BC Geological Survey
Coal Assessment Report
958

# COAL ASSESSMENT REPORT TITLE PAGE AND SUMMARY

**TITLE OF REPORT: Assessment Report - HUGUENOT Coal Project - 2008 Exploration Program**

**TOTAL COST: $ 1,293,850**

AUTHOR(S): John H. Perry, P.Geo.

SIGNATURE(S):

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): CX-9-036 / August-29-2008

YEAR OF WORK: 2008-2010

PROPERTY NAME: HUGUENOT

COAL LICENSE(S) AND/OR LEASES ON WHICH PHYSICAL WORK WAS DONE: 416919, 417014, 417621, 417622

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: Unknown

MINING DIVISION: LIARD

NTS / BCGS: 93-I/08 and 93-I/09

LATITUDE: 54° 31’ 9.59" N

LONGITUDE: 120° 18’ 20.56" W

UTM Zone: NAD83/Zone10 EASTING: 674383 NORTHING: 6044645

OWNER(S): COLONIAL COAL INTERNATIONAL CORP.

MAILING ADDRESS: 200-595 Howe St., Vancouver, BC, V6C 2T5

OPERATOR(S) [who paid for the work]: COLONIAL COAL CORP. (a subsidiary of Colonial Coal International Corp.)

MAILING ADDRESS: 200-595 Howe St., Vancouver, BC, V6C 2T5

REPORT KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude. **Do not use abbreviations or codes**): Coal, coaly zone, claystone, carbonaceous, shale, siltstone, sandstone, conglomerate, Cretaceous, Bullhead Group, Fort St John Group, Gates Formation, Gething Formation, Hulcross Formation, Moosebar Formation, Holtslander South Thrust, Holtslander Synclinorium, Holtslander North Thrust.

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: Assessment Report Numbers: 460, 463, 465, 466.

| SUMMARY OF TYPES OF WORK IN THIS REPORT | | EXTENT OF WORK (in metric units) | ON WHICH TENURES |
|---|---|---|---|
| GEOLOGICAL (scale, area) | | | |
| | Ground, mapping | 1: 2,500 | 417014, 417622, 416919, 417621 |
| | Photo interpretation | | |
| GEOPHYSICAL (line-kilometres) | | | |
| | Ground (Specify types) | | |
| | Airborne | | |
| | (Specify types) | | |
| | Borehole | | |
| | Gamma, Density, | 1,895.8 m | 417014 |
| | Resistivity | 1,895.8 m | 417014 |
| | Caliper | 1,895.8 m | 417014 |
| | Deviation | 1,895.8 m | 417014 |
| | Dip Metre | 1,243 m | 417014 |
| | Others: Neutron | 1,367.2 m | 417014 |
| | Core | 88 m | 417014 |
| | Non-core | 1,957 m | 417014 |
| SAMPLING AND ANALYSES | | 106 – sent to lab | 417014 |
| Total Number of Samples | Proximate | 55 | |
| | Ultimate | 1 | |
| | Petrographic | 6 | |
| | Vitrinite reflectance | 6 | |
| | Coking | 1 | |
| | Wash tests | 9 – Total<br>5 – Full Wash<br>4 – Wash for Simulated Product | |
| PROSPECTING (scale/area) | | | |
| PREPARATORY/PHYSICAL | | | |
| Trails (length / ha) | | Constructed: 4.69 km / 2.81 ha<br>Modified: 0.81 km / 0.49 ha | 417014<br>417014, 417622 |
| Camp Site (ha) | | 1.00 ha | 417622, 416919 |
| Trench (number, length) | | Mechanical: 19 - 246 m<br>Hand dug: 36 - 120.60 m | 417014<br>417014, 416919 |

# COLONIAL COAL CORP.

## ASSESSMENT REPORT

## HUGUENOT COAL PROJECT
## 2008 EXPLORATION PROGRAM

(covering the period May 2008 to June 2010)

British Columbia
Coal Licenses:
416919, 416920, 417014, 417156, and 417614 to 417622

Owner and Operator: Colonial Coal International Corp. / Colonial Coal Corp.

Author: John H. Perry, P.Geo.

**Effective Date: September, 2010**

Appendix V remains confidential under the terms of the Coal Act Regulation, and has been removed from the public version.

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

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APPENDIX IV – HUGUENOT 2008 GEOPHYSICAL LOGS

APPENDIX V – **CONFIDENTIAL** – HUGUENOT 2008 COAL QUALITY DATA

## LIST OF ABBREVIATIONS

BCM ..... Bank cubic metre

bcm/t..... Bank cubic metre per tonne

CSR..... Coke strength after reaction

ddpm ..... Dial divisions per minute

FSI..... Free swelling index

HGI ..... Hardgrove Grindability Index

kg..... Kilogram

m ..... Metre

PCI ..... Pulverized coal injection

psi..... Pounds per square inch

Ro..... Reflectance, mean maximum, (%) of vitrinite in oil

S.G. ..... Specific gravity

t ..... tonne

# SECTION 1 INTRODUCTION AND PROPERTY DESCRIPTION

## 1.1 INTRODUCTION

This report documents the coal exploration activities carried out by Colonial Coal Corp. (Colonial) on its Huguenot Coal project in northeastern British Columbia, within the Peace River Regional District, from May, 2008 to July, 2010. This work culminated in the completion of a N.I. 43-101 compliant report in July 2010 (Perry & Morris, 2010). This report has been used either in whole or in part, or as otherwise modified for the purpose of preparing this assessment report. The original N.I. 43-101 compliant report ("Huguenot Coal Project Technical Report (July 2010)") forms Appendix I of this report and may be independently accessed on-line using the following link:

http://www.sedar.com/GetFile.do?lang=EN&docClass=24&issuerNo=00029072&fileName=/csfsprod/data109/filings/01621271/00000001/k%3A%5CCorp%5CSedarTmp%5CABurrows%5CAnanda%5CPreliminaryPros%5CTechnicalReport.pdf

The Huguenot property lies in the Rocky Mountains foothills of northeastern British Columbia, within an area that has been shown to contain thick coal seams with the potential to yield medium volatile hard coking coal. During the months of September and October, 2008 Colonial carried out a field program of geological mapping, trenching, drilling, and sampling, together with associated trail building and surveying on the northern part of the property's main target area (referred to as the 'North Block').

A total of 2,045 m of drilling, including 17 rotary holes and 10 large diameter core holes, 19 mechanical trenches and 36 reconnaissance hand trenches were completed. Also, approximately 4.69 km of new exploration access trails were constructed and approximately 0.81 km of previously constructed exploration access trails were modified. Laboratory work, including coal quality analyses, attrition, sizing, washability, and carbonization testing plus coal petrography was carried out on samples obtained during the field program. Together with database compilation, geological modeling, resource estimation and report preparation, this work extended into 2010. Any work reported herein that occurred up to July 2010 is considered to have formed part of the 2008 exploration "campaign".

## 1.2 LOCATION

The Huguenot Coal property is located in northeastern British Columbia, within the Peace River Regional District, approximately 690 km north-northeast of Vancouver and 115 km southwest of the city of Grande Prairie (Alberta). It is situated close to the Alberta border, between Latitudes 54° 28' N and 54° 35' N, and Longitudes 120° 10' 30" W and 120° 22' 30" W. The project encompasses one contiguous group of coal licences and license applications that lie within the Liard Mining Division and are located on NTS Map Sheets 93-I/08 and 93-I/09.

The property is approximately 12 km in length and covers northwest-southeast trending coal measures situated between current mining operations near Grande Cache, Alberta (Grande Cache Coal Corporation) and Tumbler Ridge (Trend South Coal Mine), which are located approximately 85 km to the east-southeast and 70 km to the northwest, respectively. The town of Tumbler Ridge, which was built in the early 1980s to service the Quintette and Bullmoose coal mines, lies approximately 85 km northwest of the property. The general location of the property is shown in Figure 1-1. The location of the property with respect to regional and local population centres, roads, rail lines, coal mines and other major coal deposits is shown in Figure 1-2.

## 1.3 ACCESSIBILITY

The Huguenot property is remote relative to population centres, but is reasonably easy to access by a network of provincial paved highways and un-paved, all-weather roads built for forestry purposes and oil and gas exploration and development. The main access to the property from Tumbler Ridge is via Highway 52, a paved secondary road (along a section called the Heritage Highway), to an area just west of Stony Lake. Here the route swings south, first along the un-paved, all-weather, Wapiti Forest Service road (FSR) and then the Red Deer FSR, which eventually connects to a westerly-trending gravel road that traverses Huguenot's northern coal licences, along the northwest side of Holtslander Creek. This road, originally built to access an old oil/gas exploration well-site located west of the southern part of the property, is in good drivable condition to approximately 2 km west of where it enters the property. The remainder has been reclaimed, although it could be re-instated relatively easily. No drill trails were ever constructed within this licence block during previous coal exploration phases as all exploration activities were helicopter supported.

All these roads are maintained year-round in good, drivable condition in support of extensive gas-field development and operational traffic, and seasonal forestry operations throughout the general area. In good weather conditions, it takes about 2 hours to drive from the property to Tumbler Ridge and between 3 and 4 hours to travel to Dawson Creek, Fort St. John, or Grande Prairie.

## 1.4 CLIMATE

The climate is typical of northeastern British Columbia; that is, short, warm summers and long, cold winters interspersed with periods of very cold temperatures, in the range of –15°C to –30°C. The cold spells usually happen between January and March, but may occur as early as mid-November. Frost can occur throughout the year and the frost-free period averages less than 60 days per year. Precipitation ranges between 800 mm and 1100 mm annually; it occurs mainly as snow from October through March, with snowfalls of up to 36 mm in 24 hours. The snow pack persists from October to June. The prevailing wind direction is from the southwest and extended periods of high winds in excess of 20 km/h are common on ridge tops and exposed plateaus from October onwards. Throughout this foothills belt, coal exploration programs are typically conducted between June and October, although winter programs can be carried out where there is road access.

## 1.5 LOCAL RESOURCES AND INFRASTRUCTURE

The property is situated about 170 km east-northeast of city of Prince George and 115 km southwest of the city of Grande Prairie (Alberta); the smaller cities of Fort St John and Dawson Creek are located approximately 160 km to the north and 105 km to the north-northeast, respectively. Each of these cities is serviced by regularly scheduled flights from major western Canadian cities such as Vancouver, Edmonton and Calgary. The location of the property with respect to main population centres is shown in Figure 1-1.

A rail line, which terminates at the Quintette wash plant and coal load-out facility (approximately 14 km south of Tumbler Ridge), is located approximately 70 km northwest of the property. The currently operating Trend South and Perry Creek open pit coal mines are located approximately 25 km south and 15 km west-southwest of Tumbler Ridge, respectively. The rail load-out facility for the Trend South mine is located 4 km north-northeast of the Quintette load-out. The Tumbler Ridge rail line joins the CN Rail main line just north of Prince George and provides direct access to the coal export facility at Ridley Island, Prince Rupert, over a total distance of approximately 1,000 km (see Figure 1-1).

An airstrip suitable for light aircraft is located adjacent to Red Deer Creek, approximately 10 km north of the property. A permanent 250-room trailer camp is situated 6 km southeast of the airstrip.

## 1.6 PHYSIOGRAPHY

The property lies within the foothills (Inner Foothills Belt) of the Rocky Mountains, east of the Hart Ranges. The topography comprises a belt of hills and low mountains dominated by a series of NW-SE oriented ridges that reflect the trend of the geological structure of this region. These ridges are truncated by a series of mature, northeasterly flowing rivers and major creeks that comprise the primary drainage system. The property is situated approximately mid-way between two major rivers, the Narraway and Wapiti Rivers, located approximately 14 km to the south and north, respectively.

Two creeks cut through the project area; namely, Holtslander Creek and (the informally named) Pika Creek. The former transects the northern coal licenses while the latter drains the central portions of the property. Both empty into Belcourt Creek which is the main drainage in the area.

The upper reaches of Belcourt Creek trend E-W and approximate the southern boundary of the property. To the east, the creek flows northwards, to join the Wapiti River northeast of the property. Several minor creeks drain the southern parts of the property and empty directly into Belcourt Creek.

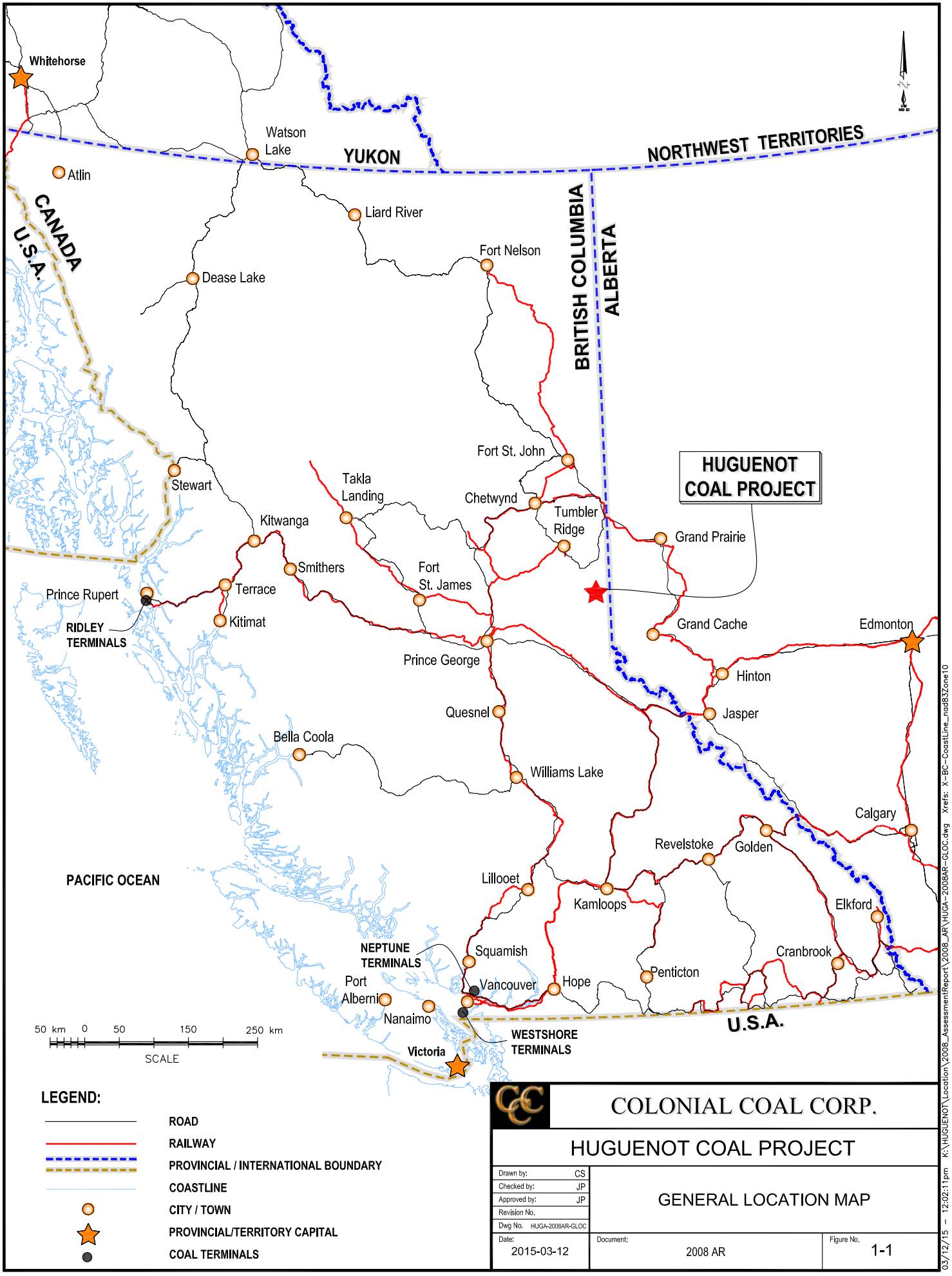
A structurally-controlled, secondary drainage system is also present. Creeks of this type are typically contained within steep-sided valleys that parallel the ridges and enter the rivers and main creeks at right angles. All but the major rivers appear to be affected at some point along their length by the secondary drainage trend.

The topography of the project area is typical of that of the Rocky Mountain Inner Foothills. The topography rises from rolling hills in the east to a series of moderate- to steep-sided massifs that break to stretches of gently-sloping plateau, culminating in steep-sided ridges, in the central and western areas. The highest ridges within the licence block vary in elevation between 1,700 m to 2,000 m while the lowest elevations range between 1,200 m and 1,300 m. The vertical relief over most of the property is in the order of 400 m. Broad alpine saddles often connect the ridges and these features, combined with the primary drainage orientation, occasionally impart a NE-SW-trending grain to the topography.

Vegetation in the area is predominantly boreal to sub-alpine coniferous forest. Tree line in this region varies between 1,750 m and 1,800 m; above these elevations the alpine vegetation consists of stunted and/or dwarf varieties of spruce and fir, juniper, moss, heather and other alpine tundra flora, and occasional sub-alpine meadows. The area is heavily forested at elevations below about 1,500 m. The forest consists mostly of sub-alpine Engelmann and white spruce, sub-alpine fir, and lodgepole pine. Douglas fir, balsam poplar, aspen, willow, and alder are also found. Bogs and black spruce stands cover some lower areas. The timber on most of the property appears to be of little if any economic interest, although merchantable stands of timber are present in areas of lower elevation. Recent logging, evidenced by large cut-blocks, has taken place in the northern parts of the property, either side of Holtslander Creek.

Exposed rock is common above tree line and usually composed of sandstone and conglomerate. Such resistive units can often be traced for several kilometres. Coal seams can be mapped by tracing coal “bloom” that may be present at surface and by mapping resistant seam roof and/or floor lithologies. Rock exposures decrease significantly on the treed slopes where they are often limited to the bottoms and steep sides of creeks. Various surface materials and soils are present. Colluvium is the dominant material at higher elevation with poorly developed regosolic soils in alpine areas. Brunisolic soils are dominant

below tree line with podzols developed in areas of better moisture supply. Benches of moraine deposits with assorted luvisolic soils are sometimes present at lower elevations, and major valleys may contain areas of finer-textured lacustrine and scattered organic deposits (mostly as bogs), glacio-fluvial fans and terraces.




COLONIAL COAL CORP.

HUGUENOT COAL PROJECT

GENERAL LOCATION MAP

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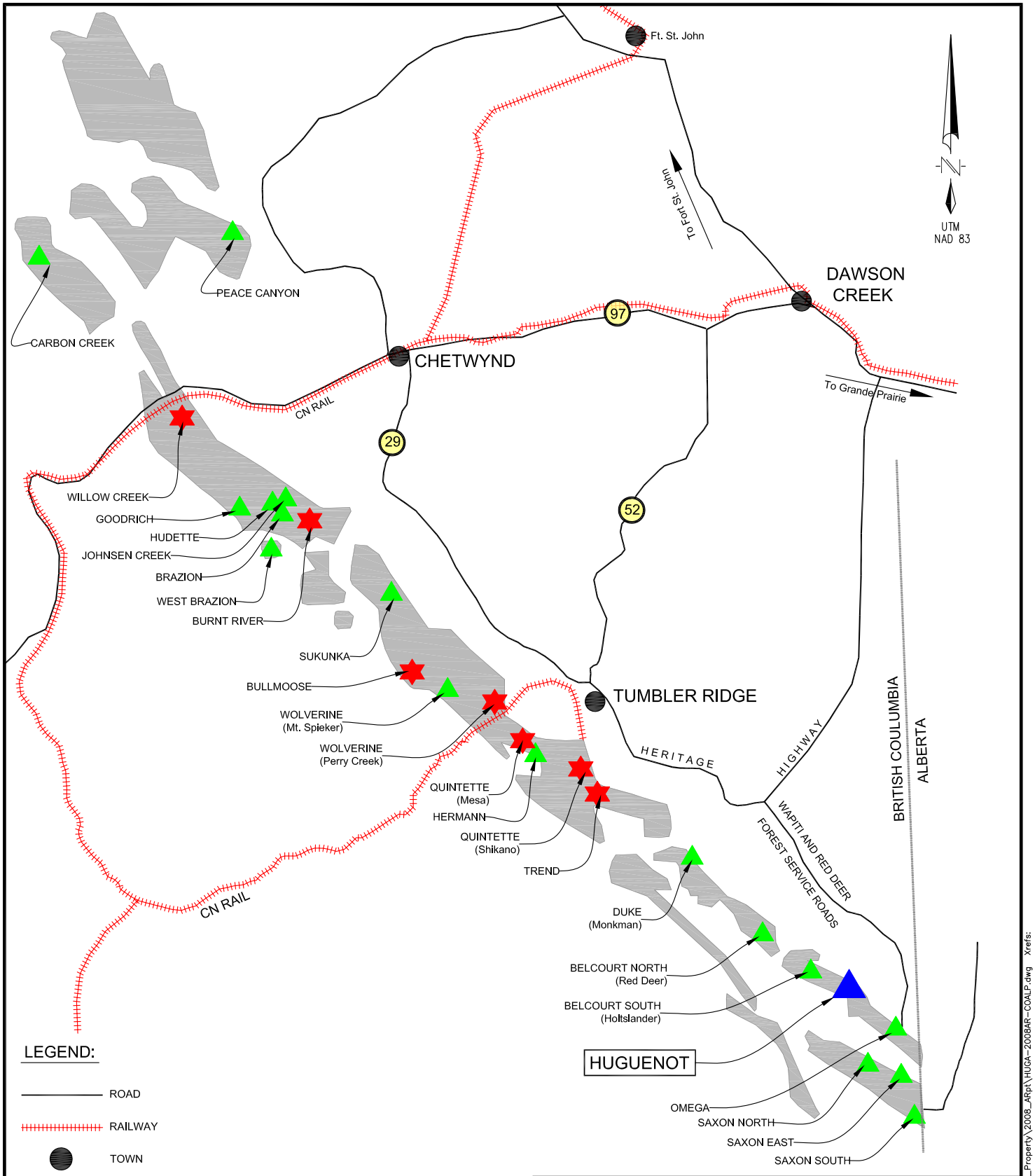
| Drawn by: | CS |
| Checked by: | JP |
| Approved by: | JP |
| Revision No. | |
| Dwg No. | HUGA-2008AR-GLOC |
| Date: | 2015-03-12 |
| Document: | 2008 AR |
| Figure No. | 1-1 |




# COLONIAL COAL CORP.

## HUGUENOT COAL PROJECT

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| Drawn by: | CS |
| Checked by: | JP |
| Approved by: | JP |
| Revision No. | |
| Dwg No. | HUGA-2008AR-COALP |

COAL PROPERTY MAP

Date: 2015-02-11

Document: 2008 AR

Figure No. 1-2

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# SECTION 2 COAL TENURE AND OWNERSHIP

## 2.1 COAL TENURE

The Huguenot Coal Project consists of one contiguous block of 13 coal licenses covering 6,467 ha plus two coal license applications over approximately 1,125 ha, for a total area of some 7,592 ha. The recorded owner of both the issued tenures and the applied for ground is a British Columbia numbered company, 0735513 B.C. Ltd.

The property lies within the Liard Mining Division and is covered by British Columbia Coal Maps 93-I-08 and 93-I-09. Coal license data and descriptions are summarized in Table 2-1 and the locations of the licenses and areas under application are shown in Figure 2-1. Information pertaining to coal license tenure is posted on the British Columbia Ministry of Energy and Mines web site (current for September, 2010). The posted records of the British Columbia Ministry of Energy and Mines indicate that the issued licenses are in good standing.

Colonial does not own surface rights over any of the property. Although no search of land title, survey records or surface rights has been undertaken for this report, it may reasonably be expected that the Crown retains surface rights.

Table 2-1: Huguenot Coal License Information

| Coal License No. | Current Owner | Area (ha) | NTS Map Series | Expiry Date |
|---|---|---|---|---|
| 416919 | 0735513 B.C. Ltd. | 1,202 | 93I-09B/C | 2011,06,22 |
| 416920 | 0735513 B.C. Ltd. | 1,203 | 93I-08J | 2011,06,22 |
| 417014 | 0735513 B.C. Ltd. | 1,352 | 93I-09C | 2011,07,21 |
| 417156 | 0735513 B.C. Ltd. | 901 | 93I-09C | 2010,12,21 |
| 417614 | 0735513 B.C. Ltd. | 151 | 93I-08J | 2011,08,17 |
| 417615 | 0735513 B.C. Ltd. | 301 | 93I-08J | 2011,08,17 |
| 417616 | 0735513 B.C. Ltd. | 76 | 93I-08K | 2011,08,17 |
| 417617 | 0735513 B.C. Ltd. | 151 | 93I-09B | 2011,08,17 |
| 417618 | 0735513 B.C. Ltd. | 301 | 93I-09B | 2011,08,17 |
| 417619 | 0735513 B.C. Ltd. | 76 | 93I-09B | 2011,08,17 |
| 417620 | 0735513 B.C. Ltd. | 301 | 93I-09B | 2011,08,17 |
| 417621 | 0735513 B.C. Ltd. | 301 | 93I-09C | 2011,08,17 |
| 417622 | 0735513 B.C. Ltd. | 151 | 93I-09C | 2011,08,17 |
| **Total Licensed Area:** | | **6,467** | | |
| Application 417674 | 0735513 B.C. Ltd. | 975 | 093I-08K | n.a. |
| Application 417678 | 0735513 B.C. Ltd. | 150 | 093I-08K | n.a. |
| **Total Applied For Area:** | | **1,125** | | |

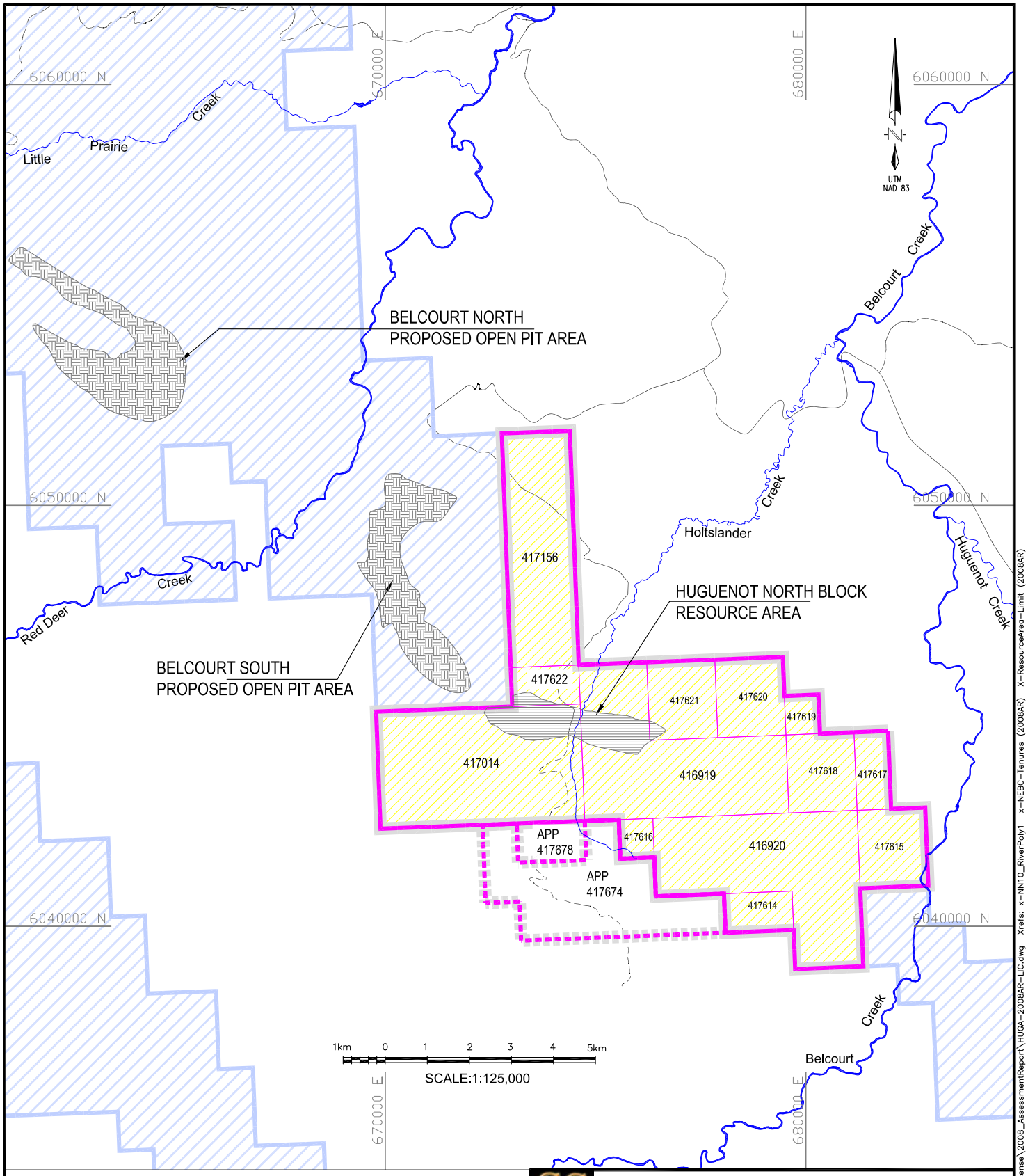
## 2.2 OWNERSHIP

The property is held beneficially for Colonial by a British Columbia company, 0735513 B.C. Ltd. This company is a wholly-owned subsidiary of Colonial.

The core group of coal licenses (numbers 416919, 416920, and 417014) were originally granted to a Mr. I. Downie in mid-2005, while coal license 417156 was acquired that same year by Western Coal Corporation (Western). Western subsequently transferred this coal license to Belcourt Saxon Coal Limited (BSCL), a joint venture company owned by Western and NEMI Northern Energy and Mining Inc. (NEMI). As a result of a swap of other coal licenses between Mr. Downie and BSCL, ownership of C.L. 417156 was transferred to Mr. Downie in exchange for C.L. 417015.

Mr. Downie subsequently transferred ownership of all four coal licenses to 0735513 B.C. Ltd. who, since inception, has held the licenses as trustee for and on behalf of Colonial. The property interests are subject to a retained production royalty of 1.5%.

The two coal license applications are in the name of 0735513 B.C. Ltd.




LEGEND:

- COLONIAL COAL CORPORATION (APPROVED COAL LICENSE)
- COLONIAL COAL CORPORATION (COAL LICENSE APPLICATION)
- BELCOURT SAXON COAL LTD.
- ROAD / RECLAIMED ROAD

# COLONIAL COAL CORP.

## HUGUENOT COAL PROJECT

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| Drawn by: | CS |
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| Approved by: | JP |
| Revision No. | |
| Dwg No. | HUGA-2008AR-LIC |

COAL LICENSE MAP

Date: 2015-03-09

Document: 2008 AR

Figure No. 2-1

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# SECTION 3 SUMMARY OF EXPLORATION ACTIVITIES

## 3.1 DENISON MINES LTD 1971-1979

The area now covered by the current Huguenot Coal Property was once part of the Belcourt Coal Property that was originally acquired and held by Denison Mines Ltd (Denison) in 1970. At that time, the property consisted of 55 contiguous coal licences, totalling approximately 14,209 ha. In April 1978, Denison entered into an agreement with Gulf Canada Resources, Inc. to form the Belcourt Coal Joint Venture (BCJV); Denison, through its subsidiary Denison Coal Ltd, was manager of the project. By mid-1978, the property was expanded to 144 coal licences that covered an area of 36,442 ha. At that time most of the current Huguenot property was referred to as the Holtslander South Block; Denison's old Huguenot Block referred to an area immediately south of Belcourt Creek.

Work undertaken by Denison on the area now covered by the current Huguenot property from 1971 to 1979 can be outlined as follows:

1971 – Limited geological reconnaissance to confirm the presence of coal seams within the Lower Cretaceous Gates and Gething Formations.
1975 – Aerial photography and ground control survey followed by detailed geological mapping.
1976 – Further geological mapping followed by the completion of two core holes to ascertain seam thickness and coal quality data; one of those holes (BD-7601) is located within the current Huguenot licences.
1977 – Limited geological mapping and trenching.
1978 – Subsequent to the forming of the BCJV (between Denison and Gulf Canada), an extensive exploration program was undertaken to gather information on geological structures, coal resources and coal quality, consisting of: detailed geological mapping; hand trenching; drilling and geophysical logging of 5 core holes (HQ); core coal sampling and sample testing. Aerial photography was carried out and topographic maps were prepared at various scales for general and detailed coverage.
1979 – Continuation of the work started in the previous year (detailed geological mapping; hand trenching; drilling and geophysical logging of 2 core holes (HQ); core coal sampling and sample testing).

No further field work was conducted by Denison on the old Belcourt property after 1980. Western Canadian Coal Corp carried out a small rotary drilling program during the winter of 1998, on the northern part of Denison's proposed Holtslander North open pit area (later renamed the Belcourt South pit area). In 2005, Belcourt-Saxon Coal Ltd. undertook major drilling programs to the north of the current Huguenot property (on the Belcourt North and Belcourt South coal deposits) and to the south at Saxon East, Saxon South and Omega.

The exploration activities conducted over the area that is now the Huguenot property are summarized in Table 3-1. This table does not include drillholes and trenches that lie outside but proximal to the property that are of importance in defining the geology. The locations of drillholes and trenches that lie both within, and in the immediate vicinity of, the current Huguenot property are shown in Figure 3-1. The results of this work are incorporated into ensuing sections of this report. No work was conducted on or immediately adjacent to the current license block after the 1979 field program.

