BC Geological Survey
Coal Assessment Report
992

DMT Geosciences

Final Report

Coal Assessment Report for the Year 2013 for the Murray River Coal Property, Peace River Coalfield, British Columbia

Effective Date: July 31, 2015
DMT File Number: 2012CMAA.038

Prepared for:

HD Mining International Ltd.
Vancouver, British Columbia

Prepared by:

DMT Geosciences Ltd.
Calgary, AB, Canada

Section 2.3 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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COAL ASSESSMENT REPORT TITLE PAGE AND SUMMARY

Coal Assessment Report for the Year 2013 for the Murray River Coal Property, Peace River Coalfield, British Columbia

TOTAL COST:

$4,000,000

AUTHOR(S):

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SIGNATURE(S):

The effective date of publication of this report is July 31, 2015.

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

1 October 2012 to February 2013: 12-1640549-0314

2. July 2013: 13-1640549-0712

3. March to April 2013: BC OGC File No: 9637022

STATEMENT OF WORK EVENT NUMBER(S)/DATE(S):

1. October 2012 to February 2013

2. July 2013

3. March to April 2013

YEAR(S) OF WORK:

2013

PROPERTY NAME:

Murray River Coal Project

CLAIM NAME(S) (on which work was done):

417452, 417448, 417431, 417434, 417438, 417432, 417435, 417439, 417443, 417445, 417433, 417436, 417440, 417444, 417446, 417437, 417441, 417426, 417425, 417452, 417447

COMMODITIES SOUGHT:

COAL

MINERAL INVENTORY MINFILE NUMBER(S),IF KNOWN:

093I 035

MINING DIVISION:

Liard Mining Division

NTS / BCGS (at centre of work):

55°00'54"N, 121°02'38"E
UTM Zone 10 (NAD83), 622865E, 6104600N

OWNER AND OPERATOR:

HD MINING INTL. LTD.

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REPORT KEYWORDS

Murray River, Bituminous, Coal, Gates Formation, Underground bulk sample

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EXECUTIVE SUMMARY

The Murray River Coal Property lies to the southwest of Tumbler Ridge in the northeast of British Columbia. It was acquired by Canadian Dehua International Mines Group Inc. (Dehua) from Kennecott Canada Exploration Inc. (KCEI) in the summer of 2009. In that summer they drilled 11 boreholes and conducted an assessment of previous work. This drilling and assessment was summarized by Norwest (2010), and the Norwest report was accepted as the Coal Assessment Report required by the Coal Act for the 2010 exploration year.

In July 2009, Dehua signed an agreement with Huiyong Holding Group Co., Ltd (Huiyong) to develop the property and build a 6,000,000 tonne per year underground coal mine and associated infrastructure on the property. The property is now operated by HD (Huiyong Dehua) Mining International Ltd (HD) which is currently responsible for filing assessment reports on the property.

HD have retained DMT Geosciences Ltd. (DMT) of Calgary, AB to assist them with regulatory compliance and in late fall of 2014 DMT was requested to assist in the preparation of the assessment reports for 2011, 2012 and 2013. Table 1 describes the work completed on the property in 2013.

Table 1: Summary of Work and Apportioned Costs

2013				
TYPE OF WORK IN THIS REPORT		**EXTENT OF WORK (in metric units)**	**ON WHICH CLAIMS**	**PROJECT COSTS APPORTIONED (incl. support)**
GEOPHYSICAL (line-kilometres)				
Seismic:	Number of lines: Total length, km	5 18.7	417431, 417434, 417438, 417432, 417435, 417439, 417443, 417445, 417433, 417436, 417440, 417444, 417446, 417437, 417441, 417426, 417425, 417452, 417447	$1,400,000
DRILLING (total metres, number of holes, size, storage location)				
Core	Total meters: Number of holes: Size: Storage location: Tumbler Ridge	1049 8 HWT, HQ, NQ	417452 417448	$2,600,000
			TOTAL COST	**$4,000,000**

The work includes the following:

- Geotechnical Investigation for Vertical Shaft Pilot Hole
- Geotechnical Investigation for CCR Design

- 2D Seismic Exploration Program

All three of these programs were performed by consultants and contractors on behalf of HD.

The geotechnical investigation for the vertical shaft pilot hole was conducted and supervised by Golder Associates. The work was designed to inform HD of the geological and geotechnical conditions that might be encountered during construction of the vertical ventilation shaft proposed for the bulk sample program.

The geotechnical investigation for coarse coal reject stockpiles was conducted by Ausenco to determine the geotechnical conditions at the proposed site of the two coarse coal reject stockpiles which are proposed. The information collected was used to design the pile foundations.

The 2-D Seismic Exploration Program was conducted by Challenger geophysical to obtain additional information regarding the subsurface structure in the coalfield. The data is awaiting analysis.

Rather than attempt to rewrite the consultants' reports developed for HD, this report offers a brief introduction along with the statutory requirements for reporting and appends the complete work report as prepared by the consultants.

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Appendix 1-H: HD Mining Well Completion Report

Appendix 2: Ausenco - Coarse Coal Reject Pile Foundation Design Report

Appendix 3: Challenger Geophysical - Seismic Data Acquisition Report

1.0 INTRODUCTION

1.1 Location

The Project is located 12.5 km southwest of the town of Tumbler Ridge, British Columbia (Figure 1-). The coordinates are W 120°57'48"-121°7'38", N 54°59'42"-55°5'4". The property consists of 57 coal licences covering an area of 16,024 hectares and is situated on Crown land within the Peace River Regional District (PRRD).

The central position of the project area can be arrived at through going south for about 15 km from Tumbler Ridge to the Monkman Park Road, going west for 9 km to the Quintette Mesa mining field road, and going west for 4 km to the Quintette coal washery.

