Prepared for
Goldsource Mines Inc.

PRELIMINARY ASSESSMENT REPORT ON THE BORDER COAL PROJECT SASKATCHEWAN, CANADA

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Report Date: February 15th, 2011
Amendment Date: March 5th, 2012

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1.0 SUMMARY

1.1 EXECUTIVE SUMMARY

This report summarizes the Preliminary Assessment (PA) of the Saskatchewan Border Coal Project as presented by EBA Engineering Consultants Ltd. (EBA), Marston Canada Ltd. (Marston) and other Independent Qualified Representatives as discussed in section 3.0. The effective date of this report is February 15, 2011.

This assessment is preliminary in nature and the economic analysis includes inferred resources that are considered too speculative geologically to have economic considerations applied to them to be categorized as mineral reserves. The mineral resources are not reserves and do not have economic implications. There is no certainty that the results of this preliminary assessment will be realized. This report complies with NI 43-101 standards.

Marston, EBA and other independent qualified representatives conclude that, based upon this PA, development of the Border Coal project has the potential to be technically and economically feasible. The following recommendations are provided for consideration to advance the project to a Pre-Feasibility Study (PFS) level:

- Consider coal liquefaction (CTL) processes which are based on standard petroleum refinery technologies and taking advantage of the current and expected low price for natural gas to provide the hydrogen to convert coal to liquids, in particular high value transportation fuels.
- Complete bulk sampling of 5-10 tonnes to test CTL technologies, to develop or refine plant design, produce an updated product slate and product yield estimates and update the capital and operating cost estimates.
- A rigorous marketing study is recommended to determine the impact of bringing these products, in the projected quantities, to the marketplace.
- Due to the high capital cost associated with supplying natural gas to the site for CTL processing, a potential option would be to locate the processing facilities closer to the Province's main natural gas transmission and other product pipelines in southern Saskatchewan. This may provide an economic benefit on the cost side as well as possibly providing easier access to the market for the finished products.
- There are other potential technologies that could be used to monetize the Border resource, such as the Quantex Energy Inc. (Quantex) of Calgary, AB, CTL processing or the Synthesis Energy Systems ("SES") gasification processing. It is recommended that Goldsource pursue these options in conjunction with further resource development. Capital and operating costs for the Quantex CTL process may be significantly lower than other

processes, however, these processes requires further testing before being demonstrated as a proven commercial technology.

- Electrical on-site power generation was initially considered, however, the Border coals contain moderate to high amounts of sodium which causes problems (fouling) with coal-fired generators. Reduction in sodium may be possible with further test work. On-site power generation is still considered an alternative for energy production. The PA recommends using part of the bulk sample to carry out testwork for sodium and sulphur reductions.
- Carry out proposed additional work on Border Coal Project to:
  - Collect a cumulative 5-10 tonne coal bulk sample from Pasquia 2, Chemong 3 and Niska 107 by way of large diameter drilling,
  - Do coal to liquids laboratory test work and sodium and sulphur reduction testing,
  - Drill to convert Inferred resources to Indicated for several of the Border deposits and,
  - Drill several new exploration targets including the Pasquia 98 basin and Red Deer basin for potential increased resources. Significant potential exists for additional coal resources which can possibly increase mine life and decrease capital and operating costs.
  - Compile the results of this bulk sample program and previous work into a PFS to be targeted for completed in 2012. Continue collecting environmental baseline data during 2011.

Following a detailed review of the coal quality properties and extensive discussions with various power plant and coal to liquids technology providers, results suggested that the current most likely economic market for the Border coal would be coal to liquids conversion. Based on evaluation of available technologies and their relative maturity, the quality of the Border and location of the coal resource, Marston recommended coal-to-liquids processing technology to produce transportation fuels (diesel, naptha and LPG/propane) as a basis for the PA. This technology was the primary choice under consideration because it was a proven technology based on historical operating CTL plants and petroleum refining technology with the ability to process high alkali coal feeds with low ash melting points and slagging/fouling potential. The process is able to directly produce marketable transportation fuels which can be shipped via rail from the plant site and can be built as a modular design allowing expansion as needed.

<u>Coal to Liquids Project Economic Parameters</u>

Marston relied on standard CTL sources for the capital cost estimates associated with the coal to liquids facility. The total installed cost of the facility has been estimated to be $1.94 billion and was allocated over five years with commencement depending on the rate of advancement of Pre-Feasibility and Feasibility studies. There would be an additional $90 million dollars of sustaining capital required over the life the project. All capital and operating costs are to a Preliminary Assessment level and were established using quotes, experience, and factored industry standard numbers. Costs are to a +/-30% accuracy as are typical for this level of evaluation.

Based on the revised coal resources, the project contemplates mining coal at a rate of 3.0 million raw tonnes per year (1.8 million clean tonnes per year) over a 30 year life. The proposed operations would produce just over 90 million tonnes (Mt) of run-of-mine (ROM) coal with clean coal production of about 54 Mt.

The potential operation would consist of coal mining from 7 different coal deposits conveniently located next to rail and proximal to each other. A CTL plant would be constructed and operated on-site or alternatively coal will be shipped to southern Saskatchewan by rail to current established infrastructure.

Under the assumptions of this Preliminary Assessment, the project will produce approximately 6.45 billion gallons of saleable products at production rates of approximately 14,000 barrels per day. With assumed market prices of $2.25 per gallon for diesel and $2.11 and $1.29 per gallon for naptha and LPG/propane respectively, the estimated annual product revenues average $425 million/year with estimated operating costs of approximately $266 million/year (Table 1-1). Based on the pro-forma development plan, technology for upgrading, and estimated costs of operations, the project generates a positive pre-tax internal rate of return of approximately 6.3% with a payback period of 13 years with a minimum project life of 30 years and a net present value of $256 million at a 5% discount rate. Sensitivity analyses show that the project rate of return is much more sensitive to changes in revenue (product prices) than either operating or capital costs.

TABLE 1-1 BASE CASE CASH FLOW SUMMARY BEFORE TAXES

Year	-5	-4	-3	-2	-1	1	2	3
Yearly Cash Flow ($,000)	-$25,000	-$25,000	-$487,125	-$689,625	-$720,625	$158,344	$158,344	$158,344
Cumulative Cash Flow ($,000)	-$25,000	-$50,000	-$537,125	-$1,226,750	-$1,947,375	-$1,789,031	-$1,630,686	-$1,472,342
Year	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11-15**
Yearly Cash Flow ($,000)	$158,344	$158,344	$158,344	$158,344	$158,344	$158,344	$158,344	$758,802
Cumulative Cash Flow ($,000)	-$1,313,998	-$155,653	-$1,001,309	-$846,965	-$688,620	-$530,276	-$371,932	$386,870
Year	**16-20**	**21-25**	**26-30**					
Yearly Cash Flow ($,000)	$724,572	$757,772	$767,572					
Cumulative Cash Flow ($,000)	$386,870	$1,111,442	$2,636,785		Note: Values are 4th quarter 2010 Canadian dollars.			

Sensitivity analysis suggests that the same relative change in the capital and operating costs will impact the overall project economics in a similar manner.

Mining and processing assumptions for the Preliminary Assessment include:

- 1.8 Mtpy of washed coal for 30 years for open pit mining from 7 pits.
- Pit slope high-wall toe lines were projected upward at a 45° (1H:1V) angle up to the base of the glacial till. In the glacial tills, the walls were flattened to an 18° angle (3H:1V) up to surface.
- For estimates of run-of-mine coal quantities and qualities, a 20 cm coal loss and a 20 cm dilution thickness were applied at each coal:waste contact to accommodate the effects of mining.
- Overall stripping ratio is 5.6 bank cubic meters (bcm) / tonne of run-of-mine coal (rmt).
- All capital and operating costs are to a Preliminary Assessment level and were established using quotes, experience, and factored industry standard numbers. Costs are to a +/-30% accuracy as is typical for this level of evaluation.

Other key factors that favour the development of the Border Coal project are:

- Border coal deposits have an estimated average strip ratio of 5.6:1 (bcm waste to tonne of ROM coal) compared to an average 8:1 for southern Saskatchewan and Alberta coals.
- Moisture content and Calorific Values are superior to the southern Saskatchewan lignite coals.
- There are sufficient resources to support at least a 30 year project and most of the defined coal deposits are within 2 km of rail and/or highway.

The province of Saskatchewan is currently a favourable investment environment for development of this type of project with government support. The Hudson Bay community is in strong support of the project and land use is amenable to resource development and overall impact can be mitigated.

<u>Resource Estimates</u>

The revised resource estimates, presented in Table 1-2, show a conversion of approximately 20% of the Inferred resources to the Indicated category. Decreases in the inferred category were due mainly to stricter definition of deposit boundaries provided by detailed airborne gravity surveys. There are a number of priority targets yet to be tested that could add to the overall resource base of the area.

TABLE 1-2 REVISED COAL RESOURCES AT THE BORDER PROJECT		
Category	**2009 (000's Tonnes)**	**2011 (000's Tonnes)**
Indicated	63,500	79,161
Inferred	89,600	33,003

Washability

Preliminary washability testing was completed on samples from both the 2008/2009 and 2009/2010 drill programs. Initial indications are that there is an economic advantage to be gained by washing the run-of-mine coal ahead of further downstream processing in a CTL unit. Capturing the floats at a 1.60 specific gravity cut off provided an estimate of the expected qualities of a washed product. Please refer to the Table below. On an air dried basis the % ash decreases from 22.9% to 15.7% with an associated air dried yield of 70.7%. The % sulphur decreased only slightly which should be expected as the majority (75%) of the sulphur is organic in nature.

TABLE 1-3 WASHABILITY SUMMARY							
	% Moisture	**% Volatile Matter**	**% Ash**	**% Fixed Carbon**	**% Sulphur**	**Calorific Value (Kj/Kg)**	**% Yield**
Head Sample*	7.76	29.88	22.94	39.42	2.80	19,773	70.7
Floats @ 1.60 s.g. cut off	4.78	33.96	15.66	45.60	2.47	22,911	
* air dried basis							

Based on the current economics of the Border Coal Project, EBA, Marston and other Independent Qualified Representatives recommend completing the work as outlined above to help enhance the project. The estimated cost to complete the exploration and bulk sampling and testing program prior to a pre-feasibility study is US$3 million.

1.2 TECHNICAL SUMMARY

The Border Coal property is located approximately 330 km east-northeast of Saskatoon, Saskatchewan. The town of Hudson Bay is located approximately 50 km south of the property. The property consists of 183 permits covering an area of 127,852 ha (1,280 km^2), which expire on June 15 of 2011. The permits may be extended for two additional six month periods or converted to 15 year coal leases.

The government of Saskatchewan retains a 15% royalty of all coals mined in the province. This royalty is negotiable based on economic viability.

There is currently a 2% gross overriding royalty placed on the Border Coal property for all coals or minerals extracted. This royalty is held by Minera Pacific Inc. of Vancouver, BC. Fifty percent of the royalty can be purchased for $2 million.

A coal permit in Saskatchewan does not grant ownership of the surface rights. The Border coal permits are all located on Crown land and consultation has been carried out with Environmental Saskatchewan and First Nations for access.

The Border Coal property occurs within the Phanerozoic Western Canadian Basin. Cretaceous rocks of the Colorado and Mannville groups make up the geologic framework of the property. Coal intersections on the property, termed the Durango Coal Seams occur within the Cantuar Formation of the Mannville Group. Four major coal seams (Durango Seams D to A in descending order) have been defined by drilling. Definition of the coal intervals was determined from downhole geophysics surveys and supported by core logging and analytical results.

A significant amount of exploration work has been completed on the Border coal project and includes; systematic drill hole sampling, airborne geophysics, and geotechnical investigation. Drilling accounts for the most significant portion of the exploration work which, to date, totals 20,622 m in 142 holes. Core logging and sampling was carried out in a set format and in a professional manner. One thousand and seventy-two individual samples of carbonaceous material, primarily coal, have been analyzed to determine coal type and quality characteristics. In addition to bulk density, the proximate analysis completed for these samples includes measurements of moisture content, ash content, sulphur content, fixed carbon, and calorific value.

A geological model was constructed using Gemcom Gems™ (Version 6.2.3). Coal seam intervals in drill core were defined by coal quality and 3-D shapes were created based on continuity of coal within each of the deposits. The individual deposit geometry was determined from interpretation of the geophysical surveys discussed herein.

Geology-Type refers to the level of complexity of seam geometry within coal deposits and determines the approach for resource/reserve estimation with limits applied to certain key estimation criteria. Marston has determined that the Border property is of the “Moderate” geology type.

Application of ASTM Standard 388-05 which is based according to fixed carbon and gross calorific value calculated to the mineral-matter-free basis results in a ranking classification for the coal at the Border property to be between Lignite A and Sub-bituminous C. A summary of physical characteristics of all coal modelled as indicated and inferred mineral resources is presented in Table 1-3 and Table 1-4, respectively.

TABLE 1-4 PHYSICAL PARAMETERS OF MODELED COAL – INDICATED RESOURCSES

Area	Category	Volume (000's BCM)	Mass (000's Tonnes, arb)	TM (wt%, arb)	IM (wt%, adb)	Ash (wt%, adb)	FC (wt%, adb)	Sulphur (wt%, adb)	CV (KJ/kg adb)
C6	Indicated	5,619	7,530	29.83	8.20	22.46	39.41	2.44	19,975
N107	Indicated	16,083	21,613	29.29	7.99	20.17	42.25	3.06	20,903
N108	Indicated	12,330	17,220	24.36	5.88	28.57	37.68	2.80	18,630
P02	Indicated	15,006	20,436	29.07	6.67	22.85	39.84	1.97	19,698
P05	Indicated	3,943	5,738	28.70	4.50	32.39	35.88	3.09	17,555
SL39	Indicated	4,749	6,624	27.29	4.11	27.40	39.62	2.15	18,982
Total	**Indicated**	**57,729**	**79,161**	**28.00**	**6.63**	**24.40**	**39.68**	**2.59**	**19,606**

TABLE 1-5 PHYSICAL PARAMETERS OF MODELED COAL – INFERRED RESOURCES

Area	Category	Volume (000's BCM)	Mass (000's Tonnes, arb)	TM (wt%, arb)	IM (wt%, adb)	Ash (wt%, adb)	FC (wt%, adb)	Sulphur (wt%, adb)	CV (KJ/kg adb)
C20	Inferred	6,270	8,392	35.29	9.54	19.27	42.33	2.94	21,059
C3	Inferred	4,495	5,881	33.26	6.97	18.95	43.18	2.24	21,337
N107	Inferred	3,566	4,817	25.72	8.70	26.83	36.82	2.81	18,903
N108	Inferred	4,728	6,413	23.16	5.91	22.88	41.99	3.37	20,902
P02	Inferred	253	413	24.03	2.72	48.09	26.50	2.10	12,616
P05	Inferred	2,372	3,626	31.04	4.01	41.79	31.00	2.19	14,725
P05 SE	Inferred	2,448	3,460	29.54	5.76	31.16	36.46	2.85	17,803
Total	**Inferred**	**24,132**	**33,003**	**29.96**	**7.16**	**25.10**	**39.55**	**2.78**	**19,620**

Operationally, the Border Coal Project will initially consist of potentially six open pits. Those are Niska 108 (N108), Niska 107 (N107), Pasquia 02 (P02), Chemong 20 (C20), Chemong 3 (C3), Chemong 6 (C6). As the coal does not outcrop near surface and is generally flat lying the open pits were based on projecting the pit walls outward from the edge of the coal occurrence up to the base of the glacial till at a 45 degree angle. From here the walls were laid back even further at a 3:1 (H:V) angle to surface. The resultant overall stripping ratio for the pits as scheduled in the pro-forma mine plan is 5.6:1 (bank cubic meters of waste to 1 run-of-mine tonne). The current plan suggests that the Niska deposits would be mined first, after which the pits could be used as tailings sinks for mining in the remaining basins.

2.0 INTRODUCTION AND TERMS OF REFERENCE

At the request of Goldsource Mines Inc. (Goldsource), EBA Engineering Consultants Ltd. (EBA) of Vancouver, BC, and Marston Canada Ltd. (Marston) of Calgary, Alberta carried out a Preliminary Economic Assessment (PEA) for the Border Coal property in east-central Saskatchewan. EBA and Marston have relied on Goldsource to supply the geological information, background data and drill hole database that are used in the this report. This report was prepared in accordance with the Canadian National Instrument 43-101 (NI 43-101) standards of reporting. The effective date of this report is February 15th, 2011.

Goldsource is a junior Canadian resource company engaged in the exploration and development of Canada's newest coalfield in the province of Saskatchewan. The company has aggressively drilled only a portion of this new thermal coal field and has discovered 17 coal deposits of varying size with coal thicknesses up to 120 m within the permit area of the Border Coal property.

Headquartered in Vancouver, BC, Goldsource is managed by experienced mining and business professionals. The Goldsource Border site includes an established camp site and approximately 100 km of exploration roads.

Jim McQuaid of Marston and Mohammed Dadmanesh of EBA visited the site from March 1st to 3rd, 2010.The site visit included a helicopter tour of the site and a ground tour of drill hole locations. In addition to the property tours and viewing the core, Jim and Mohammed provided QA/QC and recommendations for outstanding items contributing to the completion of the PA.

Lara Reggin, P.Geo. of EBA visited the site from January 25th to 29th, 2010. The site visit contributed to the development of the geotechnical program and consisted of a detailed project review. The site visit included, but was not limited to, a review of all lithologies encountered in the 2008 and early 2009 boreholes, a helicopter and ground tour of the project area, and a review of existing roads and drill hole locations.

Units of measurement used in this report conform to the SI (metric) system. All currency in this report are Canadian dollars (C$) unless otherwise noted. Abbreviations used in this report are presented in Table 2-1.

TABLE 2-1 LIST OF ABBREVIATIONS			
µ	Micron	kPa	kilopascal
°C	degree Celsius	kVA	kilovolt-amperes
°F	degree Fahrenheit	kW	kilowatt
µg	Microgram	kWh	kilowatt-hour
A	Ampere	L	Litre
a	Annum	L/s	Litres per second
Bbl	Barrels	m	metre
Btu	British thermal units	M	mega (million)
C$	Canadian dollars	m^2	square metre
cal	Calorie	m^3	cubic metre
cfm	cubic feet per minute	min	minute
cm	Centimetre	masl	metres above sea level
cm^2	square centimeter	mm	millimetre
d	Day	mph	miles per hour
dia.	Diameter	MVA	megavolt-amperes
dmt	dry metric tonne	MW	megawatt
dwt	dead-weight tonne	MWh	megawatt-hour
ft	Foot	m^3/h	cubic metres per hour
ft/s	feet per second	opt, oz/st	ounce per short ton
ft^2	square foot	oz	Troy ounce (31.1035g)
ft^3	cubic foot	oz/dmt	ounce per dry metric tonne
g	Gram	ppm	part per million
G	giga (billion)	psia	pound per square inch absolute
Gal	Imperial gallon	psig	pound per square inch gauge
g/L	gram per litre	RL	relative elevation
g/t	gram per tonne	s	second
gpm	Imperial gallons per minute	st	short ton
gr/ft^3	grain per cubic foot	stpa	short ton per year
gr/m^3	grain per cubic metre	stpd	short ton per day
hr	Hour	t	metric tonne
ha	Hectare	tpa	metric tonne per year
hp	Horsepower	tpd	metric tonne per day
in	Inch	US$	United States dollar
in^2	square inch	USg	United States gallon
J	Joule	USgpm	US gallon per minute
k	kilo (thousand)	V	Volt
kcal	Kilocalorie	W	Watt
kg	Kilogram	wmt	wet metric tonne
km	Kilometre	yd^3	cubic yard

TABLE 2-1 LIST OF ABBREVIATIONS			
km/h	kilometre per hour	Yr	Year
km^2	square kilometer		

3.0 RELIANCE ON OTHER EXPERTS

This report has been prepared by EBA of Vancouver, BC and Marston of Calgary, Alberta for Goldsource. All of the information, conclusions, opinions, estimates and conclusions contained herein are based on:

1. Information available to EBA and Marston at the time of preparation of this report.
2. Assumptions, conditions, and qualifications as set forth in this report.
3. Data, reports, and other information supplied by Goldsource and other third party sources.

This PEA was completed with the reliance on the following experts:

- Lara Reggin, P.Geo., Engineering Geologist and Project Manager, EBA Engineering Consultants Ltd.: Provided senior oversight of the regional and property geology descriptions, ARD/ML reporting, and project planning.
- Mohammed Dadmanesh, P.Eng., Mining Engineer and Project Manager, EBA Engineering Consultants Ltd.: Developed the initial geologic and block model.
- John Chow, AusIMM, Mining Engineer, EBA Engineering Consultants Ltd.: Provided senior review of the tailings and infrastructure sections.
- Jerry Dewolfe, P.Geo., Marston Canada, Ltd assisted with the review of the geological exploration data and assisted EBA with the construction of the geological model.
- James McQuaid P.Eng., Mining Engineer and Vice President of Marston Canada Ltd. Provided senior oversight over the geological model construction, reporting of resources and pro forma mine plan. Also worked with Ralph Olson to determine a feasible end use for the coal resource and developed a project cash flow.
- Ralph Olson, B.Sc. Chemical Engineering, M.Sc. Nuclear Engineering, Marston Canada Ltd. Mr. Olson assisted with the analysis of the various potential coal end use alternatives that were studied during the Preliminary Assessment and was the main contact between Marston and the CTL Technology Provider. Mr. Olson also assisted with the cash flow analysis.

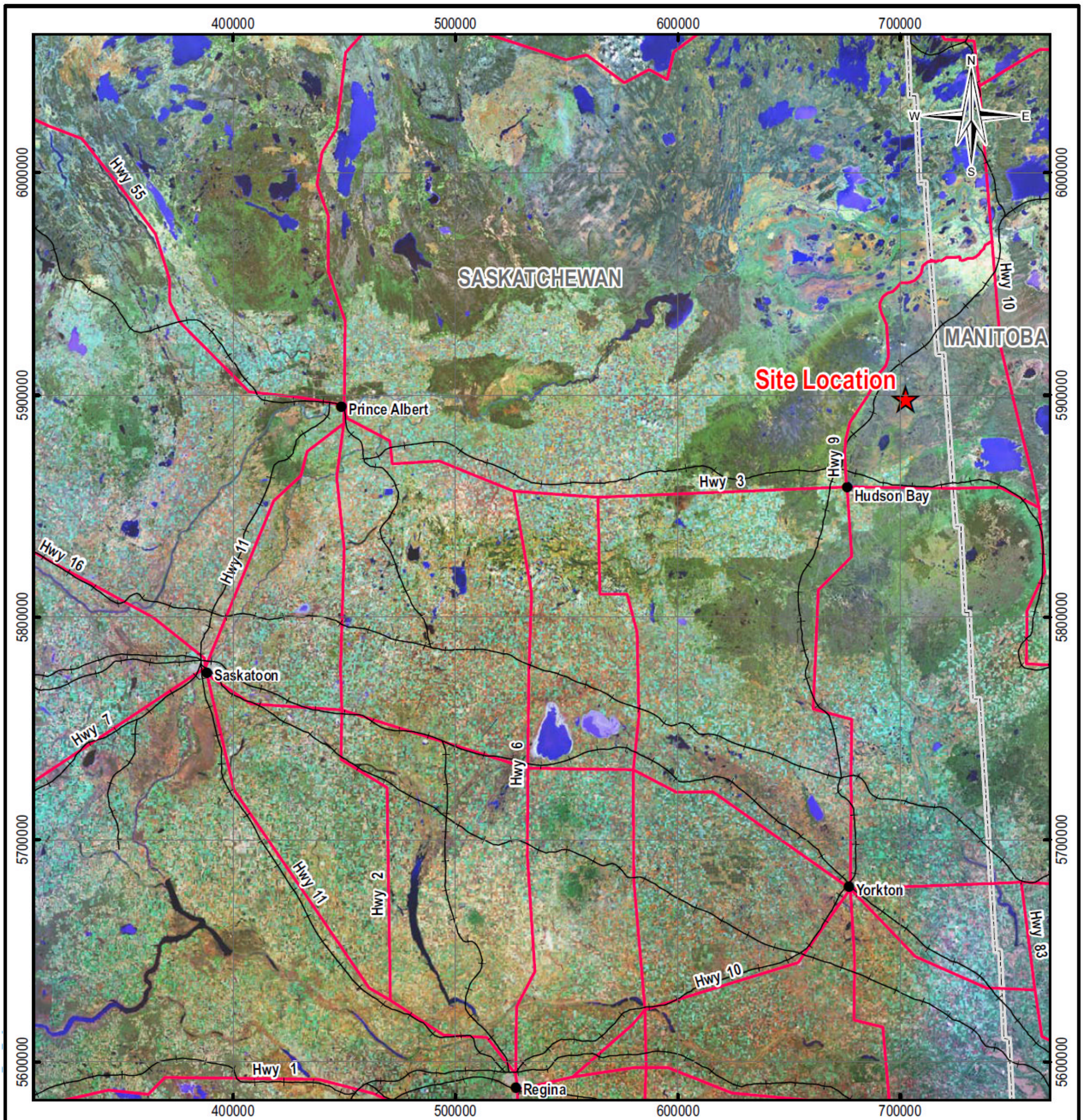
This PEA was also completed with input from the following consultants:

- Fugro Airborne Surveys provided geophysical survey and associated reports
- North Rim Explorations Ltd helped with preparation of cross sections and site maps with diamond drill holes.
- Confidential Coal-to-liquids technology supplier worked with Marston to determine the suitability of the Border Coal in regard to its CTL Technology. Based on the coal quality information that was supplied to them the supplier provided high level operating/capital cost information and expected product yields for the for the coal-to-liquids plant.
- Trangas, a wholly owned subsidiary of SaskEnergy provided a high level capital cost estimate for the construction of a suitably sized natural gas transmission line to supply the CTL plant.
- Saskatchewan Government, Mines Branch, Energy and Resources provided a map showing all the coal exploration disposition holders in the immediate interest of the Border Coal property.
- Eric Fier acted as client liaison and provided project related data.
- Past report – Technical Report NI 43-101 completed by EBA Engineering Consultants of Vancouver, BC and Moose Mountain Technical Services (MMTS) of Elkford, BC.