Table 3-1: Summary of Huguenot Exploration Activities, 1971-1979

| Year | Drillholes | Depth (m) | Geophysical Logs | Hand Trenches | Geological Mapping | Other | Assessment Report |
|---|---|---|---|---|---|---|---|
| 1971 | | | | | Recon. | AP/Topo | 457 |
| 1975 | | | | | 1: 2,500 | AP/Topo | 458 |
| 1976 | 1(D/NQ) | 59 | - | | - | Topo | 460 |
| 1977 | - | - | - | 25 | - | mss | 461 |
| 1978 | 5(D/HQ) | 1,389 | d,g,n,c,fr,dev | 84 | 1: 2,500 | Topo | 462/463 |
| 1979 | 2(D/HQ) | 1,004 | d,g,n,c,fr,dev | 29 | 1: 2,500 | | 465 |
| **Total** | **8** | **2,452** | | **138** | | | |

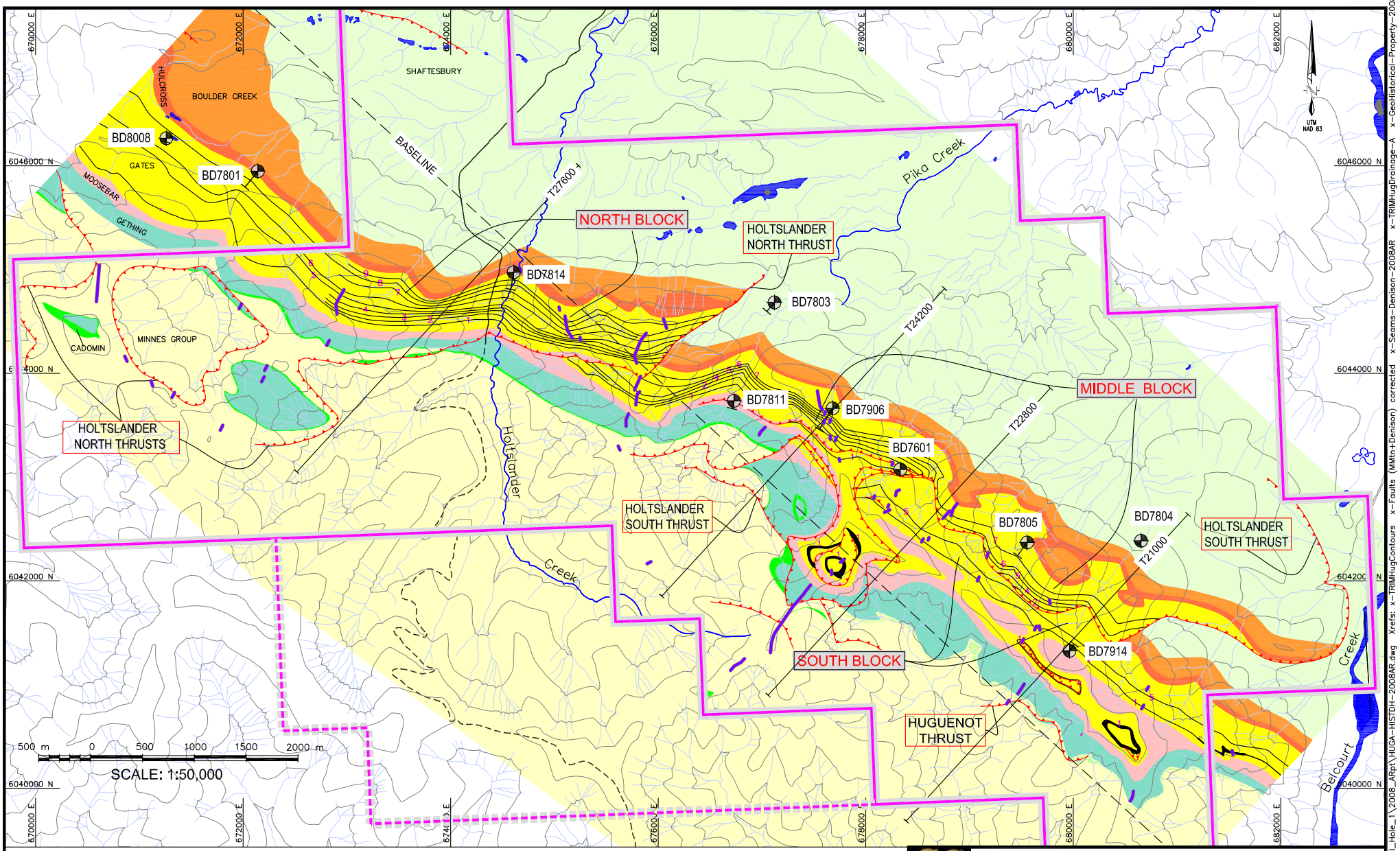
*Note: (D/HQ) = diamond drillhole/core size; mss = measured stratigraphic section; AP/Topo = air photography and topographic mapping; d,g,n,c,fr,dev = density, gamma, neutron, caliper, focussed beam resistivity, and deviation survey logs.*

The first hole drilled on the property was by Denison in 1976, as a follow-up to earlier geological mapping and trenching programs, in order to confirm initial coal seam thickness estimates and coal quality. Widely-spaced, helicopter-supported drilling was carried out by Denison and BCJV during 1978 and 1979 to provide information for structural geological interpretation, resource estimation and coal quality characterization.

Typically, drillholes were logged using slim-line borehole geophysical tools. In most instances, a suite consisting of density, gamma ray, neutron, caliper, focussed electric (resistivity) and hole deviation logs were obtained. These logs were produced at a general scale of 1: 200 with detailed logs at a scale of 1: 20 over thick coal intervals. Three holes were not logged; these were BD-7601 and BD-7803 and BD-7804 (the latter two did not reach the targeted coal measures).

During 2008, coal seam correlations and other data from all historical trenches excavated on the current property were reviewed in detail. Those trenches considered to provide the most reliable data were selected for resource estimation purposes (particularly for the southern half of the North Block, where there was no drilling), while many of the remainder were used to provide data points for resource classification purposes or for geological control. Only one historical drillhole (BD 7814) is located within the area of the 2008 program. Geological data for this drillhole was re-evaluated in conjunction with 2008 data and re-interpreted as required.

The information gathered during these programs is contained in historical Assessment Reports 460, 463, 465 and 466.




LEGEND:

- COAL SEAM
- THRUST FAULT
- DRILL HOLE
- HAND TRENCHES:
  - *MULTIPLE*
  - *SINGLE*

PROPERTY BOUNDARY:

- *APPROVED LICENSE*
- *LICENSE UNDER APPLICATION*

T21000 CROSS SECTIONS

( SEE FIG. 4-6 & FIG. 4-7)

NOTE:

- MODIFIED FROM DENISON (1979b)
- FOR GEOLOGY LEGEND, SEE FIG. 4-5

# COLONIAL COAL CORP.

## HUGUENOT COAL PROJECT

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| Drawn by: | CS |
| Checked by: | JP |
| Approved by: | JP |
| Revision No. | |
| Dwg No. | HUGA-HISTDH-2008AR |

OLD DRILL HOLE AND TRENCH LOCATIONS

| Date: | Document: | Figure No. |
|---|---|---|
| 2015-03-17 | 2008 AR | 3-1 |

## 3.2 COLONIAL COAL 2008

Colonial carried out exploration on Huguenot in 2008; fieldwork commenced in early September and was completed by the end of October.

Due to access considerations, work focused on the northern part of the property and was essentially confined to the upper thrust slice (or North Block). The proposed Belcourt South surface mine (of BSCL) is situated immediately north of the Huguenot property; the southern pit limit comes to within 200 m of the property boundary. The geology of Huguenot's North Block is an extension of that defined within the Belcourt South deposit. The purpose of the 2008 work was to confirm and refine the geological interpretation, coal quality and resources previously outlined by Denison and BCJV between 1970 and 1980 and to demonstrate geological, coal seam and coal quality continuity between the North Block and the Belcourt South coal deposit.

Exploration was carried out throughout the North Block although drilling, mechanized trenching, and associated trail construction was restricted to the northwestern half of the block (i.e., the area northwest of Holtslander Creek). South of the creek, only geological mapping and hand trenching were carried out; some of these activities also extended onto adjacent portions of the Middle Block. Exploration personnel were housed at a local, permanent camp. The completed program consisted of 17 air rotary holes and ten 6" core holes (for a total of approximately 2,045 m), 19 mechanical trenches, and 36 hand trenches. The main exploration activities carried out during the 2008 program are summarized in Table 3-2.

Table 3-2: Summary of 2008 Exploration Activities

| Drillholes | | Metres Drilled | LD Type Rotary/Core (m) | Geophysical Logs | Trenches | Geological Mapping | Drill Trail (km) (constructed / modified) |
|---|---|---|---|---|---|---|---|
| Type | Number | | | | | | |
| Rotary | 17 | 1,623 | - | d,g,n,c,fr,dev,(+/- dm) | M: 19 | 1: 5,000 & | 4.69 / 0.81 |
| LD | 10 | 422 | 334 / 88 | d,g,n,c,fr,dev | H: 36 | 1: 2,500 | - |
| **Total** | **27** | **2,045** | **-** | **-** | **55** | **-** | **5.50** |

*Note: LD = large diameter (Rotary + 6" core); d,g,n,c,fr,dev,dm = density, gamma, neutron, caliper, focussed beam resistivity, deviation, and dip meter logs. M = mechanically excavated trench; H = hand excavated trench. Rec = reconnaissance.*

### 3.2.1 Geological Mapping

Geological mapping was carried out to corroborate and expand upon the extensive historical geological mapping carried out by Denison in the 1970's. Field maps covering the area of interest were prepared at a scale of 1: 2,500, with 20 metre contour intervals. These maps were enlarged from 1: 20,000 B.C. TRIM maps. Handheld GPS units were used to determine the position of specific outcrops or coal exposures and these data were plotted on the 1: 2,500 maps. The data were later transferred to 1: 5,000 base maps in the field office. Over 1,100 GPS data points were taken during the program, and detailed notes were kept by each geologist on the location, nature, and structure of individual surface contacts.

### 3.2.2 Trenching

Nineteen back-hoe trenches and 36 reconnaissance hand trenches were excavated during 2008. Back-hoe trenches, totalled approximately 246 linear metres in length, and were geologically logged to provide data for seam correlation, intra-seam characterization, seam thickness, and for roof and floor bedding measurements. Hand trenches were constructed primarily to confirm lateral

continuity of the coal seams and to provide data regarding the precise positions of the exposed seams plus bedding dips. Of the 36 hand trenches, 13 were excavated on the northwest side of Holtslander Creek and 23 were completed to the southeast. A number of the trenches southeast of Holtslander Creek were positioned to confirm the location of coal seams at the sites of trenches excavated by previous operators in 1978/79. Trench information is summarized in Table 3-3.

Where possible, the trenches were logged for detailed coal seam lithologies. However, this procedure was dependent on the amount of overburden and surface weathering encountered. All trenches were surveyed using handheld GPS units, labelled and located on respective geological maps. Coal seam thicknesses from certain 2008 trenches were utilized for resource estimations. Most of the others were used to provide data points for resource classification purposes or for geological control; these instances are noted in Appendix II.

Table 3-3: Huguenot 2008 Trenching Summary

| Trench Type | No. of Trenches | Total Length (m) |
|---|---|---|
| Mechanical | 19 | 245.60 |
| Hand dug | 36 | 120.60 |

A compilation of all trenches excavated during 2008 is included in Appendix II.

### 3.2.3 Drilling

The purpose of the 2008 work was to demonstrate geological, coal seam and coal quality continuity across the North Block and to provide sufficient data to allow estimation of North Block coal resources and coal quality.

Seventeen air rotary holes and ten 6” core holes (for a total of approximately 2,045 m), were drilled on the Huguenot property during the 2008 field season (see Table 3-2). The rotary holes totalled 1,623 m of drilling. The drilling was carried out by two air rotary rigs, one truck mounted and one skid mounted; the skid mounted rig was equipped with a 10 foot wireline core barrel and had the capability for obtaining six (6”) inches diameter core.

Most of the boreholes were strategically spaced so that subsequent resource estimates and classifications would be compliant with NI 43-101 requirements as well as providing appropriately spaced data for coal seam correlation and structural interpretation. Drillhole locations and details are presented in Appendix III.

All but one drillhole was located to intersect coal seams within the Gates Formation. Drillhole HR08-05 (131 m) was positioned to intersect coal seams within the lower Gething Formation. Three holes (HR08-15, -16, and -17) totalling 67 m were abandoned prior to encountering bedrock. These holes, located along the lower, northern slopes of Holtslander Creek, indicate the presence of a narrow, linear area of deeper overburden, possibly representing glacial scour-fill, immediately adjacent to the creek.

The 10 large diameter (6”) core holes totalled 422 m of drilling comprising 88 m of core and 334 m of rotary drilling. These holes were generally positioned to intersect the top of each coal seam at vertical depths between 25 m and 30 m from surface. Experience on nearby projects indicates that at these depths the coal can be expected to be un-oxidized. In order to obtain an adequate size of bulk sample, 2 sets of core were recovered for each seam. Three sets of core were taken for Seam

8A due to low core recovery for the first hole drilled. Core was logged and sampled on site, then sent for detailed coal characterization, washability, and carbonization testing. Core from one borehole was also obtained from the 6 Lower Coal Zone (situated below Seam 6A) in order to confirm the precise composition of this zone. One coal interval (referred to as Seam 6La) was sampled and sent for preliminary coal quality analysis and washability testing. Table 3-4 summarizes the 2008 Huguenot drilling program.

Table 3-4: Huguenot 2008 Drillhole Summary

| Drillholes | | | Seam(s) Intersected |
|---|---|---|---|
| ID | Type | Depth | |
| HR08-01 | Rotary | 189.57 | 6D, 6BC, 6A, 6L, 5, 4, Zone 3, Zone 2, 1 |
| HR08-02 | Rotary | 226.30 | 9, 8B, 8A, 6D, 6BC, 6A, 6L, 5 |
| HR08-03 | Rotary | 170.68 | 9, 8B, 8A, 6D, 6BC, 6A, 6L, 5 |
| HR08-04 | Rotary | 45.81 | 8B, 8A |
| HR08-05 | Rotary | 131.14 | GT1, GT2, GT3, GT4 |
| HR08-06 | Rotary | 162.62 | 9, 8B, 8A, 6D, 6BC, 6A, 6L, 5 |
| HR08-07 | Rotary | 170.73 | 6D, 6BC, 6A, 6L, 5, 4, Zone 3, Zone 2, 1 |
| HR08-08 | Rotary | 42.01 | 1 |
| HR08-09 | Rotary | 42.61 | 6D, 6BC |
| HR08-10 | Rotary | 45.77 | 6D, 6BC, 6A, 6L |
| HR08-11 | Rotary | 45.45 | 6L, 5 |
| HR08-12 | Rotary | 42.67 | 1 |
| HR08-13 | Rotary | 48.46 | 6A, 6L, 5 |
| HR08-14 | Rotary | 191.96 | 5, 4, Zone 3, Zone 2, 1 |
| HR08-15 | Rotary | 22.87 | abandoned in overburden |
| HR08-16 | Rotary | 12.20 | abandoned in overburden |
| HR08-17 | Rotary | 32.01 | abandoned in overburden |
| HB08-1-A | Core (6”) | 38.15 | 1 |
| HB08-1-B | Core (6”) | 42.67 | 1 |
| HB08-5-A | Core (6”) | 48.76 | 5 |
| HB08-5-B | Core (6”) | 45.73 | 5 |
| HB08-6C-A | Core (6”) | 42.67 | 6D, 6BC |
| HB08-6C-B | Core (6”) | 42.67 | 6D, 6BC |
| HB08-6A-A | Core (6”) | 47.08 | 6A, 6L |
| HB08-8-A | Core (6”) | 42.39 | 8B, 8A |
| HB08-8-B | Core (6”) | 37.30 | 9, 8B, 8A |
| HB08-8-C | Core (6”) | 36.79 | 8A |

*Note: The HB-series of holes used rotary drilling methods to reach coring depths.*

A summary of all the drilling activities carried out to date on the Huguenot property is presented in Table 3-5.

Table 3-5: Huguenot Property Drilling Summary as of End of 2008

| Year | Operator | Core (HQ/NQ) | Rotary | Large Diameter Core (Bulk Samples) | Total Holes | Metres Drilled |
|---|---|---|---|---|---|---|
| 1976 | Denison | 1 | - | - | 1 | 59 |
| 1978 | Denison-Gulf JV | 5 | - | - | 5 | 1,389 |
| 1979 | Denison-Gulf JV | 2 | - | - | 2 | 1,004 |
| 2008 | Colonial | | 17 (1,623 m) | 10 (422 m) | 27 | 2,045 |
| **Total** | | **8** | **17** | **10** | **35** | **4,497** |

### 3.2.4 Geophysical Logging

Downhole geophysical surveys were performed by Century Wireline Services. All 2008 boreholes that intersected the coal measures, except HB08-5-B and HB08-8-C, were geophysically logged. Because HB08-5-B and HB08-8-C were twinned and tripled drillholes, respectively, it was decided to use the geophysical logs from the first Seam 5 core (HB08-5-A) for HB08-5-B and the second Seam 8 core (HB08-8-B) for HB08-8-C. The following types of logs were obtained:

1. Sidewall Density
2. Gama Ray
3. Neutron
4. Caliper
5. Focussed Beam Resistivity
6. Directional (Deviation Compu-Log)
7. Dipmeter

The dipmeter logs were only obtained from seven of the rotary holes to provide estimates of bedding dips in order to confirm interpretation of structural geology.

The geophysical logs were run at a general scale of 1: 100 and supplemented by detailed logs (density, gamma ray, and resistivity) generated over coal bearing intervals at a scale of 1: 50. For better definition of coal seam tops and bottoms as well as the intra-seam rock bands, a short spaced version of the detailed density log was also obtained.

The table 3-6 presents a summary of the downhole geophysical surveys for the holes drilled in 2008 on the Huguenot property:

Table 3-6: Huguenot 2008 Downhole Geophysics Summary

| Hole ID | Hole Type | Geophysical Log run | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Density | Caliper | Gamma | Neutron | Resistivity | Deviation | Dip Meter |
| HR08-01 | Rotary | Y | Y | Y | Y | Y | Y | Y |
| HR08-02 | Rotary | Y | Y | Y | Y | Y | Y | Y |
| HR08-03 | Rotary | Y | Y | Y | Y | Y | Y | Y |
| HR08-04 | Rotary | Y | Y | Y | N | Y | Y | N |
| HR08-05 | Rotary | Y | Y | Y | Y | Y | Y | Y |
| HR08-06 | Rotary | Y | Y | Y | Y | Y | Y | Y |
| HR08-07 | Rotary | Y | Y | Y | Y | Y | Y | Y |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| HR08-08 | Rotary | Y | Y | Y | Y | Y | Y | N |
| HR08-09 | Rotary | Y | Y | Y | N | Y | Y | N |
| HR08-10 | Rotary | Y | Y | Y | N | Y | Y | N |
| HR08-11 | Rotary | Y | Y | Y | N | Y | Y | N |
| HR08-12 | Rotary | Y | Y | Y | N | Y | Y | N |
| HR08-13 | Rotary | Y | Y | Y | N | Y | Y | N |
| HR08-14 | Rotary | Y | Y | Y | Y | Y | Y | Y |
| HR08-15 | Rotary | N | N | N | N | N | N | N |
| HR08-16 | Rotary | N | N | N | N | N | N | N |
| HR08-17 | Rotary | N | N | N | N | N | N | N |
| HB08-1-A | Core (6") | Y | Y | Y | N | Y | Y | N |
| HB08-1-B | Core (6") | Y | Y | Y | N | Y | Y | N |
| HB08-5-A | Core (6") | Y | Y | Y | N | Y | Y | N |
| HB08-5-B | Core (6") | N | N | N | N | N | N | N |
| HB08-6C-A | Core (6") | Y | Y | Y | N | Y | Y | N |
| HB08-6C-B | Core (6") | Y | Y | Y | N | N | Y | N |
| HB08-6A-A | Core (6") | Y | Y | Y | N | N | Y | N |
| HB08-8-A | Core (6") | Y | Y | Y | Y | Y | Y | N |
| HB08-8-B | Core (6") | Y | Y | Y | Y | Y | Y | N |
| HB08-8-C | Core (6") | N | N | N | N | N | N | N |

Paper log prints were prepared in the field to assist in core logging and correlation. A complete set of logs has been presented in Appendix IV attached to this report.

### 3.2.5 Drill Core Logging and Sampling

Historically, Huguenot coal seams were sampled by diamond drilling (HQ-size core). For 2008, coal seams were sampled using large diameter drilling to produce a 6" diameter core. These cores were described and sampled at the drill rig by Colonial's geologists. The following procedures usually applied:

- The core was measured, described for general lithology, then bed thickness and structural data (principally, bedding angles) were recorded. Coal seam cores were geologically logged in detail; the coal was logged on the basis 'brightness'. The most common rock type found within and immediately adjacent to the coal seams is carbonaceous claystone; non-carbonaceous claystone and siltstone may also be present. Detail descriptive logs of all 2008 large diameter drillholes are included in Appendix III.

- Sample increments were selected on a geological basis (modified as necessary for core recovery). Sample thickness ranged from 0.15 m to 1.05 m; the minimum sample size was predicated by the need for sufficient weight required to complete a variety of analyses. Rock bands and poor (high ash) coal plies were usually taken as separate samples if greater than 0.10 m thick. Coal splits were taken to a minimum of 0.15 m. Thicker coal splits were usually taken to a maximum sample width of 1.0 m, but may have been divided into smaller increments reflecting potentially "lower" or "higher" ash contents, as represented by variations in the detailed geophysical density logs.

- Samples of rock (portions of which might be 'coaly') were taken above and below each coal seam to determine the quality of potential out-of-seam dilution that could occur during mining. The bulk samples included all coal and rock that would be mined (which required the inclusion of some rock bands that were later excluded from resource estimations according to GSC 88-21 (Hughes, et al, 1989) guidelines).

- Samples were placed into large plastic bags which were then double-bagged, placed into large rice bags and trucked to the selected laboratory for testing. Sample tags were placed into the first set of bags and duplicate tags were taped to the outside of the rice bags. The drillhole number, seam number and sample interval were also written on the outside of the rice bags. A third set of sample tags were retained by the company.

- Core recoveries were determined by reconciling the core descriptions with the detailed density geophysical logs. Coal seam recoveries from the large diameter core ranged between 77% and 100%, although most were between 87% and 97%.

- In order to establish the roof and floor of a seam where there are multiple interbedded rock bands and coal splits, or where there are one or more thin coal splits near the seam roof or floor, a theoretical yield was determined using assigned specific gravities for rock and coal. Peripheral rock bands and coal splits were incorporated into the coal seam until the calculated overall seam theoretical yield fell below 65%.

Detailed data obtained from the 2008 drillholes are included in Appendix III.

### 3.2.6 Drill Core Analysis

Evaluation of the chemical, rheological, petrographic and coking characteristics of the coal core was undertaken at recognised, commercial coal laboratories. Sample preparation and analysis was carried out at Birtley Coal & Mineral Testing (a division of GWIL Industries), Calgary, Alberta. A blend of washed (clean), simulated product metallurgical coal from these seams was submitted to CanmetENERGY (Ottawa, Ontario) for carbonization testing. Pearson & Associates (Victoria, B.C.) carried out coal petrography.

A comprehensive series of tests were undertaken on each coal and rock ply sample obtained from one of the twinned core holes for each of Seams 1, 5, 6BCD, and 8A, and on the single core from Seam 6La. These tests included proximate analysis, sulphur, free swelling index, and specific gravity.

In addition to the standard analyses listed above, for Seams 1, 5, 6BCD, and 8A, laboratory testing included 'drop tests' to simulate coal size degradation during mining, followed by attrition tests and float-sink analysis at various size fractions with froth flotation tests on the ultrafine material. Ash analysis, fluidity, and dilatation tests and petrographic analyses were completed on selected clean coal samples. The second of the twinned cores for Seams 1, 5, 6BCD, and 8A were bulk washed at designated size and S.G. parameters in order to produce a blended, simulated product that was sent for carbonization testing. Seam 6La underwent abbreviated procedures that included a short-wash and selected tests on resultant 'clean coal'.

It should be noted that results from the thermal rheology (fluidity and dilatation) tests are not considered to be representative due to incipient oxidation of the coal prior to analysis. Additionally, certain minor coal seams were not sampled during 2008. While coal from these seams is not represented in the simulated product upon which carbonization test were carried out, the simulated product represents approximately 78.3% of the resources estimated herein for a 0.60 m thickness cut-off and 89.5% if a 1.0 m cut-off is used. As coal from the minor seams is of the same rank (medium volatile bituminous) and historical float-sink data suggest similar behaviour regarding coal beneficiation, the results from the simulated product are considered to provide an acceptable characterization of potential product coal.

Analytical results from the 2008 large diameter drillholes are presented in Appendix V.

### 3.2.7 Surveying

During the 2008 exploration program, all holes and trenches were surveyed by Colonial personnel using hand held GPS devices.

The locations of 2008 trenches and drillholes can be found in Appendices II and III, respectively.

### 3.2.8 Trail Construction and Maintenance

Approximately 4.69 km of excavated temporary access trail was constructed, and approximately 0.81 km of previously excavated temporary access trail was modified. All of these trails are located in the area northwest of Holtslander Creek where the 2008 drilling was conducted. A pad totalling approximately 1 ha was also cleared within an existing forestry clear cut in the same area for a possible future camp location.

A summary of the trail building activities carried out in 2008 are presented in Table 3-7.

Table 3-7: Huguenot 2008 Trail Building Summary

| North Block (Sub-Area) | Excavated Trail - Modified (km) | Excavated Trail - Constructed (km) | Notes |
|---|---|---|---|
| Northwest | 0.81 | 4.69 | |
| Southeast | 0.00 | 0.00 | 5 km of proposed trail flagged and surveyed by hand-held GPS |

### 3.2.9 Reclamation

During 2008, the total area of ground disturbance associated with temporary access trails, mechanical trenches, drill sites, and camps totalled 4.70 ha. Reclamation of certain drill sites and the mechanical trenches amounted to 0.28 ha. Details of the areas of disturbance and reclamation are summarized in Table 3-8.

Table 3-8: Huguenot 2008 Ground Disturbance

| Disturbance Type | Length (km) / Number of Sites | Disturbed Area (ha) | Reclaimed Area (ha) |
|---|---|---|---|
| Excavated Trail - Constructed | 4.69 km | 2.81 | 0.00 |
| Excavated Trail - Modified | 0.81 km | 0.49 | 0.00 |
| Mechanical Trench Sites | 19 sites | 0.06 | 0.06 |
| Drill Sites | 17 sites | 0.34 | 0.22 |
| Camp/Laydown | 1 site | 1.00 | 0.00 |
| **Total:** | | **4.70** | **0.28** |

*Note: the term "modified" refers to disturbance within an already disturbed area (such as a reclaimed pre-existing trail).*

### 3.2.10 Project Management and Primary Contractors

The Huguenot Project is owned by Colonial Coal International Corp. and managed through its subsidiary company, Colonial Coal Corp. The professional and technical members of the Colonial staff as well as the contractors that contributed to the 2008 exploration program can be found below in Tables 3-9 and 3-10, respectively.

Table 3-9: Huguenot 2008 Colonial Coal Corp. Personnel

| Name | Position |
|---|---|
| John Perry, P. Geo. | Chief Operating Officer |
| Duane Lucas, P.Geo | Project Geologist |
| Bill Millward | Field Supervisor |
| Karen Millward | Field Accountant |
| Adriana Matesoi | Geologist |
| Chad Hermanson | Junior Geologist |
| Fahmi Aminuddin | Junior Geologist |
| Diana Parton | Geological Assistant |
| Cristina Solano | Drafting/CAD services |

Table 3-10: Huguenot 2008 Contractors

| Type of Work Performed | Contracting Company |
|---|---|
| **Field Related** | |
| Drilling (Rotary, Coring) | DEREX Drilling Services Ltd. |
| Geophysical Logging | Century Wireline Services |
| Heavy Equipment | CanWest Exploration Services Ltd. |
| Trail Construction/Timber Falling and Slashing | CanWest Exploration Services Ltd. |
| Drill Pad Construction | CanWest Exploration Services Ltd. |
| Radio Communications Equipment | PETRON Communications Ltd. |
| | Telus |
| Truck Rental | Driving Force |
| First Aid Services | Action Health & Safety |
| Field Camp and Catering | P.T.I Premium Camp Services |
| Fuel | Blue Wave Energy |
| Freight | Canadian Freightways |
| Field Supplies | Northern Metallic Ltd |
| | IRL Supplies |
| **Analytical Work and Consulting Services** | |
| Drill Core Analysis | Gwill Industries |
| Coal Petrography | Pearson & Associates |
| Carbonization Testing | CanmetENERGY Carbonization Research |
| Coal Preparation Consulting | Norwest Corporation (Salt Lake) |
| Permitting | Allnorth Consultants |
| Drafting / CAD Services | Terracad GeoScience Services Ltd. |
| Geological Modelling/Resource Estimation/Independent Report Preparation | Moose Mountain Technical Services Ltd |

# SECTION 4 GEOLOGICAL SETTING

The Huguenot Coal Project lies within a belt of Mesozoic strata situated along the eastern flank of the Rocky Mountains of northeastern British Columbia. These strata were uplifted during the Laramide Orogeny and now form part of the Rocky Mountain Foothills. Intense folding and thrust faulting strongly affected the strata during the mountain-building. The coal seams of greatest potential are found within Lower Cretaceous strata, consisting of the Bullhead and Fort St. John Groups. These strata can be characterized as alternating sequences of marine and non-marine clastic lithologies deposited from a series of transgressive - regressive sedimentary cycles in response to periodic uplift of the Cordillera.

The thickest coal seams are contained within the Gates and Gething Formations and are believed to have formed within deltaic and marine strand-plain depositional environments. Marine strata of the Moosebar Formation separate these two phases of continental sedimentation. Minor coal seams are present within stratigraphically lower (Minnes Group) and higher (Boulder Creek Formation) units. However, these coals are thin and are not considered to have potential. The stratigraphic sequence in the study area is shown in Figure 4-1 while regional correlation of coal seams at Huguenot correlated with those present to the northwest (at Belcourt) and to the southeast (at Omega) is illustrated in Figure 4-2. The regional geology shown in Figure 4-3, illustrates the relationships between the various formations that occur within and adjacent to the Huguenot property and shows the main structural geological features, is presented as Figure 4-3.

The stratigraphic succession exposed in the Huguenot area ranges in age from late Triassic to Upper Cretaceous. Triassic rocks are of limited distribution, and are restricted to small areas where the major drainages have exposed the core of a regional anticlinorium (the Belcourt Anticlinorium). These are overlain by an Upper Jurassic to Upper Cretaceous sequence of inter-bedded clastic lithologies of both marine and continental origin, some of which contain coal seams. Brief descriptions of the Upper Jurassic and Cretaceous formations encountered in this region are presented below.

## 4.1 REGIONAL STRATIGRAPHY

### 4.1.1 Minnes Group

This is a thick sequence that ranges in age from Upper Jurassic to Lower Cretaceous. The lower portion of this unit contains massive sandstones and conglomerates while the upper part mostly comprises cyclic beds of argillaceous, fine-grained sandstone, siltstone, carbonaceous shale and coal seams. Coal seams are numerous but they are usually less than one metre thick and are discontinuous. The change from Minnes Group strata to the overlying Cadomin Formation is abrupt. Locally, the contact is disconformable, although there is a marked angular discordance regionally.

### 4.1.2 Cadomin Formation (Bullhead Group)

The Cadomin Formation is the basal unit of the Lower Cretaceous Bullhead Group. It mostly consists of massive to poorly-bedded, coarse- to very coarse-grained conglomerate. A layer of coarse-grained sandstone, located immediately below the conglomerate, is included within this formation. Typically, the conglomerate is poorly sorted and contains well-rounded pebbles, cobbles and boulders of black, white, and green chert, white and grey quartzite, quartz, and (locally) minor limestone. The clasts are set within a siliceous matrix of fine- to coarse-grained sandstone, although portions of the conglomerate may also be clast supported. Discontinuous, lenticular,

sandy horizons may be present. Owing to its highly resistant nature, particularly in comparison with contiguous units, the Cadomin is usually well exposed and forms a prominent marker horizon throughout the region. This, together with the rusty gravel weathering of the conglomerate, makes the Cadomin Formation one of the best stratigraphic markers in the region. The thickness of this formation is highly variable; on the property it appears to be in the order of 10 m.

### 4.1.3 Gething Formation (Bullhead Group)

The Gething Formation conformably overlies the Cadomin and forms the upper unit of the Bullhead Group. In the Huguenot area it ranges from 60 m to 100 m in thickness (averaging approximately 70 m) although, regionally, it may be considerably thicker due to various depositional factors. It is primarily a non-marine sequence composed of fine- to coarse-grained, calcareous sandstones, conglomerate, siltstone, carbonaceous claystone, and thin coal seams. Conglomeratic units typically occur in the lower and middle parts of this formation while a series of brown, calcareous, lithic, thinly-bedded (0.5 m to 1 m), and cross-laminated sandstones predominate in the upper parts. These upper sandstones commonly contain pebbles and coal stringers and often exhibit bioturbation and soft sediment deformation.

Historical exploration reports for the old Belcourt property describe three coal zones named, in ascending stratigraphic order, Zones A, B, and C, which are located near the base, middle and top of the formation, respectively. Although projected across the length of the property, correlations are tentative over large distances due to variable coal zone development and limited data. The lowermost zone (Zone A) appears to be the best developed. Zone C is located just below the Gething-Moosebar contact; the stratigraphic position of this coal zone is similar to that of the Bird-GT Zone which is believed to have economic potential to the north at the Trend South Mine.

The presence of thin interbeds of bentonite characterize the uppermost part of the formation, while the upper contact of the Gething is defined by a thin bed of pebble conglomerate with clasts set within a mudstone matrix that contains aphanitic glauconite. This glauconitic horizon is considered equivalent to the Bluesky Formation found further east, and signifies the start of marine sediments belonging to the overlying Moosebar Formation.

### 4.1.4 Moosebar Formation (Fort St. John Group)

The Moosebar Formation is the lowermost formation of the Fort St. John Group. It rests abruptly on the Gething Formation with the contact taken at the base of a thin glauconite-bearing conglomerate, which represents the onset of the Moosebar marine transgression. The Moosebar is separated into two zones; a lower claystone/shale zone and an upper zone composed of alternating claystone, siltstone, and sandstone layers. The lower part consists of approximately 20 m of monotonous dark grey to black shale grading upward to laminated siltstone and claystone; numerous sideritic concretions are present throughout. These beds grade upwards into a sequence of alternating claystone, siltstone, and very fine-grained sandstone which form the upper part of the formation. The sandstone beds thicken and become more numerous upwards (together with an overall increase in grain size) with an attendant decrease and gradual disappearance of siltstone and claystone. This inter-layered sequence of sandstone, siltstone, and claystone represents the prodeltaic transition from marine sediments to massive continental sands at the base of the overlying Gates Formation.

The top of the Moosebar Formation is taken at the base of the first thick sandstone unit (typified by the first sandstone bed that is at least one metre in thickness). The arbitrary selection of the

Moosebar - Gates contact contributes to regional variability in formation thickness. Consequently, the thickness of this formation is somewhat variable across the property, but averages about 70 m.

The Moosebar shales are recessive weathering and exposures are normally restricted to areas of high relief where creek channels or gullies often cut along the strike of the easily eroded beds.

### 4.1.5 Gates Formation (Fort St. John Group)

The Gates Formation conformably overlies the Moosebar Formation. This formation contains the largest systematically explored coal resources within the North-East Coal Block and is the main coal-bearing unit within the project area. To the north, in the Quintette–Bullmoose area, the Gates is divided into three informal sub-divisions; namely, Torrens member, middle Gates and upper Gates. The main coal seams occur within the middle Gates while thinner, non-economic, coal seams are present within the upper Gates. No sub-division of the formation has been attempted in the Huguenot area, other than recognition of the Torrens member. However, significant coal seams are present in the equivalents of both the middle and upper Gates. At Huguenot, this formation averages approximately 310 m in thickness. A generalized stratigraphic section through the Gates Formation is illustrated in Figure 4-4.

Gates coal seams appear to have developed directly on marine strandplains. Longshore drift of sand played an important role in the formation of these strandplains, which became isolated behind barrier bar delta fronts. Extensive freshwater lagoons developed, which became sites of significant peat formation (Legun, 2002). Thick, lateral accumulations of peat developed shoreward of thick, regionally extensive sheets of shoreface sand and gravel, traceable along strike for about 230 km (Lamberson and Bustin, 1989).

The Torrens member forms the lowermost sub-division of the Gates Formation. It includes the transition zone strata above the Moosebar contact plus an overlying, resistive, sandstone unit that forms prominent cliffs and ridges that can be used to outline the various structural configurations of the coal measures. At Huguenot, the Torrens member ranges from approximately 40 m to 45 m thick.

It is overlain by several cycles of coal deposition represented by fining-upward sequences culminating with coal deposition. Coal seams developed in the lower cycles, particularly Seams 1 and 5, typically show the greatest seam thickness and continuity. In the Quintette area, the middle Gates is overlain by a massive medium-to-coarse-grained, conglomeratic sandstone and pebble conglomerate sequence, informally called the Babcock member. At Huguenot, what may be the lateral equivalent of this unit appears to be represented by a thick, sandstone-dominated sequence with occasional conglomeratic lenses, located immediately above Seam 5.