1.2 Accessibility and Infrastructure

The Project falls within the PRRD. The region has well established regional infrastructure to support resource activities, including forestry, oil and gas exploration, coal mining, wind energy. Existing infrastructure in the immediate vicinity of the Project include: BC Hydro transmission line; Pacific Northern Gas distribution system; CN Rail line; and forest service roads. The District of Tumbler Ridge and other regional communities have capacity to support growth.

The Murray River Coal Property lies about 1,184 km northeast of Vancouver and in the administrative district of the Tumbler Ridge (this area is part of the Peace River basin). The adjacent coal mines include Quintette, Perry Creek and Bullmoose. The exploration and development of the petroleum and natural gas in this area are active, and production wells of the natural gas and natural gas pipelines are distributed everywhere in the area. Some infrastructures owned by Quintette coal mine are still preserved in the Murray River Coal Property, including 13 km of belt conveying corridor from the Mesa mining area to the Quintette coal-washing plant closed for standby currently.

There are two Provincial highways from the Murray River Coal Property to Tumbler Ridge: going to the south from Chetwynd, then passing through No. 29 highway (95 km), or going through No. 97 highway from Dawson Creek to the southwest direction first, then passing No. 25 highway (Feller's Heights Road). The population of Tumbler Ridge is about 3,500, however, the infrastructure can accommodate 6,000 people.

The roads of Monkman Park and Quintette Mesa are in good service condition, and the two roads serve for the production of natural gas within the region. The Mast Creek Road traverses the western boundary of the property.

1.3 Physiography

The Murray River Coal Property is situated within the eastern foothills (Inner Foothills Belt) of the Rocky Mountains. The topography is comprised of a belt of hills and low mountains dominated by a series of northeast to southwest elongated ridges. Two major water courses, namely the Murray River in the south and east, and the Wolverine River in the north, flow through the project area and bisect the Inner Foothills Belt (Figure 1-2).