4.0 PROPERTY DESCRIPTION AND LOCATION

The Border Coal property is approximately 330 km east-northeast of Saskatoon, Saskatchewan, near the intersection of 53º 10' north latitude, and 102 º 00' west longitudes. The property is located within NTS map sheets 63E01, 63E08, 63F04 and 63F05. The town of Hudson Bay is located approximately 50 km south of the property (Figure 1).

With the exception of a single coal exploration disposition Goldsource holds all the coal permits (183) in the area. These permits (Figure 2) were issued by the government of Saskatchewan on May 31, 2008 and cover a total area of 127,852 ha (1,280 km2). The permits expire May 31, 2011. The permits may be extended for two additional six month



LEGEND

- ★ Site Location
- ● Populated Place
- Major Road
- Major Railway
- Provincial Border

NOTES

Base data source:
ESRI Data Maps

RESOURCE ESTIMATION FOR THE BORDER COAL PROPERTY

Regional Location

PROJECTION	DATUM
UTM Zone 13	NAD83

Scale: 1:2,500,000

50 25 0 50 Kilometres

FILE NO. V15101005_006_Figure01.mxd			
PROJECT NO. V15101005.006	DWN MEZ	CKD WW	REV 0
OFFICE EBA-VANC	DATE July 8, 2010		

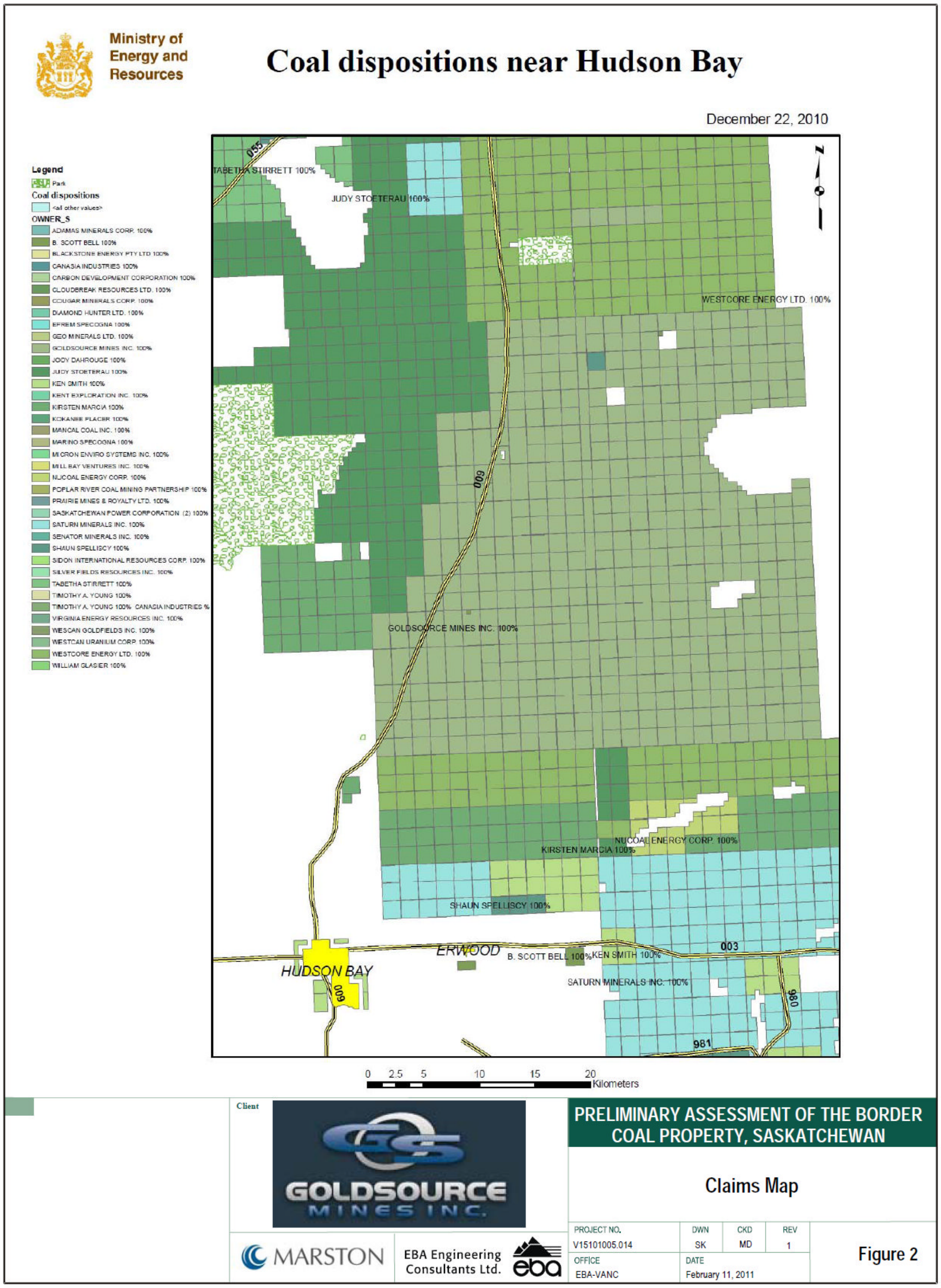
GOLDSOURCE MINES INC.

MARSTON

EBA Engineering Consultants Ltd.

Figure 1

periods or converted to 15 year coal leases. A coal permit in Saskatchewan does not grant ownership of the mineral or surface rights only access if the land is held by the Crown. The Border Coal permits are all located on Crown land and consultation has been made with Environmental Saskatchewan and First Nations for access (Figure 2).



5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 ACCESSIBILITY

The property can be accessed year-round by highway from Saskatoon through Hudson Bay to the Border Camp and staging area, and then by maintained winter (ice) roads to the drill sites. Provincial Highway 9 runs adjacent to the property and within 5km of the 2008 discovery holes. During the summer the only access to drill sites from the staging area has been by amphibious vehicles and helicopter. There is also an active railroad (CNR) next to the staging area on the property.

5.2 CLIMATE

The climate is typical of the boreal forest with the summer season from June to August. Seasonal temperatures vary from -50ºC to +35ºC. Precipitation averages to 300 mm per year. The frost-free period in the region ranges from 100-120 days per year, which can impact access to the area.

5.3 PHYSIOGRAPHY

The property is located in a low lying area on the eastern margin of the Pasquia Hills in the Pasquia River drainage system. Elevations in the project area range from 300-400 masl.

Vegetation consists of very dense boreal forest, which includes: birch trees, pines trees, poplar trees, evergreen trees and muskeg. During the winter the muskeg freezes creating easier access.

5.4 LOCAL RESOURCES

During the summer months water is easily available for drilling on the property from the placid lake system and boggy areas.

Electrical power is available from a major power line (230kv) that is approximately 70 km north of the property.

Adequate area is available within the property boundaries for waste dumps, tailings facilities, a washing plant, a rail system, and operations facilities.

The closest major city is Saskatoon, with a population of approximately 250,000. Saskatoon is located 330 km southwest of the property. Almost all services and supplies can be obtained in Saskatoon. All items that can not be obtained in Saskatoon are easily shipped into the city's international airport. Prince Albert (population of 50,000) is about 250 km west of the property and is serviced by highway, rail and local airport.

Current lignite mines in Saskatchewan include one in the south-central part of the province and two others in the south-eastern section of the province. There are significant uranium deposits and potash deposits located in northern and central Saskatchewan respectively.

There is approximately 100 km of winter roads built and partially reclaimed on the site not including the access road that goes into the staging area.

6.0 HISTORY

The Border Coal property is the first potentially economic coal deposit to be discovered in this area. There is little to no drilling information available for the area surrounding the town of Hudson Bay wherein the Border Property is located, save for a few historical holes completed for oil shales. There have been no previous workings in the area to suggest that there was coal exploration on or around the property. Oil and oil shale drilling is ongoing in areas to the south and southwest of the property.

In the summer of 2007 preliminary exploration was conducted in the area. In April of 2008 two discovery diamond drill holes, BD08-03 and BD08-06, approximately 1.6 km apart, intersected coal with thicknesses of 22.6 m and 24 m, respectively.

7.0 GEOLOGICAL SETTING

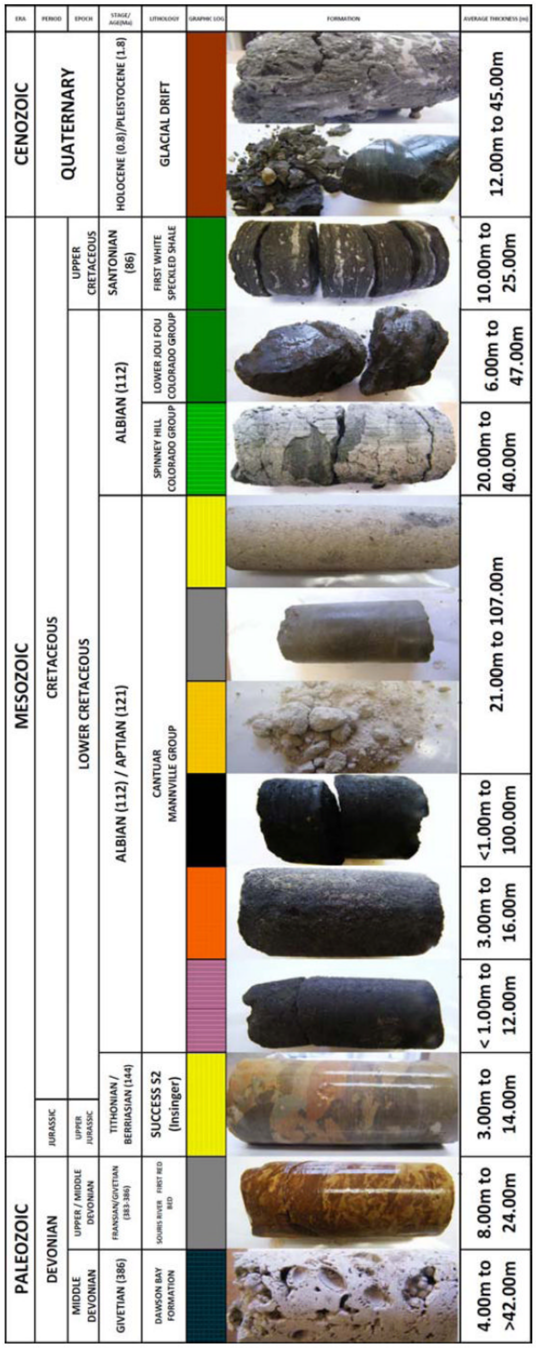
7.1 REGIONAL GEOLOGY

The Border Coal property occurs within the Phanerozoic Western Canadian Basin, a vast sedimentary basin underlying 1.4 million km2 of western Canada. Cretaceous rocks of the Colorado and Mannville groups make up the Border Coal property. The Mannville Group unconformably overlies Devonian carbonate rocks, and conformably underlies Late Cretaceous shale of the Colorado Group.

The cretaceous to Miocene periods deposited clastic sediments from the Cordilleran orogeny. During this time period, central North America including the project area in east-central Saskatchewan was below sea level at the convergence of the Western Interior Seaway and Hudson Seaway. Towards the end of the Cretaceous and early Tertiary period, the Laramide Orogeny was responsible for the deposition of larger gravels from the newly formed Rocky Mountains. A number of lignite coal deposits formed in southern Saskatchewan from the marshes of rivers developed during the Teritary period as a result of the Laramide Orogeny.

The area was most recently subject to glaciation during the Quaternary period, about 2 to 3 million years ago. The Laurentide ice sheet was approximately 3km thick and advanced and receded several times across the prairie provinces of Canada. Glacial Lake Agassiz covered much of Saskatchewan. When the ice and water retreated, the lake beds formed flat plains characterized by land covered in rubble and ridges of gravel. Beach strands, trending approximately North-South can be seen in the western most section of the project area.

A simplified stratigraphy of the region is summarized in Figure 3 and discussed below. Regional stratigraphy is summarized from "Border Geological Update 2009" and referenced herein. The area was mapped by Beck (1974).



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PRELIMINARY ASSESSMENT OF THE BORDER COAL PROPERTY, SASKATCHEWAN

Regional Stratigraphy

PROJECT NO.	DWN	CKD	REV
V15101005.005	SK	LR	1
OFFICE	DATE		
EBA-VANC	November 26, 2010		

Figure 3

Quaternary glacial drift is the uppermost unit of the stratigraphy. Interpreted to be transported sand, gravel and boulder clays, containing granite, schist, limestone and various shield rock types, the glacial deposits vary in thickness from 12 to 45m. Variations in thickness are attributed to pooling and stagnant ice formation.

The glacial drift is underlain by Cretaceous calcareous speckled shale of the Favel and Vermillion Formations in parts of the regional area. Within the project area the glacial drift is underlain by black non-calcareous shales of the lower Colorado Formation. The Joli Fou and subordinate Spiney Hill formation of the lower Colorado Formation thicken fairly uniformly from about 100m at its eastern outcrop edge in the Pasquia Hills area wherein the Border property is located to 500m in the southwest corner of Saskatchewan. The lower beds of the Joli Fou Formation appear to be shallow marine in origin and probably deltaic with sand rich sequences such as the Spiney Hill member which is characterized by glauconitic sands and silts.

The lower Cretaceous Manville Stratigraphy, described in detail by Maycock (1967), underlies the Lower Colorado Formation and is divided into the lower continental Cantaur Formation and the marginal marine Pense Formation. The Cantaur formation is a heterogeneous assemblage comprising lithic sandstones, unconsolidated quartz sands, and carbonaceous units. Sub-bituminous to bituminous coal is a major component of the Cantaur Formation in areas of east-central Saskatchewan.

The Success formation is in disconformity with all adjacent strata. The formation is characterized by detrital beds which consist of white to light grey indurated quartoze sandstones, siltstones, and mudstones with abundant feldspar, chert, coal and carbonaceous fragments. The insinger beds infill topographic and salt-dissolution collapse depressions. The Success Formation represents a northward transition from marine to continental setting.

The Middle Devonian Dawson Bay Formation represents sedimentation from major transgressive-regressive sequences. It consists of non-fossiliferous to fossiliferous carbonates which act as the main control of karsts and topography in the east-central region of Saskatchewan.

The "Durango Trend" is a term coined by Goldsource to identify a NW to SE trending zone of similar geology containing geophysical signatures indicative of basinal settings conducive to coal deposition. The Durango Trend stretches from northeast Alberta to Dauphin, Manitoba and is approximately 800 km in length. Coal intersections on the property, termed the Durango Coal Seams within the Cantuar Formation, are part of this trend.

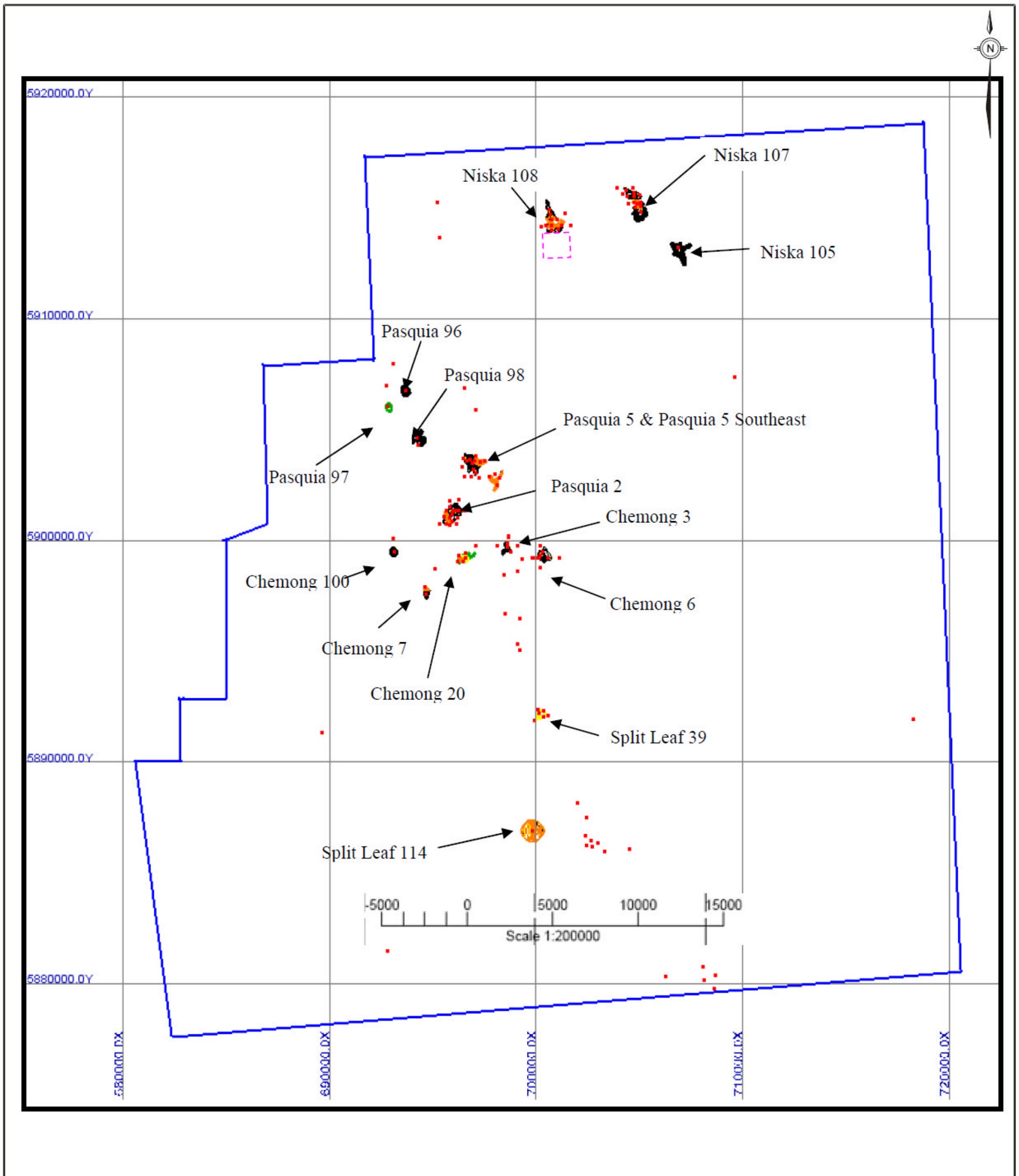
7.2 LOCAL AND PROPERTY GEOLOGY

Minor outcrop found in the project area and government maps are based on scattered historic drill holes, geophysical interpretation and extrapolation of known area geology. Local geology described herein is based on core holes drilled by Goldsource. Typically 10-

50 metres of glacial till occur as overburden, with average overburden thickness being 32 m. Eight distinct geological units (numbered below) are defined on the property through inspection of drill core. Contacts range from sharp to gradational and are approximately horizontal. Stratigraphy, as observed in drill core below glacial till and from top to bottom is as follows: varying proportions of interlayered (1) mudstone and (2) siltstone of the Joli Fou Formation, with mudstone commonly predominating. The mudstone is generally described as light to dark grey with irregular intermixed tan silt and a slaking texture. It is commonly fissile and fractured perpendicular to the core axis. (3) Glauconitic mudstones and siltstones of the Spiney Hill member commonly occur above the coal zone. As such they represent an excellent marker bed for the potential that coal will be identified in a given hole or area on the property. They are described in the same way as the mudstones of the Joli Fou Formation, with the addition of fine to medium grained intermixed glauconitic sands. The coal/carbonaceous zone of the Cantaur Formation is generally bordered on the upper and lower contact by variably consolidated (4) clean, quartz dominant, white "beach" sands of the Cantaur Formation. The coal zone of the Cantaur Formation consists of (5) sub-bituminous to bituminous coal, (6) carbonaceous mudstone, siltstone and sand. Semi-consolidated (7) carbonaceous sand/sandstone is common at the base of the coal zone. Massive to brecciated (8) limestone, variably fossiliferous, of the Devonian Dawson Bay formation and less commonly massive (9) dolostone are at the base of the observed stratigraphy. No drilling has extended beyond the limestone and dolostone units of the Devonian Dawson Bay Formation. The Success Formation, above the limestone unit, is rarely observed and is described as unorganized assemblage of delta front sediments and marine sediments of the Willston Basin. The rocks are characterized by breccias and slump or collapse textures.

Four major coal seams (Durango Seams D to A, from top to bottom) have been defined by drilling. Of these seams, "C" is the most important with an average thickness estimated at 20 m. Parent-child relationships have been identified within seams that split apart or run parallel to one another in close proximity. These sub seams our assigned a number suffix (descending order from top to bottom) in addition to the letter designation. For example, C2 would be a separate unconnected seam to the lower C1, but they both branch off from or are associated with seam C. The greatest thickness of continuous coal drilled to date is approximately 120 m. Definition of the coal intervals was determined by visual assessment, analytical results and geophysical determinations from downhole geophysical logs.

Electro-magnetic surveys and regional geological maps indicate several large structural lows (e.g. sub-basins) occur within the project area that contains coal. Minor faulting has been identified in drill core. Figure 4 provides an overview of the Border Coal property area and shows the location of the 17 near surface coal deposits.



Drillhole Location
Uncontrolled drill permit
Approximate GXS Coal Disposition Boundary

Coal Seams Legend	
Seam D	Seam B
Seam C	Seam A

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PRELIMINARY ASSESSMENT OF THE BORDER COAL PROPERTY, SASKATCHEWAN

Border Property Drillhole Locations

PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1
OFFICE	DATE		
EBA-VANC	February 11, 2011		

Figure 4

7.3 DEPOSIT TYPES

Coal deposit classifications include both "Geology-Type" and "Deposit-Type" as defined in Geological Survey of Canada Paper 88-21 (Hughes et al., 1989), which is a reference for coal deposits as specified in NI 43-101. These classifications determine the range of limiting criteria that may be applied during the estimation of resources and reserves.