This sandstone unit is overlain by predominantly finer-grained lithologies consisting mostly of intercalated fine-grained sandstone, siltstone and claystone with several thin coal seams (Seam 6 to Seam 10). A very thin bed of chert pebbles with ferruginous cement marks the contact with the overlying marine sediments of the Hulcross Formation.

### 4.1.6 Hulcross Formation (Fort St. John Group)

The Hulcross Formation is a marine sequence predominantly composed of blocky, medium to dark grey, sandy shale with thin interbeds of siltstone and very fine-grained, often laminated or cross-laminated, sandstone. While there is some similarity between the Hulcross and Moosebar shales

they can usually be distinguished by their relationships to surrounding strata and the absence of glauconitic sandstones at the base of the Hulcross. Across the Huguenot property, the Hulcross varies in thickness from approximately 30 m to 40 m.

The contact of the Hulcross with the underlying Gates Formation is distinct, and often marked by a very thin, chert-pebble conglomerate with ferruginous cement. The sequence becomes increasingly silty towards the top, and thicker sandstone interbeds develop, resulting in a gradational contact with the overlying Boulder Creek Formation.

### 4.1.7 Boulder Creek Formation (Fort St. John Group)

The Boulder Creek Formation is composed of three lithological units. The lower unit consists mainly of light grey, fine- to coarse-grained sandstone and is approximately 20 m thick; coarse-grained sandstones, conglomerates and carbonaceous beds are common. The middle unit is approximately 30 m thick and consists of predominantly grey to black claystone and siltstone with occasional coaly and carbonaceous horizons. The upper 35 m consists mostly of fine- to coarse-grained, grey to brown, sandstone and grey siltstone. A thin pebble conglomerate with a siltstone to claystone matrix marks the upper contact.

The thickness of the Boulder Creek Formation tends to increase as the Hulcross thins; in the Huguenot area it ranges between approximately 85 m and 90 m in thickness.

### 4.1.8 Shaftesbury Formation (Fort St. John Group)

The Shaftesbury Formation can be divided into three units which, mapped elsewhere, are referred to, in ascending stratigraphic order, as the Hasler, Goodrich, and Cruiser Formations. The historical coal assessment reports for the Huguenot area indicate that Denison's geologists were able to differentiate between these units, but there was no attempt to map them separately.

The lower unit consists of dark grey to black, sideritic claystone, siltstone, minor sandstone and localized thin, pebble conglomerates. The unit is almost homogenous and bedding is discernible only by the occasional appearance of thin beds of resistant sandstone. The middle unit is predominantly a grey to brown, medium-grained, laminated to medium-bedded to massive, micaceous sandstone. Carbonaceous claystone and siltstone occur as interbeds. The upper unit comprises dark grey to black, laminated to thin interbeds of silty claystone, siltstone and fine-grained sandstone. Pebble bands occur locally. This unit is characteristically light orange to red in colour due to weathering of ferruginous horizons.

## 4.2 COAL SEAM DEVELOPMENT

Exploration conducted by Denison throughout the old Belcourt property concentrated upon defining potentially economic coal resources contained within the Gates Formation. Localized potential for Gething coal seams is indicated by several thin seams typically in the order of 1 m to 2.5 m thick. The potential for coal seams in other formations appears very limited. The work conducted in 2008 also focussed on Gates Formation coal seams, although one drillhole to test Gething coal seams was also completed.

### 4.2.1 Gething

On the Huguenot property, the Gething Formation typically contains three coal zones. Historically, in ascending order, these have been referred to as Zones A, B, and C. The best developed of these is Zone A, which is situated just above the contact with the Cadomin Formation. This zone

contains up to four coal splits, the thickest two of which occur near the top of the zone. These splits can exceed 1.5 m in thickness, while the others are generally less than 1.0 m thick. In one instance, Denison trenched an 8.2 m coal seam within this lower zone. However, this occurrence is believed to be thickened due to faulting.

Thick sandstone separates Zones A and B; this latter coal zone consists of several thin, poorly developed coal seams. Zone C is close to the Gething - Moosebar contact and consists of two or three thin coal splits. The stratigraphic position of this upper coal zone appears to be similar to that of the Bird-GT Zone which is mined at the Trend South Mine.

Within the North Block, the Gething seams are designated, in ascending order, GT1, GT2, and GT3. Seam GT1 ranges from 1.75 m (BD 7811) to 2.17 m (HR08-05), Seam GT2 varies from 0.32 m to 0.61 m, and GT3 is 1.2 m thick. Although geological mapping, trenching, and drilling suggest that the Gething coal seams offer limited potential, additional work is warranted to fully evaluate these coal measures.

### 4.2.2 Gates

The Gates Formation is well established as being the most prolific coal-bearing formation in northeastern British Columbia. From northwest to southeast, significant thicknesses of Gates coal first occur in the Bullmoose Mountain area and continue southeast to the provincial border (a distance of almost 140 km) and beyond.

On the Huguenot property, coal seams and coal zones are numbered in ascending stratigraphic order with 1 representing the oldest and 9 the youngest. The term ‘coal zone’ has been used historically to encompass a number of closely-spaced coal horizons within a distinct lithological unit. Such units were used for correlation in areas where individual coal seams were difficult to recognize due to changes in seam characteristics or their transition into carbonaceous and coaly intervals. Individual coal splits within a coal zone were distinguished by letter (e.g., Seams 6A, 6B, 6C, and 6D). Wherever possible, historical seam/zone/split designations have been maintained, although some modifications have occurred based upon results from the more recent work.

Correlations have been established for the main coal seams across the Huguenot property although correlations have not been definitively demonstrated for some of the minor seams, particularly in the southern half of the property. Seam correlations are well established in the North Block and with the adjoining Belcourt South deposit, situated immediately to the north. The Torrens sandstone provides a marker horizon for the base of the Gates coal measures.

## 4.3 STRUCTURE

Structural geology within the region is characterized by large-scale folding and associated thrust faulting within alternating layers of competent sandstone and incompetent mudstone and coal. The regional structural trend is NW-SE, parallel to the Rocky Mountain structural belt. Structural style may vary along and across this trend, reflecting differences between lithologies and distance from the Front Ranges of the Rocky Mountains.

Folding within stratigraphic units dominated by finer-grained lithologies can be extremely complex, and is often typified by short-wavelength, chevron folds. More competent sequences, such as those containing the coal measures, typically form macroscopic, long-wavelength folds ranging from relatively tight anticline-syncline pairs to open, box folds. Less competent strata, contained within the broader competent

sequences, maintain the same structural style as the unit as a whole. Typically, the major fold axes plunge gently to moderately to the northwest or southeast. Folding of major fold limbs is uncommon but, where present, varies from gentle warps to chevron fold pairs.

Often, the macroscopic folds are cut by thrust faults that slice longitudinally through the belt of coal-bearing strata. Commonly, these structures dip towards the southwest, although smaller, northeasterly-dipping thrusts may be present. Within the major thrust sheets, faulting preceded folding; older thrusts are folded, resulting in northeasterly-dipping, but northeasterly-verging, thrusts. On a regional scale, the large thrust faults display staircase-type geometry, characterized by wide “flats” sub-parallel to bedding, joined by narrow “ramps” oblique to bedding. The “flats” are often developed in less competent strata whereas “ramps” are generally contained within competent lithologies. The major faults tend to maintain a constant angle of about 30° to bedding. However, this is not always the case, particularly where smaller structures are involved and where thrusts die out. Minor thrusts frequently splay from the major faults.

The Huguenot Coal Project is located along the northeastern limb of a broad, northwest-plunging anticlinorium (the Belcourt Anticlinorium). Lower Cretaceous coal measures are located along the western and eastern margins of this structure, while Triassic and Jurassic strata occupy the central portions. The western extent of the anticlinorium is defined by a major, westerly-dipping thrust fault that emplaced Palaeozoic rocks upon the Lower Cretaceous strata. Eastward from the core of the Anticlinorium, the Cretaceous succession is continuous, the youngest strata being those of the Kaskapau Formation. The Huguenot property is located within a narrow, northwesterly-trending belt of tight to relatively open folds and associated northeasterly-verging thrust faults that have placed older units upon younger.

The Gates coal measures are repeated by two easterly-dipping and easterly-verging thrust faults, the Holtslander North and Holtslander South Thrusts. The geology of the Lower Cretaceous succession within the property is shown in Figure 4-5; cross-sections illustrating the main structural elements are presented in Figure 4-6 and 4-7. For descriptive purposes, the three structural slices formed by the two main thrusts are referred to as the North, Middle, and South Blocks.

The North Block sits structurally above the Holtslander North Thrust and therefore sits structurally above the Middle and South Blocks. The Holtslander North Thrust is interpreted to be the oldest thrust fault on the property. Within the North Block, the coal measures occupy the western limb of a broad synclinal structure called the Holtslander Synclinorium. This limb is near homoclinal with moderate to steep northeasterly dips. Dip values decrease somewhat at depth, towards the axis of the fold.

The Middle Block, situated between the Holtslander North and Holtslander South Thrusts, exhibits moderate to steep, northeast-dipping, near-homoclinal strata that decreases in dip towards the south. A north-south-trending, upright, open, anticline-syncline pair is present along the eastern limit of mapping. Fault imbrications in the floor of the Holtslander South Thrust are also present.

The South Block lies structurally below the Holtslander South Thrust. Here, the coal measures occur as steep to very steep, mostly easterly-dipping beds that form the eastern limb of an asymmetric anticline (which is possibly the eastern portion of an asymmetric box fold). Vertical to steep, westerly-dipping, overturned beds occur within the eastern limb of this anticline and in the footwall of the thrust.

| Series | Group | Formation | | Lithology | Unit Thickness (Meters) |
|---|---|---|---|---|---|
| LOWER CRETACEOUS | FORT ST. JOHN | Shaftesbury | | Dark grey marine shales, sideritic concretions, some sandstone grading to silty, dark grey marine shale, siltstone and sandstone in lower part, minor conglomerate. | +450 |
| | | COMMOTION | Boulder Creek | Dark grey marine shales, sideritic concretions, some sandstone grading to silty, dark grey marine shale, siltstone and sandstone in lower part, minor conglomerate. | 115 |
| | | | Hullcross | Dark grey marine shale in the north grading to extremely fossileferous shady beds interlayered with sandstone and thin coal seams in the south. | 35 |
| | | | Gates | Fine-grained marine and non-marine sandstones; conglomerate, coal, shale and mustone. | 365 |
| | | Moosebar | | Dark grey marine shale with sideritic concretions, glauconitic sandstones and peebles at base. | 60 |
| | BULLHEAD | Gething | | Fine to coarse brown calcareous sandstone, coal, carbonaceous shale and conglomerate. | 70 |
| | | Cadomin | | Massive conglomerate containing chert and quartzite pebbles. | 10 |
| | MINNES | Nikanassin | | Thin-bedded grey and brown shales and brown sandstones, containing numerous thin coal seams. | |

NOTE:

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COLONIAL COAL CORP.

HUGUENOT COAL PROJECT

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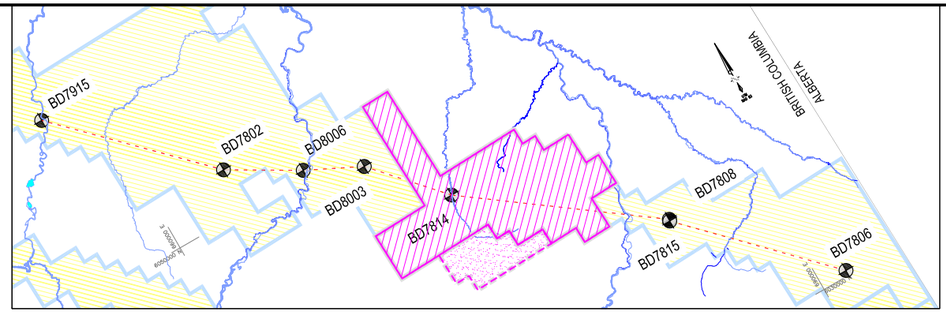


BELCOURT NORTH

BELCOURT SOUTH

BD7802

BD8003

HUGUENOT

BD7814

OMEGA

BD7808

BD7806

BD7915

BD8006

BD 7815

BOULDER CREEK MEMBER (KCmb)

HULCROSS M. (KCmg)

GATES MEMBER (KCmg)

COMMOTION FORMATION

MOOSEBAR FORMATION (KMb)

GETHING FORMATION (KGt)

NO. 9 SEAM

NO. 8 ZONE

NO. 7 ZONE

NO. 6 ZONE

NO.5 SEAM

NO. 4 SEAM

NO. 3 ZONE

NO. 2 ZONE

NO. 1 SEAM

NO. 4 SEAM

NO. 3 ZONE

NO. 2 ZONE

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REGIONAL CORRELATION CHART

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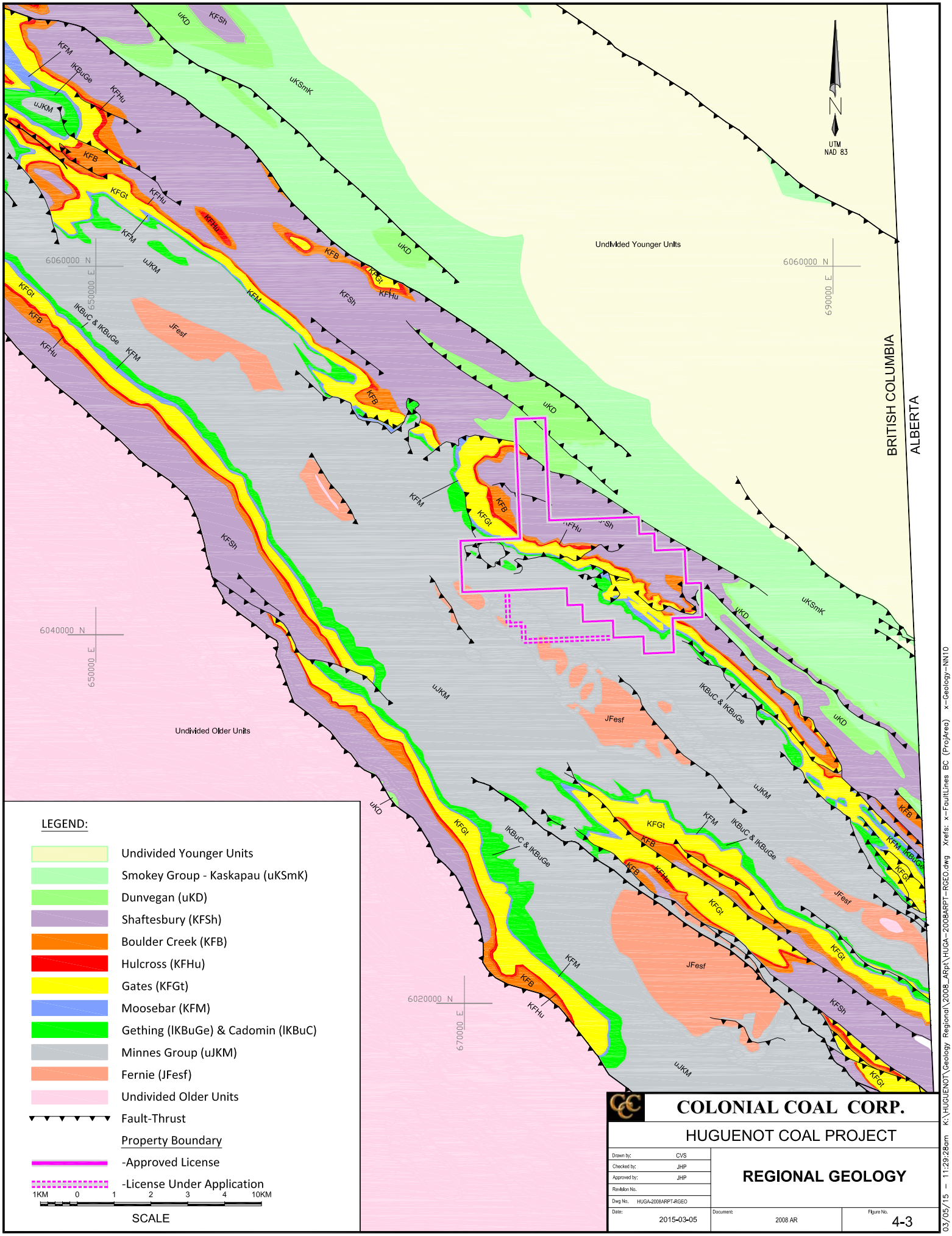
Figure No. **4-2**


N
UTM
NAD 83
Undivided Younger Units
Undivided Older Units
BRITISH COLUMBIA
ALBERTA
6060000 N
650000 E
690000 E
6040000 N
650000 E
6020000 N
670000 E
uKD
KFSh
uKSmK
KFM
lKBuGe
KFHu
uJKM
KFB
KFGt
lKBuC & lKBuGe
JFesf
LEGEND:
Undivided Younger Units
Smokey Group - Kaskapau (uKSmK)
Dunvegan (uKD)
Shaftesbury (KFSh)
Boulder Creek (KFB)
Hulcross (KFHu)
Gates (KFGt)
Moosebar (KFM)
Gething (lKBuGe) & Cadomin (lKBuC)
Minnes Group (uJKM)
Fernie (JFesf)
Undivided Older Units
Fault-Thrust
Property Boundary
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-License Under Application
1KM 0 1 2 3 4 10KM
SCALE
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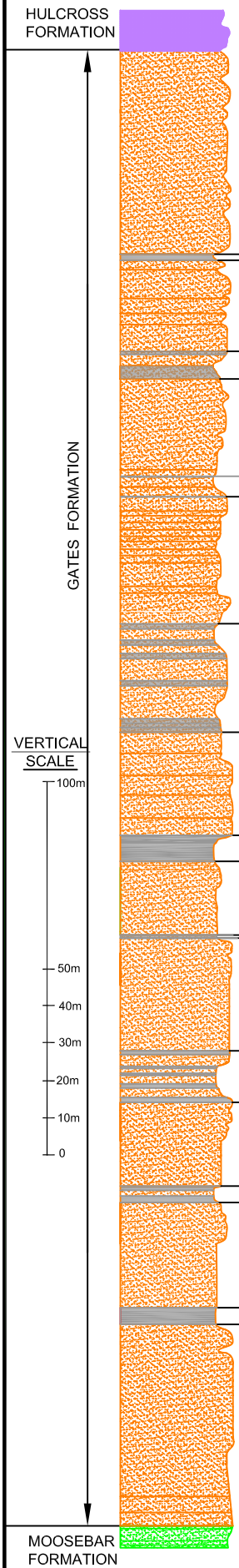


Seam 9

Single coal seam with a carbonaceous floor. Only encountered in the northern half of the property.

19 m fine-grained sandstone, grading upward into siltstone and claystone, then carbonaceous claystone at the base of Seam 9.

Zone 8

Includes Seams 8A and 8B. Seam 8A ranges from 2.0 - 3.5 m in thickness. Only described from the northern half of the property.

25 - 33 m sandstone, siltstone, and claystone.

Zone 7

Consists of two to three thin coal plies. This zone contains a mining section only in the south.

17 - 29 m sandstone, siltstone, and claystone.

Zone 6

Composed of a lower section (6L and 6A Seams) and an upper section of Seams 6B, 6C, and 6D. The upper seams are important in the north; the lower seams are important in the south. Zone 6 thickens to the southeast.

13 - 27 m Claystone, carbonaceous claystone and siltstone. Thickens near Holtslander Creek with sandstone channel deposits.

Seam 5

Present throughout the property. Thickness ranges from 3.3 - 9.1 m, but typically between 5 - 6 m thick.

8 - 22 m fine-grained sandstone with silty laminae. Section thickens from the northwest to the southeast.

Seam 4

Thins toward the northwest. Usually less than 1.0 m thick.

15 - 57 m sandstone and interbedded siltstone with occasional conglomerate lenses. Fining upward to a carbonaceous zone at the base of Seam 4. Thins to the southeast to approximately 15 m.

Zone 3

Composed of coal plies 3A, 3B, 3C and 3D. Plies 3B and 3D have economic potential in the north. 3A is of interest in the northern portion of the Middle Block.

7 - 11 m sandstone and interbedded siltstone between Seam 2 and Zone 3 in the north, and 23 - 36 m of sandstone, siltstone, and claystone in the south.

Seam 2

Comprises several thin coal plies separated by thin rock bands. In the north, the upper portion becomes a coaly zone and only the lower ply (2A) is of economic interest.

14 - 17 m sandstone, siltstone and interbedded claystone at top. Section thickens to 41 m sandstone in the south.

Seam 1

Present throughout the property, typically ranges from 3 - 4 m thick. Reaches 10.5 m in central areas, possibly due to structural thickening.

45 m Sandstone ("Torrens Member").

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GENERALIZED STRATIGRAPHIC SECTION GATES FORMATION

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Figure No. 4-4

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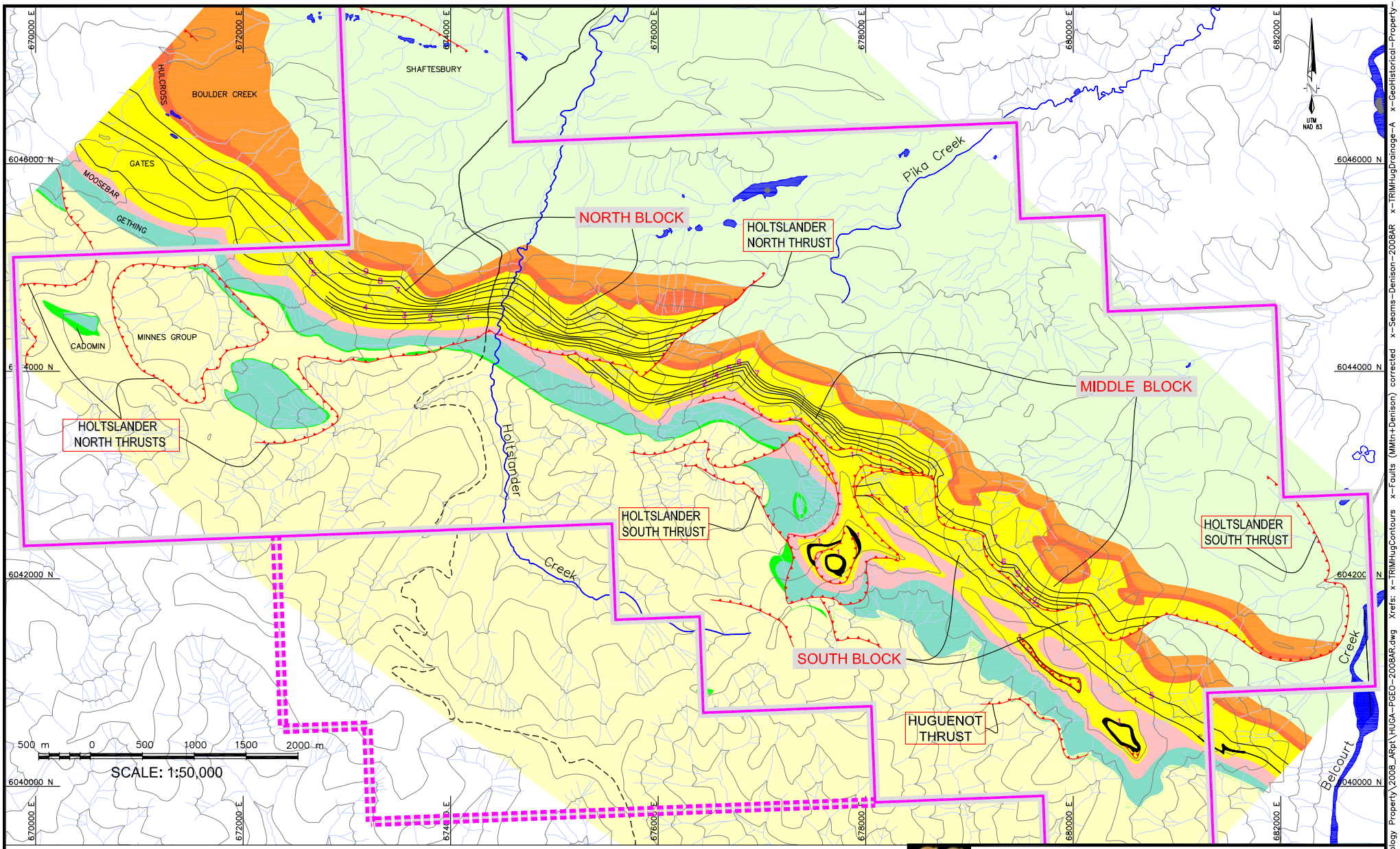


## LEGEND:

**GEOLOGICAL FORMATIONS**

- SHAFTESBURY
- BOULDER CREEK
- HULCROSS
- GATES
- MOOSEBAR
- GETHING
- CADOMIN
- MINNES GROUP
- COAL SEAM
- THRUST FAULT
- RIVER / CREEK
- TOPOGRAPHY
- ROAD / RECLAIMED ROAD

**PROPERTY BOUNDARY:**

- *APPROVED LICENSE*
- *LICENSE UNDER APPLICATION*

NOTE:

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# COLONIAL COAL CORP.

## HUGUENOT COAL PROJECT

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PROPERTY GEOLOGY MAP

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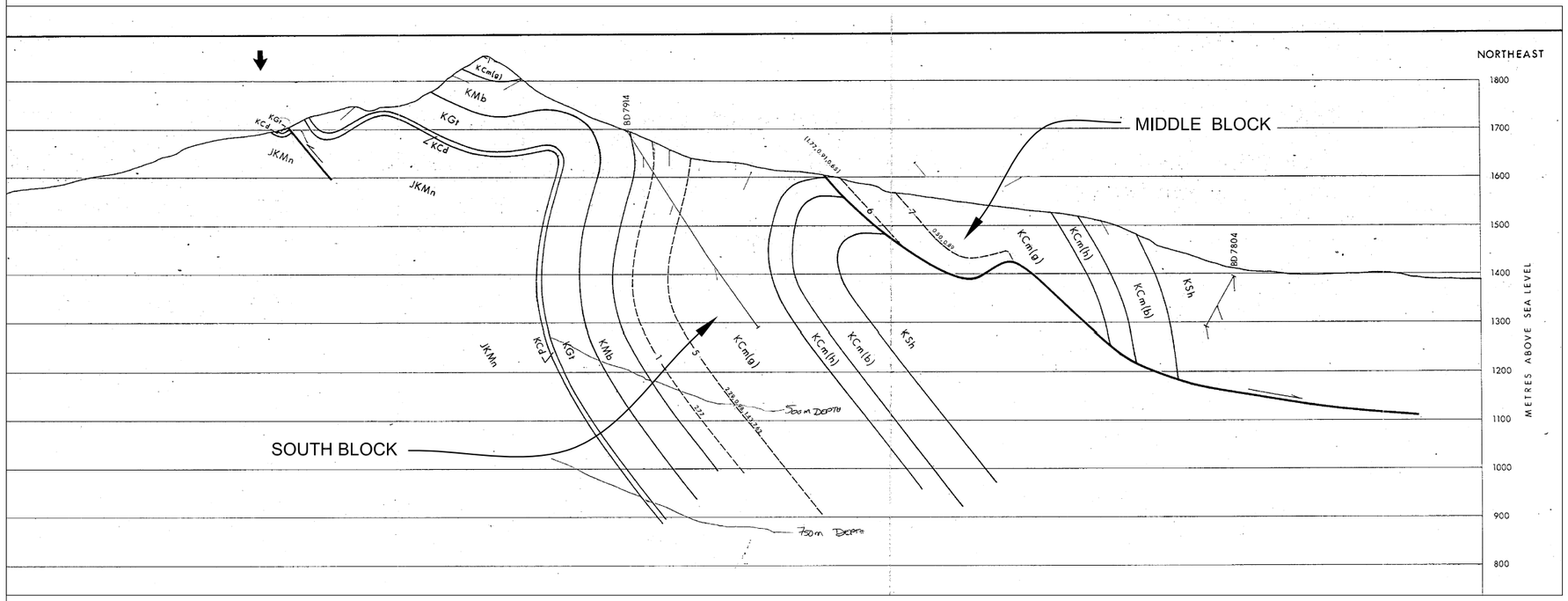
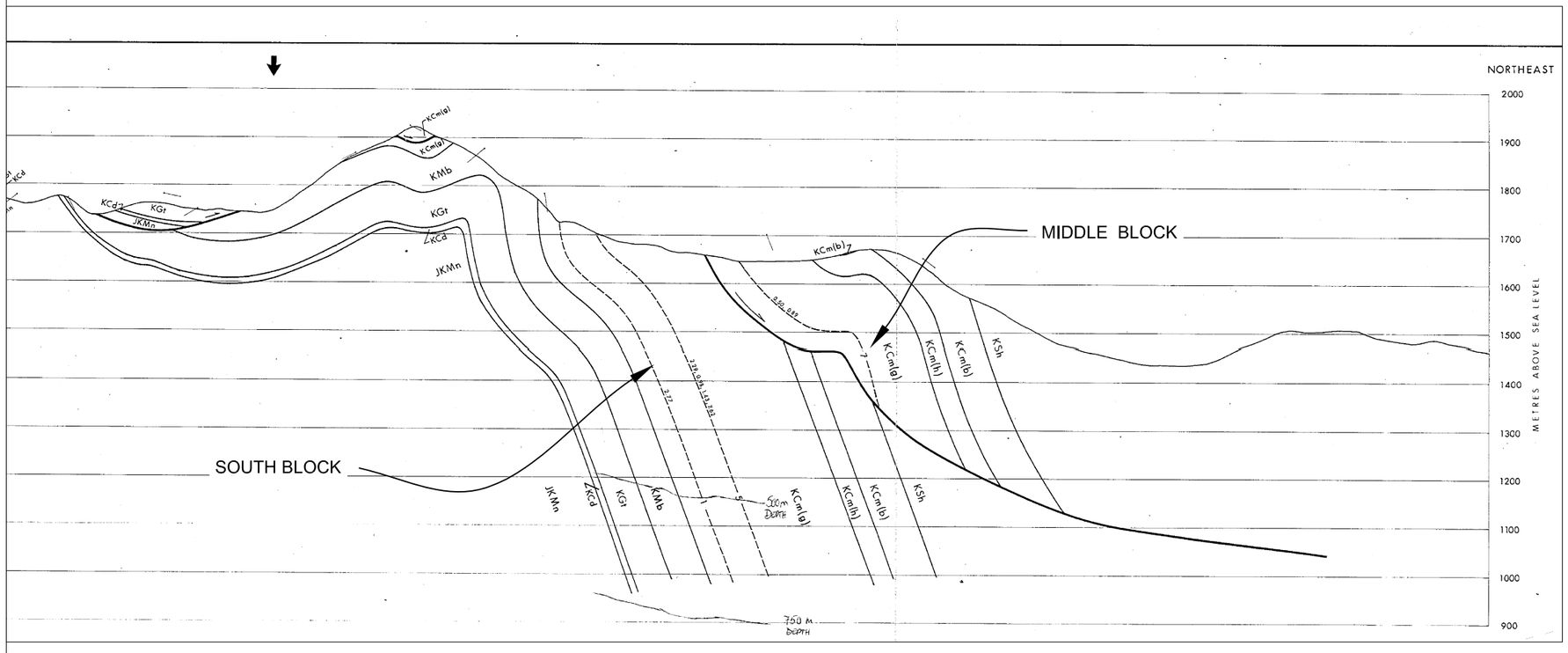



SECTION T21000




SECTION T22800

## LEGEND:

| | |
|---|---|
| KSh | SHAFTESBURY FORMATION |
| KCm(b) | BOULDER CREEK FORMATION |
| KCm(h) | HULCROSS FORMATION |
| KCm(g) | GATES FORMATION |
| KMb | MOOSEBAR FORMATION |
| KGt | GETHING FORMATION |
| KCd | CADOMIN FORMATION |
| JKMn | MINNES GROUP |
| BD7914 | DRILL HOLE |
| ↓ | BASELINE LOCATION |
| | THRUST FAULT |
| | BEDDING |
| 2.77 | TRUE THICKNESS OF COAL SEAM OR INDIVIDUAL COAL SPLIT |

SCALE

0 50 100 200 300 400
METRES

NOTE:

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STRUCTURAL CROSS-SECTIONS
T21000 - T22800

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Figure No. 4-6

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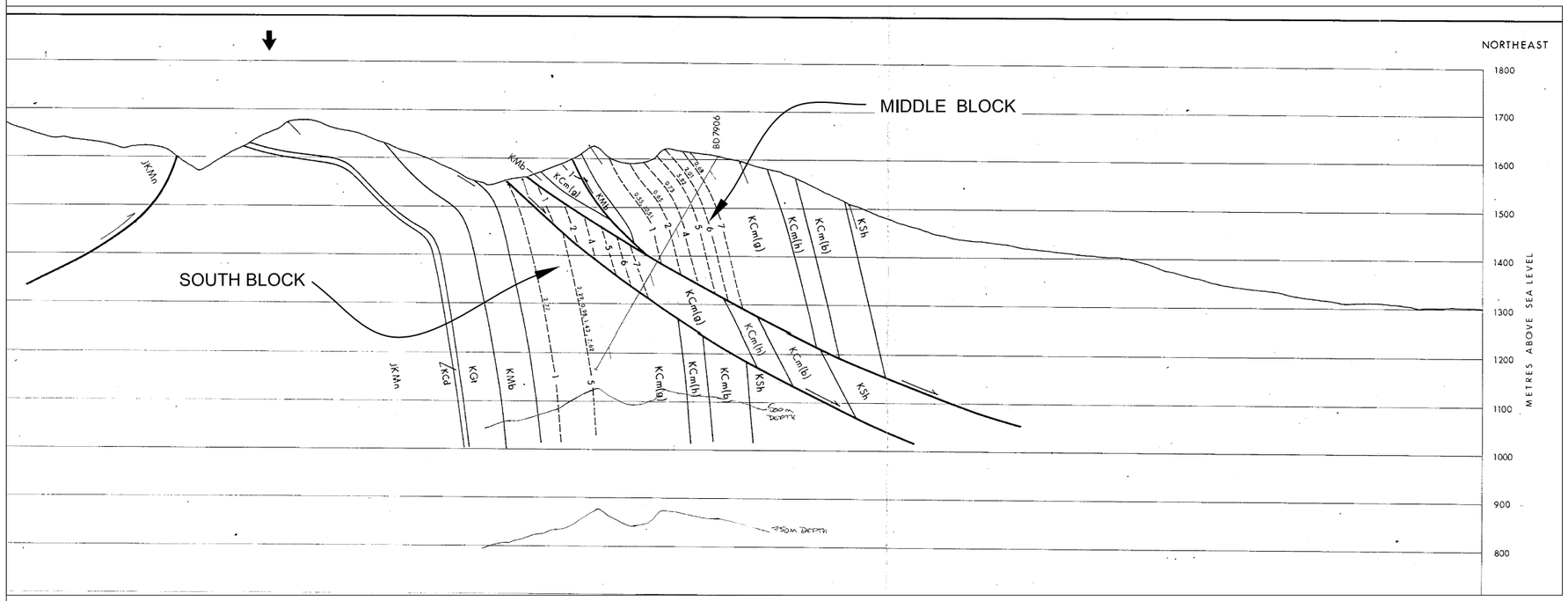


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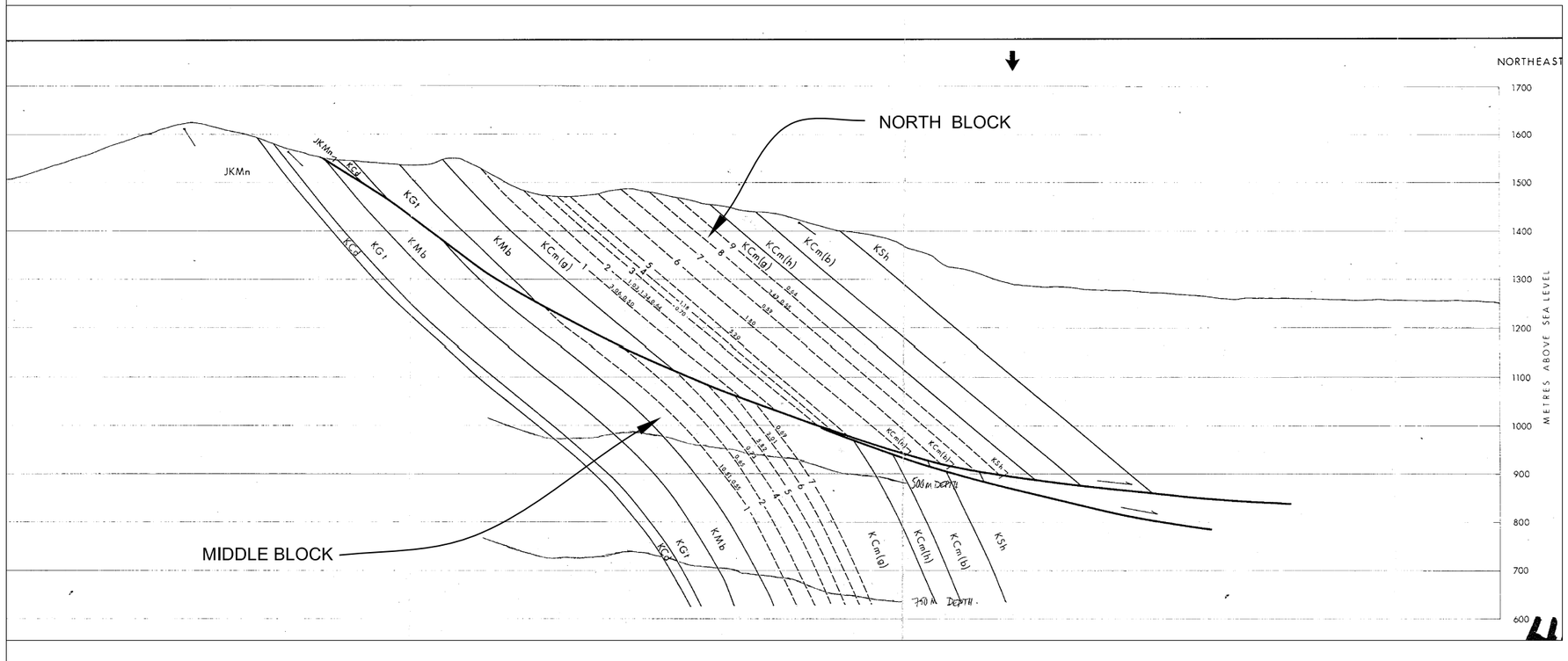


SECTION T27600

## LEGEND:

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| KCm(b) | BOULDER CREEK FORMATION |
| KCm(h) | HULCROSS FORMATION |
| KCm(g) | GATES FORMATION |
| KMb | MOOSEBAR FORMATION |
| KGt | GETHING FORMATION |
| KCd | CADOMIN FORMATION |
| JKMn | MINNES GROUP |
| BD7914 | DRILL HOLE |
| ↓ | BASELINE LOCATION |
| ⟋⟍ | THRUST FAULT |
| ⟋● | BEDDING |
| 2.77 | TRUE THICKNESS OF COAL SEAM OR INDIVIDUAL COAL SPLIT |

SCALE

0 50 100 200 300 400

METRES

NOTE:

TAKEN FROM DENISON (1979b)

**COLONIAL COAL CORP.**

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STRUCTURAL CROSS-SECTIONS
T24200 - T27600

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Figure No. 4-7

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# SECTION 5 COAL SEAM DESCRIPTIONS

The following summary of coal seam descriptions and structural geology is divided into two parts. The first part deals with the North Block which was the focus of exploration in 2008, and for which NI 43-101 compliant resources were estimated. The second part summarizes the coal geology of the remainder of the property (i.e., the Middle and South Blocks) for which only historical data is available.

