry Creek Mine. Thanks are due to International Tectonic Consultants' principal geologist, Dr. Peter Jones P.Geol. Acad. RAS, for sharing his insights regarding the regional structural geology of the Perry Creek area, and to consulting geologist Frank Visger, for wide-ranging discussions concerning coal quality and washability.

Thanks are also due to senior geologist Blake Snodsmith, at Jim Walter Resources, for assistance with regional topographic base-maps, and to Dave Richardson P.Geo. and Sara McPhail P.Geo., at the B.C. Ministry of Natural Gas Development, for assistance in locating details of natural-gas wells at and near Perry Creek.

Gwyneth Cathyl-Huhn P.Geo. accepts overall professional responsibility for the contents of this report.

3 Geology

Regional and local geology (**Map 2-3**) of Perry Creek and the Sukunka-Quintette coalfield is known mainly from the extensive work of D.F. Stott (1960; 1961; 1963; 1968; 1973; 1974; 1982; 1998), and D.W. Gibson (1992a, 1992b) on behalf of the Geological Survey of Canada (1968; 1973; 1982; 1998).

As well, several coal-company Coal Assessment Reports (cited in **Section 8** of this report (and cross-referenced within **Table 2-2**) are available as open file documents from the provincial Geological Survey Branch. Copies of the reports are freely available for download via the provincial Survey's website, and may also be purchased in CD or DVD format at a cost of $20 per report. Most of the Coal Assessment Reports have been censored to exclude clean-coal quality data, as such data are held confidential by the Crown in keeping with the provisions of the *Coal Act Regulation*.

3.1 Regional Geology

The Perry Creek coal property lies within the Sukunka-Quintette coalfield of northeastern British Columbia, part of the Foothills structural province of the Canadian Cordillera.

The majority of sedimentary rocks within the Sukunka-Quintette coalfield are clastic in nature, ranging in grain-size from claystones and mudstones through conglomerates. Lesser amounts of biologically- and chemically-derived sedimentary rocks are present, comprising coals, banded and nodular ironstones, glauconite-rich sandstones and gritstones, and impure dolomites.

Volcanic rocks constitute a very small component of the Early Cretaceous strata, comprising very fine- to fine-grained tuffs (locally altered to bentonites or tonsteins), interpreted to have originated as wind-borne distal ash-fall deposits from contemporaneous volcanoes situated upwind and far to the southwest of the property. The volcanic rocks characteristically occur as very thin (at most a few decimetres) yet regionally-extensive bands, which are of use as markers for structural and stratigraphic correlations (Duff and Gilchrist, 1981; Kilby, 1984a).

All rocks exposed at the ground surface are of Cretaceous age, belonging to the Minnes (Berriasian to Valanginian stages), Bullhead (Hauterivian to Albian stages) and Fort St. John (Albian to Cenomanian stages) groups. Within the Perry Creek property, total thickness of the Cretaceous rocks is very approximately 2300 to 2500 metres, although some of this thickness is almost certainly attributable to thrust-induced structural telescoping of the rock. Elsewhere within the coalfield, sections as thick as 3000 metres are inferred to be present.

3.1.1 Regional stratigraphy

During much of the Early Cretaceous, the Western Interior of North America was occupied by a shallow seaway, variably-designated by different authors as the Western Interior Sea, the Boreal Sea, or by analogues of formation names, such as the Clearwater Sea, Hulcross Sea or Moosebar Sea. Depths of the seaway, magnitude of accommodation space for sediments, and overall shoreline trends, were largely controlled by vertical movements within a complexly-block-faulted crystalline basement terrane of Precambrian age, the Peace River Arch.

Sediments of the Minnes Group and the basal part of the Bullhead Group were derived from actively-eroding upland areas within the North American craton, particularly from the Peace River Arch. The receiving basin during this early time period lay to the west of the craton, within an actively-subsiding continental shelf which prograded westwards into the ancestral Pacific Ocean. Subsequently, slightly later within the earliest Cretaceous era, sediments of the upper part Bullhead Group and the Fort St. John Group were derived from actively-rising thrust-faulted tectonic forelands situated to the west and southwest of the seaway, synchronous with the docking of allochthonous tectonic terranes against the western margin of the North American craton.

Coal deposits formed within the non-marine portions of the clastic sedimentary successions. Kalkreuth and Leckie (1989) recognised the close association between actively-subsiding shoreface sandstone deposits and the overlying presence of thick coal beds; this association is well-established within the upper part (Chamberlain Member) of the Gething Formation and the middle part (Falher Member) of the Gates Formation, within the Sukunka-Quintette coalfield, including the Perry Creek property.

3.1.2 Regional structure

The Perry Creek coal property, and the coalfield within which it is contained, is characterised by a thin-skinned deformational style comprising folded, laterally-arcuate thrust faults and associated fault-bend folds (Chowdry, 1971; Jones, 1959).

Age relationships amongst the thrusts are as generally observed within the Cordilleran fold-thrust belts of North America, with the oldest thrusts occupying stratigraphically-higher positions, generally to the tectonic inboard side (hence, to the southwest) of the stratigraphically-lower and younger thrusts. Most, but not all, of the thrusts dip generally to the southwest and strike to the northwest.

Thrusts range in scale from mesoscopic features with stratigraphic displacements of a few decimetres to a few metres, to regionally-throughgoing faults and fault zones (such as the Bullmoose and Mesa faults) with stratigraphic displacements of several hundred metres.

Regionally, the basal Cowmoose Member of the Moosebar Formation, and the younger Hasler Formation, are often zones of *décollement* (tectonic detachment), characterised by near-bedding-parallel thrust faults (Cooper *et al*, 2004).

3.2 Local geology

A generalised stratigraphic profile of the coal beds and associated sedimentary rocks at Perry Creek is presented as **Table 3-1**.

3.2.1 Local stratigraphy

Within the Perry Creek property, rocks belonging to the uppermost Minnes, Bullhead and all but the uppermost Fort St. John groups are exposed at the ground surface. Approximately 1130 metres (true stratigraphic thickness) of Bullhead and Fort St. John rocks remain in place, following Tertiary-Quaternary episodes of fluviatile erosion and glacial scouring. An additional 1350 metres of Minnes Group rock underlies the Bullhead Group; these deeper rocks are known mainly from the records of natural-gas wells.

Formations mapped (see **Map 2-3** and **Table 3-1**) as being present at outcrop range downwards from the Cruiser Formation (map-unit 8c, the youngest mapped formation, whose outcrop belt passes about 500 metres north of the northern boundary of the property) to the Monach Formation (map-unit 1, the oldest mapped formation, exposed in the core of an anticlinal fold, about 500 metres south of the southern boundary of the property). The ages of these rocks span 145 to 100.5 million years before present, based on paleontological evidence and limited tephrachronological dating.

3.2.2 Local structure

The Perry Creek coal property consists, essentially, of a moderately-deformed stack of marine and non-marine strata, generally present in normal (‘tops-up’) stratigraphic position, albeit with generally-steep bedding-surface dips. Exceptions to this general situation are presented by the complexly-folded area between the Fortress Mountain fold train and the northern mapped extremity of the Mesa Thrust, which may be a displacement-transfer zone between the northward-terminating thrust fault and the *en-echelon* folds of the fold train.

As a general consideration, thrust faults at Perry Creek are inferred to have developed in the typical downward-younging sequence of successive faulting, although this assertion remains untestable in the absence of detailed kinematic observations. Thrusts typically exhibit northeastward vergence, consistent with an overall northeastward direction of tectonic transport. No evidence of a localised 'triangle zone' has yet been observed.

Thrust faults are locally folded, as exemplified by the local curvature of the Mesa Thrust as it climbs over the northeastern shoulder of Fortress Mountain. In comparison with adjoining properties to the northwest (East Bullmoose / Mt. Spieker) and the southeast (Quintette Frame and Hermann West), faulting appears to be subordinate to folding, as a means of accommodating tectonic shortening of the strata.

Fault-to-bedding cutoff angles (alpha-angles) have not yet been specifically studied within the Perry Creek property, but by analogy with better-understood areas within the coalfield, alpha-angles at Perry Creek may be assumed to range from near-zero within incompetent rocks such as mudstones, vitrinite-rich coals, and volcanic ash bands, through 30 degrees in well-indurated, thick-bedded to massive sandstones and conglomerates.

3.2.2.1 Minor thrust-faults

Other than the Mesa Thrust, faulting appears to be quite rare within the Gates Formation at Perry Creek, although minor steep-dipping thrusts with no more than a few metres’ displacement occasionally dislocate the J2 and J3 coal beds and the underlying Quintette Sandstone. Those parts of the exposed northeastern limb of the Perry Creek Syncline (where not already buried beneath mine waste dumps) display excellent exposures of minor thrust-faults breaking the top of the Quintette Sandstone.

Minor thrust-faults are not depicted on this report's geological map, owing to the property-scale nature of the mapping. Thrusts have been, however, tracked within the workings of Perry Creek Mine where exposures permit, although for reasons of worker safety it has seldom been possible to collect detailed kimematic data from these faulted exposures.

3.2.2.2 Bedding-plane detachments

Bedding-plane detachments are occasionally seen within soft muddy siltstones and mudstones of the Falher Member of the Gates Formation (especially within the immediate roof of the G coal bed, and within the thin central coaly mudstone parting of the J12 coal bed). Bedrock exposure is insufficient to identify any potential detachment zones within other formations.

Bedding dips within the Perry Creek coal property are generally gentle to moderate, especially as compared with nearby properties. Dips of 25 to 40 degrees are typical of the northeastern limb of the Perry Creek Syncline, while its southwestern limb's dips range from 10 to 16 degrees. The southwestern limb of the Perry Creek Anticline, rolling under the Mesa Thrust, dips 35 to 55 degrees to the southwest. Much steeper dips are observed in the tightly-compressed strata of the property's northeastern corner, especially along the lower course of Perry Creek, where the rocks are frequently vertical to substantially-overturned, on the northeastern (tectonically-leading) limb of the Mesa East Anticline.

3.2.2.3 Small-scale structures of inferred compactional or syndepositional origin

Mining at Perry Creek has exposed many small-scale dislocations of the Gates coals, which appear to be due to small-scale splits and washouts within the coal-measures, rather than to the more frequent presence of minor faults as was considered possible by earlier workers. In most cases, even where coals are absent due to washouts, their rooted floors continue onward, and they are generally recognisable beneath the erosive-based overlying channel-filling rocks despite the disappearance of the associated coal beds.

Small-scale features include compactional and syndepositional faults with displacements of a few decimetres, as measured along the fault plane. Also included are small-scale incompetent folds with asymmetric and rapidly-changing displacements which seldom exceed a metre. These folds, which are inferred to be of compactional origin, occasionally dislocate but do not actually break continuity of the E2, E3 and F coal beds; these folds tend to occur as northwest-trending swarms, even though the individual folds are discontinuous in detail.

3.2.2.4 Perry Creek Syncline

The Perry Creek Syncline is the most economically-significant structure within the property, as the syncline's core hosts the recently-worked northeastern part of Perry Creek Mine's coal reserves. Essentially all of the workable coal has been mined from the syncline's moderately-steep northeastern limb, and mining has more recently been progressing updip along the syncline's gentler southwestern limb.

The syncline's core, as expressed by the exposed upper surface of the Quintette Sandstone, is conically-folded across an apical width of 30 to 50 metres. The sandstone itself is not notably faulted nor jointed within the apical zone, but overlying thick coals of the J2 and J3 coal beds are closely-cleated, and their internal partings are intensely-sheared, with patchily-developed out-of-syncline sigmoidal *schuppen*-structures. Cleats with the folded coal are frequently coated by thin films of calcite, ankerite or ferroan

Table 3-1: Stratigraphic units, coal zones, and coal beds at Perry Creek

Geological Age		Lithostratigraphic Units				Thickness	Map-Units	Coal Beds/Coal Zones	
		Group	Formation	Member	Division			Bed	Zone
Quaternary			Mine waste			>50 m	M		
			Talus			nil to 20 m	TL		
			Drift			nil to 80 m	D		
Early Cretaceous	Late Albian	Fort St. John	Cruiser			>15 m?	8c		
			Goodrich			50 m?	8b		
			Hasler			150 m?	8a		
	Late Middle Albian to Late Albian		Boulder Creek			130 m	7	thin unnamed coal(s)	
	Middle Albian		Hulcross			105 m	6		
	e Early Albian		Gates	Notikewin		90 to 115 m	5	5c	A1 coal bed
									A coal bed
									B coal bed
									C coal bed
				Falher		70 to 90 m		5b	D coal bed
									E2 coal bed / E3 coal bed — E
									F1 coal bed / F2 coal bed — F
									G coal bed — G
									J12 coal bed (J1 coal / J2 coal) — J
									J3 coal bed — J
				Torrens	Quintette Sandstone	12 to 29 m			
					medial siltstone	8 to 27 m		5a	rare thin coaly stringers?
					Torrens Sandstone	10 to 12 m			
			Moosebar	Spieker		45 to 55 m	4	4c	
				Cowmoose		45 to 50 m		4ab	4b
				basal gritstone		0.1 to 1 m			4a
		Bull-head	Gething	Chamberlain		30 to 40 m	3	3d	Bird coal zone
									Skeeter coal zone
									Chamberlain coal zone
				Bullmoose		25 to 35		3c	
				Bluesky		nil to 3? m		3b	
	Hauterivian to Late Early Albian			Gaylard		150 to 160 m		3a	Gething coal zone(s)
	Barremian		Cadomin			30 to 85 m	2		
	Valanginian and older?	Minnes	Monach (and older formations below)			1300 to 1400 m	1	Coals present	

dolomite, to a much greater extent than is characteristic of the coal on either limb of the fold.

Drilling in the north-central part of the property, along the northwestward continuation of the syncline, indicates that a substantial area of Falher Member coal-measures have dips less than 15 degrees, thus rendering them plausible as candidates for underground coal-mining (Cain and McCandlish, 2009).

4 Stratigraphic synopsis

The following discussion presents details of the lithology, contained coal beds, inferred origin, typical thickness and contact relationships of the various surficial and bedrock units present at Perry Creek, keyed to the map-unit numbers used in **Map 2-3** and **Table 3-1**. Geological units are discussed in stratigraphic order from uppermost (youngest) to lowermost (oldest) within the exposed sequence of strata.

4.1 Quaternary surficial deposits (map-units M, TL, and D)

Unconsolidated surficial deposits of Quaternary age comprise mine waste (map-unit M) and valley-bottom and hillside Drift (map-unit D). The extent of all three classes of surficial deposits has been mapped by means of *Google Earth* satellite imagery, LIDAR imagery, and by interpretation of topographic boundaries adjacent to the valley-floor of Wolverine River, supported by borehole records in those areas which have been drilled.

4.1.1 Mine waste (map-unit M)

Associated with open-pit mining operations at Perry Creek Mine are mine waste dumps, consisting of overburden and interburden rocks removed during mining operations. Thickness of dumped material is inferred to be substantial, locally greater than 50 metres; more-precise determination would require access to dump plans and associated operating records.

4.1.2 Talus (map-unit TL)

The northeastern and northwestern slopes of Fortress Mountain are locally mantled by patchily-vegetated areas comprised of large to very large (boulders to tabular megaclasts several tens of metres wide), chaotically-jumbled blocks of conglomerate, gritstone, sand sandstone similar to the rocks of the Cadotte Member of the Boulder Creek Formation. LIDAR and satellite imagery shows distinctive lobate features at the downslope ends of these areas, which are interpreted to comprise talus, colluvium and possible landslide deposits sourced from failed dip-slopes within the Cadotte Member. Thickness of these deposits is inferred to range from nil to 20 metres. Where accessible for observation, upslope from Perry Creek Mine's open-pit workings, the southern edge of these deposits is abrupt, presenting a steep upward slope of a few metres' height, with a root-bearing soil horizon beneath the blocky materials.

4.1.3 Drift (map-unit D)

The flat-bottomed floor of the Murray River valley is occupied by the river’s meander-belt, and by adjoining alluvial fans of tributary creeks which drain nearby upland areas. The banks of the river, where exposed by channel-migration processes, show crudely-bedded silts, sands and gravels which are interpreted as fluvial deposits. Glacial and glaciolacustrine sediments, of broadly Pleistocene age, may underlie the near-surface fluvial deposits. Thickness of the valley-filling Drift, where investigated in conjunction with the design of Wolverine Colliery's tailings facilities, is locally at least 150 metres. The base of the valley-fill has often been unreachable by drilling, although this may be to some extent due to past workers being disinterested in pursuing bedrock to great depths within areas which clearly are not of interest for mining

An isolated body of thick Drift also covers the upland northwest-central portion of the

Perry Creek property (**Map 2-3**), and extends eastward to form steep bluffs along the southern bank of Perry Creek.

4.2 Fort St. John Group (map-units 8c through 4ab)

An incomplete section of the Fort St. John Group is present at Perry Creek, owing to the group's top contact having been stripped off by erosion during Tertiary uplift of the rocks, and further scouring by glaciers during the Quaternary era.

Thicknesses and lithologies of the Cruiser, Goodrich, Hasler and Boulder Creek formations are known only from examination of outcrop sections, as these rocks have not yet been drilled within the Perry Creek coal property (and the Cruiser is mapped as being completely absent within the property). The youngest of the drilled rocks is the Hulcross Formation, of which a nearly-complete section was encountered in borehole PC09-33, northeast of Fortress Mountain.

4.2.1 Cruiser Formation (map-unit 8c)

The Cruiser Formation is the uppermost formation within the Fort St. John Group, and as such, it is not present within the boundaries of the Perry Creek coal property, although it is inferred to form bedrock in localities a few hundred metres to a kilometre north of the property (as depicted on **Map 2-3**).

The Cruiser comprises 105 metres of dark grey mudstone with frequent interbeds of siltstone and occasional interbeds of fine-grained, silty sandstone. Bands of discoidal to spheroidal sideritic concretions occasionally occur. The formation's age, on the basis of marine fossils, ranges from Late Albian to Cenomanian. The basal contact of the Cruiser Formation with the underlying Goodrich Formation is abrupt (Stott, 1968), and possibly disconformable.

4.2.1.1 Cross-reference to Shaftesbury Formation

The Cruiser, Goodrich and Hasler formations are considered by Stott (1968) to be lateral equivalents of the Shaftesbury Formation of the Alberta Syncline, where the Goodrich sandstone is not recognisable within a thick sequence of fine-grained rocks. During the Denison-Quintette era of exploration at Perry Creek, company geologists did not recognise the tripartite division of these strata, and thus they mapped these rocks as Shaftesbury.

4.2.2 Goodrich Formation (map-unit 8b)

The Goodrich Formation comprises approximately 50 metres of medium- to thick-bedded, locally cliff-forming sandstone, with frequent interbeds of siltstone and mudstone. At Perry Creek, the basal few metres (less than 10 metres?) of the Goodrich Formation is interpreted to be present within the property's extreme northeastern corner (as shown in **Map 2-3**). The Goodrich is of Late Albian age, as established by its molluscan fauna (Stott, 1968). The basal contact of the Goodrich Formation with the underlying Hasler Formation is gradational.

4.2.3 Hasler Formation (map-unit 8a)

The Hasler Formation comprises approximately 150 metres of dark grey, locally rusty-weathering mudstone with frequent interbeds of siltstone and occasional interbeds of fine-grained, silty sandstone. The Hasler Formation is interpreted to underlie the northeastern part

of the Perry Creek property (**Map 2-3**), where it is sporadically-exposed along the banks of the lower course of Perry Creek. The Hasler Formation also forms to core of the Fortress Mountain Syncline, atop the mountain's peak, but this outlier of the Hasler lies completely outside the boundaries of the Perry Creek coal property.

The Hasler is probably of Late Albian age, on the basis of the probable Late Albian age assigned to the underlying Boulder Creek Formation (Gibson, 1992b; Koke and Stelck, 1985; Stelck and Koke, 1987). The abrupt base of the Hasler Formation is locally marked by a thin (a few centimetres to decimetres) layer of pebbly mud-matrix conglomerate.

4.2.4 Boulder Creek Formation (map-unit 7)

The Boulder Creek Formation comprises 130 metres of ridge-forming, competent, thick-bedded to massive, coarse-grained sandstone and conglomerate, with thin interbeds of siltstone, variably-carbonaceous mudstone and occasional thin (a few decimetres) coal beds.

Gibson (1992b) recognised members within the Boulder Creek Formation, on the basis of lithostratigraphy. Gibson's basal Cadotte Member is probably represented at Perry Creek by a conspicuous ridge-forming zone of conglomerate and sandstone along the upper northeastern flank of Fortress Mountain, but it is difficult to distinguish the overlying Walton Creek Member coal-measures from the uppermost Paddy Member of the formation, owing to lack of good exposure of these rocks. Insofar as the Boulder Creek Formation has not yet been drilled at Perry Creek, and its outcrop trace lies outside the zone of immediate interest for mine-planning, no attempt is here made to map its subdivisions within the Perry Creek property.

The Boulder Creek Formation is of Late Middle Albian to probable Late Albian age, based on its angiosperm flora (Gibson, 1992b). The basal contact of the Boulder Creek Formation with the underlying Hulcross Formation is abrupt at local scale, and likely gradational by intertonguing at regional scale.

4.2.4.1 Cross-reference to Commotion Formation

The Boulder Creek, Hulcross and Gates Formations were formerly considered to be members of the Commotion Formation (Stott, 1968). That prior usage was general within old coal assessment reports from the Sukunka-Quintette coalfield, including the Perry Creek area. All three of these sub-units of the Commotion are now regarded as having formational status within the Fort St. John Group.

Geologists from Denison Mines and Quintette Coal further considered the siltstone/sandstone interbeds of the Spieker Member to constitute a basal transitional facies of the Gates 'Member', and thus to constitute the basal part of the Commotion Formation. The Spieker beds are now, however, regarded as being the uppermost member of the Moosebar Formation.

4.2.5 Hulcross Formation (map-unit 6)

The Hulcross Formation, of Middle Albian age within the Early Cretaceous (Stelck and Leckie, 1988; Gibson, 1992b) comprises 105 metres of thinly-interbedded, locally-concretionary medium grey siltstone, fine-grained sandstone and dark grey mudstone with occasional very thin but extremely-persistent interbeds of soft, light grey to white, tuffaceous volcanic ash. Mesoscale (a few decimetres to a few metres thick) fining-upward sequences reminiscent of proximate turbidites or tempestites are common within the Hulcross, as are

trace-fossils and poorly-preserved shell fossils. Fine-grained pyrite is locally-abundant within the Hulcross rocks, which are inferred to have been deposited beneath a stratified water column within a restricted-circulation seaway (Stelck and Leckie, 1988).

The Hulcross Formation was formerly considered a member of the Commotion Formation (Stott, 1968), and that obsolete usage is evident in texts and illustrations accompanying historic coal-assessment reports from the Sukunka-Quintette coalfield, including the Perry Creek area.

The disconformable base of the Hulcross Formation is marked by a thin (generally a few decimetres, and rarely up to a metre or so thick) erosive-based bed of cherty pebbly sandstone or gritstone.

4.2.6 Gates Formation (map-unit 5)

The Gates Formation, of late Early Albian age within the Early Cretaceous (Stott, 1982; Wan, 1996), comprises 210 to 270 metres of interbedded sandstone, siltstone, conglomerate, shale and coal at Perry Creek.

At Perry Creek, and within the Sukunka-Quintette coalfield generally, the Gates Formation may be usefully subdivided into three members, in order from top down:

- Notikewin Member (map-unit 5c), comprising 90 to 115 metres of interbedded, locally-glauconitic sandstone and siltstone, with minor conglomerate, carbonaceous mudstone and generally-thin coal (A1, A, B and C coal zones);
- Falher Member (map-unit 5b), comprising 70 to 90 metres of muddy to sandy siltstone, channel-filling sandstone and variably-thick coal (D, E, F, G, and J coal zones), with lesser amounts of carbonaceous mudstone and silty mudstone; and
- Torrens Member (map-unit 5a), comprising 49 to 65 metres of sandstone, with a laterally-persistent medial zone of siltstone and mudstone.

Coals of the Gates Formation, and their enclosing sedimentary rocks, were deposited on the shoreline of the Western Interior Seaway between 108.7 and 111.0 million years ago, within the 'Gates Delta', part of an extensive complex of coastal plains, deltas and estuaries within the Sukunka-Quintette coalfield.

The shoreline of the ancient ‘Gates Delta’ trended northwestward within the Perry Creek area, with the shallow coastal shelf of the sea lying to the northeast, and the presumed mountainous hinterland of the Gates Delta’s rivers lying to the southwest.

Trends in coal thickness, coal quality, and nature and thickness of rock partings and interburden units are all strongly-associated with the northwestward trend of the ancient shoreline, and also with the ever-changing balance between sedimentation and sea-level fluctuations. The pattern of splitting and conjoining of the Gates coal beds records the landward and seaward shifts of shoreline positions, as well as the lateral movements of the major river channels and their branching distributaries.

The mineable extent of the Perry Creek coal deposits is ultimately constrained by the positions of river channels within the Gates Delta, the ancient shoreline, and the geologically-recent erosive activities of streams and glaciers.

Coals of the Gates Formation at Perry Creek are generally coarsely-banded, and they may readily and usefully be distinguished in terms of their relative proportion of dull and bright bands (according to the methodology propounded by Claus Diessel (1965), and widely-applied by coal geologists working in the Quintette-Bullmoose coalfield).

Throughout the period of Gates Formation sedimentation, the shallow waters of the Western Interior Seaway generally lay a few tens of kilometres northeast of Perry Creek, with the exception of a few isolated 'marine bands' within the Notikewin Member, associated with more substantial transgressions of the sea into and atop coal-forming coastal plain sediments. Splits were occasionally induced within the Gates coal beds, by crevasse-splays from river channels, and perhaps also by drowning of coal-forming wetlands beneath lakes and ponds.

Within the Perry Creek coal property, numerous coal zones, each comprising one or more individually-recognisable coal beds, are present within the Gates Formation. Coal zones and coal beds are designated by an upward-progressing system of lettering, from the J zone near the base of the formation, to the C, B, A and A1 zones near the top of the formation. This scheme of designation has been generally applied within the Quintette portion of the coalfield, and is the inverse of the 'bottoms-up' naming scheme used at Sukunka, Bullmoose and East Bullmoose.

4.2.6.1 Notikewin Member (map-unit 5c)

The Notikewin Member of the Gates Formation comprises 90 to 115 metres of siltstone and sandstone with minor conglomerate, variably-carbonaceous, locally root-bearing mudstone, and moderately-persistent coal beds (the A1, A, B and C coal beds). The Notikewin coals sometimes attain potentially-mineable thicknesses. Two laterally-persistent sandstone units (the Armand and Fortress Mountain sandstones) are present, locally accompanied by less-persistent conglomerate.

The A1 and A coal beds generally consist of dirty coal with associated black coaly mudstone, whereas the B coal bed generally consists of clean coal with numerous thin partings of black coaly mudstone. These three coals are grouped within the upper 34 to 46 metres of the Notikewin Member. The C coal lies further down within the Notikewin Member, between the Armand and Fortress Mountain sandstones.

- The A1 coal bed consists of dull dirty coal and black coaly mudstone, at gross thickness of nil to 0.65 metres and a median thickness of 0.4 metres. The A1 coal bed is not generally considered to be mineable.

- The A coal bed, likewise, consists of dull dirty coal and coaly mudstone, at gross thickness ranging from nil to 0.8 metres and a median thickness of 0.35 metres. The A coal bed is not generally considered to be mineable.

- The B coal bed consists of dull and bright coal with numerous thin partings of coaly mudstone or carbonaceous siltstone, at gross thickness ranging from nil to 1.4 metres and a median thickness of 0.9 metres. The B coal bed may locally be a candidate for mining within isolated areas of thicker or cleaner coal.

Armand Sandstone

The Armand Sandstone consists of medium to thick-bedded, light grey, fine-grained sandstone with downward-decreasing thin interbeds of dark grey sandy siltstone and dark grey to black, variably-carbonaceous mudstone. Isolated stringers of coal occasionally occur within the Armand Sandstone, but these coals appear to lack lateral continuity and they are interpreted as being driftwood deposits.

The Armand Sandstone is 30 to 45 metres thick, with a median thickness of 35 metres. The basal contact of the Armand Sandstone with the underlying rocks is abrupt and may locally be erosional.

- The C coal bed consists of dull banded to dull and bright, generally-dirty coal, with frequent thin partings of grey carbonaceous mudstone and siltstone, at gross thickness of 0.1 to 0.9 metres and a median thickness of 0.5 metres. The C coal bed is not considered to be mineable, on account of its dirty composition. The C coal bed generally lies close beneath the base of a thick sandstone, and its upper contact with the sandstone may locally be erosional, thus limiting the coal's preserved thickness.

At Perry Creek, the basal third of the Notikewin Member are often represented by a competent, ledge-forming bed of erosive-based sandstone and conglomerate, leading to their informal naming as the Fortress Mountain Sandstone and Fortress Mountain Conglomerate respectively. The conglomerate forms a basal facies of this zone, which otherwise consists mainly of sandstone with isolated lenses and interbeds of siltstone.

Fortress Mountain Sandstone

The Fortress Mountain Sandstone consists of light grey, fine- to medium-grained, medium- to thick-bedded sandstone with occasional thin interbeds of sandy siltstone. The sandstone is resistant to erosion, and prior to mining, the sandstone formed cliffs within the middle portion of the Gates Formation.

The thickness of the Fortress Mountain Sandstone ranges from 4 to 28 metres thick, with a median thickness of 15 metres. The basal contact of the Fortress Mountain Sandstone with the underlying Fortress Mountain Conglomerate is inferred to be gradational by interbedding on a broad scale. Where the conglomerate is not recognised, or known to be absent, the sandstone lies abruptly and locally-erosionally upon the fine-grained rocks of the Falher Member.

Fortress Mountain Conglomerate

The Fortress Mountain Conglomerate consists of thick-bedded to massive-appearing light to medium grey sandy to sparsely-pebbly gritstone and sandy gritty pebble-conglomerate. Granules and pebbles within this sub-unit are mainly of varicoloured chert and quartz, with minor fragments of limestone and dolomite, all of which is set within a generally-abundant matrix of coarse- to very coarse-grained siliceous sandstone.

Recognition of the Fortress Mountain Conglomerate as a distinct sub-unit within the Fortress Mountain Unit is based mainly on its 'blocky' low-radioactivity geophysical-log response, supported by occasional cored intersections within exploratory boreholes. Where observed in outcrop along the crest of the Fortress Mountain Anticline, the 'conglomerate' zone appears to be dominantly composed of overlapping channel-fills of

very sandy, albeit highly-siliceous and very hard, pebbly gritstone.

The Fortress Mountain Conglomerate, where recognised, is 5 to 20 metres thick, with a median thickness of 12.5 metres. Its basal contact with the underlying Falher rocks is invariably erosional.

Regional correlations

Carmichael (1983) established a more-detailed but still informal subdivision of the Notikewin Member into several sub-units within the Mt. Frame and Mt. Sheriff areas, to the southeast of Perry Creek. Similarly, Leckie (1985) subdivided the Notikewin Member into several sub-units within the East Bullmoose / Mt. Spieker area, to the northwest of Perry Creek. No attempt has yet been made to extend either set of subdivisions into the Perry Creek property, nor to reconcile them into a regional context.

The basal contact of the Notikewin Member with the underlying Falher Member is disconformable, and locally deeply-scoured.

4.2.6.2 Falher Member (map-unit 5b)

The Falher Member of the Gates Formation comprises 70 to 90 m of muddy to sandy siltstone, channel-filling sandstone and conglomerate, and variably-thick coal (within the D, E, F, G and J coal zones). The underlying K coal zone is absent at Perry Creek. The Falher coals are accompanied by lesser proportions of carbonaceous mudstone and silty mudstone. Overall, the Falher Member contains proportionately more coal than the overlying Notikewin Member.

The D coal bed, at the top of the Falher Member, is often absent due to deep scouring at the base of the overlying Notikewin conglomerate ‘caprock’. In non-cored boreholes, recognition of the Falher-Notikewin contact is rendered more difficult when clay-poor Falher sandstone is directly overlain by clay-poor Notikewin conglomerate, inasmuch as gamma-ray logs fail to distinguish between the two lithologies.

- The D coal bed consists of dull banded to dull and bright, generally-dirty coal with thin partings of grey to black carbonaceous mudstone, at gross thickness ranging from nil to 0.6 metres and median gross thickness of 0.18 metres.
- The E0 coal bed consists of coaly mudstone or dull, dirty coal with numerous thin partings of black carbonaceous to coaly mudstone, at gross thickness ranging from nil to 0.98 metres and median gross thickness of 0.2 metres. Both coal beds are locally altogether absent, inferred to be due to erosion beneath channel-filling sandstones.
- The D and E0 coals locally closely-approach each other to form a single composite zone of interbedded dirty coal and carbonaceous rock, but nowhere within the Perry Creek mining area is either of these coals found to be thick or clean enough to be considered mineable.
- The E1 coal bed consists of dull banded, very dirty coal, often replaced altogether by black carbonaceous mudstone with scattered lenses and stringers of coal. The gross thickness of the E1 coal bed ranges from nil to 0.45 metres, with a median thickness of 0.2 metres. The E1 bed is locally altogether absent owing to erosion at the base of an

overlying channel-filling sandstone.