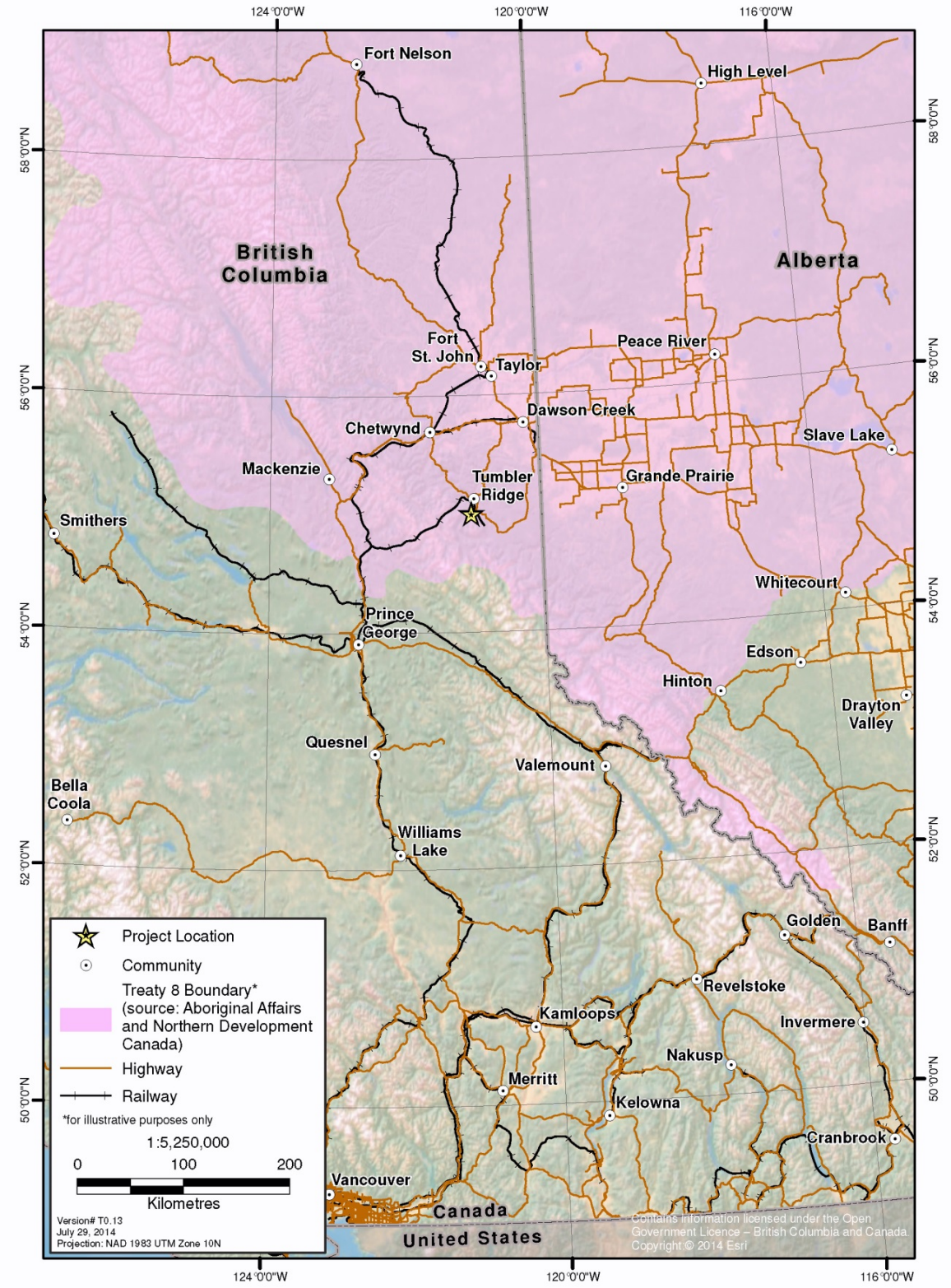

Figure 1-1: Location of the Murray River Project

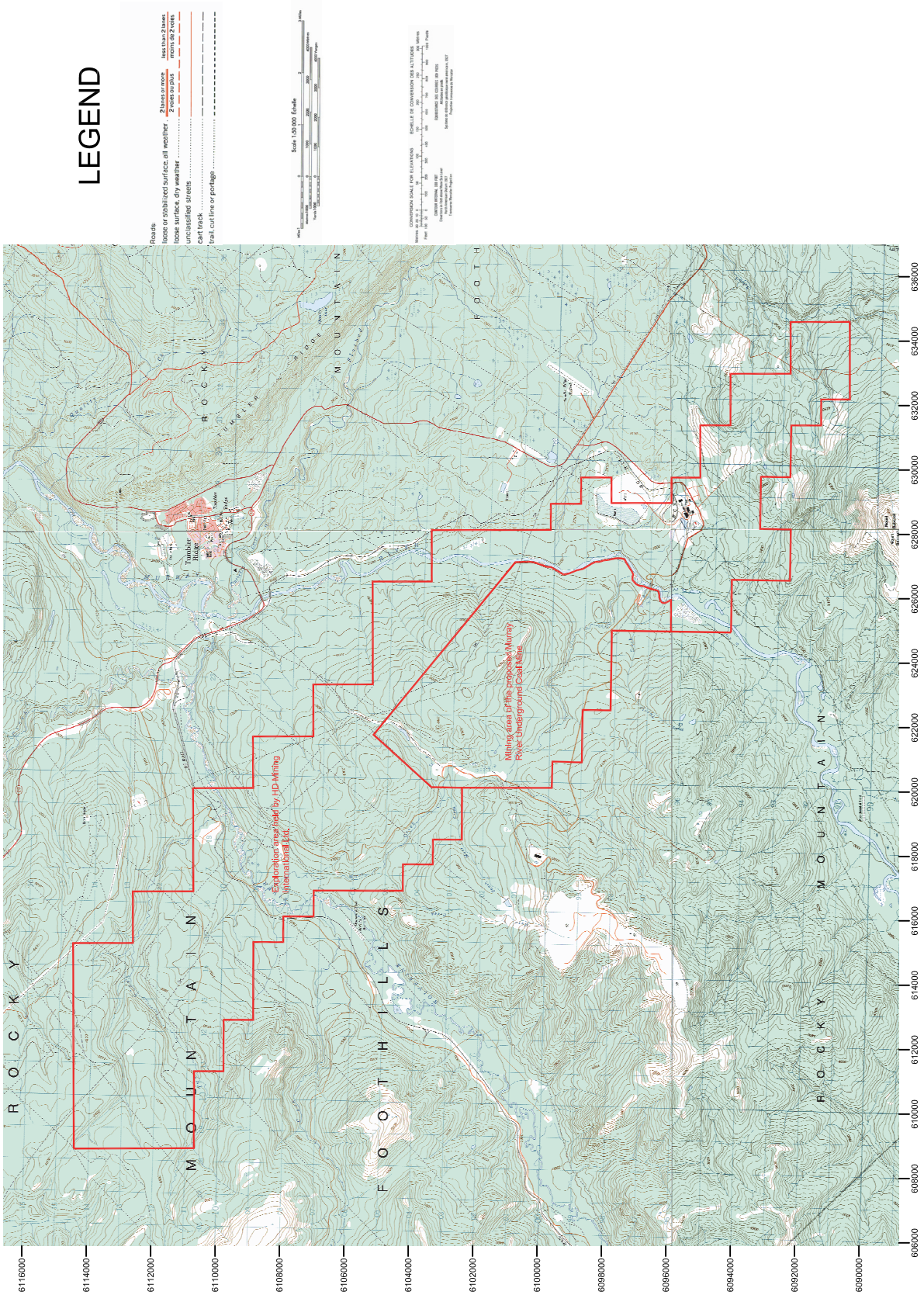

Figure 1-2: Topographic Map of the Exploration Area in the Murray River Coal Property

1.4 Climate

The climate in this area is characterized by a long, cold winter, a warm spring, and a short, cool summer because of the influences of the Rocky Mountains, the Pacific warm current, and the dry cold air from the northern polar region.

The average monthly temperature changes in the year are from -7.2°C to 15.2°C. The highest temperature recorded in history is 34°C and the lowest temperature of the year was -46.0°C, which are typical temperatures in the north east of British Columbia. The average temperatures in July and January in Tumbler Ridge are respectively 21°C and -5°C. Occasionally temperatures between -15 and -30°C occur in winter, generally from January to March.

The average annual rainfall in the area is 334 mm, and the snowfall is 1.85 m. Compared with the other regions in the Murray River Coal Property, the summer in the mountainous areas is cool and with heavy rainfall, and the winter is cold. Ice areas can be seen all year around, with continuous snow accumulation in winters between October and June. The dominant wind direction is southwest wind, and the wind with velocity of over 20 km/h is quite common in the top of the mountain ridge and the higher areas.

1.5 Mineral Tenure, Exploration and Permitting History

1.5.1 Mineral Tenure

The Murray River property consists of 57 coal licenses covering an area of 160 km2. The proposed underground mine and surface facilities are within 19 of the licence areas in the southeast portion of the licence block (Table 1-1 and Figure) with a total area of 37.45 km^2. As part of the Mines Act permitting process, HD Mining International Inc. (HD Mining) will seek to convert these licenses to a coal lease.

1.5.2 Exploration History

Previous exploration in the area was conducted by various major oil and gas companies in the 1970s (Lortie 2010), Quintette Coal Limited (Quintette) and more recently in 2006 and 2007 by Kennecott Coal Exploration Inc. (Kennecott). The exploration programs in the 1970s were generally regional in nature, comprised of widely spaced seismic lines and drilling of a small number of primarily oil and gas wells. These programs helped Quintette and Kennecott identify target areas for more detailed coal exploration and eventual mining. The target seams for the Project are part of the Gates Formation (Fort Saint John Group).