In the discussion below, the term 'mining section' refers to that part of a coal seam that is considered to be potentially minable. Mining sections have been defined either from discrete coal seams where all, or most, of the coal-bearing interval forms a single mining section, or as parts of a coal zone where one or more coal layers occurring in relatively close proximity to one another, form separate mining sections. Thin, internal, rock bands, if present, are included in the mining sections but thicker rock bands (in this instance 0.31 m or more, as defined in GSC Paper 88-21) are omitted, even though, in practice, some would almost certainly be mined with coal in medium- to large-scale production scenarios. In the discussions presented below, the mining sections are taken to a minimum true thickness of 0.60 m.

## 5.1 NORTH BLOCK

A total of ten coal seams and coal zones are present within the North Block. Seam/coal zone nomenclature follows that used by Denison across their old Belcourt property; in ascending order they are numbered 1 through 9. The main coal splits that form part of a coal zone are assigned the number of the zone plus a letter. The letter 'A' indicates the lowermost coal split in a series; however, this is complicated in Coal Zone 6 by the presence of coal splits below Seam 6A. Consequently, this part of the zone is referred to as 6 Lower (6L) and its lowermost potentially mineable coal split is called Seam 6La.

All seams/coal zones except Zone 7 provide potentially mineable coal intervals. The main coal seams are Seams 1, 5, 6B, and 8A; these are the thickest and most laterally continuous of the coal seams. Typically, the minor seams (i.e., 2/2A, 3B, 3D, 4, 6La, 6A, 6D, and 9) meet seam thickness or coal/rock ratio minimums only over portions of the North Block. Where not considered to be potentially mineable, they can still be traced geologically throughout the remainder of the block. Other coal seams/splits, such as 3A, 8B and some splits above Seam 9, might locally exceed 0.60 m in thickness but are not currently deemed to be persistent enough to present mineable targets across the deposit.

The distributions of the main Gates coal seams are illustrated in Figure 5-1 while correlations of each of these coal seams are shown in Figures 5-2 to 5-4. Thickness ranges for the coal seams, together with mining section thicknesses extracted from those seams, are presented in Table 5-1. Taking into account the distribution of the coal seams, cumulative thickness for all mining sections (based upon a 0.6 m cut-off) ranges from approximately 17.7 m to 21 m. Using a 1.0 m thickness cut-off, the range is from 15.2 m to 19.4 m. There is no evidence of thickening or thinning of coal seams due to structural deformation.

Table 5-1: North Block Coal Seam & Mining Section Thickness Ranges

| Seam | Seam Thickness (m) | | Mining Section (m) | | Mining Section Average Thickness | |
|---|---|---|---|---|---|---|
| | Overall Minimum | Overall Maximum | Min.** (>0.60 m) | Max | >0.6 m | > 1.0 m |
| 9 | 0.20 | 1.20* | 0.66 | 1.20* | 1.00 | 1.00 |
| 8A | 2.90 | 3.37 | 2.45 | 2.93 | 3.00 | 2.50 |
| 6D | 0.37* | 0.77 | 0.61 | 0.77 | 0.70 | - |
| 6BC | 2.41 | 3.36 | 2.41 | 3.36 | 2.90 | 2.90 |
| 6B | 1.67 | 2.64 | 1.67 | 2.64 | 2.00 | 2.00 |
| 6A | 0.25 | 1.11 | 0.99 | 1.11 | 1.10 | 1.10 |
| 6La | 0.32 | 2.10 | 1.03 | 1.78 | 1.40 | 1.50 |
| 5 | 3.29 | 6.77 | 3.29 | 6.77 | 5.40 | 5.40 |
| 4 | 0.45 | 0.73 | 0.62 | 0.73 | 0.70 | - |
| 3D | 0.32 | 0.68* | 0.64 | 0.68* | 0.70 | - |
| 3B | 0.47 | 1.50* | 0.68 | 1.50* | 1.10 | 1.10 |
| 2A | 0.50 | 0.76 | 0.61 | 0.76 | 0.70 | - |
| 2 | 3.55* | 3.55* | 2.91* | 2.91* | 2.90 | 2.90 |
| 1 | 3.00* | 4.43 | 3.00* | 4.43 | 3.70 | 3.70 |

**from trench data*
***using the 0.6 m thickness minimum model.*

### 5.1.1 Seam 1

This is the basal seam within the Gates Formation and occurs approximately 40 m to 46 m above the Moosebar Formation contact and is persistent throughout the property. Seam 1 is consistent throughout the North Block. The seam widths are the same as those used for the mining sections and range from 3.00 m (HS-78-24) to 4.43 m (HR08-14) and average 3.7 m.

Seam 1 is characterized by a thick, comparatively clean lower section and a thinner (0.50 m to 1.50 m) upper section that contains one to two thin, carbonaceous claystone bands (Figure 5-2). The top 0.30 m to 0.40 m of the seam appears to increase in ash toward the southeast end of the block. The roof of the seam is generally composed of carbonaceous claystone to claystone, while the floor comprises 0.40 m to 0.50 m of claystone with carbonaceous bands that overlie the typically fine- to medium-grained, resistant sandstone of the Torrens member. This seam correlates to Belcourt South's Seam 1 lower.

The inter-seam separation between Seams 1 and 2 varies between approximately 14 m to 17.5 m. The strata consist of almost equal thicknesses of interlaminated, fine-grained sandstones and siltstones at the bottom, fine- to medium-grained, calcareous sandstone in the middle and inter-bedded siltstone and claystone at the top.

### 5.1.2 Seam 2

Seam 2 forms a 3.55 m (HS-78-25) seam in the southeast corner of the North Block. It consists of two main, relatively clean, coal splits each approximately 0.75 m to 0.80 m thick, separated by about 1 m of inter-banded coal and rock; several inter-banded coal splits and rock bands are also present near the top of the seam. For resource estimation purposes, 0.64 m of the middle coal-rock interval were removed from the mining section, to yield a mining section of 2.91 m. The upper parts of this seam become a coaly-carbonaceous zone towards the northwest, and only the lower coal split is continuous throughout most of the block; this split is referred to as Seam 2A (Figure 5-2). In the northwest, 2A mining sections range in thickness from 0.61 m (HR-08-01) to 0.76 m (HR08-07), averaging 0.7 m. The split thins in the centre of the block to 0.50 m (HR08-14).

Seam 2 and Zone 3 are separated by approximately 6 m to 20 m of interlaminated siltstones and sandstones and beds of bioturbated, fine-grained, calcareous sandstone. The inter-seam thickness increases from north to south.

### 5.1.3 Zone 3

This coal zone is composed of four coal splits separated by rock bands of variable thickness; the overall thickness of the zone varies from 7.50 m (HR08-07) to 11.44 m (BD 7814). In ascending order, the coal splits are named 3A to 3D (Figure 5-2). The more prominent of these are 3B and 3D; splits 3A and 3C are less well developed.

Seam 3A contains two coaly-carbonaceous plies separated by rock band. In the northern part of the Middle Block, immediately below the Holtslander North Thrust, Seam 3A has a thickness of 1.25 m in trench HS-78-18. The 3A split was not trenched in the southeast part of the North Block, and may present a similar thickness as reported from HS-78-18. For the rest of the block, the geophysical logs indicate that 3A is either a coaly zone or contains too little coal to be of economic importance.

Seam 3B lies approximately 1.5 m to 2 m above 3A. A 0.15 m to 0.39 m thick rock band is often present in the middle of the seam. Except for the northwest corner, where it is only 0.47 m thick (HR08-07), Seam 3B forms a mining section throughout the block. It increases in thickness towards the southeast, ranging from 0.68 m (HR08-01) to 1.50 m (HS-78-26). Average thickness is 1.1 m. This seam is correlated with Seam 3 at Belcourt South.

Seam 3C is typically composed of three coaly splits separated by carbonaceous claystone; it never forms a mining section.

From drill data, Seam 3D is located between 4 m and 7 m above 3B. It forms a clean seam which ranges from 0.32 m (HR08-01) to 0.68 m (HS-78-27) in thickness. It forms a mining section across the southern two-thirds of the block, ranging from 0.64 m to 0.68 m thick. The average mining section thickness of Seam 3D is taken as 0.7 m.

The inter-seam separation between Zone 3 and Seam 4 ranges from 57 m in the northwest to 30 m around Holtslander Creek, to approximately 42 m in the southeast. The lower half of the sequence is predominantly composed of calcareous, fine-grained sandstones with siltstone inter-beds; occasional conglomeratic lenses are present in the northwestern portion of the block. The sandstone-siltstone sequence is overlain by approximately 9 m to 10 m of claystone with several

thin coal splits. This, in turn is followed by fine-grained, bioturbated, calcareous sandstone which is in contact with a carbonaceous zone below Seam 4.

### 5.1.4 Seam 4

Seam 4 ranges in thickness from 0.45 m (HR08-07) to 0.73 m (HR08-14). Mineable thicknesses are not reached at the northwest end of the block (Figure 5-3). Mining sections vary between 0.62 m (BD 7814) to 0.73 m (HR08-14). The average mining section thickness is 0.7 m.

Seam 4 is separated from Seam 5 by 8.5 m to 14.0 m of clean, fine- grained, calcareous sandstones with occasional silty laminae. This sequence thickens from northwest to southeast.

### 5.1.5 Seam 5

Seam 5 is one of the most consistently developed coal seams on the property and maintains potentially mineable thickness over the entire length of the Huguenot deposit. Within the Upper Block, seam and mining section intervals are coincident. They vary from 3.29 m (HR08-07) to 6.77 m (HR08-03) although most intersections are between 5 m and 6 m thick. The average thickness of Seam 5 is 5.4 m.

Seam 5 is characterized by a relatively clean lower section (typically, 3.0 m to 3.5 m) and an upper section which contains one to three carbonaceous rock or poor coal bands (Figure 5-3). The most distinctive of these is situated immediately above the lower section and ranges in thickness between 0.15 m and 0.29 m. One to two thinner rock bands sit above this horizon. Both the floor and roof lithologies of Seam 5 consist of coaly/carbonaceous claystone with occasional thin coal stringers. Seam 5 correlates with Seam 5 at Belcourt South.

The inter-seam separation between the top of Seam 5 and the bottom of Zone 6 varies between approximately 12.5 m and 27.5 m. It is thinnest around drillhole HR08-01 but thickens to the northwest and southeast. The sequence is commonly composed of inter-layered claystone and carbonaceous claystone with minor siltstone and fine-grained sandstone lenses. Around Holtslander Creek, where the sequence is thickest, a medium- to coarse-grained sandstone with a 1.5 m conglomeratic lens is present.

### 5.1.6 Zone 6

Coal Zone 6 contains five main coal splits separated by rock bands (+/- thin coal plies) of variable thickness. In most of the drillholes, this zone is approximately 20 m in thickness, although it thickens to about 27 m in HR08-01, due to the presence of thick sandstone between the 6A and 6B coal splits.

In ascending order, the coal splits of interest are named 6La, 6A, 6B, 6C, and 6D. The vertical separation between these splits varies across the block. In the north, Seams 6La and 6A form a lower coal interval while Seams 6B, 6C, and 6D form an upper interval, with a 9 m (HR08-07) to 16 m (HR08-01) 6A/6B separation. This large separation between the upper and lower coal intervals diminishes towards the central parts of the block such that, around Holtslander Creek, the main coal splits have a more regular distribution through the zone, being separated from one another by between 2 m and 5 m.

While discussed individually below, for resource estimation purposes the 6B-6D coal interval forms two mining sections. In the northwest of the block, the lower coal split of Seam 6C is added to

Seam 6B to form the composite mining section 6BC. In the central and southern areas, the interval between 6B and 6C thickens such that each coal split is evaluated separately; Seam 6D is always reported separately. It should be noted that in most practical mining scenarios, the 6BCD interval represented in the northwest of the block would almost certainly be mined in its entirety. Here, this interval ranges between 3.84 m (HB08-6C-A) and 5.72 m (HR08-01) in thickness. As this is where the bulk sample was taken, the 6BCD interval was bulk sampled and tested as one continuous mining section. The 6BCD interval correlates with 6 Upper at Belcourt South.

Within this coal zone, Seam 6La is the lowest seam of potential economic importance. It is part of a thicker series of coal and highly carbonaceous to coaly splits that, together, are referred to as 6L (this interval was cored in HB08-6A-A in order to confirm its potential for providing a mining section). For most of the block, mining section 6La is situated in the lower half of 6L and is usually composed of two coal splits separated by a thin (0.15 m to 0.30 m) rock band (Figure 5-3). This rock band is not present in the southeast part of the block (trench HS-78-37). Seam 6La ranges up to 2.10 m (HT08-6A-2) in thickness; the mining sections vary in thickness from 1.03 m (BD 7814) to 1.78 m (HT08-6A-2) and averages 1.4 m. The lower coal split of 6La degrades toward the northwest and the mining section shifts to incorporate a higher coal split. The mining section eventually falls below thickness cut-off (HR08-06) and, together with 6L as a whole, continues to degrade northwesterly to become a carbonaceous-coaly zone at Belcourt South (BD 7801).

Seam 6A in the northern part of the block is essentially part of 6L, being separated only by a thin (<1 m) rock band. In the central and southern portions of the block, 6L and 6A are separated by 3 m to 5 m (Figure 5-3). Seam 6A is characterized by a “main”, central, coal split with either thinly interlayered coal and rock bands, or poor coal bands, in the immediate roof and floor. It only forms mining sections in the northwest of the block (0.99 m in HR08-06 and 1.11 m in HT08-6A-2). In the north, Seam 6A is separated from 6B by 8.8 m (HR09-06); to the south, it thickens to 15.6 m in HR08-01 but thins to 2.4 m in BD 7814. At Belcourt South, this seam is called 6 Lower.

Seam 6B consistently forms, or is otherwise part of, a mining section throughout the North Block. Typically, it has a clean lower half and an upper half that contains one to two thin rock bands (Figure 5-4); the thickness of 6B ranges from 1.67 m (HR08-02) to 2.64 m (HS-78-39). The average thickness is 2.0 m. Around Holtslander Creek, 6B is sufficiently separated from 6C (1.75 m to 2.74 m) that it forms an independent mining section; this separation continues to the southeast. To the northwest, the 6B-6C parting decreases to between 0.23 m to 0.30 m such that the lower split of 6C can be added to 6B, resulting in the composite mining section, 6BC. Seam 6BC ranges in thickness from 2.41 m (HB08-6C-B) to 3.36 m (HR08-01), with an average thickness of 2.9 m.

Seam 6C is usually composed of two coal splits separated by a relatively thin rock band. The seam ranges from 0.85 m (HB08-6C-B) to 1.58 m (HR08-14) in thickness. The lower coal split represents good coal and, as discussed above, is included in the 6BC mining section. The upper split is high in ash and this, together with the intervening rock band, precludes Seam 6C from being an independent mining section (Figure 5-4). Where incorporated into the composite mining section 6BC, the lower split varies between 0.23 m and 0.58 m in thickness.

Seam 6D is the uppermost seam in Zone 6, is characterized by a single, comparatively clean seam which occasionally has a thin band of high-ash coal or coaly rock near its centre (Figure 5-4). It is consistently developed throughout the block but falls below mining section thickness in HR08-03 and in the southeast part of the block. Mining section thickness varies between 0.61 m (HR08-07) and 0.77 m (HR08-01) with an average of 0.7 m.

The inter-seam separation between Zone 6 and Zone 8 typically ranges between approximately 66 m and 79 m, although this interval may thicken to as much as 90 m at the southeast end of the North Block. The inter-seam strata are composed of a sequence of fine-grained sandstones with siltstone inter-beds which fine upward into a claystone to carbonaceous claystone sequence. It should be noted that within the claystone sequence, one to two uneconomic coal splits and a series of small carbonaceous bands are present; these are loosely referred to as Zone 7. The strata above Zone 7 contain occasional sandstone and siltstone interbedded lenses.

### 5.1.7 Zone 8

This coal zone is composed of two component seams called 8A and 8B. Overall, this zone ranges in thickness from approximately 5 m (HR08-06) to 7 m (HR08-02).

Seam 8A ranges from approximately 2.90 m (HR08-04) to 3.37 m (HB08-8-A and -B) and is characterized by a relatively thick lower and upper coal splits, separated by a rock band (Figure 5-4). The rock band is sufficiently thick to require its omission from resource estimations. Consequently, Seam 8A mining sections are taken as the sum of the upper and lower coal plies; they range in thickness from 2.45 m (HR08-04) and 2.93 m (HB08-8-A). The lower coal split varies in thickness from 1.41 m to 2.10 m, contains a 0.15 m to 0.25 m rock band near its top and has a thick, relatively clean, bottom section. The main rock band varies between 0.33 m and 0.73 m and sometimes contains a thin coal ply. The upper split ranges in thickness from 0.80 m to 1.28 m, has a clean top half and a high-ash bottom section due to one or two thin rock bands. For the 0.6 m thickness minimum, the mining sections average 3.0 m; the average drops to 2.5 m for the 1.0 m minimum. A thin rider is situated approximately 0.21 m to 0.44 m above the main seam. It has been omitted from all 8A mining sections.

As indicated above, the internal rock band was removed from the mining sections for resource estimation purposes. However, as with 6B, 6C, and 6D, in most practical mining scenarios the entire 8A interval would most likely be mined in its entirety. The bulk sample has been dealt with accordingly. Seam 8A correlates with Seam 8 at Belcourt South.

Seam 8B is situated approximately 1.5 m to 4 m above 8A (Figure 5-4). In the drillholes it is represented by a thin, relatively clean, coal split, although 1.19 m was intersected in trench HS-78-47 southeast of Holtslander Creek.

The separation between Zone 8 and Seam 9 ranges between approximately 12.5 m and 19 m, although for most of the block it is at the higher end of the range. The strata consist of fine- to medium-grained, siliceous sandstone which grades upward into a claystone/siltstone sequence, followed by a carbonaceous interval which forms the floor of Seam 9.

### 5.1.8 Seam 9

Seam 9 is a thin coal seam that tops a coaly to carbonaceous interval. Seam thickness ranges from 0.20 m (HR08-06) to 1.20 m (HS-78-34). It is thinnest in the northeastern half of the block where it also contains a thin rock band; here it does not meet mining section minimums (Figure 5-4). It is of potential interest in the southeastern half of the block, where it is present as a single, clean coal split in BD 7814 (0.66 m) and HS-78-34 (1.20 m). The average thickness is 1.0 m.

### 5.1.9 Structure

The structural geology of the North Block is illustrated on the structure contour maps for Seams 1, 5, 6B/BC, and 8A (Figure 5-5 to 5-8) and is shown on the cross-sections (Figures 5-9 to 5-13). The North Block sits structurally above the Holtslander North Thrust which is interpreted to be the oldest of the thrusts that cut through the property. Here, Gates Formation coal measures occupy the western limb of a broad synclinal structure called the Holtslander Synclinorium. In the northwest, the strata are near homoclinal with moderate (approximately 45°) northeasterly dips. To the south, the strike swings easterly such that, in the southeast, dips are to the north. They are also steeper in the southeast, reaching approximately 50°. Dip values decrease at depth to between 30° and 35°, reflecting proximity to the axial zone of the syncline.

## 5.2 MIDDLE AND SOUTH BLOCKS

### 5.2.1 Coal Seams

A total of four coal seams and four coal zones have been identified over the central and southern portions of the Huguenot property. Coal seams and coal zones greater than 0.5 m in thickness are identified in ascending order as Nos. 1 through 9; of these, the main coal seams/zones (>1 m true thickness) are 1, 2, 4, 5, 6, and 8.

Summarized descriptions of the coal seams and zones contained within the Middle and South Blocks are provided below; a generalized stratigraphic column through the Gates Formation is shown in Figure 4-1.

**Seam 1:** varies in thickness across the Middle Block, from 3.0 m (HS-78-16) in the north to 10.5 m in the south (BD 7906); it is 2.8 m (BD 7914) thick in the South Block. A 10.51 m intersection in BD 7906 is likely fault-thickened.

**Seam 2:** ranges in thickness from 1.39 m (BD 7914) in the South Block to 4.08 m (HS-78-17) at the northern end of the Middle Block.

**Zone 3:** is of interest only in the northern parts of the Middle Block, where Seams 3A and Seam 3B are 1.25 m (HS-78-18) and 1.50 m (HS-78-19) thick, respectively. Zone 3 is poorly developed throughout the rest of the Middle and South Blocks.

**Seam 4:** consists of a single coal split that ranges in thickness from 0.73 m (BD 7906 - Middle Block) to 1.16 m (BD 7914 - South Block). Near the southeast boundary of the property, a 2.11 m coal seam reported from trench HS-78-109 is now believed to correlate with Seam 4.

**Seam 5:** overlies Seam 4 by approximately 22 m. The thickness of Seam 5 throughout the Middle and South Blocks is considered to range between 5.43 m (HS-78-110) and 5.82 m (BD 7806). The Seam 5 intersection in drillhole BD 7805 is very close to a major fault and its greater thickness (9.09 m) is probably the result of structural thickening. The 18.87 m coal zone reported as Seam 5 by Denison from drillhole BD

7914 is likely a fault-thickened repeat of Seam 1, in which case Seam 5 was not reached in this drillhole.

**Zone 6:** lies approximately 13 m to 23 m above Seam 5. In the northern half of the Middle Block, three main coal splits (BD 7805) are developed, the most prominent of which is the 1.77 m, lower split; this seam is correlated with Zone 6L/Seam 6La of the North Block. The upper two splits are correlated with Seams 6C and 6D; they have thicknesses of 0.94 m and 0.70 m, respectively. In the southern half of this Block, the main, lower, split is 2.01 m (BD 7906). Denison does not describe these seams as being present in the South Block although 2.25 m of coal, which likely correlates with the lower split, was intersected in trench HS-78-111.

**Zone 7:** This zone is situated approximately 17 m to 29 m above Zone 6. It usually contains several thin, uneconomic seams. The most developed of these ranges from 0.6 m to 0.9 m in thickness (BD 7805). It is not shown by Denison to be present in the South Block.

**Seam 8A:** is situated approximately 25 m to 33 m above Zone 7. No thicknesses for Seam 8A were reported by Denison from either the Middle or South Blocks. However, in the Middle Block, coal seams in trenches HS-78-103 and HS-77-18 are now considered to correlate with Seam 8A; these trenches intersected 1.94 m and 2.02 m of coal, respectively.

**Seam 9:** attains mining section thickness in the northern part of the Middle Block where trench HS-77-19 intersected a 1.10 m coal seam. Seam 9 was not described by Denison from the southern half of the Middle Block or from the South Block.

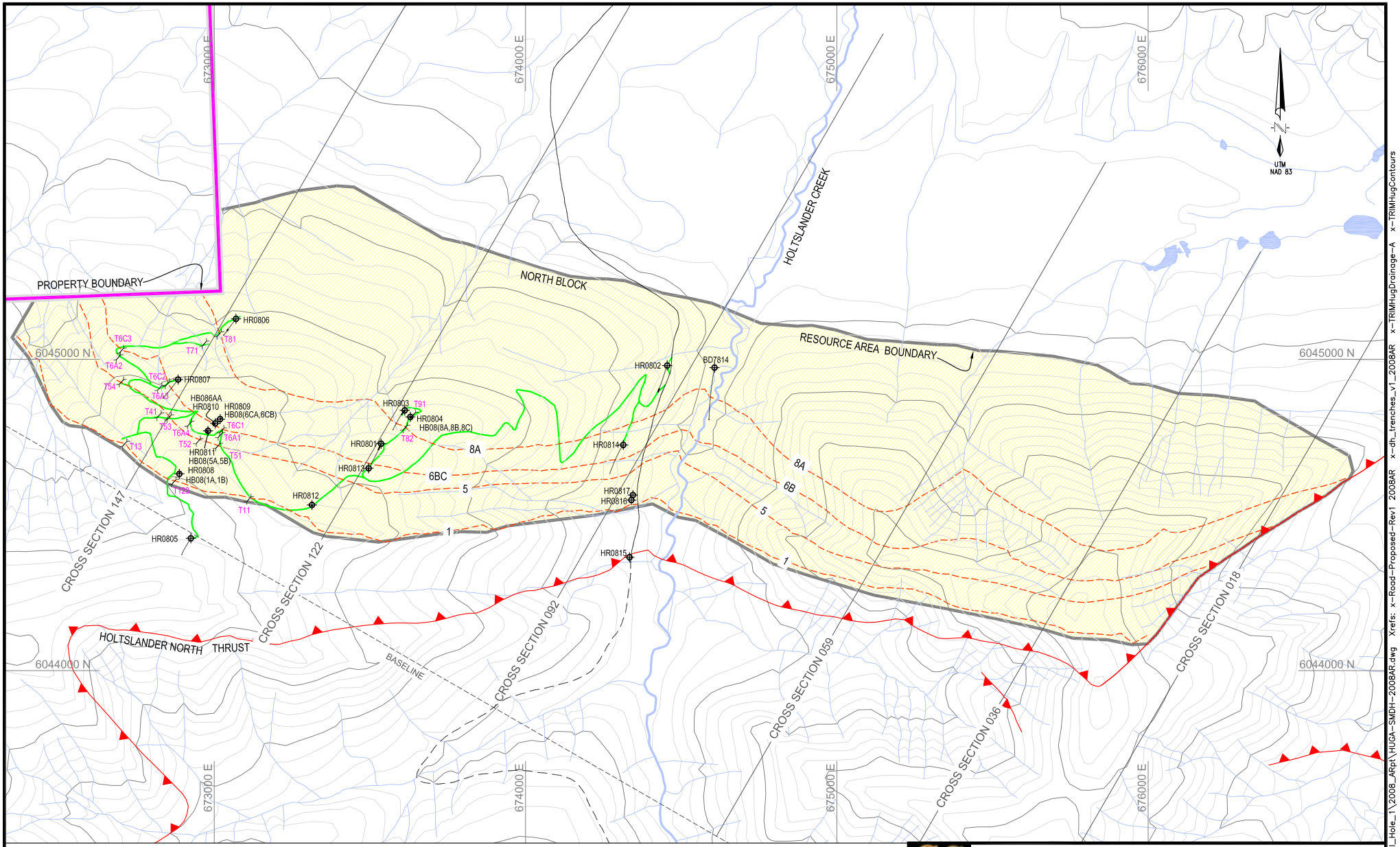
Drill data south of Belcourt Creek, from Denison's old Huguenot, Ptarmigan, and Omega Blocks, indicate that there are multiple coal seams, similar in number to those present in the North Block. The more limited coal seams described by Denison from the southern half of the current Huguenot property, is considered to reflect the level of exploration that has been conducted to data.

### 5.2.2 Structure

The structural geology of the Middle and South Blocks is illustrated on the geology map (Figure 4-5) and on the cross-sections (Figures 4-6 and 4-7). The Middle Block sits structurally above the Holtslander South Thrust and below the Holtslander North Thrust. At the northern end of the Middle Block the strata dip northeasterly, between 45° and 55°. Dip values increase to between 50° and 85° towards the centre of the block, decreasing to between 30° and 65° at the southern end. A northerly-trending, open, upright, anticline-syncline pair is mapped along the eastern edge of the thrust slice. These structures are interpreted to affect the Holtslander South Thrust as well as the overlying coal measures.

The South Block forms the lowest structural unit. Most of the coal seams are contained within steep, easterly-dipping beds (60° and 75°) which get steeper towards the south (70° and 85°). The beds become steeply overturned along their up-dip sections and form the eastern limb of an

asymmetric anticline, the fold axis of which almost defines the western limit of the coal measures. This anticline may represent the eastern side of a large, northerly-trending, box fold.




## LEGEND:

- DRILL HOLE COLLAR AND TRACE
- T81 TRENCH (T11)
- 8A SEAM SUBCROP TRACES
- PROPERTY BOUNDARY
- RIVER / CREEK
- TOPOGRAPHY
- ROAD / RECLAIMED
- DRILL TRAIL
- FAULT THRUST
- RESOURCE AREA BOUNDARY

100m 0 100 200 300 400 500m
SCALE

# COLONIAL COAL CORP.

## HUGUENOT COAL PROJECT

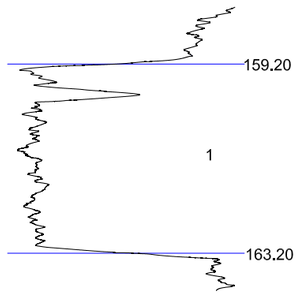
| | |
|---|---|
| Drawn by: | CS |
| Checked by: | JP |
| Approved by: | JP |
| Revision No. | |
| Dwg No. HUGA-SMDH-2008AR | |

NORTH BLOCK
SEAM TRACES AND
2008 DRILL HOLE & TRENCH LOCATIONS

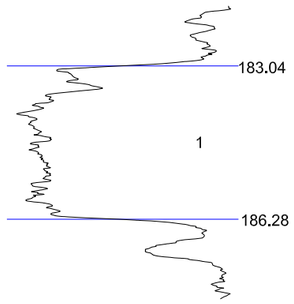
| Date: | Document: | Figure No. |
|---|---|---|
| 2015-03-17 | 2008 AR | 5-1 |

## SEAM 1

HR08-07




HR08-01

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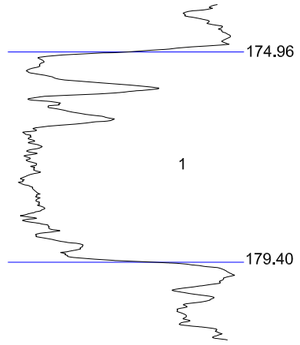
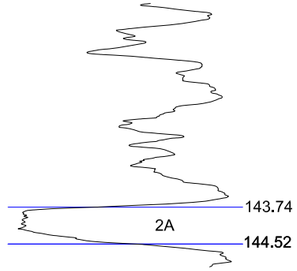



## SEAM 2A

HR08-07

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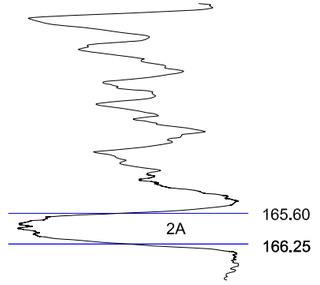


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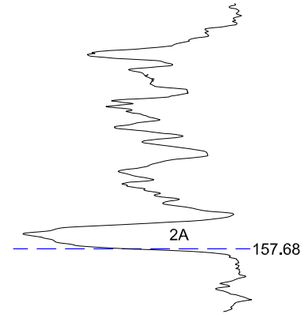
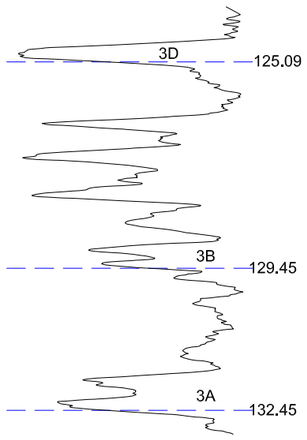
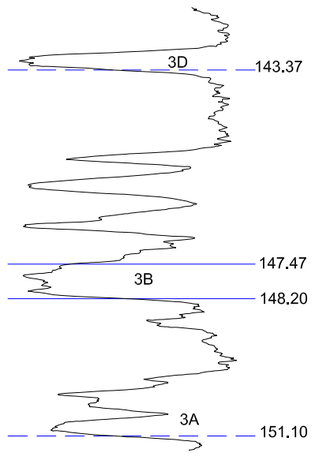



## SEAMS 3B and 3D

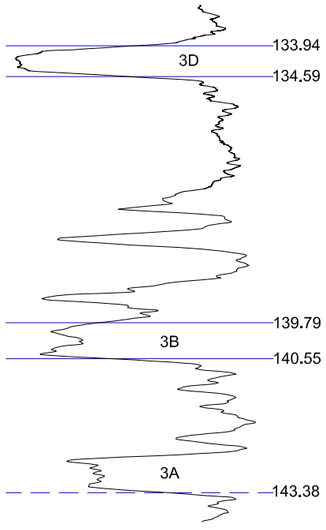
HR08-07




HR08-01




HR08-14




LEGEND:

MINING SECTION

NON MINING SECTION

NOTE:

SEAM TRACES TAKEN FROM
DETAILED DENSITY LOGS

COLONIAL COAL CORP.