Mineable coals within the Falher Member commence with the E2 and E3 coal zones, which locally closely approach each other but never altogether coalesce at Perry Creek.

E2 coal zone

The E2 coal zone consists of two closely-associated beds of coal (one of which, locally, is represented by coaly or carbonaceous mudstone) separated by a variably-thick parting of carbonaceous mudstone or siltstone. The two beds are the E2U and E2L coals, and the intervening rock is the E2LP parting. Of the coal beds, the E2L is generally the thicker and cleaner of the two.

The gross thickness of the E2 coal zone, comprising both the E2U and E2L plies and the E2LP parting, ranges from 0.47 to 1.16 metres, with a median thickness of 0.75 metres. The net coal (both low-density 'clean' and mid-density 'dirty' coal as interpreted from geophysical logs) thickness of the E2 coal zone ranges from 0.28 to 1.09 metres, with a median thickness of 0.67 metres. The difference between the net and gross thicknesses is represented by the rock of the E2LP parting. The E2 zone, taken as a whole, gradually thins to the northwest.

The upper contact of the E2 coal zone is generally gradational, but its basal contact with the underlying E3UP parting is almost always abrupt and often freely-separable in the course of mining.

- The E2U coal bed is platy, dull banded, and generally very dirty, frequently containing very thin laminae of black, coaly mudstone. Southwestward, the E2U passes laterally into coaly or carbonaceous mudstone, and within the Phase 4B mining area, its coal will be confined to isolated pockets. The gross thickness of the E2U coal ranges from 0.10 to 0.42 metres, with a median thickness of 0.17 metres.
- The E2LP parting consists of very thin-bedded to fissile or flaky carbonaceous mudstone or siltstone, often including a few centimetres of black, carbonaceous, well-indurated volcanic ash (a tonstein band), which forms a distinctive matt-black band within the E2 coal bed. The gross thickness of the E2LP parting ranges from nil to 0.25 metres, with a median thickness of 0.07 metres. Furthermore, the parting generally does not part freely from the overlying and underlying coals; as such, this parting would only rarely be removable in the course of mining.
- The E2L coal bed is blocky, dull banded to bright banded, and readily broken into lumps along well-developed cleats. E2L coal is generally distinctly lower-density as compared with the E2U coal and the coals of the E3 bed; this distinction is characteristically-shown on geophysical logs. The gross thickness of the E2L coal ranges from 0.23 to 0.73 metres, with a median thickness of 0.51 metres. The E2L coal generally parts freely from the underlying E2 — E3 interburden, generally rendering its recovery more practicable.

E2 – E3 interburden

Rocks between the E2 and E3 coal zones consist mainly of medium-bedded to massive-appearing, hard to very hard sandy siltstone, locally grading upward into softer variably-

carbonaceous siltstone. As this parting thickens, it becomes harder and coarser, grading laterally to a silty sandstone. Thickness of the E2 – E3 interburden ranges from 0.50 to 4.08 metres, with a median thickness of 1.68 metres. The basal contact of the E2 – E3 interburden with the underlying E3 coal bed is abrupt, generally freely-separable in the course of mining.

E3 coal zone

The E3 coal zone consists of two closely-associated beds of coal (one of which, locally, is represented by coaly or carbonaceous mudstone) separated by a variably-thick parting of carbonaceous mudstone or siltstone. The two plies are the E3U and E3L coals, and the intervening rock is the E3LP parting. Of the coal plies, the E3U is generally the thicker and cleaner of the two.

The gross thickness of the E3 coal bed, comprising both the E3U and E3L plies and the E3LP parting, ranges from 0.3 to 2.0 metres, with a median thickness of 1.19 metres. The net coal (both low-density 'clean' and mid-density 'dirty' coal as interpreted from geophysical logs) thickness of the E3 coal bed ranges from nil to 1.15 metres, with a median thickness of 0.55 metres. The difference between the net and gross thicknesses is represented by the rock of the E2LP parting. The E3 coal bed, taken as a whole, displays a pockety thickness pattern, but its net coal content steadily declines westward and the E3 bed contains no net coal within much of the Phase 4B mining area. The E3L coal pinches out more rapidly to the west than does the generally-thicker and less-dirty E3U coal.

The upper contact of the E3 coal zone is generally abrupt, but its basal contact with the underlying E3 – F interburden is generally gradational.

- The E3U coal bed is blocky, dull and bright to bright banded, readily breaking into lumps along well-developed cleats. E3U coal is generally distinctly lower-density as compared with the E3L coal and the E4 coal; this distinction is characteristically-shown on geophysical logs. The gross thickness of the E3U coal ranges from 0.10 to 0.75 metres, with a median thickness of 0.35 metres; most of this thickness is clean coal. The E3U coal generally parts freely from the underlying E3LP parting, rendering its recovery practical despite the coal's characteristic thinness. The E3U coal thins to the west and ceases to be mineable within the central portion of the Phase 4B mining block.
- The E3LP parting consists of very thin-bedded carbonaceous mudstone or siltstone, locally grading to very fine-grained silty sandstone, especially where the parting thickens. The gross thickness of the E3LP parting ranges from nil to 1.34 metres, with a median thickness of 0.45 metres. Thicker sections of the parting are readily removable during the course of mining operations, but this action will only be practical if sufficient E3U coal underlies the parting.
- The E3L coal bed is platy and dull to dull banded; it generally is very dirty, frequently containing very thin laminae of black, coaly mudstone. The E3L coal characteristically shows a medium-density response on geophysical logs. Westward, the E3L passes laterally into coaly or carbonaceous mudstone, and within the Phase 4B mining area, mineable E3L coal will be confined to isolated pockets. The gross thickness of the E3L coal ranges from 0.08 to 0.75 metres, with a median thickness of 0.26 metres. The basal

contact of the E3L coal with the underlying E3 – F interburden is usually gradational, and the E3L coal seldom parts freely from its floor.

E3 – F interburden

Rocks between the E3 and F coal zones comprise thin to medium interbeds of medium grey, muddy to sandy siltstone, silty fine-grained channel-filling and tabular sandstone, and minor black carbonaceous mudstone or thin dirty coal of the E4 coal bed. Thickness of the E3 – F interburden unit ranges from 5.7 to 22 metres, with a median thickness of 9.6 metres, thickening steadily to the southwest.

- The E4 coal bed is blocky, dull, and characteristically dirty, often passing laterally into black carbonaceous mudstone with scattered very thin bright coal laminae. The E4 coal's gross thickness ranges from nil to 1 metre, with a median thickness of 0.35 metres; thicker sections are generally composed solely of carbonaceous rock rather than coal, and nowhere within the planned mining area is the E4 coal considered to be workable, although local thicker pockets of clean coal may occur, and might be recoverable if geometry permits. The upper contact of the E4 coal is generally abrupt, and its basal contact is gradational. The E4 coal lies 0.5 to 9.5 metres below the base of the E3 coal, steadily increasing westward within the mining area.

F coal zone

As with the E2 and E3 coal zones, the F coal zone consists of two closely-associated thinner coals, which together are generally workable as one. The upper of the two coals is the F1 coal bed, and the lower of the two is the F2 coal bed. Between the F1 and F2 coals is the F2P parting. Within Perry Creek Mine, the F1 and F2 coals are almost always closely-associated (owing to the thin intervening F2P parting) that they may easily be mined together as the F12 coal bed, although the F2P parting locally does attain a readily-separable thickness. The exception to this proximity occurs in the westernmost one-third of the Phase 4B mining block, where the F2P parting rapidly thickens to the west.

The gross thickness of the conjoint F12 coal bed ranges from 1.21 to 1.75 metres, with a median thickness of 1.38 metres. Rock partings within the conjoint coal are often altogether absent, with the F2P parting having entirely pinched-out or possibly having passed laterally into a band of dirty coal. The F12 coal shows a slight tendency to thicken northward, and also westward towards the split area on the western limb of the Perry Creek Anticline.

- The F1 coal bed is the uppermost of the two coals within the conjoint F12 coal bed. The F1 coal is characteristically bright banded and blocky, with well-developed cleat. Near the base of the F1 coal, bands of dirty coal, sometimes accompanied by very thin laminae of black, coaly mudstone, often occur. The gross thickness of the F1 coal ranges from 0.10 (where it has been nearly washed-out) to 2.75 metres, with a median thickness of 0.86 metres. The 2.75-metre occurrence may be the product of local structural thickening of the coal, or it may be the result of a peat slide within the coal-forming wetland. The basal contact of the F1 coal with the underlying F2P parting is abrupt, marked by a polished or sheared bedding-plane, allowing for ready separation

of the coal from the parting.

- The F2P parting, where it is thin, consists of very soft, sheared brown mudstone or black coaly mudstone, with a characteristic flaky fracture habit consistent with intense shearing. As the parting thickens westward, it passes laterally into harder, variably-carbonaceous and root-penetrated siltstone, and finally interbedded siltstone and silty sandstone within the westward split area. The thickness of the F2P parting ranges from nil (as seen in parts of the planned mining area) to 7.6 metres, with a median thickness of 0.14 metres. The basal contact of the F2P parting with the underlying F2 coal is abrupt and locally erosional.
- The F2 coal bed forms the basal part of the F coal zone. The coal is platy to blocky, dull and bright to bright banded, and usually has a well-developed, closely-spaced cleat. The uppermost few centimetres of the F2 coal bed is characteristically soft and fusain-rich; this portion of the coal is inferred to have been burned by wildfire while it was still a peat deposit, as suggested by Lamberson *et al* (1991) for similar horizons at Bullmoose Mine. The gross thickness of the F2 coal ranges from 0.25 to 0.87 metres, with a median thickness of 0.52 metres. The basal contact of the F2 coal bed with the underlying Wolverine Conglomerate is abrupt but locally-undulating, with the coal appearing to fill swales and rills within the conglomerate's surface.

Wolverine Unit

Coarse-grained, cliff-forming strata between the F coal zone and G1 coal bed, inferred to be coeval with the Falher 'C' subdivision of the Gates Formation, are designated as the Wolverine Unit. This is a locally-used informal name for these rocks, which are inferred to pinch out laterally into fine-grained coal-bearing siltstones along strike from Perry Creek.

The Wolverine Unit is divided into two sub-units on the basis of a distinct successional change in lithology: the upper Wolverine Conglomerate, and the basal Wolverine Sandstone. The gross thickness of the Wolverine Unit ranges from 10 to 29.5 metres, with a median thickness of 16 metres. The Wolverine Unit thins gradually to the west, but this trend is complicated by local thickening and thinning which may be due to scouring and channel-filling at the unit's base and (to a lesser extent, perhaps) hummocky and swaly bedforms at its top. The base of the Wolverine Unit is abrupt and locally erosional, as evidenced by the local absence of the underlying G1 coal bed.

Wolverine Conglomerate

The Wolverine Conglomerate is a very thick-bedded to massive-appearing unit of overlapping channel-fills and large-scale low-angle cross-sets of very light grey, very hard, siliceous, sandy pebbly gritstone with frequent lenses of gritty pebble-conglomerate, generally forming the upper two-thirds of the Wolverine Unit. The Wolverine Conglomerate's upper surface is abrupt but irregular, being marked by swales and hummocks. This surface is root-penetrated and variably-carbonaceous, locally grading into a pebbly coaly siltstone which probably represents a paleosol upon which the F2 coal was formed. The thickness of the Wolverine Conglomerate ranges from 6 to 16.5 metres, with a median thickness of 10.2 metres. The conglomerate's contact with the Wolverine Sandstone is abrupt and locally deeply-scoured.

Wolverine Sandstone

The Wolverine Sandstone is a medium- to thick-bedded unit of light grey, hard, siliceous, locally-gritty medium- to coarse-grained sandstone, generally forming the basal one-third of the Wolverine Unit. The top of the sandstone locally grades up into a few decimetres of sandy siltstone with isolated lenses of bright coal, interpreted as coalified driftwood; however, there does not appear to be a widespread fine-grained band at this horizon, and the coaly masses do not appear to attain a mineable thickness within the planned mine area. The thickness of the Wolverine Sandstone ranges from nil (where it has been scoured-out by the conglomerate sub-unit) to 18.8 metres, with a median thickness of 6.5 metres. The Wolverine Sandstone's basal contact with the underlying Wolverine – G interburden is abrupt and locally erosional. The sandstone's base often directly overlies the G1 coal.

Wolverine – G interburden

Strata between the Wolverine Unit and the G coal bed comprise thin to medium interbeds of medium to dark grey muddy siltstone and silty, variably-carbonaceous mudstone, with occasional very thin to thin beds of fine-grained silty sandstone and dirty coal. Up to three stringers of coal occur near the top of this unit, but only one (the G1 coal bed) attains significant thickness and continuity to be recognised as such, although the G1 does not attain mineable thickness within the planned Phase 4 mining area. Thickness of the Wolverine – G interburden unit ranges from 0.15 to 19.7 metres, with a median thickness of 13.6 metres. The very thin interburden may be the result of substantial scour at the base of the Wolverine Sandstone.

The area of thickest interburden is along and slightly to the northeast of the Perry Creek Anticline's crest, thinning to the northeast into the adjoining syncline. The interburden's basal contact with the underlying G coal bed is abrupt, often being marked by a thin bed of sheared coaly mudstone.

- The G1 coal bed is a thin, markedly-pockety band of dull banded coal, locally passing to very dull dirty coal or coaly shale, which does not attain a mineable thickness but still is consistently-developed to the extent that it serves as a marker bed for approach to the deeper G coal bed.

The vertical interval between the floor of the G1 coal bed and the roof of the older G coal bed ranges from 8.6 to 17.8 metres, with a median interval of 12.9 metres; this interval steadily thickens to the southwest. The gross thickness of the G1 coal ranges from nil to 1.1 metres, with a median thickness of 0.35 metres.

G coal bed

The roof of the G coal bed is often formed by a thin bed of very soft, black, sheared, coaly mudstone, which parts freely from the coal. The G coal's floor is generally a harder, variably-carbonaceous siltstone or silty sandstone, also parting freely from the coal.

- The G coal bed is the most consistently-developed and uniform of the Perry Creek coals, characteristically consisting of a single bed of coarsely-laminated bright banded coal, often containing visible pyrite flecks along lamination, and generally moderately to intensely sheared. Despite its pervasive shearing, the G coal bed is consistently low-

density and very low in ash, and it lacks rock partings. Gross thickness of the G coal bed ranges from 0.47 to 1.45 metres, with a median thickness of 0.85 metres. The G coal thickens slightly to the northwest within the planned mining area.

G – J interburden

Strata between the G and J1 coal beds comprise thinly-interbedded medium grey, fine-grained silty sandstones and sandy siltstones, with occasional lenses of dark grey silty mudstone. Bedding within this interburden thickens downward, to the extent that the roof of the J1 coal locally consists of massive-appearing very sandy siltstone. Isolated lenses of bright coal within the G-J interburden are inferred to be coalified driftwood, with no expectation of lateral continuity. The thickness of the G – J interburden ranges from 5.4 to 17.4 metres, with a median thickness of 8.9 metres, thinning to the west and northwest.

The basal contact of the G – J interburden with the underlying J1 coal bed is abrupt and easily-separable during the course of mining, locally marked by a few centimetres to a decimetre of sheared, sooty, fusain-rich mudstone, which occasionally is capped by a single layer of well-rounded chert pebbles set in a matrix of carbonaceous mudstone, interpreted as being laid down by advancing waters of a coastal bay or lagoon.

J coal group

The J coal group, consisting of three coal beds and intervening rock partings, comprises the 'Lower' coals of the Perry Creek mining area. Coals are numbered from top down, as J1, J2 and J3. The J-coals locally merge to form a conjoint coal zone (the J12 zone), and split to form subsidiary coal beds (the J2U and J2L beds). The J2 and J3 coal beds are consistently separated by a rock parting, and they are not expected to merge within the planned mining area.

- The J1 coal bed consists of platy to blocky, dull banded to dull and bright coal with locally-abundant laminae of sooty, fusain-rich, dull dirty coal and rare lenses of black coaly mudstone and dull, anomalously-lustrous coal which may be sapropelic or canneloid. Sooty bands are often concentrated near the top of the J1 coal bed, suggesting that peat accumulation was ended by one or more wetland wildfires. Gross thickness of the J1 bed ranges from 1.15 to 2.28 metres, with a median thickness of 1.40 metres. The J1 coal thickens gradually to the west. The basal contact of the J1 coal with the underlying J2P parting is abrupt and generally sheared, allowing the coal to part freely from its floor during mining,
- The J2P parting is the most variable of the rock-units within Perry Creek Mine, in terms of both thickness and lithology. To the northeast, the J2P parting is very thick, consisting mainly of hard conglomerate and gritstone. Elsewhere throughout the mine, the J2P parting is much thinner, consisting of markedly-softer, free-digging, variably-carbonaceous mudstone.

  In detail, throughout most of the mined area the J2P parting consists of soft, flaky, black, coaly mudstone and thin-bedded, platy, brittle, dark grey to dark brown carbonaceous to silty mudstone, with thickness ranging from nil to 0.5 metre, and a median thickness of 0.1 metre. North of approximately 6105800

northing, the J2P parting gradually thickens to about 1.5 metres and coarsens to hard silty mudstone and siltstone. Yet further to the north, beyond 6105950 northing, the J2P parting rapidly thickens to 30 metres' thickness, and it passes into erosive-based sandy gritstone and pebble-conglomerate, together designated as the J conglomerate.

Substantial thicknesses of J conglomerate occur solely within the extreme northeastern corner of the mine, but the J3 conglomerate is inferred to continue northwestward into the extreme northeastern corner of the Phase 4A block.

Within the southwestern half of the planned mining area, the J2P parting is generally thinner than 0.1 metre, and it is considered to have no practical significance to mining operations other than serving as a geological marker within the conjoint J12 coal bed.

With the exception of the very thick (15.6 metres' drilled thickness, and likely thicker) J2 conglomerate in the northeastern corner of Phase 4B, the thickness of the J2P parting ranges from nil to 1.5 metres, with a median thickness of 0.14 metres. Where the J2P parting is altogether absent, the J1 coal is inferred to abruptly overlie the J2 coal (thus exemplifying the conjoined nature of the J12 coal zone)

Where the J2P parting is thin, its basal contact with the underlying J2 coal is abrupt, locally marked by a shear-zone or freely-separable surface. Where the parting is thicker, especially where it consists of 'J2 conglomerate', the base of J2P is erosive, scouring down into the underling J2 coal. This contact has been locally observed to be a coal-on-coal erosional surface, in certain areas within the Phase 3 mining block, where the J2P rock pinches out altogether. Similar erosional relationships are expected to locally occur within the planned Phase 4 mining area.

- The J2 coal zone comprises the central and thickest part of the J coal group within Perry Creek Mine. The J2 coal zone typically consists of coarsely-interbedded, generally-hard, dull banded to dull and bright coal with frequent thin bands of high-ash dirty coal, and occasional thick laminae and lenses of, flaky, coaly mudstone, some of which is fusain-rich. The J2 coal is moderately well-cleated, but its cleats are often mineralised and 'healed, rendering the coal very hard and strong, and thus encouraging the formation of large coal blocks in the course of mining.

  The J2 coal is generally the thickest of the three coals within the J-group, with net (coal-only) thickness ranging from 2.85 to 7.6 metres and gross (coal and included rock bands) thickness ranging from 2.95 to 7.75 metres. Median net and gross thicknesses are 3.45 and 3.60 metres respectively. Thickness of the J2 shows no obvious trends within the planned mining area, but there is a slight tendency for the proportion of high-ash ('dirty') coal to increase westward. As well, high-ash coal is often present at the immediate top of the J2 coal bed, except for the extreme northeastern portion of the planned mining area, where

the base of the J2P parting is distinctly nonconformable (erosive in action) upon the underling J2 coal.

The J2 coal can be traced, on the basis of its characteristic double-peaked geophysical-log signature, throughout the planned mining area, even within those areas where the overlying J2P parting is so thin as to allow the J1 and J2 coal beds to have coalesced to form the conjoint J12 coal bed (as discussed further below). The J2 coal maintains an attractive thickness for augering or underground mining, northward beyond the northwestern boundary of the planned mining area.

Geophysical logs show a consistent zone of higher-ash coal about one-third of the way above the base of the J2 coal bed. This higher-ash zone generally manifests as dull, dirty, soft coal, but it locally thickens and hardens to become the thin but geophysically-distinctive J2L parting of black coaly mudstone to dark brown carbonaceous mudstone, thus defining the J2U coal bed and the J2L coal bed within the J2 coal zone. The J2L parting is not known to thicken beyond 0.46 metres within the planned mining area, and its median thickness is nil (i.e., it is too thin to ‘see’ in geophysical logs (or perhaps altogether absent) in at least half of the borehole intersections); the J2L parting is therefore considered to be non-removable, and nowhere within the planned mining area does it prevent the conjoint working of the J2U and J2L coals.

- The J12 coal zone is locally-recognised as a coalition of the J1 and J2 coal beds. When the J2 parting is less than 50 centimetres thick, the parting together with the overlying J1 coal bed and underlying J2 coal bed is considered to have coalesced to form the conjoint J12 coal zone. For practical purposes, the 50-centimetre thickness contour on the J2 parting is considered to form the line of split, dividing the area of distinct J1 and J2 coals (north of the line of split) from the area of conjoint J12 coal (south of the line of split). The line of split itself trends west-northwestward across Perry Creek Mine.

  Within the area where the J1 and J2 coals are deemed to coalesced, the net (coal-only) thickness of the J12 coal zone ranges from 4.2 to 9.35 metres, and the gross (coal plus internal rock bands) thickness ranges from 4.65 to 9.5 metres. As was noted above in the case of the J2 coal, the very thick J12 coal has been observed in only one borehole; this occurrence is therefore regarded as likely being due to local rolling or overthrusting within the coal, and thus considered unlikely to persist over a wide area.

  Median net and gross thickness of the J12 coal zone are 4.93 and 5.15 metres respectively, consistent with the scarcity and thinness of the internal rock bands within the conjoint coals. Within the conjoint area, the J2 parting remains recognisable within the J12 coal bed, on the basis of a slight increase in ash content (or 'dirtiness) of the basal part of the J1 coal and the upper part of the J2 coal. J2 parting thicknesses in this area range from 0 to 0.5 metres, with a median thickness of 0.1 metres. For practical purposes, the J2 parting is considered to be non-removable from within the conjoint J12 coal zone, and the coals are therefore planned to be worked together as one during the course of

surface-mining operations.

The J12 coal is often soft and sheared within its top decimetre, rendering easier the stripping of the overlying interburden rock from above the coal. This soft band is mined with the underlying harder, cleaner coal, as it is generally too thin to warrant special handling.

- The J3 parting separates the J2 coal zone from the J3 coal bed; this parting is consistently present throughout the planned mining area, consisting of thinly-interbedded to interlaminated medium grey siltstone and very fine- to fine-grained, distinctively-rippled silty sandstone with minor grey silty mudstone, dark brown carbonaceous mudstone, and lenses of soft (presumably higher-ash) coal and black, flaky, coaly mudstone. The J3 parting is characteristically very hard and strong, often requiring secondary blasting in the course of mining. Thickness of the J3 parting ranges from 1.10 to 2.45 metres, with a median thickness of 1.66 metres. The J3 parting very gradually thins to the southwest, but nowhere within the planned mining area does this parting become so thin as to become non-removable in the course of mining the J2 and J3 coals.

- The J3 coal bed is the most consistently-developed of the J-zone coals at Perry Creek, maintaining its individual identity and not merging with the overlying J2 coal. The J3 coal is the most widely-developed of the coals within the Quintette-Bullmoose coalfield; it is correlative and possibly continuous with the 'Fourth Coal' of the Falher 'E' member of the Gates Formation on a regional basis.

  The J3 coal consists of coarsely-laminated, blocky, very hard, dull banded to bright banded coal, rarely containing any internal rock partings. The J3 bed does, however, commonly become soft and fusain-rich at its immediate top. Occasionally the basal decimetre of the coal becomes somewhat clay-rich (although harder), and sometimes sandy, grading downward into coaly or carbonaceous rock. The J3 coal bed as a whole remains thick and clean enough to mine throughout the planned Phase 4 mining area.

  Net coal thickness of the J3 coal bed ranges from 1.35 to 3.10 metres, with a median thickness of 2.18 metres. Gross thickness ranges from 1.35 to 3.25 metres, also with a median thickness of 2.18 metres. The J3 coal bed lacks any obvious thickness trends, other than its local thickening and thinning (on the scale of a few decimetres) over irregularities in the surface of the underlying Quintette Sandstone.

  The basal contact of the J3 coal with the underlying strata is generally gradational over a few centimetres. As a result of this gradation, the J3 coal tends to remain firmly attached to its floor, especially adjacent to minor faults, rolls or swales in the underlying rock.

The Falher Member is of Late Early Albian age (Wan, 1996). Its basal contact with the underlying Torrens Member of the Gates Formation is abrupt, marked by an undulating surface possibly originating as relict sandbars or sand-waves.

4.2.6.3 Torrens Member (map-unit 5a)

Within the Sukunka-Quintette coalfield, the term ‘Torrens Member’ is often applied as a local name for the thick sandstone underlying the lowest of the mineable Gates coal beds. Within the northern part of the Quintette segment of the coalfield (including the Perry Creek and East Bullmoose / Mt. Spieker areas), however, there are two of these sandstone units, the upper Quintette and lower Torrens sandstones, separated by a thick medial fine-grained ‘silty zone’ of interbedded siltstone, sandstone and shale. The two sandstones are probably of marine origin, but the silty zone comprises both marine and non-marine rocks, including rare thin coaly stringers at some sites. where it has been drilled within the Perry Creek coal property. The overall thickness of the Torrens Member at Perry Creek is 49 to 65 metres.

The Quintette Sandstone is 12 to 29 metres thick at Perry Creek. The underlying medial siltstone unit is 8 to 27 metres thick, and the basal Torrens Sandstone is 10 to 12 metres thick. Coal-exploration boreholes seldom penetrate far into the Quintette Sandstone, and have thus far generally left the medial siltstone unit untested as to the presence of coal. In earlier reports, the Quintette Sandstone was frequently designated as the ‘Sheriff Member’ of the Gates Formation.

Quintette Sandstone

The Quintette Sandstone forms the floor of the J3 coal bed, and accordingly the sandstone forms the exposed (post-mining) limbs of the Perry Creek Syncline within Perry Creek Mine.

The Quintette Sandstone is thick-bedded to massive, medium-to coarse-grained, clean and well-sorted except for its immediate top 10 to 30 cm, which is characteristically root-penetrated and carbonaceous to coaly. A few decimetres to a metre of variably-carbonaceous siltstone and mudstone, also root-penetrated, locally fill hollows within the top surface of the Quintette Sandstone, but these fine-grained rocks do not appear to be laterally-continuous.

The basal contact of the sandstone with the underlying silty zone appears to be abrupt but not obviously erosive, at least as indicated by geophysical logs. The Quintette Sandstone is possibly the lateral equivalent of the Falher ‘F’ sandstone, as recognised by the oil and gas industry.

Silty zone

The silty zone of the Torrens Member consists of interbedded siltstone, sandstone and shale, lacking any associated coal despite the silty zone being the host of the Gates ‘K’ coal zone within some of the now-abandoned Quintette mines, south of Wolverine River. In the few boreholes which have penetrated its full thickness, the silty zone is 8 to 27 metres thick.

Torrens Sandstone

The Torrens Sandstone is the basal, and thinnest, of the three sub-units within the Torrens Member at Perry Creek. The sandstone is 10 to 12 metres thick within the few exploratory boreholes which have penetrated its full thickness. The Torrens Sandstone forms the lower of the two prominent cliffs on the southern flank of Fortress

Mountain, south of the mine's workings and north of the Wolverine Colliery buildings.

The age of the Torrens Member is presumed to be Late Early Albian. The basal contact of the Torrens Member with the underlying Spieker Member of the Moosebar Formation is gradational by interbedding (Carmichael, 1983).

4.2.7 Moosebar Formation (map-unit 4)

The Moosebar Formation comprises 90 to 105 metres of dark grey, locally-concretionary mudstone and siltstone, with minor thin interbeds of sandstone and tuff, and a thin basal conglomerate. Concretions are sideritic, and distinctly rusty-weathering, concentrated in laterally-persistent bands, a few decimetres thick, which may represent diastem-induced hardgrounds. Tuff bands within the Moosebar Formation are very thin (a few millimetres to a few decimetres) but also laterally-persistent. Variations in the Moosebar's thickness are likely due to intertonguing with the southward-thickening sandstone of the basal Torrens Member of the Gates Formation. Some variation in thickness may also be due to structural telescoping of the relatively-incompetent Moosebar rocks between the stronger rocks of the overlying Gates and underlying Gething formations.

The Moosebar Formation is of Early Albian age (Stott, 1968). Its basal contact with the underlying Gething Formation is abrupt, and generally erosional, characteristically marked by a very thin band of variably-glauconitic gritty sandstone or pebbly gritstone.

At Perry Creek, and within the Sukunka-Quintette coalfield generally, the Moosebar Formation may be divided into three units. In order from top down, these are:

- Spieker Member (map-unit 4c): banded to fissile-weathering, thinly-interbedded siltstone and sandstone, 45 to 55 metres thick;
- Cowmoose Member (map-unit 4b): massive-appearing dark grey to black, variably- silty mudstone, with occasional thin bands of tuff, 45 to 50 metres thick, possibly structurally-thickened by thrusting in some areas;
- Basal gritstone member (map-unit 4a): variably-glauconitic gritty sandstone or pebbly gritstone, 0.1 to 1 metre thick.

Within much of the area covered by **Map 2-3**, including all of the lands comprising the Perry Creek coal property, the constituent units of the Moosebar Formation cannot be readily mapped, owing to lack of good exposures at the ground surface. The sub-units can, however, be readily recognised within those few boreholes which have intersected them.

4.2.7.1 Spieker Member (map-unit 4c)

The Spieker Member comprises 45 to 55 metres of thinly-interbedded, overall coarsening-upward sandy siltstone and sandstone, pervasively-bioturbated and possibly originating as proximal shallow-marine turbidites (Leckie, 1983) in front of the advancing Falher/Torrens paleodelta. Sandstone beds become thicker, coarser, and more abundant towards the top of the Spieker, and on the whole the Spieker Member is a transitional unit (Duff and Gilchrist, 1981) between the underlying Cowmoose mudstone and the overlying Torrens sandstones.

The age of the Spieker Member is presumed to be Early Albian to possibly late Early Albian; thus far this unit has yielded no diagnostic fossils. The basal contact of the Spieker with the underlying Cowmoose Member is drawn at the base of the lowest band of sandy siltstone overlying the mudstones. This contact is inferred to be locally abrupt or erosional, but regionally-interfingering.

4.2.7.2 Cowmoose Member (map-unit 4b)

The Cowmoose Member (an informal stratigraphic name used within the coalfield) of the Moosebar Formation comprises 45 to 50 metres of rubbly-weathering, dark grey to black siltstone and mudstone, punctuated by laterally-persistent bands crowded with ironstone concretions, locally-abundant dolomitic nodules, and several 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).

The age of the Cowmoose Member is Early Albian (Stott, 1968). The basal contact of the mudstones over the underlying basal gritstone unit of the Moosebar is gradational to abrupt, and generally easily-recognised on geophysical logs.

4.2.7.3 Basal gritstone member ('Green Marker') (map-unit 4a)

The basal gritstone member of the Moosebar Formation (locally designated as the 'Green Marker' in the absence of a more formal name) comprises 0.1 to 1 metres of locally-glauconitic, chert-rich lithic arenite to pebble-conglomerate. Stott (1968, page 40, in his discussion of the “Gething-Moosebar Problem”) suggested that the basal gritstone unit might be equivalent to the Bluesky Formation of the Alberta Plains, but that correlation is now understood to be incorrect (Kilby, 1984b; Gibson, 1992b). The age of the basal gritstone member is presumed to be Early Albian. Its basal contact with the underlying Chamberlain Member of the Gething Formation is presumed to be abrupt, and locally erosional.

Upon the accompanying geological map (**Map 2-3**), map-units 4a and 4b are depicted together as map-unit 4ab, owing to the impracticality of depicting the thin basal gritstone by itself at the given scale of mapping.

4.3 Bullhead Group (map-units 3 and 2)

The Bullhead Group consists of two formations, the Gething Formation which comprises the majority of the group’s thickness, and the thinner basal Cadomin Formation (Stott, 1963; 1968; 1973).

The upper portion of the Gething Formation is exposed within the valleys of Perry Creek and Wolverine River, in the northeastern and southwestern parts of the Perry Creek property

respectively. The Gething Formation has been reached by very few of the historic or current boreholes, and its basal contact with the Cadomin Formation has not yet been reached by coal-exploration drilling within the property.

The Cadomin Formation is not exposed in outcrop, nor is it inferred to be present at rockhead, within any part of the Perry Creek coal property. On the basis of its consistent regional distribution, the Cadomin is inferred to underlie the Gething at substantial depth throughout the property, and as well the Cadomin does outcrop along the railway-tracks, about a kilometre southwest of the property's southwestern corner.

4.3.1 Gething Formation (map-unit 3)

The Gething Formation, of Hauterivian to Early Albian age within the Early Cretaceous (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, of which two (the Gaylard and Chamberlain paleodeltas) extended into the Perry Creek coal property.