Kennecott's exploration program is the only known coal-specific exploration program previously conducted within the Murray River licence area. It consisted of one rotary (Lane 2006) and three core holes (BC MEMNG 2006) (two others were abandoned), surface mapping and interpretation of two seismic lines. Because of difficulties encountered during drilling, only one core hole was completed through the Gates Formation.

Du Pont completed two holes in 1979 west of the Murray River property as a preliminary investigation of the Gates Formation coal seams. One hole did not penetrate into the zone on contact between upper Gates and Hulcross formations due to the interception of a postulated fault zone (Du Pont of Canada Exploration Ltd. 1980).

Table 1–1: Claims Held by Dehua international forming the Murray River Coal Project

Coal Property No.	Map Sheet No.	Coal Property No.	Map Sheet No.	Coal Property No.	Map Sheet No.
417404	093P014	417423	093P005	417442	093P005
417405	093P014	417424	093P005	417443	093P005
417406	093P014	417425	093P005	417444	093P005
417407	093P014	417426	093P005	417445	093P005
417408	093P014	417427	093P005	417446	093P005
417409	093P014	417428	093P005	417447	093I095
417410	093P014	417429	093P005	417448	093P005
417411	093P014	417430	093P005	417449	093I095
417412	093P014	417431	093P005	417452	093I095
417413	093P014	417432	093P005	417453	093I095
417414	093P014	417433	093P005	417454	093I095
417415	093P014	417434	093P005	417455	093I095
417416	093P005	417435	093P005	417456	093I095
417417	093P015	417436	093P005	417457	093I095
417418	093P005	417437	093P005	417458	093I096
417419	093P005	417438	093P005	417459	093I096
417420	093P015	417439	093P005	417460	093I096
417421	093P005	417440	093P005	417461	093I096
417422	093P005	417441	093P005	417462	093I096

In 2009, Canadian Dehua International Mines Group Inc. obtained the Murray River coal property. Detailed exploration consisting of 12 drill holes was carried out in 2009 and 2010, focusing on the central part of the property (about 37.45 km^2). HD Mining took over responsibility for the exploration program in August 2010, and additional exploration was performed on the property. In total, 20 holes (17,850 m) have been drilled; two of the holes were tested for hydrogeologic properties.

1.5.3 Permitting History

As part of exploration of the coal deposit, HD Mining has received the following approvals from the BC Government to mine a 100,000 tonne bulk sample:

- Coal Exploration Permit CX,9,44 (BC Ministry of Energy, Mines, and Petroleum Resources), initially issued in December 2010, and amended in March 2012 to approve the Bulk Sample program;
- Occupant Licence to Cut (BC MFLNRO), issued in May 2011 to support exploration activities;
- Approval AE105825 under the BC Environmental Management Act (BC MOE), issued in February 2012, authorizes temporary discharge of effluent from the Murray River Bulk Sample initial surface preparation construction activity;