Geology-Type refers to the level of complexity of seam geometry within coal deposits and determines the approach to be used for the resource/reserve estimation with limits applied to certain key estimation criteria. The identification of a particular Geology-Type for a coal property determines the confidence that can be placed in extrapolation of data values away from a particular point of reference (i.e. drill hole). There are four categories; Simple, Moderate, Complex, and Severe. These range from the lowest complexity for deposits of the Plains type with low tectonic disturbance, classified as "Simple", to the fourth for Rocky Mountains type deposits such as that of Byron Creek, which is classed as "Severe". The second class is "Moderate" and the deposits in this category have been affected to some extent by tectonic deformation. They are characterized by homoclines or broad open folds with bedding inclinations of generally less than 30°. Faults may be present, but are relatively uncommon and generally have displacements of less than ten metres. Previously, Moose Mountain classified the Border property as a "Moderate" geology type typical of this class (Technical Report for the Border Coal Property Resource Evaluation, MMTS 2009) and Marston Canada concurs.

Deposit Type refers to the probable extraction method most suited to the coal deposit. There are four categories: surface, underground, non-conventional and sterilized. This determines the mining method and may dictate the manner of calculating seam thickness and other parameters for estimating reserves. The initial resource work completed by Moose Mountain classified the Border property as potentially surface mineable and of immediate interest.

7.4 MINERALIZATION

There are four major definable seams at the project site, termed the Durango D, C, B, and A seams in descending order. Parent-child relationships have been identified within the four major seams that split apart or run parallel to one another in close proximity. These sub seams our assigned a number suffix (descending order from top to bottom) in addition to the letter designation. For example, C2 would be a separate unconnected seam to the lower C1, but they both branch off from or are associated with seam C.

The coal is deposited as lenses in depressions controlled by the irregular paloetopography of the underlying Devonian age carbonate rocks. The coal is restricted in areal extent but the vertical accumulation of carbonaceous zones is remarkably thick, with true aggregate thickness reaching 125m. The age of this coal is thought to be 90-120 million years old.

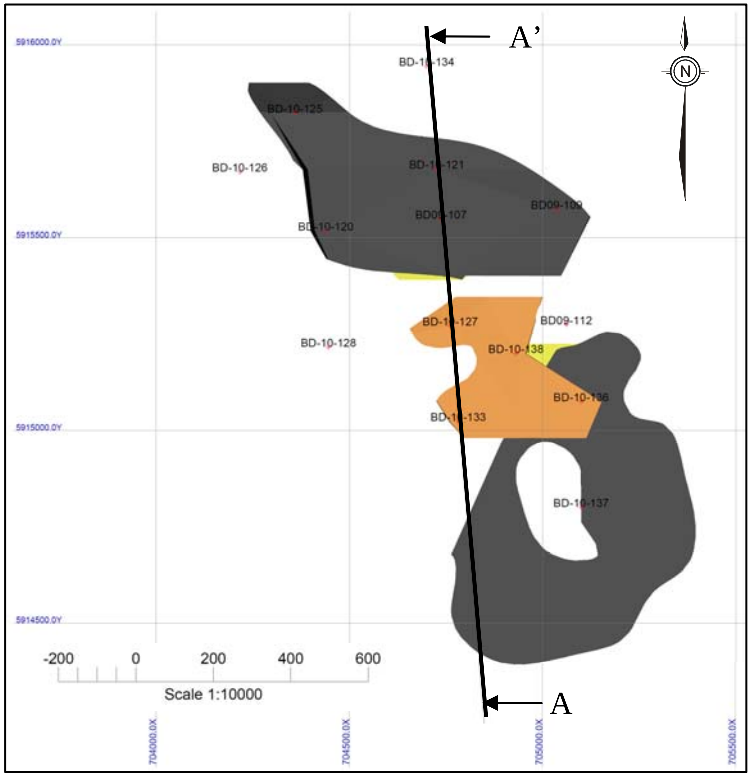
These coal seams are intermixed with sands, siltstones and mudstones with a distinctly carbonaceous signature. These units are characterized by the presence of coaly constituents and carbon staining in the matrix. Much denser than the coal, the carbonaceous partings have low calorific values (CV) and high ash content. The coal in the Durango seams is black in color and ranges from dull to lustrous. Bright to dull ratio varies from 100% to <35% bright and 0% to >65% dull. The lustrous sections are associated with the presence of tabular, cubic and conchoidal bright coal fragments. Dull sections are noted as having high ash content (>30%). Sulphide (only pyrite observed) concentrations range from absent to moderate, typically trace. Pyrite occurs as blebbed shapes, stringers, concretions and disseminated. Fe-alteration is visible on coal surface in sections of the unit with higher sulphide concentrations.

The Mannville coals contain higher sulphur concentrations than the Alberta coals and the Ash Chemistry shows high alkaline mineral content and sulphates. These differences in coal chemistry can be explained by differences in depositional environments. The chemistry detailed above indicates that the formation of the Mannville coals involved considerable periods of peat accumulation under aerobic conditions in a brackish water/marine environment, in contrast to the fresh water depositional environment associated with the upper Cretaceous/Tertiary coals being mined in Alberta.

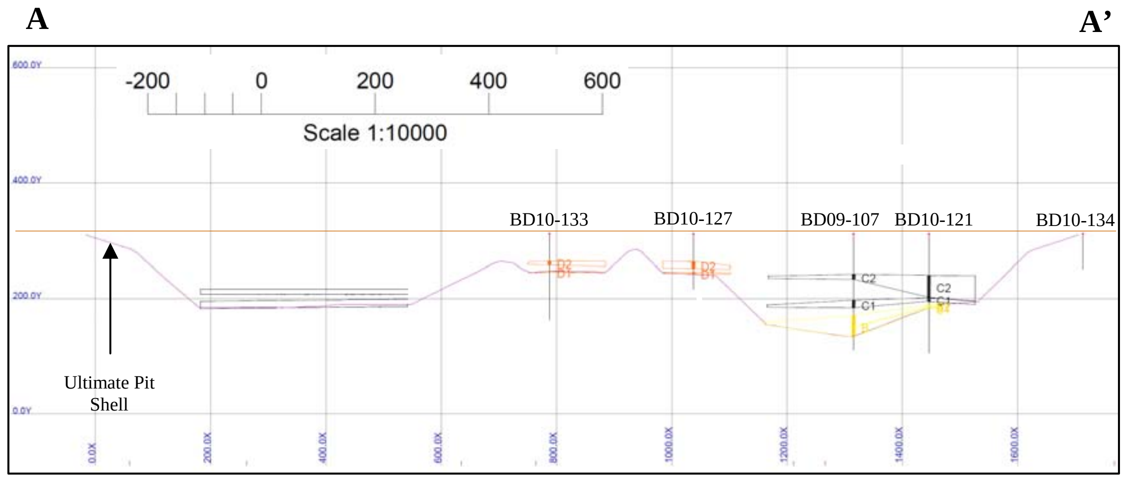
The six basins identified as being potentially open pits in the initial stages of operation are Niska 108, Niska 107, Pasquia 02, Chemong 20, Chemong 3, Chemong 6. They have been drilled in sufficient detail to allow for a high confidence of correlation of the coal seams. Figure 5 through 25 show plan view maps of these deposits, as well as Pasquia 5 which has also been drilled in detail, including all holes drilled to date and modelled coal seams. Each plan view map is accompanied by a cross section showing distribution of coal seams intercepted by drilling.

7.5 COAL SEAM DEPOSTION AND STRUCTURE

The lowest coal horizon in the Niska 107 basin is Seam A which is intercepted in the southern portion of the basin in drillhole BD-10-136. Seam B is intercepted in drillholes BD-09-107 and BD-10-121 through the north central part of the basin and divides into sub-seams B1 and B2. In the south-east corner of the basin seam B is intersected over six continous meters in drillhole BD-10-136, and not intersected in the drillholes in the southwest portion of the deposit. Seam C is the thickest and most continuous seam, and intercepted throughout the northern section of the basin. The longest continuous intercepted interval of seam C is 54m in drillhole BD-10-125. To the south, this seam divides into C1 and C2 and is intercepted in drillholes BD-10-121, 10-120, 09-107 and BD-09-109. A limestone ridge intercepted at 100m in drillhole BD-09-107 appears to cut off seam C from the south of the deposit. Seam C1 and C2 are intercepted in the south-east corner in drill hole BD-10-136. Seam D, absent in the north appears, consistently in drill holes in the southern section of the deposit as D2 (~6-9m) and D1 (~1-2m). Coal seams in the northern part of the deposit are observed to be slumping in the center, perhaps from limestone dissolution and basin subsidence. Conversely, coal seams in the south are generally flat-lying.



Niska 107 – Plan View



Niska 107 – Seams Cross Section A-A'

LEGEND

Coal Seams Legend
Seam D
Seam C
Seam B
Seam A

NOTES

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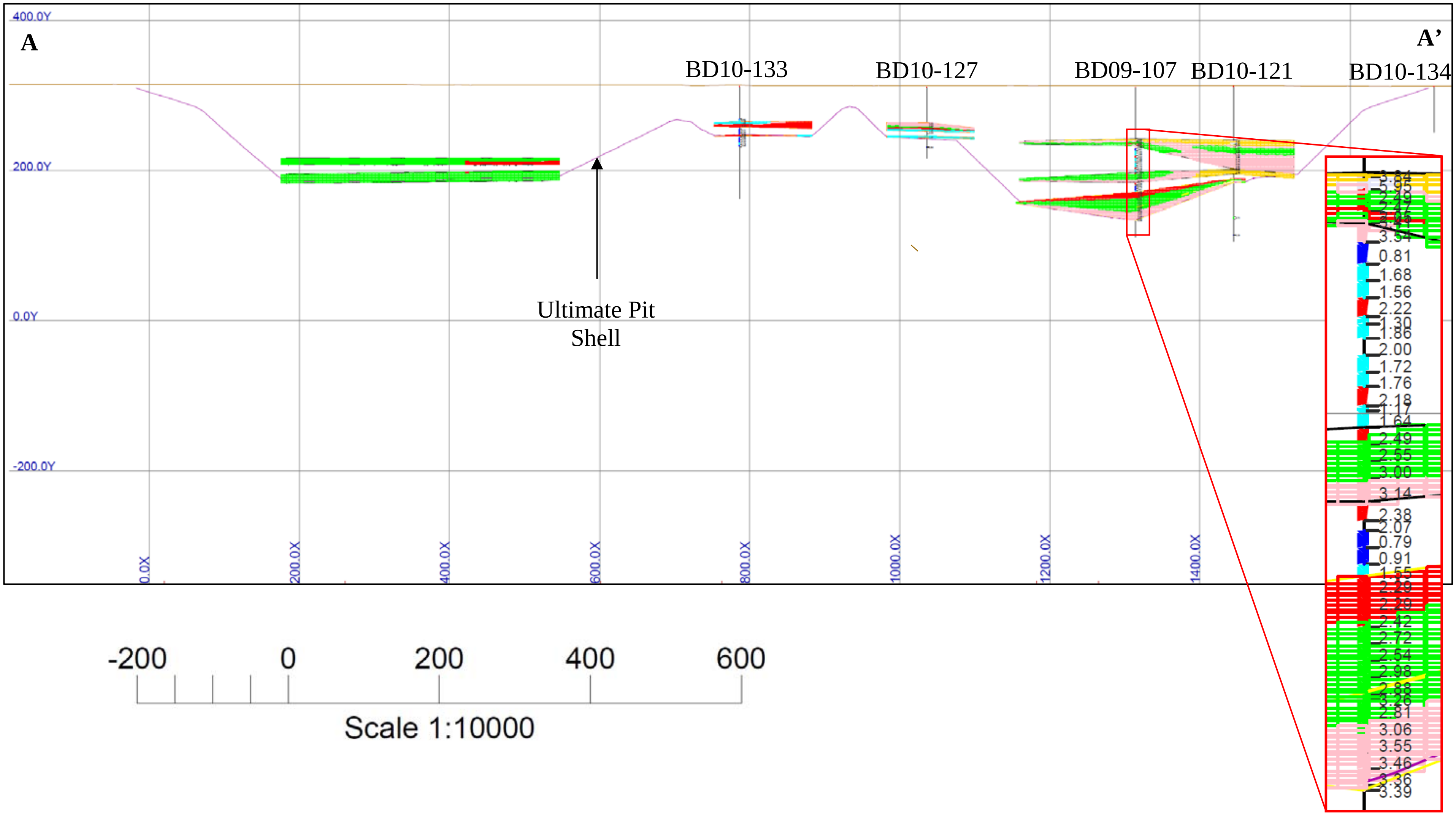
Niska 107
Plan View and Seam Cross Section A-A'

PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1
OFFICE	DATE		
EBA-VANC	January 11, 2011		

Figure 5



Coal Seams Legend
Seam D
Seam C
Seam B
Seam A

Air Dried Sulphur %	
0.00100 - 1.00000	3.10000 - 4.09000
1.10000 - 2.00000	4.10000 - 5.09000
2.10000 - 2.50000	5.10000 - 99.00000
2.51000 - 3.09000	

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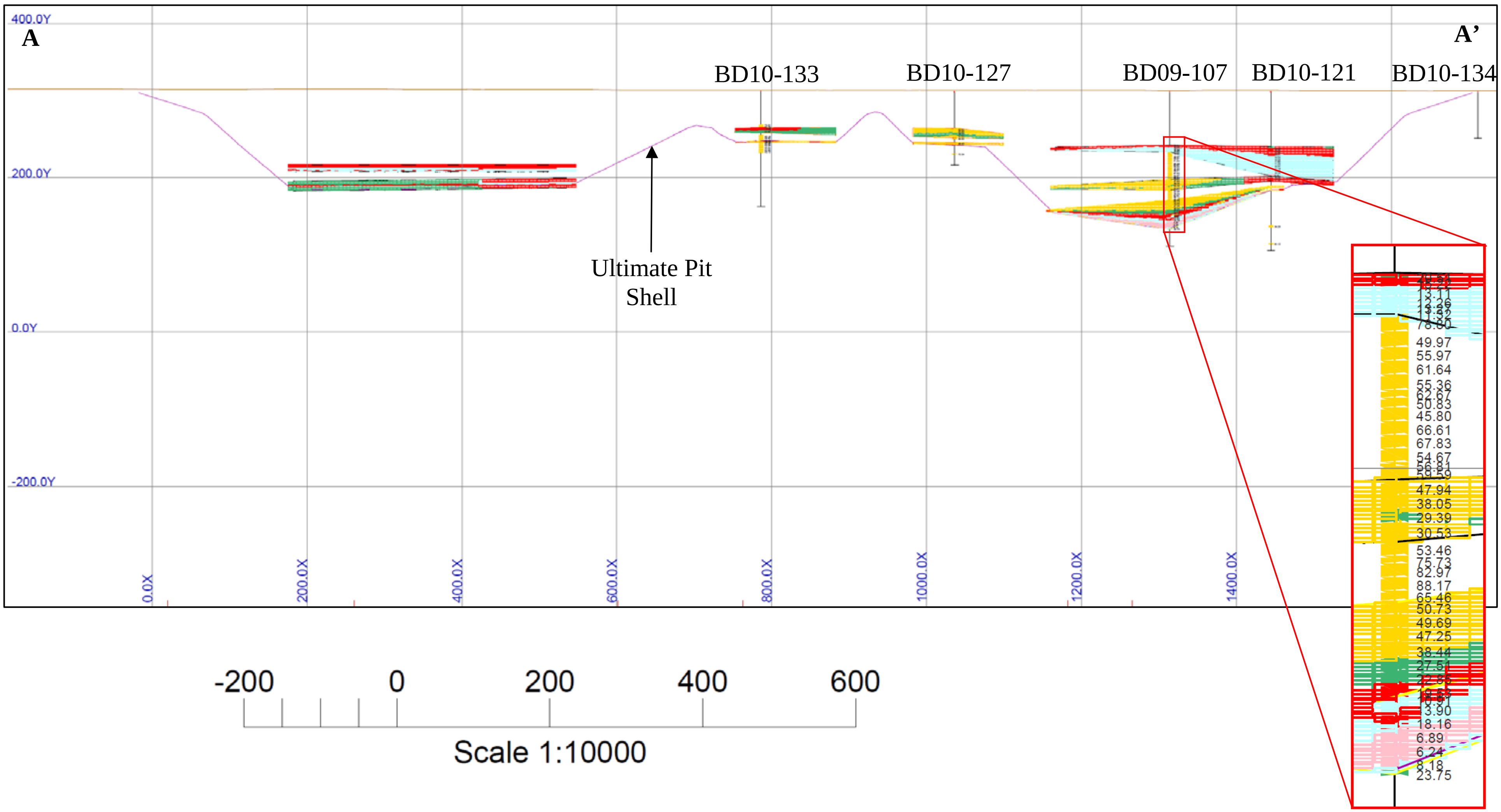
Niska 107
Sulphur Content Cross Section A – A’
Looking West

PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1

OFFICE	DATE
EBA-VANC	January 13, 2011

Figure 6



LEGEND

NOTES

Coal Seams Legend
Seam D
Seam C
Seam B
Seam A

Air Dried Ash %
0.00100 - 5.00000
5.10000 - 10.00000
10.10000 - 15.00000
15.10000 - 20.00000
20.10000 - 30.00000
30.10000 - 100.00000

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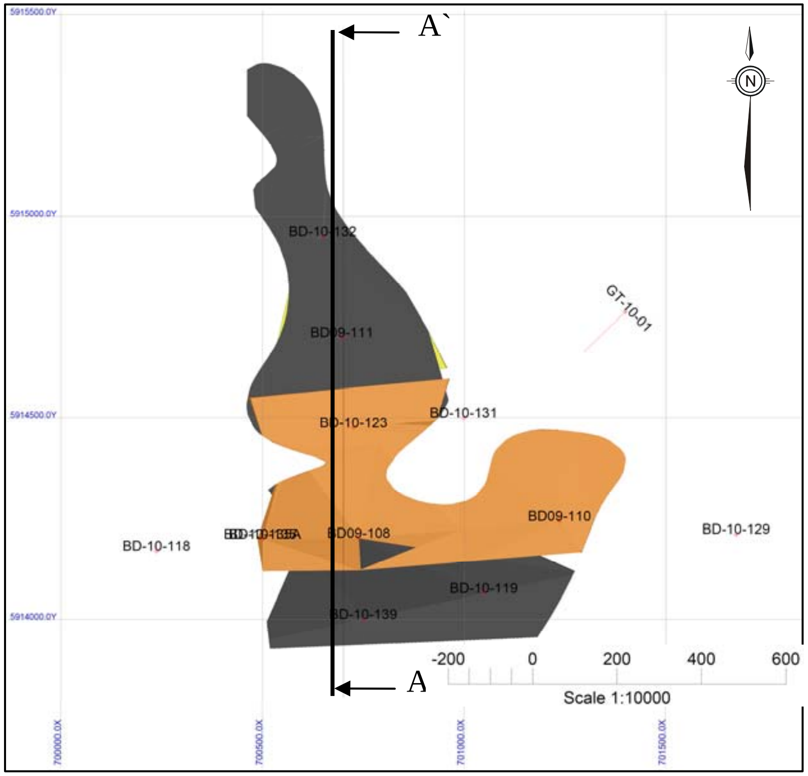
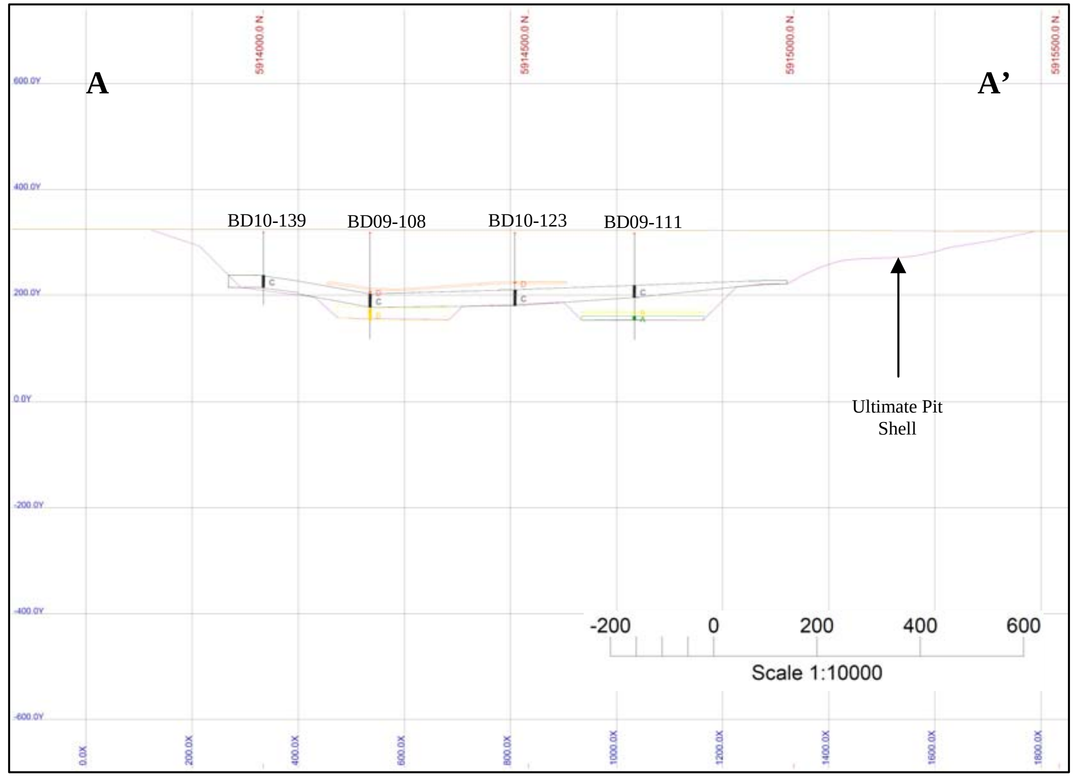
Niska 107
Ash Content Cross Section A – A’
Looking West

PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1
OFFICE	DATE		
EBA-VANC	January 13, 2011		

Figure 7



Niska 108 – Plan View



Niska 108 – Seams Cross Section A-A'

LEGEND

Coal Seams Legend
Seam D
Seam C
Seam B
Seam A

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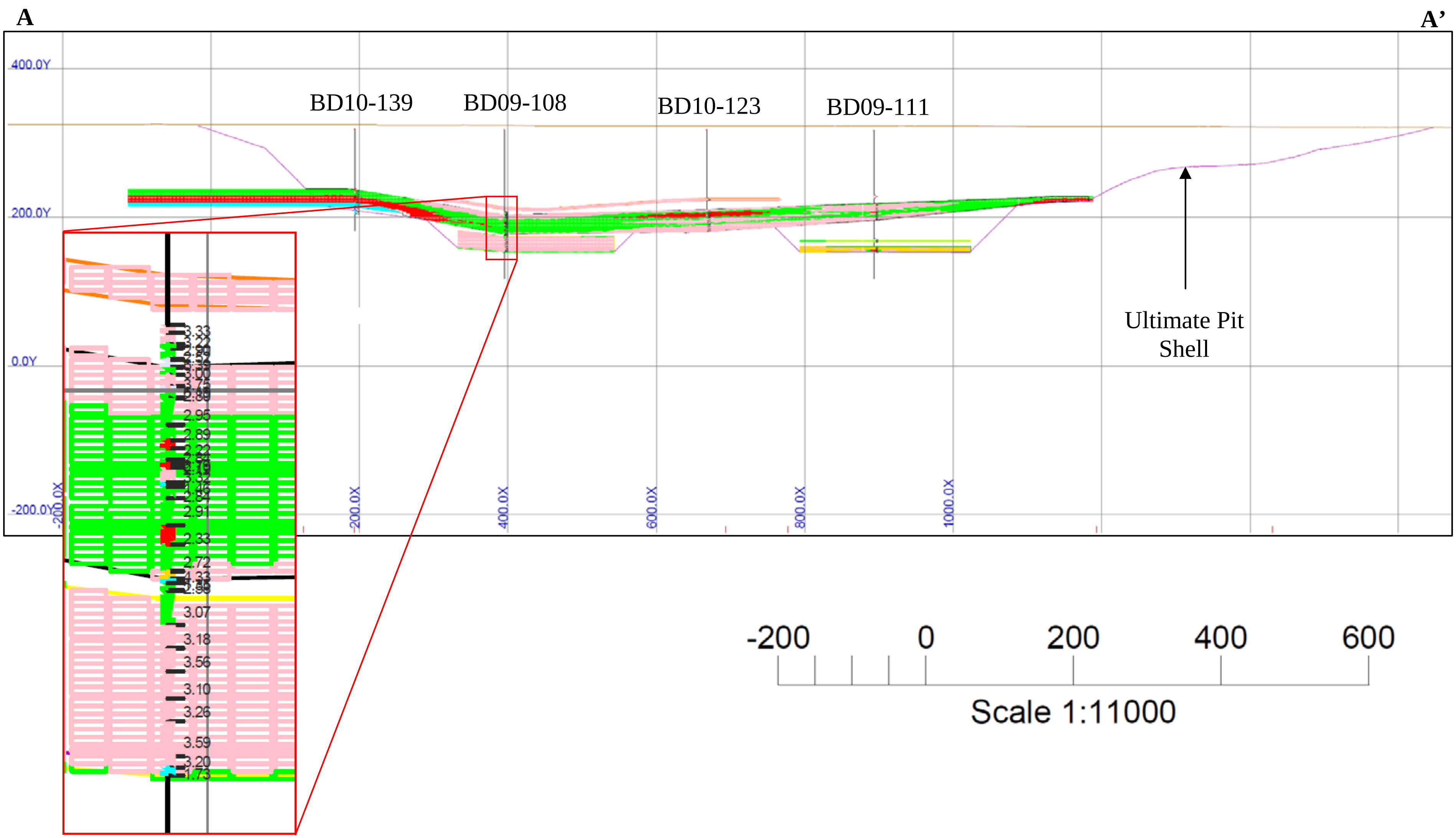
Niska 108
Planview and Seam Cross Section A-A'

PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1
OFFICE	DATE		
EBA-VANC	January 11, 2011		

Figure 8



Coal Seams Legend
Seam D
Seam C
Seam B
Seam A

Air Dried Sulphur %	
0.00100 - 1.00000	3.10000 - 4.09000
1.10000 - 2.00000	4.10000 - 5.09000
2.10000 - 2.50000	5.10000 - 99.00000
2.51000 - 3.09000	

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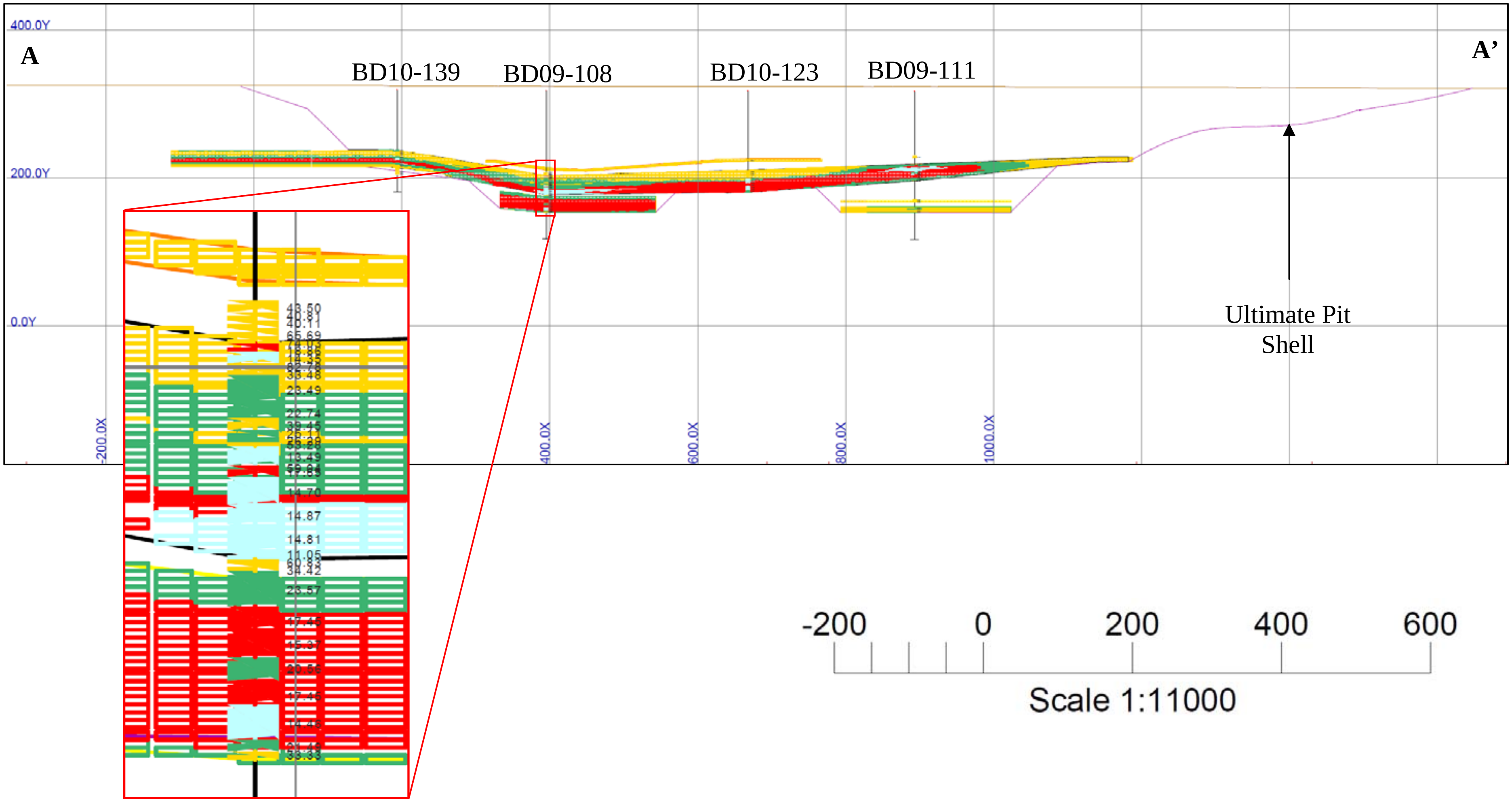
Niska 108
Sulphur Cross Section A – A'
Looking West

PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1
OFFICE	DATE		
EBA-VANC	January 19, 2011		

Figure 9



LEGEND

NOTES

Coal Seams Legend

- Seam D
- Seam C
- Seam B
- Seam A

Air Dried Ash %

- 0.00100 - 5.00000
- 5.10000 - 10.00000
- 10.10000 - 15.00000
- 15.10000 - 20.00000
- 20.10000 - 30.00000
- 30.10000 - 100.00000

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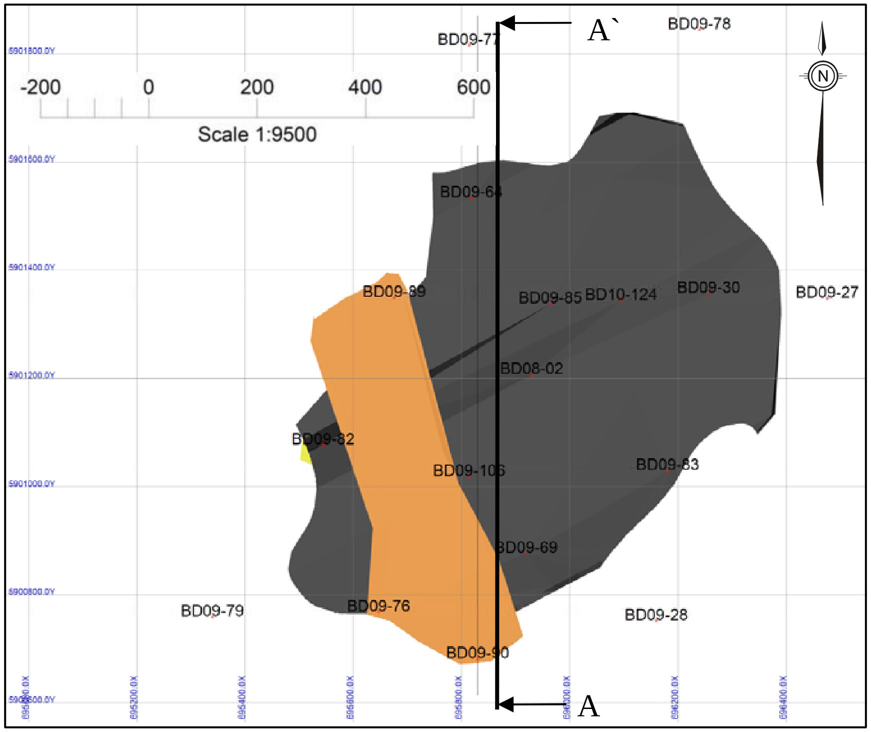
PRELIMINARY ASSESSMENT FOR THE BORDER COAL PROPERTY, SASKATCHEWAN

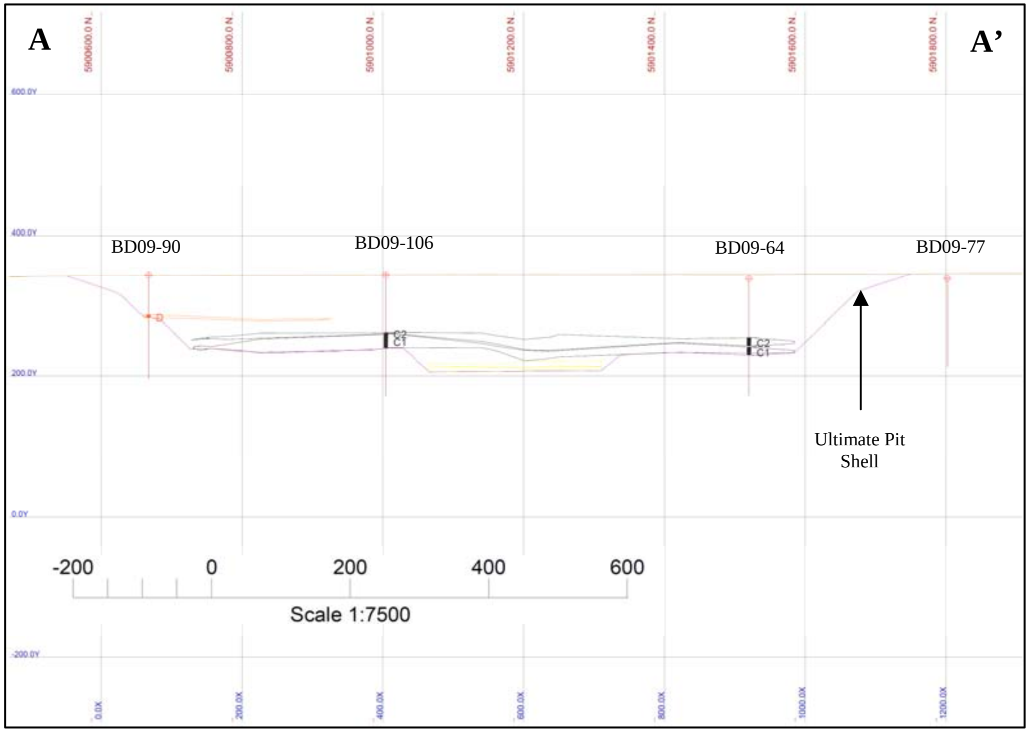
Niska 108
Ash Content Cross Section A – A’
Looking West

PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1
OFFICE	DATE		
EBA-VANC	January 14, 2011		

Figure 10



Pasquia 2 – Plan View



Pasquia 2 – Seam Cross Section A-A'

LEGEND

Coal Seams Legend
Seam D
Seam C
Seam B
Seam A

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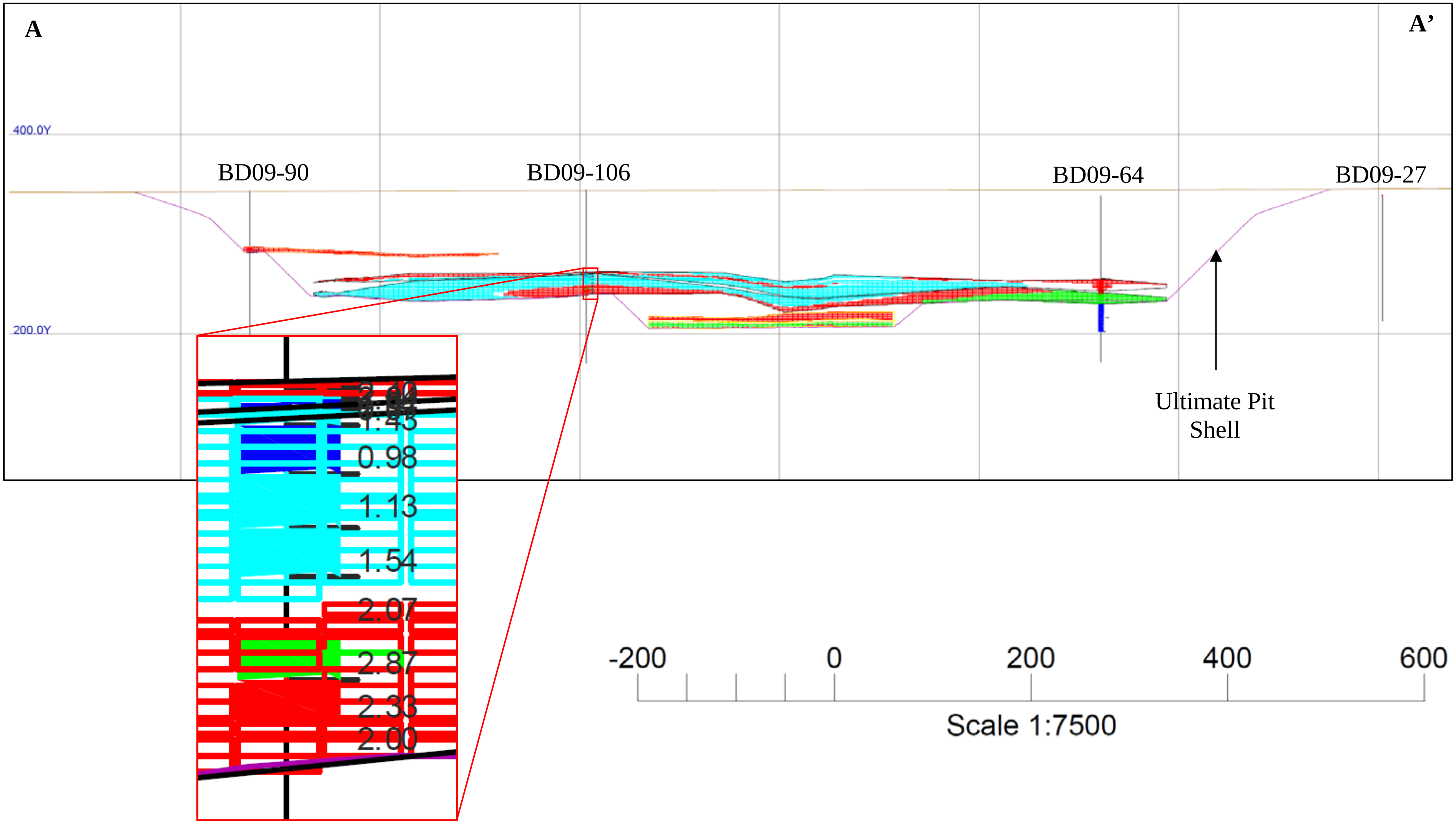
Pasquia 2
Planview and Seam Cross-Section A-A'

PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1
OFFICE	DATE		
EBA-VANC	January 11, 2011		

Figure 11



Coal Seams Legend

- Seam D
- Seam C
- Seam B
- Seam A

Air Dried Sulphur %

- 0.00100 - 1.00000
- 1.10000 - 2.00000
- 2.10000 - 2.50000
- 2.51000 - 3.09000
- 3.10000 - 4.09000
- 4.10000 - 5.09000
- 5.10000 - 99.00000

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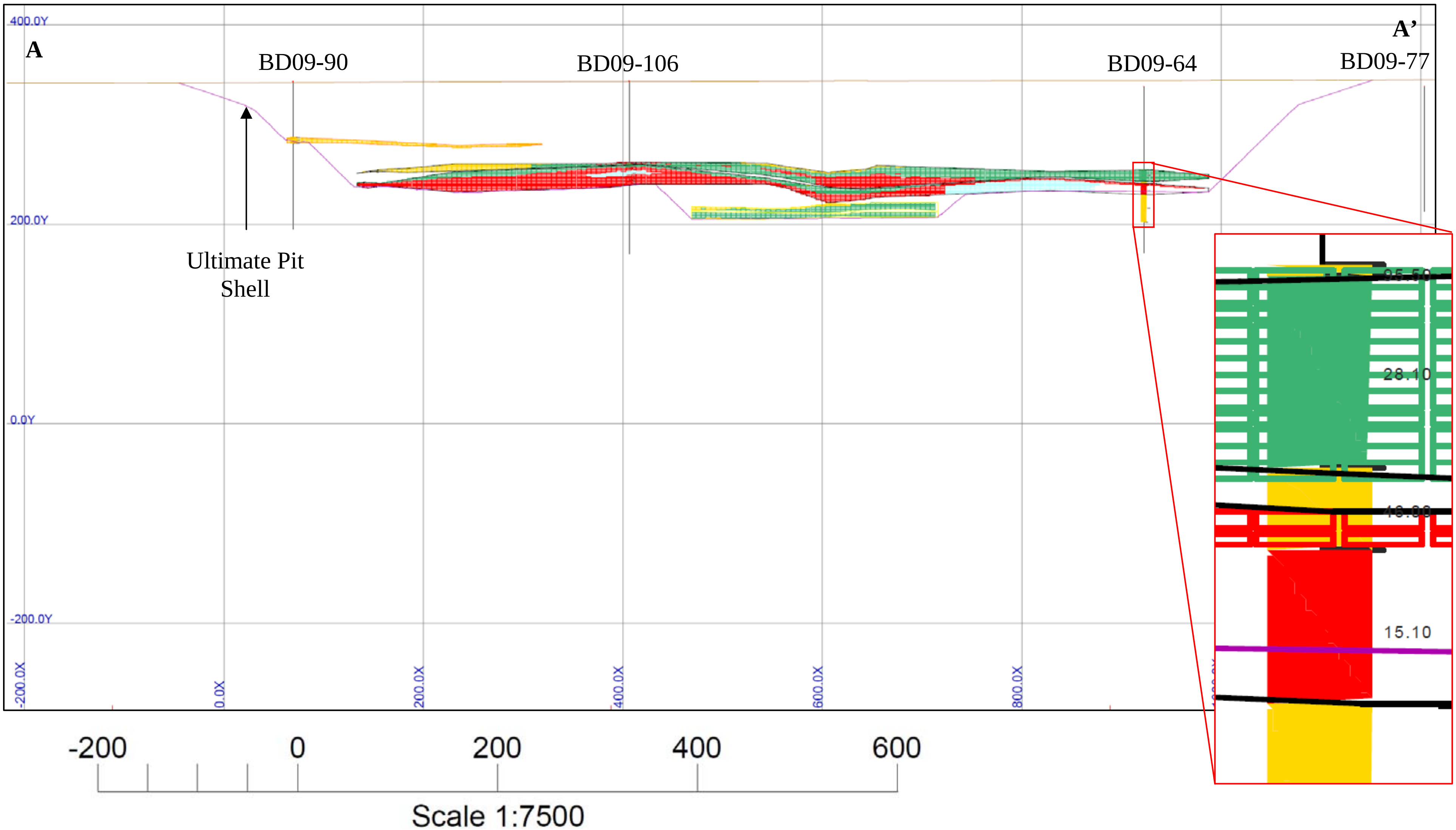
Pasquia 2
Sulphur Cross Section A-A'
Looking West

PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1

OFFICE	DATE
EBA-VANC	January 13, 2011

Figure 12



LEGEND

NOTES

Coal Seams Legend
Seam D
Seam C
Seam B
Seam A

Air Dried Ash %
0.00100 - 5.00000
5.10000 - 10.00000
10.10000 - 15.00000
15.10000 - 20.00000
20.10000 - 30.00000
30.10000 - 100.00000

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Pasquia 2
Ash Content Cross Section A – A’
Looking West

PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1

OFFICE	DATE
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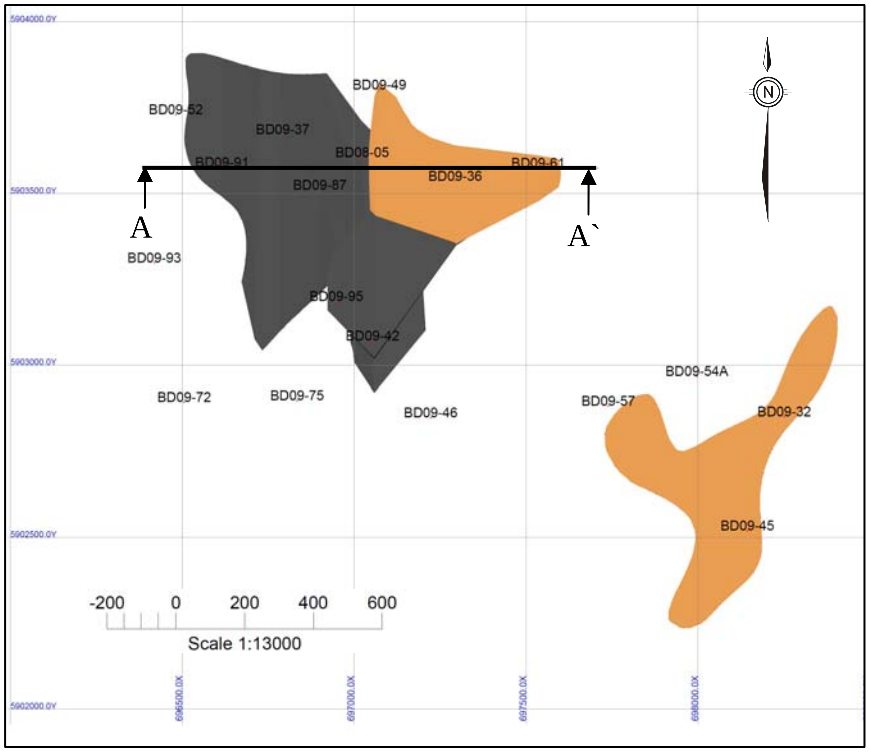
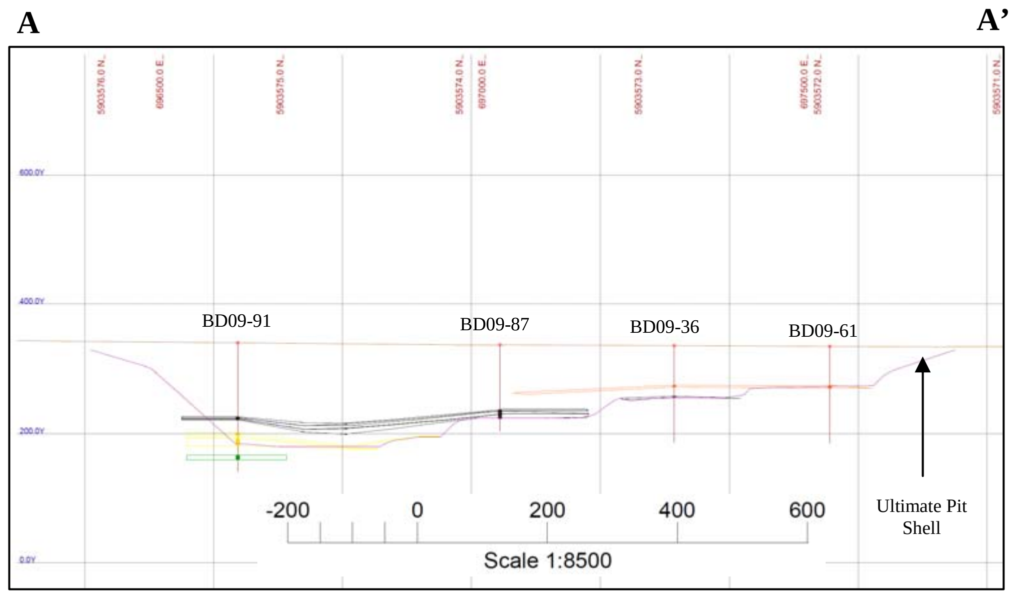
Figure 13