Coals of the Gething Formation at Perry Creek, and their enclosing sedimentary rocks, were deposited between 111 and 123 million years ago (Gibson, *ibid.*), on the basis of regional plant-fossil and foraminiferal zonations.

Following upon suggestions made by coal-company geologists (Wallis and Jordan, 1974) and subsequent correlation by the British Columbia Geological Survey (Duff and Gilchrist, 1981; Legun, 1990), Gibson formally divided the Gething Formation into three members: the upper, non-marine to transitional Chamberlain Member, the middle marine Bullmoose Member, and the basal, non-marine to transitional Gaylard Member. A fourth member of the Gething Formation, the Bluesky Member, is also inferred to be present between the base of the Bullmoose Member and the top of the Gaylard Member.

In the geological map accompanying this report (**Map 2-3**), the Gething Formation is mapped as one single undivided unit (map-unit 3), on account of its limited extent of outcrop exposure, and its having been penetrated by few of the boreholes drilled within the Perry Creek property. Historic borehole QWD-7115 did, however, intersect a complete section of the Chamberlain Member, extending into the uppermost part of the underlying Bullmoose Member.

Regionally, coal of potentially-workable thickness and quality is known to occur within both the Chamberlain and Gaylard members of the Gething Formation. None of the few deep boreholes at Perry Creek have yet tested the Gaylard Member for coal, but the Chamberlain Member is known to contain the typical three coal zones (from top down, the Bird, Skeeter and Chamberlain coal zones, as described in Wallis and Jordan's 1974 report) in those few holes which have reached their horizon at Perry Creek.

4.3.1.1 Chamberlain Member

The Chamberlain Member comprises 30 to 40 metres of thickly-interbedded, brown-weathering sandstone and siltstone, containing three regionally-significant coal zones: the Bird Zone (containing one or more coal beds) near the member's top, and the Skeeter and Chamberlain zones (again, each containing one or more coal beds) within the member's middle. The basal quarter to third of the Chamberlain Member's thickness comprises one or two regionally-extensive thick beds of marine sandstone, known informally as the Chamberlain Sandstone (*per* prior usage by Wallis and Jordan, 1974).

Owing to limited extent of outcrop within the property, exacerbated by paucity of borehole information, the Chamberlain coals have been only minimally-considered as a development target at Perry Creek. One of the Chamberlain coals (possibly within the Skeeter coal zone) was formerly exposed at outcrop at the base of Fortress Mountain, a few hundred metres southwest of the Wolverine coal-preparation plant, but this exposure has since been covered by a rock dump.

The age of the Chamberlain Member is late Early Albian (Gibson, 1992a). The basal contact of the Chamberlain Member with the underlying Bullmoose Member is drawn at the base of the thick basal sandstone(s). This contact is generally abrupt at local scale, but probably gradational by interfingering at the regional scale.

4.3.1.2 Bullmoose Member

The Bullmoose Member comprises 25 to 35 metres of thinly-interbedded, recessive-weathering mudstone, siltstone and minor sandstone of turbiditic aspect, forming one or more coarsening-upward sequences. The Bullmoose does not contain any coal, other than isolated coalified logs and coarse, poorly-preserved 'plant trash', likely of drifted origin. Regionally, the Bullmoose does, however, contain locally-abundant molluscan fossils, including *Pecten (Entolium)* cf. *irenense* McLearn (Gibson, 1992a) and *Yoldia kissoumi* (Duff and Gilchrist, 1981), which, although not age-diagnostic, are characteristic of the unit.

The Bullmoose Member is of late Early Albian age (Gibson, 1992a); its basal contact with the underlying Bluesky Member is generally gradational but locally abrupt.

4.3.1.3 Bluesky Member

The Bluesky Member comprises up to perhaps 3 metres (thickness not yet adequately-established) of pebbly mudstone to gritty pebble-conglomerate, at times slightly to moderately glauconitic, with occasional pyrite flecks. The basal contact of the Bluesky with the underlying Gaylard Member has not been directly observed at Perry Creek, owing to lack of outcrop exposure and insufficient depth of exploratory drilling; however, elsewhere within the Sukunka-Quintette coalfield it is generally abrupt to erosional. The age of the Bluesky Member is likely to be late Early Albian. The Bluesky Member of the Gething Formation, as its name implies, is likely to be correlative (if not strictly coeval) with the Bluesky Formation of the Dawson Creek area (Kilby, 1984b; Legun, 1990).

4.3.1.4 Gaylard Member

The Gaylard Member comprises 150 to 160 metres of thickly-interbedded siltstone, mudstone and brown-weathering channel-filling sandstone, accompanied by minor ironstone, tuff, gritstone and conglomerate. Regionally, the Gaylard Member is well-established to contain coal, but the existence of Gaylard coals has not yet been demonstrated by drilling at Perry Creek.

The age of the Gaylard Member is Hauterivian to late Early Albian (Gibson, 1992a). Its basal contact with the underlying Cadomin Formation is gradational by interfingering at local and regional scale (Stott, 1968; Johnson, 1972; Gibson, 1992a), being most readily-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 characteristic of the Cadomin.

4.3.2 Cadomin Formation (map-unit 2)

The Cadomin Formation immediately underlies the Gething Formation, forming the basal part of the Bullhead Group (Stott, 1968). The Cadomin Formation is not known to outcrop within the Perry Creek property, but as noted above in the general discussion of the Bullhead Group, it is interpreted to extend beneath the property, albeit at relatively great depth.

Cadomin rocks are typically very hard, and resistant to erosion, forming ledges and cliffs beneath the more-subdued slopes of the Gaylard Member. This ledge-forming geometry is locally well-developed along the southeast-facing slopes of Fortress Mountain, where several tight folds are outlined by ledges and cliffs of the Cadomin.

The Cadomin Formation comprises one or more thick beds of coarse-grained, gritty to pebbly sandstone and pebble-to boulder-conglomerate (Jones, 1959; McLean, 1981) with occasional lenses of siltstone and pebbly gritstone, and rare thin lenses of dirty coal. Sandy phases of the Cadomin Formation thus strongly resemble the basal pebbly sandstones of the Gaylard Member, and the Cadomin's distinction from the Gaylard locally rests mainly upon the Cadomin Formation's greater lateral continuity. Within the Perry Creek coal property, the top of the Cadomin Formation has not yet been reached by any boreholes.

Within the Perry Creek area, the Cadomin Formation is inferred to be 30 to 85 metres thick, on the basis of its mapped distribution. Its basal contact with the underlying Monach Formation is likely to be erosional, with considerable local scour into the older sediments. Regionally, the base of the Cadomin marks a northeastward-deepening angular contact, cutting down into successively-older rocks of the Minnes Group (Stott, 1973).

4.4 Minnes Group (map-unit 1)

The Minnes Group, despite being known to contain coal within its outcrop belt along the southwestern fringe of the Sukunka-Quintette coalfield, is virtually unexplored in the vicinity of the Perry Creek property. The total thickness of the Minnes Group is estimated to be 1300 to 1400 metres, although some of this apparent thickness may be due to folding and thrust-faulting.

The Minnes Group in the Perry Creek area comprises three formations: from top down,

the Monach, Beattie Peaks and Monteith formations. Of these three, only the Monach Formation is expected to outcrop at or near Perry Creek.

4.4.1 Monach Formation (map-unit 1)

The Monach Formation comprises ledge-forming sandstone and quartzite, with lesser amounts of interbedded siltstone and conglomerate, and occasional thin coals, part of the Minnes Group (Stott, 1998). The Monach is not expected to form bedrock within any part of the Perry Creek property, but it does extend throughout the region, and it is expected to be present at generally-unmineable depth, beneath the Cadomin Member.

The Monach Formation is of Berriasian to Valanginian age (Stott, 1998). On the basis of widely-scattered oil and gas wells within the vicinity, the Monach Formation is inferred to be 1300 to 1400 metres thick in the Perry Creek area, although this thickness may reflect tectonic telescoping and thickening of the formation.

6 Reclamation

Disturbance associated with year-2001 through year-2013 exploratory work comprised the re-activation and extension of a modest network of pre-existing exploration trails dating back to the period of historic work, and the construction of new drilling pads of sufficient size to accommodate exploration drills. The bulk of this exploratory disturbance is now largely situated within Perry Creek Mine's permitted disturbance footprint. The vast majority of drill trails and drill pads have in recent years been effectively obliterated by mining, dumping of waste rock, or by pre-stripping in preparation for the westward extension of the active mining area.

Outside of this 'footprint' zone, most drill roads and drill pads remain accessible to walking or to transport by means of small all-terrain vehicles. Judging by the regrowth of vegetation within these disturbed areas, seeding with revegetation seed mixtures was done. As well, water-bars were constructed on steep portions of drill trails. Casing pipes remain in place at many drill pads. Drill sites have otherwise been cleared of machinery, equipment, supplies and trash concomitant with demobilisation of drilling rigs and support vehicles.

A few higher-grade access trails have remained open, in the reasonable expectation that these trails will be needed to support future coal exploration.

Perry Creek Mine operates within an approved scheme of mining and progressive reclamation. Appropriate progress reports have been submitted to provincial authorities by the mine's environmental staff.

7 Statement of costs

Table 7-1 presents standardised cost breakdown by activity, using estimated costs for work done prior to 2013, and actual costs for year-2013 work (albeit an incomplete accounting of costs, as final costs have not yet been calculated). Estimated total expenditure was $8,719,610.

Table 7-1: Exploratory cost breakdown by activity (part 1 of 2)

Year	*British Columbia average unit cost (per meter)*	Estimated costs based on British Columbia averages				
		2001	2002	2003	2004	2005
Number of rotary drill holes		12	16	3	0	2
Number of cored holes		5	32	9	27	0
Total metres (rotary)		2,008.92	877.99	336.23	0	169.23
Total metres (cored)		781.58	1,168.11	622.59	1119.5	0
Rotary drilling	$201.34	$404,475	$176,775	$67,697	nil	$34,073
Core drilling	$210.34	$164,398	$245,700	$130,956	$235,476	$0
Geophysical logging	$17.56	$49,001	$18,899	$13,153	$0	$2,972
Coal analysis	$79.63	$62,237	$93,017	$49,577	$49,577	$0
Road work	$23.30	$65,019	$47,674	$22,341	$26,084	$3,943
Personnel	$20.49	$57,177	$41,925	$19,646	$22,939	$3,468
Total programme costs (estimated)		$802,307	$623,990	$303,370	$334,076	$44,456
Total number of boreholes		17	48	6	27	2
Total metres of drilling		2790.5	2046.1	958.82	1119.5	169.23

Table 7-1: Exploratory cost breakdown by activity (part 2 of 2)

Year	*British Columbia average unit cost (per meter)*	Estimated costs based on British Columbia averages				
		2006	2007	2008	2009	2013
Number of rotary drill holes		30	14	16	38	1
Number of cored holes		13	57	4	1	9
Total metres (rotary)		4,244.09	1,576.64	2,818.27	6,717.29	148.37
Total metres (cored)		941.57	3,529.94	446.21	173.73	2,464.53
Rotary drilling	$201.34	$854,505	$317,441	$567,430	$1,352,459	$81,075
Core drilling	$210.34	$198,050	$742,488	$93,856	$36,542	$540,758
Geophysical logging	$17.56	$85,265	$86,723	$57,324	$121,006	$44,253
Coal analysis	$79.63	$74,977	$281,089	$35,532	$13,834	(not tracked)
Road work	$23.30	$120,826	$118,983	$76,062	$160,561	$131,398
Personnel	$20.49	$106,254	$104,634	$66,889	$141,197	(not tracked)
Total programme costs (estimated)		$1,439,877	$1,651,358	$897,093	$1,825,599	
Total programme costs (actual, not yet final)						$797,484
Total number of boreholes		43	71	20	39	10
Total metres of drilling		5185.66	5106.58	3264.48	6891.02	2,612.9

Note: Analytical costs derived from coring total only. Geophysical logging costs derived from only those holes which are known to have been logged. Data source for unit costs: Bouchard (2011) report on behalf of Natural Resources Canada.

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9 Conclusions

The Perry Creek coal property contains coal-measures of Early Cretaceous age, within the Bullhead and Fort St. John groups of sedimentary rocks. These rocks are deformed by folded, imbricate thrust faults and associated folds, consistent with the overall thin-skinned structural style of the Rocky Mountain Foothills of northeastern British Columbia.

The most historic coal-exploration work at Perry Creek was performed done by Denison Mines Limited and successor companies, as has previously been reported in various Coal Assessment Reports as cited within the present report. Most of the historic exploration effort has been devoted to the Falher coals within the Gates Formation, although some work was also done to assess the thickness and quality of the Chamberlain Member coals within the Gething Formation. This historic work commenced in 1971 and continued until 1989.

Estimated total current (year-2001 and onwards) exploration expenditure on the property to date is $8,719,610.

The Perry Creek property merits further work.

10 Statement of qualifications

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 Northeast British Columbia office in Tumbler Ridge, British Columbia.

b) This certificate applies to the current report, titled *Coal Assessment Report for the Perry Creek coal property, British Columbia*, dated January 20, 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 over 36 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 geological 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 Perry Creek coal property was in November of 2014.

f) I am the author of this report, titled *Coal Assessment Report for the Perry Creek coal property, British Columbia*, dated January 20, 2015, concerning the Perry Creek coal property.

g) As of the date of the writing of this report, I am not independent of Walter Canadian Coal Partnership and Walter Energy, pursuant to the tests in Section 1.4 of *National Instrument 43-101*.

“original signed and sealed by”

Dated this 20th day of January, 2015. C.G. Cathyl-Huhn P.Geo. Lic.Geol. RMSME

Appendix A: Geophysical logs and other borehole data

Following are an index to geophysical logs (presented as **Table A-1**), followed (in the machine-readable CD copy of this report) by scans of all available geophysical logs plus other associated borehole data.

Cross-reference to analytical data

Results of coal and gas analyses related to samples taken from boreholes are presented in **Appendices B** through **F** of this report.

Borehole positions, depths, and geophysical logs run in current boreholes: **Table A-1**

Year of drilling	UTM NAD83 coordinates		Elevation/depth (metres)		Geophysical log suites and depths reached (metres)							
Year-2001	Easting	Northing	Collar	Depth	Den/Gam/Cal/Res	Gam/Res/Neu/Cal	Gam/Neu/Res	Gam/Den	Gam/Neu	Son/Gam/Cal	Dipmeter	Deviation
PRH01-1C	611307.81	6105706.74	1126.29	162.5	161.37			160.3				
PRH01-2	611583.33	6106005.5	1063.53	196.29	196.15			194.7				196.2
PRH01-3C	612268.41	6105549.4	925.71	272.1	237.43			269.4				235.36
PRH01-4C	611906.71	6106435.63	1101.73	104.55	104.46			102.9				103.83
PRH01-5	611714.25	6106200.09	1036.96	163.7	163			161.2				
PRH01-6	610605.68	6105910.36	1297.57	194.29					194.29			
PRH01-7	610809.7	6106046.93	1227.59	209.09	209.09				200.03		207	207
PRH01-8	610974.34	6106241.94	1172.7	200.44	209.44				203.35		202	202
PRH01-9	611603.25	6105367.67	1066.33	130.19	130.29				130.19		129	129
PRH01-10	611244.07	6105044.59	1169.06	124	123.96				123.86		122	122
PRH01-11	611992.3	6105697.01	979.29	105	104.59				104.7			
PRH01-12	611787.1	6105618.79	1015.08	116.99	116.92				116.86			
PRH01-13	611185.34	6105507.61	1165.41	188.93	188.93				188.93		158	159.4
PRH01-14	611276.49	6106550.05	1117.52	190	188.95				188.93		187	187
PRH01-15	610877.31	6105374	1270.18	190	189.69				189.88			189.9
PRH01-16C	611145.68	6106385.59	1121.3	208.99	208.98				208.93			
PRH01-17C	612073.79	6105338.88	945.03	33.44	33.27				33.44			
Year of drilling	UTM NAD83 coordinates		Elevation/depth (metres)		Geophysical log suites and depths reached (metres)							
Year-2002	Easting	Northing	Collar	Depth	Den/Gam/Cal/Res	Gam/Res/Neu/Cal	Gam/Neu/Res	Gam/Den	Gam/Neu	Son/Gam/Cal	Dipmeter	Deviation
BS2002-1	612043.73	6105313.24	952.4	38.86	Not logged							
BS2002-2	612044.92	6105314.67	952.3	38.71	38.27							38.3
BS2002-3	612046	6105315.8	952.17	38.4	Not logged							
BS2002-4	612047.2	6105316.8	952.19	38	Not logged							
BS2002-5	612048.5	6105318.5	951.91	38.05	Not logged							
BS2002-6	612049.4	6105320.1	951.8	37.85	Not logged							
BS2002-7	612041.9	6105315.3	952.56	38.2	Not logged							
BS2002-8	612043.7	6105316	952.25	38.1	Not logged							
BS2002-9	612044.8	6105317.3	952.14	38.48	Not logged							
BS2002-10	612046.5	6105318.5	952.03	37.87	Not logged							
BS2002-11	612047.8	6105319.7	951.92	38.18	Not logged							
BS2002-12	612277.4	6105609.7	929.92	37.64	Not logged							
BS2002-13	612273.4	6105604.1	929.89	36.42	Not logged							
BS2002-14	612272.62	6105602.58	929.75	36.12	Not logged							
BS2002-15	612271.8	6105600.7	929.77	36.04	Not logged							
BS2002-16	612270.8	6105599	929.67	35.89	Not logged							
BS2002-17	612269.7	6105597.3	929.64	35.89	Not logged							
BS2002-18	612268.9	6105595.5	929.66	35.66	Not logged							
BS2002-19	612231.7	6105551.4	934.74	35.69	Not logged							
BS2002-20	612230.8	6105550	934.65	35.41	Not logged							
BS2002-21	612229.92	6105548.33	934.53	35.31	Not logged							
BS2002-22	612229.4	6105546.7	934.41	35.15	Not logged							
BS2002-23	612228.2	6105544.5	934.37	34.9	Not logged							
BS2002-24	611805.7	6105101.6	987.73	30.94	Not logged							
BS2002-25	611807.4	6105104	987.45	31.47	Not logged							
BS2002-26	611808.49	6105105.61	987.38	31.39	Not logged							
BS2002-27	611809.8	6105106.9	987.24	31.55	Not logged							

Borehole positions, depths, and geophysical logs run in current boreholes (continued): **Table A-1**

Year of drilling	UTM NAD83 coordinates		Elevation/depth (metres)		Geophysical log suites and depths reached (metres)							
Year-2002 (cont'd)	Easting	Northing	Collar	Depth	Den/Gam/Cal/Res	Gam/Res/Neu/Cal	Gam/Neu/Res	Gam/Den	Gam/Neu	Son/Gam/Cal	Dipmeter	Deviation
BS2002-28	611811.02	6105108.13	987.21	32.41	Not logged							
PRH02-01	612255.39	6105465.17	920.87	16.16	14.13							
PRH02-02	612273.93	6105451.04	919.01	13.11	12.8							
PRH02-03	612149.97	6105274.52	923.73	10.4	9.99							
PRH02-04	612113.59	6105311.87	928.49	15.92	15.92							
PRH02-05	612419.36	6105586.61	912.13	19.2	18.98							
PRH02-06	612446.6	6105553.58	910.59	16.15	16.02							
PRH02-07	612363.21	6105629.63	917.54	31.4	31.16							31.2
PRH02-08C	612228.86	6105477.37	927.23	24.38	24.06				24.06			24.1
PRH02-09	611589.71	6106645.54	1099.01	71.3	68.71				68.75			65.1
PRH02-10C	611629.28	6106719.71	1089.53	62.75	62.75				41.38			41.1
PRH02-11	610515.46	6104589.1	1375.19	118.8	118.25				118.34			59.8
PRH02-12	610586.29	6104684.51	1366.63	97.29	97.29				97.28			96.9
PRH02-13	610693.81	6104772.58	1326.72	113.8	113.5				113.5			110
PRH02-14	610805.7	6104892.86	1306.88	125.6	125.4				125.5			120
PRH02-15	610931.29	6104656.38	1287.63	56.79	56.16							55
PRH02-16	610934.57	6104528.7	1289.57	52.5	52.5							50
PRH02-17	610893.31	6104429.85	1296.69	71.02	70.5							70
PRH02-18C	610932.26	6104655.55	1287.11	53.4	53.1							50
PRH02-19	611998.87	6106553.42	1098.63	48.55	48.3							45
PRH02-20C	611976.92	6106550.65	1100.97	19	18.7							
Year of drilling	UTM NAD83 coordinates		Elevation/depth (metres)		Geophysical log suites and depths reached (metres)							
Year-2003	Easting	Northing	Collar	Depth	Den/Gam/Cal/Res	Gam/Res/Neu/Cal	Gam/Neu/Res	Gam/Den	Gam/Neu	Son/Gam/Cal	Dipmeter	Deviation
BS2003-1	611896.475	6106185.783	1064.854	55.69	46.86							47.2
BS2003-2	location	unknown	unknown	55.37	Not logged							
BS2003-3	location	unknown	unknown	45.77	Not logged							
BS2003-4	location	unknown	unknown	55.76	*Logs missing*							
BS2003-5	611896.475	6106185.783	1064.854	37.48	Not logged							
BS2003-6	611896.475	6106185.783	1064.854	36.08	Not logged							
BS2003-7	611896.475	6106185.783	1064.854	35.07	Not logged							
PRH2003-1C	611494.8	6105919.27	1095.66	195.84		195		195.84				196
PRH2003-2C	611303.99	6105701.7	1125.97	105.53				105.53				105
PRH2003-3	611792.16	6105810.05	1000.8	132				131.04	130.27			131.1
PRH2003-4	612169.59	6106012.38	1055.93	122.94	122.94			122.94	121.05			122.7
PRH2003-5	612492.876	6106543.346	990.41	81.29				53.73	81.29			82.9
Year of drilling	UTM NAD83 coordinates		Elevation/depth (metres)		Geophysical log suites and depths reached (metres)							
Year-2004	Easting	Northing	Collar	Depth	Den/Gam/Cal/Res	Gam/Res/Neu/Cal	Gam/Neu/Res	Gam/Den	Gam/Neu	Son/Gam/Cal	Dipmeter	Deviation
PCBS2004-1C	612217.698	6105529.134	933.89	34.8	Not logged							
PCBS2004-2C	612220.217	6105530.424	933.91	32.76	Not logged							
PCBS2004-3C	612220.531	6105533.264	933.93	35.05	Not logged							
PCBS2004-4C	612221.712	6105534.683	933.91	35.05	Not logged							
PCBS2004-5C	612223.170	6105536.548	933.8	34.13	Not logged							
PCBS2004-6C	612224.710	6105539.003	933.74	35.05	Not logged							
PCBS2004-7C	612226.163	6105541.523	933.66	34.74	Not logged							
PCBS2004-8C	612227.248	6105543.752	933.79	35.44	Not logged							

Borehole positions, depths, and geophysical logs run in current boreholes (continued): **Table A-1**

Year of drilling	UTM NAD83 coordinates		Elevation/depth (metres)		Geophysical log suites and depths reached (metres)							
Year-2004 (cont'd)	Easting	Northing	Collar	Depth	Den/Gam/Cal/Res	Gam/Res/Neu/Cal	Gam/Neu/Res	Gam/Den	Gam/Neu	Son/Gam/Cal	Dipmeter	Deviation
PCBS2004-9C	612228.829	6105545.423	933.68	36.36	Not logged							
PCBS2004-10C	612240.483	6105559.888	932.66	35.92	Not logged							
PCBS2004-11C	612243.194	6105562.575	932.33	36.02	Not logged							
PCBS2004-12C	612243.75	6105565.192	932.28	36.07	Not logged							
PCBS2004-13C	612245.937	6105563.698	932.11	35.42	Not logged							
PCBS2004-14C	612247.124	6105565.723	931.75	35.96	Not logged							
PCBS2004-15C	612245.603	6105567.268	931.81	35.96	Not logged							
PCBS2004-16C	612248.344	6105566.857	931.77	35.76	Not logged							
PCBS2004-17C	612249.275	6105571.074	931.38	37.86	Not logged							
PCBS2004-18C	612323.677	6105632.78	921.78	35.01	Not logged							
PCBS2004-19C	612253.012	6105574.346	930.99	33.68	Not logged							
PCBS2004-20C	612262.370	6105588.298	929.58	33.23	Not logged							
PCBS2004-21C	612218	6105541		60.86	Not logged							
PCBS2004-22C	612218	6105541		61.47	Not logged							
PCBS2004-23C	612218	6105541		58.91	Not logged							
PCBS2004-24C	612218	6105541		62.98	Not logged							
PCBS2004-25C	612218	6105541		60.33	Not logged							
PCBS2004-26C	612218	6105541		50.88	Not logged							
PCBS2004-27C	612218	6105541		59.8	Not logged							
Year of drilling	UTM NAD83 coordinates		Elevation/depth (metres)		Geophysical log suites and depths reached (metres)							
Year-2005	Easting	Northing	Collar	Depth	Den/Gam/Cal/Res	Gam/Res/Neu/Cal	Gam/Neu/Res	Gam/Den	Gam/Neu	Son/Gam/Cal	Dipmeter	Deviation
PCR2005-1	611287.37	6103215.57	910.04	61.93			61.93	44.95				61.9
PCR2005-2	611357.7	6103302	926.03	107.3				107.26	107.3			
Year of drilling	UTM NAD83 coordinates		Elevation/depth (metres)		Geophysical log suites and depths reached (metres)							
Year-2006	Easting	Northing	Collar	Depth	Den/Gam/Cal/Res	Gam/Res/Neu/Cal	Gam/Neu/Res	Gam/Den	Gam/Neu	Son/Gam/Cal	Dipmeter	Deviation
PC2006-01	611367.6	6104923	1141.54	106.43	*[missing file]*							
DH2	611153.4	6104842	1212.36	109.7	109.39				109.41			108
DH2006-3	610895.5	6104799	1283.74	109.7	108.2				108.91			108
DH7	611025	6104620	1249.07	10	Not logged							
DH2006-8	610807.4	6104892	1301.33	124.9	120.04				120.61			120.4
DH2006-09	610790.7	6104770	1300.79	91.44	89.23				89.61			88.9
DH2006-10	610865.6	6104680	1301.92	70.1	69.41				69.37			69.6
DH2006-11	610885.9	6104560	1302.97	82.3	81.83				81.39			82
DH2006-13	610804.8	6104626	1301.31	67	66.35				66.23			66.7
PR2006-01	610645.83	6104494.33	1304.6	173.73	168.16				167.84			168
PR2006-02	610801.17	6104311.07	1269.31	138.68	136.1				137.59			136.3
PR2006-03	610891.53	6104143.31	1206.73	138.68	138.25				137.89			138.2
PR2006-04	610712.91	6104247.01	1223.8	138.68	136.24				136.65			136.4
PR2006-05	610780.05	6104037.42	1147.7	163.06	162.44							162.6
PR2006-06	610778.74	6104036.71	1147.63	184.4	180.75				180.55			180.8
PR2006-07	610918.62	6103965.89	1124.38	123.44	122.6				122.46			122.6
PR2006-08	610924.35	6103957.97	1122.83	129.54	128.75				128.81			129.8
PR2006-09	610908.81	6103865.35	1068.1	118.87	117.27				117.31			117.6
PR2006-10	610908.13	6103864.43	1068.19	167.9	168.29				164.27			167.9

Borehole positions, depths, and geophysical logs run in current boreholes (continued): **Table A-1**

Year of drilling	UTM NAD83 coordinates		Elevation/depth (metres)		Geophysical log suites and depths reached (metres)							
Year-2006 (cont'd)	Easting	Northing	Collar	Depth	Den/Gam/Cal/Res	Gam/Res/Neu/Cal	Gam/Neu/Res	Gam/Den	Gam/Neu	Son/Gam/Cal	Dipmeter	Deviation
PR2006-11	611023.42	6103750.95	1046.58	112.7	112.32				112.22			112.2
PR2006-12	611018.24	6103748.81	1046.42	97.5	100.12				99.9			100.1
PR2006-13	611139.76	6103594.25	1014.08	170.38	166.84				167.94			166.8
PR2006-14	611139.19	6103600.75	1014.04	83.82	82.8				82.68			82.8
PR2006-15	611162.124	6103257.487	952.67	79.94	79.94				79.76			79.7
PR2006-16	610822.123	6103799.73	1058.63	156.9	156.18				157.55			156.1
PR2006-17	610870.533	6103620.425	1059.49	189.51	189.51				191.36			189.7
PR2006-18	610712.166	6103702.708	1103.28	195.94	194.66				195.94			194.7
PR2006-19	610782	6103479.109	1086.15	173.7	170.34				170.62			
PR2006-20	611026.724	6103273.13	988.73	150	Not logged							
PR2006-21	608831.903	6107263.178	1216.47	108.2	107.38				107.16			104.4
PR2006-22	609070.388	6107107.83	1261.7	74.7	74.01				73.85			74
PR2006-22A	not	surveyed		141.7	141.53				141.61			141.6
PR2006-23	608883.211	6107604.02	1208.45	153.92	152.77				152.2			96.11
PR2006-24	608622.536	6107736.064	1256.73	145	143.96				143.68			143.9
PR2006-25	608345.897	6108116.22	1359.16	154	150.74				150.13			150.1
PR2006-26	608311.773	6107904.126	1347.11	151	150.34				150.32			150.3
PR2006-27	608448.182	6107283.328	1225.6	129.54				93.09				
PR2006-28	608445.135	6107454.185	1238.21	135.6	131.08				missing			
PR2006-29	608164.54	6107570.968	1324.58	163.06				161.27				
TDH-1	610832.77	6104666.97	1270	40	Not logged							
TDH-2	610966.24	6104595.51	1270.3	40	Not logged							
TDH-3	610851.09	6104860.59	1272	50	Not logged							
TDH-4	not	drilled	not	drilled								
TDH-5	610836.87	6104801.62	1272	40	Not logged							
Year of drilling	UTM NAD83 coordinates		Elevation/depth (metres)		Geophysical log suites and depths reached (metres)							
Year-2007	Easting	Northing	Collar	Depth	Den/Gam/Cal/Res	Gam/Res/Neu/Cal	Gam/Neu/Res	Gam/Den	Gam/Neu	Son/Gam/Cal	Dipmeter	Deviation
PCS2007-1C	612091.07	6105874.11	965.48	108.79	Not logged							
PCS2007-02C-1	611991.2	6105921	976.6	106.68	105.59							
PCS2007-02C-2	611988.15	6105922.51	976.71	132.59				131.08				
PC2007-01C	610849.6	6104688	1240.3	9.14	Not logged							
PC2007-02C	610862.24	6104704.94	1240.58	19.3	15.26			18.96				
PC2007-03C	610881.33	6104736.87	1240.69	40.48	11.24			38.33				
PC2007-04C	610896.72	6104764.4	1240.3	51.82	13.99			51.08				
PC2007-05C	610912.41	6104663.83	1240.51	19.81	5.21							
PC2007-06C	610929.07	6104682.84	1240.23	19.81				19.56				
PC2007-07C	610946.95	6104705.77	1240.12	39.6	28.64			38.77				
PC2007-08C	610964.03	6104724.19	1240.04	52.83				52.83				
PC2007-09C	611030.09	6104675.83	1239.95	44.2				43.9				
PC2007-10C	611007.91	6104654.06	1239.36	24.38	22.19							
PC2007-11C	611054.78	6104616	1239.4	20.96				20.8				
PC2007-12C	611034.05	6104595.44	1239.36	15.24				14.96				
PC2007-13C	611079.01	6104588.12	1238.12	22.27				22.27				
PC2007-14C	611052.62	6104564.06	1238.73	13.72				13.53				
PC2007-15C	611068.6	6104636	1237.86	9.14				7.8				

Borehole positions, depths, and geophysical logs run in current boreholes (continued): **Table A-1**