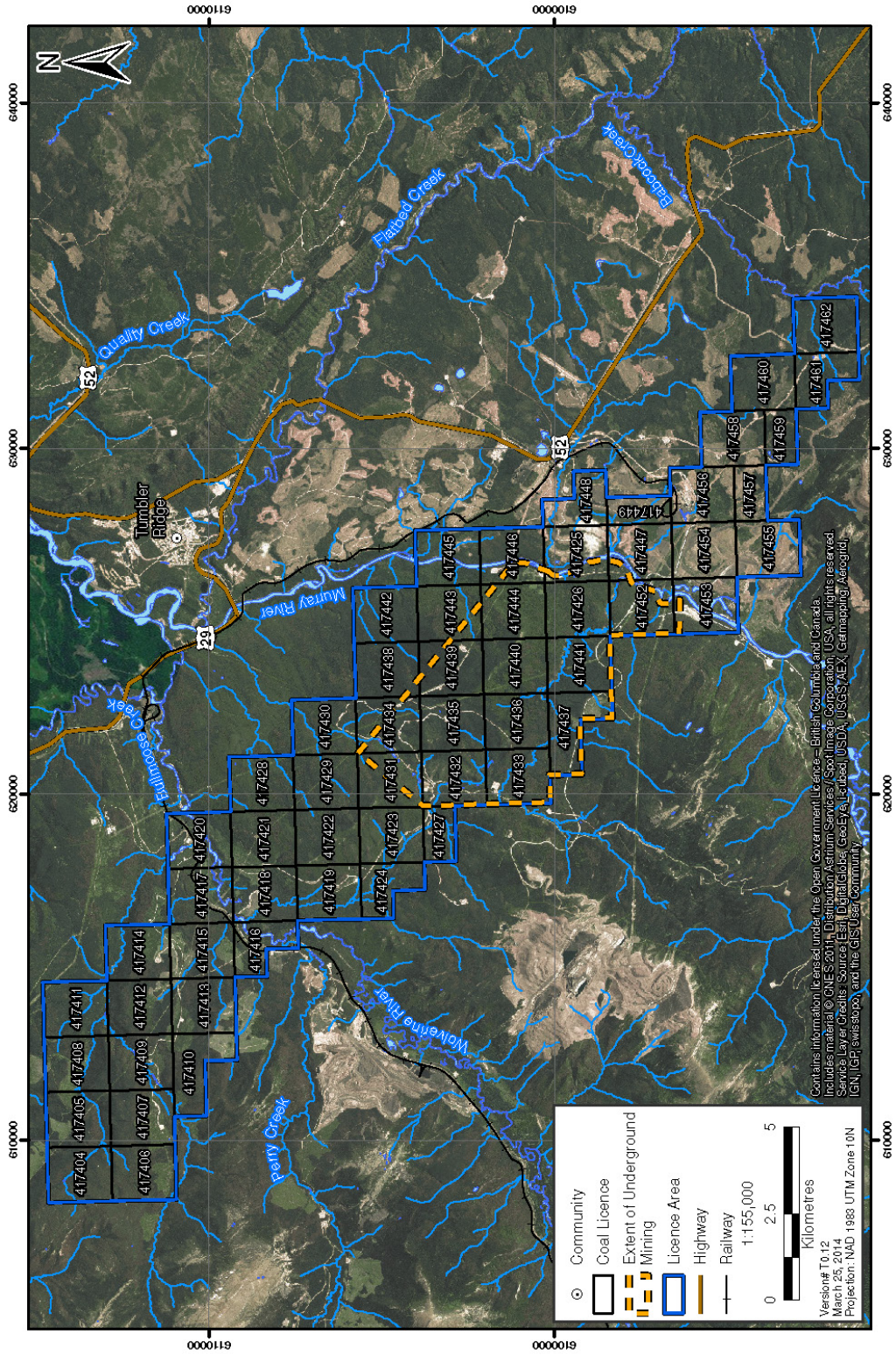

Figure 1-3: Murray River Coal Property and Proposed Underground Mining Area

- Approval AE105878 under the BC Environmental Management Act (BC MOE), issued in March 2012, authorizes discharge of effluents from the Murray River Bulk

- Sample construction and operation activities; and

- Permit 106666 under the BC Environmental Management Act (BC MOE), issued in October 2013, replacing Approval AE105878; authorizes discharge of effluents from the Murray River Bulk Sample construction and operation activities.

The purpose of the Bulk Sample program is to test the coal for use as a coking coal and to perform coal washability testing. The raw coal mined for the bulk sample will be shipped by train directly to the port in Prince Rupert for testing to be completed overseas.

In 2012 and into 2013, HD Mining completed surface preparations to mine the bulk sample. Following approval of mining equipment, underground development of a decline began in January 2014.

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2.0 GEOLOGY

2.1 Regional Setting

The Murray River property is located within the Peace River Coalfield (PRC) in the eastern foothills of the Canadian Rocky Mountains of northeastern BC. The western margin of the Foothills Belt is classified as the easternmost major thrust fault that emplaced Paleozoic strata over Mesozoic strata. The eastern margin is a series of echelon thrust faults that separate the Foothills from the gently dipping strata of the Alberta Plateau (Holland 1976). The Foothills Belt is characterized by folded and faulted Mesozoic sediments. The deformation within the Foothills Belt is variable – mostly decreasing in complexity toward the eastern margin. Deformation within the Rocky Mountains involves complicated folding and faulting. Regional axes for folding and faulting trend northwest, dipping to the southeast. In the Foothills Belt, dips tend to be 20° or less with local folds and undulations significantly modifying this value.

In the PRC there are two main coal-bearing units: the Gates Formation and the Gething Formation (British Columbia Geological Survey n.d.). Both Lower Cretaceous units were subjected to varying degrees of burial prior to the Laramide deformation and mountain-building episodes that took place approximately 40 to 70 million years ago when the Pacific and North American plates collided. The Laramide Orogeny increased the overall maturity of the coal seams. Based on drill core information from the neighbouring Quintette mine (immediately adjacent north of the Murray River Forest Service Road), coal seams of the Gates Formation can be comprised of up to 10 separate seams and the average cumulative thickness of the coal seams is as high as 17 metres.

2.2 Stratigraphy

The regional geology and stratigraphy of the PRC is provided in Figure 2-1 and Figure 2-2. Descriptions of the formations are provided below. The information is sourced primarily from Johnson (1985).

2.2.1 Moosebar Formation

The basal sequence of the Moosebar Formation is a dark grey to black marine shale with sideritic concretions, bentonite, and siltstone. The upper parts comprise banded or fissile sandy shale, very fine-grained sandstone, and sandstone intercalated shale. This transition is a pro-deltaic (highstand systems tract) transition from marine sediments to the massive continental sandstones that mark the overlying Gates Formation. The Bluesky Member is a chert pebble conglomerate that is found locally at the base of the Moosebar Formation.

2.2.2 Gates Formation (Fort St. John Group)

The Gates Formation conformably overlies the Moosebar Formation. The lower portion of the formation is termed the Quintette or Torrens member and consists of massive, light gray, mediumgrained sandstone, with minor carbonaceous and conglomeratic horizons.