Pasquia 5 – Plan View



Pasquia 5 – Seam Cross Section A-A'

LEGEND

Coal Seams Legend
Seam D
Seam C
Seam B
Seam A

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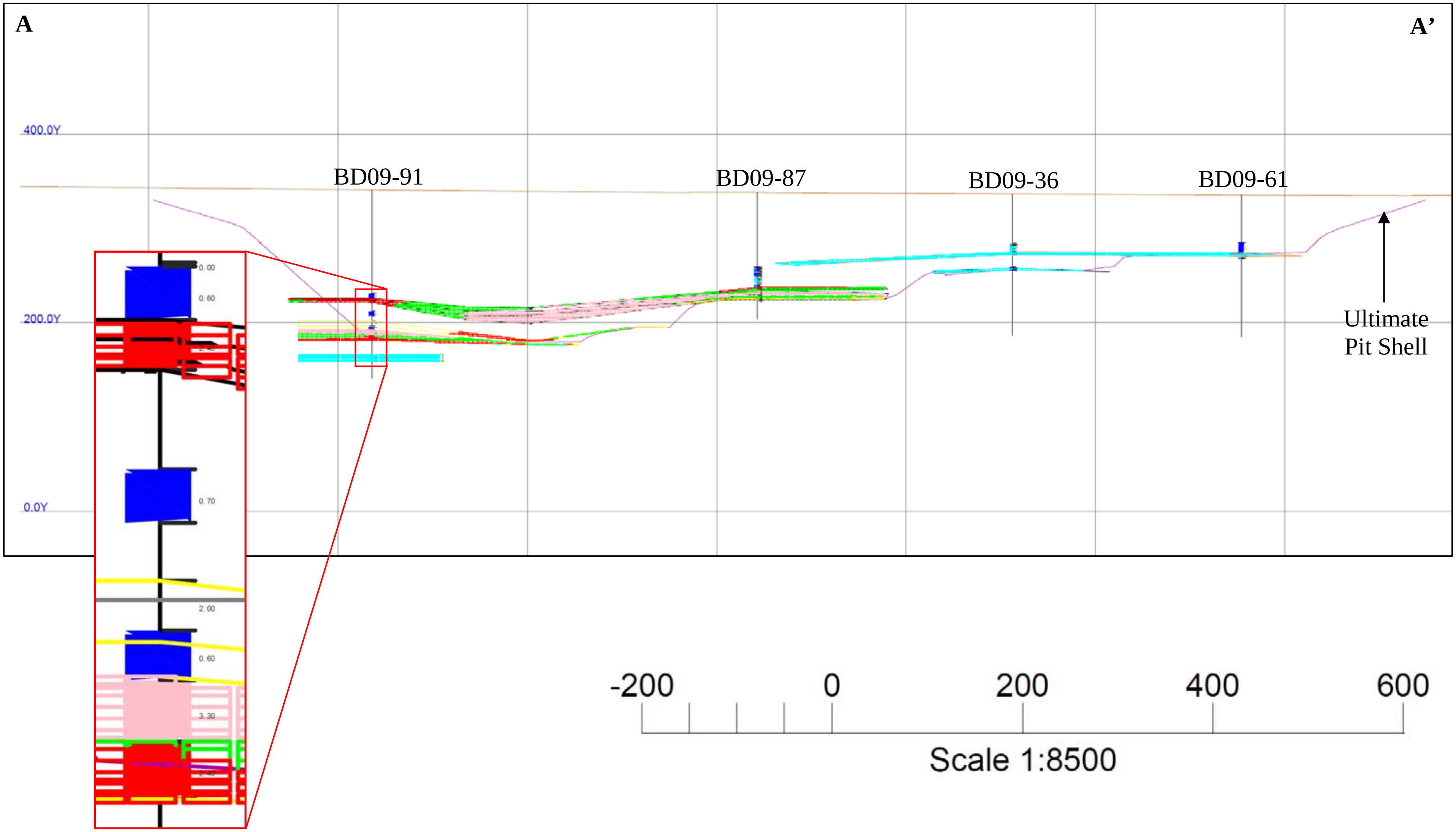
PRELIMINARY ASSESSMENT FOR THE BORDER COAL PROPERTY, SASKATCHEWAN

Pasquia 5

Planview and Seam Cross Section A-A'

PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1
OFFICE	DATE		
EBA-VANC	January 11, 2011		

Figure 14



Coal Seams Legend
Seam D
Seam C
Seam B
Seam A

Air Dried Sulphur %	
0.00100 - 1.00000	3.10000 - 4.09000
1.10000 - 2.00000	4.10000 - 5.09000
2.10000 - 2.50000	5.10000 - 99.00000
2.51000 - 3.09000	

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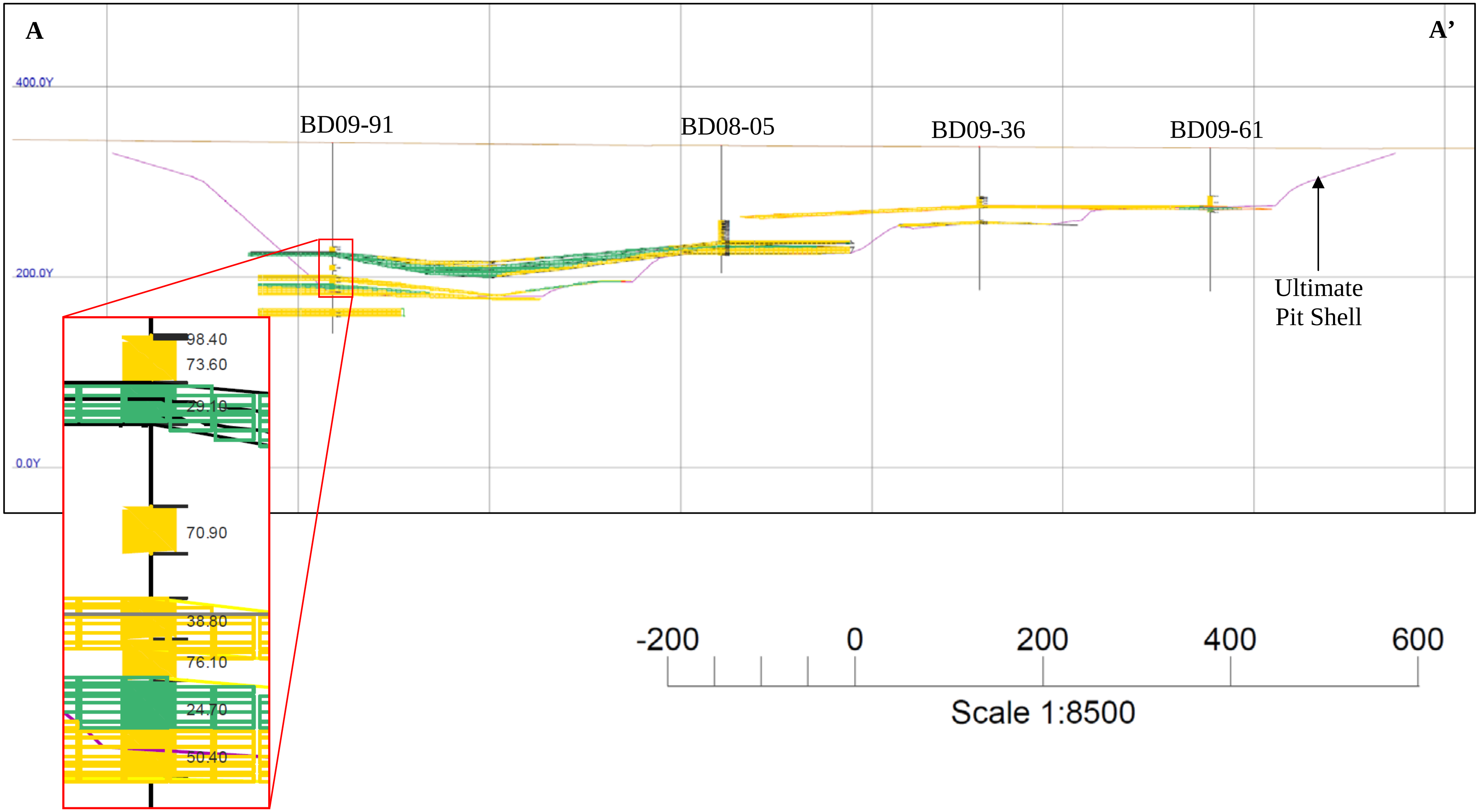
PRELIMINARY ASSESSMENT FOR THE BORDER COAL PROPERTY, SASKATCHEWAN

Pasquia 5
Sulphur Content Cross Section A – A'
Looking North

PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1
OFFICE	DATE		
EBA-VANC	January 13, 2011		

Figure 15



LEGEND

Coal Seams Legend
Seam D
Seam C
Seam B
Seam A

Air Dried Ash %
0.00100 - 5.00000
5.10000 - 10.00000
10.10000 - 15.00000
15.10000 - 20.00000
20.10000 - 30.00000
30.10000 - 100.00000

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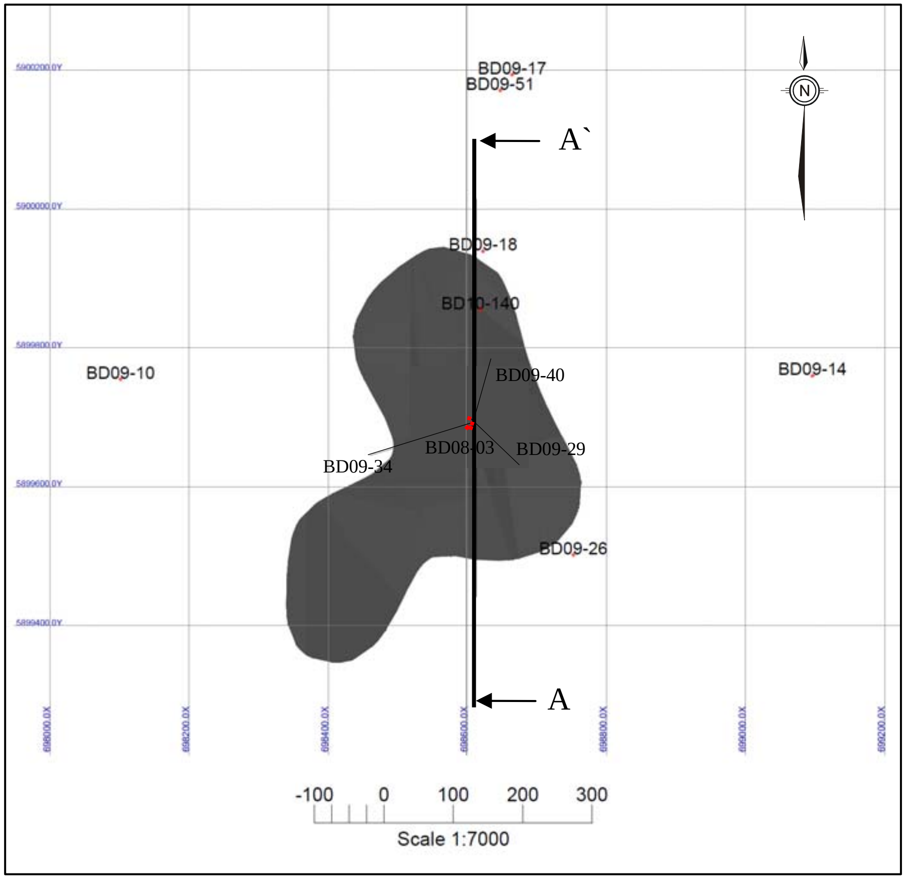
PRELIMINARY ASSESSMENT FOR THE BORDER COAL PROPERTY, SASKATCHEWAN

Pasquia 5
Ash Content Cross Section A – A’
Looking North

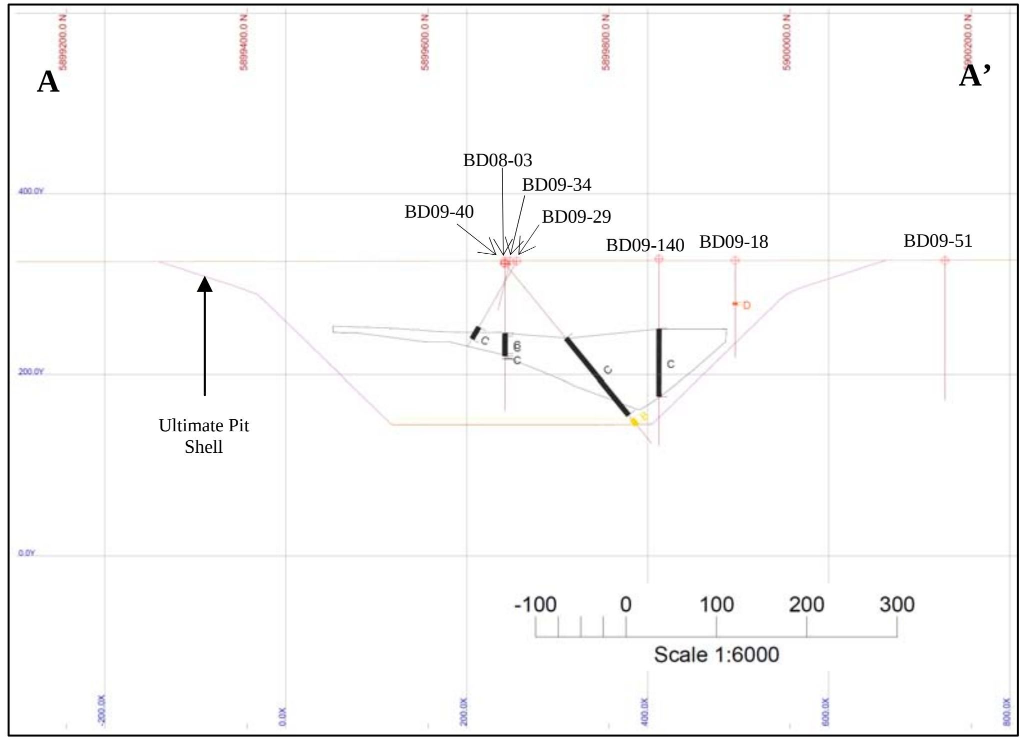
PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1

OFFICE	DATE
EBA-VANC	January 13, 2011

Figure 16



Chemong 3 – Plan View



Chemong 3 – Seam Cross Section A-A'

LEGEND

Coal Seams Legend
Seam D
Seam C
Seam B
Seam A

NOTES

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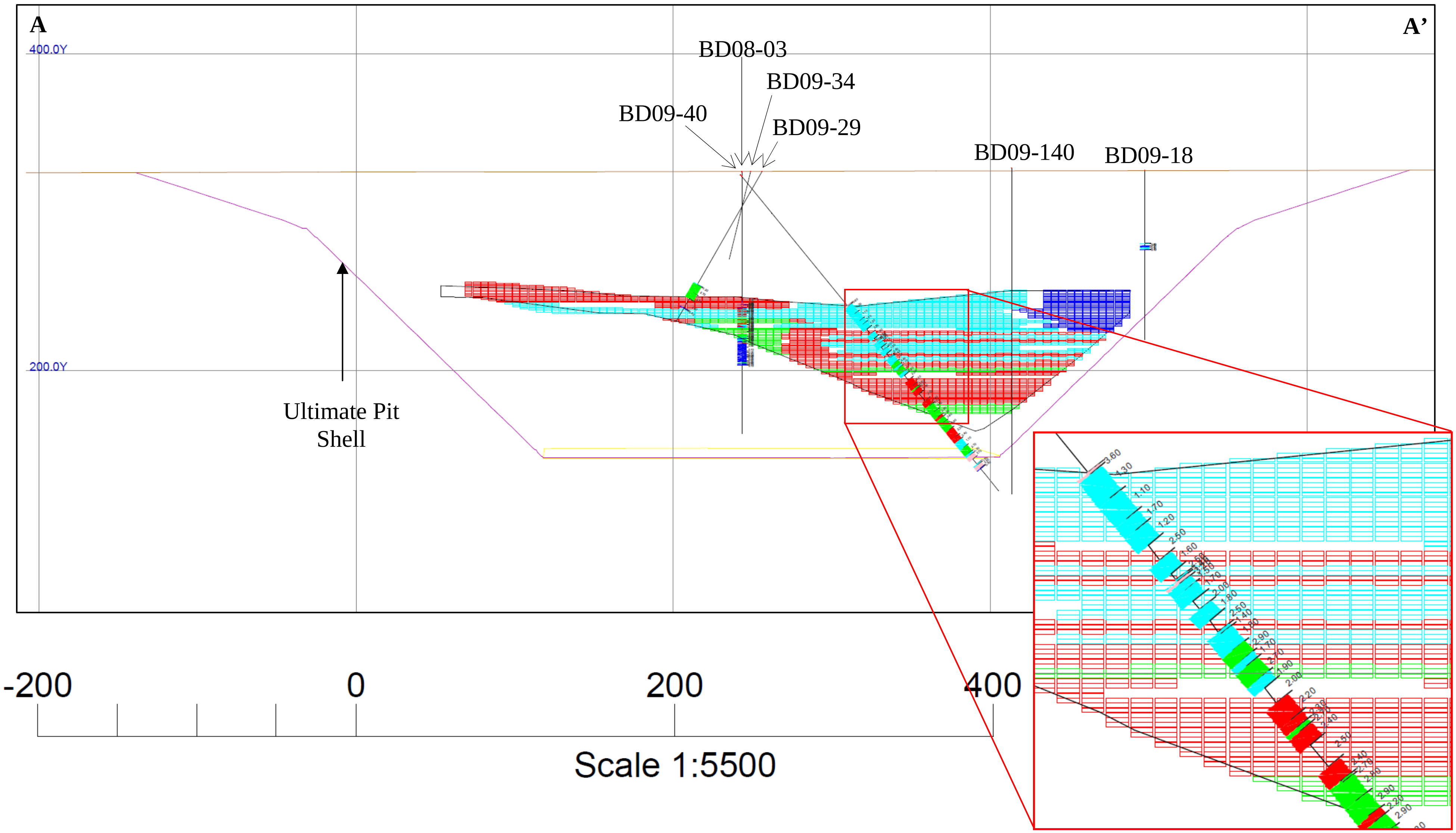
PRELIMINARY ASSESSMENT FOR THE BORDER COAL PROPERTY, SASKATCHEWAN

Chemong 3
Planview and Seam Cross Section A-A'

PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1
OFFICE	DATE		
EBA-VANC	January 19, 2011		

Figure 17



Coal Seams Legend
Seam D
Seam C
Seam B
Seam A

NOTES

Air Dried Sulphur %	
0.00100 - 1.00000	3.10000 - 4.09000
1.10000 - 2.00000	4.10000 - 5.09000
2.10000 - 2.50000	5.10000 - 99.00000
2.51000 - 3.09000	

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PRELIMINARY ASSESSMENT FOR THE BORDER COAL PROPERTY, SASKATCHEWAN

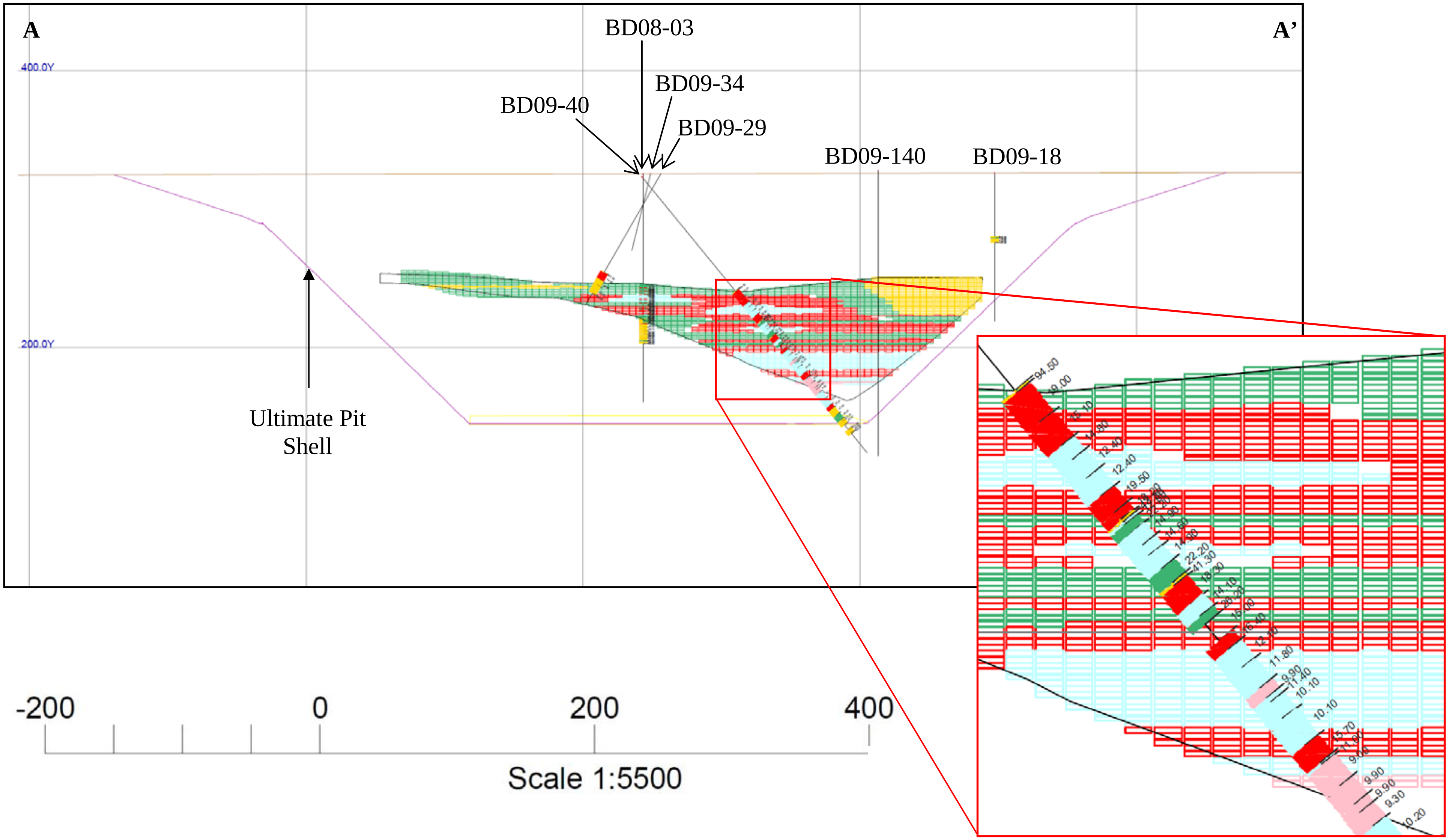
Chemong 3
Sulphur Content Cross Section A – A’
Looking West

PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1

OFFICE: EBA-VANC

DATE: January 13, 2011

Figure 18



LEGEND

Coal Seams Legend
Seam D
Seam C
Seam B
Seam A

Air Dried Ash %
0.00100 - 5.00000
5.10000 - 10.00000
10.10000 - 15.00000
15.10000 - 20.00000
20.10000 - 30.00000
30.10000 - 100.00000