Year of drilling	UTM NAD83 coordinates		Elevation/depth (metres)		Geophysical log suites and depths reached (metres)							
Year-2007 (cont'd)	Easting	Northing	Collar	Depth	Den/Gam/Cal/Res	Gam/Res/Neu/Cal	Gam/Neu/Res	Gam/Den	Gam/Neu	Son/Gam/Cal	Dipmeter	Deviation
PC2007-16C	610985.3	6104634	1239.35	9.14	9.13							
PC2007-17C	610987.4	6104752	1240.17	67.88	67.88							
PC2007-18C	610928.5	6104821	1240	72.38	72.38							
PC2007-19C	611046.46	6104691.49	1243.21	66.35	66.35							
PC2007-20	611603.83	6105183.35	1072.64	112.17	109.77				109.41			109.05
PC2007-21	611478.82	6105326	1093.83	118.87				115.32				
PC2007-22C	611598.07	6105090.88	1075.3	91.44	86.62				88.93			68.78
PC2007-23C	611250.78	6104808.64	1175.29	87.62	87.36				87.62			68.8
PC2007-24C	611154.23	6104754.73	1206.86	80.77	79.84				79.74			68.8
PC2007-25C	611165.11	6104680.38	1207.02	60.96	60.58				60.5			60.5
PC2007-26C	611112.12	6104628.41	1218.86	51.82	27.76				29.69			29.7
PC2007-27C	611132.47	6104655	1212.4	50	Not logged							
PC2007-28C	611147.74	6104668	1211.25	60								
PC2007-29C	611163.71	6104681.85	1206.88	83.82				78.51				
PC2007-30C	611279.97	6104730.09	1159.53	62.48	60.46			60.02	60.42			60.42
PC2007-31C	611279.97	6104730.09	1159.53	76.2	76			75.72	76.14			68.8
PC2007-32C	611406.43	6104818.5	1097.6	53.34	50.05				50.07			50.08
PC2007-33C	611409.3	6104817	1097.2	76.2				72.4	45.81			45.82
PC2007-34C	611465.29	6104879.32	1080.23	51.82	51.24				51.36			51.36
PC2007-35C	611478.51	6104804.18	1050.9	16.76	14.81			15.38				
PC2007-36	611799.7	6106621.84	1101.9	96.01	89.59				89.67			
PC2007-37	611747.66	6106539.66	1107.21	108.2	106.68				106.56			68.74
PC2007-38	612090.67	6106362.9	1102.83	91.44	89.25							89.15
PC2007-39	612222.97	6106220.11	1088.65	84.12	83.28				83.22			83.22
PC2007-40	611935.84	6106169.92	1062.24	150.88	146.44				149.03			146.13
PC2007-41	612322.16	6105896.62	1012.71	74.68	72.54				72.58			72.46
PC2007-42	611861.27	6106066.25	1019.89	149.35	147.54				147.6			147.6
PC2007-43	612266.4	6105833.08	963.91	74.29	74.29				74.27			74.26
PC2007-44	611839.53	6105899.15	989.83	134.11	132.06				132.16			132.16
PC2007-45	611642.86	6106114.78	1037.62	192.02	189.25				189.29			189.3
PC2007-46	611868	6106706.06	1101.65	51.82	50.21				50.19			50.2
PC2007-47	612021.06	6106279.22	1101.54	138.68	133.73				133.71			133.72
PC2007-48C	612163.92	6106134.66	1105.8	85.34	80.2			50.59	80.24			77
PC2007-49C	612162.24	6106136.46	1106.2	120.39	117.59			117.53	117.71			117.72
PC2007-50C	611709.06	6106739.55	1093.93	59.44	58.51				58.51			58.52
PC2007-51C	612041.42	6106524.86	1097.04	44.19	42.57				42.63			42.64
PC2007-52C	612238.44	6106245.73	1078.35	28.96				27.48	27.78			27.78
PC2007-53C	611691.04	6106464.74	1095.18	124.97	123.94			124.77	123.86			123.78
PC2007-54C	611709.41	6106739.82	1096.13	67.01	63.96				64.02			63.84
PC2007-55C	612161	6106128	1104	137.47	137.47				137.45			137.44
PC2007-56C	612367.17	6105947.64	1023.12	39.62	37.75				37.71			37.72
PC2007-57C	612378.27	6105793.96	965.74	42.67	40.95			41.01	40.85			40.86
PC2007-58C	611729.28	6105940.33	1017.66	161.54	157.37			157.15	157.19			157.2
PC2007-59C	612037.93	6106528.41	1096.99	43.59	42.37				42.53			
PC2007-60C	612140.66	6106194.72	1120.94	86.87	86.01			83.24	86.17			86.18
PC2007-61C	612266.69	6105830	963.84	80.77				78.25	59.24			59.24
PC2007-62C	612024.37	6106110.68	1060.69	94.49	93.97				93.85			93.86

Borehole positions, depths, and geophysical logs run in current boreholes (continued): **Table A-1**

Year of drilling	UTM NAD83 coordinates		Elevation/depth (metres)		Geophysical log suites and depths reached (metres)							
Year-2007 (cont'd)	Easting	Northing	Collar	Depth	Den/Gam/Cal/Res	Gam/Res/Neu/Cal	Gam/Neu/Res	Gam/Den	Gam/Neu	Son/Gam/Cal	Dipmeter	Deviation
PC2007-63C	610823.16	6104333.5	1284.05	110.03	109.95				109.93			109.94
PC2007-64C	610918.21	6104440.49	1286.11	52.12	52.02				52.04			52.04
PC2007-65C	610902.77	6104321.29	1276.4	81.99	81.79			78.41	81.81			81.9
PC2007-66C	610921.29	6104440.38	1286.03	64.02	63.92				64.02			64.02
PC2007-67C	610901.68	6104321.21	1276.44	76.5	76.38				76.36			76.36
PC2007-68C	610920.52	6104440.37	1286.02	58.22	57.81				57.83			57.84
Year of drilling	UTM NAD83 coordinates		Elevation/depth (metres)		Geophysical log suites and depths reached (metres)							
Year-2008	Easting	Northing	Collar	Depth	Den/Gam/Cal/Res	Gam/Res/Neu/Cal	Gam/Neu/Res	Gam/Den	Gam/Neu	Son/Gam/Cal	Dipmeter	Deviation
PC-08-01	609138.65	6107211.95	1238	195.07	188.65				187.88			187.7
PC-08-02	609432.87	6107238.34	1214.27	85.34	84.02				83.78			83.6
PC-08-03	609781.88	6107255.63	1226.74	170	54.41			154.11				
PC-08-04	609950.66	6107062.27	1216.98	152.4				148.1				
PC-08-05C	610111.11	6106792.22	1228.78	127.4				126.27	126.23			
PC-08-06C	609690.75	6106758.48	1290.2	139.6	135.4				135.4			135.22
PC-08-07	609346.38	6106722.68	1333.82	187.02	187.02				186.2			186.02
PC-08-08C	609168.15	6106934.62	1301.54	165.5	164.61				164.71			164.54
PC-08-09	609850.72	6106479.14	1305.36	164.5	158.7				158.62			158.44
PC-08-10	610564.06	6106540.68	1189.45	200.03	200.03				199.36			199.98
PC-08-11	610806.39	6106852.14	1122.18	158.49	156.06				155.84			155.58
PC-08-12	610402.71	6107159.15	1136.59	172.49	171.54				172.49			172.32
PC-08-13	not	drilled	not	drilled								
PC-08-14	610022.73	6107516.28	1177.62	167.64	157.07				157.55			157.38
PC-08-14B	610022.73	6107516.28	1177.62	186	185.29				184.93			185.12
PC-08-15	609642.32	6107466	1185.88	135	133.07				133.09			132.92
PC-08-16	610153.28	6106065.69	1384.13	256.03	254.9				254.28			254.1
PC-08-17	610439.81	6105704.83	1363.96	243.84	228.97				225.26			225.1
PC-08-18	610655.07	6105346.41	1320.47	259.08	258.24				258.22			254
WBS-08-01 (PC2008-01C)	unknown	location	unknown	13.71	13.39							
WR-08-01(08-03R)	611163	6105030.04	1145.34	85.34	83.18				83.18			83
Year of drilling	UTM NAD83 coordinates		Elevation/depth (metres)		Geophysical log suites and depths reached (metres)							
Year-2009	Easting	Northing	Collar	Depth	Den/Gam/Cal/Res	Gam/Res/Neu/Cal	Gam/Neu/Res	Gam/Den	Gam/Neu	Son/Gam/Cal	Dipmeter	Deviation
PC-09-01	611578.44	6105814.73	1060.92	163.06	162.42				162.38			162.2
PC-09-02	611658.34	6105680.78	1037.34	135.63	134.9				135.08			134.9
PC-09-03	611712.91	6106053.43	1022.43	181.35	180.35				180.31			180.14
PC-09-04	611502.67	6105582.19	1074.89	134.11	133.43				133.41			133.24
PC-09-05	611357.96	6105402.73	1130.16	144.78	143.98				144.12			143.94
PC-09-06	611295.55	6105483.88	1138.84	150.87	148.35				147.18			147
PC-09-07	611144.95	6105535.45	1172.71	160.02	159.02				159			158.82
PC-09-08	611185.06	6105198.81	1188.42	150.87	149.87				149.99			149.82
PC-09-09	611108.32	6105330.49	1207.16	163.06	162.26				162.26			162.08
PC-09-10	610934.45	6105292.17	1255.82	172.21	170.84				163.68			163.5
PC-09-11	610989.28	6105128.43	1260.68	169.16	168.41				168.41			168.24
PC-09-12	610474.79	6104904.67	1416.87	240.79	238.34				237.05			237.06
PC-09-13	610566.66	6105005.3	1385.49	196.55	192.77				192.91			192.92
PC-09-14	610556.06	6104869.52	1372.17	178.3	177.41				177.53			177.36

Borehole positions, depths, and geophysical logs run in current boreholes (concluded): **Table A-1**

Year of drilling	UTM NAD83 coordinates		Elevation/depth (metres)		Geophysical log suites and depths reached (metres)							
Year-2009 (cont'd)	Easting	Northing	Collar	Depth	Den/Gam/Cal/Res	Gam/Res/Neu/Cal	Gam/Neu/Res	Gam/Den	Gam/Neu	Son/Gam/Cal	Dipmeter	Deviation
PC-09-15	610651.87	6105114.23	1349.49	181.36	180.27				180.21			180.04
PC-09-16	610720.18	6105047.47	1348.6	178.3	177.51				177.57			177.4
PC-09-17	610582.69	6104684.33	1365.83	178.3	174.68				174.86			174.68
PC-09-18	610509.65	6104589.39	1374.26	214.88	204.85				204.97			204.8
PC-09-19	610932.08	6105802.17	1214.37	184.4	183.5				183.52			183.34
PC-09-20	610151.03	6107678.07	1154.97	146	144.08				144.1			144.1
PC-09-21	610167.9	6107554.79	1162.53	176.78	175.28				175.2			175.2
PC-09-22	610522.84	6107274.77	1129.29	117	114.84				115.84			115.84
PC-09-23	610396.41	6107445.24	1144.14	140	133.97				134.13			133.96
PC-09-24	610215.18	6107350.21	1174.64	153	149.73				152.22			152.22
PC-09-25	609371.09	6107449.25	1192.53	85	83				83.08			82.9
PC-09-26	609304.3	6107074.14	1258.15	93	92.29				92.22			92.22
PC-09-27	608973.46	6106970.31	1295.31	178	175.3				175.2			175.02
PC-09-28	608781.03	6106755.44	1324.5	273.48	270.44				269.61			269.44
PC-09-29	609052.34	6106860.28	1338.61	227.14	224.37				223.99			223.82
PC-09-30	608773.24	6106511.5	1385.3	239.33	235.82				234.32			234.14
PC-09-31	609139.97	6106731.76	1371.18	263.72	261.33				261.49			261.32
PC-09-32	608903.01	6106200.62	1421.43	187.45	184.67				184.71			184.54
PC-09-33	609499.67	6106387.88	1410.67	274.32	272.3				271.6			271.6
PC-09-34	609841.39	6106199.91	1387.52	245	244.21				244.21			244.22
PC-09-35	610740.81	6107070.2	1083.39	176.78	93.13			175.44	175.34			92.96
PC-09-36	611092.71	6106676.18	1123.94	164.59	163.74			163.24	163.2			162.4
PC-09-37	610762.58	6106948.47	1108.5	118.87	118.01				117.95			117.78
PC-09-38	610472.44	6106896.29	1164.43	179.83	176.29				175.46			178.54
PC-09-UC	610218.6	6107219	1169.1	173.73				172.86	172.87			
Year of drilling	UTM NAD83 coordinates		Elevation/depth (metres)		Geophysical log suites and depths reached (metres)							
Year-2013	Easting	Northing	Collar	Depth	Den/Gam/Cal/Res	Gam/Res/Neu/Cal	Gam/Neu/Res	Gam/Den	Gam/Neu	Son/Gam/Cal	Dipmeter	Deviation
PC13-01c	610956	6105246.44	1259.2	171.5				168.25				
PC13-02c	610722	6104794.82	1300.34	110.33	110.33				110.27	112.57		110.34
PC13-03c	610424.4	6104922.5	1425.4	1091.2	101.11				101.15	100.42		101.2
PC13-04c	610392.9	6104690.04	1425.17	121.71	121.71				121.67	120.79		121.68
PC13-05c	610550.3	6105079.67	1383.23	180.41	180.41				180.39	165		180.4
PC13-AR01c	610755.6	6105069.73	1336.4	172.99	172.93				172.87	171.88		172.99
PC13-AR02c	610938.5	6105537.47	1234.69	148.37	148.37				148.63	148.37		148.44
PC13-AR03c	610724.9	6105314.71	1308.07	179.82	179.82				179.78			179.34
PC13-AR04c	611176.5	6105932	1184.3	216.08	216.08				216.05			216.08
PC13-AR05c	611391.6	6106152	1115.59	220.49	220.49				220.45			220.46

Tops table (drilled depths and thicknesses in metres) from Hulcross down to B-coal: **Table A-2**

Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	Top of Hulcross	Top of Basal Grit	Top of Notikewin	A1-roof	A1-net	A1-gross	A-roof	A-net	A-gross	B-roof	B-net	B-gross
QWD7115	610309.07	6106232.43	1286.1	18.29	1267.81												
QWD7119	610943.87	6105793.52	1212.5	23.16	1189.34			starts							27.74	0.14	0.14
QPD88002	611465.31	6105857.48	1099.5	11.02	1088.48			starts							22.07	1.41	1.74
PRH01-1C	611307.81	6105706.74	1126.29	8.05	1118.24										starts in floor?		
PRH01-2	611583.33	6106005.5	1063.53	1.3	1062.23			starts	9.65	0	0.25	16.1	0	0.35	27.6	0.8	0.8
PRH01-6	610605.68	6105910.36	1297.57	1	1296.57	starts	31.5	32.15	35.6	0.3	0.3	41.6	0.3	0.3	60	0.4	0.4
PRH01-7	610809.7	6106046.93	1227.59	1.65	1225.94	starts	15.75	16.15	21.26	0.69	0.69	29.15	0.45	0.63	44.6	1.04	1.04
PRH01-8	610974.34	6106241.94	1172.7	2.75	1169.95	starts	6.2	6.6	10.7	0.9	0.9	17.55	0.5	0.5	34.2	0.9	0.9
PRH01-9	611603.25	6105367.67	1066.33	2.7	1063.63												
PRH01-10	611244.07	6105044.59	1169.06	1.7	1167.36												
PRH01-11	611992.3	6105697.01	979.29	2.35	976.94												
PRH01-12	611787.1	6105618.79	1015.08	2.2	1012.88												
PRH01-13	611185.34	6105507.61	1165.41	2.5	1162.91												
PRH01-15	610877.31	6105374	1270.18	9	1261.18			starts				9.45	0.35	0.35	25.7	1.06	1.06
PRH01-16C	611145.68	6106385.59	1121.3	3	1118.3			starts				17.95	0	0.7	34.15	1.73	1.73
PRH02-12	610586.29	6104684.51	1366.63	3.1	1363.53			starts							15.7	0.4	0.4
PRH02-13	610693.81	6104772.58	1326.72	2.6	1324.12												
PRH02-14	610805.7	6104892.86	1306.88	4	1302.88												
PRH02-16	610934.57	6104528.7	1289.57	1	1288.57												
PRH02-17	610893.31	6104429.85	1296.69	1.5	1295.19												
PRH2003-1C	611494.8	6105919.27	1095.66	2.1	1093.56			starts							NP	0	0
PRH2003-2C	611303.99	6105701.7	1125.97	2.7	1123.27										starts in floor?		
PRH2003-3	611792.16	6105810.05	1000.8	1	999.8												
PCR2005-1	611384.38	6103009.94	910.04	3.2	906.84												
PCR2005-2	611454.71	6103096.6	926.03	3.49	922.54												
PC2006-02	611153.4	6104842	1212.36	2.1	1210.26												
DH2006-3	610895.5	6104799	1283.74	2.6	1281.14												
DH2006-8	610807.4	6104892	1301.33	2.55	1298.78												
PC2006-09	610790.7	6104770	1300.79	2.38	1298.41												
DH2006-11	610885.9	6104560	1302.97	2.3	1300.67												
DH2006-13	610804.8	6104626	1301.31	2.35	1298.96												
PR2006-01	610645.83	6104494.33	1304.6	1.15	1303.45												
PR2006-02	610801.17	6104311.07	1269.31	2.55	1266.76												
PR2006-03	610891.53	6104143.31	1206.73	0.8	1205.93												
PR2006-03	-----	-----	Fault	from 88.6	to 88.88	starts in	J3P										
PR2006-03	610891.53	6104143.31	1206.73														
PR2006-04	610712.91	6104247.01	1223.8	0.8	1223												
PR2006-04	-----	-----	Fault	from 71.15	to 71.2	starts	above F1										
PR2006-04	610712.91	6104247.01	1223.8														
PR2006-04	-----	-----	Fault	from 123.25	to 123.3	starts in	J2LP										
PR2006-04	610712.91	6104247.01	1223.8														
PR2006-05	610780.05	6104037.42	1147.7	2.4	1145.3												
PR2006-06	610778.74	6104036.71	1147.63	1.8	1145.83												
PR2006-07	610918.62	6103965.89	1124.38	1.6	1122.78												
PR2006-08	610924.35	6103957.97	1122.83	2.55	1120.28												
PR2006-13	611139.76	6103594.25	1014.08	2.6	1011.48												
PR2006-13	-----	-----	Fault	from 86.65	to 86.80	starts in	Quintette										
PR2006-13	611139.76	6103594.25	1014.08														
PR2006-15	611162.124	6103257.487	952.67	0.7	951.97												
Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	Top of Hulcross	Top of Basal Grit	Top of Notikewin	A1-roof	A1-net	A1-gross	A-roof	A-net	A-gross	B-roof	B-net	B-gross

Tops table (drilled depths and thicknesses in metres) from Hulcross down to B-coal (continued): **Table A-2**

Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	Top of Hulcross	Top of Basal Grit	Top of Notikewin	A1-roof	A1-net	A1-gross	A-roof	A-net	A-gross	B-roof	B-net	B-gross
PR2006-15	-----	-----	Fault	from 11.2	to 11.5	starts in	Moosebar										
PR2006-15	611162.124	6103257.487	952.67														
PC2007-02C	610862.24	6104704.94	1240.58	0	1240.58												
PC2007-03C	610881.33	6104736.87	1240.69	0	1240.69												
PC2007-04C	610896.72	6104764.4	1240.3	0	1240.3												
PC2007-05C	610912.41	6104663.83	1240.51	0	1240.51												
PC2007-06C	610929.07	6104682.84	1240.23	0	1240.23												
PC2007-07C	610946.95	6104705.77	1240.12	0	1240.12												
PC2007-07C	-----	-----	Fault	from 9.95	to 9.97	starts in	roof of G										
PC2007-07C	610946.95	6104705.77	1240.12														
PC2007-18C	610928.5	6104821	1240	0	1240												
PC2007-20	611603.83	6105183.35	1072.64	1.65	1070.99												
PC2007-22C	611598.07	6105090.88	1075.3	0	1075.3												
PC2007-23C	611250.78	6104808.64	1175.29	0	1075.3												
PC2007-24C	611154.23	6104754.73	1206.86	0	1206.86												
PC2007-34C	611465.29	6104879.32	1080.23	3.85	1076.38												
PC2007-45	611642.86	6106114.78	1037.62	20.7	1016.92										starts at floor?		
PC2007-47	612021.06	6106279.22	1101.54	1.7	1099.84												
PC2007-58C	611729.28	6105940.33	1017.66	3.6	1014.06										starts at floor?		
PC2007-63C	610823.16	6104333.5	1284.05	1.1	1282.95												
PC2007-64C	610918.21	6104440.49	1286.11	2.8	1283.31												
PC2007-65C	610902.77	6104321.29	1276.4	1.7	1274.7												
PC2007-66C	610921.29	6104440.38	1286.03	2.45	1283.58												
PC2007-66C	-----	-----	Fault	from 22.92	to 23.17	starts in	roof of G										
PC2007-66C	610921.29	6104440.38	1286.03														
PC2007-67C	610901.68	6104321.21	1276.44	2.35	1274.09												
PC2007-67C	-----	-----	Fault	from 64.92	to 64.94	starts in	J2L coal										
PC2007-67C	610901.68	6104321.21	1276.44														
PC2007-67C	-----	-----	Fault	from 71.76	to 71.78	starts in	J3 coal										
PC2007-67C	610901.68	6104321.21	1276.44														
PC2007-68C	610920.52	6104440.37	1286.02	2.4	1283.62												
PC2008-03R	611163	6105030.04	1145.34	1.5	1143.84												
PC2008-16	610153.28	6106065.69	1384.13	11.75	1372.38	starts											
PC2008-16	-----	-----	Fault?	from 24.5	to 27.35												
PC2008-16	610153.28	6106065.69	1384.13				71.5	72.2	faulted out?	faulted out?	faulted out?						
PC2008-16	-----	-----	Fault?	from 73.4	to 73.5	starts	above A										
PC2008-16	610153.28	6106065.69	1384.13									76	0.7	0.7	85.4	0.55	0.55
PC2008-17	610439.81	6105704.83	1363.96	5.9	1358.06	starts											
PC2008-17			Fault?	from 9.8	to 11.75												
PC2008-17	610439.81	6105704.83	1363.96				38.65	39.05	NP?	0	0	66.1	0.7	0.7	76.55	0.23	0.23
PC2008-18	610655.07	6105346.41	1320.47	5.9	1314.57			starts	9.15	0.65	0.65	24.45	0.8	0.8	36.75	0.9	0.9
PC-09-01	611578.44	6105814.73	1060.92	17.55	1043.37												
PC-09-02	611658.34	6105680.78	1037.34	2.3	1035.04												
PC-09-03	611712.91	6106053.43	1022.43	2.1	1020.33										?	?	?
PC-09-04	611502.67	6105582.19	1074.89	2.2	1072.69												
PC-09-05	611357.96	6105402.73	1130.16	2.9	1127.26												
PC-09-06	611295.55	6105483.88	1138.84	3.05	1135.79												
PC-09-07	611144.95	6105535.45	1172.71	2.45	1170.26										starts in floor?		
Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	Top of Hulcross	Top of Basal Grit	Top of Notikewin	A1-roof	A1-net	A1-gross	A-roof	A-net	A-gross	B-roof	B-net	B-gross

Tops table (drilled depths and thicknesses in metres) from Hulcross down to B-coal (concluded): **Table A-2**

Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	Top of Hulcross	Top of Basal Grit	Top of Notikewin	A1-roof	A1-net	A1-gross	A-roof	A-net	A-gross	B-roof	B-net	B-gross
PC-09-08	611185.06	6105198.81	1188.42	0.25	1188.17												
PC-09-09	611108.32	6105330.49	1207.16	0.8	1206.36			starts							4.45	1.15	1.15
PC-09-10	610934.45	6105292.17	1255.82	4	1251.82			starts				7.05	0.65	0.65			
PC-09-10	-----	-----	Fault	from 8.35	to 8.45												
PC-09-10	610934.45	6105292.17	1255.82												11.6	0.95	1.05
PC-09-11	610989.28	6105128.43	1260.68	2.1	1258.58			starts							8.4	0.93	0.93
PC-09-11	-----	------	Fault	from 100.5	to 100.51	starts	above E3U										
PC-09-11	610989.28	6105128.43	1260.68														
PC-09-12	610474.79	6104904.67	1416.87	1.35	1415.52	starts	41.15	41.9	47	0.27	0.4	56.75	0.35	0.35	71.07	0.88	0.88
PC-09-13	610566.66	6105005.3	1385.49	2.25	1383.24	starts	6.75	7.2	10	0.75	0.75						
PC-09-13	-----	-----	Fault	from 14.75	to 15	starts in	Hulcross										
PC-09-13	610566.66	6105005.3	1385.49				16.03	17.05	19.1	0.3	0.3	28.95	0.35	0.35	43.27	0.86	0.86
PC-09-14	610556.06	6104869.52	1372.17	2.35	1369.82			starts							5.95	1.05	1.05
PC-09-14	-----	-----	Fault	from 9.3	to 9.6	starts	above B										
PC-09-14	610556.06	6104869.52	1372.17												12.4	0.82	0.82
PC-09-15	610651.87	6105114.23	1349.49	1.2	1348.29							12	0.35	0.35	25.16	1.06	1.06
PC-09-16	610720.18	6105047.47	1348.6	2.2	1346.4			starts				9.25	0.4	0.4	20.82	0.94	0.94
PC-09-17	610582.69	6104684.33	1365.83	2.6	1363.23			starts							15.6	0	0.2
PC-09-18	610509.65	6104589.39	1374.26	2.4	1371.86	starts	3.15	4.2	19.1	0.5	0.5	27	0.35	0.35	43.6	1.4	1.4
PC-09-18	-----	-----	Fault	from 55.70	to 55.85	starts in	Armand										
PC-09-18	610509.65	6104589.39	1374.26														
PC-09-19	610932.08	6105802.17	1214.37	23.75	1190.62										28.9	0.65	0.65
PC13-01C	610956	6105246.44	1259.2	2.45	1256.75			starts				4.6	0.25	0.25	13.67	1.04	1.04
PC13-02C	610722	6104794.82	1300.34	0.8	1299.54												
PC13-03C	610424.4	6104922.5	1425.4	3.33	1422.07	starts	53.38										
PC13-03C	-----	-----	Fault	from 53.57	to 53.79												
PC13-03C	610424.4	6104922.5	1425.4			starts	53.79	54.55	66.15	0.45	0.45	78.1	0.15	0.15	94.46	0.58	0.58
PC13-04C	610392.9	6104690.04	1425.17	0	1425.17			starts?									
PC13-04C	-----	-----	Fault	from 21.09	to 22.02												
PC13-04C	610392.9	6104690.04	1425.17			starts											
PC13-04C	-----	-----	Fault	from 22.85	to 23.22												
PC13-04C	610392.9	6104690.04	1425.17			starts	77.15	78	78.22	0	0.33						
PC13-04C	-----	-----	Fault	from 88.95	to 89.05												
PC13-04C	610392.9	6104690.04	1425.17					starts	89.05	1.04	1.04	99.35	0	0.35	112	0.9	0.9
PC13-05C	610550.3	6105079.67	1383.23	2.8	1380.43			starts	25	0.2	0.2	37.6	0	0.45	50.45	0.66	0.66
PC13-AR01	610755.6	6105079.67	1336.4	7.3	1329.1			starts				8.35	0	0.45	20.25	0.96	0.96
PC13-AR01	-----	-----	Fault	from 127.8	to 128.08												
PC13-AR01	610755.6	6105079.67	1336.4														
PC13-AR02	610938.5	6105537.47	1234.69	18.5	1216.19			starts							21	1.1	1.1
PC13-AR03	610724.9	6105314.71	1308.07	9.15	1298.92			starts	12.3	0	0.2	18.25	0.55	0.55	30.58	0.74	0.74
PC13-AR04	611176.5	6105932	1184.3	56.9	1127.4			starts							61	0.75	0.75
PC13-AR05	611391.6	6106152	1115.59	30.45	1085.14	starts											
PC13-AR05	-----	-----	Fault	from 41.15	to 41.25												
PC13-AR05	611391.6	6106152	1115.59			starts	42.25	42.95	45.75	0.25	0.25	51.75	0.35	0.35	59.29	0.66	0.66
Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	Top of Hulcross	Top of Basal Grit	Top of Notikewin	A1-roof	A1-net	A1-gross	A-roof	A-net	A-gross	B-roof	B-net	B-gross

Tops table (drilled depths and thicknesses in metres) from Armand down to D-coal: **Table A-3**

Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	Top of Armand	Base of Armand	C-roof	C-net	C-gross	Top of Frt Mt Sst	Base of Frt Mt Sst	Top of Frt Mt Cgl	Base of Frt Mt Cgl	D-roof	D-net	D-gross
QWD7115	610309.07	6106232.43	1286.1	18.29	1267.81						23.16	59.83	NP	NP	61.51	0.3	0.3
QWD7119	610943.87	6105793.52	1212.5	23.16	1189.34	34.75	65.24	67.36	0.85	0.85	86.26	91.44	91.44	94.49	94.49	0	0.3
QPD88002	611465.31	6105857.48	1099.5	11.02	1088.48	28.8	59.46	59.46	0.42	0.54	74.2	101.2	NP	NP	103.56	0.21	0.21
PRH01-1C	611307.81	6105706.74	1126.29	8.05	1118.24	8.05	37.35	38.2	0	0.55	54	63.7	63.7	76.3	78.8	0	0.1
PRH01-2	611583.33	6106005.5	1063.53	1.3	1062.23	33.3	64.15	64.15	0.7	0.9	74.7	97.35	NP	NP	97.35	0.3	0.3
PRH01-6	610605.68	6105910.36	1297.57	1	1296.57			108.9	0.3	0.3	135.7	137	137	139	NP	0	0
PRH01-7	610809.7	6106046.93	1227.59	1.65	1225.94	48.5	86.15	86.98	0.79	0.94	104.8	107.35	107.85	112.85	113.42	0.34	0.34
PRH01-8	610974.34	6106241.94	1172.7	2.75	1169.95			73.3	0.65	0.88	88.6	102.85	NP	NP	102.85	0	0.23
PRH01-9	611603.25	6105367.67	1066.33	2.7	1063.63						13.8	18.75	18.75	35.95	36.05	0	0.3
PRH01-10	611244.07	6105044.59	1169.06	1.7	1167.36						11.95	35.8	35.8	41.15	NP	0	0
PRH01-11	611992.3	6105697.01	979.29	2.35	976.94						4.05	19	NP	NP	NP	0	0
PRH01-12	611787.1	6105618.79	1015.08	2.2	1012.88						10.95	30.95	NP	NP	30.95	0	0.27
PRH01-13	611185.34	6105507.61	1165.41	2.5	1162.91			31.65	0.45	0.55	51.65	61.12	61.12	81.55	NP	0	0
PRH01-15	610877.31	6105374	1270.18	9	1261.18			66.26	0.54	0.54	85.2	90.45	90.45	101.6	102.45	0	0.15
PRH01-16C	611145.68	6106385.59	1121.3	3	1118.3			73.1	0.38	0.38	81	95.35	95.35	102.66	102.85	0	0.05
PRH02-12	610586.29	6104684.51	1366.63	3.1	1363.53	16.1	53.35	53.7	0.45	0.45	72.95	77.05	78.6	90.15	NP	0	0
PRH02-13	610693.81	6104772.58	1326.72	2.6	1324.12						starts	4.2	4.2	17.9	NP	0	0
PRH02-14	610805.7	6104892.86	1306.88	4	1302.88	starts	8.5	9.85	0.4	0.55	29.5	31.25	31.25	50.25	NP	0	0
PRH02-16	610934.57	6104528.7	1289.57	1	1288.57												
PRH02-17	610893.31	6104429.85	1296.69	1.5	1295.19												
PRH2003-1C	611494.8	6105919.27	1095.66	2.1	1093.56			70.2	0.35	0.5	84.45	107.6	NP	NP	110.9	0.28	0.28
PRH2003-2C	611303.99	6105701.7	1125.97	2.7	1123.27	starts?		36.82	0.3	0.44	53.4	63.7	63.7	76.36	77.18	0.33	0.55
PRH2003-3	611792.16	6105810.05	1000.8	1	999.8	starts	7.25	8.6	0.5	0.8	21.25	46.4	NP	NP	49.9	0.3	0.3
PCR2005-1	611384.38	6103009.94	910.04	3.2	906.84												
PCR2005-2	611454.71	6103096.6	926.03	3.49	922.54												
PC2006-02	611153.4	6104842	1212.36	2.1	1210.26								starts	23	NP	0	0
DH2006-3	610895.5	6104799	1283.74	2.6	1281.14						starts	3.8	3.8	20.4	NP	0	0
DH2006-8	610807.4	6104892	1301.33	2.55	1298.78	starts	3.7	5.05	0.15	0.15	24.1	27.8	27.8	45.8	NP	0	0
PC2006-09	610790.7	6104770	1300.79	2.38	1298.41								starts	9.08	NP	0	0
DH2006-11	610885.9	6104560	1302.97	2.3	1300.67												
DH2006-13	610804.8	6104626	1301.31	2.35	1298.96												
PR2006-01	610645.83	6104494.33	1304.6	1.15	1303.45	starts	5.9	8.65	0	0.5	20.8	26.2	26.2	33.3	NP	0	0
PR2006-02	610801.17	6104311.07	1269.31	2.55	1266.76												
PR2006-03	610891.53	6104143.31	1206.73	0.8	1205.93								starts	7.45	NP	0	0
PR2006-03	-----	-----	Fault	from 88.6	to 88.88												
PR2006-03	610891.53	6104143.31	1206.73														
PR2006-04	610712.91	6104247.01	1223.8	0.8	1223			3.6	0	0.85	10.2	20.4	20.4	43.6	NP	0	0
PR2006-04	-----	-----	Fault	from 71.15	to 71.2												
PR2006-04	610712.91	6104247.01	1223.8														
PR2006-04	-----	-----	Fault	from 123.25	to 123.3												
PR2006-04	610712.91	6104247.01	1223.8														
PR2006-05	610780.05	6104037.42	1147.7	2.4	1145.3	4.1	34.54	34.79	0.31	0.31	41.9	50.85	50.85	68.1	NP	0	0
PR2006-06	610778.74	6104036.71	1147.63	1.8	1145.83	7	43.1	44.1	0.4	0.4	52.2	63.7	63.7	88	NP	0	0
PR2006-07	610918.62	6103965.89	1124.38	1.6	1122.78								starts	13.85	NP	0	0
PR2006-08	610924.35	6103957.97	1122.83	2.55	1120.28								starts	17.75	17.75	0	0.35
PR2006-13	611139.76	6103594.25	1014.08	2.6	1011.48												
PR2006-13	-----	-----	Fault	from 86.65	to 86.80												
PR2006-13	611139.76	6103594.25	1014.08														
PR2006-15	611162.124	6103257.487	952.67	0.7	951.97												
Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	Top of Armand	Base of Armand	C-roof	C-net	C-gross	Top of Frt Mt Sst	Base of Frt Mt Sst	Top of Frt Mt Cgl	Base of Frt Mt Cgl	D-roof	D-net	D-gross