HUGUENOT COAL PROJECT

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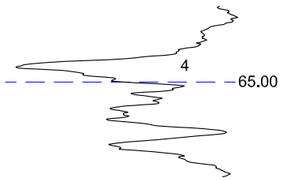
| Revision No. | |
| Dwg No. | HUG-B-AR2008-SC01-A |

SEAM CORRELATION
SEAMS 1, 2A, 3B and 3D

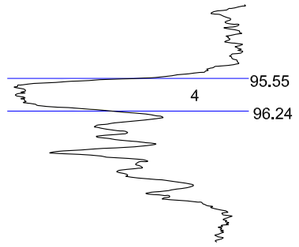
| Date: | Document: | Figure No. |
|---|---|---|
| 2015-03-05 | 2008 AR | 5-2 |

## SEAM 4

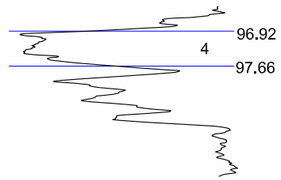
HR08-07




HR08-01




HR08-14

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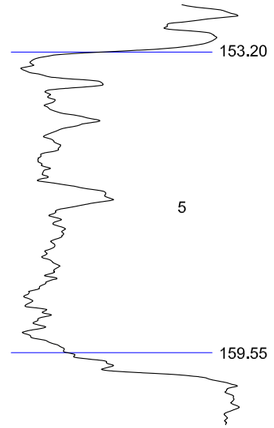
HR08-06

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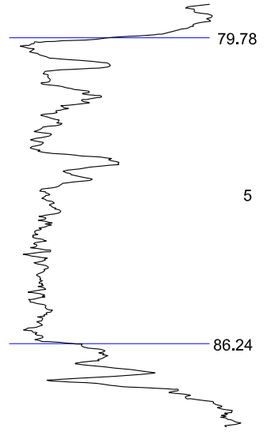


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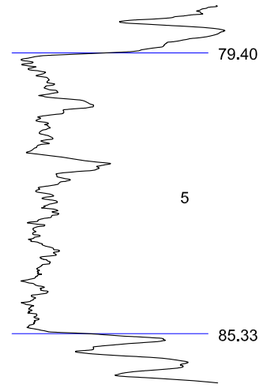
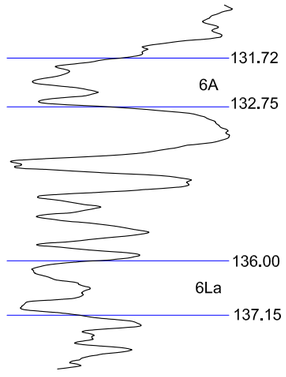



## SEAMS 6A and 6La

HR08-06

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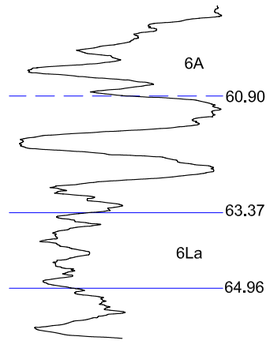


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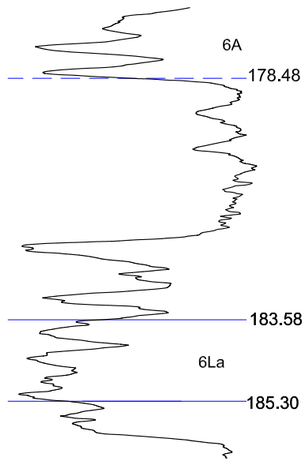


LEGEND:

MINING SECTION

NON MINING SECTION

NOTE:

SEAM TRACES TAKEN FROM
DETAILED DENSITY LOGS

COLONIAL COAL CORP.

HUGUENOT COAL PROJECT

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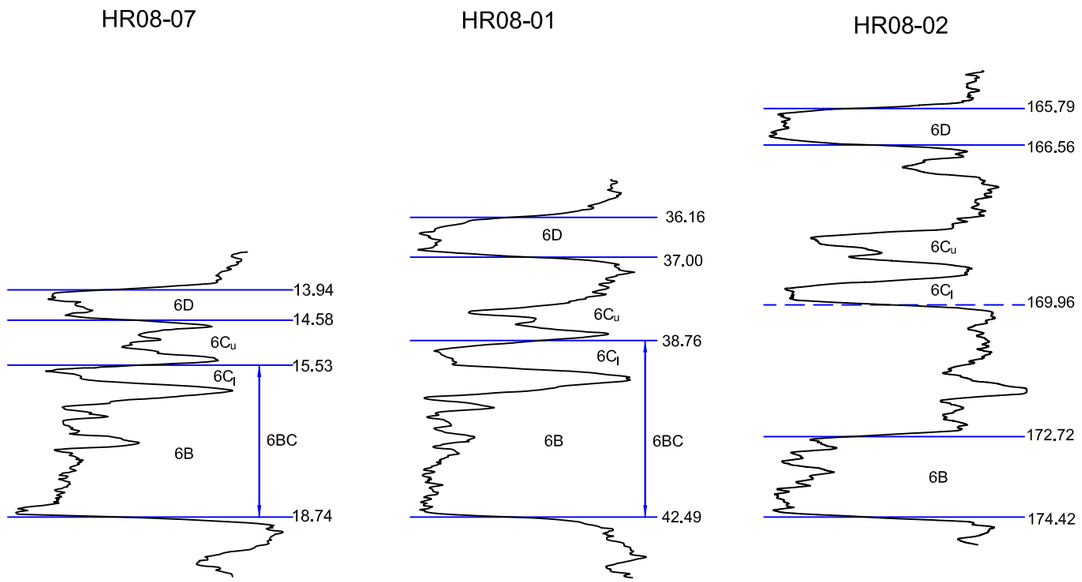
SEAM CORRELATION
SEAMS 4, 5, 6A & 6La

Date: 2015-03-05

Document: 2008 AR

Figure No. 5-3

## SEAMS 6B, 6C and 6D

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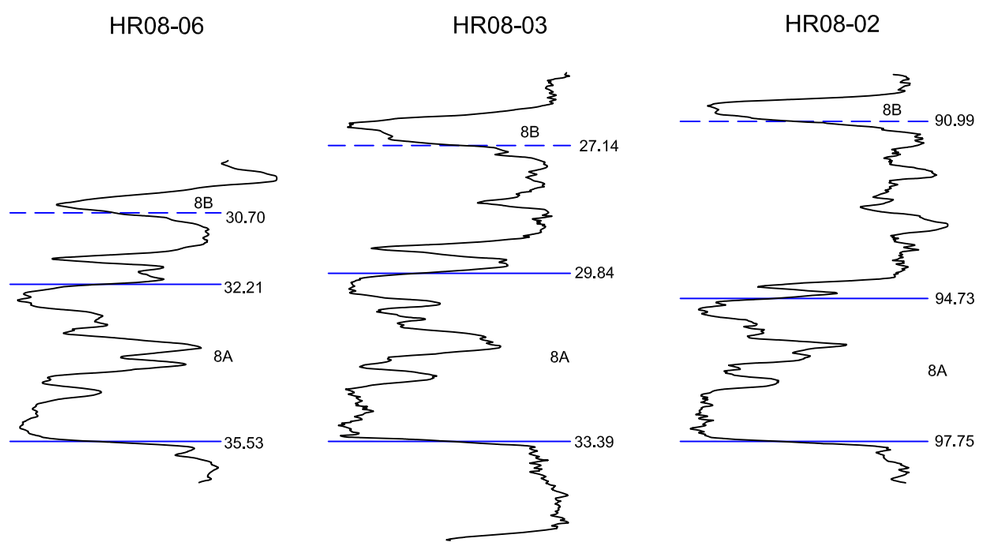


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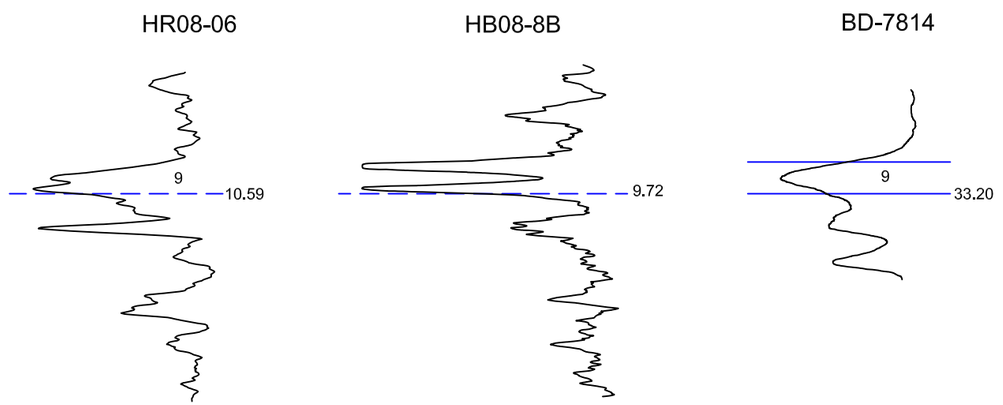


LEGEND:

MINING SECTION

NON MINING SECTION

NOTE:

SEAM TRACES TAKEN FROM
DETAILED DENSITY LOGS

COLONIAL COAL CORP.

HUGUENOT COAL PROJECT

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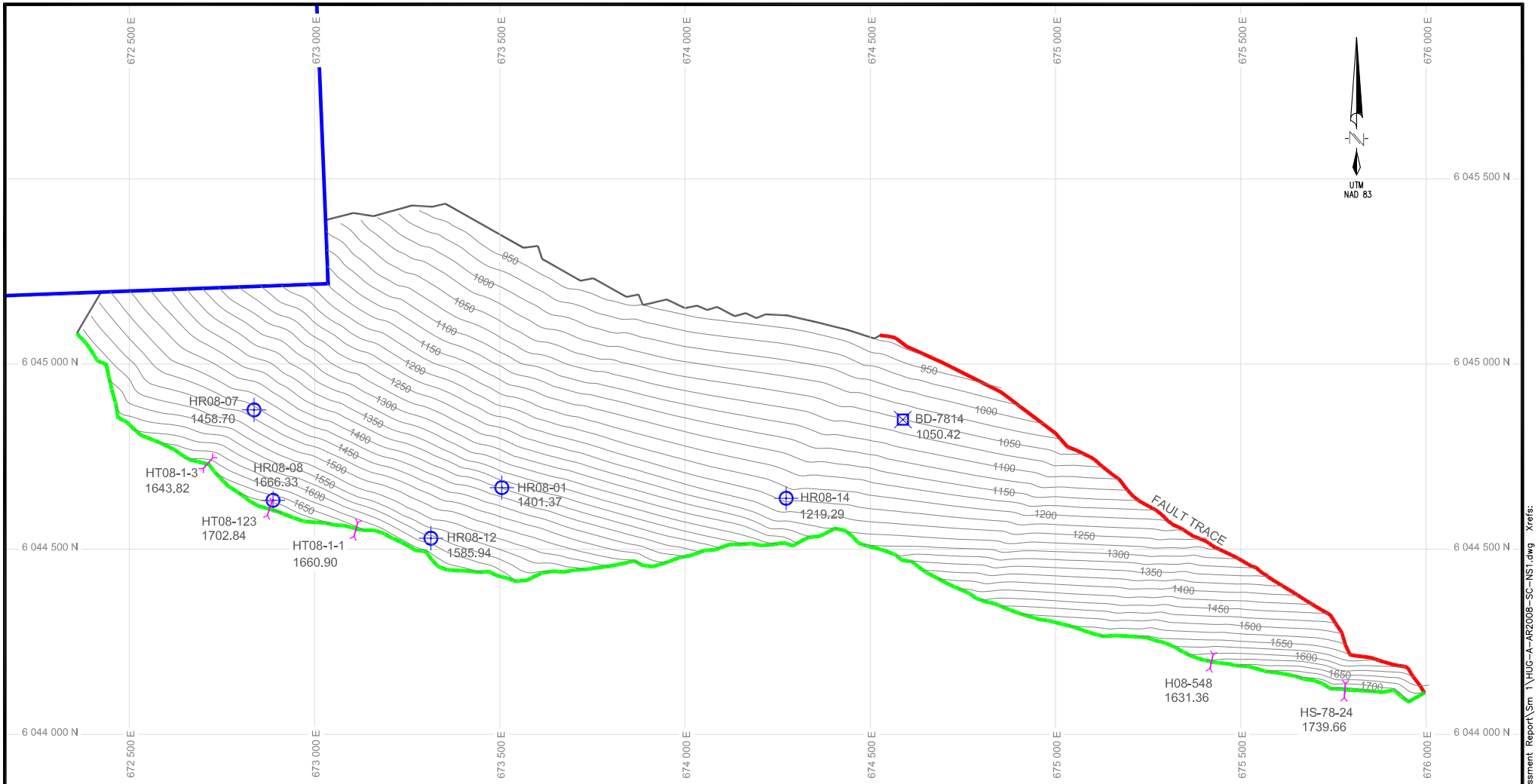
SEAM CORRELATION
SEAMS 6B-C-D,8A & 9

Date: 2015-03-05

Document: 2008 AR

Figure No. 5-4

03/05/15 - 12:18:39pm K:\HUGUENOT\Seam_Correlation\2008\2008_AssessmentReport\Sms 6B--C--D,8A--9\HUG-B-AR2008--SC03.dwg Xrefs:




LEGEND:

- BD-7814 - PENETRATION OF SEAM FLOOR 1594.53 WITH ELEVATION (DIAMOND DRILL HOLE
- HR08-03 - PENETRATION OF SEAM FLOOR 1561.87 WITH ELEVATION (ROTARY DRILL HOLE)
- SEAM 1 SUBCROP
- CONTOUR (25 M.)
- FAULT TRACE
- TRENCH
- PROPERTY BOUNDARY

NOTE:

STRUCTURE CONTOURS EXTRACTED FROM GEOLOGICAL MODEL PREPARED BY MOOSE MOUNTAIN TECHNICAL SERVICES.

100m 0 100 200 300 400 500m

SCALE

COLONIAL COAL CORP.

HUGUENOT COAL PROJECT

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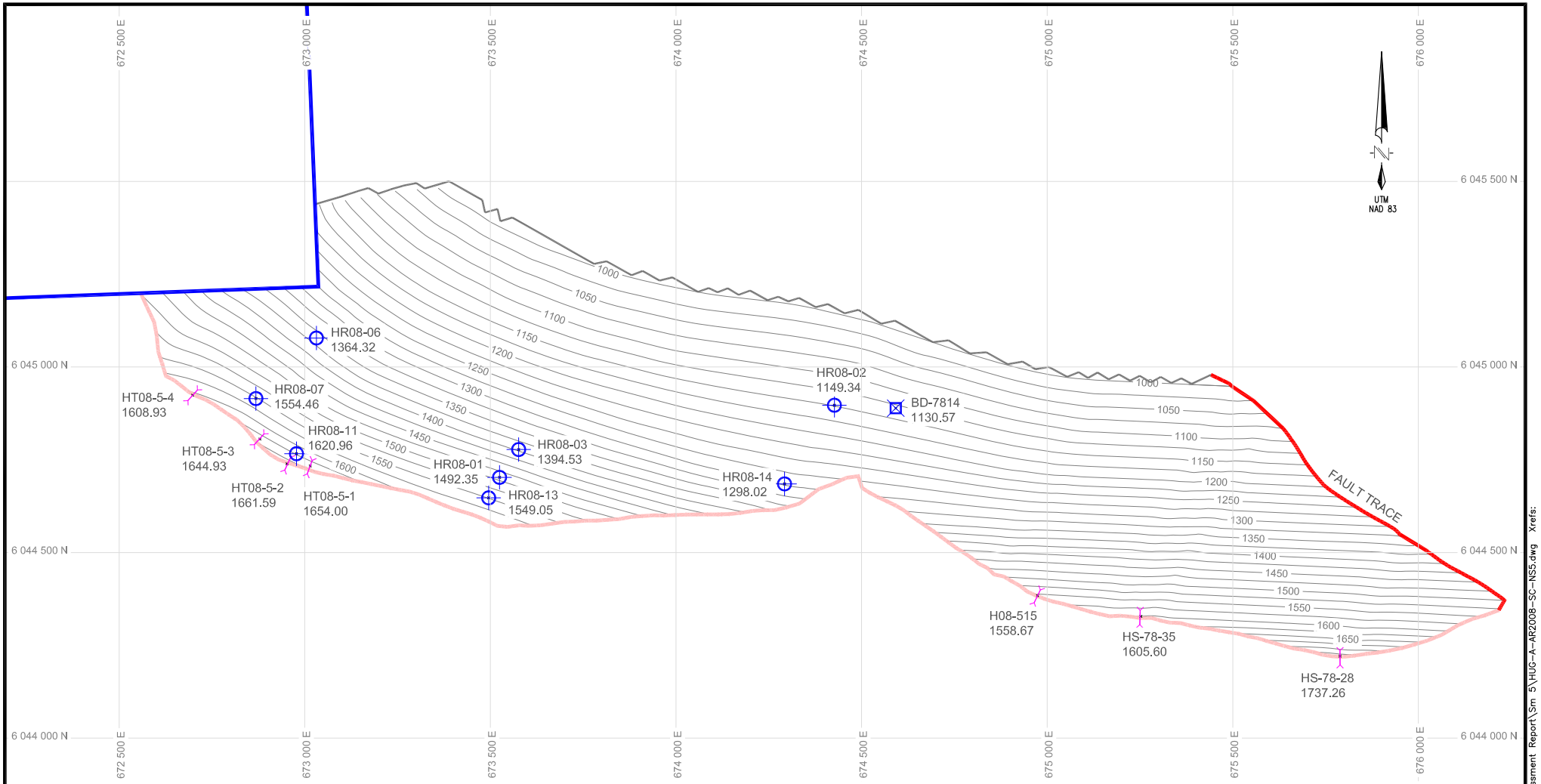
| Approved by: | JP |
| Revision No. | G |
| Dwg No. | HUG-A-AR2008-SC-NS1 |

NORTH BLOCK
STRUCTURE CONTOUR
SEAM 1

| Date: | Document: | Figure No. |
|---|---|---|
| 2015-03-05 | 2008 AR | 5-5 |




## LEGEND:

- BD-7814 - PENETRATION OF SEAM FLOOR 1594.53 WITH ELEVATION (DIAMOND DRILL HOLE
- HR08-03 - PENETRATION OF SEAM FLOOR 1561.87 WITH ELEVATION (ROTARY DRILL HOLE)
- SEAM 5 SUBCROP
- CONTOUR (25 M.)
- FAULT TRACE
- TRENCH
- PROPERTY BOUNDARY

NOTE:

STRUCTURE CONTOURS EXTRACTED FROM GEOLOGICAL MODEL PREPARED BY MOOSE MOUNTAIN TECHNICAL SERVICES.

100m 0 100 200 300 400 500m

SCALE

# COLONIAL COAL CORP.

## HUGUENOT COAL PROJECT

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| Dwg No. | HUG-A-AR2008-SC-NS5 |

NORTH BLOCK
STRUCTURE CONTOUR
SEAM 5

Date: 2015-03-05

Document: 2008 AR

Figure No. 5-6

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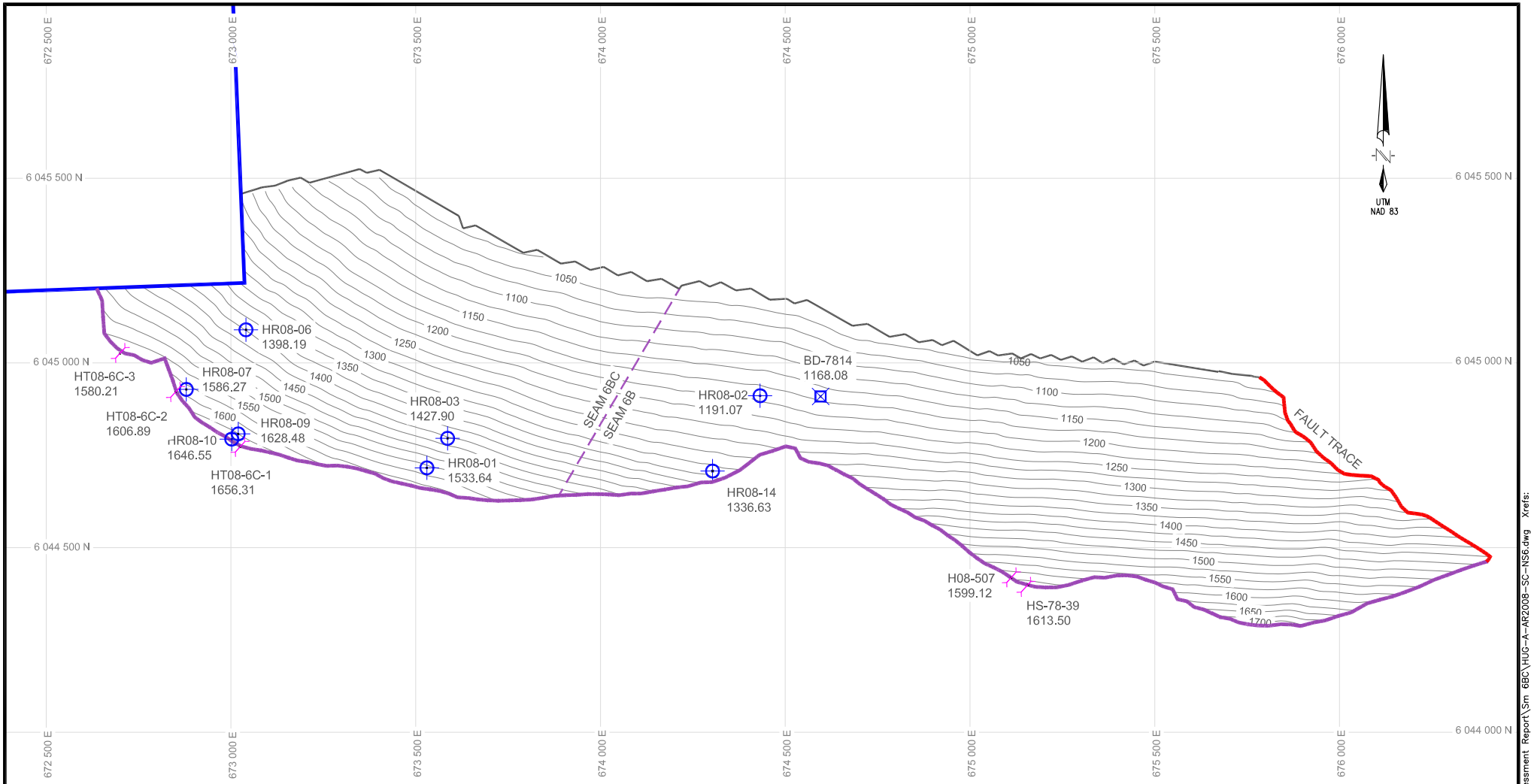


## LEGEND:

- BD-7814 - PENETRATION OF SEAM FLOOR 1594.53 WITH ELEVATION (DIAMOND DRILL HOLE
- HR08-03 - PENETRATION OF SEAM FLOOR 1561.87 WITH ELEVATION (ROTARY DRILL HOLE)
- SEAM 6BC/6B SUBCROP
- CONTOUR (25 M.)
- FAULT TRACE
- TRENCH
- PROPERTY BOUNDARY

NOTE:

STRUCTURE CONTOURS EXTRACTED FROM GEOLOGICAL MODEL PREPARED BY MOOSE MOUNTAIN TECHNICAL SERVICES.

100m 0 100 200 300 400 500m

SCALE

COLONIAL COAL CORP.

HUGUENOT COAL PROJECT

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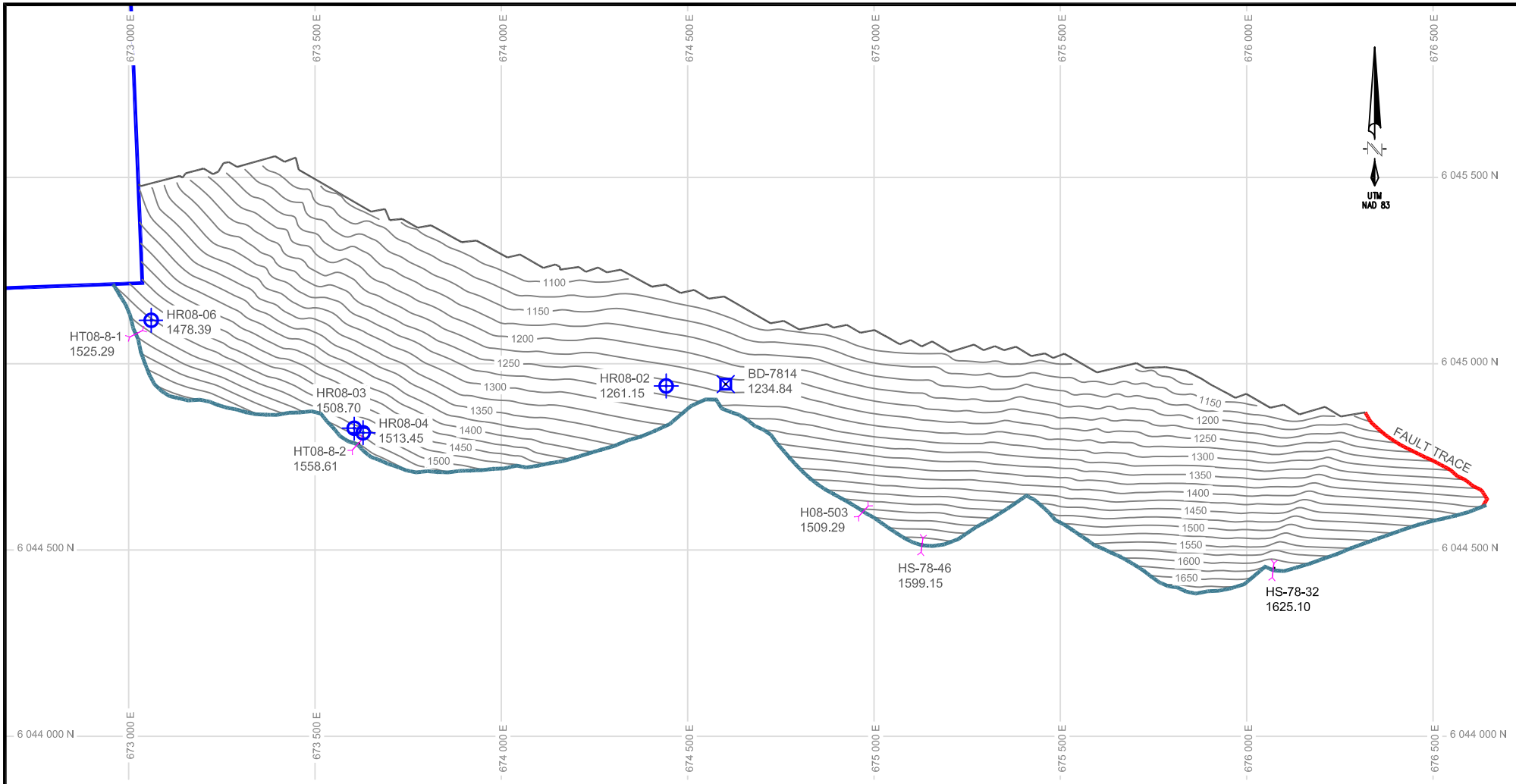
| Approved by: | JP |
| Revision No. | G |
| Dwg No. HUG-A-AR2008-SC-NS6 | |

NORTH BLOCK
STRUCTURE CONTOUR
SEAM 6BC/6B

| Date: | Document: | Figure No. |
|---|---|---|
| 2015-03-03 | 2008 AR | 5-7 |

03/05/15 – 12:33:01pm K:\HUGUENOT\STRUCTURE_CONTOURS\2008\Assessment Report\Sm 6BC\HUG-A-AR2008-SC-NS6.dwg Xrefs:




LEGEND:

- BD-7814 - PENETRATION OF SEAM FLOOR 1594.53 WITH ELEVATION (DIAMOND DRILL HOLE
- HR08-03 - PENETRATION OF SEAM FLOOR 1561.87 WITH ELEVATION (ROTARY DRILL HOLE)
- SEAM 8A SUBCROP
- CONTOUR (25 M.)
- FAULT TRACE
- TRENCH
- PROPERTY BOUNDARY

NOTE:

STRUCTURE CONTOURS EXTRACTED FROM GEOLOGICAL MODEL PREPARED BY MOOSE MOUNTAIN TECHNICAL SERVICES.

100m 0 100 200 300 400 500m

SCALE

COLONIAL COAL CORP.

HUGUENOT COAL PROJECT

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| Checked by: JP | |
| Approved by: JP | |
| Revision No. | |
| Dwg No. HUG-A-AR2008-SC-NS8 | |
| Date: 2015-03-03 | Document: 2008 AR |
| | Figure No. 5-8 |

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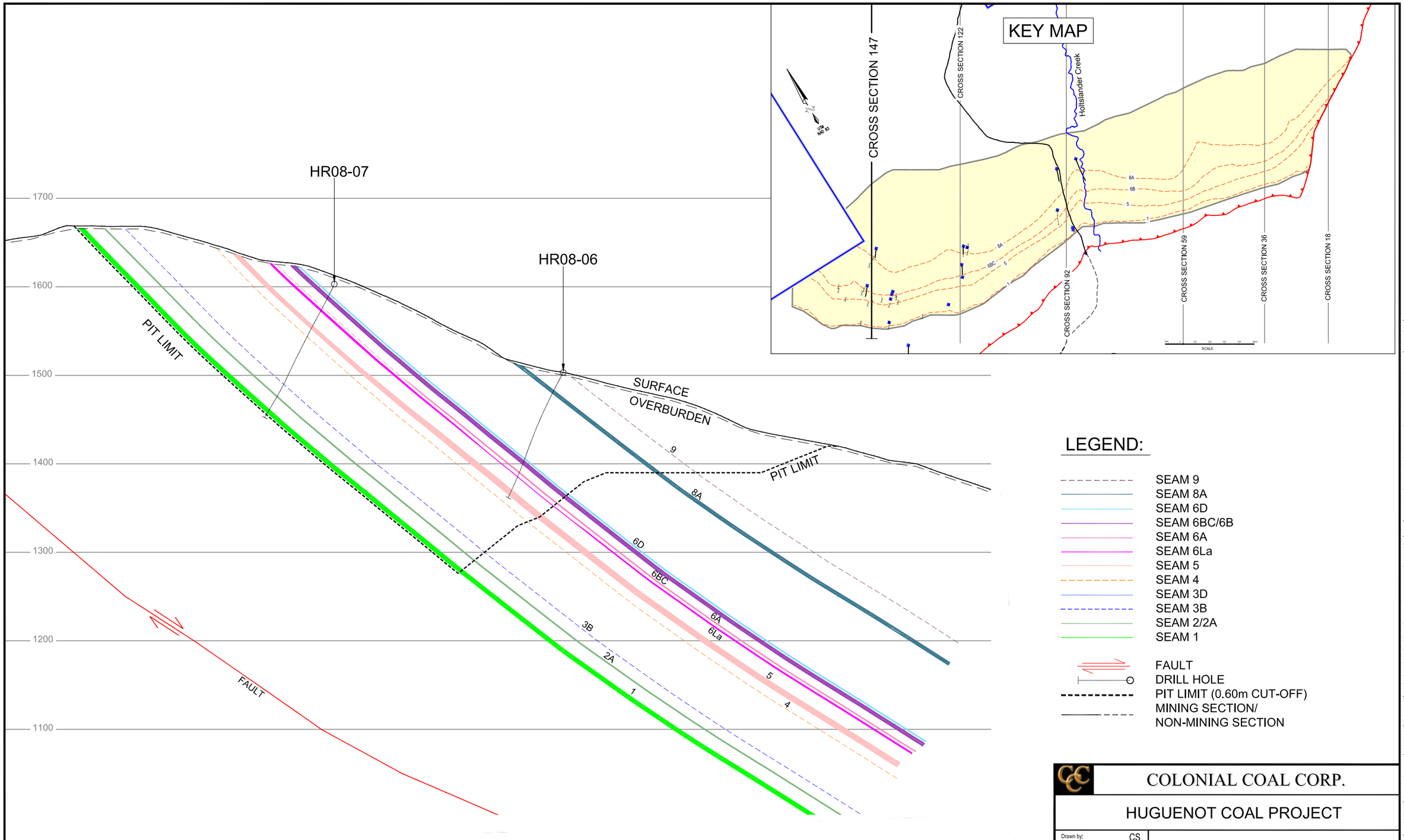





## LEGEND:

- SEAM 9
- SEAM 8A
- SEAM 6D
- SEAM 6BC/6B
- SEAM 6A
- SEAM 6La
- SEAM 5
- SEAM 4
- SEAM 3D
- SEAM 3B
- SEAM 2/2A
- SEAM 1
- FAULT
- DRILL HOLE
- PIT LIMIT (0.60m CUT-OFF)
- MINING SECTION/ NON-MINING SECTION

NOTE:

PIT LIMIT IS FOR 20:1 INCREMENTAL STRIP RATIO

COLONIAL COAL CORP.