NOTES

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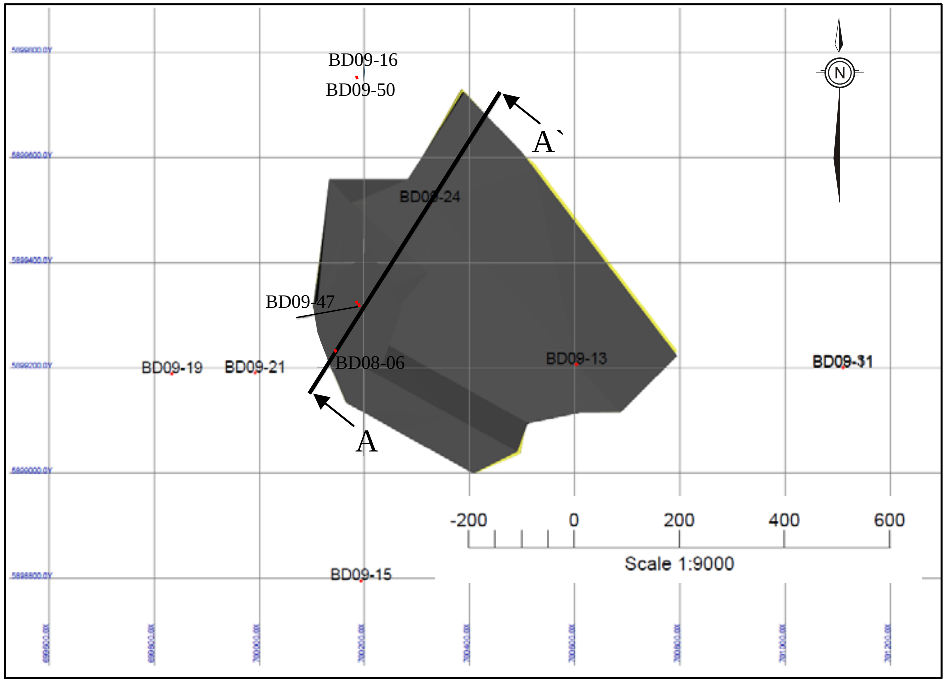
PRELIMINARY ASSESSMENT FOR THE BORDER COAL PROPERTY, SASKATCHEWAN

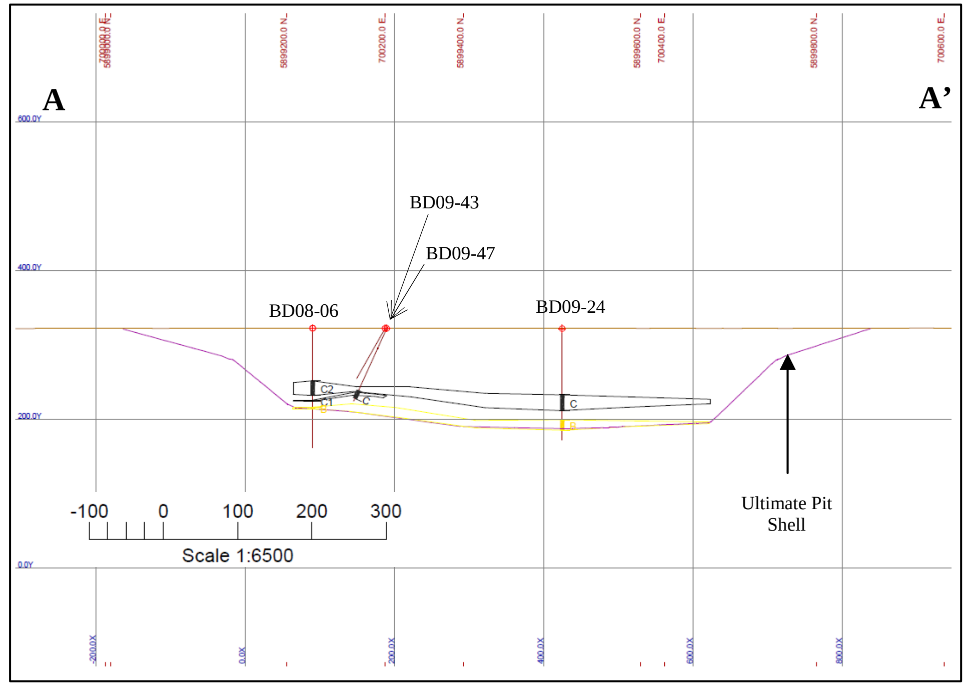
Chemong 3
Ash Content Cross Section A – A'
Looking West

PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1
OFFICE	DATE		
EBA-VANC	January 13, 2011		

Figure 19



Chemong 6 – Plan View



Chemong 6 – Seam Cross Section A-A’

LEGEND

Coal Seams Legend
Seam D
Seam C
Seam B
Seam A

NOTES

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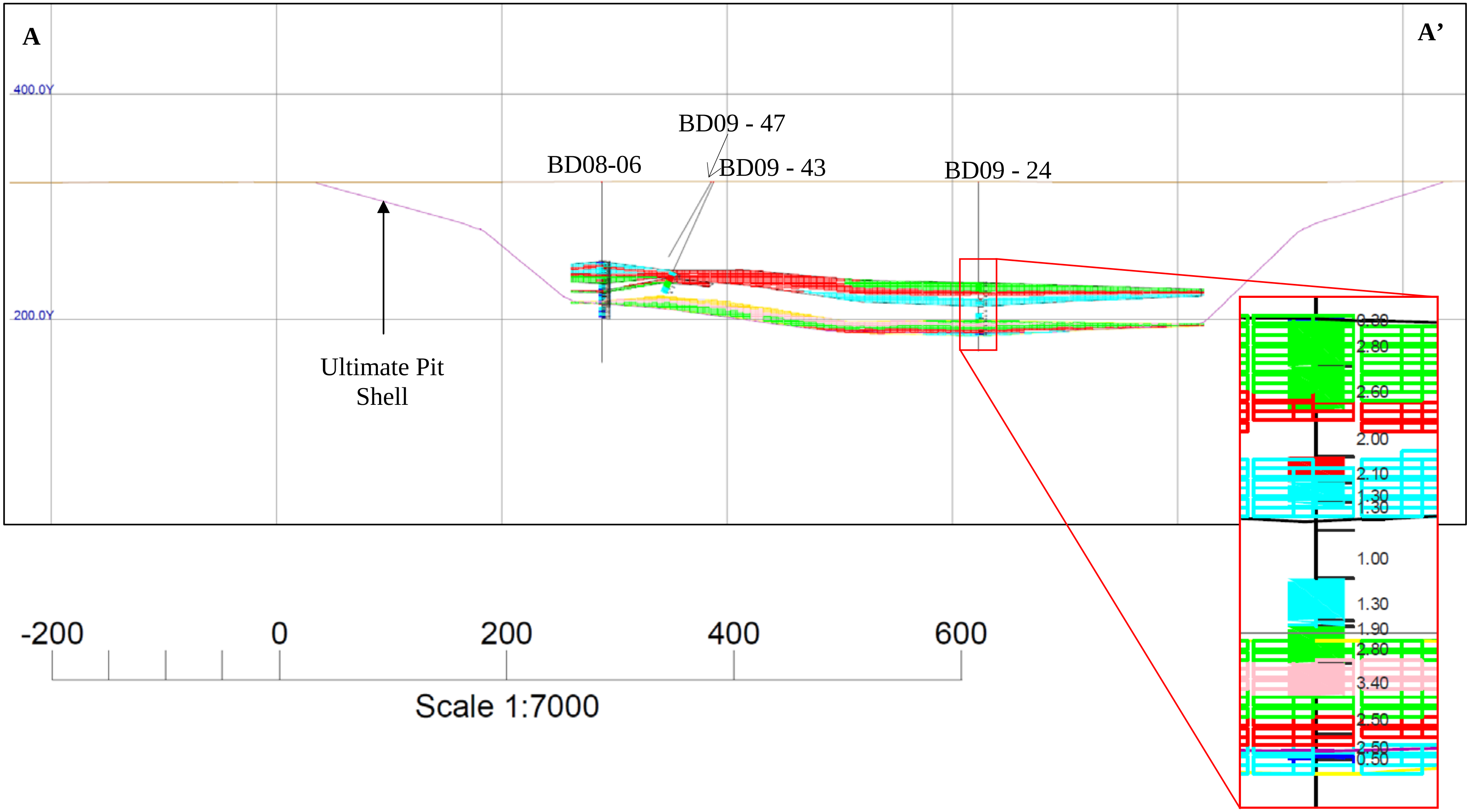
PRELIMINARY ASSESSMENT FOR THE BORDER COAL PROPERTY, SASKATCHEWAN

Chemong 6
Planview and Seam Cross Section A-A’

PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1
OFFICE	DATE		
EBA-VANC	January 19, 2011		

Figure 20



Coal Seams Legend
Seam D
Seam C
Seam B
Seam A

Air Dried Sulphur %	
0.00100 - 1.00000	3.10000 - 4.09000
1.10000 - 2.00000	4.10000 - 5.09000
2.10000 - 2.50000	5.10000 - 99.00000
2.51000 - 3.09000	

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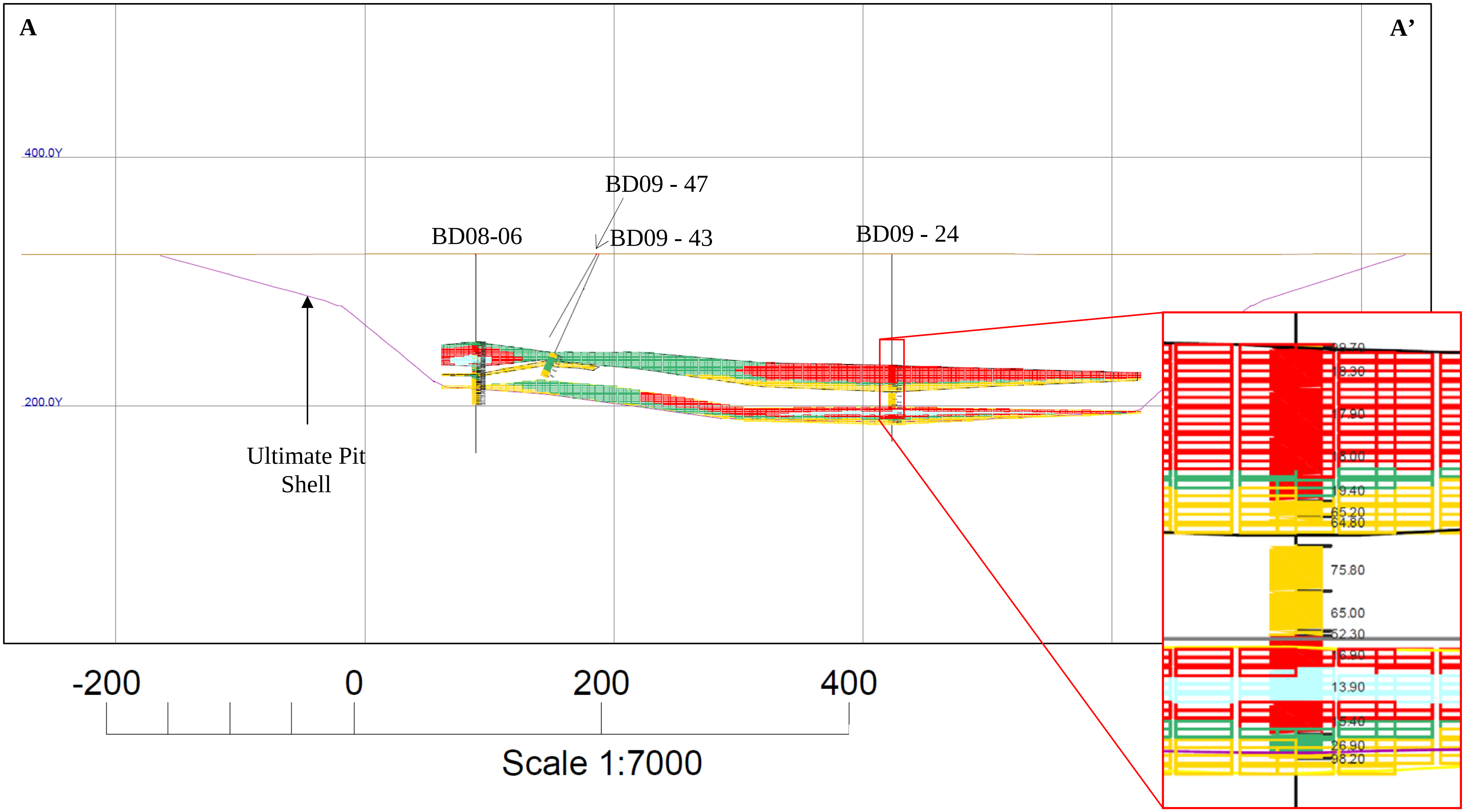
PRELIMINARY ASSESSMENT FOR THE BORDER COAL PROPERTY, SASKATCHEWAN

Chemong 6
Sulphur Content Cross Section A-A'
Looking Northwest

PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1

OFFICE	DATE
EBA-VANC	January 19, 2011

Figure 21



LEGEND

NOTES

Coal Seams Legend
Seam D
Seam C
Seam B
Seam A

Air Dried Ash %
0.00100 - 5.00000
5.10000 - 10.00000
10.10000 - 15.00000
15.10000 - 20.00000
20.10000 - 30.00000
30.10000 - 100.00000

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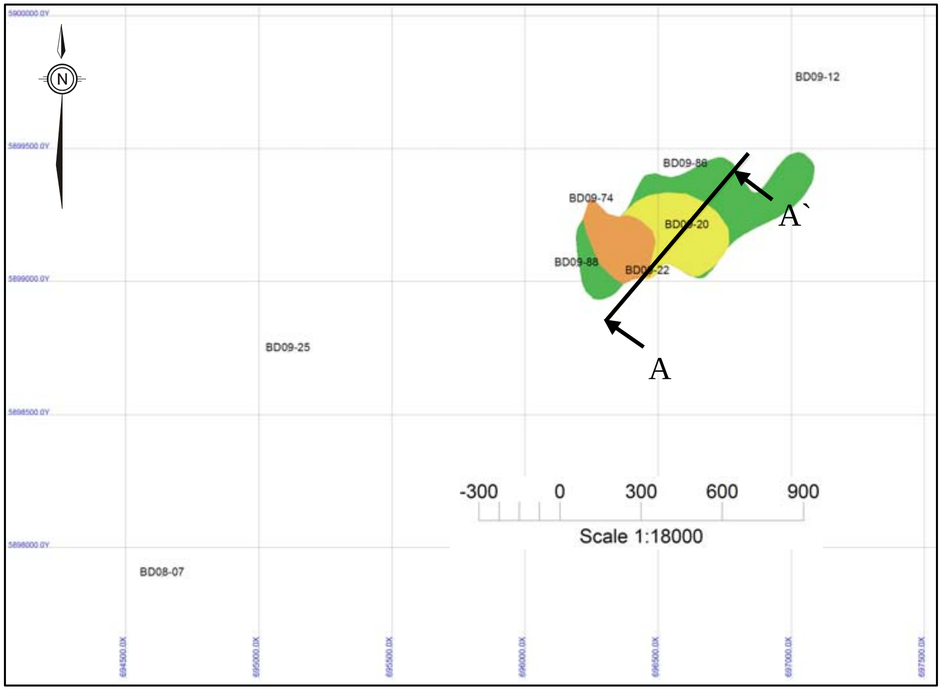
PRELIMINARY ASSESSMENT FOR THE BORDER COAL PROPERTY, SASKATCHEWAN

Chemong 6
Ash Content Cross Section A-A’
Looking Northwest

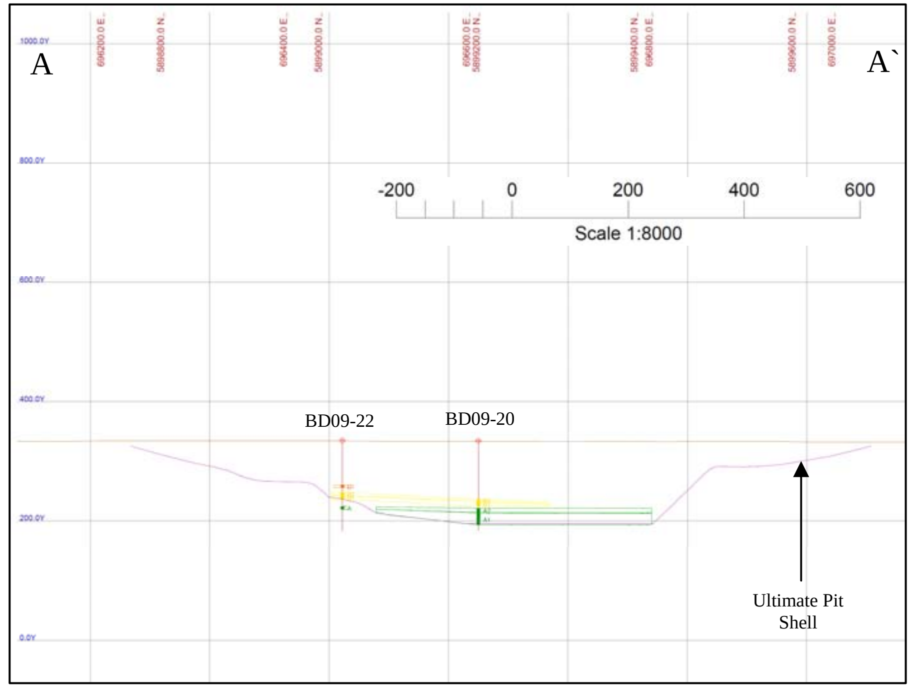
PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1

OFFICE	DATE
EBA-VANC	January 19, 2011

Figure 22



Chemong 20 – Plan View



Chemong 20 – Seam Cross Section A-A'

LEGEND

Coal Seams Legend
Seam D
Seam C
Seam B
Seam A

NOTES

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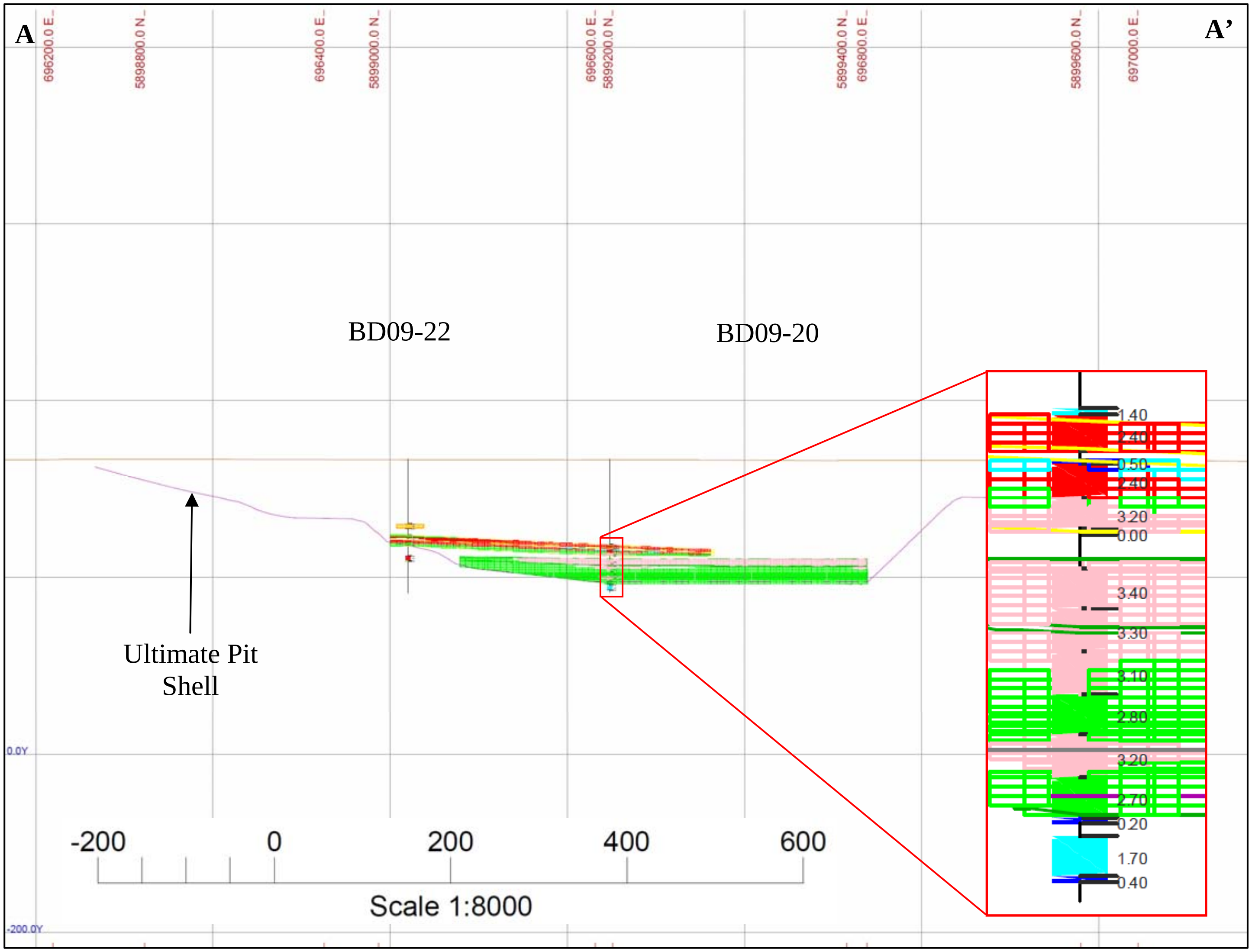
PRELIMINARY ASSESSMENT FOR THE BORDER COAL PROPERTY, SASKATCHEWAN

Chemong 20
Planview and Seam Cross Section

PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1
OFFICE	DATE		
EBA-VANC	January 19, 2011		

Figure 23



Coal Seams Legend
Seam D
Seam C
Seam B
Seam A

Air Dried Sulphur %	
0.00100 - 1.00000	3.10000 - 4.09000
1.10000 - 2.00000	4.10000 - 5.09000
2.10000 - 2.50000	5.10000 - 99.00000
2.51000 - 3.09000	

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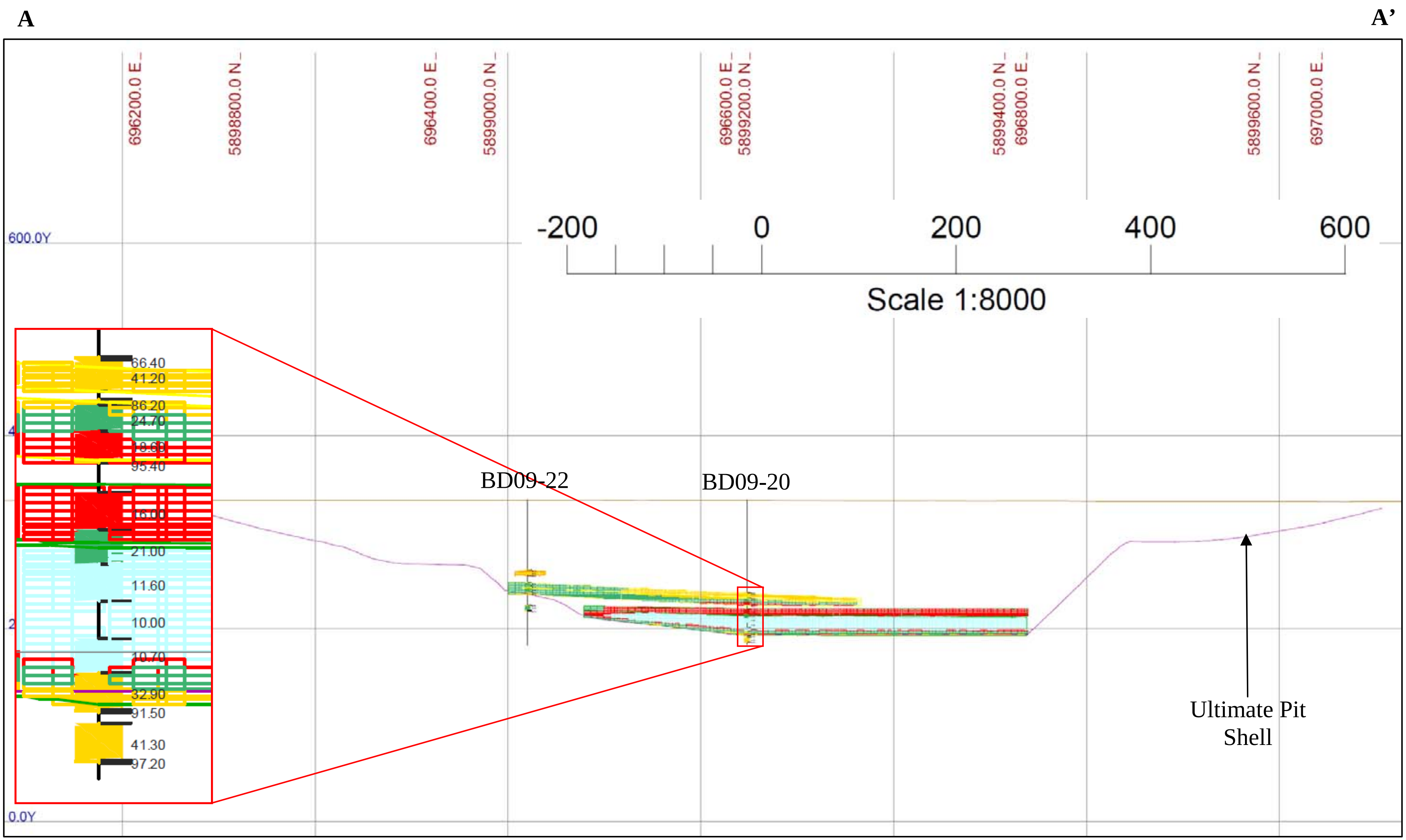
PRELIMINARY ASSESSMENT FOR THE BORDER COAL PROPERTY, SASKATCHEWAN

Chemong 20
Sulphur Content Cross Section A – A’
Looking Northwest

PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1

OFFICE	DATE
EBA-VANC	January 13, 2011

Figure 24



LEGEND

NOTES

Coal Seams Legend
Seam D
Seam C
Seam B
Seam A

Air Dried Ash %
0.00100 - 5.00000
5.10000 - 10.00000
10.10000 - 15.00000
15.10000 - 20.00000
20.10000 - 30.00000
30.10000 - 100.00000

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PRELIMINARY ASSESSMENT FOR THE BORDER COAL PROPERTY, SASKATCHEWAN

Chemong 20
Ash Content Cross Section A – A'
Looking Northwest

PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1

OFFICE	DATE
EBA-VANC	January 13, 2011

Figure 25

Coal deposition in Niska 108 basin is generally less complex than that observed in Niska 107 with more flat lying seams and less parent-child seam divisions. Seam A is the lowest coal horizon in Niska 108, intercepted in drillhole BD-09-111 in the northern section of the basin. Seam B is a thick and continuous seam in the southern section of the deposit. It is intersected in drillholes BD-09-108 and BD-10-119, with continuous thicknesses exceeding 20m. The seam thins to the north and is intersected over 2m in drillhole BD-09-111. Drilling was terminated in the coal unit (Seam C) in drillhole BD-10-123 in the central part of the deposit, as such there is no drillhole data beneath this point. It is inferred that seam B and potentially seam A do exist through the central section of the basin at depth and connects the observed seams in the north and south. Seam C is again the thickest and most continuous seam, dominant throughout the basin. Seam C thickness ranges from 20-30m in drillholes BD-09-108, 09-111, 10-123, and 10-139 in the center of the deposit, thinning to 5m along the periphery of the basin in drillhole BD-10-132, and dividing to C2 and C1 (23m cumulative coal) in drillhole BD-10-119 to the southeast. Seam D is intercepted in the central part of the basin in drillholes BD-09-108, 09-110, 10-123, and 10-135. Seam D is patchy and intermixed with carbonaceous material. The absence of seam D in the periphery of the deposit may be tied to coal slumping observed in the center of the deposit. Slumping is minor and concentrated around drillhole BD-09-108.