Tops table (drilled depths and thicknesses in metres) from Armand down to D-coal (continued): **Table A-3**

Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	Top of Armand	Base of Armand	C-roof	C-net	C-gross	Top of Frt Mt Sst	Base of Frt Mt Sst	Top of Frt Mt Cgl	Base of Frt Mt Cgl	D-roof	D-net	D-gross
PR2006-15	-----	-----	Fault	from 11.2	to 11.5												
PR2006-15	611162.124	6103257.487	952.67														
PC2007-02C	610862.24	6104704.94	1240.58	0	1240.58												
PC2007-03C	610881.33	6104736.87	1240.69	0	1240.69												
PC2007-04C	610896.72	6104764.4	1240.3	0	1240.3												
PC2007-05C	610912.41	6104663.83	1240.51	0	1240.51												
PC2007-06C	610929.07	6104682.84	1240.23	0	1240.23												
PC2007-07C	610946.95	6104705.77	1240.12	0	1240.12												
PC2007-07C	-----	-----	Fault	from 9.95	to 9.97												
PC2007-07C	610946.95	6104705.77	1240.12														
PC2007-18C	610928.5	6104821	1240	0	1240												
PC2007-20	611603.83	6105183.35	1072.64	1.65	1070.99						2.7	22.7	NP	NP	24.65	0	0.25
PC2007-22C	611598.07	6105090.88	1075.3	0	1075.3						starts	14.35	NP	NP	16.7	0	0.55
PC2007-23C	611250.78	6104808.64	1175.29	0	1075.3								starts	10.15	NP	0	0
PC2007-24C	611154.23	6104754.73	1206.86	0	1206.86												
PC2007-34C	611465.29	6104879.32	1080.23	3.85	1076.38												
PC2007-45	611642.86	6106114.78	1037.62	20.7	1016.92			56.2	0.4	0.4	75.65	92.95	NP	NP	NP	0	0
PC2007-47	612021.06	6106279.22	1101.54	1.7	1099.84						5.5	16	16	20.6	24.9	0	1.4
PC2007-58C	611729.28	6105940.33	1017.66	3.6	1014.06			36.15	0.65	0.65	49.3	72.4	NP	NP	78.2	0	0.6
PC2007-63C	610823.16	6104333.5	1284.05	1.1	1282.95												
PC2007-64C	610918.21	6104440.49	1286.11	2.8	1283.31												
PC2007-65C	610902.77	6104321.29	1276.4	1.7	1274.7												
PC2007-66C	610921.29	6104440.38	1286.03	2.45	1283.58												
PC2007-66C	-----	-----	Fault	from 22.92	to 23.17												
PC2007-66C	610921.29	6104440.38	1286.03														
PC2007-67C	610901.68	6104321.21	1276.44	2.35	1274.09												
PC2007-67C	-----	-----	Fault	from 64.92	to 64.94												
PC2007-67C	610901.68	6104321.21	1276.44														
PC2007-67C	-----	-----	Fault	from 71.76	to 71.78												
PC2007-67C	610901.68	6104321.21	1276.44														
PC2007-68C	610920.52	6104440.37	1286.02	2.4	1283.62												
PC2008-03R	611163	6105030.04	1145.34	1.5	1143.84												
PC2008-16	610153.28	6106065.69	1384.13	11.75	1372.38												
PC2008-16	-----	-----	Fault?	from 24.5	to 27.35												
PC2008-16	610153.28	6106065.69	1384.13														
PC2008-16	-----	-----	Fault?	from 73.4	to 73.5												
PC2008-16	610153.28	6106065.69	1384.13					100.32	0.77	1.2	108.35	145.7	NP	NP	148.9	0.41	0.55
PC2008-17	610439.81	6105704.83	1363.96	5.9	1358.06												
PC2008-17			Fault?	from 9.8	to 11.75												
PC2008-17	610439.81	6105704.83	1363.96			81.05	91.35	91.8	0.9	0.9	98.65	134.1	NP	NP	135.82	0.59	0.78
PC2008-18	610655.07	6105346.41	1320.47	5.9	1314.57			77.35	0.6	0.6	95.25	98.05	98.05	108.2	NP	0	0
PC-09-01	611578.44	6105814.73	1060.92	17.55	1043.37			34.85	0	0.25	50.95	72.5	NP	NP	75.37	0	0.38
PC-09-02	611658.34	6105680.78	1037.34	2.3	1035.04			8.6	0	0.55	18.7	47.15	NP	NP	49.2	0	0.3
PC-09-03	611712.91	6106053.43	1022.43	2.1	1020.33			42.3	0	0.55	60.6	79.6	NP	NP	80	0	0.4
PC-09-04	611502.67	6105582.19	1074.89	2.2	1072.69			8.45	0.3	0.3	17.95	38	38	48.35	46.45	0	0.45
PC-09-05	611357.96	6105402.73	1130.16	2.9	1127.26	starts	19.45	19.45	0.44	0.55	27.4	40	40	60.05	60.05	0	0.3
PC-09-06	611295.55	6105483.88	1138.84	3.05	1135.79			24.79	0.11	0.11	40.6	51.6	51.6	63.75	66.15	0	0.3
PC-09-07	611144.95	6105535.45	1172.71	2.45	1170.26	starts	32.7	33.88	0	0.44	53.8	65.6	65.6	83.4	NP	0	0
Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	Top of Armand	Base of Armand	C-roof	C-net	C-gross	Top of Frt Mt Sst	Base of Frt Mt Sst	Top of Frt Mt Cgl	Base of Frt Mt Cgl	D-roof	D-net	D-gross

Tops table (drilled depths and thicknesses in metres) from Armand down to D-coal (concluded): **Table A-3**

Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	Top of Armand	Base of Armand	C-roof	C-net	C-gross	Top of Frt Mt Sst	Base of Frt Mt Sst	Top of Frt Mt Cgl	Base of Frt Mt Cgl	D-roof	D-net	D-gross
PC-09-08	611185.06	6105198.81	1188.42	0.25	1188.17	starts	24.45	24.66	0.31	0.46	29.2	49.6	49.6	65.7	66.25	0	0.15
PC-09-09	611108.32	6105330.49	1207.16	0.8	1206.36	8.65	42.2	43.7	0	0.8	54.5	70.3	70.3	88.2	NP	0	0
PC-09-10	610934.45	6105292.17	1255.82	4	1251.82												
PC-09-10	-----	-----	Fault	from 8.35	to 8.45												
PC-09-10	610934.45	6105292.17	1255.82			16.2	49.9	51.32	0.26	0.33	65.3	74.3	74.3	89.35	91.5	0	0.05
PC-09-11	610989.28	6105128.43	1260.68	2.1	1258.58	11.95	47.25	48.48	0.47	0.47	64.2	75.4	75.4	89.45	91.65	0	0.1
PC-09-11	-----	------	Fault	from 100.5	to 100.51												
PC-09-11	610989.28	6105128.43	1260.68														
PC-09-12	610474.79	6104904.67	1416.87	1.35	1415.52	76.2	120.9	121.92	0.25	0.56	142.8	145.5	145.5	151	151.2	0	0.12
PC-09-13	610566.66	6105005.3	1385.49	2.25	1383.24												
PC-09-13	-----	-----	Fault	from 14.75	to 15												
PC-09-13	610566.66	6105005.3	1385.49			48.4	83.5	84.18	0.42	0.42	105.8	109.7	109.7	115.7	116.4	0	0.1
PC-09-14	610556.06	6104869.52	1372.17	2.35	1369.82												
PC-09-14	-----	-----	Fault	from 9.3	to 9.6												
PC-09-14	610556.06	6104869.52	1372.17			20.2	57.4	58.8	0.29	0.42	76.5	80.55	80.55	96.1	NP	0	0
PC-09-15	610651.87	6105114.23	1349.49	1.2	1348.29	28.4	63.9	64.2	0.35	0.35	79.3	90.15	90.15	95.6	95.6	0	0.45
PC-09-16	610720.18	6105047.47	1348.6	2.2	1346.4			61.08	0.47	0.47	77.55	82.25	82.25	94.65	94.65	0	0.25
PC-09-17	610582.69	6104684.33	1365.83	2.6	1363.23	16.3	52.5	52.6	0.5	0.5	71.2	78.05	78.05	88.85	NP	0	0
PC-09-18	610509.65	6104589.39	1374.26	2.4	1371.86	48.7											
PC-09-18	-----	-----	Fault	from 55.70	to 55.85												
PC-09-18	610509.65	6104589.39	1374.26				86.2	86.6	0	0.5	99.6	113.7	113.7	120.95	120.95	0	0.45
PC-09-19	610932.08	6105802.17	1214.37	23.75	1190.62	36.75	68.1	68.2	0	0.75	82.9	90.25	90.25	95.05	95.6	0	0.05
PC13-01C	610956	6105246.44	1259.2	2.45	1256.75	18.1	51.75	53.2	0.6	0.6	68.65	75	75	88.85	NP	0	0
PC13-02C	610722	6104794.82	1300.34	0.8	1299.54								starts	10.8	10.8	0	0.65
PC13-03C	610424.4	6104922.5	1425.4	3.33	1422.07												
PC13-03C	-----	-----	Fault	from 53.57	to 53.79												
PC13-03C	610424.4	6104922.5	1425.4			DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR
PC13-04C	610392.9	6104690.04	1425.17	0	1425.17												
PC13-04C	-----	-----	Fault	from 21.09	to 22.02												
PC13-04C	610392.9	6104690.04	1425.17														
PC13-04C	-----	-----	Fault	from 22.85	to 23.22												
PC13-04C	610392.9	6104690.04	1425.17														
PC13-04C	-----	-----	Fault	from 88.95	to 89.05												
PC13-04C	610392.9	6104690.04	1425.17			116.95	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR
PC13-05C	610550.3	6105079.67	1383.23	2.8	1380.43	54	91.15	92.82	0.19	0.19	113.8	116	116	124.4	125.5	0	0.4
PC13-AR01	610755.6	6105079.67	1336.4	7.3	1329.1	23.6	56.7	58.68	0.18	0.18	NP?	NR	70.2	101.05	NP	0	0
PC13-AR01	-----	-----	Fault	from 127.8	to 128.08												
PC13-AR01	610755.6	6105079.67	1336.4														
PC13-AR02	610938.5	6105537.47	1234.69	18.5	1216.19	24.7	60.8	62.4	0.15	0.15	79	83.55	83.55	94.6	NP	0	0
PC13-AR03	610724.9	6105314.71	1308.07	9.15	1298.92	35.45	70	71.56	0	0.59	87.1	89.35	89.35	100.4	NP	0	0
PC13-AR04	611176.5	6105932	1184.3	56.9	1127.4	67.55	99.2	99.2	0	0.3	109.05	120.55	120.55	136.92	NP	0	0
PC13-AR05	611391.6	6106152	1115.59	30.45	1085.14												
PC13-AR05	-----	-----	Fault	from 41.15	to 41.25												
PC13-AR05	611391.6	6106152	1115.59			63.75	95.85	96.15	0	0.1	NP?	NR	107.7	129.5	NP	0	0
Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	Top of Armand	Base of Armand	C-roof	C-net	C-gross	Top of Frt Mt Sst	Base of Frt Mt Sst	Top of Frt Mt Cgl	Base of Frt Mt Cgl	D-roof	D-net	D-gross

Tops table (drilled depths and thicknesses in metres) from E0-coal down to E2-zone: **Table A-4**

Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	E0-roof	E0-net	E0-gross	E1-roof	E1-net	E1-gross	E2U-roof	E2U-net	E2U-gross	E2L-roof	E2L-net	E2L-gross	E2-net	E2-gross
QWD7115	610309.07	6106232.43	1286.1	18.29	1267.81	73	0	0.37	75.32	0.94	1.46	82.27	0	0.33	84.67	0.31	0.31	0.31	2.71
QWD7119	610943.87	6105793.52	1212.5	23.16	1189.34	103.02	0	0.25	104.09	0.4	0.4	114.37	0.05	0.05	114.42	0.76	0.76	0.81	0.81
QPD88002	611465.31	6105857.48	1099.5	11.02	1088.48	107.88	0	0.33	110.89	0	0.21	111.48	0.17	0.17	111.86	0.53	0.53	0.7	0.91
PRH01-1C	611307.81	6105706.74	1126.29	8.05	1118.24	86.63	0	0.19	88.25	0	0.2	91.2	0	0.35	91.62	0.73	0.73	0.73	1.15
PRH01-2	611583.33	6106005.5	1063.53	1.3	1062.23	102.25	0.35	0.35	109.25	0	0.3	116.85	0.2	0.2	117.23	0.54	0.54	0.74	0.92
PRH01-6	610605.68	6105910.36	1297.57	1	1296.57	NP	0	0	NP	0	0	139.4	0.05	0.05	139.45	0.55	0.55	0.6	0.6
PRH01-7	610809.7	6106046.93	1227.59	1.65	1225.94	114.56	0.45	0.45	120.8	0	0.2	125.52	0.06	0.06	125.58	0.58	0.58	0.64	0.64
PRH01-8	610974.34	6106241.94	1172.7	2.75	1169.95	103.82	0.26	0.26	109.85	0	0.2	113.95	0	0.15	114.4	0.25	0.25	0.25	0.7
PRH01-9	611603.25	6105367.67	1066.33	2.7	1063.63	43.67	0.39	0.53	45.2	0.34	0.45	46.06	0.42	0.42	46.48	0.67	0.67	1.09	1.09
PRH01-10	611244.07	6105044.59	1169.06	1.7	1167.36	43.1	0.35	0.35	43.95	0.3	0.3	54.6	0.4	0.4	55.07	0.69	0.69	1.09	1.16
PRH01-11	611992.3	6105697.01	979.29	2.35	976.94	29.4	0.2	0.2	33.05	0.3	0.3	34.4	0.4	0.4	35.15	1.05	1.05	1.45	1.8
PRH01-12	611787.1	6105618.79	1015.08	2.2	1012.88	36.32	0.45	0.45	47.85	0	0.25	48.3	0.25	0.25	48.65	0.65	0.65	0.9	1
PRH01-13	611185.34	6105507.61	1165.41	2.5	1162.91	NP	0	0	82.85	0.25	0.25	84.85	0.22	0.22	85.07	0.64	0.64	0.86	0.86
PRH01-15	610877.31	6105374	1270.18	9	1261.18	111.2	0.2	0.2	112.35	0.3	0.3	113.5	0.2	0.2	113.95	0.55	0.55	0.75	1
PRH01-16C	611145.68	6106385.59	1121.3	3	1118.3	106.2	0	0.15	106.94	0.36	0.36	116.35	0	0.3	117.15	0.25	0.25	0.25	1.05
PRH02-12	610586.29	6104684.51	1366.63	3.1	1363.53	92.35	0.45	0.45	94.25	0.25	0.25	95.2	0.15	0.15	95.55	0.5	0.5	0.65	0.85
PRH02-13	610693.81	6104772.58	1326.72	2.6	1324.12	26.75	0.25	0.25	29.5	0	0.25	31	0.25	0.25	31.25	0.5	0.5	0.75	0.75
PRH02-14	610805.7	6104892.86	1306.88	4	1302.88	53.5	0	0.2	54	0	0.2	55.9	0	0.15	56.2	0.6	0.6	0.6	0.9
PRH02-16	610934.57	6104528.7	1289.57	1	1288.57														
PRH02-17	610893.31	6104429.85	1296.69	1.5	1295.19														
PRH2003-1C	611494.8	6105919.27	1095.66	2.1	1093.56	110.1	0	0.1	122.95	0	0.2	123.53	0.2	0.26	123.87	0.51	0.51	0.71	0.85
PRH2003-2C	611303.99	6105701.7	1125.97	2.7	1123.27	85.05	0	0.22	87.25	0	0.2	89.87	0.18	0.18	90.25	0.57	0.57	0.75	0.95
PRH2003-3	611792.16	6105810.05	1000.8	1	999.8	52.3	0	0.2	58.25	0.3	0.3	59	0.1	0.1	59.25	0.65	0.65	0.75	0.9
PCR2005-1	611384.38	6103009.94	910.04	3.2	906.84														
PCR2005-2	611454.71	6103096.6	926.03	3.49	922.54														
PC2006-02	611153.4	6104842	1212.36	2.1	1210.26	NP	0	0	NP	0	0	33.72	0.21	0.21	33.93	0.72	0.72	0.93	0.93
DH2006-3	610895.5	6104799	1283.74	2.6	1281.14	20.85	0	0.15	28.4	0	0.36	31.66	0.2	0.2	31.93	0.56	0.56	0.76	0.83
DH2006-8	610807.4	6104892	1301.33	2.55	1298.78	49.9	0	0.15	50.15	0	0.15	52.15	0.15	0.15	52.4	0.3	0.3	0.45	0.55
PC2006-09	610790.7	6104770	1300.79	2.38	1298.41	11.2	0	0.1	NP	0	0	17.94	0.11	0.11	18.15	0.5	0.5	0.61	0.71
DH2006-11	610885.9	6104560	1302.97	2.3	1300.67														
DH2006-13	610804.8	6104626	1301.31	2.35	1298.96														
PR2006-01	610645.83	6104494.33	1304.6	1.15	1303.45	41.52	0	0.28	42.52	0	0.38	44	0	0.22	44.22	0.28	0.28	0.28	0.5
PR2006-02	610801.17	6104311.07	1269.31	2.55	1266.76	6.5	0	0.3	11.85	0	0.15	13.8	0	0.26	14.06	0.37	0.37	0.37	0.63
PR2006-03	610891.53	6104143.31	1206.73	0.8	1205.93	8.1	0	0.15	NP	0	0	17.38	0.22	0.22	17.6	0.25	0.25	0.47	0.47
PR2006-03	-----	-----	Fault	from 88.6	to 88.88														
PR2006-03	610891.53	6104143.31	1206.73																
PR2006-04	610712.91	6104247.01	1223.8	0.8	1223	NP	0	0	46.37	0	0.21	48.42	0	0.15	48.7	0.3	0.3	0.3	0.58
PR2006-04	-----	-----	Fault	from 71.15	to 71.2														
PR2006-04	610712.91	6104247.01	1223.8																
PR2006-04	-----	-----	Fault	from 123.25	to 123.3														
PR2006-04	610712.91	6104247.01	1223.8																
PR2006-05	610780.05	6104037.42	1147.7	2.4	1145.3	69	0	0.2	78.6	0	0.15	80.44	0.06	0.06	80.5	0.3	0.3	0.36	0.36
PR2006-06	610778.74	6104036.71	1147.63	1.8	1145.83	88.2	0	0.6	NP	0	0	96.06	0	0.19	96.25	0.37	0.37	0.37	0.56
PR2006-07	610918.62	6103965.89	1124.38	1.6	1122.78	15.85	0	0.3	21.15	0	0.8	24.75	0.17	0.17	25.02	0.28	0.28	0.45	0.55
PR2006-08	610924.35	6103957.97	1122.83	2.55	1120.28	20.05	0	0.95	27.8	0	0.9	31.3	0.2	0.2	31.87	0.95	0.95	1.15	1.3
PR2006-13	611139.76	6103594.25	1014.08	2.6	1011.48				2.8	0	0.2	5.7	0	0.18	5.88	0.32	0.32	0.32	0.5
PR2006-13	-----	-----	Fault	from 86.65	to 86.80														
PR2006-13	611139.76	6103594.25	1014.08																
PR2006-15	611162.124	6103257.487	952.67	0.7	951.97														
Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	E0-roof	E0-net	E0-gross	E1-roof	E1-net	E1-gross	E2U-roof	E2U-net	E2U-gross	E2L-roof	E2L-net	E2L-gross	E2-net	E2-gross

Tops table (drilled depths and thicknesses in metres) from E0-coal down to E2-zone (continued): **Table A-4**

Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	E0-roof	E0-net	E0-gross	E1-roof	E1-net	E1-gross	E2U-roof	E2U-net	E2U-gross	E2L-roof	E2L-net	E2L-gross	E2-net	E2-gross
PR2006-15	-----	-----	Fault	from 11.2	to 11.5														
PR2006-15	611162.124	6103257.487	952.67																
PC2007-02C	610862.24	6104704.94	1240.58	0	1240.58														
PC2007-03C	610881.33	6104736.87	1240.69	0	1240.69														
PC2007-04C	610896.72	6104764.4	1240.3	0	1240.3														
PC2007-05C	610912.41	6104663.83	1240.51	0	1240.51														
PC2007-06C	610929.07	6104682.84	1240.23	0	1240.23														
PC2007-07C	610946.95	6104705.77	1240.12	0	1240.12														
PC2007-07C	-----	-----	Fault	from 9.95	to 9.97														
PC2007-07C	610946.95	6104705.77	1240.12																
PC2007-18C	610928.5	6104821	1240	0	1240							3.1	0.15	0.15	3.35	0.75	0.75	0.9	1
PC2007-20	611603.83	6105183.35	1072.64	1.65	1070.99	31.12	0	0.13	32.21	0.11	0.11	33.03	0.13	0.13	33.26	0.59	0.59	0.72	0.82
PC2007-22C	611598.07	6105090.88	1075.3	0	1075.3	22.84	0	0.12	23.8	0.3	0.3	24.77	0.2	0.2	25	0.7	0.7	0.9	0.93
PC2007-23C	611250.78	6104808.64	1175.29	0	1075.3	14.8	0	0.35	16.8	0	0.5	18.6	0	0.4	19	0.72	0.72	0.72	1.12
PC2007-24C	611154.23	6104754.73	1206.86	0	1206.86	2.45	0	0.55	4.8	0	0.2	6.5	0	0.2	6.7	0.92	0.92	0.92	1.12
PC2007-34C	611465.29	6104879.32	1080.23	3.85	1076.38														
PC2007-45	611642.86	6106114.78	1037.62	20.7	1016.92	97	0	0.45	109.2	0	0.05	111.06	0	0.07	111.28	0.54	0.54	0.54	0.76
PC2007-47	612021.06	6106279.22	1101.54	1.7	1099.84	29.1	0.6	0.6	31.35	0	0.4	32.75	0.3	0.3	33.05	0.6	0.6	0.9	0.9
PC2007-58C	611729.28	6105940.33	1017.66	3.6	1014.06	82.88	0	0.98	85.35	0	0.15	86	0.1	0.1	86.23	0.71	0.71	0.81	0.94
PC2007-63C	610823.16	6104333.5	1284.05	1.1	1282.95	2.65	0	0.2	7.85	0	0.5	10.1	0.12	0.12	10.31	0.59	0.59	0.71	0.8
PC2007-64C	610918.21	6104440.49	1286.11	2.8	1283.31														
PC2007-65C	610902.77	6104321.29	1276.4	1.7	1274.7														
PC2007-66C	610921.29	6104440.38	1286.03	2.45	1283.58														
PC2007-66C	-----	-----	Fault	from 22.92	to 23.17														
PC2007-66C	610921.29	6104440.38	1286.03																
PC2007-67C	610901.68	6104321.21	1276.44	2.35	1274.09														
PC2007-67C	-----	-----	Fault	from 64.92	to 64.94														
PC2007-67C	610901.68	6104321.21	1276.44																
PC2007-67C	-----	-----	Fault	from 71.76	to 71.78														
PC2007-67C	610901.68	6104321.21	1276.44																
PC2007-68C	610920.52	6104440.37	1286.02	2.4	1283.62														
PC2008-03R	611163	6105030.04	1145.34	1.5	1143.84	3	0	0.1	8	0	0.2	11.9	0.26	0.26	12.16	0.64	0.64	0.9	0.9
PC2008-16	610153.28	6106065.69	1384.13	11.75	1372.38														
PC2008-16	-----	-----	Fault?	from 24.5	to 27.35														
PC2008-16	610153.28	6106065.69	1384.13																
PC2008-16	-----	-----	Fault?	from 73.4	to 73.5														
PC2008-16	610153.28	6106065.69	1384.13			160.25	0	0.25	162.37	0.7	1.35	168.9	0	0.07	168.97	0	0.15	0	0.22
PC2008-17	610439.81	6105704.83	1363.96	5.9	1358.06														
PC2008-17			Fault?	from 9.8	to 11.75														
PC2008-17	610439.81	6105704.83	1363.96			151.14	0	0.2	153.86	0.57	1.34	167.3	0.2	0.2	167.5	0.2	0.2	0.4	0.4
PC2008-18	610655.07	6105346.41	1320.47	5.9	1314.57	116.13	0.21	0.21	117.18	0.27	0.27	118.68	0	0.22	118.9	0.42	0.42	0.42	0.64
PC-09-01	611578.44	6105814.73	1060.92	17.55	1043.37	80.9	0	0.15	89.27	0	0.13	90.12	0.1	0.1	90.28	0.39	0.39	0.49	0.55
PC-09-02	611658.34	6105680.78	1037.34	2.3	1035.04	56.65	0	0.15	58.85	0	0.05	61.4	0.12	0.12	61.6	0.45	0.45	0.57	0.65
PC-09-03	611712.91	6106053.43	1022.43	2.1	1020.33	84.28	0	0.27	90.9	0	0.2	99.25	0.1	0.1	99.4	0.35	0.35	0.45	0.5
PC-09-04	611502.67	6105582.19	1074.89	2.2	1072.69	52.7	0	0.05	58	0	0.05	63.95	0.37	0.37	64.32	0.23	0.23	0.6	0.6
PC-09-05	611357.96	6105402.73	1130.16	2.9	1127.26	61.65	0	0.1	66.45	0	0.35	73.62	0.13	0.13	73.8	0.55	0.55	0.68	0.73
PC-09-06	611295.55	6105483.88	1138.84	3.05	1135.79	66.85	0	0.1	70.25	0	0.15	78.05	0.11	0.11	78.2	0.45	0.45	0.56	0.6
PC-09-07	611144.95	6105535.45	1172.71	2.45	1170.26	NP	0	0	NP	0	0	88.65	0.1	0.1	88.8	0.48	0.48	0.58	0.63
Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	E0-roof	E0-net	E0-gross	E1-roof	E1-net	E1-gross	E2U-roof	E2U-net	E2U-gross	E2L-roof	E2L-net	E2L-gross	E2-net	E2-gross

Tops table (drilled depths and thicknesses in metres) from E0-coal down to E2-zone (concluded): **Table A-4**

Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	E0-roof	E0-net	E0-gross	E1-roof	E1-net	E1-gross	E2U-roof	E2U-net	E2U-gross	E2L-roof	E2L-net	E2L-gross	E2-net	E2-gross
PC-09-08	611185.06	6105198.81	1188.42	0.25	1188.17	68.65	0	0.3	71.2	0	0.2	79.53	0.13	0.13	79.75	0.6	0.6	0.73	0.82
PC-09-09	611108.32	6105330.49	1207.16	0.8	1206.36	NP	0	0	93.2	0	0.15	95.37	0.13	0.13	95.55	0.55	0.55	0.68	0.73
PC-09-10	610934.45	6105292.17	1255.82	4	1251.82														
PC-09-10	-----	-----	Fault	from 8.35	to 8.45														
PC-09-10	610934.45	6105292.17	1255.82			99.85	0.2	0.2	100.75	0	0.35	102.3	0.1	0.1	102.4	0.45	0.45	0.55	0.55
PC-09-11	610989.28	6105128.43	1260.68	2.1	1258.58	100.4	0	0.1	faulted	out	faulted	out	faulted	out	faulted	out	faulted	out	faulted
PC-09-11	-----	------	Fault	from 100.5	to 100.51														
PC-09-11	610989.28	6105128.43	1260.68																
PC-09-12	610474.79	6104904.67	1416.87	1.35	1415.52	156.8	0.29	0.29	158.15	0.4	0.4	159.75	0.17	0.17	159.92	0.3	0.3	0.47	0.47
PC-09-13	610566.66	6105005.3	1385.49	2.25	1383.24														
PC-09-13	-----	-----	Fault	from 14.75	to 15														
PC-09-13	610566.66	6105005.3	1385.49			123	0.4	0.4	124.47	0.33	0.33	125.8	0.13	0.13	125.93	0.35	0.35	0.48	0.48
PC-09-14	610556.06	6104869.52	1372.17	2.35	1369.82														
PC-09-14	-----	-----	Fault	from 9.3	to 9.6														
PC-09-14	610556.06	6104869.52	1372.17			96.3	0.23	0.23	97.9	0.2	0.2	98.72	0	0.13	98.95	0.45	0.45	0.45	0.68
PC-09-15	610651.87	6105114.23	1349.49	1.2	1348.29	105.15	0.2	0.2	106.48	0.17	0.17	107.45	0.15	0.15	107.72	0.48	0.48	0.63	0.75
PC-09-16	610720.18	6105047.47	1348.6	2.2	1346.4	102.68	0.2	0.2	104.3	0.16	0.16	105.28	0.15	0.15	105.53	0.5	0.5	0.65	0.75
PC-09-17	610582.69	6104684.33	1365.83	2.6	1363.23	90.66	0.41	0.41	92.5	0	0.19	93.71	0	0.14	93.96	0.41	0.41	0.41	0.66
PC-09-18	610509.65	6104589.39	1374.26	2.4	1371.86														
PC-09-18	-----	-----	Fault	from 55.70	to 55.85														
PC-09-18	610509.65	6104589.39	1374.26			127.45	0.29	0.29	128.7	0	0.35	129.9	0.1	0.1	130.1	0.38	0.38	0.48	0.58
PC-09-19	610932.08	6105802.17	1214.37	23.75	1190.62	103.5	0	0.15	104.6	0.25	0.25	115.2	0.12	0.12	115.35	0.45	0.45	0.57	0.6
PC13-01C	610956	6105246.44	1259.2	2.45	1256.75	103.8	0	0.2	104.8	0	0.5	106.4	0	0.1	106.8	0.55	0.55	0.55	0.95
PC13-02C	610722	6104794.82	1300.34	0.8	1299.54	NP	0	0	15.38	0	0.1	16.72	0	0.18	16.98	0.51	0.51	0.51	0.77
PC13-03C	610424.4	6104922.5	1425.4	3.33	1422.07														
PC13-03C	-----	-----	Fault	from 53.57	to 53.79														
PC13-03C	610424.4	6104922.5	1425.4			DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR
PC13-04C	610392.9	6104690.04	1425.17	0	1425.17														
PC13-04C	-----	-----	Fault	from 21.09	to 22.02														
PC13-04C	610392.9	6104690.04	1425.17																
PC13-04C	-----	-----	Fault	from 22.85	to 23.22														
PC13-04C	610392.9	6104690.04	1425.17																
PC13-04C	-----	-----	Fault	from 88.95	to 89.05														
PC13-04C	610392.9	6104690.04	1425.17			DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR
PC13-05C	610550.3	6105079.67	1383.23	2.8	1380.43	130.95	0.2	0.2	132.35	0.25	0.25	133.54	0	0.42	133.96	0.51	0.51	0.51	0.93
PC13-AR01	610755.6	6105079.67	1336.4	7.3	1329.1	102.26	0.09	0.09	103.8	0	0.15	104.92	0	0.14	105.17	0.45	0.45	0.45	0.7
PC13-AR01	-----	-----	Fault	from 127.8	to 128.08														
PC13-AR01	610755.6	6105079.67	1336.4																
PC13-AR02	610938.5	6105537.47	1234.69	18.5	1216.19	106.4	0	0.33	107.4	0	0.25	108.85	0	0.2	109.25	0.43	0.43	0.43	0.83
PC13-AR03	610724.9	6105314.71	1308.07	9.15	1298.92	113.21	0	0.13	114.24	0.1	0.1	115.55	0	0.16	115.79	0.46	0.46	0.46	0.7
PC13-AR04	611176.5	6105932	1184.3	56.9	1127.4	140.8	0	0.4	141.35	0	0.32	148.78	0	0.17	149.03	0.44	0.52	0.44	0.77
PC13-AR05	611391.6	6106152	1115.59	30.45	1085.14														
PC13-AR05	-----	-----	Fault	from 41.15	to 41.25														
PC13-AR05	611391.6	6106152	1115.59			132	0	0.3	133.9	0	0.3	141.25	0	0.17	141.42	0.38	0.38	0.38	0.55
Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	E0-roof	E0-net	E0-gross	E1-roof	E1-net	E1-gross	E2U-roof	E2U-net	E2U-gross	E2L-roof	E2L-net	E2L-gross	E2-net	E2-gross

Tops table (drilled depths and thicknesses in metres) from E3U-coal down to F1-coal: **Table A-5**

Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	E3U-roof	E3U-net	E3U-gross	E3L-roof	E3L-net	E3L-gross	E3-net	E3-gross	E4-roof	E4-net	E4-gross	F1-roof	F1-net	F1-gross
QWD7115	610309.07	6106232.43	1286.1	18.29	1267.81	92.292	0.4	0.4	92.93	0.4	0.4	0.8	1.04	93.88	0.36	0.36	98.05	0.71	0.71
QWD7119	610943.87	6105793.52	1212.5	23.16	1189.34	119.36	0.43	0.43	120.06	0.46	0.46	0.89	1.16	121.43	0	0.31	127.41	1.22	1.22
QPD88002	611465.31	6105857.48	1099.5	11.02	1088.48	114.07	0.37	0.37	114.65	0.44	0.51	0.81	1.09	116.06	0	0.15	122.41	0.75	0.75
PRH01-1C	611307.81	6105706.74	1126.29	8.05	1118.24	93.7	0.47	0.47	94.35	0.65	0.65	1.12	1.3	95.95	0	0.79	101.77	1.03	1.03
PRH01-2	611583.33	6106005.5	1063.53	1.3	1062.23	119.3	0.51	0.51	119.95	0.55	0.55	1.06	1.2	121.07	0	0.43	127	0.87	0.87
PRH01-6	610605.68	6105910.36	1297.57	1	1296.57	146.8	0.3	0.3	147.35	0.5	0.5	0.8	1.05	149.15	0	0.25	154.65	0.35	0.35
PRH01-7	610809.7	6106046.93	1227.59	1.65	1225.94	133.92	0.34	0.34	134.44	0.46	0.46	0.8	0.98	135.75	0.33	0.57	142.05	0.79	0.79
PRH01-8	610974.34	6106241.94	1172.7	2.75	1169.95	123	0.32	0.32	123.5	0.42	0.42	0.74	0.92	124.48	0.2	0.2	129	0.75	0.75
PRH01-9	611603.25	6105367.67	1066.33	2.7	1063.63	47.65	0.75	0.75	48.9	0.4	0.75	1.15	2	50.62	0.16	0.16	57.09	0.83	0.83
PRH01-10	611244.07	6105044.59	1169.06	1.7	1167.36	56.75	0.42	0.42	58	0.08	0.08	0.5	1.33	59.8	0	0.55	69.1	1.13	1.13
PRH01-11	611992.3	6105697.01	979.29	2.35	976.94	37.15	0.4	0.4	38.05	0.3	0.3	0.7	1.2	39.1	0	0.45	45	0.75	0.75
PRH01-12	611787.1	6105618.79	1015.08	2.2	1012.88	50.5	0.35	0.35	51.05	0.55	0.55	0.9	1.1	52.13	0	0.34	59	0.7	0.7
PRH01-13	611185.34	6105507.61	1165.41	2.5	1162.91	88.24	0.37	0.37	88.96	0.48	0.6	0.85	1.32	90.65	0	0.35	98.78	0.91	0.91
PRH01-15	610877.31	6105374	1270.18	9	1261.18	117.15	0.4	0.4	117.8	0.47	0.75	0.87	1.4	119.28	0	1	127.62	1.23	1.23
PRH01-16C	611145.68	6106385.59	1121.3	3	1118.3	124.75	0.36	0.36	125.3	0.45	0.45	0.81	1	126.25	0.45	0.45	129.52	0.76	0.76
PRH02-12	610586.29	6104684.51	1366.63	3.1	1363.53	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR
PRH02-13	610693.81	6104772.58	1326.72	2.6	1324.12	34.75	0.55	0.55	35.3	0	0.2	0.55	0.75	41.4	0	0.2	52.2	0.7	0.9
PRH02-14	610805.7	6104892.86	1306.88	4	1302.88	59.5	0.5	0.5	60.5	0	0.35	0.5	1.35	63.65	0	0.55	73.85	0.78	0.9
PRH02-16	610934.57	6104528.7	1289.57	1	1288.57														
PRH02-17	610893.31	6104429.85	1296.69	1.5	1295.19				2.3	0	0.2	NR	NR	6.7	0	0.2	12.7	0.35	0.35
PRH2003-1C	611494.8	6105919.27	1095.66	2.1	1093.56	125.82	0.4	0.4	126.45	0.46	0.46	0.86	1.09	127.6	0	0.22	133.85	0.77	0.77
PRH2003-2C	611303.99	6105701.7	1125.97	2.7	1123.27	92.72	0.4	0.4	93.37	0.56	0.56	0.96	1.21	95.12	0	0.63	100.08	0.52	0.52
PRH2003-3	611792.16	6105810.05	1000.8	1	999.8	61.25	0.4	0.4	61.85	0.35	0.55	0.75	1.15	63.15	0	0.85	68.35	0.7	0.7
PCR2005-1	611384.38	6103009.94	910.04	3.2	906.84														
PCR2005-2	611454.71	6103096.6	926.03	3.49	922.54														
PC2006-02	611153.4	6104842	1212.36	2.1	1210.26	37.56	0.36	0.36	39.05	0	0.15	0.36	1.65	42.4	0	0.2	52.7	0.65	0.65
DH2006-3	610895.5	6104799	1283.74	2.6	1281.14	34.4	0.35	0.35	36.68	0	0.11	0.35	2.39	40.02	0	0.4	50.76	0.8	0.8
DH2006-8	610807.4	6104892	1301.33	2.55	1298.78	55.6	0.2	0.2	56.7	0	0.4	0.2	1.5	59.1	0	0.4			
PC2006-09	610790.7	6104770	1300.79	2.38	1298.41	21.62	0.33	0.33	23.9	0	0.02	0.33	2.3	27	0	0.35	37.62	0.65	0.93
DH2006-11	610885.9	6104560	1302.97	2.3	1300.67												9.4	2.75	2.75
DH2006-13	610804.8	6104626	1301.31	2.35	1298.96												6.05	0.3	0.3
PR2006-01	610645.83	6104494.33	1304.6	1.15	1303.45	46.42	0.26	0.26	47.65	0	0.15	0.26	1.28	53.1	0	0.2	62.88	0.17	0.17
PR2006-02	610801.17	6104311.07	1269.31	2.55	1266.76	16.25	0.15	0.15	17.15	0	0.3	0.15	1.2	18.8	0	0.1	38.2	0	0.1
PR2006-03	610891.53	6104143.31	1206.73	0.8	1205.93	19.69	0.16	0.16	21.35	0	0.25	0.16	1.91	28.35	0	0.55	41.93	0.28	0.28
PR2006-03	-----	-----	Fault	from 88.6	to 88.88														
PR2006-03	610891.53	6104143.31	1206.73																
PR2006-04	610712.91	6104247.01	1223.8	0.8	1223	51.22	0	0.24	NP	0	0	0	0.24	NP	0	0			
PR2006-04	-----	-----	Fault	from 71.15	to 71.2														
PR2006-04	610712.91	6104247.01	1223.8														75.5	0	0.48
PR2006-04	-----	-----	Fault	from 123.25	to 123.3														
PR2006-04	610712.91	6104247.01	1223.8																
PR2006-05	610780.05	6104037.42	1147.7	2.4	1145.3	82.82	0.26	0.26	84.3	0	0.19	0.26	1.67	NP	0	0	103.9	0.18	0.18
PR2006-06	610778.74	6104036.71	1147.63	1.8	1145.83	99.25	0.25	0.25	100.9	0	0.35	0.25	2	NP	0	0	123.89	0.16	0.38
PR2006-07	610918.62	6103965.89	1124.38	1.6	1122.78	27.65	0.2	0.2	NP	0	0	0.2	0.2	NP	0	0	52.65	0	0.35
PR2006-08	610924.35	6103957.97	1122.83	2.55	1120.28	36.55	0.17	0.17	NP	0	0	0.17	0.17	NP	0	0	68.9	0.26	0.26
PR2006-13	611139.76	6103594.25	1014.08	2.6	1011.48	8.05	0	0.1	8.25	0	0.1	0	0.3	17.85	0	0.45	30.4	0.4	0.4
PR2006-13	-----	-----	Fault	from 86.65	to 86.80														
PR2006-13	611139.76	6103594.25	1014.08																
PR2006-15	611162.124	6103257.487	952.67	0.7	951.97														
Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	E3U-roof	E3U-net	E3U-gross	E3L-roof	E3L-net	E3L-gross	E3-net	E3-gross	E4-roof	E4-net	E4-gross	F1-roof	F1-net	F1-gross

Tops table (drilled depths and thicknesses in metres) from E3U-coal down to F1-coal (continued): **Table A-5**

Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	E3U-roof	E3U-net	E3U-gross	E3L-roof	E3L-net	E3L-gross	E3-net	E3-gross	E4-roof	E4-net	E4-gross	F1-roof	F1-net	F1-gross
PR2006-15	-----	-----	Fault	from 11.2	to 11.5														
PR2006-15	611162.124	6103257.487	952.67																
PC2007-02C	610862.24	6104704.94	1240.58	0	1240.58														
PC2007-03C	610881.33	6104736.87	1240.69	0	1240.69														
PC2007-04C	610896.72	6104764.4	1240.3	0	1240.3														
PC2007-05C	610912.41	6104663.83	1240.51	0	1240.51														
PC2007-06C	610929.07	6104682.84	1240.23	0	1240.23														
PC2007-07C	610946.95	6104705.77	1240.12	0	1240.12														
PC2007-07C	-----	-----	Fault	from 9.95	to 9.97														
PC2007-07C	610946.95	6104705.77	1240.12																
PC2007-18C	610928.5	6104821	1240	0	1240	5.7	0.5	0.5	7.75	0	0.25	0.5	2.3	10.6	0	0.65	20.4	0.89	0.99
PC2007-20	611603.83	6105183.35	1072.64	1.65	1070.99	35.37	0.23	0.23	36.25	0.09	0.09	0.32	0.97	38.27	0	0.66	44.85	0.98	0.98
PC2007-22C	611598.07	6105090.88	1075.3	0	1075.3	27.38	0.33	0.33	28.6	0	0.14	0.33	1.36	30.52	0	0.11	38.87	0.73	0.73
PC2007-23C	611250.78	6104808.64	1175.29	0	1075.3	21.71	0.64	0.64	23.36	0	0.39	0.64	2.04	24.8	0	0.1	35.91	0.44	0.44
PC2007-24C	611154.23	6104754.73	1206.86	0	1206.86	9.78	0.32	0.32	10.86	0	0.39	0.32	1.47	11.75	0	0.35	25.58	0.58	0.77
PC2007-34C	611465.29	6104879.32	1080.23	3.85	1076.38														
PC2007-45	611642.86	6106114.78	1037.62	20.7	1016.92	113.65	0.29	0.29	114.32	0.26	0.26	0.55	0.93	115.73	0.17	0.17	120.91	0.77	0.77
PC2007-47	612021.06	6106279.22	1101.54	1.7	1099.84	34.79	0.36	0.36	35.3	0.6	0.6	0.96	1.11	36.4	0	0.6	39.65	0.7	0.7
PC2007-58C	611729.28	6105940.33	1017.66	3.6	1014.06	88.4	0.31	0.31	89.2	0.26	0.26	0.57	1.06	90.4	0	0.37	95.95	0.78	0.78
PC2007-63C	610823.16	6104333.5	1284.05	1.1	1282.95	12.3	0.75	0.75	14.7	0	0.15	0.75	2.55	NP	0	0	40.55	0	0.15
PC2007-64C	610918.21	6104440.49	1286.11	2.8	1283.31														
PC2007-65C	610902.77	6104321.29	1276.4	1.7	1274.7												9.85	0	0.15
PC2007-66C	610921.29	6104440.38	1286.03	2.45	1283.58														
PC2007-66C	-----	-----	Fault	from 22.92	to 23.17														
PC2007-66C	610921.29	6104440.38	1286.03																
PC2007-67C	610901.68	6104321.21	1276.44	2.35	1274.09												9.15	0.01	0.01
PC2007-67C	-----	-----	Fault	from 64.92	to 64.94														
PC2007-67C	610901.68	6104321.21	1276.44																
PC2007-67C	-----	-----	Fault	from 71.76	to 71.78														
PC2007-67C	610901.68	6104321.21	1276.44																
PC2007-68C	610920.52	6104440.37	1286.02	2.4	1283.62														
PC2008-03R	611163	6105030.04	1145.34	1.5	1143.84	14.15	0.6	0.6	15.36	0.21	0.21	0.81	1.42	17.15	0	0.55	25.73	0.81	0.92
PC2008-16	610153.28	6106065.69	1384.13	11.75	1372.38														
PC2008-16	-----	-----	Fault?	from 24.5	to 27.35														
PC2008-16	610153.28	6106065.69	1384.13																
PC2008-16	-----	-----	Fault?	from 73.4	to 73.5														
PC2008-16	610153.28	6106065.69	1384.13			178.3	0.28	0.28	178.98	0.35	0.35	0.63	1.03	180	0.13	0.13	185.8	0.94	0.94
PC2008-17	610439.81	6105704.83	1363.96	5.9	1358.06														
PC2008-17			Fault?	from 9.8	to 11.75														
PC2008-17	610439.81	6105704.83	1363.96			174.15	0.4	0.4	174.9	0.55	0.55	0.95	1.3	176.38	0.17	0.17	183.2	1.12	1.12
PC2008-18	610655.07	6105346.41	1320.47	5.9	1314.57	123.38	0.44	0.44	124.26	0.09	0.09	0.53	0.97	126.14	0	0.12	134.85	1	1
PC-09-01	611578.44	6105814.73	1060.92	17.55	1043.37	92.25	0.23	0.23	92.85	0.35	0.35	0.58	0.95	93.95	0	0.45	98.9	0.85	0.85
PC-09-02	611658.34	6105680.78	1037.34	2.3	1035.04	63.9	0.23	0.23	64.57	0.33	0.33	0.56	1	65.74	0	0.21	71.52	0.54	0.63
PC-09-03	611712.91	6106053.43	1022.43	2.1	1020.33	101.26	0.3	0.3	101.64	0.46	0.46	0.76	0.84	103	0	0.15	107.4	0.72	0.72
PC-09-04	611502.67	6105582.19	1074.89	2.2	1072.69	66.15	0.25	0.25	66.88	0.37	0.37	0.62	1.1	68.2	0	0.35	74.25	0.89	0.93
PC-09-05	611357.96	6105402.73	1130.16	2.9	1127.26	75.54	0.46	0.46	76.6	0.2	0.2	0.66	1.26	78.05	0	0.9	85.15	0.95	0.95
PC-09-06	611295.55	6105483.88	1138.84	3.05	1135.79	80.1	0.35	0.35	81.15	0.3	0.3	0.65	1.35	82.6	0	0.45	90	0.98	0.98
PC-09-07	611144.95	6105535.45	1172.71	2.45	1170.26	91.3	0.2	0.2	91.95	0.45	0.6	0.65	1.25	93.1	0	0.25	100.88	0.67	0.67
Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	E3U-roof	E3U-net	E3U-gross	E3L-roof	E3L-net	E3L-gross	E3-net	E3-gross	E4-roof	E4-net	E4-gross	F1-roof	F1-net	F1-gross

Tops table (drilled depths and thicknesses in metres) from E3U-coal down to F1-coal (concluded): **Table A-5**

Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	E3U-roof	E3U-net	E3U-gross	E3L-roof	E3L-net	E3L-gross	E3-net	E3-gross	E4-roof	E4-net	E4-gross	F1-roof	F1-net	F1-gross
PC-09-08	611185.06	6105198.81	1188.42	0.25	1188.17	82.15	0.3	0.3	83.2	0	0.3	0.3	1.35	85.08	0	0.12	93.95	0.9	0.9
PC-09-09	611108.32	6105330.49	1207.16	0.8	1206.36	97.5	0.52	0.6	98.65	0	0.25	0.52	1.4	100.2	0	0.12	109	1	1
PC-09-10	610934.45	6105292.17	1255.82	4	1251.82														
PC-09-10	-----	-----	Fault	from 8.35	to 8.45														
PC-09-10	610934.45	6105292.17	1255.82			104.8	0.35	0.35	105.6	0.2	0.2	0.55	1	107.25	0	0.35	115.87	0.93	0.93
PC-09-11	610989.28	6105128.43	1260.68	2.1	1258.58														
PC-09-11	-----	------	Fault	from 100.5	to 100.51														
PC-09-11	610989.28	6105128.43	1260.68			101.88	0.54	0.54	102.85	0	0.15	0.54	1.12	104.7	0	0.17	113.75	0.95	0.95
PC-09-12	610474.79	6104904.67	1416.87	1.35	1415.52	164.16	0.29	0.29	164.85	0	0.12	0.29	0.81	167.21	0	0.41	177.12	0.58	0.78
PC-09-13	610566.66	6105005.3	1385.49	2.25	1383.24														
PC-09-13	-----	-----	Fault	from 14.75	to 15														
PC-09-13	610566.66	6105005.3	1385.49			129.85	0.3	0.3	130.52	0	0.36	0.3	1.03	132.55	0	0.3	142.2	0.85	0.85
PC-09-14	610556.06	6104869.52	1372.17	2.35	1369.82														
PC-09-14	-----	-----	Fault	from 9.3	to 9.6														
PC-09-14	610556.06	6104869.52	1372.17			103.48	0.17	0.17	104.15	0	0.18	0.17	0.85	106.65	0	0.15	117	0.92	0.92
PC-09-15	610651.87	6105114.23	1349.49	1.2	1348.29	110.88	0	0.24	111.8	0	0.25	0	1.17	113.53	0	0.35	122.66	0.82	0.82
PC-09-16	610720.18	6105047.47	1348.6	2.2	1346.4	108.8	0.2	0.2	109.45	0	0.17	0.2	0.82	111.34	0	0.53	122.58	0.76	0.76
PC-09-17	610582.69	6104684.33	1365.83	2.6	1363.23	97.24	0.41	0.41	98.63	0	0.12	0.41	1.51	102.15	0	0.13	111.8	0.28	0.28
PC-09-18	610509.65	6104589.39	1374.26	2.4	1371.86														
PC-09-18	-----	-----	Fault	from 55.70	to 55.85														
PC-09-18	610509.65	6104589.39	1374.26			133.28	0.4	0.4	135.02	0	0.14	0.4	1.88	138.12	0	0.28	146.12	0.48	0.48
PC-09-19	610932.08	6105802.17	1214.37	23.75	1190.62	120.12	0.28	0.28	120.77	0.43	0.43	0.71	1.08	121.8	0	0.2	127.88	0.95	0.95
PC13-01C	610956	6105246.44	1259.2	2.45	1256.75	108.8	0.3	0.3	109.66	0	0.19	0.3	1.15	111.76	0	0.36	118.95	1.05	1.05
PC13-02C	610722	6104794.82	1300.34	0.8	1299.54	21.4	0.2	0.2	22.04	0	0.38	0.2	1.02	25.4	0	0.7	36.74	0.52	0.75
PC13-03C	610424.4	6104922.5	1425.4	3.33	1422.07														
PC13-03C	-----	-----	Fault	from 53.57	to 53.79														
PC13-03C	610424.4	6104922.5	1425.4			DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR
PC13-04C	610392.9	6104690.04	1425.17	0	1425.17														
PC13-04C	-----	-----	Fault	from 21.09	to 22.02														
PC13-04C	610392.9	6104690.04	1425.17																
PC13-04C	-----	-----	Fault	from 22.85	to 23.22														
PC13-04C	610392.9	6104690.04	1425.17																
PC13-04C	-----	-----	Fault	from 88.95	to 89.05														
PC13-04C	610392.9	6104690.04	1425.17			DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR
PC13-05C	610550.3	6105079.67	1383.23	2.8	1380.43	138.2	0.1	0.1	139.35	0	0.15	0.1	1.3	140.62	0	0.38	150.2	0.99	0.99
PC13-AR01	610755.6	6105079.67	1336.4	7.3	1329.1	108.8	0.1	0.1	109.59	0	0.09	0.1	0.88	111.46	0	0.29	120.7	0.87	0.99
PC13-AR01	-----	-----	Fault	from 127.8	to 128.08														
PC13-AR01	610755.6	6105079.67	1336.4																
PC13-AR02	610938.5	6105537.47	1234.69	18.5	1216.19	112.08	0.17	0.17	112.82	0.2	0.2	0.37	0.94	114.15	0	0.15	122.3	0.7	0.7
PC13-AR03	610724.9	6105314.71	1308.07	9.15	1298.92	118.69	0.13	0.13	119.86	0	0.16	0.13	1.33	121.12	0	0.14	130.11	0.67	0.67
PC13-AR04	611176.5	6105932	1184.3	56.9	1127.4	152.52	0.18	0.18	153.11	0.24	0.24	0.42	0.83	154.4	0	0.39	160.21	0.49	0.49
PC13-AR05	611391.6	6106152	1115.59	30.45	1085.14														
PC13-AR05	-----	-----	Fault	from 41.15	to 41.25														
PC13-AR05	611391.6	6106152	1115.59			144.84	0	0.25	145.46	0.46	0.46	0.46	1.08	146.4	0	0.1	149.97	0.38	0.38
Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	E3U-roof	E3U-net	E3U-gross	E3L-roof	E3L-net	E3L-gross	E3-net	E3-gross	E4-roof	E4-net	E4-gross	F1-roof	F1-net	F1-gross

Tops table (drilled depths and thicknesses in metres) from F2-coal down to G-coal: **Table A-6**

Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	F2-roof	F2-net	F2-gross	F12-net	F12-gross	Top of Wv Cgl	Top of Wv Sst	Base of Wv Sst	G1-roof	G1-net	G1-gross	G-roof	G-net	G-gross
QWD7115	610309.07	6106232.43	1286.1	18.29	1267.81	99.06	0.55	0.55	1.26	1.56	99.61	111.22	120.09	121.68	0	0.27	129.84	0.83	0.83
QWD7119	610943.87	6105793.52	1212.5	23.16	1189.34	128.63	0.36	0.36	1.58	1.58	128.99	141.73	145.85	146.91	0.25	0.25	159.41	0.91	0.91
QPD88002	611465.31	6105857.48	1099.5	11.02	1088.48	123.4	0.63	0.63	1.38	1.62	124.03	134.4	142.82	143.08	0	0.22	152.86	0.78	0.78
PRH01-1C	611307.81	6105706.74	1126.29	8.05	1118.24	102.8	0.46	0.46	1.49	1.49	103.26	115.7	123.25	123.85	0	0.2	133.15	0.95	0.95
PRH01-2	611583.33	6106005.5	1063.53	1.3	1062.23	127.87	0.75	0.75	1.62	1.62	128.62	135.15	144.6	145.15	0	0.3	154.15	0.8	0.8
PRH01-6	610605.68	6105910.36	1297.57	1	1296.57	155.4	0.45	0.45	0.8	1.2	155.85	163.5	173.3	173.3	0	0.2	182.1	0.5	0.5
PRH01-7	610809.7	6106046.93	1227.59	1.65	1225.94	143.08	0.76	0.76	1.55	1.79	143.84	153.7	161.8	161.8	0	0.35	173.05	0.9	0.9
PRH01-8	610974.34	6106241.94	1172.7	2.75	1169.95	129.92	0.58	0.58	1.33	1.5	130.5	137.5	147.67	148.25	0	0.2	154.95	0.55	0.55
PRH01-9	611603.25	6105367.67	1066.33	2.7	1063.63	60.12	0.45	0.45	1.28	3.48	60.57	69.1	76.1	76.9	0.22	0.22	86.9	0.86	0.86
PRH01-10	611244.07	6105044.59	1169.06	1.7	1167.36	70.23	0.4	0.4	1.53	1.53	70.63	79.5	83.4	83.92	0.43	0.63	97.1	1	1
PRH01-11	611992.3	6105697.01	979.29	2.35	976.94	46	0.4	0.4	1.15	1.4	46.4	57.6	63.95	64.8	0.25	0.25	74.7	0.9	0.9
PRH01-12	611787.1	6105618.79	1015.08	2.2	1012.88	60	0.7	0.7	1.4	1.7	60.7	71.6	78.65	79.75	0	0.25	89.22	0.93	0.93
PRH01-13	611185.34	6105507.61	1165.41	2.5	1162.91	99.88	0.54	0.54	1.45	1.64	100.42	110.3	118.55	118.55	0.25	0.25	130.6	1.1	1.1
PRH01-15	610877.31	6105374	1270.18	9	1261.18	128.85	0.37	0.37	1.6	1.6	129.22	135.3	142.95	143.65	0	0.25	158.87	1.13	1.13
PRH01-16C	611145.68	6106385.59	1121.3	3	1118.3	130.5	0.5	0.5	1.26	1.48	131	138.8	148.3	148.4	0	0.2	155.84	0.56	0.56
PRH02-12	610586.29	6104684.51	1366.63	3.1	1363.53	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR
PRH02-13	610693.81	6104772.58	1326.72	2.6	1324.12	53.8	0.6	0.6	1.3	2.2	54.4	70.85	75.2	75.55	0.45	0.45	92.6	1.45	1.45
PRH02-14	610805.7	6104892.86	1306.88	4	1302.88	75	0.6	0.6	1.38	1.75	75.6	85.15	88.6	89	0.4	0.4	104.05	0.8	0.8
PRH02-16	610934.57	6104528.7	1289.57	1	1288.57						starts	9.3	13.35	14.2	0.4	0.4	29.5	0.75	0.75
PRH02-17	610893.31	6104429.85	1296.69	1.5	1295.19	14.6	0.25	0.25	0.6	2.15	14.85	25.8	29.3	29.3	0.45	0.45	44.3	0.8	0.8
PRH2003-1C	611494.8	6105919.27	1095.66	2.1	1093.56	134.8	0.62	0.62	1.39	1.57	135.42	145.6	153.1	153.1	0	0.3	163.85	0.7	0.7
PRH2003-2C	611303.99	6105701.7	1125.97	2.7	1123.27	101.05	0.57	0.57	1.09	1.54	101.62	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR
PRH2003-3	611792.16	6105810.05	1000.8	1	999.8	69.25	0.55	0.55	1.25	1.45	69.8	81.1	87.8	87.8	0	0.2	98.45	0.8	0.8
PCR2005-1	611384.38	6103009.94	910.04	3.2	906.84														
PCR2005-2	611454.71	6103096.6	926.03	3.49	922.54														
PC2006-02	611153.4	6104842	1212.36	2.1	1210.26	53.35	0.91	0.91	1.56	1.56	54.32	61.65	67.4	67.4	0.45	0.45	80.85	0.85	0.85
DH2006-3	610895.5	6104799	1283.74	2.6	1281.14	51.95	0.31	0.31	1.11	1.5	52.49	60.9	64.95	65.49	0.26	0.26	80.92	0.88	0.88
DH2006-8	610807.4	6104892	1301.33	2.55	1298.78														
PC2006-09	610790.7	6104770	1300.79	2.38	1298.41	39.25	0.4	0.4	1.05	2.03	39.85	49.4	54	54.2	0.4	0.4	70.86	1.14	1.14
DH2006-11	610885.9	6104560	1302.97	2.3	1300.67	13.05	0.55	0.55	3.3	4.2	13.9	24.2	24.2	27.8	0.3	0.3	43.9	0.85	0.85
DH2006-13	610804.8	6104626	1301.31	2.35	1298.96	9.2	0.2	0.2	0.5	3.1	9.65	18.9	22.85	23.1	0.4	0.4	39.55	0.85	0.85
PR2006-01	610645.83	6104494.33	1304.6	1.15	1303.45	67.75	0.35	0.35	0.52	5.22	68.32	80.75	85.6	85.6	0	0.4	98.92	0.58	0.58
PR2006-02	610801.17	6104311.07	1269.31	2.55	1266.76	45.85	0.35	0.35	0.35	8	46.35	55.8	60.5	60.5	0	0.45	75.1	0.65	0.65
PR2006-03	610891.53	6104143.31	1206.73	0.8	1205.93	45.68	0.23	0.23	0.51	3.98	46.1	54.85	57.95	58.14	0.33	0.33	71.2	0.66	0.66
PR2006-03	-----	-----	Fault	from 88.6	to 88.88														
PR2006-03	610891.53	6104143.31	1206.73																
PR2006-04	610712.91	6104247.01	1223.8	0.8	1223														
PR2006-04	-----	-----	Fault	from 71.15	to 71.2														
PR2006-04	610712.91	6104247.01	1223.8			79.58	0.39	0.39	0.39	4.47	80.13	NP	NP	98.35	0.49	0.49	114.11	0.8	0.8
PR2006-04	-----	-----	Fault	from 123.25	to 123.3														
PR2006-04	610712.91	6104247.01	1223.8																
PR2006-05	610780.05	6104037.42	1147.7	2.4	1145.3	107.05	0.15	0.15	0.33	3.3	107.4	NP	NP	120.6	0.8	0.8	135.41	0.88	0.88
PR2006-06	610778.74	6104036.71	1147.63	1.8	1145.83	127.48	0.37	0.37	0.53	3.96	128.05	141.7	141.8	142.02	0.68	0.68	158.9	1.04	1.04
PR2006-07	610918.62	6103965.89	1124.38	1.6	1122.78	56.1	0.25	0.25	0.25	3.7	56.6	61.7	64.92	65.6	0.5	0.5	79.28	0.42	0.42
PR2006-08	610924.35	6103957.97	1122.83	2.55	1120.28	72.85	0.18	0.18	0.44	4.13	74.35	NP	NP	82.7	0.59	0.59	100.57	0.98	0.98
PR2006-13	611139.76	6103594.25	1014.08	2.6	1011.48	34.5	0.6	0.75	1	4.85	35.55	47	47.25	47.6	0.4	0.4	65.75	0.57	0.57
PR2006-13	-----	-----	Fault	from 86.65	to 86.80														
PR2006-13	611139.76	6103594.25	1014.08																
PR2006-15	611162.124	6103257.487	952.67	0.7	951.97														
Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	F2-roof	F2-net	F2-gross	F12-net	F12-gross	Top of Wv Cgl	Top of Wv Sst	Base of Wv Sst	G1-roof	G1-net	G1-gross	G-roof	G-net	G-gross

Tops table (drilled depths and thicknesses in metres) from F2-coal down to G-coal (continued): **Table A-6**

Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	F2-roof	F2-net	F2-gross	F12-net	F12-gross	Top of Wv Cgl	Top of Wv Sst	Base of Wv Sst	G1-roof	G1-net	G1-gross	G-roof	G-net	G-gross
PR2006-15	-----	-----	Fault	from 11.2	to 11.5														
PR2006-15	611162.124	6103257.487	952.67																
PC2007-02C	610862.24	6104704.94	1240.58	0	1240.58												0	1	1
PC2007-03C	610881.33	6104736.87	1240.69	0	1240.69												17.6	1.1	1.1
PC2007-04C	610896.72	6104764.4	1240.3	0	1240.3						starts	9.45	13.4	13.4	0.8	1.05	29.6	0.95	0.95
PC2007-05C	610912.41	6104663.83	1240.51	0	1240.51														
PC2007-06C	610929.07	6104682.84	1240.23	0	1240.23														
PC2007-07C	610946.95	6104705.77	1240.12	0	1240.12														
PC2007-07C	-----	-----	Fault	from 9.95	to 9.97														
PC2007-07C	610946.95	6104705.77	1240.12														17.3	1.1	1.1
PC2007-18C	610928.5	6104821	1240	0	1240	21.5	0.7	0.75	1.64	1.85	22.25	31.4	35.15	35.4	0.3	0.3	51.2	0.8	0.8
PC2007-20	611603.83	6105183.35	1072.64	1.65	1070.99	45.83	0.37	0.37	1.35	1.35	46.2	53.34	62.88	63.79	0	0.15	72.97	0.72	0.72
PC2007-22C	611598.07	6105090.88	1075.3	0	1075.3	39.7	0.61	0.61	1.34	1.44	40.45	47.25	55.2	56.85	0	0.4	66.07	0.67	0.67
PC2007-23C	611250.78	6104808.64	1175.29	0	1075.3	37.25	0.5	0.5	0.94	1.84	37.75	47.15	52.4	52.4	0	0.87	66.6	0.9	0.9
PC2007-24C	611154.23	6104754.73	1206.86	0	1206.86	26.89	0.47	0.47	1.05	1.78	27.41	35.6	41.1	41.1	0.4	0.4	55.21	0.98	0.98
PC2007-34C	611465.29	6104879.32	1080.23	3.85	1076.38						starts	12.5	18.74	18.74	0	0.46	30.91	0.83	0.83
PC2007-45	611642.86	6106114.78	1037.62	20.7	1016.92	121.8	0.64	0.64	1.41	1.53	122.44	133.2	141.25	141.6	0	0.3	149.87	0.55	0.55
PC2007-47	612021.06	6106279.22	1101.54	1.7	1099.84	40.45	0.46	0.46	1.16	1.16	40.81	51.6	60.5	NP	0	0	67	0.47	0.47
PC2007-58C	611729.28	6105940.33	1017.66	3.6	1014.06	96.88	0.87	0.87	1.65	1.8	97.6	106.85	113.9	113.9	0	0.28	125.7	0.87	0.87
PC2007-63C	610823.16	6104333.5	1284.05	1.1	1282.95	47.53	0.24	0.24	0.24	7.22	47.77	59.15	65.85	66	0.03	0.03	82.85	1.05	1.05
PC2007-64C	610918.21	6104440.49	1286.11	2.8	1283.31						starts	12.35	17.25	17.7	0.45	0.45	32.58	0.84	0.84
PC2007-65C	610902.77	6104321.29	1276.4	1.7	1274.7	11.17	0.48	0.48	0.48	1.8	11.65	25.35	30.7	30.7	0	0.3	47.24	1.25	1.25
PC2007-66C	610921.29	6104440.38	1286.03	2.45	1283.58						starts	14.3	20.72	20.95	0.55	0.55			
PC2007-66C	-----	-----	Fault	from 22.92	to 23.17														
PC2007-66C	610921.29	6104440.38	1286.03														40.47	0.84	0.84
PC2007-67C	610901.68	6104321.21	1276.44	2.35	1274.09	11.45	0.52	0.52	0.53	2.82	11.97	23.45	29.25	29.25	0	0.35	43.94	0.8	0.8
PC2007-67C	-----	-----	Fault	from 64.92	to 64.94														
PC2007-67C	610901.68	6104321.21	1276.44																
PC2007-67C	-----	-----	Fault	from 71.76	to 71.78														
PC2007-67C	610901.68	6104321.21	1276.44																
PC2007-68C	610920.52	6104440.37	1286.02	2.4	1283.62						starts	11.95	17.85	18.32	0.53	0.53	35.11	1.16	1.16
PC2008-03R	611163	6105030.04	1145.34	1.5	1143.84	26.65	0.58	0.58	1.39	1.5	27.23	37.75	41.65	42	0.64	0.68	55.5	1	1
PC2008-16	610153.28	6106065.69	1384.13	11.75	1372.38														
PC2008-16	-----	-----	Fault?	from 24.5	to 27.35														
PC2008-16	610153.28	6106065.69	1384.13																
PC2008-16	-----	-----	Fault?	from 73.4	to 73.5														
PC2008-16	610153.28	6106065.69	1384.13			186.74	0.64	0.64	1.58	1.58	187.38	200.5	205.1	205.1	0	0.3	219.8	0.76	0.76
PC2008-17	610439.81	6105704.83	1363.96	5.9	1358.06														
PC2008-17			Fault?	from 9.8	to 11.75														
PC2008-17	610439.81	6105704.83	1363.96			184.32	0.63	0.63	1.75	1.75	184.95	194.45	200.6	200.9	0.3	0.3	215.59	0.7	0.7
PC2008-18	610655.07	6105346.41	1320.47	5.9	1314.57	135.85	0.63	0.63	1.63	1.63	136.48	145	148.92	149.05	0.33	0.33	165.33	1.02	1.02
PC-09-01	611578.44	6105814.73	1060.92	17.55	1043.37	99.9	0.44	0.44	1.29	1.44	100.34	111.72	120.15	120.15	0	0.3	129	0.76	0.76
PC-09-02	611658.34	6105680.78	1037.34	2.3	1035.04	72.55	0.52	0.52	1.06	1.55	73.07	84.4	91	91.95	0	0.3	101.85	0.7	0.7
PC-09-03	611712.91	6106053.43	1022.43	2.1	1020.33	108.27	0.38	0.38	1.1	1.25	108.65	117.95	124.75	124.75	0	0.25	135.32	0.48	0.48
PC-09-04	611502.67	6105582.19	1074.89	2.2	1072.69	75.23	0.42	0.42	1.31	1.4	75.65	85.75	95.5	95.9	0	0.15	105.2	0.68	0.68
PC-09-05	611357.96	6105402.73	1130.16	2.9	1127.26	86.15	0.52	0.52	1.47	1.52	86.67	96.75	104.25	105.45	0	0.35	115.45	1	1
PC-09-06	611295.55	6105483.88	1138.84	3.05	1135.79	91.1	0.4	0.4	1.38	1.5	91.5	102.25	121	NR	0	0	121.15	0.85	0.85
PC-09-07	611144.95	6105535.45	1172.71	2.45	1170.26	101.66	0.43	0.43	1.1	1.21	102.09	113.4	121.4	121.4	0	0.35	133.6	0.9	0.9
Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	F2-roof	F2-net	F2-gross	F12-net	F12-gross	Top of Wv Cgl	Top of Wv Sst	Base of Wv Sst	G1-roof	G1-net	G1-gross	G-roof	G-net	G-gross