HUGUENOT COAL PROJECT

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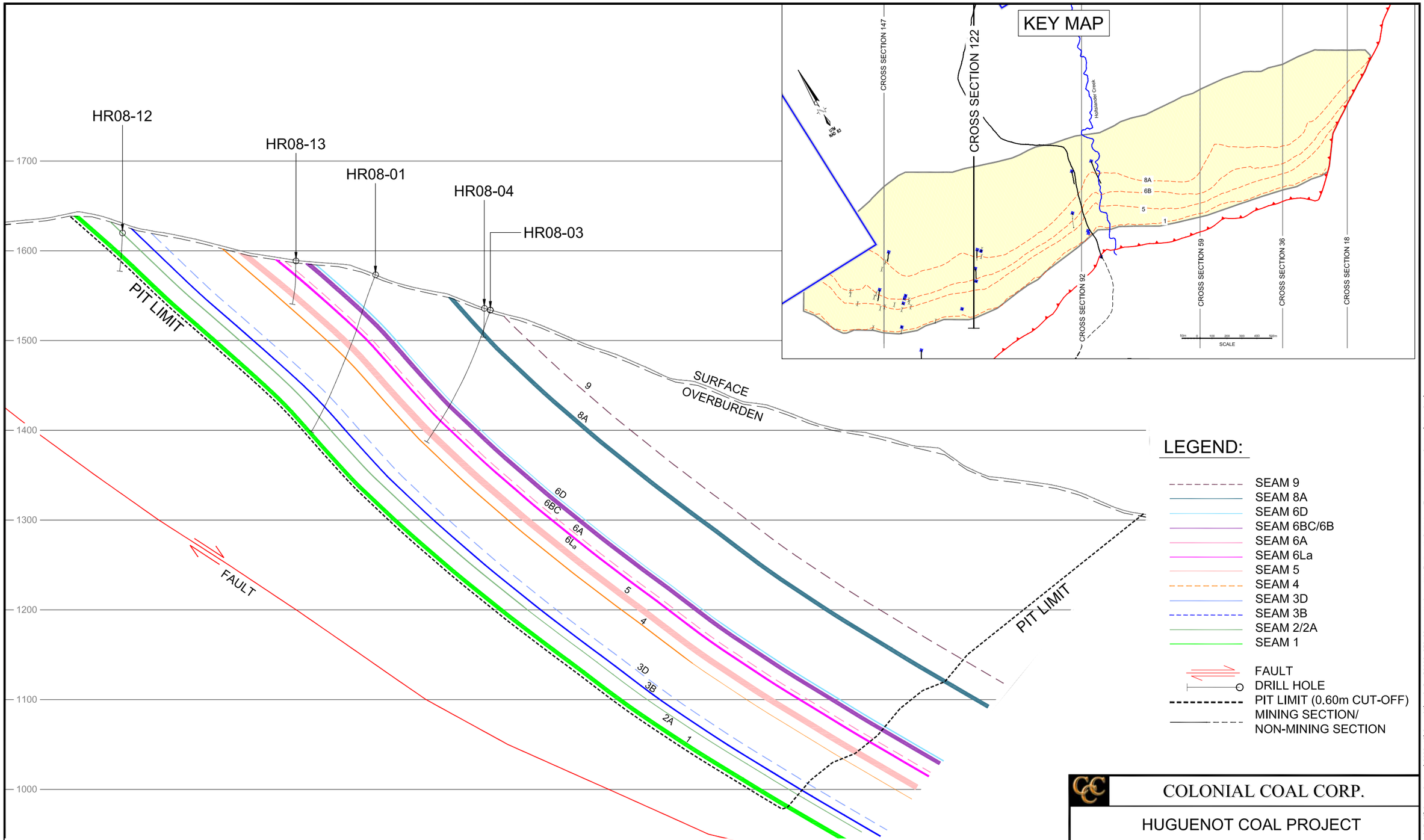
| Approved by: | JP |
| Revision No. | |
| Dwg No. | HUG-B-2008AR-SEC147 |
| Date: | 2015-03-18 |
| Document: | 2008 AR |
| Figure No. | 5-9 |

NORTH BLOCK
CROSS SECTION 147







## LEGEND:

- SEAM 9
- SEAM 8A
- SEAM 6D
- SEAM 6BC/6B
- SEAM 6A
- SEAM 6La
- SEAM 5
- SEAM 4
- SEAM 3D
- SEAM 3B
- SEAM 2/2A
- SEAM 1
- FAULT
- DRILL HOLE
- PIT LIMIT (0.60m CUT-OFF)
- MINING SECTION/ NON-MINING SECTION

NOTE:

PIT LIMIT IS FOR 20:1 INCREMENTAL STRIP RATIO

COLONIAL COAL CORP.

HUGUENOT COAL PROJECT

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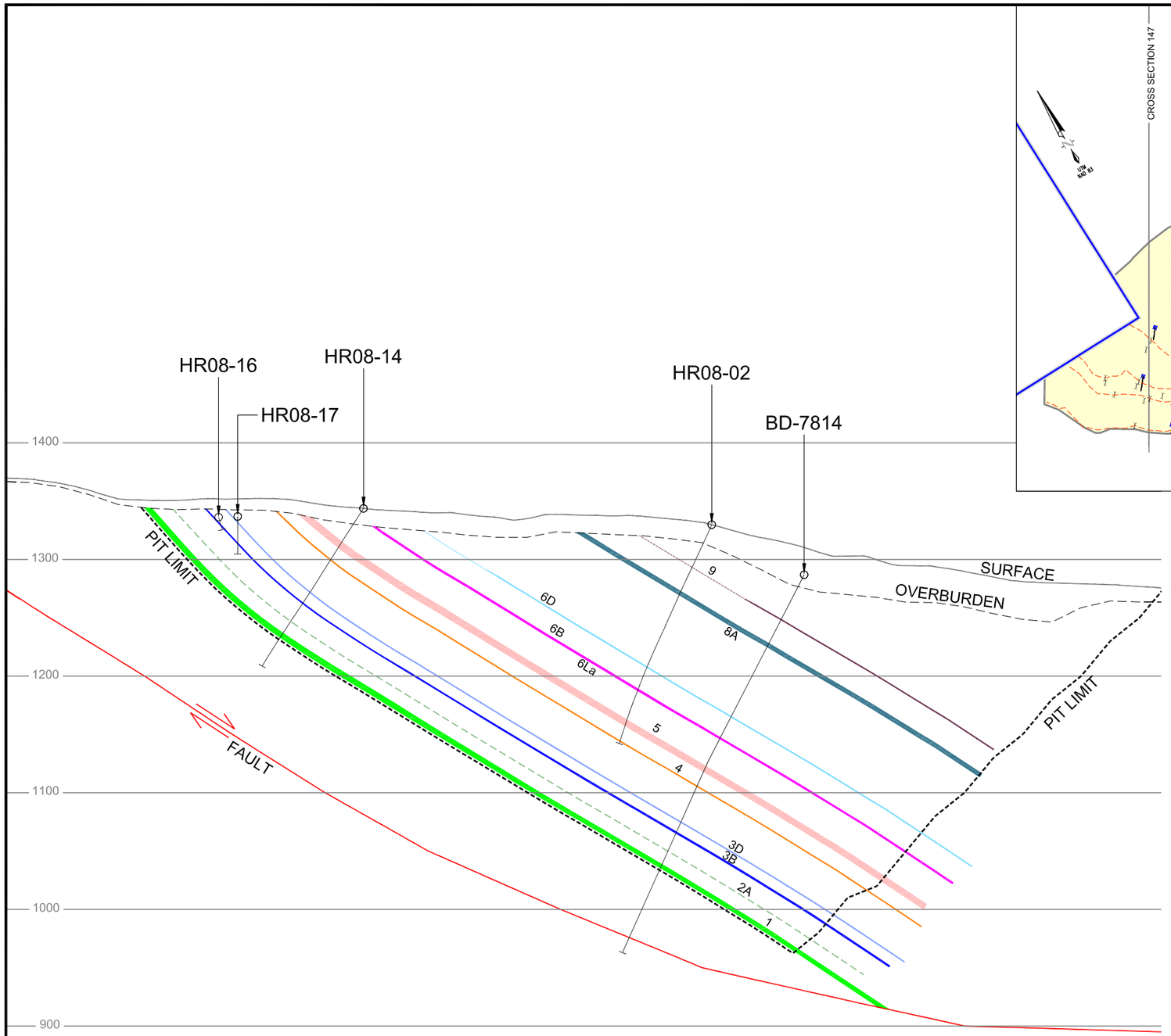
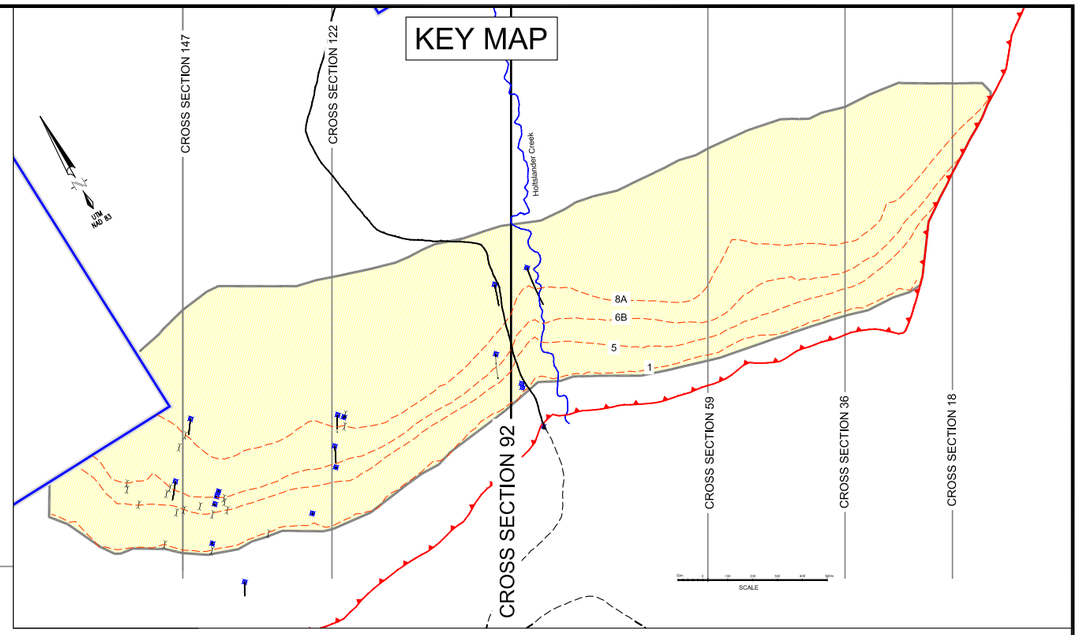
| Approved by: | JP |
| Revision No. | |
| Dwg No. | HUG-B-AR2008-SEC122 |
| Date: | 2015-03-18 |
| Document: | 2008 AR |
| Figure No. | 5-10 |

NORTH BLOCK
CROSS SECTION 122




## LEGEND:

- SEAM 9
- SEAM 8A
- SEAM 6D
- SEAM 6BC/6B
- SEAM 6A
- SEAM 6La
- SEAM 5
- SEAM 4
- SEAM 3D
- SEAM 3B
- SEAM 2/2A
- SEAM 1
- FAULT
- DRILL HOLE
- PIT LIMIT (0.60m CUT-OFF)
- MINING SECTION/ NON-MINING SECTION

NOTE:

PIT LIMIT IS FOR 20:1 INCREMENTAL STRIP RATIO

COLONIAL COAL CORP.

HUGUENOT COAL PROJECT

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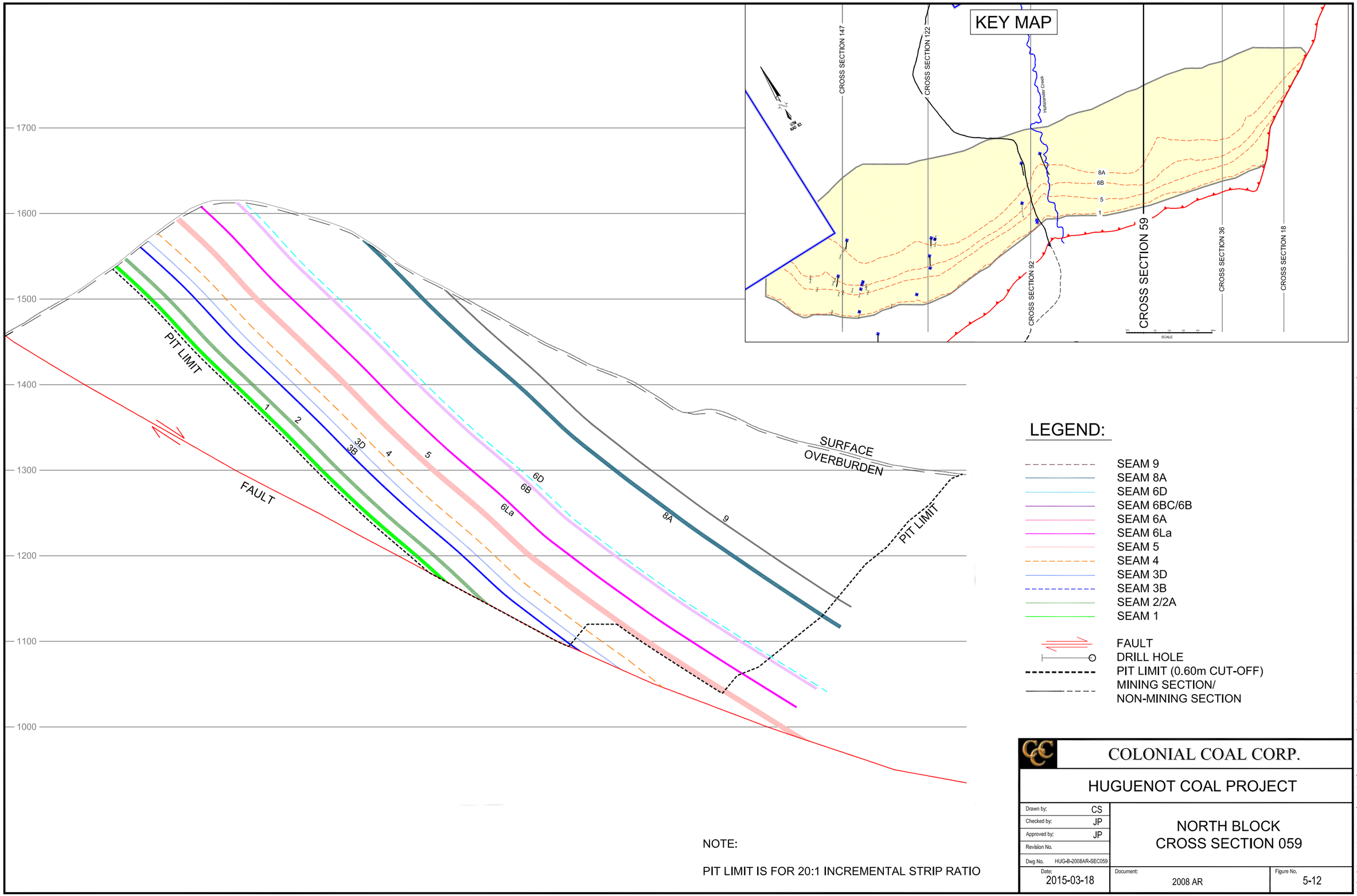
| Approved by: | JP |
| Revision No. | |
| Dwg No. | HUG-B-AR2008-SEC 092 |
| Date: | 2015-03-18 |
| Document: | 2008 AR |
| Figure No. | 5-11 |

NORTH BLOCK
CROSS SECTION 092







## LEGEND:

- SEAM 9
- SEAM 8A
- SEAM 6D
- SEAM 6BC/6B
- SEAM 6A
- SEAM 6La
- SEAM 5
- SEAM 4
- SEAM 3D
- SEAM 3B
- SEAM 2/2A
- SEAM 1
- FAULT
- DRILL HOLE
- PIT LIMIT (0.60m CUT-OFF)
- MINING SECTION/ NON-MINING SECTION

NOTE:

PIT LIMIT IS FOR 20:1 INCREMENTAL STRIP RATIO

COLONIAL COAL CORP.

HUGUENOT COAL PROJECT

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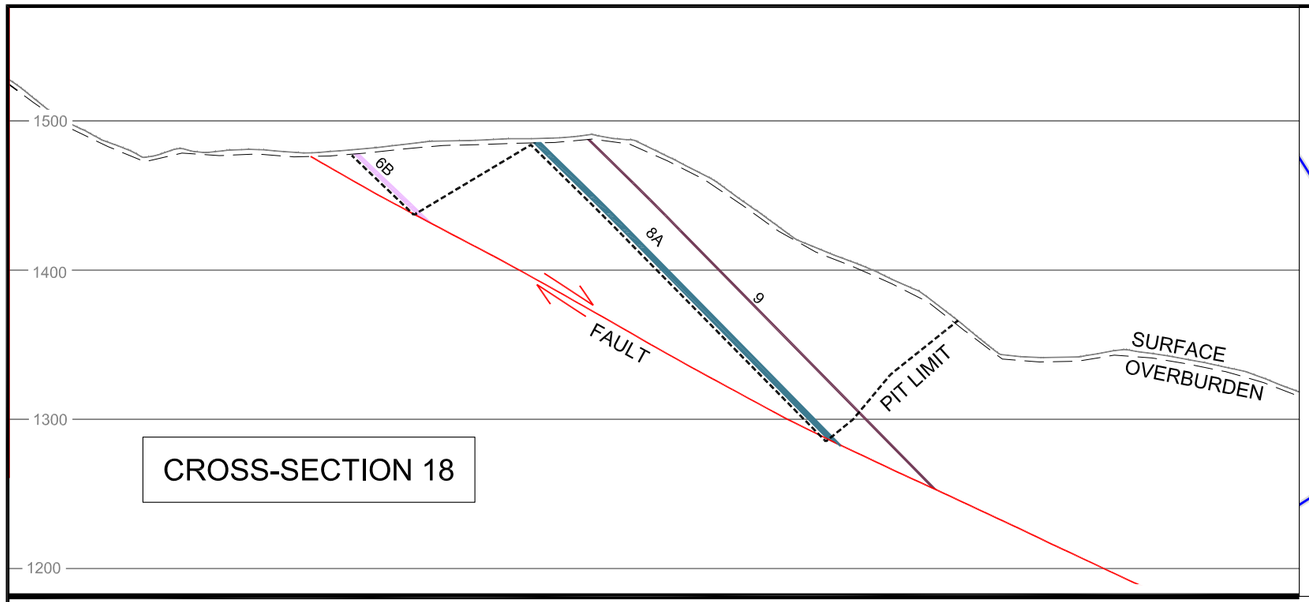
| Approved by: | JP |
| Revision No. | |
| Dwg No. | HUG-B-2008AR-SEC059 |

NORTH BLOCK
CROSS SECTION 059

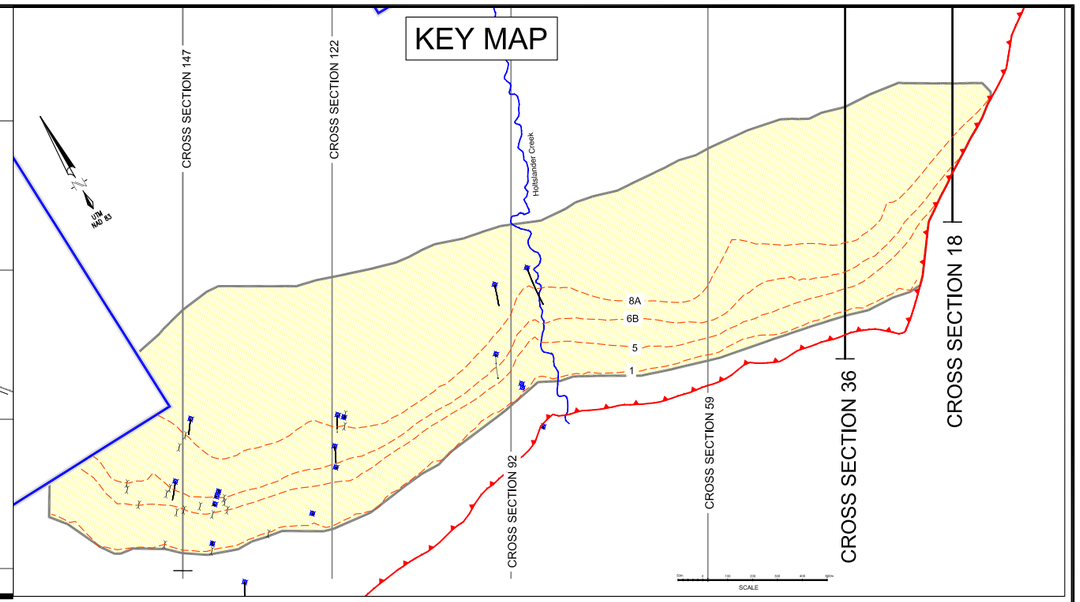
Date: 2015-03-18

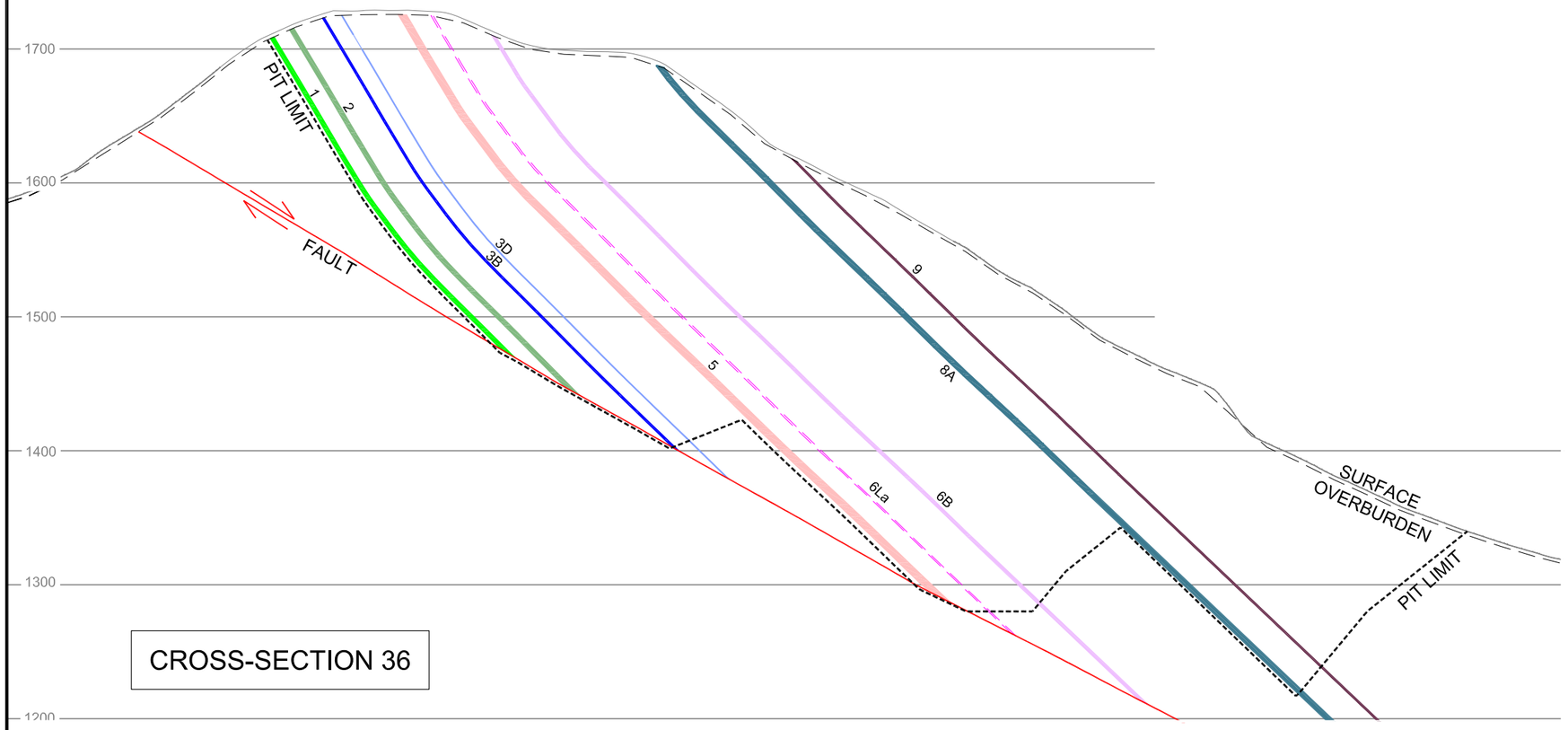
Document: 2008 AR

Figure No. 5-12




CROSS-SECTION 18




CROSS-SECTION 36

LEGEND:

- SEAM 9
- SEAM 8A
- SEAM 6D
- SEAM 6BC/6B
- SEAM 6A
- SEAM 6La
- SEAM 5
- SEAM 4
- SEAM 3D
- SEAM 3B
- SEAM 2/2A
- SEAM 1
- FAULT
- DRILL HOLE
- PIT LIMIT (0.60m CUT-OFF)
- MINING SECTION/ NON-MINING SECTION

NOTE:

PIT LIMIT IS FOR 20:1 INCREMENTAL STRIP RATIO

COLONIAL COAL CORP.

HUGUENOT COAL PROJECT

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| Checked by: | JP |
| Approved by: | JP |
| Revision No. | |
| Dwg No. | HUG-B-2008AR-SEC18_36 |
| Date: | 2015-03-18 |

NORTH BLOCK
CROSS SECTIONS
018 & 036

Document: 2008 AR

Figure No. 5-13

# SECTION 6 COAL QUALITY

Data and interpretations presented in this section incorporate historical coal quality taken from Denison (1979a, 1979b, and 1981), plus the results obtained from Colonial's 2008 coal sampling and testing programs. All 2008 coal quality data including analytical, attrition-sizing, washability, petrography and carbonization results, plus detailed sample logs are presented in Appendix V.

## 6.1 NORTH BLOCK

### 6.1.1 Raw Coal Quality

For the North Block, the overall, in-situ (or raw) coal quality data for the major seams and for some of the minor seams for which there are reliable data (essentially determined by core recovery) are presented in Table 6-1. The 1978 and 1979 data were obtained from higher recovery cores from diamond drilling while the 2008 data were obtained from simulated head raw samples, split from each of the main, bulk sampled coal seams (see below).

Residual moisture values are typical of un-oxidized coals found within the Gates Formation of the North-East Coal Block; that is, usually less than 1%. Volatile matter on a Dry-Mineral Matter-Free (dmmf) basis ranges from 24.66% to 26.54%. This would normally be taken to indicate that all the coal seams fall within the medium volatile bituminous classification. However, maximum reflectance values from coal petrography indicate that the seam series 6BCD and Seam 8A fall just within the high volatile A bituminous rank (see below, also).

Table 6-1: North Block In-Situ Coal Quality Summary (air dried basis)

| Seam | Data Point | RM % | Ash % | VM % | FC % | S % | Dmmf VM % | % Core Rec. |
|---|---|---|---|---|---|---|---|---|
| 8A[1] | HB08-8-C | 0.81 | 25.49 | 21.15 | 52.55 | 0.37 | 26.54 | 94.6 |
| 6D | HB08-6C-B | 0.64 | 8.56 | 23.71 | 67.09 | 0.73 | 25.34 | 100 |
| 6BCD[1] | HB08-6C-B | 0.71 | 27.86 | 20.07 | 51.36 | 0.51 | 25.59 | 94 |
| 6BC[2] | HB08-6C-B | 0.69 | 16.93 | 22.83 | 59.55 | 0.45 | 26.36 | 93 |
| 6B | HB08-6C-B | 0.66 | 11.08 | 23.83 | 64.43 | 0.47 | 26.12 | 100 |
| 6La | HB08-6A-A | 0.66 | 27.16 | 19.1 | 53.09 | 0.33 | 24.05 | 91.1 |
| 5 | HB08-5-B | 0.48 | 14.29 | 22.31 | 62.91 | 0.34 | 25.07 | 97.3 |
| 4 | BD 7906[3] | 0.62 | 7.6 | 22.72 | 69.06 | 0.56 | 24.09 | 85.0[4] |
| 3B | BD 7814 | 0.67 | 33.05[5] | 18.54 | 47.74 | 0.31 | 24.85 | 84.3 |
| 1 | HB08-1-A | 0.68 | 11.91 | 22.39 | 65.02 | 0.43 | 24.66 | 90.3 |

*[1] includes internal rock bands omitted from resource estimates but expected to be included as part of run-of-mine material;*
*[2] adjusted to remove rock band above 6C; [3] located in Middle Block; [4] coal loss; [5] approx. 28% if adjusted for core loss.*

Huguenot coals are low to very low in sulphur; values range between 0.31% and 0.73%, although most are less than 0.6%. The variability exhibited in raw ash contents primarily reflects the thickness and continuity of in-seam rock partings. Although inherent ash (such as mineral matter) produces some variability, its effect is usually minor in comparison to the in-seam partings. Seam

raw ash contents used to determine specific gravities for resource estimations were adjusted for core loss.

### 6.1.2 Clean Coal Quality

#### *6.1.2.1 Historical Data*

Clean coal data from the 1978 and 1979 drilling are derived from float-sink tests conducted on three size fractions; namely, 3/8" x 28 M, 28 M x 100 M, and 100 M x 0. The coarse and middle size fractions underwent float-sink tests over a specific gravity range of 1.40 to 1.90 while the fines fraction underwent froth flotation. Representative clean coal samples were generated by compositing floats from: i) the 1.55 floats from the 3/8" x 28 M fraction; ii) the 1.70 S.G. floats from the 28 M x 100 M fraction; and, iii) froths from runs targeted to achieve ash contents of 10% or less (consequently, with variable run times) for the 100 M x 0 fraction. Proximate, sulphur and phosphorus analyses were performed on each the clean coal, as well as FSI, specific gravity, Hardgrove Grindability Index (HGI), plasticity, and dilatation tests.

Prior to 2008, the bulk sample location closest to the property was collected by Denison from the Belcourt South deposit. During 1980, Denison constructed adits on Seam 1 (Upper) and Seam 5; these adits are located approximately 4.5 km north of the property boundary. Belcourt South's Seam 1 (Upper) is not represented on the North Block but Seam 5 is found throughout both deposit areas. The samples underwent standard testing and analysis, washing, and preparation of a simulated product for carbonization tests. Coal characterization tests and analyses were carried out on channel samples and sub-samples taken from the main bulk samples; these were treated in the same manner as the core samples. Bulk samples from the adits were combined and washed at the Birtley pilot plant using a dense medium cyclone (3/8" x 28 M, two-stage water only cyclone (28 M x 65 M), and froth flotation (65 M x 0). Dry and wet attrition tests were conducted at Warnock-Hersey prior to washing.

#### *6.1.2.2 Recent Data*

Bulk samples taken by Colonial consisted of two sets of large diameter (6"; 152 mm) drill cores from the main seams on the North Block (Seams 1, 5, 6BCD, and 8A). One set of core was used for coal characterization and analysis while the second set was stored until washed, using criteria determined from washability tests, to provide a clean coal product for each seam. Both sets of cores were kept in cold storage throughout the process in an attempt to reduce any effects of oxidation.

Work on the first set of 6" core samples included the following:

- each 6" core was dropped 7 times; photographs were taken before drop shatter and after the 2nd, 4th & 7th drops. After the 7th drop the core was sized from 3" down to 100 M and the +3" was crushed to pass 3" and re-screened

- dry attrition was then performed; each core was tumbled for 3 minutes (no steel cubes). Core was then wet attrited for 5 minutes (water & steel cubes prorated for weight). Core was then screened from 1 1/4" down to 325 M. The +1 1/4" size fraction was then crushed to pass 1 1/4" and re-screened;

- representative sub-samples (1/8th) were taken from each of the full 11/4" x 16 M fractions; sub-samples were taken from splits of the -16 M fractions and screened down to 325 M. All screen sizes were then analyzed for ash% and a simulated head raw sample was made up from these screen sizes and analyzed for proximate, sulphur, FSI and S.G.

- composites were made up for each of the 4 seams and float sink analysis was performed on the 1 1/4" x 3/8", 3/8" x 16 M, and 16 M x 60 M at the following specific gravities: 1.30, 1.35, 1.40, 1.45, 1.50, 1.60, 1.70 & 1.80. Three seams were re-floated at 1.55 (Seams 5 and 8A) and 1.65 S.G. (Seam 6BCD) to provide further detail over a reduced S.G. range

- a representative split of the 60 M x 0 size fraction was frothed by the modified tree flotation procedure in which kerosene and MIBC were used as collector and frother. The modified tree flotation required the sample to be frothed and the froth and tails to be re-frothed in order to produce 3 froth and 3 tail stages, pulp density was 8%. This was intended to simulate what would happen in a plant froth cell. The rest of the 60 M x 0 size fraction was bulk frothed at 10% pulp density to simulate the 2nd stage yield% and ash% obtained from the modified tree flotation results

- all floats, sink and froth fractions were analyzed for proximate and FSI, except for the tree flotation sinks, that were analyzed for ash only

- after examining the float sink results the bulk float sinking of the 16 x 60 M size fraction was done at 1.75 S.G.

- simulated clean coal composites for each of the 4 seams were made up from the S.G. and froth fractions in the correct proportion as per the cut-points recommended by Colonial and Norwest. The +16 M fractions used the 1.55 floats for Seams 5 and 8A, the 1.60 floats for Seam 1, and the 1.65 floats for Seam 6BCD to target an overall ash content of approximately 8% for all seams combined

- the clean products were analyzed for proximate, sulphur, FSI, Gieseler fluidity and dilatation, mineral analysis of ash, calorific value, HGI and specific gravity; petrography splits were sent to Pearson and Associates

- an overall simulated seam product (SSP) was made up from these 4 clean coal composites calculated in the correct proportion according to yield of each clean coal composite. This SSP was analyzed for proximate, sulphur, phosphorus, S.G. and FSI.

A simplified diagram of the steps described above is shown in Figure 6-1.

Information derived from the above was used to develop coal processing options, estimate product yields, and to provide data to guide bulk washing of the second set of 6" cores for preparation of a North Block simulated "product" coal for carbonization tests.

The official lab certificates for the tests performed on this first set of 6" core are included in Appendix V.

For the second (or twinned) set of cores, the 6" core sample plies were crushed to pass 1 1/4" and composited together to form one composite per seam. Each composite was screened at 16 and 60 M. The 1 1/4" x 16 M fractions were bulk float sank at the same gravities selected for the first cores; i.e., Seams 5 and 8A at 1.55, Seam 1 at 1.60, and Seam 6BCD at 1.65 S.G. As with the first set of cores, the 16 x 60 M size fractions were bulk float sank at 1.75 S.G.; the 60 M x 0 fractions were bulk frothed at the same parameters selected previously. Samples split from the floats/froth and sinks/tails were analyzed for ash.

A simulated clean coal composite for each of the 4 seams was compiled from the S.G. and froth fractions in the correct proportion and analyzed for proximate, sulphur, FSI, S.G., dilatation, and Giesler fluidity. Finally, an overall SSP was made up from each of the four seams clean coal composites using proportions determined from the overall yields from the first set of cores (these yields were considered to be more representative due to higher core recoveries). This SSP was analyzed for proximate, sulphur, S.G., and FSI.

A simplified diagram of the steps described above is shown in Figure 6-2.

An overall, clean, "product" weighing 450 kg (332 kg from the second SSP and 118 kg from the first SSP) was formed from the SSP's derived from each set of cores. A 5 kg representative split taken for proximate, sulphur, FSI, S.G., dilatation, Giesler fluidity, ultimate, and mineral analysis of ash with a sub-split sent to Pearson & Associates for petrography. The SSP from the second set of cores was preferentially used for this overall simulated "product" as it was felt that it was "fresher." While each set of cores was kept in cold storage, the second set was un-crushed for a longer period of time and considered to have had less exposure to air. Three barrels (445 kg in lined drums) of this clean "product" were sent to CanmetENERGY Technology Centre (Canmet) in Ottawa for carbonization tests.

The official lab certificates for the tests performed on the second set of 6" core are included in Appendix V.

The 6" core samples were obtained during September and October 2008. Limitations on laboratory availability and manpower prevented the immediate testing of these samples and the speed at which the early stage testing (through to completion of the washability tests) could be carried out. Drop shatter and attrition tests on the first set of large diameter cores were conducted between December 2008 and mid-February 2009. Coal characterization test work extended from March through early May and work on individual seam clean coal composites extended from June through to early August. Bulk washing and analysis of the second set of cores was carried out between late May and early August. The simulated product for carbonization was sent to Canmet on August 7, 2009. Prior to dispatching this sample, FSI's were re-determined; the results were consistent with those obtained earlier. No indication of oxidation was reported from the coal petrography. Consequently, the results obtained from the cores are considered reliable, except for those reported for Gieseler fluidities, which are considered to be abnormally low, and possibly for dilatation. This is discussed further, below.