Seam A is the first coal deposited in Pasquia 2 and is present as thin intercepts in drillhole BD-09-82 only. Seam B was intercepted in drillholes BD-09-82, 09-64, 09-85, and 09-30 such that it forms a continuous body in the north western part of the basin. Seam C is the thickest and most continuous seam, and is present throughout the basin. The upper most seam, Seam D has been intercepted in drill holes BD-09-90, 09-76, and 09-89, and forms a narrow body occupying the west side of the deposit.

The Pasquia 5 deposit is more complex and shows less coal development than Pasquia 2. Seam A has been intercepted in drillholes BD-09-37, 09-91, and 09-87 forming a lens in the northwest part of the basin. Seam B is again only present in the north-western part of the basin, though slightly more extensive than Seam A. Seam C has been intercepted in the western half of the basin and forms the thickness and most continuous seam in the basin. Seam D occupies the eastern portion of the basin and the Pasquia 5 Southeast basin.

8.0 EXPLORATION

8.1 SURFACE SAMPLING

No surface sampling has been carried out since there is no bedrock exposure on the property. No soil samples have been collected

8.2 DRILLING

Diamond drilling at the Border property has been completed over four phases of exploration drilling from April 2008-March 2010. This includes an initial discovery phase that includes two drill holes drilled in April 2008. Total diamond drilling to date at the property totals 21,038 m in 146 holes. This includes 20713 m of drilling for exploration and 325 m for geotechnical investigations. A summary of all drilling to date on the property is included in Table 8-1.

TABLE 8-1 SUMMARY OF EXPLORATION DRILL PROGRAMS

Exploration Program	Program Timeframe	Number of Drillholes	Hole IDs	Total meters drilled
Discovery	April 2008	2	BD08-03, BD-08-06	325.0
Phase I	July – August 2008	9	BD08-01 through BD09-09 (3A,6A)	1013.8
Phase II	January – April 2009	88	BD09-10 through BD09-54, BD09-44A, BD09-54A, BD09-55 through BD09-95	12745.5
Phase II	Summer 2009	20	BD09-96 through BD09-115	3297.0
Phase III	Winter 2010	27	BD10-116 through BD10-140, GT10-01,GT10-02	3656.5
TOTAL		**146**		**21038**

Diamond drilling has been completed using Boart Longyear 38 diamond drills and associated support equipment. All holes have been drilled using the HQ core size with the exception of holes drilled in 2008 which are NQ. Drilling during the discovery phase and phase I exploration drilling in 2008 was carried out under the direction of Eagle vision Mulching (EVM) of Big River Saskatchewan. Phase II exploration drilling in the winter and spring of 2009 was carried out under the direction of EVM and by Foraco Drilling based in Kamloops BC. Phase III exploration drilling was carried out by Foraco Drilling and by Silverado Drilling, based in Kamloops, BC.

Goldsource carried out a diamond drill program in the summer of 2008 consisting of 9 (NQ) drillholes totalling 1013.8 m. Two of the nine holes were immediately adjacent to the April 2008 discovery holes, BD-08-03 and BD-08-06. Drillholes were drilled based on airborne geophysical targets identified in 2007. All holes were drilled vertically.

Goldsource completed a phase II exploration program at the Border property in the winter and spring 2009 (January 16th – March 30th, 2009) consisting of 88 drillholes totalling 12,745.5 m. The 2009 summer program (June 23rd – August 15th, 2009) consisted of 20 drillholes totalling 3,297 m. Drilling was carried out by Foraco using the same equipment listed above. The purpose of the programs was to better define a resource. Drillholes (HQ) were drilled based on the same airborne geophysical targets that were used to plan the summer 2008 program. Five drillholes in the Chemong 03 area were inclined at 50° while the remaining 111 exploration holes were drilled vertically. These holes were inclined to capture the areal extent of the coal seams.

A phase III exploration program was completed in winter 2010 (February 2nd – March 23rd, 2010) consisting of 27 drillholes totalling 3,656.5m. The primary objective of this program was to provide better definition to the Niska 107 and Niska 108 deposits with the emphasis being on upgrading the resource classification. The secondary purpose was to obtain geotechnical information for preliminary geotechnical assessment. Drillholes (HQ) were drilled based on the same airborne geophysical data that was used to drill the holes in the previous programs. Two (GT-10-01 and GT-10-02) of the 27 drillholes, completed during the Phase III program were inclined at 55°, while the remaining drillholes were oriented vertically.

Orientation of the two angled holes was completed as part of the geotechnical data collection. A total of 452 m of oriented geotechnical HQ3-sized core was drilled and logged in the geotechnical holes to provide structural geology and geotechnical characterization data.

Coal intercepts for the entire program to date total 1,746.4 m in 73 holes. Holes not hitting coal have typically been on the periphery of existing coal targets. Coal intercepts are based on downhole geophysical data. The coal intercepts do not consider the proximate analysis assay values and as such do not say anything about coal quality

Moose Mountain believed that drilling was conducted to NI 43-101 standards during the Discovery, Phase I and Phase II programs. EBA and Marston agree with this statement and believe that drilling during the Phase III program was conducted to NI 43-101 standards.

8.3 GEOPHYSICS

Down hole geophysics was performed to obtain specific information on coal intercepts, formation densities and resistivities. The downhole geophysics surveys generate E-LOGS showing variations in gamma, neutron, resistivity, and density data with depth in the drillhole and used in the coal seam correlations. Downhole surveys to test for borehole deviation were performed in 24 holes through the second half of the 2009 Phase II program. The holes are between 40-250m in length and showed little to no deviation in orientation or inclination with depth.

Downhole geophysics surveys were completed by DGI Geophysics, based in Toronto, Ont. during the Phase I exploration program. Downhole geophysics surveys during the Phase II and Phase III were completed by Century Wireline Services based in Calgary, AB.

In addition to standard airborne and down-hole geophysics techniques, Goldsource has developed intellectual (proprietary) geophysical techniques that continue to accurately determine the location of coal deposits. This geophysical tool is coined with the name Coal Identification Matrix (CIM) and uses electromagnetic data to pinpoint sub-basins which contain coal.

Fugro Airborne Surveys conducted an airborne electromagnetic and magnetic survey of the area from April 11th to June 15th, 2006. Traverse lines over Border were flown N-S 300 m apart, and tie lines flown E-W 3,000 m apart using a Casa 212 modified aircraft. Survey results were used to identify targets for drilling.

A second airborne electromagnetic and magnetic survey was flown by Fugro using the same aircraft between July 13th and July 27th, 2009. This second survey was an extension to the Border block flown in 2006. It consisted of 111 traverse lines ranging in length from 6 km to 42 km, and 8 tie lines, totalling 1,551 km. Traverse line spacing was 1,000 m with infill lines, flown with a spacing of 333 m, in portions of the area.

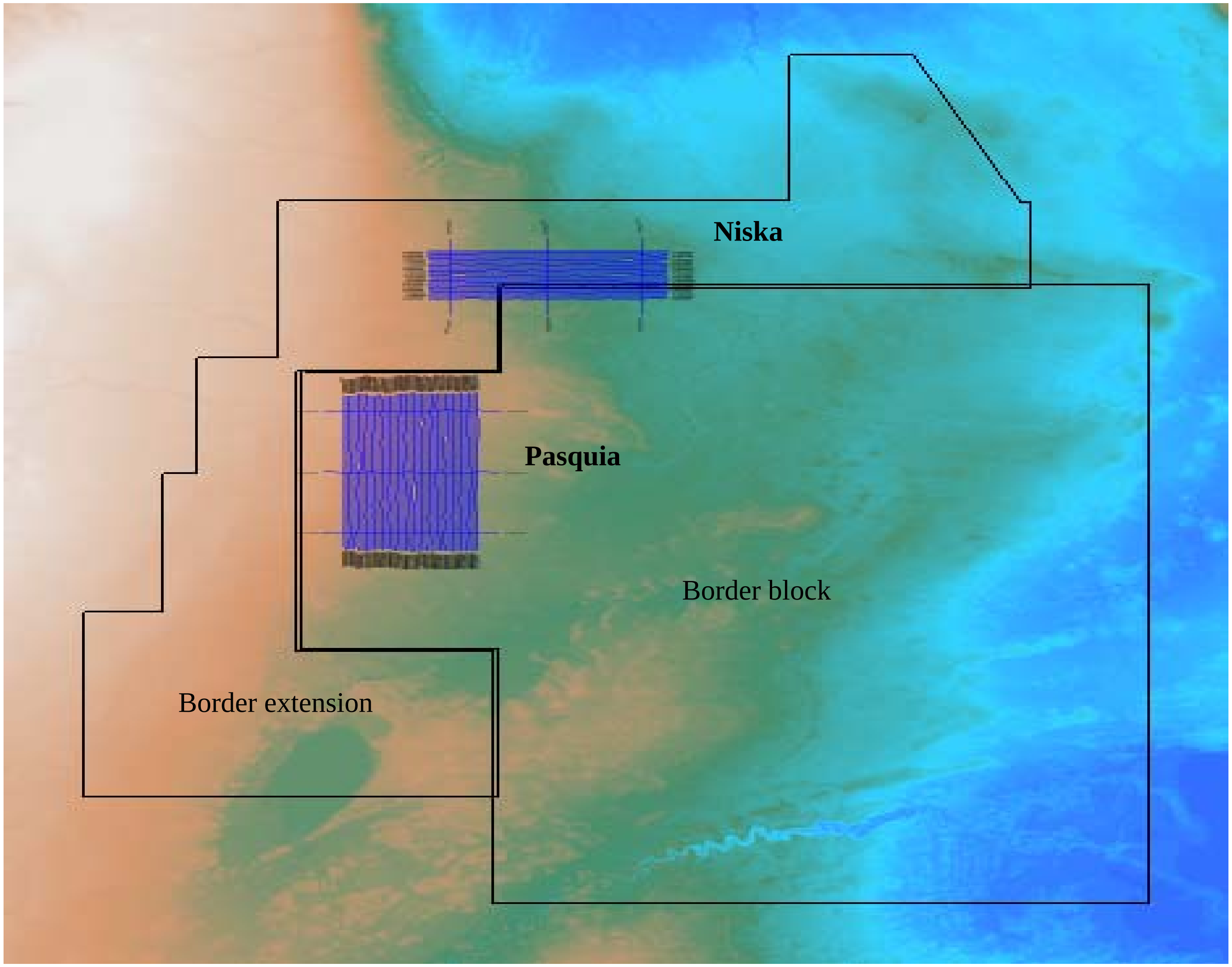
Fugro conducted a Falcon® Airborne Gravity Gradiometer (AGG) and high-sensitivity aeromagnetic survey of the Niska and Pasquia areas between the 27th and 29th of April 2010. A Cessna 208B Grand Caravan Aircraft C-GGRD was used to fly the survey lines. Traverse lines were flown east-west at a spacing of 100m over the Niska zone. Tie lines were flown north-south at a spacing of 4900m. A total of 35 flight lines and 3 tie lines were flown, for a total line length of 451km. Average line length of 11.9km. Traverse lines were flown north-south at a spacing of 100m over the Pasquia zone. Tie lines were flown east-west at a spacing of 4300m. A total of 69 flight lines and 3 tie lines were flown, for a total line length of 853km. Average line length of 11.8km In addition to further defining the boundaries of the known deposits and identifying new targets, the survey provided a comparison point for the above mentioned electromagnetic and magnetic surveys that were previously flown. Successful definition of coal boundaries within +/- 20 meters appears to be possible using these airborne survey techniques. The Niska and Pasquia zones were flown over portions of the previously surveyed Border and Border Extension blocks (Figure 26).

8.4 SAMPLE METHOD AND APPROACH

Drillcore samples from exploration programs were handled using specific field procedures as outlined herein. Goldsource used sampling procedures as recommended by Norwest Corporation of Calgary, Alberta at the start of the Phase I exploration program. The same sampling procedures have been followed in all subsequent exploration programs

During drilling, the drillers placed recovered core in standard 3 meter length core boxes. For each drill run the starting and ending depths were recorded on wooden blocks and placed between the drill runs. The geophysical downhole survey was used to identify major lithologies, as well as the roof and floor contacts and parting materials within the coal. These contacts and transition zones were marked directly on the core boxes.

Sampling is based on coal seam picks form the downhole surveys. Samples were taken above the floor contact and below the roof contact of the coal to capture variability in these transition zones. Length of samples within the coal zone varied from 0.5-5m, proportional to the homogeneity of the coal. Coal zones and material partings described as being carbonaceous in nature were sampled.



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PRELIMINARY ASSESSMENT FOR THE BORDER COAL PROPERTY, SASKATCHEWAN

Geophysics Airborne Survey of Niska and Pasquia Zones

PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1

OFFICE	DATE
EBA-VANC	January 13, 2011

Figure 26

For the Phase I exploration program, plastic tubing was placed inside the drill rods to protect the coal from the environment and drilling process and to facilitate sample recovery. Once the tubing was removed from the rod, both ends were capped, securely tapped and labelled with the hole number and the drill run.

Drillholes BD08-03 and BD08-06 were split, with half of the core being sampled and the remaining half stored as a physical record. Drillholes completed during the Phase I exploration program were whole-core sampled, with small representative sections of the coal zone left in the box as a physical record. Three holes (BD09-64, BD09-67, BD09-74 were whole-core sampled. The remainder of the Phase II Winter 2009 was disc sampled such that half of the core is sampled and the remaining half stored as a physical record. Changes to the sampling procedure discussed in the Resource Evaluation prepared by Moose Mountain in 2009 has meant that, since July 2009, coal core samples have been whole core sampled.

Whole core sampling was used for the Phase III program, except for one split core sample taken in hole BD-10-119 over the interval from 119.10-127.00m. One half of the split sample was sent to Loring Laboratories for the standard testing. The second split sample was shipped to Japan to investigate a new coal testing method. The results of which will be available in the fall

Moose Mountain believed that whole-core sampling is an appropriate procedure for obtaining a good quality coal sample. EBA and Marston agree with this approach.

8.5 SAMPLE PREPARATION ANALYSIS AND SECURITY

Sample preparation before May 2009 was under the direction of Norwest Corp. of Calgary, Alberta. Once the drillers boxed the core, it was sent to the core logging shed so it could be logged and sampled. At the core shed, the plastic was removed and the core was lightly washed to remove any drill mud. The core was then placed back into its original box and photographed. The on-site geologist then gave a specific coal grade to each section. Coal grade was determined by using a lustre parameter based on dull to bright coal. These sections were placed in plastic bags, tied with a zip tie and duct-taped to ensure preservation and prevent oxidation of the coal. The samples were shipped immediately to Loring Laboratories in Calgary, Alberta for analysis. Samples were tagged and tracked until delivered to the laboratory. All analyses were completed by Loring Laboratories Ltd. (Loring) in Calgary, Alberta, to obtain the moisture content, ash, sulphur, calorific value and other physical properties including weight, bulk density and specific gravity.

Sampling between Phase II 2009 program and the beginning of the Phase III 2010 program was carried out under the direction of MMTS. Coal intervals were retrieved in soft plastic tubing and the ends sealed by twisting them shut. When deemed necessary and when practical, coal may be washed off and towelled dry prior to sampling. Coal was whole-core sampled based on downhole geophysical survey densities (with <1.6 cc/g identified as coal) leaving small (10-20 cm) representative samples behind in the core box as a physical record. Samples were labelled and bagged in the same way they were previously. Sample tags included in the bags contained only the sample number. Tags were stapled to the bottom of the core box at the end of the sample interval. The samples were shipped to Loring in Calgary, Alberta for analysis.

Sampling during the 2010 program was carried out under the direction of EBA Engineering Consultants (EBA) of Vancouver, BC. The diamond drill core was transported immediately from the drill to the core logging shed so it could be logged and sampled. Detailed core photos were taken of the core in the original box. The core was lightly washed of drill mud as required. Coal was whole-core sampled based on coal seam picks from the geophysical downhole surveys (with <1.6 cc/g identified as coal). Small (5-10 cm) representative samples were left behind in the core box. The samples were shipped immediately to Loring Laboratories in Calgary, Alberta for analysis to obtain the moisture content, ash, sulphur, calorific value and other physical properties including weight, bulk density and specific gravity.

MMTS believed that samples were stored and secured to NI 43-101 standards. EBA and Marston observed on site sampling and agree with this statement.

8.6 DATA VERIFICATION

Two twin holes (denoted with the suffix "A") were drilled for BD08-03 and BD08-06. Core from the twin holes was sent to Loring Laboratories to be analyzed. Results are similar to analysis results obtained from holes BD08-03 and BD08-06. Table 8-2 shows the comparison:

TABLE 8-2 COMPARISON OF TWINNED DISCOVERY HOLES

	From	To	Calorific Value*		Sulphur
Hole ID	(m)	(m)	kJ/kg (d)	BTU (d)	% (ar)
BD08-03	79.9	101	23,000*	9,890*	1.3
BD08-03A	80	101	19,000	8,170	1.5
BD08-06	101	107	13,700*	5,891*	1.2
BD08-06A	101	118.5	10,100	4,343	1.2

Note: Potential impact from drill fluids on hole 03 and 06

The change in Calorific Value could be due to the improper handling and sampling of the core in the original drill holes. Similar to discovery holes, there were no preservation precautions taken for holes BD 08-03A and BD08-06A.

In the Resource Evaluation from 2009, Moose Mountain states that the quality control procedures that were employed by Goldsource are to the NI 43-101 standard and in keeping with practices standard to coal industry norms.

9.0 ADJACENT PROPERTIES

The majority of the property holdings adjacent to the property are held by several different companies who have commenced only early stage coal exploration or evaluation programs.

Goldsource entered into an agreement on December 10th with Westcore Energy Ltd. in which Goldsource agreed to apply its proprietary geophysical matrix to Westcore's Fugro airborne geophysical data, and to provide Westcore with specific drill sites on its Saskatchewan and Manitoba coal lands. Westcore owns the block of coal permits known as the Hudon Bay North Block immediately to the north of Goldsource's Border property. On March 22, 2010 Westcore announced the discovery of several significant coal deposits adjacent to the border coal property. Having satisfied the Success Criteria set out in the agreement, Goldsource received an additional 1 million shares (above the initial 100,000 issued to Goldsource at the time of agreement) of Westcore, and a 25% working interest in Westcore's coal lands in Saskatchewan and Manitoba.

On May 23rd, 2008 WestCan Uranium Corporation (WestCan) submitted an application for Coal Property Permits (CPP) covering 23,040 acres in East Central Saskatchewan near Tobin Lake, shortly after the discovery hole intersections were confirmed at the Border project. WestCan also applied for a coal exploration permit on two sections of land near the Manitoba/Saskatchewan border in close proximity to the Border project area. Based on information from Manitoba Geological survey maps, the two sections of land appear to be underlain by the Swan River formation of the same Cretaceous age as the Border coal discovery.

Saturn Minerals' Armit and Erwood properties are located to the south of the Border coal project area and comprise 775 km^2. Preliminary drilling of the Armit in late 2009 proved the existence of two significant coal seams in the north-central part of the property (the "Leif" coal discovery). The extent of the coal on the Armit property remains open-ended, with additional geophysical modeling and exploratory drilling planned for 2010 and 2011.

10.0 MINERAL PROCESSING AND METALLURGICAL TESTING

10.1 PROXIMATE ANALYSIS

The following table summarizes the proximity analyses that have been performed on the deposit to date. All values are listed on an as-received basis.