Tops table (drilled depths and thicknesses in metres) from F2-coal down to G-coal (concluded): **Table A-6**

Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	F2-roof	F2-net	F2-gross	F12-net	F12-gross	Top of Wv Cgl	Top of Wv Sst	Base of Wv Sst	G1-roof	G1-net	G1-gross	G-roof	G-net	G-gross
PC-09-08	611185.06	6105198.81	1188.42	0.25	1188.17	94.85	0.65	0.65	1.55	1.55	95.5	103.05	108.75	109.05	0.53	0.6	123.5	0.84	0.84
PC-09-09	611108.32	6105330.49	1207.16	0.8	1206.36	110.12	0.43	0.43	1.43	1.55	110.55	117.9	124.95	124.95	0.5	0.5	138.5	1.05	1.05
PC-09-10	610934.45	6105292.17	1255.82	4	1251.82														
PC-09-10	-----	-----	Fault	from 8.35	to 8.45														
PC-09-10	610934.45	6105292.17	1255.82			116.85	0.27	0.27	1.2	1.25	117.12	124.25	131.65	132.45	0.26	0.38	147.2	0.85	0.85
PC-09-11	610989.28	6105128.43	1260.68	2.1	1258.58														
PC-09-11	-----	------	Fault	from 100.5	to 100.51														
PC-09-11	610989.28	6105128.43	1260.68			114.7	0.38	0.38	1.33	1.33	115.08	124.5	128.3	128.9	0	1.1	144.45	0.9	0.9
PC-09-12	610474.79	6104904.67	1416.87	1.35	1415.52	178.45	0.37	0.37	0.95	1.7	179	192.25	196.87	197	0.63	0.75	214.55	0.85	0.85
PC-09-13	610566.66	6105005.3	1385.49	2.25	1383.24														
PC-09-13	-----	-----	Fault	from 14.75	to 15														
PC-09-13	610566.66	6105005.3	1385.49			143.12	0.51	0.51	1.36	1.43	143.8	151.5	157.1	157.22	0.38	0.38	173.25	0.7	0.7
PC-09-14	610556.06	6104869.52	1372.17	2.35	1369.82														
PC-09-14	-----	-----	Fault	from 9.3	to 9.6														
PC-09-14	610556.06	6104869.52	1372.17			118.6	0.68	0.68	1.6	2.28	119.45	129.45	135.4	135.48	0.47	0.6	153.87	0.73	0.73
PC-09-15	610651.87	6105114.23	1349.49	1.2	1348.29	123.48	0.87	0.87	1.69	1.69	124.55	135	139.62	140.45	0.48	0.48	156.25	0.7	0.7
PC-09-16	610720.18	6105047.47	1348.6	2.2	1346.4	123.34	0.62	0.62	1.38	1.38	124.17	135.4	138.9	139.36	0.34	0.34	154.4	0.67	0.67
PC-09-17	610582.69	6104684.33	1365.83	2.6	1363.23	114.51	0.5	0.5	0.78	3.21	115.34	127.9	134.3	134.53	0.35	0.35	151.4	0.71	0.71
PC-09-18	610509.65	6104589.39	1374.26	2.4	1371.86														
PC-09-18	-----	-----	Fault	from 55.70	to 55.85														
PC-09-18	610509.65	6104589.39	1374.26			153.08	0.42	0.42	0.9	7.38	153.8	167.4	173.15	173.15	0	0.45	187	0.85	0.85
PC-09-19	610932.08	6105802.17	1214.37	23.75	1190.62	128.83	0.49	0.49	1.44	1.44	129.32	140.15	146.4	146.4	0	0.4	159.25	0.85	0.85
PC13-01C	610956	6105246.44	1259.2	2.45	1256.75	120	0.41	0.41	1.46	1.46	120.5	129.5	135.55	135.9	0	0.5	151.2	0.9	0.9
PC13-02C	610722	6104794.82	1300.34	0.8	1299.54	38.25	0.35	0.35	0.87	1.86	38.8	49.05	53.48	53.7	0.52	0.66	71.91	0.76	0.76
PC13-03C	610424.4	6104922.5	1425.4	3.33	1422.07														
PC13-03C	-----	-----	Fault	from 53.57	to 53.79														
PC13-03C	610424.4	6104922.5	1425.4			DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR
PC13-04C	610392.9	6104690.04	1425.17	0	1425.17														
PC13-04C	-----	-----	Fault	from 21.09	to 22.02														
PC13-04C	610392.9	6104690.04	1425.17																
PC13-04C	-----	-----	Fault	from 22.85	to 23.22														
PC13-04C	610392.9	6104690.04	1425.17																
PC13-04C	-----	-----	Fault	from 88.95	to 89.05														
PC13-04C	610392.9	6104690.04	1425.17			DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR
PC13-05C	610550.3	6105079.67	1383.23	2.8	1380.43	151.19	0.66	0.66	1.65	1.65	152.01	163.1	166.75	167	0.3	0.3	DNR	DNR	DNR
PC13-AR01	610755.6	6105079.67	1336.4	7.3	1329.1	121.78	0.39	0.39	1.26	1.47	122.4								
PC13-AR01	-----	-----	Fault	from 127.8	to 128.08														
PC13-AR01	610755.6	6105079.67	1336.4								starts	133.55	137.05	137.4	0.11	0.11	154.46	0.69	0.69
PC13-AR02	610938.5	6105537.47	1234.69	18.5	1216.19	123	0.63	0.63	1.33	1.33	123.88	135.3	139.11	139.5	0.21	0.3	DNR	DNR	DNR
PC13-AR03	610724.9	6105314.71	1308.07	9.15	1298.92	130.78	0.6	0.6	1.27	1.27	131.61	138.4	144.35	144.5	0.5	0.5	160.71	0.77	0.77
PC13-AR04	611176.5	6105932	1184.3	56.9	1127.4	161.18	0.38	0.38	0.87	1.35	161.69	173.2	180.3	181.3	0	0.35	191.02	0.69	0.69
PC13-AR05	611391.6	6106152	1115.59	30.45	1085.14														
PC13-AR05	-----	-----	Fault	from 41.15	to 41.25														
PC13-AR05	611391.6	6106152	1115.59			150.5	0.45	0.55	0.83	1.08	151.2	160.6	167.6	167.7	0	0.35	175.25	0.28	0.28
Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	F2-roof	F2-net	F2-gross	F12-net	F12-gross	Top of Wv Cgl	Top of Wv Sst	Base of Wv Sst	G1-roof	G1-net	G1-gross	G-roof	G-net	G-gross

Tops table (drilled depths and thicknesses in metres) from J1-coal down to J3-zone: **Table A-7**

Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	J1-roof	J1-net	J1-gross	J12-net	J12-gross	J2U-roof	J2U-net	J2U-gross	J2L-roof	J2L-net	J2L-gross	J2-net	J2-gross	J3-roof	J3-net	J3-gross
QWD7115	610309.07	6106232.43	1286.1	18.29	1267.81	135.27	1.52	1.52	4.56	21.03	151.79	2.19	2.19	155.45	0.85	0.85	3.04	4.51	160.36	2.4	2.4
QWD7119	610943.87	6105793.52	1212.5	23.16	1189.34	168.49	1.1	1.1	4.34	4.97	169.9	1.6	1.92	171.82	1.64	1.64	3.24	3.56	175.78	1.77	1.77
QPD88002	611465.31	6105857.48	1099.5	11.02	1088.48	168.92	1.4	1.4	4.81	5.77	171.08	1.88	2.04	173.16	1.53	1.53	3.41	3.61	176.6	2.24	2.24
PRH01-1C	611307.81	6105706.74	1126.29	8.05	1118.24	147.45	1.25	1.25	4.7	5.15	148.95	1.55	1.75	150.7	1.9	1.9	3.45	3.65	154.42	2.33	2.33
PRH01-2	611583.33	6106005.5	1063.53	1.3	1062.23	162.55	1.65	1.65	5.1	20.7	179.8	1.85	1.85	181.65	1.6	1.6	3.45	3.45	185.7	2.3	2.3
PRH01-6	610605.68	6105910.36	1297.57	1	1296.57	188.15	1.15	1.15	ND	ND	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR
PRH01-7	610809.7	6106046.93	1227.59	1.65	1225.94	180.95	1.5	1.5	5.32	6.05	182.95	2.45	2.45	185.63	1.37	1.37	3.82	4.05	189.8	2.55	2.55
PRH01-8	610974.34	6106241.94	1172.7	2.75	1169.95	162	1.68	1.68	4.93	27.78	186.4	1.82	1.95	188.35	1.43	1.43	3.25	3.38	192.84	2.28	2.28
PRH01-9	611603.25	6105367.67	1066.33	2.7	1063.63	101.05	1.35	1.35	4.9	4.9	102.4	2.05	2.05	104.45	1.5	1.5	3.55	3.55	107.33	2.52	2.52
PRH01-10	611244.07	6105044.59	1169.06	1.7	1167.36	106.15	1.35	1.35	5	5.2	107.7	2.15	2.15	109.85	1.5	1.5	3.65	3.65	112.7	2.3	2.3
PRH01-11	611992.3	6105697.01	979.29	2.35	976.94	89.4	1.1	1.1	5.15	5.4	90.75	2.65	2.65	93.4	1.4	1.4	4.05	4.05	96.35	2.27	2.27
PRH01-12	611787.1	6105618.79	1015.08	2.2	1012.88	104.25	1.2	1.2	5	5.55	106	2.32	2.32	108.32	1.48	1.48	3.8	3.8	111.55	2.27	2.27
PRH01-13	611185.34	6105507.61	1165.41	2.5	1162.91	140.13	1.32	1.32	5.03	5.25	141.67	2.23	2.23	143.9	1.48	1.48	3.71	3.71	147.2	2.3	2.3
PRH01-15	610877.31	6105374	1270.18	9	1261.18	167.38	1.4	1.4	4.92	5.12	168.78	2.32	2.32	171.3	1.2	1.2	3.52	3.72	174.28	2.32	2.32
PRH01-16C	611145.68	6106385.59	1121.3	3	1118.3	161.38	1.18	1.18	3.63	40.72	199.55	1.51	1.51	201.26	0.94	0.94	2.45	2.55	205.95	2.4	2.4
PRH02-12	610586.29	6104684.51	1366.63	3.1	1363.53	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR
PRH02-13	610693.81	6104772.58	1326.72	2.6	1324.12	99.75	1.15	1.15	4.2	5.55	101.35	2	2.5	104	1.05	1.3	3.05	3.95	106.45	2.3	2.3
PRH02-14	610805.7	6104892.86	1306.88	4	1302.88	112.2	1.2	1.2	4.45	5.1	113.7	2.05	2.05	116.1	1.2	1.2	3.25	3.6	118.65	2.15	2.15
PRH02-16	610934.57	6104528.7	1289.57	1	1288.57	38.45	1.3	1.3	4.35	5.3	39.9	1.8	2.3	42.5	1.25	1.25	3.05	3.85	44.85	2	2.15
PRH02-17	610893.31	6104429.85	1296.69	1.5	1295.19	54.85	1.45	1.45	5.05	6.05	56.55	2.4	2.75	59.7	1.2	1.2	3.6	4.35	62.1	3.1	3.25
PRH2003-1C	611494.8	6105919.27	1095.66	2.1	1093.56	178.45	1.45	1.45	5.03	6.8	181.4	1.83	2	183.5	1.75	1.75	3.58	3.85	187.48	2.22	2.22
PRH2003-2C	611303.99	6105701.7	1125.97	2.7	1123.27	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR
PRH2003-3	611792.16	6105810.05	1000.8	1	999.8	115.95	1.25	1.25	5.73	6.03	117.5	2.5	2.5	120	1.98	1.98	4.48	4.48	123.7	2.13	2.13
PCR2005-1	611384.38	6103009.94	910.04	3.2	906.84																
PCR2005-2	611454.71	6103096.6	926.03	3.49	922.54																
PC2006-02	611153.4	6104842	1212.36	2.1	1210.26	92.65	1.31	1.31	4.68	4.68	93.96	2.22	2.22	96.18	1.15	1.15	3.37	3.37	98.65	2.29	2.29
DH2006-3	610895.5	6104799	1283.74	2.6	1281.14	90.05	1.42	1.42	5.02	5.02	92.52	2.49	2.49	93.96	1.11	1.11	3.6	3.6	96.59	2.01	2.01
DH2006-8	610807.4	6104892	1301.33	2.55	1298.78																
PC2006-09	610790.7	6104770	1300.79	2.38	1298.41	78.85	1.84	1.84	5.11	5.25	80.69	2.11	2.11	82.94	1.16	1.16	3.27	3.41	85.22	2.14	2.14
DH2006-11	610885.9	6104560	1302.97	2.3	1300.67	52.1	1.75	1.75	9.35	9.5	53.85	6.05	6.05	60.05	1.55	1.55	7.6	7.75	63.5	2.1	2.1
DH2006-13	610804.8	6104626	1301.31	2.35	1298.96	48.5	1.45	1.45	4.8	5.2	50.1	2.2	2.4	52.55	1.15	1.15	3.35	3.6	55	2.4	2.4
PR2006-01	610645.83	6104494.33	1304.6	1.15	1303.45	111.48	1.83	1.83	5.07	5.26	113.27	2.2	2.2	115.52	1.04	1.04	3.24	3.29	117.7	2.1	2.1
PR2006-02	610801.17	6104311.07	1269.31	2.55	1266.76	85.75	1.8	1.8	4.65	4.75	87.55	1.67	1.67	89.32	1.18	1.18	2.85	2.95	91.95	1.35	1.35
PR2006-03	610891.53	6104143.31	1206.73	0.8	1205.93	85.3	1.15	1.15	>3.30	>3.30	86.45	2.15	2.15	faulted	out	faulted	out	faulted	out	>2.15	>2.15
PR2006-03	-----	-----	Fault	from 88.6	to 88.88																
PR2006-03	610891.53	6104143.31	1206.73																89.65	1.87	1.87
PR2006-04	610712.91	6104247.01	1223.8	0.8	1223																
PR2006-04	-----	-----	Fault	from 71.15	to 71.2																
PR2006-04	610712.91	6104247.01	1223.8																		
PR2006-04	-----	-----	Fault	from 123.25	to 123.3																
PR2006-04	610712.91	6104247.01	1223.8			faulted	out	faulted	out	faulted	out	faulted	faulted	123.35	0.81	0.81	>0.81	>0.81	124.98	1.32	1.32
PR2006-05	610780.05	6104037.42	1147.7	2.4	1145.3	144.4	1.13	1.13	4.55	4.68	145.53	2.34	2.34	148	1.08	1.08	3.42	3.55	150.1	2.2	2.2
PR2006-06	610778.74	6104036.71	1147.63	1.8	1145.83	166.8	1.48	1.48	5.53	5.95	168.28	2.77	2.77	171.48	1.28	1.28	4.05	4.47	173.79	2.41	2.41
PR2006-07	610918.62	6103965.89	1124.38	1.6	1122.78	90.62	1.07	1.07	3.93	3.93	91.69	1.88	1.88	91.8	0.98	0.98	2.86	2.86	95.45	1.86	1.86
PR2006-08	610924.35	6103957.97	1122.83	2.55	1120.28	112.9	1.39	1.39	5.79	5.93	114.29	2.94	3.08	117.37	1.46	1.46	4.4	4.54	119.73	2.54	2.54
PR2006-13	611139.76	6103594.25	1014.08	2.6	1011.48	84.6	1.15	1.4	>1.65	>2.05	86.15	>0.5	>0.5	faulted	out	faulted	out	faulted	out	>0.5	>0.5
PR2006-13	-----	-----	Fault	from 86.65	to 86.80																
PR2006-13	611139.76	6103594.25	1014.08																faulted	faulted	faulted
PR2006-15	611162.124	6103257.487	952.67	0.7	951.97																
Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	J1-roof	J1-net	J1-gross	J12-net	J12-gross	J2U-roof	J2U-net	J2U-gross	J2L-roof	J2L-net	J2L-gross	J2-net	J2-gross	J3-roof	J3-net	J3-gross

Tops table (drilled depths and thicknesses in metres) from J1-coal down to J3-zone (continued): **Table A-7**

Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	J1-roof	J1-net	J1-gross	J12-net	J12-gross	J2U-roof	J2U-net	J2U-gross	J2L-roof	J2L-net	J2L-gross	J2-net	J2-gross	J3-roof	J3-net	J3-gross
PR2006-15	-----	-----	Fault	from 11.2	to 11.5																
PR2006-15	611162.124	6103257.487	952.67																		
PC2007-02C	610862.24	6104704.94	1240.58	0	1240.58	8.77	1.43	1.43	5.24	5.68	10.29	2.41	2.41	13.05	1.4	1.4	3.81	4.16	15.85	1.6	1.85
PC2007-03C	610881.33	6104736.87	1240.69	0	1240.69	26.54	1.97	1.97	5.28	5.46	28.59	1.92	2.01	30.6	1.4	1.4	3.31	3.41	33.35	2.19	2.19
PC2007-04C	610896.72	6104764.4	1240.3	0	1240.3	39.02	1.43	1.43	5.44	5.46	40.45	2.69	2.69	43.16	1.32	1.32	4.01	4.03	45.9	2.36	2.36
PC2007-05C	610912.41	6104663.83	1240.51	0	1240.51														0.55	2.05	2.05
PC2007-06C	610929.07	6104682.84	1240.23	0	1240.23	6.25	0.89	0.89	6.67	7.05	7.2	4.16	4.3	11.68	1.62	1.62	5.78	6.1	15.4	2.28	2.48
PC2007-07C	610946.95	6104705.77	1240.12	0	1240.12																
PC2007-07C	-----	-----	Fault	from 9.95	to 9.97																
PC2007-07C	610946.95	6104705.77	1240.12			27.2	1.73	1.73	5.65	6.1	29.05	2.52	2.7	31.9	1.4	1.4	3.92	4.25	34.75	2.34	2.34
PC2007-18C	610928.5	6104821	1240	0	1240	61.7	1.3	1.3	5.2	5.4	63	2.4	2.6	65.6	1.5	1.5	3.9	4.1	68.35	1.75	2
PC2007-20	611603.83	6105183.35	1072.64	1.65	1070.99	87.75	1.25	1.25	4.64	4.69	89.05	2.19	2.19	91.24	1.2	1.2	3.39	3.39	93.86	2.21	2.21
PC2007-22C	611598.07	6105090.88	1075.3	0	1075.3	79.99	1.26	1.26	4.84	4.91	81.32	2.04	2.04	83.36	1.54	1.54	3.58	3.58	86.35	2.29	2.29
PC2007-23C	611250.78	6104808.64	1175.29	0	1075.3	77	1.8	1.8	5.08	5.08	78.8	1.7	1.7	80.5	1.58	1.58	3.28	3.28	83.46	2.35	2.35
PC2007-24C	611154.23	6104754.73	1206.86	0	1206.86	67.9	1.73	1.73	5.25	5.25	69.63	1.97	1.97	71.6	1.55	1.55	3.52	3.52	74.2	2.31	2.31
PC2007-34C	611465.29	6104879.32	1080.23	3.85	1076.38	40.47	1.22	1.22	4.9	4.99	41.78	2.27	2.27	44.05	1.41	1.41	3.68	3.68	46.86	2.26	2.26
PC2007-45	611642.86	6106114.78	1037.62	20.7	1016.92	157.03	1.49	1.49	4.23	23.29	177.58	1.6	1.6	179.18	1.14	1.14	2.74	2.74	183.15	2.12	2.12
PC2007-47	612021.06	6106279.22	1101.54	1.7	1099.84	73.45	0.55	0.55	3.05	37.05	108	1.45	1.45	109.45	1.05	1.05	2.5	2.5	113.25	2.05	2.05
PC2007-58C	611729.28	6105940.33	1017.66	3.6	1014.06	135.46	1.19	1.4	5.18	15.28	146.75	2.81	2.81	149.56	1.18	1.18	3.99	3.99	153.14	2.97	2.97
PC2007-63C	610823.16	6104333.5	1284.05	1.1	1282.95	95.91	1.27	1.27	4.73	4.83	97.18	2.8	2.9	100.08	1.66	1.66	3.46	3.56	103.25	3.1	3.1
PC2007-64C	610918.21	6104440.49	1286.11	2.8	1283.31	42.63	1.74	1.74	5.17	5.25	44.45	2.08	2.08	46.53	1.35	1.35	3.43	3.43	49.23	2.15	2.15
PC2007-65C	610902.77	6104321.29	1276.4	1.7	1274.7	64.82	2.23	2.23	6.04	6.45	67.16	2.17	2.42	69.74	1.64	1.64	3.81	4.22	72.65	4.46	4.46
PC2007-66C	610921.29	6104440.38	1286.03	2.45	1283.58																
PC2007-66C	-----	-----	Fault	from 22.92	to 23.17																
PC2007-66C	610921.29	6104440.38	1286.03			52.97	1.55	1.55	5.59	6.39	54.7	2.58	2.9	57.9	1.46	1.46	4.04	4.66	60.62	2.77	2.77
PC2007-67C	610901.68	6104321.21	1276.44	2.35	1274.09	57.66	2.05	2.05	>7.16	>7.26	59.81	2.87	2.87	62.68	>2.24	>2.24	>5.11	>5.11			
PC2007-67C	-----	-----	Fault	from 64.92	to 64.94																
PC2007-67C	610901.68	6104321.21	1276.44												>1.50	>1.50	>1.50	>1.50	67.61	3.05	3.05
PC2007-67C	-----	-----	Fault	from 71.76	to 71.78																
PC2007-67C	610901.68	6104321.21	1276.44																	>1.54	>1.54
PC2007-68C	610920.52	6104440.37	1286.02	2.4	1283.62	45.93	1.83	1.83	5.26	5.35	47.85	2.09	2.09	49.94	1.34	1.34	3.43	3.43	52.71	2.16	2.16
PC2008-03R	611163	6105030.04	1145.34	1.5	1143.84	65.35	1.55	1.55	4.93	5.03	67	2	2	69	1.38	1.38	3.38	3.38	71.85	2.7	2.7
PC2008-16	610153.28	6106065.69	1384.13	11.75	1372.38																
PC2008-16	-----	-----	Fault?	from 24.5	to 27.35																
PC2008-16	610153.28	6106065.69	1384.13																		
PC2008-16	-----	-----	Fault?	from 73.4	to 73.5																
PC2008-16	610153.28	6106065.69	1384.13			227	1.27	1.27	4.96	6.71	228.8	2.67	2.82	232.69	1.02	1.02	3.69	4.91	237.4	1.89	1.89
PC2008-17	610439.81	6105704.83	1363.96	5.9	1358.06																
PC2008-17			Fault?	from 9.8	to 11.75																
PC2008-17	610439.81	6105704.83	1363.96			221.8	1.31	1.31	4.77	5.76	223.36	2.52	2.52	226.62	0.94	0.94	3.46	4.2	DNR	DNR	DNR
PC2008-18	610655.07	6105346.41	1320.47	5.9	1314.57	172.25	1.55	1.55	5.35	5.85	173.85	2.35	2.35	176.65	1.45	1.45	3.8	4.25	180.21	2.18	2.18
PC-09-01	611578.44	6105814.73	1060.92	17.55	1043.37	145	1.2	1.2	5.07	5.6	146.73	2.27	2.27	149	1.6	1.6	3.87	3.87	152.1	2.1	2.1
PC-09-02	611658.34	6105680.78	1037.34	2.3	1035.04	117	1.55	1.55	4.83	4.98	118.7	1.81	1.81	120.51	1.47	1.47	3.28	3.28	123.95	2.14	2.14
PC-09-03	611712.91	6106053.43	1022.43	2.1	1020.33	142.7	0.59	0.59	3.53	27.42	167.18	1.72	1.72	168.9	1.22	1.22	2.94	2.94	172.45	2.26	2.26
PC-09-04	611502.67	6105582.19	1074.89	2.2	1072.69	119.4	1.44	1.44	5.24	5.38	120.98	2.07	2.07	123.05	1.73	1.73	3.8	3.8	126.03	2.2	2.2
PC-09-05	611357.96	6105402.73	1130.16	2.9	1127.26	128.4	1.32	1.32	4.48	4.65	129.89	1.91	1.91	131.8	1.25	1.25	3.16	3.16	134.75	2.15	2.15
PC-09-06	611295.55	6105483.88	1138.84	3.05	1135.79	133.32	1.37	1.37	4.77	4.93	134.85	1.89	1.89	136.74	1.51	1.51	3.4	3.4	140	2.1	2.1
PC-09-07	611144.95	6105535.45	1172.71	2.45	1170.26	142.05	1.35	1.35	4.71	4.95	143.52	1.88	2	145.52	1.48	1.48	3.36	3.48	148.85	2.15	2.15
Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	J1-roof	J1-net	J1-gross	J12-net	J12-gross	J2U-roof	J2U-net	J2U-gross	J2L-roof	J2L-net	J2L-gross	J2-net	J2-gross	J3-roof	J3-net	J3-gross

Tops table (drilled depths and thicknesses in metres) from J1-coal down to J3-zone (concluded): **Table A-7**

Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	J1-roof	J1-net	J1-gross	J12-net	J12-gross	J2U-roof	J2U-net	J2U-gross	J2L-roof	J2L-net	J2L-gross	J2-net	J2-gross	J3-roof	J3-net	J3-gross
PC-09-08	611185.06	6105198.81	1188.42	0.25	1188.17	131.15	1.45	1.45	4.9	4.97	132.67	2.38	2.38	135.05	1.07	1.07	3.45	3.45	137.6	2.11	2.11
PC-09-09	611108.32	6105330.49	1207.16	0.8	1206.36	146.45	1.47	1.47	4.94	5.1	148.08	2	2	150.08	1.47	1.47	3.47	3.47	153.3	2.1	2.1
PC-09-10	610934.45	6105292.17	1255.82	4	1251.82																
PC-09-10	-----	-----	Fault	from 8.35	to 8.45																
PC-09-10	610934.45	6105292.17	1255.82			155.18	1.22	1.22	4.82	4.87	156.45	2.34	2.34	158.79	1.26	1.26	3.6	3.6	161.75	2.25	2.25
PC-09-11	610989.28	6105128.43	1260.68	2.1	1258.58																
PC-09-11	-----	------	Fault	from 100.5	to 100.51																
PC-09-11	610989.28	6105128.43	1260.68			152.85	1.4	1.4	4.98	5.05	154.32	2.18	2.18	156.5	1.4	1.4	3.58	3.58	159.42	2.28	2.28
PC-09-12	610474.79	6104904.67	1416.87	1.35	1415.52	221.25	2.07	2.07	5.26	5.62	223.38	2.02	2.02	225.76	1.11	1.11	3.19	3.55	228.4	2	2
PC-09-13	610566.66	6105005.3	1385.49	2.25	1383.24																
PC-09-13	-----	-----	Fault	from 14.75	to 15																
PC-09-13	610566.66	6105005.3	1385.49			179.68	2.14	2.14	5.08	5.47	181.82	1.88	1.88	184.09	1.06	1.06	2.94	3.33	186.5	2.17	2.17
PC-09-14	610556.06	6104869.52	1372.17	2.35	1369.82																
PC-09-14	-----	-----	Fault	from 9.3	to 9.6																
PC-09-14	610556.06	6104869.52	1372.17			160.38	1.84	1.84	5.31	5.77	162.22	2.18	2.18	164.86	1.29	1.29	3.47	3.93	167.9	2.15	2.15
PC-09-15	610651.87	6105114.23	1349.49	1.2	1348.29	162.32	1.6	1.6	5.33	5.33	163.92	2.37	2.37	166.29	1.36	1.36	3.73	3.73	169.31	2.05	2.05
PC-09-16	610720.18	6105047.47	1348.6	2.2	1346.4	161.25	2	2	5.2	5.4	163.25	1.7	1.7	165.07	1.5	1.58	3.2	3.4	167.86	1.94	1.94
PC-09-17	610582.69	6104684.33	1365.83	2.6	1363.23	158.07	1.27	1.27	4.09	4.41	169.34	1.74	1.74	161.4	1.08	1.08	2.82	3.14	163.89	2.11	2.11
PC-09-18	610509.65	6104589.39	1374.26	2.4	1371.86																
PC-09-18	-----	-----	Fault	from 55.70	to 55.85																
PC-09-18	610509.65	6104589.39	1374.26			196.6	2.23	2.28	5.28	6.18	198.99	1.87	2.26	201.6	1.18	1.18	3.05	3.79	204.6	ND	ND
PC-09-19	610932.08	6105802.17	1214.37	23.75	1190.62	167.96	1.22	1.22	4.87	5.24	169.55	2.15	2.15	171.7	1.5	1.5	3.65	3.65	175.05	2.2	2.2
PC13-01C	610956	6105246.44	1259.2	2.45	1256.75	159.7	1.4	1.4	4.98	5.22	161.29	2.16	2.16	163.5	1.42	1.42	3.58	3.63	166.65	1.15	1.15
PC13-02C	610722	6104794.82	1300.34	0.8	1299.54	78.8	1.15	1.15	5.26	5.26	79.95	2.67	2.67	82.62	1.44	1.44	4.11	4.11	85.74	2.79	2.79
PC13-03C	610424.4	6104922.5	1425.4	3.33	1422.07																
PC13-03C	-----	-----	Fault	from 53.57	to 53.79																
PC13-03C	610424.4	6104922.5	1425.4			DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR
PC13-04C	610392.9	6104690.04	1425.17	0	1425.17																
PC13-04C	-----	-----	Fault	from 21.09	to 22.02																
PC13-04C	610392.9	6104690.04	1425.17																		
PC13-04C	-----	-----	Fault	from 22.85	to 23.22																
PC13-04C	610392.9	6104690.04	1425.17																		
PC13-04C	-----	-----	Fault	from 88.95	to 89.05																
PC13-04C	610392.9	6104690.04	1425.17			DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR
PC13-05C	610550.3	6105079.67	1383.23	2.8	1380.43	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR
PC13-AR01	610755.6	6105079.67	1336.4	7.3	1329.1																
PC13-AR01	-----	-----	Fault	from 127.8	to 128.08																
PC13-AR01	610755.6	6105079.67	1336.4			162.12	1.38	1.38	5.1	5.2	163.5	2.32	2.42	165.92	1.4	1.4	3.72	3.82	169.02	1.97	1.97
PC13-AR02	610938.5	6105537.47	1234.69	18.5	1216.19	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR
PC13-AR03	610724.9	6105314.71	1308.07	9.15	1298.92	167.8	1.16	1.16	4.73	5.16	168.96	2.59	2.59	171.98	0.98	0.98	3.57	4	174.95	2.05	2.05
PC13-AR04	611176.5	6105932	1184.3	56.9	1127.4	204.18	1.02	1.02	4.64	5.52	206.08	2.12	2.12	208.2	1.5	1.5	3.62	3.62	211.94	1.94	1.94
PC13-AR05	611391.6	6106152	1115.59	30.45	1085.14																
PC13-AR05	-----	-----	Fault	from 41.15	to 41.25																
PC13-AR05	611391.6	6106152	1115.59			182.27	1.38	1.38	4.42	31.07	210.3	1.85	1.85	1.19	1.19	1.19	3.04	3.04	215.87	2.04	2.04
Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	J1-roof	J1-net	J1-gross	J12-net	J12-gross	J2U-roof	J2U-net	J2U-gross	J2L-roof	J2L-net	J2L-gross	J2-net	J2-gross	J3-roof	J3-net	J3-gross