Clean coal values reported for 2008 (Table 6-2) are within or close to the ranges reported from historical drilling, although it is to be noted that some of the variability in the old data may be partly due to highly variable core recoveries.

Once again, dmmf volatile matter contents suggest that all the seams should fall within the medium volatile bituminous rank. Clean coal FSI levels are good for Gates Formation coals and are similar to those obtained from the historical data (although the latter range to somewhat higher and lower values for equivalent ash contents). The bulk sample from the Seam 5 adit (Adit 8002) in Belcourt South returned an FSI of 6.5 at 7.5% ash (air dried basis). Concentration of sulphur from the unwashed raw coal into a washed clean coal is not evident. Phosphorus content is consistently low.

Table 6-2: North Block Clean Coal Quality Summary (dry basis)

| Seam | Ash % | VM % | FC % | S % | FSI | % P (in coal) | Dmmf VM % | Theoretical Yield % | % Core Rec. |
|---|---|---|---|---|---|---|---|---|---|
| 8A[1] | 7.85 | 26.23 | 65.92 | 0.44 | 6.5 | 0.036 | 27.85 | 66.92 | 94.6 |
| 6BCD[1] | 6.85 | 26.05 | 67.11 | 0.57 | 6.5 | 0.045 | 27.39 | 66.62 | 94 |
| 6La | 9.11 | 22.92 | 67.97 | 0.39 | 6 | 0.07 | 24.5 | 62.94 | 91.1 |
| 5 | 8.04 | 23.74 | 68.22 | 0.36 | 6 | 0.036 | 25.19 | 85.47 | 97.3 |
| 3B | 8.01 | 23.98 | 67.06 | 0.49 | 8 | 0.026 | 25.68 | 62.3 | 84.3 |
| 1 | 7.7 | 23.76 | 68.54 | 0.4 | 6.5 | 0.035 | 25.13 | 92.85 | 90.3 |

*Notes: Data points used are the same as those listed in Table 6-1; [1] includes internal rock bands omitted from resource estimates but expected to be included as part of run-of-mine material.*

In-seam yield values (i.e., with no out-of-seam dilution) obtained from cleaning to approximately 8% ash, are good to excellent. Yields can be expected to vary somewhat across the deposit due to variations in the number and thickness of rock bands and coal splits that are included in the mining sections, and in the nature of any lost core. It is worth noting that the Seam 5 bulk sample from Adit 8002, located in Belcourt South (Denison, 1981), reported a yield of 74.9%. Some of the differences noted between ash contents and yields obtained from the 2008 samples versus the historical results reflect the targeted clean coal ash values. The historical work targeted a “product” ash content of 7.5% compared to 8.0% for recent work.

Mineral compositions of ash were determined for Seams 1, 5, 6La, 6BCD, and 8A. The results provide base: acid ratios for each coal seam accordingly: Seam 1 = 0.054; Seam 5 = 0.065; and, Seam 6La = 0.054; Seam 6BCD = 0.109; and, Seam 8A = 0.139.

Based upon reviews of the historic and 2008 core descriptions, geophysical logs, coal quality and washability data, including nearby data from adjoining properties, it is the opinion of the authors that the samples are representative and reasonably characterize the coal quality of the deposit.

### 6.1.3 Simulated Product Coal

The coal qualities of two clean coal composites formed from the combination of the four main seams from each set of 6” cores are presented in Table 6-3. The analyses for the overall simulated product sent to Canmet, is also provided. These composite samples were obtained from the main coal seams (Seams 1, 5, 6BCD and 8A) which comprise approximately 78.3% of the resources as currently defined by the 0.60 m thickness cut-off. Using a 1.00 m cut-off, they represent 89.5% of the resource base.

Table 6-3: North Block Clean Coal Composites (dry basis)

| Sample ID | Ash % | VM % | FC % | S % | FSI | % P (in coal) | Dmmf VM % |
|---|---|---|---|---|---|---|---|
| 1st CCC | 7.88 | 23.94 | 68.18 | 0.44 | 6.5 | 0.039 | 25.35 |
| 2nd CCC | 7.8 | 24.3 | 67.89 | 0.43 | 6.5 | 0.044 | 25.74 |
| Sim. Product | 8.1 | 23.43 | 68.47 | 0.42 | 6.5 | 0.047 | 24.85 |

*Note: CCC = clean coal composite.*

Overall, the values are consistent with those presented for the individual coal seams in Table 6-2. The simulated product is low in both sulphur and phosphorus, and has a good FSI. The ash value for the second set of cores is lower than its calculated value (8.20%); this accounts for the composite ash value falling outside the range of its two component parts and also contributes to the slightly higher sulphur and phosphorus values seen in the composite.

The composite has a low base: acid ratio of 0.078, as determined from the mineral composition of ash results shown in Table 6-4.

Table 6-4: Simulated Product – Mineral Analysis of Ash

| SiO2 | Al2O3 | TiO2 | CaO | Fe203 | MgO | Na2O | K20 | P205 | SO3 | Undetected |
|---|---|---|---|---|---|---|---|---|---|---|
| 62.55 | 25.47 | 1.33 | 2.03 | 2.44 | 0.90 | 0.70 | 0.92 | 1.32 | 0.97 | -1.37 |

Thermal rheology data from the individual coal seams, seam clean coal composites and simulated product indicate that the coal has low fluidity with a narrow melting range and no dilatation. For the individual seams (from the second set of cores) maximum fluidities were in the 2-5 ddpm range, with a melting range of 44°-55°C. The simulated product yielded a maximum fluidity of 2.1 ddpm and a melting range of 43°C. In reviewing the coal quality data for their report on the carbonization test, Canmet (2009) state:

> *"The low fluidity and non-existent dilatation would indicate this coal to be aged as both fluidity and dilatation are very sensitive parameters to early stages of coal oxidation at low temperature."*

They further commented that the relatively high oxygen content (4.9%, db) for a coal of this rank could also be a sign of partial oxidation.

Historical thermal rheology data for the main coal seams, obtained from HQ-core across both the Belcourt South and Huguenot properties show significant ranges in fluidity and maximum dilatation values, while melting ranges and maximum contraction values are more constrained. The ranges for each seam were: Seam 1, from 10 to 375 ddpm (includes values of 124 and 149 ddpm; 450 ddpm was obtained from one intersection with 39% core recovery); Seam 5, from 7 to 154 ddpm (most <77 ddpm); Seam 6, from 4 to 88 ddpm; Seam 8, from 1 to 258 ddpm (most <27 ddpm). The melting range for all seams varies from 32° to 75°, although for most samples the range is between 50° and 75°. Dilatation results showed maximum contraction ranging between -18 and -30 with maximum dilatation ranging to +41. The time lapse between drilling and analysis is not known.

Adit samples from Seam 5 and Seam 1 (Upper) at Belcourt South returned the following results: Seam 1 (Upper): maximum dilatation = +60, maximum fluidity = 291 ddpm, melting range = 72°; Seam 5: maximum dilatation = +59, maximum fluidity = 215 ddpm, melting range = 65°. It is of

interest to note that the oxygen content (as determined from Ultimate Analysis) for Seam 5 was 5.26%, while that for Seam 1 (Upper) was 2.82%.

### 6.1.4 Coal Petrography

The maximum reflectance values obtained for each individual coal seam are: Seam 1 = 1.16; Seam 5 = 1.17; Seam 6La = 1.17; Seam 6BCD = 1.09; and, Seam 8A = 1.05. The values for Seams 1, 5, and 6La confirm their classification within the medium volatile bituminous rank. The values obtained for Seams 6BCD and 8A fall just below the medium volatile bituminous - high volatile bituminous boundary and therefore, these coals are of high volatile bituminous A rank. When combined into a simulated product, the coals return overall maximum reflectance values of medium volatile bituminous rank (i.e., 1.14). Table 6-5 presents the results of petrographic analyses conducted on the simulated product that was sent for carbonization testing. Predicted FSI values are consistent with measured values.

Table 6-5: Petrographic Data for Simulated Product (Clean Coal Basis)

| Petrographic Indices | |
|---|---|
| Mean Maximum Reflectance (RoMax) | 1.14 |
| Composition Balance Index | 1.32 |
| Calculated Strength Index | 4.29 |
| Calculated Stability Index | 56.00 |
| Estimated Coke Strength DI 30/15 | 94.01 |
| Predicted Free Swelling Index | 7 |
| **Total Reactives** | **67.2** |
| **Total Inerts** | **32.8** |
| %Ash (db) | 8.1 |

Detailed coal petrography data obtained for each of the main coal seams cored in 2008 in the North Block is presented in Appendix V.

It should be noted that historical values obtained for mean maximum reflectance are significantly higher than those obtained during the current work phase. Consequently, results obtained from the historical coal petrography are considered unreliable and were discarded.

### 6.1.5 Coal Carbonization

The simulated product underwent coke tests at Canmet's laboratories in mid-August 2009. Initially, a representative sample was carbonized in a 15 kg Stelco sole-heated oven for determination of its expansion/contraction characteristic. FSI was also determined. The sample then underwent carbonization in Canmet's larger-scale Carbolite oven (nominal charge capacity of 350 kg).

The Coal Evaluation and Carbonization Project Report (Canmet, 2009) that documents the procedures and describes the results of the testing is presented in Appendix V of this report. It includes the following conclusions:

> *"The coal has 8.1% ash, low sulphur, 0.42%, high oxygen content, 4.9% potentially indicating partial oxidation and low thermal rheological properties. It has a low basicity index, 0.08, considered advantageous for cokemaking. However, the coal makes a*

*rather weak ambient strength coke as measured by ASTM and JIS drum tests. A moderate CSR of 53 is considered too low to be used as a stand-alone product in present ironmaking blast furnace operations but would be acceptable as part of a blend."*

And,

*"….the clean coal sample ……. provided by Colonial to CanmetENERGY for evaluation of its coking properties, could potentially find useful application as a bridging coal for blending."*

Canmet recommended that:

*"….. it would be advantageous in the future for CanmetENERGY to receive freshly-obtained coal samples for evaluation in order that their coking potential is maximized."*

Considering the possibility that the simulated product may have been partially oxidized, the results are viewed *as* establishing a baseline from which a number of parameters can be expected to improve. The results compare reasonably to those stated for the Belcourt Project where the fluid (melting) range and FSI are considered to indicate that Belcourt coal *"… could be an excellent "bridging" component in an industrial blend where low and high volatile coals comprise the essential components."* (Borntreager et al, 2009). This conclusion was judged to be consistent with conclusions contained within a 1982 feasibility study on the Belcourt Project. The carbonization tests on the Belcourt coals were also undertaken on samples that had undergone lengthy testing prior to carbonization and which also reported low fluidities.

### 6.1.6 Process Simulation

Based upon the washability and coal quality data, Norwest undertook process simulation using Limn process simulation software (Norwest, 2010). This software allows for the testing of multiple scenarios for process and product optimization in order to reliably predict true coal product yield as well as determining optimal product quality for a given process flow-sheet design. For the Huguenot seams, they applied a high performance preparation plant process design appropriate for recovering high value metallurgical grade coals. The process consists of controllable large diameter heavy media cyclones (HMC) for the plus 1.5 mm coal, a high performing spiral concentrator circuit for the 1.5 mm x 0.25 mm size range and froth flotation for the ultra-fines, minus 0.25 mm.

After optimizing individual Limn process unit models, Norwest progressively varied the HMC separating density from about 1.25 S.G. through 1.80 S.G. measuring product output at each 0.025 S.G. step. In single seam stand-alone operations, it is readily apparent that Seams 1 and 6BCD can only produce a product within a very tight ash content range. In actual mining and processing operations, it is likely that a combination of seams will be washed simultaneously. Consequently, the data were re-worked to reflect the washing of multiple seams. Using information provided by Colonial, the data were also adjusted for the inclusion of out-of-seam dilution as well as coal losses expected in actual mining operations.

Norwest concluded that:

- the proper operating HMC density cut-point is about 1.50 S.G.

- a product ash in the range 7.5% to 8.0% (ad) is probably optimal
- the coal seams are naturally low ash coals with a virtual absence of middlings material
- the coal seams are physically compatible for washing together
- a product in the range of 7.5% ash (ad) should readily achievable
- no strict pre-blending regimen prior to washing is likely required.

## 6.2 MIDDLE AND SOUTH BLOCKS

No recent coal seam sampling has been conducted on the Middle and South Blocks. Coal quality data comes from historical reports (Denison, 1979a, 1979b, and 1981) and have been derived from HQ-size cores from several widely spaced drillholes. This drilling was part of a series of large programs that included many other drillholes located to the northwest and southeast. The analytical procedures and tests performed on raw core samples and clean coal are the same as those described in sub-section 6.1.2.1.

The results indicate that the Gates Formation coals within the Middle and South Blocks are of medium volatile bituminous rank. Their coal qualities are consistent with those described for the North Block for both raw (in-situ) and clean coal and include moderately low ash values, low sulphur and phosphorus contents and good to excellent FSI's. Their thermal rheology values fall within the ranges discussed for the North Block in Section 6.1.3. Within the South Block there is a tendency towards slightly lower volatile contents (as seen on a dmmf basis). Denison (1979b) noted the southeasterly decrease in volatiles across their old Belcourt property. In their proposed Omega pit area, southeast of the Huguenot property, most of the Gates coal seams report to the upper limit of low volatile bituminous rank and are demonstrated to be metallurgical coals.

# HUGUENOT 2008 LARGE DIAMETER CORE WASHABILITY FLOWSHEET
## (1st Core : Dry & Wet Attrition)

| Screen Sizes | | |
|---|---|---|
| mm | inches | Mesh |
| 76.20 | 3.0 | |
| 31.75 | 1-1/4 | |
| 19.05 | 3/4 | |
| 9.50 | 3/8 | |
| 1.00 | 0.0394 | 16 |
| 0.60 | 0.0234 | 28 |
| 0.25 | 0.0098 | 60 |
| 0.15 | 0.0059 | 100 |
| 0.04 | 0.0017 | 325 |

**Gravity Separations for Float-sink analysis:**

-1.30
1.30 - 1.35
1.35 - 1.40
1.40 - 1.45
1.45 - 1.50
1.50 - 1.55
1.55 - 1.60
1.60 - 1.65
1.65 - 1.70
1.70 - 1.80
+1.80

For floats and sink, report Wt (g), Wt(%), Proximate analysis and FSI
Report incremental and cumulative wash tables

**PLIES**

**Take Individual or combine Seam Plies as Instructed**
(No prior treatment)

Record starting weight of the individual / combined plies (grams)

**Drop Shatter**
Drop 7 times

Photograph & take the weight of 31.75 mm size fraction before DS and after 2nd, 4th & 7th drops

Screen Size Analysis (mm)
76.20, 31.75, 19.05, 9.50, 1.00, 0.60, 0.15, 0. *Report Wt (g), Wt%.*

Crush oversize to –76.20mm

**Screen Size Analysis (mm)**
76.20, 31.75, 19.05, 9.50, 1.00, 0.60, 0.15, 0. *Report Wt (g), Wt%.*

**Dry Attrition** ( 3 min., no steel cubes)

**Wet Attrition** (5 min., w/ steel cubes & $H_2O$)

**Wet Screen Size Analysis (mm)**
31.75, 19.05, 9.50 1.00, 0.60, 0.25, 0.15, 0.04, 0. Report Wt (g), Wt%,

Crush oversize to – 31.75 mm

**Screen Size Analysis, adb**
31.75 mm x 19.05 mm
19.05 mm x 9.50mm
9.50 mm x 1.00 mm
1.00 mm x 0.60 mm
0.60 mm x 0.25 mm
0.25 mm x 0.15 mm
0.15 x 0.04 mm
0.04 mm x 0

For each Size Fraction:
Report Wt (g), Wt (%), Cum Wt % , Ash %, Cum Ash %

Make up sub sample for
**Simulated Head Raw Analysis**
Weight (g), Proximate analysis, S%, SG, FSI

**COMPOSITE**

**COMPOSITE SAMPLE** (*For each seam combine all the individual ply samples*)

Screen Size Analysis, adb
31.75 mm x 9.50 mm
9.50 mm x 1.00 mm
1.00 mm x 0.25 mm
0..25 mm x 0

For each Size Fraction:
Report Wt (g), Wt (%), Cum Wt % , Ash %, Cum Ash %

31.75 mm x 9.50 mm
Float-sink Analysis using 11 SG fractions.
For each float, report Wt (g), Wt (%), Proximate analysis, FSI. Report incremental and cumulative.

9.50 mm x 1.00 mm
Float-sink Analysis using 11 SG fractions.
For each float, report Wt (g), Wt (%), Proximate analysis, FSI. Report incremental and cumulative.

1.00 mm x 0.25 mm
Float-sink Analysis using 11 SG fractions.
For each float, report Wt (g), Wt (%), Proximate analysis, FSI. Report incremental and cumulative.

0.25 mm x 0
Modified Tree Froth Flotation
For Froths and Tails, report Wt (g), Wt (%), Proximate analysis, FSI. Report incremental and cumulative.

Select SG cut point

FLOAT PRODUCT
Report Wt (g), theoretical yield, Proximate analysis, FSI

*SINK - Report Wt(g), Wt (%), Proximate analysis*

Select SG cut point

FLOAT PRODUCT
Report Wt (g), theoretical yield, Proximate analysis, FSI

*SINK - Report Wt(g), Wt (%), Proximate analysis*

Select SG cut point

FLOAT PRODUCT
Report Wt (g), theoretical yield, Proximate analysis, FSI

*SINK - Report Wt(g), Wt (%), Proximate analysis*

Select suitable froth time , sec

FROTH PRODUCT
Report Wt (g), theoretical yield, Proximate analysis, FSI

*TAILS - Report Wt(g), Wt (%), Ash (%)*

**CLEAN COAL COMPOSITE**
Combine float products and froth product proportionally. Report Theoretical yield %, Proximate analysis, S%, FSI, HGI, Calorific Value (CAL/G), Gieseler fluidity, Rhur dilatation, SG, P in coal, Mineral analysis of ash

**PETROGRAPHY SAMPLE**
Send min. 100 gram representative sample to third party lab as instructed

Updated by:
ERDeligero
25 March 2015

**COLONIAL COAL CORP.**

HUGUENOT COAL PROJECT

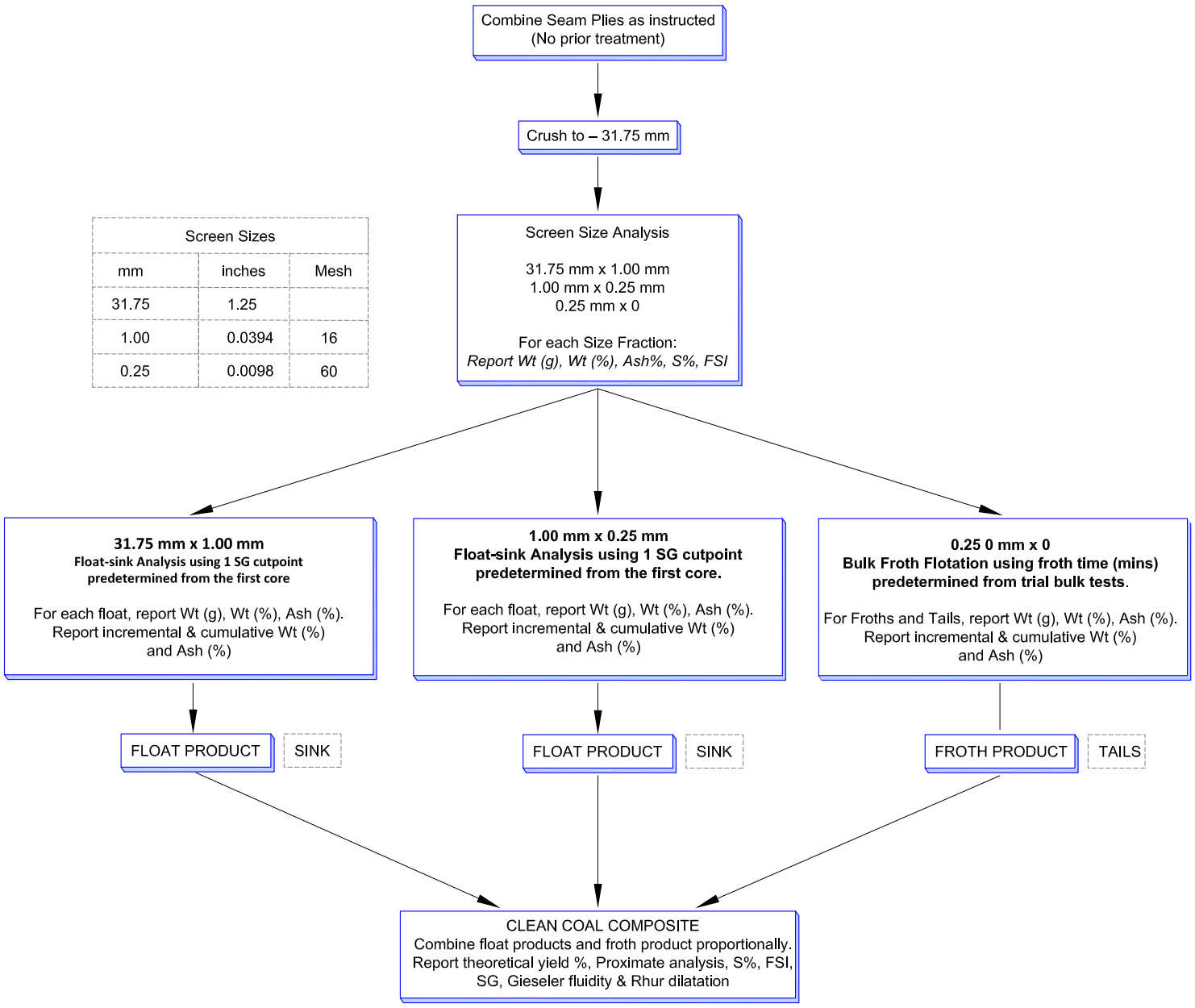
| | |
|---|---|
| Drawn by: | CVS |
| Checked by: | JHP |
| Approved by: | JHP |
| Revision No. | |
| Dwg No. | HUGA-2008AR-CQ-LD1 |
| Date: | 2015-05-08 |

**2008 LARGE DIAMETER CORE WASHABILITY FLOWSHEET 1st CORE: DRY & WET ATTRITION**

Document: 2008 AR
Figure No. 6-1

05/08/15 – 10:16:26am K:\HUGUENOT\Coal Quality\2008_AR\HUGA-2008AR-CQ-LD1.dwg Xrefs:

# HUGUENOT 2008 LARGE DIAMETER CORE SHORT WASHABILITY FLOWSHEET
## (2nd Core : No Attrition)




| Screen Sizes | | |
|---|---|---|
| mm | inches | Mesh |
| 31.75 | 1.25 | |
| 1.00 | 0.0394 | 16 |
| 0.25 | 0.0098 | 60 |

| Float-sink analysis (SG) | | | |
|---|---|---|---|
| SEAM | 31.75 mm x 1.00 mm | 1.00 mm x 0.25 mm | 0.25 mm x 0 |
| 8A | 1.55 | 1.75 | 1.5 min |
| 6BCD | 1.65 | 1.75 | 1.5 min |
| 5 | 1.55 | 1.75 | 1.5 min |
| 1 | 1.60 | 1.75 | 1.5 min |

Updated by:
ERDeligero
25 March 2015

**COLONIAL COAL CORP.**

HUGUENOT COAL PROJECT

| | |
|---|---|
| Drawn by: CVS | **2008 LARGE DIAMETER CORE SHORT WASHABILITY FLOWSHEET 2ND CORE: NO ATTRITION** |
| Checked by: JHP | |
| Approved by: JHP | |
| Revision No. | |
| Dwg No. HUGA-2008AR-CQ-LD2 | |
| Date: 2015-05-08 | Document: 2008 AR |
| | Figure No. 6-2 |

# SECTION 7 RESOURCE ESTIMATES

## 7.1 NORTH BLOCK

### 7.1.1 Introduction

Coal resource estimations for the North Block of the Huguenot property were carried out by Moose Mountain Technical Services (MMTS). Only areas considered to be potentially surface mineable were targeted for evaluation. Coal that might be mined using underground methods was not addressed for this report.

The current geological interpretation of the North Block was developed by geologists employed by Colonial. Geological modelling was completed by MMTS using Colonial's geology. MMTS conducted data validation, reviewed the geological interpretation, plus the formatting and treatment of data to support model development. In addition, MMTS constructed the 3D resource model and carried out resource estimation and resource classification.

The North Block resource estimates were completed in accordance with the procedures and criteria of GSC Paper 88-21 (Hughes, et al, 1989) as required by NI 43-101. The total in-situ coal resource estimates inside a 20:1 incremental strip ratio pit for the North Block are:

- using a 0.6 m minimum thickness: 45.2 million tonnes (Mt) of Measured and Indicated (Measured = 31.3 Mt; Indicated = 13.9 Mt), plus 10.3 Mt of Inferred

- using a 1.0 m minimum thickness: - 36.7 Mt of Measured and Indicated (Measured = 26.4 Mt; Indicated = 10.3 Mt), plus 9.2 Mt of Inferred.

The overall strip ratio is 12.0:1 (BCM waste: tonnes coal) for the 0.6 m minimum thickness model, and 12.86:1 (BCM waste: tonnes coal) for the 1.0 m minimum thickness model. Metallurgical coal makes up approximately 99% of the stated resources.

### 7.1.2 Methodology and General Criteria

Factors affecting estimation of resources within the North Block are summarized below.

#### *7.1.2.1 Model Extent & Geometry*

The North Block model is 4,300 m in the northwest/southeast direction and 2,500 m in the northeast/southwest direction. The model covers a rectangular area of 1,075 ha with its longest edge striking at an azimuth of N 300°.

Model geometry follows the northeasterly-dipping Gates Formation. Block dimensions are 25 m along strike, 25 m in the dip direction, and 10 m in elevation. The resulting model measures 172 blocks (4,300 m) in length and 100 blocks (2,500 m) across and examines resources between 890 m and 1,900 m in elevation, resulting in a total of 101 blocks.

#### 7.1.2.2 Topography & Overburden (Till) Surface

A digital elevation model (DEM) for the project area was generated from a Natural Resources Canada database of digital elevation models. This included an elevation datum on a 100 m grid with accuracy within 5 m, surface feature break lines, and general infrastructure. The drillhole data were 'draped' to the digital data and the drillhole collar elevations were adjusted to fit the topography. The base of overburden surface defines the extent of glacial-fluvial cover over bedrock. No coal seams are modelled above the base of overburden surface. Overburden thickness was created by triangulating overburden thickness from drillhole data, except for the Huguenot Creek area where a contour map was developed to portray the thick overburden in that area.

#### 7.1.2.3 Oxide Horizon

The base of oxidation surface represents an estimate of the horizon where in-situ coal has been sufficiently exposed to oxidizing elements to alter its metallurgical characteristics. Oxidized coal is defined as coal within 4 m of the base of the overburden surface. This estimate was made from experience with other mining projects in the region.

#### 7.1.2.4 Geological Data & Geological Interpretation

The geological dataset consists of historical data from exploration programs conducted by Denison between 1971 and 1979 as well as new exploration. The work conducted by Denison that targeted, and provided data on, the Gates Formation coal measures included one diamond drillhole totalling 365 m, plus significant surface mapping and trenching. Exploration carried out by Colonial during 2008 on Gates Formation coal seams included 26 drillholes totalling 1,914 m (including pilot holes for large diameter drill cores), trenching and mapping. One drillhole was drilled in the Gething Formation (131 m).

All the drillhole and surface mapping and trench data were used to develop the geological model. Additionally, data from a one, off-property, drillhole was used for control purposes. Coal seam correlation was determined by Colonial using down-hole geophysical logs and surface mapping. The geologic structure was developed by Colonial, and considers bedding to core angles logged in drill core as well as bedding dips observed at surface. Colonial provided a structure contour map for Seam 5 and a selection of cross-sections to MMTS for use as structural control for the geological model. MMTS interpreted the geology on cross-section and coal seam footwall contacts were digitized to create seam locations in 3D space. The coal seam traces on cross-section were linked to create surfaces in 3D space.

Coal seam thicknesses from exploration drillholes were acquired by measuring along the length of the hole. Because the angle of intersection between the hole and the seam is often less than perpendicular, these intersections represent 'apparent' rather than 'true' thickness. Adjustment from apparent to true seam thickness is therefore a critical step in the modelling of in-situ coal resources. The resource model is based on true seam thickness, as defined mathematically through the relationship between drillhole geometry and interpreted bedding geometry.

While the resource estimates are based primarily on drillhole data supported by selected trench data, the assignment of resource categories takes all of the geological data into account.

#### 7.1.2.5 Mineable Thickness

On the basis of the current interpretation, the Huguenot deposit is classified as a moderate, potentially surface mineable deposit. Resource assumptions for mineable thicknesses conform to GSC Paper 88-21 guidelines at 0.6 m. Rock partings greater than 0.3 m true thickness were omitted from in-situ resource estimations.

It should be noted that the mineability of a given seam is not simply tied to its individual seam thickness, but also to its quality, and the number and thickness of seams and partings immediately adjacent to it. Furthermore, mineability is greatly determined by mining methodology and equipment selection. The larger the equipment, the more difficult it becomes to mine selectively. This understanding is facilitated in current 3D modelling environments such as MineSight®, which was utilized for the North Block.

#### 7.1.2.6 Specific Gravity

In view of limited specific gravity measurements obtained from the 2008 drill core, the relationship between in-situ ash% and specific gravity (S.G.) of the coal was derived from the Quintette Formula. The formula was developed by Quintette Coal Corp. for determining in-situ specific gravity of coal, and is considered compatible with a fracture porosity of approximately 4%. The Quintette Formula is:

$$\text{In situ S. G.} = \frac{211.4306}{172.0854 \; - \; \%\,\text{ash (adb)}}$$

BSCL (2008) evaluated the relationship between in-situ ash% and specific gravity (S.G.) of the coal for the Belcourt South deposit. The Quintette formula yielded slightly lower S.G.'s below 23% ash than a formula developed for Belcourt South, which used laboratory determined specific gravities. Although the differences were not significant, BSCL elected to use the formulae that yielded the lower S.G. value; in most cases this corresponded to the Quintette Formula.

For the North Block, ash values were assigned to seam data points for which no analytical data were available by comparison of the geophysical log characteristics of their coal seam intersections to geophysical logs of the same seam from drillholes where ash values were known (i.e., Seams 1, 5, 6La, 6B, 6BC, 6D, and 8A). Although these "reference" coal seams had high core recoveries their ash contents were adjusted to account for minor core losses. For seams in which portions of the geophysical logs varied from the reference data, incremental ash values associated with similar geophysical log responses from other seams with similar log response were substituted. In cases where no high core recovery "reference" data were available, (e.g., Seams 2, 3B, 3D, and 4) the ash values for the full seam were estimated using comparable geophysical log responses and their associated incremental ash contents. In the limited number of cases where trench data were used, the pictorial trench logs of each seam were compared to the "reference" geophysical logs, incremental ash values were assigned and the overall ash content was calculated.

Specific gravities were derived from these assigned ash values using the Quintette formula. The ash and S.G. data were assigned to their respective data points and entered into the block model for resource estimation purposes. Ash and S.G. were interpolated using a 5,000 m search and an inverse distance squared. The interpolated S.G. for each seam, in

each block, was used to convert volume to tonnage. The average values for in-situ ash and S.G. for each seam, taken from the model, are shown in Table 7-1.

Table 7-1: Seam In-Situ Ash & S.G.

| Seam | Ash (%) | S.G. | Seam | Ash (%) | S.G. |
|---|---|---|---|---|---|
| 9 | 19.2 | 1.39 | 5 | 15.2 | 1.35 |
| 8A | 19.2 | 1.38 | 4 | 10.4 | 1.31 |
| 6D | 10.4 | 1.30 | 3D | 8.0 | 1.29 |
| 6BC | 17.4 | 1.37 | 3B | 21.1 | 1.40 |
| 6B | 12.8 | 1.33 | 2A | 8.0 | 1.29 |
| 6A | 23.8 | 1.43 | 2 | 23.0 | 1.42 |
| 6La | 26.4 | 1.45 | 1 | 15.9 | 1.35 |

### 7.1.3 Creating Seam Thickness & Seam Solids

MineSight® is used to transform drilled thickness to true thickness by determining the relationship between the coal seam thickness from drilling, and the seam dip from the 3D footwall shape. With each seam bottom linked from section to section over the length of the deposit to create surfaces, seam solids are created by adding the seam thickness to the seam footwall surfaces.

#### *7.1.3.1 Compositing of Mineable Thicknesses & Interpolation*

Once all intersections and model blocks were assigned seam codes, true thickness values of waste, mineable coal seams, and inseparable partings were aggregated for each seam intersected by a drillhole, Seam intersections were tagged to indicate whether they included both a top and bottom seam contact or only a top or bottom contact.

Populating the 3D block model required the extrapolation of known data in the drillhole composite file to individual model blocks. The true thickness interpolation used a 1,500 m search and an inverse distance power of 2.5.

### 7.1.4 Coal Resource Estimation

Current resource estimates for the North Block of the Huguenot coal property, for 0.6 m minimum mineable and 1.0 m minimum mineable seam thickness models are summarized in Tables 7-2 and 7-3. The resources are considered to be of 'immediate interest'. For each model, the coal, as defined, is within a pit with 45° walls and a strip ratio of less than 20:1 BCM/tonne (a pit delineated resource with an incremental strip ratio of 20 bank cubic metres of waste to one tonne of in place coal). The overall strip ratio is 12.0:1 (BCM waste: tonnes coal) for the 0.6 m minimum thickness model, and 12.9:1 (BCM waste: tonnes coal) for the 1.0 m minimum thickness model. With an incremental strip ratio, each block of coal within the pit must have twenty blocks of waste, or less, above it. The average strip ratio is lower than the incremental strip ratio because of the favourable geology, with shallow seam dips and some thick coal seams.

Table 7-2: Summary of In-Situ Coal Resources (0.6 m cut-off)

| Resource Category | Total (Mt) | Metallurgical (Mt) | Oxidized (Mt) |
|---|---|---|---|
| Measured | 31.3 | 31.0 | 0.3 |
| Indicated | 13.9 | 13.9 | 0.0 |
| Total (Meas. + Ind.) | 45.2 | 44.9 | 0.3 |
| Inferred | 10.3 | 10.2 | 0.1 |

Table 7-3: Summary of In-Situ Coal Resources (1.0 m cut-off)

| Resource Category | Total (Mt) | Metallurgical (Mt) | Oxidized (Mt) |
|---|---|---|---|
| Measured | 26.4 | 26.0 | 0.4 |
| Indicated | 10.3 | 10.3 | 0.0 |
| Total (Meas. + Ind.) | 36.7 | 36.3 | 0.4 |
| Inferred | 9.2 | 9.2 | 0.0 |

Tables 7-4 to 7-6 summarize North Block resources by seam, for both the 0.6 m and 1.0 m minimum, mineable, seam thickness models.