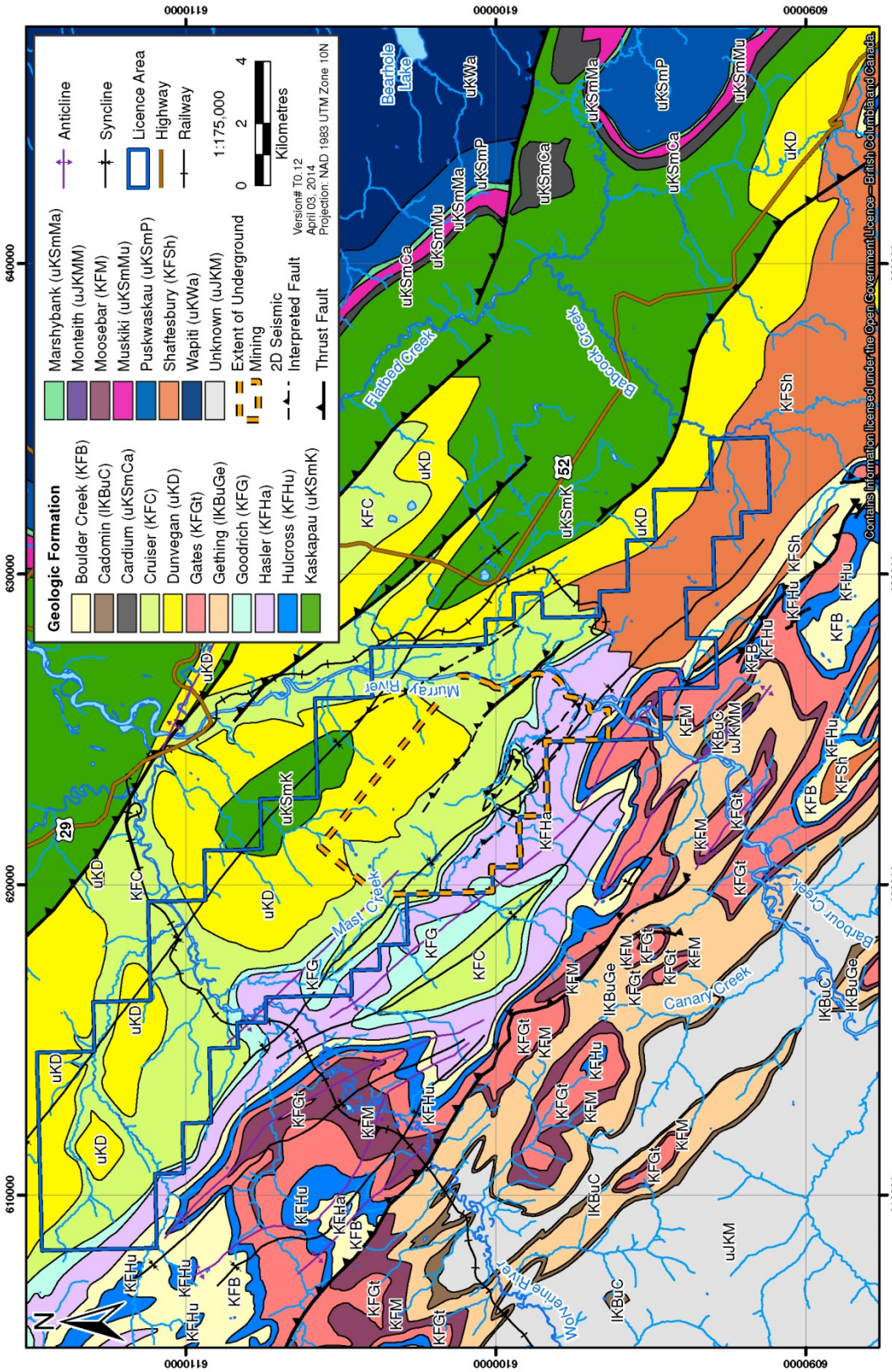

Figure 2-1: Regional Geological Setting of the Murray River Project

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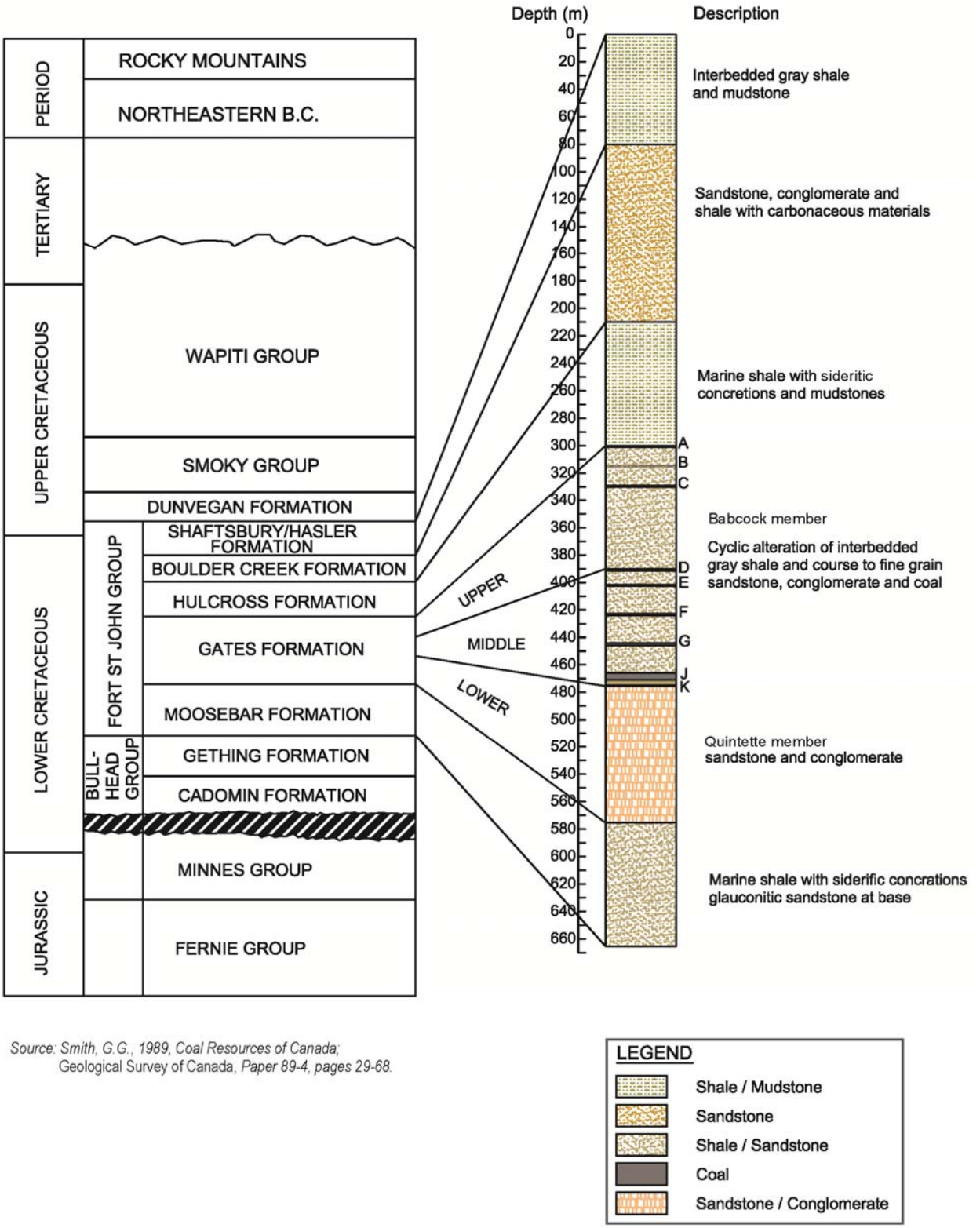

Source: Smith, G.G., 1989, Coal Resources of Canada; Geological Survey of Canada, Paper 89-4, pages 29-68.