Tops table (drilled depths and thicknesses in metres) from J-zone down to Gething: **Table A-8**

Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	J-zone-net	J-zone-gross	Top of Quintette	Base of Quintette	Top of Torrens	Top of Spieker	Top of Cowmoose	Top of Glauconite	Top of Gething	Total depth
QWD7115	610309.07	6106232.43	1286.1	18.29	1267.81	6.6	27.49	164.59	186.75	225.8	277.83	325.25	368.81	369.42	443.48
QWD7119	610943.87	6105793.52	1212.5	23.16	1189.34	6.11	9.06	177.55	DNR	DNR	DNR	DNR	DNR	DNR	192.02
QPD88002	611465.31	6105857.48	1099.5	11.02	1088.48	7.05	9.92	178.84	DNR	DNR	DNR	DNR	DNR	DNR	194.2
PRH01-1C	611307.81	6105706.74	1126.29	8.05	1118.24	7.03	9.3	156.75	DNR	DNR	DNR	DNR	DNR	DNR	162.5
PRH01-2	611583.33	6106005.5	1063.53	1.3	1062.23	7.4	25.45	188	DNR	DNR	DNR	DNR	DNR	DNR	196.15
PRH01-6	610605.68	6105910.36	1297.57	1	1296.57	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	192.9
PRH01-7	610809.7	6106046.93	1227.59	1.65	1225.94	7.87	11.4	193.3	DNR	DNR	DNR	DNR	DNR	DNR	209.09
PRH01-8	610974.34	6106241.94	1172.7	2.75	1169.95	7.21	33.12	196.25	DNR	DNR	DNR	DNR	DNR	DNR	200.44
PRH01-9	611603.25	6105367.67	1066.33	2.7	1063.63	7.42	8.8	109.85	DNR	DNR	DNR	DNR	DNR	DNR	130.19
PRH01-10	611244.07	6105044.59	1169.06	1.7	1167.36	7.3	8.85	115	DNR	DNR	DNR	DNR	DNR	DNR	124
PRH01-11	611992.3	6105697.01	979.29	2.35	976.94	7.42	9.22	99.2	DNR	DNR	DNR	DNR	DNR	DNR	104.59
PRH01-12	611787.1	6105618.79	1015.08	2.2	1012.88	7.27	9.57	113.82	DNR	DNR	DNR	DNR	DNR	DNR	116.99
PRH01-13	611185.34	6105507.61	1165.41	2.5	1162.91	7.33	9.37	149.5	DNR	DNR	DNR	DNR	DNR	DNR	159.39
PRH01-15	610877.31	6105374	1270.18	9	1261.18	7.24	9.22	176.6	DNR	DNR	DNR	DNR	DNR	DNR	190
PRH01-16C	611145.68	6106385.59	1121.3	3	1118.3	6.03	46.97	208.35	DNR	DNR	DNR	DNR	DNR	DNR	208.99
PRH02-12	610586.29	6104684.51	1366.63	3.1	1363.53	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	97.29
PRH02-13	610693.81	6104772.58	1326.72	2.6	1324.12	6.5	9	108.75	DNR	DNR	DNR	DNR	DNR	DNR	113.7
PRH02-14	610805.7	6104892.86	1306.88	4	1302.88	4.45	6.45	120.9	DNR	DNR	DNR	DNR	DNR	DNR	125.6
PRH02-16	610934.57	6104528.7	1289.57	1	1288.57	6.35	8.55	47	DNR	DNR	DNR	DNR	DNR	DNR	52.5
PRH02-17	610893.31	6104429.85	1296.69	1.5	1295.19	8.15	10.5	65.35	DNR	DNR	DNR	DNR	DNR	DNR	71.02
PRH2003-1C	611494.8	6105919.27	1095.66	2.1	1093.56	7.25	11.25	189.7	DNR	DNR	DNR	DNR	DNR	DNR	195.84
PRH2003-2C	611303.99	6105701.7	1125.97	2.7	1123.27	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	105.52
PRH2003-3	611792.16	6105810.05	1000.8	1	999.8	7.86	9.88	126.8	DNR	DNR	DNR	DNR	DNR	DNR	132
PCR2005-1	611384.38	6103009.94	910.04	3.2	906.84										
PCR2005-2	611454.71	6103096.6	926.03	3.49	922.54										
PC2006-02	611153.4	6104842	1212.36	2.1	1210.26	6.97	8.29	101.57	DNR	DNR	DNR	DNR	DNR	DNR	109.39
DH2006-3	610895.5	6104799	1283.74	2.6	1281.14	7.03	8.55	99.64	DNR	DNR	DNR	DNR	DNR	DNR	108.2
DH2006-8	610807.4	6104892	1301.33	2.55	1298.78										
PC2006-09	610790.7	6104770	1300.79	2.38	1298.41	7.25	8.51	87.6	DNR	DNR	DNR	DNR	DNR	DNR	89.23
DH2006-11	610885.9	6104560	1302.97	2.3	1300.67	11.45	13.5	65.85	DNR	DNR	DNR	DNR	DNR	DNR	52.5
DH2006-13	610804.8	6104626	1301.31	2.35	1298.96	7.2	8.9	58.4	DNR	DNR	DNR	DNR	DNR	DNR	67
PR2006-01	610645.83	6104494.33	1304.6	1.15	1303.45	7.17	8.32	119.8	147	DNR?	DNR	DNR	DNR	DNR	173.73
PR2006-02	610801.17	6104311.07	1269.31	2.55	1266.76	6	7.55	94.08	122.2	DNR	DNR	DNR	DNR	DNR	138.68
PR2006-03	610891.53	6104143.31	1206.73	0.8	1205.93										
PR2006-03	-----	-----	Fault	from 88.6	to 88.88						-----	-----	-----	-----	-----
PR2006-03	610891.53	6104143.31	1206.73			>4.02	>5.07	91.74	121.6	DNR	DNR	DNR	DNR	DNR	16.65
PR2006-04	610712.91	6104247.01	1223.8	0.8	1223										
PR2006-04	-----	-----	Fault	from 71.15	to 71.2						-----	-----	-----	-----	-----
PR2006-04	610712.91	6104247.01	1223.8												
PR2006-04	-----	-----	Fault	from 123.25	to 123.3						-----	-----	-----	-----	-----
PR2006-04	610712.91	6104247.01	1223.8			>2.18	>3.55	127.2	DNR	DNR	DNR	DNR	DNR	DNR	136.24
PR2006-05	610780.05	6104037.42	1147.7	2.4	1145.3	6.75	7.9	153	DNR	DNR	DNR	DNR	DNR	DNR	162.44
PR2006-06	610778.74	6104036.71	1147.63	1.8	1145.83	7.94	9.39	176.8	DNR	DNR	DNR	DNR	DNR	DNR	180.75
PR2006-07	610918.62	6103965.89	1124.38	1.6	1122.78	5.79	6.69	97.91	118.9	DNR	DNR	DNR	DNR	DNR	122.6
PR2006-08	610924.35	6103957.97	1122.83	2.55	1120.28	8.33	9.37	122.47	DNR	DNR	DNR	DNR	DNR	DNR	128.75
PR2006-13	611139.76	6103594.25	1014.08	2.6	1011.48										
PR2006-13	-----	-----	Fault	from 86.65	to 86.80						-----	-----	-----	-----	-----
PR2006-13	611139.76	6103594.25	1014.08			>1.65	>2.05	86.8	118.1	145.05	157.65	DNR	DNR	DNR	170.38
PR2006-15	611162.124	6103257.487	952.67	0.7	951.97							starts	starts	starts	
Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	J-zone-net	J-zone-gross	Top of Quintette	Base of Quintette	Top of Torrens	Top of Spieker	Top of Cowmoose	Top of Glauconite	Top of Gething	Total depth

Tops table (drilled depths and thicknesses in metres) from J-zone down to Gething (continued): **Table A-8**

Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	J-zone-net	J-zone-gross	Top of Quintette	Base of Quintette	Top of Torrens	Top of Spieker	Top of Cowmoose	Top of Glauconite	Top of Gething	Total depth
PR2006-15	-----	-----	Fault	from 11.2	to 11.5						-----	-----	-----	-----	-----
PR2006-15	611162.124	6103257.487	952.67												79.94
PC2007-02C	610862.24	6104704.94	1240.58	0	1240.58	6.84	8.93	17.7	DNR	DNR	DNR	DNR	DNR	DNR	19.3
PC2007-03C	610881.33	6104736.87	1240.69	0	1240.69	7.47	9	35.54	DNR	DNR	DNR	DNR	DNR	DNR	38.33
PC2007-04C	610896.72	6104764.4	1240.3	0	1240.3	7.8	9.24	48.26	DNR	DNR	DNR	DNR	DNR	DNR	51.04
PC2007-05C	610912.41	6104663.83	1240.51	0	1240.51	>2.05	>2.60	2.6	DNR	DNR	DNR	DNR	DNR	DNR	5.21
PC2007-06C	610929.07	6104682.84	1240.23	0	1240.23	8.95	11.63	17.88	DNR	DNR	DNR	DNR	DNR	DNR	19.56
PC2007-07C	610946.95	6104705.77	1240.12	0	1240.12										
PC2007-07C	-----	-----	Fault	from 9.95	to 9.97						-----	-----	-----	-----	-----
PC2007-07C	610946.95	6104705.77	1240.12			7.99	9.89	37.09	DNR	DNR	DNR	DNR	DNR	DNR	38.77
PC2007-18C	610928.5	6104821	1240	0	1240	6.95	8.65	70.8	DNR	DNR	DNR	DNR	DNR	DNR	72.38
PC2007-20	611603.83	6105183.35	1072.64	1.65	1070.99	6.85	8.32	96.07	DNR	DNR	DNR	DNR	DNR	DNR	109.77
PC2007-22C	611598.07	6105090.88	1075.3	0	1075.3	7.13	8.65	88.64	DNR	DNR	DNR	DNR	DNR	DNR	89.15
PC2007-23C	611250.78	6104808.64	1175.29	0	1075.3	7.43	8.81	85.81	DNR	DNR	DNR	DNR	DNR	DNR	87.36
PC2007-24C	611154.23	6104754.73	1206.86	0	1206.86	7.56	8.61	77.25	DNR	DNR	DNR	DNR	DNR	DNR	79.84
PC2007-34C	611465.29	6104879.32	1080.23	3.85	1076.38	7.16	8.65	49.12	DNR	DNR	DNR	DNR	DNR	DNR	49.12
PC2007-45	611642.86	6106114.78	1037.62	20.7	1016.92	6.35	28.24	187.43	DNR	DNR	DNR	DNR	DNR	DNR	192.02
PC2007-47	612021.06	6106279.22	1101.54	1.7	1099.84	5.1	41.85	116.15	DNR	DNR	DNR	DNR	DNR	DNR	133.73
PC2007-58C	611729.28	6105940.33	1017.66	3.6	1014.06	8.15	20.65	156.26	DNR	DNR	DNR	DNR	DNR	DNR	157.37
PC2007-63C	610823.16	6104333.5	1284.05	1.1	1282.95	7.83	9.44	107.1	DNR	DNR	DNR	DNR	DNR	DNR	109.95
PC2007-64C	610918.21	6104440.49	1286.11	2.8	1283.31	7.32	8.75	51.38	DNR	DNR	DNR	DNR	DNR	DNR	52.02
PC2007-65C	610902.77	6104321.29	1276.4	1.7	1274.7	10.5	13.48	77.31	DNR	DNR	DNR	DNR	DNR	DNR	81.79
PC2007-66C	610921.29	6104440.38	1286.03	2.45	1283.58										
PC2007-66C	-----	-----	Fault	from 22.92	to 23.17						-----	-----	-----	-----	-----
PC2007-66C	610921.29	6104440.38	1286.03			8.36	10.42	63.39	DNR	DNR	DNR	DNR	DNR	DNR	63.92
PC2007-67C	610901.68	6104321.21	1276.44	2.35	1274.09	>7.16	>7.26								
PC2007-67C	-----	-----	Fault	from 64.92	to 64.94						-----	-----	-----	-----	-----
PC2007-67C	610901.68	6104321.21	1276.44			faulted	faulted	70.66							
PC2007-67C	-----	-----	Fault	from 71.76	to 71.78						-----	-----	-----	-----	-----
PC2007-67C	610901.68	6104321.21	1276.44			faulted	faulted	73.3	DNR	DNR	DNR	DNR	DNR	DNR	76.38
PC2007-68C	610920.52	6104440.37	1286.02	2.4	1283.62	7.42	8.94	54.87	DNR	DNR	DNR	DNR	DNR	DNR	57.81
PC2008-03R	611163	6105030.04	1145.34	1.5	1143.84	7.63	9.2	74.55	DNR	DNR	DNR	DNR	DNR	DNR	83.18
PC2008-16	610153.28	6106065.69	1384.13	11.75	1372.38										
PC2008-16	-----	-----	Fault?	from 24.5	to 27.35										
PC2008-16	610153.28	6106065.69	1384.13												
PC2008-16	-----	-----	Fault?	from 73.4	to 73.5										
PC2008-16	610153.28	6106065.69	1384.13			6.85	12.29	241	DNR	DNR	DNR	DNR	DNR	DNR	254.9
PC2008-17	610439.81	6105704.83	1363.96	5.9	1358.06										
PC2008-17			Fault?	from 9.8	to 11.75										
PC2008-17	610439.81	6105704.83	1363.96					DNR	DNR	DNR	DNR	DNR	DNR	DNR	228.97
PC2008-18	610655.07	6105346.41	1320.47	5.9	1314.57	7.53	10.14	183.35	210	229.15	239.85	DNR	DNR	DNR	258.24
PC-09-01	611578.44	6105814.73	1060.92	17.55	1043.37	7.17	9.2	154.2	DNR	DNR	DNR	DNR	DNR	DNR	162.42
PC-09-02	611658.34	6105680.78	1037.34	2.3	1035.04	6.97	9.09	126.09	DNR	DNR	DNR	DNR	DNR	DNR	134.9
PC-09-03	611712.91	6106053.43	1022.43	2.1	1020.33	5.79	32.01	174.71	DNR	DNR	DNR	DNR	DNR	DNR	180.35
PC-09-04	611502.67	6105582.19	1074.89	2.2	1072.69	7.44	8.83	128.23	DNR	DNR	DNR	DNR	DNR	DNR	133.43
PC-09-05	611357.96	6105402.73	1130.16	2.9	1127.26	6.63	8.5	136.9	DNR	DNR	DNR	DNR	DNR	DNR	143.97
PC-09-06	611295.55	6105483.88	1138.84	3.05	1135.79	6.87	8.78	142.1	DNR	DNR	DNR	DNR	DNR	DNR	148.33
PC-09-07	611144.95	6105535.45	1172.71	2.45	1170.26	6.86	8.95	151	DNR	DNR	DNR	DNR	DNR	DNR	159.02
Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	J-zone-net	J-zone-gross	Top of Quintette	Base of Quintette	Top of Torrens	Top of Spieker	Top of Cowmoose	Top of Glauconite	Top of Gething	Total depth

Tops table (drilled depths and thicknesses in metres) from J-zone down to Gething (concluded): **Table A-8**

Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	J-zone-net	J-zone-gross	Top of Quintette	Base of Quintette	Top of Torrens	Top of Spieker	Top of Cowmoose	Top of Glauconite	Top of Gething	Total depth
PC-09-08	611185.06	6105198.81	1188.42	0.25	1188.17	7.01	8.56	139.71	DNR	DNR	DNR	DNR	DNR	DNR	149.86
PC-09-09	611108.32	6105330.49	1207.16	0.8	1206.36	7.04	8.95	155.4	DNR	DNR	DNR	DNR	DNR	DNR	162.25
PC-09-10	610934.45	6105292.17	1255.82	4	1251.82										
PC-09-10	-----	-----	Fault	from 8.35	to 8.45					-----	-----	-----	-----	-----	
PC-09-10	610934.45	6105292.17	1255.82			7.07	8.82	164	DNR	DNR	DNR	DNR	DNR	DNR	170.83
PC-09-11	610989.28	6105128.43	1260.68	2.1	1258.58										
PC-09-11	-----	------	Fault	from 100.5	to 100.51					-----	-----	-----	-----	-----	
PC-09-11	610989.28	6105128.43	1260.68			7.26	8.85	161.8	DNR	DNR	DNR	DNR	DNR	DNR	168.4
PC-09-12	610474.79	6104904.67	1416.87	1.35	1415.52	7.26	9.15	231.5	DNR	DNR	DNR	DNR	DNR	DNR	240.79
PC-09-13	610566.66	6105005.3	1385.49	2.25	1383.24										
PC-09-13	-----	-----	Fault	from 14.75	to 15					-----	-----	-----	-----	-----	
PC-09-13	610566.66	6105005.3	1385.49			7.25	8.99	190.2	DNR	DNR	DNR	DNR	DNR	DNR	196.55
PC-09-14	610556.06	6104869.52	1372.17	2.35	1369.82										
PC-09-14	-----	-----	Fault	from 9.3	to 9.6					-----	-----	-----	-----	-----	
PC-09-14	610556.06	6104869.52	1372.17			7.46	9.67	170.05	DNR	DNR	DNR	DNR	DNR	DNR	178.3
PC-09-15	610651.87	6105114.23	1349.49	1.2	1348.29	7.38	9.04	171.5	DNR	DNR	DNR	DNR	DNR	DNR	180.27
PC-09-16	610720.18	6105047.47	1348.6	2.2	1346.4	7.14	8.55	169.95	DNR	DNR	DNR	DNR	DNR	DNR	177.51
PC-09-17	610582.69	6104684.33	1365.83	2.6	1363.23	6.2	7.93	167.4	DNR	DNR	DNR	DNR	DNR	DNR	174.68
PC-09-18	610509.65	6104589.39	1374.26	2.4	1371.86										
PC-09-18	-----	-----	Fault	from 55.70	to 55.85					-----	-----	-----	-----	-----	
PC-09-18	610509.65	6104589.39	1374.26			>5.28	>8	ND	DNR?	DNR	DNR	DNR	DNR	DNR	214.88
PC-09-19	610932.08	6105802.17	1214.37	23.75	1190.62	7.07	9.29	177.25	DNR	DNR	DNR	DNR	DNR	DNR	184.4
PC13-01C	610956	6105246.44	1259.2	2.45	1256.75	6.13	8.3	168	DNR	DNR	DNR	DNR	DNR	DNR	171.5
PC13-02C	610722	6104794.82	1300.34	0.8	1299.54	8.05	9.73	88.75	DNR	DNR	DNR	DNR	DNR	DNR	110.33
PC13-03C	610424.4	6104922.5	1425.4	3.33	1422.07										
PC13-03C	-----	-----	Fault	from 53.57	to 53.79										
PC13-03C	610424.4	6104922.5	1425.4			DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	100.9
PC13-04C	610392.9	6104690.04	1425.17	0	1425.17										
PC13-04C	-----	-----	Fault	from 21.09	to 22.02										
PC13-04C	610392.9	6104690.04	1425.17												
PC13-04C	-----	-----	Fault	from 22.85	to 23.22										
PC13-04C	610392.9	6104690.04	1425.17												
PC13-04C	-----	-----	Fault	from 88.95	to 89.05										
PC13-04C	610392.9	6104690.04	1425.17			DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	121.63
PC13-05C	610550.3	6105079.67	1383.23	2.8	1380.43	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	180.41
PC13-AR01	610755.6	6105079.67	1336.4	7.3	1329.1										
PC13-AR01	-----	-----	Fault	from 127.8	to 128.08										
PC13-AR01	610755.6	6105079.67	1336.4			7.07	8.87	171.2	DNR	DNR	DNR	DNR	DNR	DNR	172.93
PC13-AR02	610938.5	6105537.47	1234.69	18.5	1216.19	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	DNR	148.37
PC13-AR03	610724.9	6105314.71	1308.07	9.15	1298.92	6.78	9.2	177.2	DNR	DNR	DNR	DNR	DNR	DNR	179.82
PC13-AR04	611176.5	6105932	1184.3	56.9	1127.4	6.58	9.7	214.1	DNR	DNR	DNR	DNR	DNR	DNR	216.08
PC13-AR05	611391.6	6106152	1115.59	30.45	1085.14										
PC13-AR05	-----	-----	Fault	from 41.15	to 41.25										
PC13-AR05	611391.6	6106152	1115.59			6.46	35.64	218.1	DNR	DNR	DNR	DNR	DNR	DNR	220.49
Borehole	NAD83 Easting	NAD83 Northing	Collar	Drift	Rockhead	J-zone-net	J-zone-gross	Top of Quintette	Base of Quintette	Top of Torrens	Top of Spieker	Top of Cowmoose	Top of Glauconite	Top of Gething	Total depth

Notes: DNR = did not reach; NP = not present; NR = not recognised; ND = no data; starts = this unit forms bedrock; starts in = this unit occurs beneath fault

Appendix B: Raw coal quality

This appendix presents scanned copies (in the machine-readable CD version of this report) of available analytical results for raw coal samples taken from borehole cores during ‘current’ (year-2001 to year-2008) drilling programmes. Analytical certificates are as found during the author’s diligent search of Walter Canadian Coal Partnership’s hardcopy files and digital record. No attempt has been made to track down and document casual operational samples taken in the course of mining operations, as it is seldom possible to relate these samples to specific spatial locations such as may be done for exploratory-borehole samples, and operational matters are beyond the scope of the present report.

Accompanying the analytical certificates are copies of the respective instructions to the analysts, together with supporting data (where available), such as lists of sample tags.

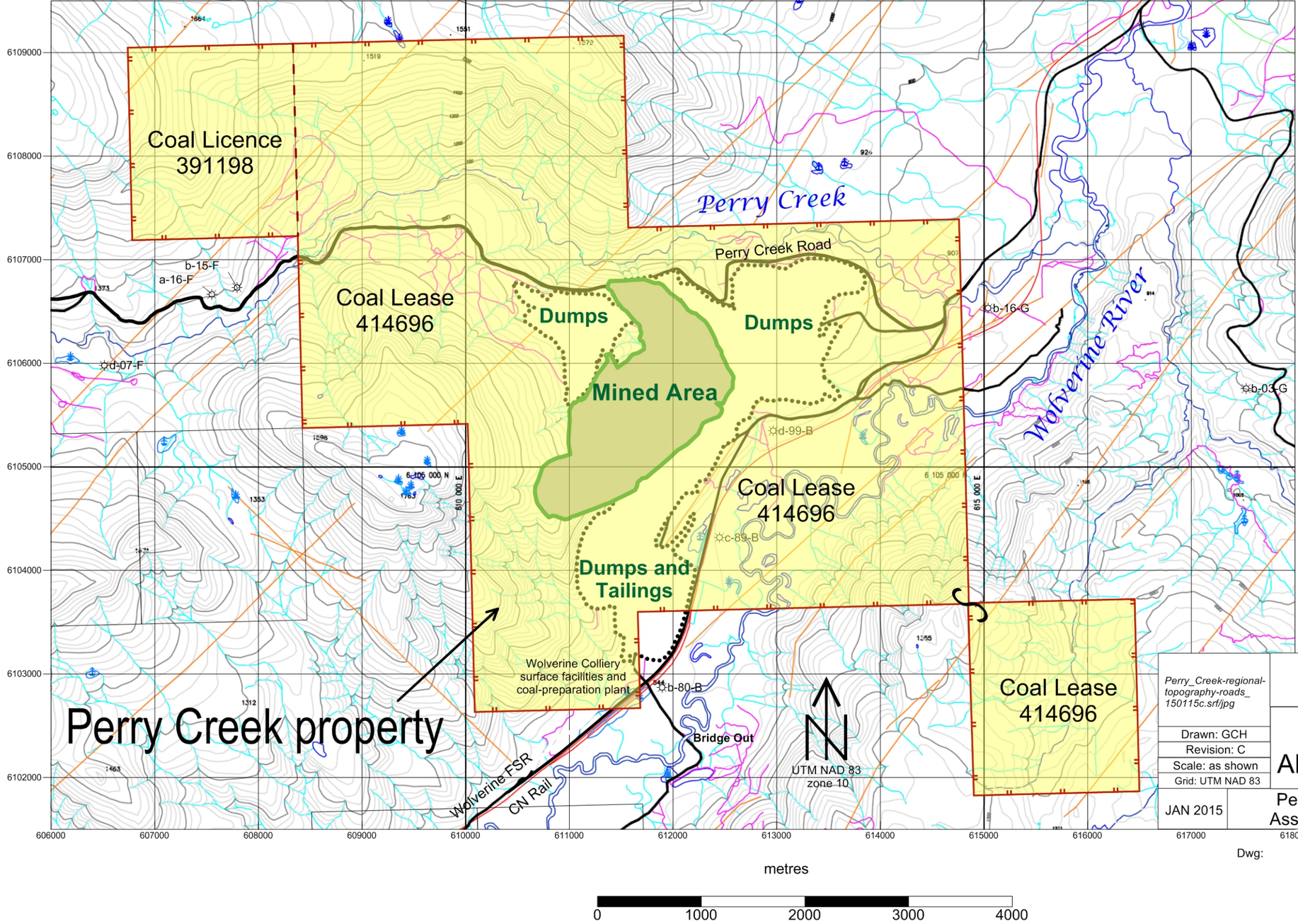
No coal-quality work was done in year-2009, as all of that year's boreholes were drilled by rotary methods. Year-2013 coal-quality data are solely available for clean-coal composite samples (of float-1.50 s.g. material); that year's results are therefore presented in **Appendix C** of this report.

The following raw-coal analytical instructions have been located [or considered to be missing]:

Instructions E2001-1, dated April 17, 2001	Instructions E2001-2, dated April 17, 2001
Instructions PC2001-1, dated November 29, 2001	Instructions BL2002-1, dated December 24, 2002
Instructions PC2002-2 [missing from file]	Instructions PC2002-5, dated February 11, 2003
Instructions PC2003-1 [missing from file]	Instructions PC2003-2 [missing from file]
Instructions BL2004-3, dated January 20, 2004	Instructions BL2004-4, dated January 20, 2004
Instructions PC2005-1, dated March 21, 2005	Instructions PCUG2008-1, dated October 6, 2008

Cross-reference to Appendix F

Raw-coal quality data for samples taken in year-2009 (from borehole PC-09-UC) are incorporated within a gas-desorption test report, as presented within **Appendix F** of the present report. No associated instructions to the laboratory have been found.


Coal Licence
391198
Coal Lease
414696
Perry Creek
Perry Creek Road
Dumps
Dumps
Mined Area
Dumps and
Tailings
Coal Lease
414696
Coal Lease
414696
Wolverine River
Wolverine Colliery
surface facilities and
coal-preparation plant
Bridge Out
Wolverine FSR
CN Rail
Perry Creek property
b-15-F
a-16-F
d-07-F
b-16-G
b-03-G
d-99-B
c-89-B
b-80-B
UTM NAD 83
zone 10
6109000
6108000
6107000
6106000
6105000
6104000
6103000
6102000
606000
607000
608000
609000
610000
611000
612000
613000
614000
615000
616000
617000
618000
metres
0
1000
2000
3000
4000
Access (not classified as to trafficability):
Road
Trail
Seismic line
Railway
Land classification:
Coal licence or coal lease (as noted)
Drainage:
Creek (perennial flow)
Stream (perennial or intermittent flow)
b-18-G Natural gas wells (not classified as to activity)
Perry_Creek-regional-topography-roads_150115c.srf/jpg
Drawn: GCH
Revision: C
Scale: as shown
Grid: UTM NAD 83
WALTER ENERGY
COAL TENURE AND TOPOGRAPHY
JAN 2015
Perry Creek Coal Assessment Report
Map 2-2
Dwg:

6109500 N
606000 E
615000 E
6103000 N
606000 E
608000 E
6101500 N
618000 E

metres
0 1000 2000

UTM NAD 83

BOREHOLES

- Coal exploration holes (drilled by Walter Energy and other firms)
- Natural-gas wells (active and abandoned -- surface locations)

Perry Creek property boundary

Mined Area

Perry Creek Northwest Anticline
Fortress Mountain East Syncline
Perry Creek North Syncline
Perry Creek North Anticline
Perry Creek Syncline
Mesa Thrust
Fortress Mountain West Anticline
Fortress Mountain Anticline
Fortress Mountain West Syncline
Fortress Mountain Syncline
Bullmoose Thrust
East Bullmoose Thrust
Frame North Thrust
Mesa East Anticline
Perry Creek Anticline
Perry Creek East Syncline
Perry Creek East Anticline

STRUCTURAL GEOLOGY

- Attitude of bedding (dip given in degrees); majority of data from Legun (2009b), with additions by C.G. Cathyl-Huhn, 2013 mapping
- Thrust fault, with barb on overthrust plate
- Extensional or tear fault, with tick on downthrown side
- Anticline, showing trace of crestline
- Syncline, showing trace of troughline

Stratigraphic Legend

Map-unit	Identity and lithology
M	MADE GROUND (Recent mining-associated deposits) Mine dumps and tailings pond (of Perry Creek Mine)
	DRIFT (Pleistocene to Recent)
TL	Talus, colluvium, and landslide deposits (undivided)
D	Valley-filling alluvium, bedded silt, and undivided glacial deposits
	FORT ST JOHN GROUP (Albian to earliest Cenomanian)
8c	Cruiser Formation -- marine shale and siltstone, with bands of sideritic concretions
8b	Goodrich Formation -- marine sandstone and siltstone
8a	Hasler Formation -- marine shale and siltstone
7	Boulder Creek Formation -- sandstone and conglomerate; shale; minor coal
6	Hulcross Formation -- marine shale, siltstone; minor tuff (marker bands Ash-1 through Ash-20); basal grit
5	Gates Formation (undivided) -- sandstone, shale, conglomerate and coal (zones A to J)
5bc	
5c	Notikewin ('upper Gates') Member -- sandstone, conglomerate and siltstone; minor coal (generally-thin coal zones A to C); includes local marker beds: Armand Sandstone, Fortress Mountain Sandstone, and Fortress Mountain Conglomerate
5b	Falher ('middle Gates') Member -- siltstone, conglomerate, sandstone; mudstone; coal (thin and thick coal zones D through J in Falher); includes local marker beds: Wolverine Conglomerate, Wolverine Sandstone, and J Conglomerate
5a	Torrens Member -- sandstone, minor siltstone, shale and tuff; two thick sandstones (Quintette Sandstone at top, and Torrens Sandstone at base) with medial siltstone
4	Moosebar Formation -- marine siltstone and sandstone; marine shale and minor tuff; glauconitic sandstone and gritstone at base
4c	Spieker Member -- marine siltstone and sandstone; ?turbidites
4ab	Cowmoose Member -- marine shale; minor tuff; glauconitic sandstone and gritstone at base
	BULLHEAD GROUP (Hauterivian to early Albian)
3	Gething Formation -- siltstone, sandstone, and conglomerate; thin and thick coal (Bird, Skeeter and Chamberlain coal zones) near top
2	Cadomin Formation -- conglomerate and sandstone; minor siltstone
	MINNES GROUP (Berriasian to Valanginian)
1	Monach Formation -- sandstone, conglomerate; minor siltstone and coal; very light-coloured 'bleached' siltstone and mudstone at top

Lateral change in stratigraphic precision of mapping

REV	DATE	DESCRIPTION	BY	CHKD	APRVD
C	1/15/2015	Structural geology	GCH	GCH	GCH

WOLVERINE COLLIERY

GEOLOGY OF THE PERRY CREEK COAL PROPERTY

Drawn by:	GCH
Checked by:	GCH
Approved by:	GCH
Revision No.	C
Dwg. No. PCW 150115cW	

JAN 2015

Document: PERRY CREEK COAL ASSESSMENT REPORT

Figure No. Map 2-3

WALTER ENERGY

Map 2-3

Perry_Creek-workmap_150115cW.srf/jpg Date: 15.January, 2015
Drawn: C.G.Cathyl-Huhn P.Geo.(BC) Lic.Geol.(WA) RMSME
Senior Colliery Geologist - Canada Scale: as shown Grid: UTM NAD83 Zone 10U