Table 7-4: Summary of Total Measured Resources by Seam

| Seam | Model 1: 0.6 m Cut-off | | Model 2: 1.0 m Cut-off | |
|---|---|---|---|---|
| | Total Coal (Ktonnes) | % of Total | Total Coal (Ktonnes) | % of Total |
| 9 | 200 | 0.64 | | |
| 8A | 3,400 | 10.86 | 2,900 | 10.98 |
| 6D | 700 | 2.24 | | |
| 6BC | 2,800 | 8.95 | 2,800 | 10.61 |
| 6B | 1,200 | 3.83 | 1,100 | 4.17 |
| 6A | 200 | 0.64 | | |
| 6La | 2,400 | 7.67 | 2,300 | 8.71 |
| 5 | 10,000 | 31.95 | 9,600 | 36.36 |
| 4 | 700 | 2.24 | | |
| 3B | 1,300 | 4.15 | 500 | 1.89 |
| 3D | 400 | 1.28 | | |
| 2A | 600 | 1.92 | | |
| 1 | 7,400 | 23.64 | 7,200 | 27.27 |
| **Total** | **31,300** | **100.00** | **26,400** | **100.00** |

Table 7-5: Summary of Total Indicated Resources by Seam

| Seam | Model 1: 0.6 m Cut-off | | Model 2: 1.0 m Cut-off | |
|---|---|---|---|---|
| | Total Coal (Ktonnes) | % of Total | Total Coal (Ktonnes) | % of Total |
| 9 | 500 | 3.60 | 300 | 2.91 |
| 8A | 1,800 | 12.95 | 1,000 | 9.71 |
| 6D | 100 | 0.72 | | |
| 6BC | 600 | 4.32 | 300 | 2.91 |
| 6B | 1,300 | 9.35 | 1,100 | 10.86 |
| 6La | 1,000 | 7.19 | 800 | 7.77 |
| 5 | 3,900 | 28.06 | 3,100 | 30.10 |
| 4 | 200 | 1.44 | | |
| 3D | 300 | 2.16 | | |
| 3B | 800 | 5.76 | 600 | 5.83 |
| 2A | 1,200 | 8.63 | 1,200 | 11.65 |
| 1 | 2,200 | 15.83 | 2 | 18.45 |
| **Total** | **13,900** | **100.00** | **10,300** | **100.00** |

Table 7-6: Summary of Total Inferred Resources by Seam

| Seam | Model 1: 0.6 m Cut-off | | Model 2: 1.0 m Cut-off | |
|---|---|---|---|---|
| | Total Coal (Ktonnes) | % of Total | Total Coal (Ktonnes) | % of Total |
| 9 | 600 | 5.83 | 500 | 5.43 |
| 8A | 1,700 | 16.50 | 1,100 | 11.96 |
| 6B | 1,200 | 11.65 | 1,200 | 13.04 |
| 6La | 700 | 6.80 | 600 | 6.52 |
| 5 | 3,000 | 29.13 | 3,000 | 32.61 |
| 3D | 300 | 2.91 | | |
| 3B | 600 | 5.83 | 600 | 6.52 |
| 2 | 1,200 | 11.65 | 1,200 | 13.04 |
| 1 | 1,000 | 9.71 | 1,000 | 10.87 |
| **Total** | **10,300** | **100.00** | **9,200** | **100.00** |

### 7.1.5 Assurance of Existing Classification

During interpolation runs, MineSight® stores the distance from the model block to the nearest composite value in the zone that satisfies the search parameters. The distance values are then used to assign resource classification codes. The Geology Type is considered to be Moderate. Consequently, the current model requires a data point within a search cell of 450 m (measured), 900 m (indicated), and 2,400 m (inferred), as prescribed in GSC Paper 88-21.

*"Moderate geology type refers to deposits characterized by homoclines or broad open folds with bedding inclinations of generally less than 30°. Faults may be present, but are relatively uncommon."*

The paper also states:

*"Assurance-of-existence categories are intended to reflect the level of certainty with which resource quantities are known. Intuitively, one knows that the greater the distance over which seam thickness data are extrapolated, the greater the possible error; hence, several resource classification schemes have used distance from nearest data point or distance between data points as the primary criteria for assurance-of-existence categorization".*

And,

*"Four categories are used to define assurance-of-existence. In order of increasing uncertainty, these categories are: measured, indicated, inferred, and speculative. Measured resources have a high degree, indicated a moderate degree, and inferred resources a relatively low degree of geological assurance. Speculative resources are those based on extrapolation of few data points over large distances, and are confined to regions where extensive coal exploration has not yet taken place. Although the precise levels of uncertainty of these categories have not been calculated, geological experience with Canadian coal deposits suggests that measured resource quantities are known within about 10%, indicated within about 20%, and inferred within about 50%."*

The areas covered by the various resource categories for the main coal seams are shown in Figures 7-1 to 7-4.

### 7.1.6 Discussion

Historical resources estimated for the North Block, derived from data presented by Denison (1979b), total 56.6 Mt using a minimum 0.5 m thickness, and 48.3 Mt using a minimum 1.0 m thickness. If these tonnages are adjusted to reflect a minimum thickness of 0.6 m, and to eliminate the internal rock band within Seam 8A, then using a minimum 0.6 m thickness the historical resources total 53 Mt, with 46 Mt for a minimum 1.0 m thickness. These tonnages compare very closely to the overall tonnages presented in Tables 7-2 and 7-3, above.

## 7.2 MIDDLE AND SOUTH BLOCKS

Overall historical coal resources for the Gates Formation, over the entire Huguenot property, using minimum mining thickness cut-offs, were: 0.5 m = 179 Mt; 1.0 m = 159 Mt; 2.0 m = 134 Mt; and, 3.0 m = 111 Mt (Denison, 1979b).

Of these totals, the resources allocated to the Middle and South Blocks were:

Middle Block: >0.5 m = 71 Mt; >1.0 m = 59 Mt; >2.0 m = 58 Mt; and, >3.0 m = 52 Mt.

South Block: >0.5 m = 52 Mt; >1.0 m = 52 Mt; >2.0 m = 44 Mt; and, >3.0 m = 26 Mt.

In order to estimate a range for the coal resource potential of the combined Middle and South Blocks, potential tonnage estimated for the 0.6 m and 2.0 m seam thickness minimums were selected. These thicknesses reflect GSC Paper 88-21 guideline minimums for Surface and Underground Deposit Types (the tonnage represented by the 2.0 m minimum is essentially the same as if the 1.5 m guideline minimum was used). The Denison data have been reviewed and various adjustments made to the Middle and South Block tonnages presented above. These are:

Middle Block: reduce Middle Block tonnage for the 0.6 m minimum case by 3 Mt (to 68 Mt) to eliminate coal seams <0.6 m thick.

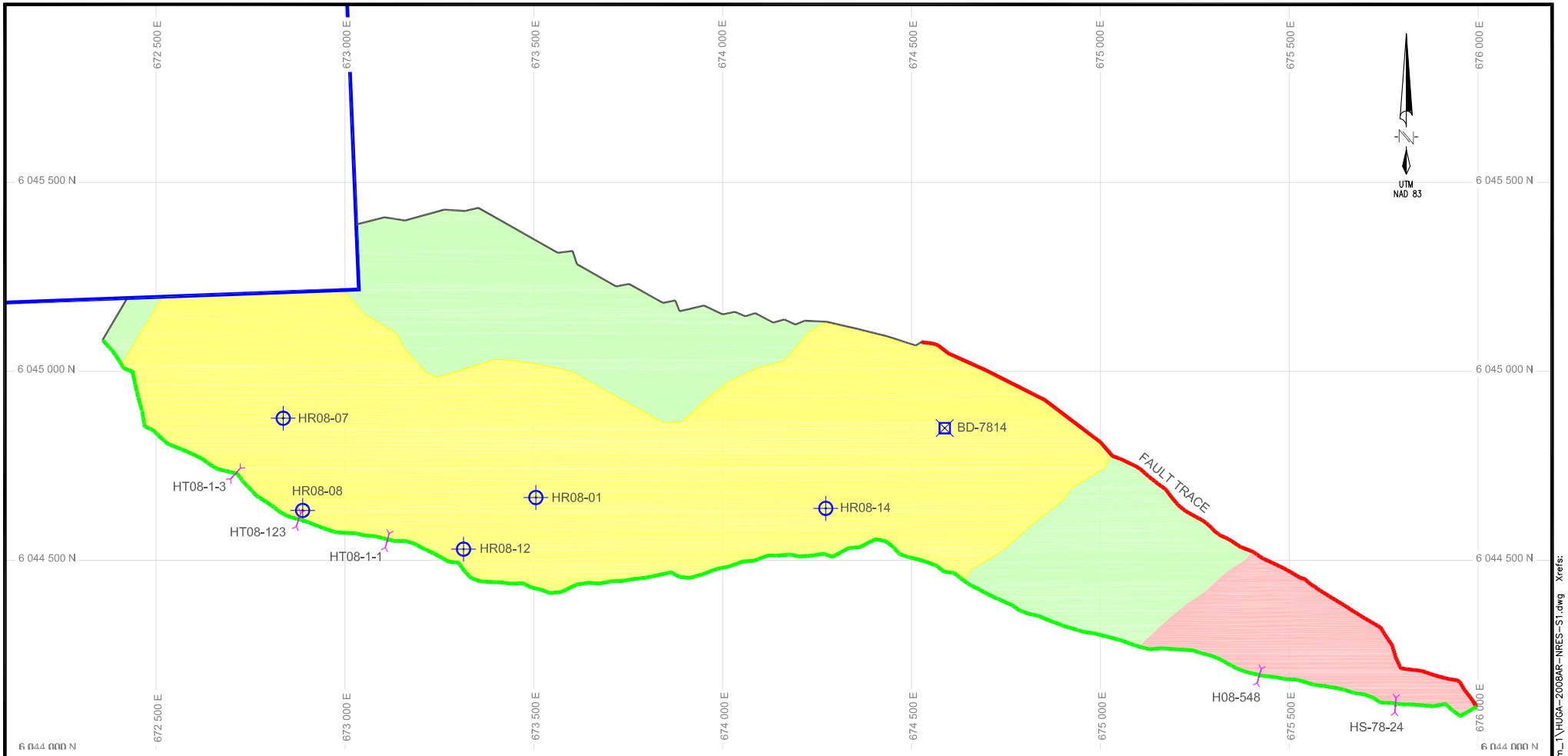
- Middle Block: reduce the 68 Mt Middle Block tonnage for the 0.6 m minimum case by 14 Mt (to 54 Mt) as potentially surface mineable resources are unlikely to exist at the northernmost end of the block as the coal seams are located at depth, below the Holtslander North Thrust.

- South Block: cumulative thickness of coal seams for Surface Deposit Type (0.6 m minimum) has been increased by 25% to reflect the expected presence of additional coal seams as found on the North and Middle Blocks and indicated by widely separated trenches within the South Block.

South Block: cumulative thickness of coal seams for Underground Deposit Type (2.0 m minimum) has been increased by 25% to reflect the expected presence of additional coal seams (as found on the North and Middle Blocks) that exceed 1.5 m in thickness.

Middle and South Blocks: Denison used 500 m from surface; this is acceptable for the Underground Deposit Type but has been reduced to 350 m (by using a 30% reduction in tonnage) for the Surface Deposit Type, in order to approximate limitations that would be imposed by imposition of a 20: 1 incremental strip ratio.

Based upon the foregoing, the overall coal resource potential of the Gates Formation for the combined Middle and South Blocks is estimated to range from approximately 84 Mt to 113 Mt. These are order of magnitude estimates and do not meet the criteria of a Mineral Resource; it is uncertain if further exploration will result in any of this tonnage being delineated as a mineral resource.

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- HR08-03 - PENETRATION OF SEAM FLOOR
- SEAM 1 SUBCROP
- RESOURCE LIMIT
- FAULT TRACE
- TRENCH
- PROPERTY BOUNDARY
- MEASURED RESOURCE AREA
- INDICATED RESOURCE AREA
- INFERRED RESOURCE AREA

NOTE:

RESOURCE AREA EXTRACTED FROM GEOLOGICAL MODEL PREPARED BY MOOSE MOUNTAIN TECHNICAL SERVICES.

100m 0 100 200 300 400 500m

SCALE

# COLONIAL COAL CORP.

## HUGUENOT COAL PROJECT

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| Drawn by: | CS |
| Checked by: | JP |
| Approved by: | JP |
| Revision No. | |
| Dwg No. | HUGA-2008AR-NRES-S1 |

NORTH BLOCK
RESOURCE AREA
SEAM 1

| Date: | Document: | Figure No. |
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| 2015-03-09 | 2008 AR | 7-1 |

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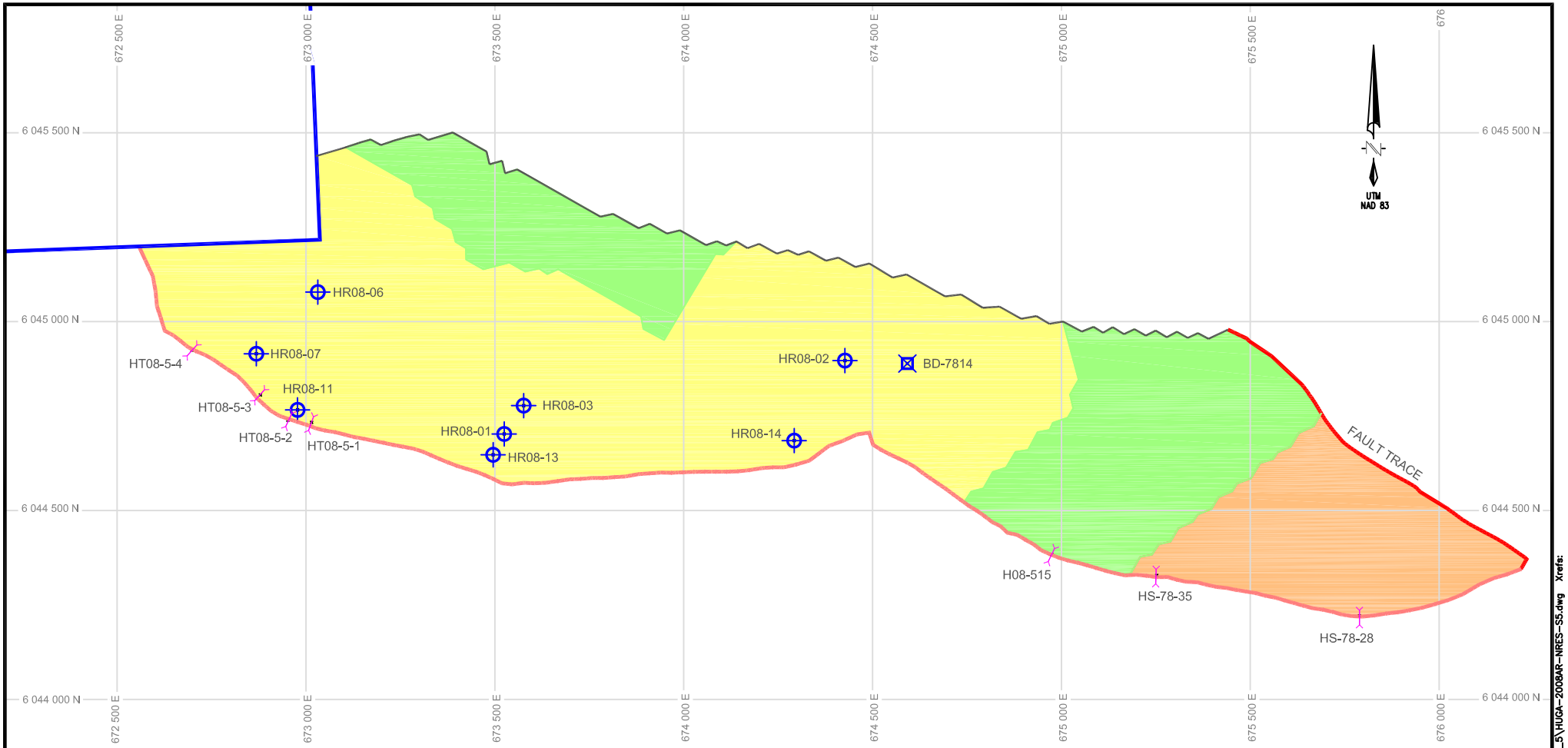


LEGEND:

- BD-7814 - PENETRATION OF SEAM FLOOR
- HR08-03 - PENETRATION OF SEAM FLOOR
- SEAM 5 SUBCROP
- RESOURCE LIMIT
- FAULT TRACE
- TRENCH
- PROPERTY BOUNDARY
- MEASURED RESOURCE AREA
- INDICATED RESOURCE AREA
- INFERRED RESOURCE AREA

NOTE:

RESOURCE AREA EXTRACTED FROM GEOLOGICAL MODEL PREPARED BY MOOSE MOUNTAIN TECHNICAL SERVICES.

100m 0 100 200 300 400 500m

SCALE

# COLONIAL COAL CORP.

## HUGUENOT COAL PROJECT

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| Approved by: | JP |
| Revision No. | E |
| Dwg No | HUGA-2008AR-NRES-S5 |

NORTH BLOCK
RESOURCE AREA
SEAM 5

| Date: | Document: | Figure No. |
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| 2015-03-09 | 2008 AR | 7-2 |

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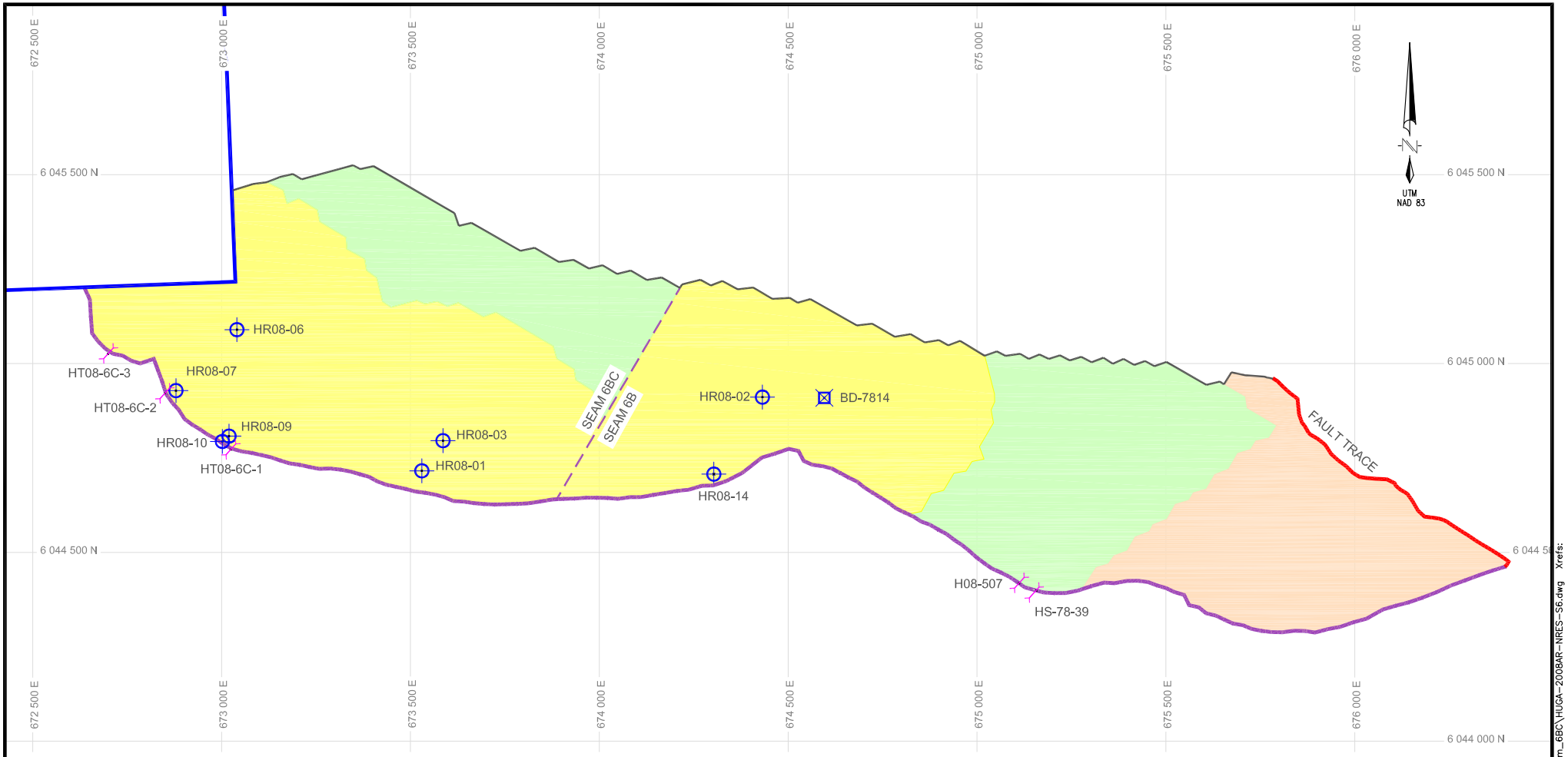


## LEGEND:

- BD-7814 - PENETRATION OF SEAM FLOOR
- HR08-03 - PENETRATION OF SEAM FLOOR
- SEAM 6BC/6B SUBCROP
- RESOURCE LIMIT
- FAULT TRACE
- TRENCH
- PROPERTY BOUNDARY
- MEASURED RESOURCE AREA
- INDICATED RESOURCE AREA
- INFERRED RESOURCE AREA

NOTE:

RESOURCE AREA EXTRACTED FROM GEOLOGICAL MODEL PREPARED BY MOOSE MOUNTAIN TECHNICAL SERVICES.

100m 0 100 200 300 400 500m

SCALE

# COLONIAL COAL CORP.

## HUGUENOT COAL PROJECT

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| Dwg No: | HUGA-2008AR-NRES-S6 |

NORTH BLOCK
RESOURCE AREA
SEAM 6BC/6B

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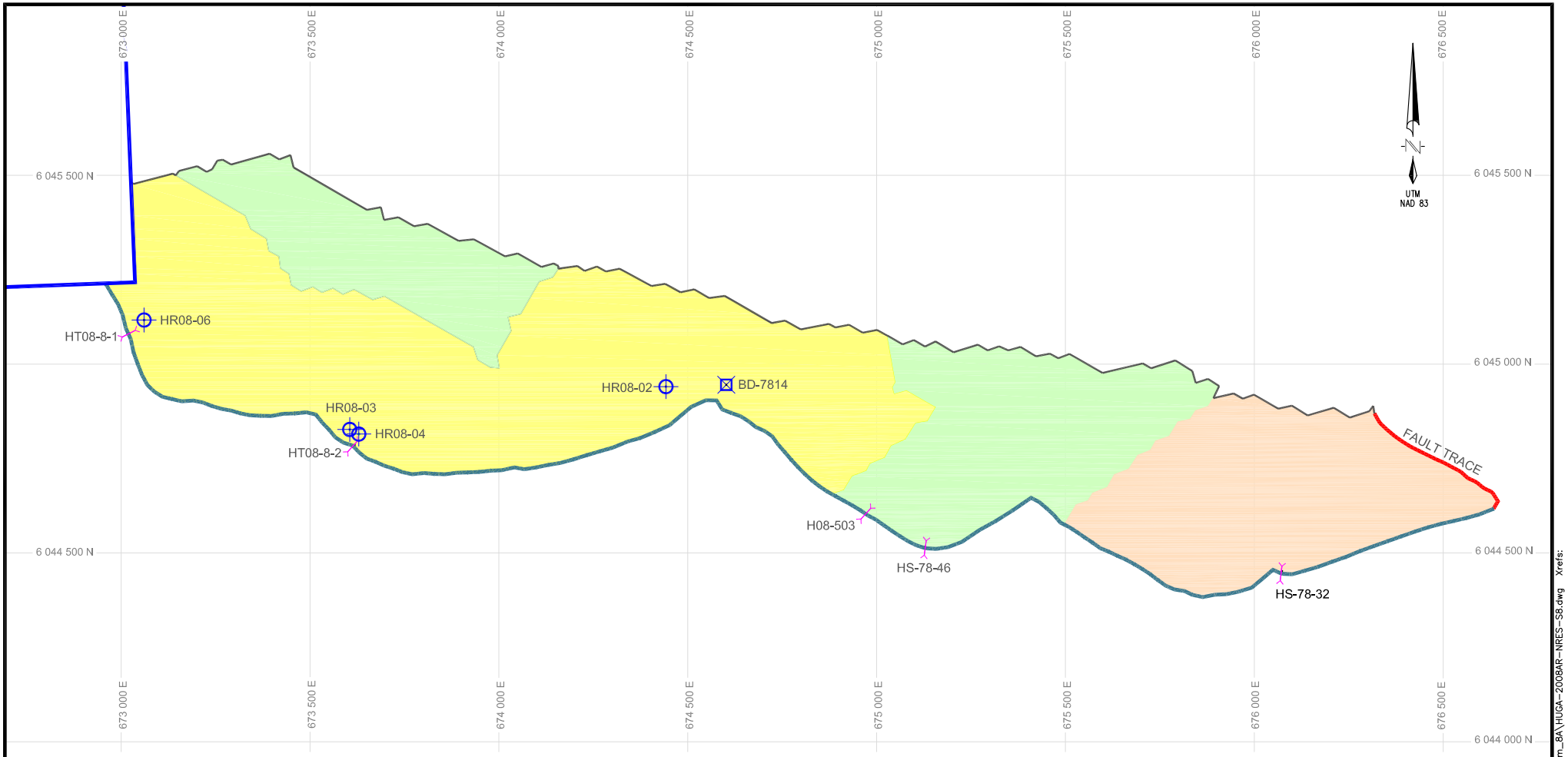


LEGEND:

- BD-7814 - PENETRATION OF SEAM FLOOR
- HR08-03 - PENETRATION OF SEAM FLOOR
- SEAM 8A SUBCROP
- RESOURCE LIMIT
- FAULT TRACE
- TRENCH
- PROPERTY BOUNDARY
- MEASURED RESOURCE AREA
- INDICATED RESOURCE AREA
- INFERRED RESOURCE AREA

NOTE:

RESOURCE AREA EXTRACTED FROM GEOLOGICAL MODEL PREPARED BY MOOSE MOUNTAIN TECHNICAL SERVICES.

100m 0 100 200 300 400 500m

SCALE

# COLONIAL COAL CORP.

## HUGUENOT COAL PROJECT

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| Checked by: | JP |
| Approved by: | JP |
| Revision No. | E |
| Dwg No: | HUGA-2008AR-NRES-S8 |

NORTH BLOCK
RESOURCE AREA
SEAM 8A

| Date: | Document: | Figure No. |
|---|---|---|
| 2015-03-09 | 2008 AR | 7-4 |

# SECTION 8 INTERPRETATION AND CONCLUSIONS

## 8.1 INTERPRETATION

The North Block of the Huguenot property covers coal measures belonging to the Gething and Gates Formations. The presence of potentially economic coal seams within the Gates Formation is demonstrated by substantial amounts of drilling, trenching, geological mapping, sampling and testing from both historical and recent (2008) exploration. Potentially important coal seams within the Gething Formation have also been demonstrated, although these coal seams have seen significantly less work than those belonging to the Gates Formation.

Verification of the structural geology, coal development, and assurance of existence of the Gates coal measures within the North Block of the Huguenot property were established by site visits, data reviews and subsequent verification of the geological model and resource estimations.

Gates and Gething Formation coal measures covered by the property's Middle and South Blocks have been the focus of historical, but not recent work. Exploration has included substantial geological mapping and trenching, wide-spaced drilling, coal sampling and testing. While definition of the geology of the Gates coal measures within these Blocks is not at the same level of advancement as the North Block, appropriate verification of the historical interpretations and resource estimations has been established by site visits and data reviews.

## 8.2 CONCLUSIONS

The primary purpose of the 2008 exploration program on the North Block of the Huguenot project was to determine the presence, depth, and thickness of coal seams in the Gates Formation, to determine the coal quality parameters, and to define potentially surface mineable coking coal resources according to N.I. 43-101 classification standards

Based upon Geological Survey of Canada criteria, the Geology Type for the North Block is classified as Moderate. Coal resources were estimated at three levels-of-assurance, namely: Measured (located up to 450 m from the closest data point); Indicated (located 450 m to 900 m from the nearest data point); and, Inferred (located 900 m to 2,400 m from the closest measurement (although this distance limit was not reached)). The data density supports the resource tonnages estimated to date and the coal quality assigned to them. The results of the exploration and their interpretation have been consistent over time, lending confidence to the conclusions that have been reached. The North Block deposit remains open to infill drilling, with the likelihood of up-grading the level-of-assurance of the coal resources.

Future exploration planned for the North Block relates mostly to the up-grading of areas of Inferred resource classification into the Measured and Indicated categories, drilling down-dip of the existing drillholes to confirm structural continuity, acquisition of additional, fresh, samples to perform rheology and carbonization tests (which will include minor coal seams in a new simulated product coal). This work will substantially reduce, if not remove, any levels of uncertainty that might currently exist.

The North Block resource estimates are in accordance with the procedures and criteria of GSC Paper 88-21 as required by N.I. 43-101. Overall in situ resource estimates are:

- Using a 0.60 m thickness cut-off: 45.2 Mt of Measured and Indicated (Measured = 31.3 Mt; Indicated = 13.9 Mt), plus 10.3 Mt of Inferred.

- Using a 1.0 m thickness cut-off: 36.9 Mt of Measured and Indicated (Measured = 26.4 Mt; Indicated = 10.5 Mt), plus 9.3 Mt of Inferred.

These resources are considered to be of immediate interest.

Metallurgical coal resources are estimated as:

- 44.9 Mt of Measured and Indicated, plus 10.2 Mt of Inferred (using a 0.60 m thickness cut-off).

- 36.3 Mt of Measured and Indicated, plus 9.2 Mt of Inferred (using a 1.0 m thickness cut-off).

Drilling, trenching and detailed mapping has outlined areas within the property where coal resources present an opportunity for high tonnage, low to moderate strip ratio surface mining. Underground mining potential exists below and alongside potentially surface mineable resources. Other than roads and access trails, there are no major infrastructure elements within or around the project area that can be used in mine development.

Using ASTM criteria, Gates Formation coals on the Huguenot property are classified as medium volatile bituminous, although rank determinations using mean maximum reflectance values range from 1.05 (Seam 8A) to 1.17 (Seams 5 and 6La). Reflectance values for the stratigraphically lower coal seams (i.e., Seam 6La and below), confirm their classification as medium volatile bituminous rank. However, the values obtained for seams stratigraphically higher than 6La fall just below the medium volatile bituminous - high volatile bituminous boundary, and these coals should be classified as high volatile bituminous A rank. When combined into a simulated product, the coals return overall mean maximum reflectance values that correspond to a medium volatile bituminous rank. Analysis of a washed, simulated product reported (on a dry basis): ash = 8.10%, volatile content = 23.43%, fixed carbon = 68.47%, FSI = 6.5, and phosphorus = 0.047%. This clean composite has a low base: acid ratio of 0.078, as determined from the mineral composition of ash.

The coals are of metallurgical quality and would form a suitable coking coal product after beneficiation in a wash plant.

Based upon washability and coal quality data, process simulation (using Limn process simulation software) indicated that a product ash in the range 7.5% to 8.0% (air dry basis) is probably optimal.

Initial carbonization tests indicate that Huguenot coals can be expected to form a coking coal with favorable coking indices, low to very low sulphur, and low phosphorus contents. It remains for future work to supply fresh samples for carbonization in order assess the coal's maximum coking potential. Such samples should incorporate any minor seams that may be considered mineable and represent other parts of the North Block.

The overall Gates Formation coal resource potential for the combined Middle and South Blocks of the property is estimated to range from approximately 84 Mt to 113 Mt, in-place and of immediate interest and of similar coal quality as that defined on the North Block.

Based upon the results of 2008 exploration program and the data available from historical exploration, it can be concluded that further work on the property is justified. Future work programs should:

- conduct confirmation drilling south of Holtslander Creek to complete the definition of the geology, resources and coal quality across the entire length of the North Block and bring all North Block coal resources into Measured and Indicated resource categories

- conduct additional bulk sampling to include all seams that could potentially be mined and provide "fresh" coal for rheological and carbonization tests
- undertake a conceptual mining study to evaluate the mining potential of the North Block
- conduct exploration throughout the Middle Block to bring coal resources and quality into, at least, the Indicated resource category
- conduct additional exploration within the South Block in order to confirm Geology Type, and to bring coal resources and quality into, at least, the Inferred resource category
- evaluate the resource potential of coal seams in the Gething Formation.

The programs conducted on the Middle and South Blocks will also include bulk sampling and testing, plus additional carbonization tests on a simulated "product," to characterize the coking potential of the coal across the property as a whole.

## SECTION 9 EXPENDITURES

The expenditures for the 2008 Huguenot field program are summarized in the Table 9-1 below. This table does not include any costs associated with geological data compilation and reporting, geological consulting, geological modelling, mine engineering, coal washing studies, environmental report preparation, and associated support activities.

Table 9-1: Costs for the 2008 Huguenot Field Program

| | | |
|---|---|---|
| **FIELD** | | |
| Trails & Mechanized Trenching | $ | 239,900.00 |
| Drilling - Air Rotary | $ | 204,400.00 |
| Drilling - L.D. Coring | $ | 107,150.00 |
| Camp (Room & Board) | $ | 144,950.00 |
| Personnel (Colonial) | $ | 187,200.00 |
| First Aid | $ | 32,500.00 |
| Geophysical Logging | $ | 64,300.00 |
| Truck Rental | $ | 23,250.00 |
| Helicopter | $ | 8,250.00 |
| Equipment Rental | $ | 4,200.00 |
| Supplies | $ | 14,550.00 |
| Surveying & Base Maps | $ | 18,150.00 |
| Freight | $ | 5,200.00 |
| Travel & Accommodation | $ | 20,350.00 |
| Fuel | $ | 46,900.00 |
| Communications | $ | 4,450.00 |
| Permitting | $ | 30,700.00 |
| **Sub-Total:** | **$** | **1,156,400.00** |
| **LABORATORY** | | |
| Coal Quality | $ | 127,450.00 |
| Coal Carbonization | $ | 10,000.00 |
| **Sub-Total:** | **$** | **137,450.00** |
| **Total:** | **$** | **1,293,850.00** |

## SECTION 10 REFERENCES

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## SECTION 11 STATEMENT OF QUALIFICATION: JOHN H. PERRY, P.GEO.

I, John H. Perry, P.Geo., do hereby certify that:

- I am Chief Operating Officer for Colonial Coal International Corp., with offices at 200-595 Howe Street, Vancouver, B.C., V6C 2T5
- I hold the following academic qualifications:
  - B. Sc. (Hons) Geology, University of Exeter, UK – 1972
  - Post-Graduate studies in Geology, University of Calgary, Alberta – 1972-1976
- I am a registered Professional Geoscientist with the Association of Professional Engineers and Geoscientists of British Columbia, (Member #19598) and I am a fellow of the Geological Society, London, UK.
- I have practiced my profession for over 39 years on coal, metallic and industrial mineral and gemstone projects within Canada and internationally. My experience with coal projects is extensive; it ranges from early exploration through resource/reserve delineation and includes multiple feasibility-level studies and work conducted within a producing coal mine. Coal projects have been undertaken throughout western Canada and internationally; this includes many projects located in northeast B.C.
- I have overseen the preparation of this Coal Assessment Report entitled: “Huguenot Coal Project: 2008 Exploration Program (covering the period May 2008 to June 2010)”. Effective Date September, 2010.

Dated: May 7, 2015

(signed) “John H. Perry”

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JOHN H. PERRY, P.Geo.