Figure 2-2: Typical Stratigraphic Column in the Murray River Project Area

The Quintette member is overlain by several cyclical sequences of coal deposition that occur over a stratigraphic interval of approximately 80 m collectively referred to as the Middle Gates. Each cycle normally begins with laminated, medium- to fine-grained sandstone at the base, transitioning to carbonaceous shale and coal. Coal seams are thickest and more continuous in the lowermost cycle: the D through K seams are economical to mine. Individual coal seams within the higher cycles may coalesce to form a single seam, e.g., the G and I seams are typically referred to as the G/I seam. The lower portion of the Upper Gates is massive, medium- to coarse-grained sandstone and overlain by a predominantly shale sequence containing two to three poorly developed coal seams (A to C) intercalated with sandy shale and very fine sandstone. A very thin bed of chert pebbles with ferruginous cement marks the contact of the Upper Gates with the overlying marine sediments of the Hulcross Formation.

2.2.3 Hulcross Formation

The Hulcross Formation is comprised predominantly of dark grey marine shale approximately 100 metres thick. The base of the Formation is more homogeneous and arenaceous, and can contain sideritic concretions. The upper portion of the Formation is dominated by thinly laminated interbeds of siltstone and very fine-grained sandstone. A few kaolinitic beds have also been observed. The Hulcross Formation is usually distinguished from the Moosebar Formation by the absence of glauconitic sandstones at the base of the Hulcross.

2.2.4 Boulder Creek Formation

The Boulder Creek Formation is a 130 to 200 metre thick sequence of shale, greywacke, and conglomerate that conformably overlies the Hulcross Formation. The Boulder Creek Formation is a coarsening upward sequence with massive conglomerate and conglomeratic sandstone in the upper portions of the Formation and alternating medium- to fine-grained sandstones and shale in the middle of the Formation (Du Pont of Canada Exploration Ltd. 1980).

2.2.5 Hasler Formation

The Hasler Formation is predominantly dark grey marine shale with sideritic concretions and a minor sandstone and pebble conglomerate component; the basal layer is frequently pebbly (British Columbia Ministry of Energy and Mines 2011).

Above the Hasler Formation, the Goodrich and Cruiser Formations form the uppermost units in the Fort St. John Group. According to regional geology maps, the Hasler, Goodrich, and Dunvegan formations comprise the majority of bedrock outcrop on the property.

[redacted]

3.0 GEOTECHNICAL INVESTIGATION FOR VERTICAL SHAFT PILOT HOLE

Table 3–1 shows the details of the geotechnical investigation for the vertical shaft pilot hole.

Table 3–1: Summary of the Geotechnical Investigation for the Vertical shaft Pilot Hole

Approval number	12-1640549-0314
Period	October 2012 – February 2013
Claims	417452
Number of boreholes	1
Total meters	752
Size	HWT, HQ, NQ
Core storage location	Drill Site
Cost	$2,400,000

3.1 Rationale for the Work

HD planned the drilling of a single pilot hole to intersect the major coal seams and provide confirmation of existing geological projections at the site of the proposed vertical shaft for the bulk sample program.

Golder Associates Ltd. (Golder) assisted HD Mining with execution of a geotechnical field investigation to collect geotechnical, hydrogeologic, and *in-situ* stress data to support the development of vertical shaft design and construction recommendation.

3.2 Methodology and Scope

The proposed investigation program included:

- Detailed geotechnical core logging of one vertical, non-oriented borehole;
- Downhole geophysical survey;
- Hydrogeological testing;
- Geological core logging;
- Raw coal sampling;
- Gas testing; and
- Laboratory strength testing

The borehole (Table 3–2) was drilled under very difficult conditions and not all the proposed testing was completed.

Table 3–2: Summary of Borehole Completion Results

Borehole	Northing (1)	Easting (1)	Elevation	Depth
BH12-VSGT01	6098170.00	625092.00	847.00 m	752

Note:
(1) NAD 83 Zone: 10N, determined in the field by GPS

The report prepared by Golder Associates for HD describes the program and the results obtained in its entirety:

> *"Geotechnical Data Report for Vertical Shaft Pilot Hole BH12-VSGT-01/01B"* Submitted to HD Mining International Ltd. by Golder Associates Ltd. dated September 6, 2013.

The Golder Associates report is attached as Appendix 1-A. The results of the geophysical logging completed in the hole:

- Caliper
- Neutron Density 1CM
- Neutron Density
- Dual Mini Plot
- Focused electric and
- Temperature

are presented in Appendices 1-B to 1-G respectively.

In addition to the above, geologists for HD produced a final well report the contents of which is attached as Appendix 1-H.

4.0 GEOTECHNICAL INVESTIGATION FOR CCR DESIGN

Table 4–1 shows the details of the geotechnical investigation for the CCR design.

Table 4–1: Summary of the Geotechnical Investigation for the CCR Design

Approval number	13-1640549-071
Period	July 2013
Claims	417448
Number of boreholes	7
Total meters	297
Size	HQ
Core storage location	No core taken
Number of Test Pits	10
Cost	$200,000

4.1 Rationale for the Work

The proposed coarse coal reject piles will be the permanent location for a significant quantity of coarse wash plant reject, intermixed with dry filtered coal tailings. The long term stability of these dumps is assured by adequate foundation assessment and detailed drainage design, as outlined in the work conducted by Ausenco.

4.2 Methodology and Scope

Geotechnical engineering studies to assess potential locations of surface facilities (e.g., conveyor, coarse coal rejects and washing plant) were undertaken in July 2013. The geotechnical site investigations for the coarse coal reject piles included test pitting, standard penetration testing of the overburden soils, laboratory testing of recovered core and bulk soil samples, and *in-situ* permeability testing.

The field investigation included drilling 7 shallow geotechnical boreholes in overburden and 10 test pits. The drilling program was utilized to look at deeper soils that might affect the stability of the piles and also shallow ground water conditions. The boreholes were drilled to a depth maximum depth of 30 m or until refusal with the Standard Penetration Test (SPT) or until bedrock was encountered. No bedrock samples were taken for analysis. The test pits looked at shallow surface conditions that might affect construction.

Full details of the investigation and the results obtained are given in the report provided as Appendix 2:

> *"Murray River Project Northern and Southern Coal Reject Pile Design"* submitted to HD Mining International Ltd by Ausenco, Report 100102-01-RPT-01 dated July 10, 2014

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5.0 2D SEISMIC EXPLORATION PROGRAM

In March/April of 2013 a five line, 18.7 km 2D seismic data collection program was undertaken by Challenger Geophysical of Vancouver on behalf of HD. Details of the program are shown in Table 5–1.

Table 5–1: Details of the 2D Seismic Exploration Program

Approval number	BC OGC File No: 9637022
Period	March – April 2013
Claims	417431, 417434, 417438, 417432, 417435, 417439, 417443, 417445, 417433, 417436, 417440, 417444, 417446, 417437, 417441, 417426, 417425, 417452, 417447
Number of lines	5
Total meters	**18.7 km**
Cost	**$1,400,000**

5.1 Rationale for the Work

The work was undertaken to obtain information on the distribution, orientation and magnitude of faulting and other structures in the proposed mine area, and to verify the depth and continuity of the target coal seams.

5.2 Methodology and Scope

The methodology and scope of the data collection program is described fully in the report by Challenger Geophysical:

> *"BC Murray River 2D Seismic Data Acquisition Report"* submitted to HD Mining International Ltd. by Challenger Geophysical Ltd., dated September 16, 2013

This report is attached as Appendix 3.

The seismic data has not yet been analysed.

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6.0 CERTIFICATES

6.1 Peter Cain, Ph.D., P.Eng.

As the co-author of this report entitled "Coal Assessment Report for the Year 2012 for the Murray River Coal Property, Peace River Coalfield, British Columbia" dated \July 31, 2015 ("the Report"), I, Peter Cain, do hereby certify that:

1. I am employed by and carried out this assignment for:

   DMT Geosciences Ltd.,
   Suite 415 – 708 11th Avenue SW,
   Calgary, Alberta, T2R 0E4, Canada.
   Telephone: (403) 264-9496
   Fax: (403) 263-7641

2. I hold the following academic qualifications:

   - Bachelor of Science – University of Wales, University College Cardiff, 1977
   - Doctor of Philosophy – University of Wales, 1982

3. I am a registered member of the:

   - Association of Professional Engineers and Geoscientists of British Columbia, Licence - 37663.
   - Association of Professional Engineers, Geologists and Geophysicists of Alberta, Member - 63684.
   - Association of Professional Engineers and Geoscientists of Saskatchewan, Licence - 25843.

4. I have worked as a mining engineer for a total of 38 years since my undergraduate degree from university. I have worked in grassroots to advanced stage mining projects. I have experience with underground and open pit and quarry operations from the pre-production stage to closure. I have the following experience in coal and coal mining:

   - I hold a First Class Certificate of Competency – Underground Coal - from the Province of BC.
   - I hold an Underground Coal Mine Manager's Certificate from the Province of Alberta.
   - Preparation of a coal resource/coal reserve estimate of the PT Senemas Energindo Mineral coal mine in Kalimantan, Indonesia for Agritrade Resources Ltd (2012)
   - Completed a due diligence review of coal lands owned by Chugach Alaska Corporation in the Chugach hills for Canada Coal Inc.
   - Engineering work on the feasibility study for a new underground coal mine development near Cucuta in Norte de Santander Department in northwest Colombia for Compañia Minera Cerro Tasajero (2010-2011).
   - Engineering lead for DMT on the PT Indika Energy technical team working on the potential acquisition of PT Bayan Resources, Citibank as financial advisor (2010).

- Engineering lead for DMT on the PT Indika Energy technical team working on the potential acquisition of PT Berau, Citibank as financial advisor (2009).
- Due diligence review of certain coal assets in Cordoba Department, Colombia, on behalf of Prime Natural Resources.
- A technical review of various coal assets in Norte del Santander Department, Colombia on behalf of Vitol SA.
- Technical assistance to several coal mines in the Cucuta area in Norte del Santander Department, Colombia on behalf of a potential investor. Included safety audits and operational assistance as well as reviewing the design of exploration projects.
- Review of certain coal assets on the island of Borneo on behalf of Indika Energy Inc. (2007-2008) including the South Gobi and PT Berau properties.
- Technical due diligence on the assets of the Taiyuan Sanxing Coal Gasification (Group) Co Ltd. owned by China Coal Energy Holdings Ltd. of Hong Kong. Completed for Pine Street Capital (Elliott Advisors (HK) Ltd.

5. Prior to joining DMT I spent six months designing an underground coal mine in Iran and two months writing an NI 43-101 Technical Report on coal mining properties in Colombia.
6. From 2000 to 2004 I was Mine Manager for Grande Cache Coal Corporation responsible for all aspects of mine design, planning and costing for their No. 7 Mine, including preparation for a successful stock market launch in 2004. Prior work experience includes:

1998 – 2000	**Smoky River Coal Limited**	Senior Geotechnical Engineer.
1993 – 1998	**NRCan – CANMET-CRL**	Group Leader - Strata Control.
1987 – 1993	**Jacques Whitford and Associates Ltd.**	Senior Mining Engineer.
1986 – 1987	**Webster Machine Company Ltd.**	Mining Engineer.
1982 – 1986	**NRCan – CANMET-CRL**	Research Scientist.

Dated at Calgary, AB. this 31st Day of July, 2015.

Peter Cain, Ph.D., P.Eng.
Director, Engineering and Consulting
DMT Geosciences Ltd.