TABLE 10-1 PROXIMATE ANALYSIS						
Deposit	**Hole No.**	**Coal Interval (m)**	**Moisture Content % (ar)**	**Ash Content % (ar)**	**Sulphur Content % (ar)**	**Heating Value kJ/kg (ar)**
Chemong 100	BD09-100	14.22	9.85	70.25	1.21	4,320
		0.60	23.98	21.84	2.63	15,585
		1.90	24.60	22.99	2.79	14,870
		3.11	2.58	94.44	0.03	50
Chemong 7	BD08-07	0.98	13.86	55.57	0.88	7,301
	BD09-101	6.80	16.75	26.53	3.60	16,003
		3.80	17.65	18.99	2.85	18,221
Chemong 20	BD09-20	3.97	29.80	29.60	1.70	11,416
		7.70	31.79	19.99	1.98	13,832
		4.60	38.20	10.70	2.30	14,858
		18.40	37.65	11.20	2.02	15,322
	BD09-22	5.19	27.70	24.80	3.80	13,702
		5.89	31.29	19.22	1.83	14,665
		6.16	29.70	20.85	2.00	14,327
		5.00	25.10	18.50	2.00	17,136
	BD09-74	4.32	28.60	28.50	1.30	11,410
Chemong 3	BD08-03A	22.85	24.34	16.42	2.02	16,918
	BD09-18	3.20	20.43	43.05	1.10	10,239
	BD09-29	19.50	28.97	26.04	1.83	12,920
	BD09-34	72.90	33.65	11.20	1.58	15,945
	BD09-40	110.90	36.28	9.86	1.43	15,603
		9.30	35.93	23.82	1.88	11,388
Chemong 6	BD08-06A	19.65	37.48	12.03	1.62	14,403
		0.80	29.97	24.78	1.85	12,880
		2.15	25.68	40.36	2.23	8,939
	BD09-13	12.50	32.60	11.40	1.40	16,386
		1.50	30.80	16.10	2.40	15,964
	BD09-24	19.54	27.99	20.19	1.79	14,903
		13.81	31.63	14.81	1.92	15,662
	BD09-43	6.54	28.00	18.70	1.70	14,647
		7.06	26.20	19.50	2.00	15,300
		14.85	31.33	13.16	2.83	16,550
	BD09-47	12.59	23.45	25.74	1.80	13,943
		2.64	19.44	44.64	1.88	9,477

TABLE 10-1 PROXIMATE ANALYSIS						
Deposit	**Hole No.**	**Coal Interval (m)**	**Moisture Content % (ar)**	**Ash Content % (ar)**	**Sulphur Content % (ar)**	**Heating Value kJ/kg (ar)**
Pasquia 2	BD08-02	11.55	30.31	13.58	1.35	15,579
		5.45	28.35	17.72	1.19	13,907
	BD09-106	1.10	26.27	15.68	1.71	16,525
		19.50	25.89	13.30	1.47	17,380
	BD09-30	18.71	32.47	16.48	1.08	14,233
		16.41	36.73	9.31	1.08	15,629
		7.53	31.71	14.90	1.26	15,447
		14.06	26.05	31.40	1.40	12,173
Pasquia 2	BD09-64	11.10	28.50	21.20	1.60	14,362
		9.10	31.50	11.70	2.00	16,445
	BD09-69	0.50	11.10	84.80	2.10	432
		35.31	26.40	16.30	1.28	15,923
	BD09-76	3.98	27.30	29.80	1.50	10,927
		6.40	30.60	13.00	1.60	16,246
	BD09-82	5.32	27.99	20.60	1.35	14,323
		8.50	26.53	23.16	2.84	13,746
		1.20	22.20	52.00	1.70	6,514
	BD09-83	12.80	30.26	20.40	1.70	13,625
		12.94	28.17	18.90	1.49	14,386
	BD09-85	19.77	26.87	14.84	1.30	16,250
		11.20	31.61	9.76	1.62	16,836
		9.87	28.92	19.04	1.75	14,272
		6.60	28.57	18.71	2.05	14,385
	BD09-89	1.80	15.53	55.23	2.06	6,431
	BD09-90	5.10	27.20	31.50	1.80	11,400
Pasquia 5	BD08-05	13.23	24.83	30.23	2.56	12,644
	BD09-32	1.30	31.40	21.60	1.50	13,925
		9.60	32.66	16.82	1.65	14,357
		4.10	28.50	32.00	1.90	10,825
	BD09-36	3.50	26.60	30.50	1.40	12,106
		2.00	26.50	31.70	1.10	11,400
	BD09-37	13.70	29.61	21.85	2.56	13,989
		1.20	22.80	24.80	1.90	14,556
		1.40	18.35	44.37	1.61	10,145
	BD09-42	1.90	24.80	34.90	1.90	11,186

TABLE 10-1 PROXIMATE ANALYSIS						
Deposit	**Hole No.**	**Coal Interval (m)**	**Moisture Content % (ar)**	**Ash Content % (ar)**	**Sulphur Content % (ar)**	**Heating Value kJ/kg (ar)**
		5.20	29.24	26.50	1.66	12,188
	BD09-45	5.90	30.40	19.30	3.00	14,184
		4.90	25.93	29.70	1.93	12,440
	BD09-61	3.97	32.10	21.10	1.20	13,259
	BD09-87	12.75	29.91	18.58	2.44	14,272
		0.93	33.50	10.60	2.70	16,349
	BD09-91	4.60	32.50	20.60	1.70	12,327
		4.50	29.20	28.50	1.50	10,745
		11.00	34.95	25.62	1.90	10,730
		7.30	38.20	34.40	1.20	7,405
	BD09-95	1.34	25.40	27.20	1.60	13,345
Pasquia 96	BD09-96	10.10	23.35	19.06	1.46	16,040
		3.60	23.68	14.05	2.33	17,702
		5.10	23.53	24.90	2.23	14,369
Pasquia 97	BD09-97	9.00	23.81	20.36	1.92	15,480
Pasquia 98	BD09-98	8.30	24.52	17.72	2.67	16,342
		6.60	18.10	27.36	3.02	16,574
Split Leaf North	BD09-39	3.80	27.80	23.20	4.70	14,016
		4.80	24.06	31.50	2.66	11,966
	BD09-41	6.50	24.84	24.80	2.32	13,844
		28.60	27.85	18.75	1.35	14,963
	BD09-73	4.53	23.66	31.73	1.42	11,733
		36.95	29.17	16.93	1.28	14,832
N107	BD09-107	9.00	27.64	11.20	2.74	17,729
		13.30	21.50	29.79	2.34	14,455
		37.90	25.06	21.16	2.36	15,905
	BD09-109	22.30	23.95	26.51	2.74	14,045
	BD-10-120	24.72	24.29	13.19	2.37	18,392
	BD-10-121	37.55	32.93	9.57	2.62	16,735
		6.13	33.86	11.27	3.15	16,297
	BD-10-125	46.85	33.02	16.43	2.24	14,424
		7.00	39.35	14.43	2.19	13,400
	BD-10-127	12.36	27.45	29.18	2.22	12,256
		2.48	27.54	39.33	1.15	8,707
	BD-10-133	6.95	27.23	14.81	1.62	16,501

TABLE 10-1 PROXIMATE ANALYSIS						
Deposit	**Hole No.**	**Coal Interval (m)**	**Moisture Content % (ar)**	**Ash Content % (ar)**	**Sulphur Content % (ar)**	**Heating Value kJ/kg (ar)**
		1.05	21.12	29.79	1.76	13,267
	BD-10-136	5.30	13.62	67.05	0.76	4,351
		1.50	26.84	19.13	2.40	15,280
		9.05	27.82	11.92	1.98	17,275
		12.65	31.60	13.79	2.23	16,230
		3.50	29.55	24.26	2.10	12,635
		3.35	28.51	30.18	1.75	11,637
		9.50	28.66	17.75	2.20	15,447
	BD-10-138	6.60	25.45	16.41	1.89	16,652
N108	BD09-108	2.90	18.05	35.05	2.67	12,553
		25.50	21.88	17.96	2.40	17,229
	BD09-110	8.50	22.13	28.70	2.09	14,105
	BD09-111	23.00	22.10	15.18	2.65	18,205
		2.00	19.26	33.56	2.21	13,738
		7.20	21.40	28.78	3.76	14,372
	BD-10-119	25.95	25.08	19.10	2.05	16,083
		28.65	24.90	16.99	2.65	17,284
	BD-10-123	3.00	23.71	47.32	2.79	6,597
		29.80	29.87	24.50	2.21	12,916
	BD-10-132	6.30	24.54	33.11	2.07	11,292
	BD-10-135A	6.50	23.51	22.70	1.81	14,985
		1.84	19.37	30.37	3.14	13,654
	BD-10-139	23.50	24.10	22.35	1.82	15,327

10.2 ULTIMATE ANALYSIS

Table 10-2 shows the ultimate analysis work that was completed on some of the deposits. Additional ultimate analyses were not completed on the 2010 drilling program samples.

TABLE 10-2 ULTIMATE ANALYSIS

Deposit	Hole/Interval	Dry Basis							
		% Carbon	% Hydrogen	% Nitrogen	% Ash	% Sulphur	% Oxygen	Daf Oxygen	Daf Carbon
Pasquia 2	08-02/5m-13m	63.78	3.39	1.17	14.60	2.54	14.51	16.99	74.68
	08-02/14m-17m	61.16	2.46	0.95	20.42	1.36	13.66	17.17	76.85
	08-02/21-27m	55.22	2.50	0.88	26.48	1.58	13.34	18.14	75.11
Chemong 3	08-03A/35-39	62.11	2.18	1.15	17.30	2.99	14.27	17.26	75.10
	08-09/41m-47m	63.65	2.39	1.04	15.24	1.86	15.81	18.65	75.09
	08-09/50-63	58.60	1.92	1.01	22.12	3.30	13.04	16.74	75.24
Pasquia 5	08-05/97m-115m	42.20	2.22	0.65	40.94	3.25	10.75	18.20	71.45
Chemong 6	0806A/141m-151m	61.65	2.48	1.05	19.06	2.39	13.37	16.52	76.17
	0806A/152m-162m	64.28	2.89	1.02	16.77	3.18	11.86	14.25	77.23
	0806A/169m-170m	56.02	2.70	0.83	25.81	2.68	11.97	16.13	75.51

10.3 SULPHUR FORMS

The sulphur forms data, which can be found in Table 10-3 shows that 75% of the total sulphur is organic with the rest pyritic. This has an impact in that washing methods will likely have reduced impact in terms of lowering the coal's overall % sulphur.

TABLE 10-3 SULPHUR FORMS

Deposit	Hole/Interval	% Total Sulphur	% Sulphate	% Pyritic	% Organic
Pasquia 2	08-02/5m-13m	2.42	0.03	0.63	1.76
	08-02/14m-17m	1.28	0.03	0.91	0.34
	08-02/21-27m	1.50	0.02	0.15	1.33
Chemong 3	08-03A/35-39	2.54	0.05	1.07	1.42
	08-09/41m-47m	1.61	0.01	0.07	1.53
	08-09/50-63	2.79	0.02	0.48	2.29
Pasquia 5	08-05/97m-115m	3.01	0.07	0.82	2.12
Chemong 6	0806A/141m-151m	2.14	0.02	0.46	1.66
	0806A/152m-162m	2.85	0.02	0.29	2.54
	0806A/169m-170m	2.51	0.02	0.05	2.44
Average		**2.27**	**0.03**	**0.49**	**1.74**

10.4 ASH CHARACTERISTICS

A summary of the ash chemistry data can be found in Table 10-4. In reviewing the results it is important to note the high levels of sodium, calcium and sulphur in the ash. Boiler operators and designers are concerned with predicting whether fouling or slagging will occur in the furnace for a given coal. A set of guidelines have been developed in order to estimate whether a given coal will have operational issues inside the furnace. The first is to characterize the ash as either lignitic or bituminous. Lignitic ash is defined as ash in which the sum of CaO + MgO is greater than Fe_2O_3.The reverse is true for bituminous ash. From the results it can be seen that the coal found on the Border property is of lignitic type. Based on it being lignitic, an approximate scale has been developed which uses the % Na_2O to estimate the coal's fouling factor. The indicative scale is as follows:

% Na_2O	Fouling
< 2.0 %	Low
2% - 6%	Medium
6% - 8%	High
>8%	Severe

The limited sampling suggests that the % Na_2O can be quite variable. The arithmetic average is 5.22% which may not be representative of the deposit as a whole due to the limited sampling population. This puts the fouling level at 'medium'. As can be seen in the data many samples are >6% with some in the severe category.

TABLE 10-4 ASH CHEMISTRY

Deposit	Hole/Interval	SiO_2	Al_2O_3	TiO_2	Fe_2O_3	CaO	MgO	Na_2O	K_2O	P_2O_5	SO_3	Und
Pasquia 2	08-02/5m-13m	**9.98**	22.49	**0.86**	6.27	**13.72**	2.68	**11.01**	0.63	**0.35**	29.17	**2.84**
	08-02/14m-17m	**42.15**	21.92	**0.33**	3.46	**9.33**	1.40	**3.96**	0.16	**0.02**	14.40	**2.87**
	08-02/21-27m	**35.66**	29.96	**1.06**	0.99	**9.60**	1.83	**5.48**	0.38	**0.33**	12.29	**2.41**
Chemong 3	08-03A/35-39	**34.09**	18.79	**0.25**	7.45	**8.65**	1.71	**7.26**	0.48	**0.01**	19.18	**2.14**
	08-09/41m-47m	**28.08**	22.13	**0.60**	0.80	**12.74**	2.28	**9.15**	0.62	**0.83**	20.20	**2.57**
	08-09/50-63	**28.14**	26.76	**0.75**	3.55	**11.36**	1.75	**6.63**	0.42	**0.34**	18.16	**2.14**
Pasquia 5	08-05/97m-115m	**42.82**	30.94	**1.17**	3.82	**3.89**	0.90	**3.14**	0.90	**1.00**	8.60	**2.83**
Chemong 6	0806A/141m-151m	**31.07**	23.31	**1.05**	3.13	**9.76**	1.81	**7.57**	0.56	**0.14**	19.39	**2.21**
	0806A/152m-162m	**26.06**	23.41	**0.56**	2.60	**11.63**	1.97	**7.94**	0.47	**0.54**	21.83	**2.97**
	0806A/169m-170m	**28.80**	30.17	**0.82**	1.00	**11.13**	1.96	**5.75**	0.42	**4.41**	13.21	**2.33**
Niska 107	10-120/60.5m-65m	**50.96**	14.10	**0.78**	3.74	**10.47**	2.12	**5.12**	0.36	**0.17**	12.30	**-0.12**
	10-121/71.8m-74m	**50.26**	13.12	**1.07**	7.62	**9.58**	2.13	**3.48**	0.49	**0.04**	12.20	**0.01**
	10-121/74m-77m	**38.64**	11.36	**0.51**	18.66	**9.55**	1.89	**6.10**	0.45	**1.46**	11.42	**-0.05**
	10-125/86m-89m	**66.12**	11.35	**2.38**	0.64	**6.54**	1.28	**4.11**	0.21	**0.01**	7.23	**0.13**
	10-125/101m-104m	**59.46**	17.38	**1.97**	0.44	**7.82**	1.54	**4.39**	0.26	**0.03**	6.86	**-0.14**
	10-125/119m-122m	**61.96**	18.70	**1.25**	0.55	**7.42**	1.79	**2.80**	0.26	**0.03**	6.61	**-1.37**
	10-127/51m-52.5m	**55.16**	16.08	**1.14**	9.14	**6.28**	1.23	**2.80**	0.23	**0.05**	7.83	**0.06**
	10-133/46.5m-50m	**38.12**	22.64	**0.75**	2.80	**12.58**	2.68	**6.36**	0.37	**0.66**	12.30	**0.74**
	10-133/50.0m-53.5m	**41.76**	18.34	**1.02**	4.10	**12.22**	2.28	**5.51**	0.30	**2.37**	11.94	**0.16**
	10-133/64.2m-65.2m	**58.54**	21.22	**1.44**	1.17	**5.95**	0.95	**2.45**	0.21	**2.23**	4.23	**1.61**
Niska 108	10-119/84m-87.8m	**56.08**	17.04	**2.06**	1.22	**8.39**	1.69	**4.20**	0.27	**0.52**	8.35	**0.19**
	10-119/88.4m-90.2m	**60.96**	19.49	**1.64**	0.73	**6.07**	1.50	**3.27**	0.25	**0.03**	6.16	**-0.10**
	10-119/133m-136m	**54.86**	16.16	**1.07**	0.28	**10.21**	2.40	**5.73**	0.32	**0.03**	9.18	**-0.23**
	10-132/89m-91m	**55.30**	23.34	**1.17**	6.81	**5.33**	1.24	**1.06**	0.23	**0.32**	5.53	**-0.33**
	Average	**43.96**	**20.42**	**1.07**	**3.79**	**9.18**	**1.79**	**5.22**	**0.39**	**0.66**	**12.44**	**1.08**

Due to the high sodium (Na) content the preferred process for energy extraction is using the selected CTL technology.

10.5 ASH FUSION

Ash fusion temperatures give an indication of the softening and melting behavior of fuel ash and are of importance when pairing fuels to boilers. These temperatures are measured at four defined points under both reducing and oxidizing conditions (Table 10-5).

TABLE 10-5 ASH FUSION TEMPERTAURES

Deposit	Hole/Interval	Reducing Atmosphere °C				Oxidizing Atmosphere °C			
		Initial	Softening	Hemispherical	Fluid	Initial	Softening	Hemispherical	Fluid
Pasquia 2	08-02/5m-13m	1165	1173	1181	1208	1305	1391	1407	1426
	08-02/14m-17m	1154	1173	1176	1178	1326	1399	1402	1418
	08-02/21-27m	1299	1316	1337	1359	1305	1334	1342	1402
Chemong 3	08-03A/35-39	1127	1133	1165	1181	1181	1294	1321	1342
	08-09/41m-47m	1162	1168	1172	1178	1294	1364	1380	1399
	08-09/50-63	1133	1246	1251	1273	1230	1251	1262	1326
Pasquia 5	08-05/97m-115m	1219	1396	1420	1455	1297	1442	1458	1426
Chemong 6	0806A/141m-151m	1149	1208	1219	1240	1259	1316	1329	1364
	0806A/152m-162m	1176	1184	1206	1219	1307	1391	1396	1434
	0806A/169m-170m	1184	1320	1342	1434	1305	1326	1364	1426
Average		**1177**	**1232**	**1247**	**1273**	**1281**	**1351**	**1366**	**1396**

10.6 TRACE ELEMENT AND PETROGRAPHIC ANALYSIS

Both trace element and petrographic analysis had been completed for select samples on the Border Property. Please refer to the Moose Mountain Technical Report dated December 24, 2009 for results and their discussion.

10.7 HARDGROVE INDEX

The Hardgrove Grindability Index was developed to measure empirically the relative difficulty of grinding coal to the particle size necessary to ensure complete combustion. Power plant operators use it as a guideline in which to determine the amount of energy required to grind the coal. Coals with lower HGI's are more difficult to grind. Samples from Niska 107 and 108 were sent for HGI lab analysis. The lab used ASTM D409-2008 and results are reported on an air dried basis. Coals with an HGI <60 are considered hard. Based on the testing results, which are summarized in Table 10-6 for samples taken in the Niska 107 and 108 areas the coal can be considered to be very soft.

TABLE 10-6 HARDGROVE INDEX		
Deposit	Hole ID/Interval	HGI
Niska 107	10-120/74m to 77m	92
	10-121/72m to 74m	115
	10-121/95m to 98m	120
	10-125/83m to 86m	108
	10-125/98m to 101m	124
	10-133/50m to 53m	91
	10-136/98m to 101m	113
	10-138/59m to 62m	89
Niska 108	10-119/127m to 130m	138
	10-119/130m to 133m	126
	10-123/113m to 116m	120
	10-123/125m to 128m	129
	10-132/104m to 106m	133
	10-132/91m to 94m	111
	10-135A/63m to 64m	110
	10-135A/74m to 77m	89
Average		113

10.8 WASHABILITY

Preliminary washability testing was completed on samples from both the 2008/2009 and 2009/2010 drill programs. Initial indications are that there is an economic advantage to be gained by washing the run-of-mine coal ahead of further downstream processing in the CTL facility.. Capturing the floats at a 1.60 specific gravity cut off provided an estimate of the expected qualities of a washed product. Please refer to Table 10-7. On an air dried basis the % ash decreases from 22.9% to 15.7% with an associated air dried yield of 70.7%. The % sulphur decreased only slightly which should be expected as the majority (75%) of the sulphur is organic in nature. The complete sample list has also been included and can be found in Table 10-8.

TABLE 10-7 WASHABILITY SUMMARY							
	% Moisture	% Volatile Matter	% Ash	% Fixed Carbon	% Sulphur	Calorific Value (Kj/Kg)	% Yield
Head Sample	7.76	29.88	22.94	39.42	2.80	19,773	70.7
Floats @ 1.60 s.g. cut off	4.78	33.96	15.66	45.60	2.47	22,911	
* air dried basis							

TABLE 10-8 WASHABILITY RESULTS

				H20		V.M.		Ash		F.C.		Sulphur		KJ/KG	
	Deposit	Hole ID/Interval	% Recovery	Head	Washed	Head	Washed	Head	Washed	Head	Washed	Head	Washed	Head	Washed
2010 Testing	Niska 107	10-119/133m-136m	92.0	7.08	4.40	32.69	35.17	16.58	14.70	43.65	45.74	3.17	3.11	22,495	23,707
		10-120/60.5m-65m	83.8	4.58	5.30	31.45	33.35	20.42	16.20	43.55	45.15	2.26	1.71	21,922	22,556
		10-121/71.8m-74m	75.0	11.94	4.77	26.58	31.95	21.25	15.23	40.23	48.06	3.47	1.96	19,504	23,196
		10-121/74m-77m	86.6	11.64	4.71	30.52	35.47	16.97	11.98	40.87	47.84	6.32	3.57	20,602	24,243
		10-125/101m-104m	60.7	3.1	4.58	29.56	30.19	23.37	16.42	43.97	48.82	2.86	3.16	21,352	22,849
		10-125/119m-122m	90.0	3.64	4.04	33.77	34.73	20.57	16.05	42.02	45.19	3.72	3.87	21,925	23,110
		10-125/86m-89m	74.7	2.48	4.39	31.48	33.25	23.04	18.55	43.00	43.81	2.84	2.75	20,847	22,002
		10-127/51m-52.5m	40.4	7.27	5.40	26	33.36	32.45	17.45	34.28	43.79	3.88	2.04	16,684	21,864
		10-133/46.5m-50m	88.6	6.15	5.18	32.13	33.88	16.9	13.58	44.82	47.36	1.8	1.47	22,157	23,062
		10-133/50.0m-53.5m	60.5	5.27	6.12	30.13	33.00	21.57	15.97	43.03	44.90	2.43	1.88	20,584	22,061
		10-133/64.2m-65.2m	18.8	4.36	5.88	28.81	34.53	36.12	22.68	30.71	36.90	2.14	2.56	16,086	20,349
	Niska 108	10-119/84m-87.8m	73.7	5.28	6.27	30.38	32.69	23.97	16.26	40.37	44.78	2.32	2.32	20,411	22,247
		10-119/88.4m-90.2m	50.1	7.06	6.06	28.63	35.50	31.53	17.49	32.78	40.95	2.39	2.97	17,481	21,946
		10-132/89m-91m	27.4	3.94	4.45	23.83	31.16	36.44	18.54	35.79	45.85	3.48	2.29	16,355	22,091
		2010 Average	65.88	5.99	5.11	29.71	33.44	24.37	16.51	39.93	44.94	3.08	2.55	19,886	22,520
2009 Testing	Pasquia 2	08-02/21-27m	54.1	5.3	3.39	30.35	34.20	25.08	15.90	39.27	46.50	1.5	1.68	17,991	22,808
	Chemong 3	08-03A/35-39	89.4	15.05	4.81	29.35	35.68	14.7	11.52	40.90	47.99	2.54	1.52	20,370	23,984
		08-09/41m-47m	94.5	13.64	3.92	31.07	35.14	13.16	12.07	42.13	48.87	1.61	1.68	20,861	23,733
		08-09/50-63	88.2	15.57	5.09	29.69	35.44	18.68	13.17	36.06	46.29	2.79	2.59	18,823	23,328
	Pasquia 5	08-05/97m-115m	43.5	7.39	3.70	25.07	32.93	37.91	15.65	29.63	47.72	3.01	3.50	15,825	24,010
	Chemong 6	0806A/141m-151m	84.7	10.46	4.56	32.09	35.86	17.07	13.85	40.38	45.72	2.14	2.07	20,589	23,765
		0806A/152m-162m	91.3	10.43	4.31	32.9	35.84	15.02	12.60	41.65	47.24	2.85	2.63	22,201	25,187
		0806A/169m-170m	80.3	6.35	4.37	30.55	33.06	24.17	19.95	38.93	42.63	2.51	3.10	20,114	21,330
		2009 Average	78.24	10.52	4.27	30.13	34.77	20.72	14.34	38.62	46.62	2.37	2.35	19,597	23,518
		Overall Average	**70.72**	**7.76**	**4.78**	**29.88**	**33.96**	**22.94**	**15.66**	**39.42**	**45.60**	**2.80**	**2.47**	**19,773**	**22,911**

Air Dried Basis @ 1.60 Specific Gravity Cut Off

11.0 MINERAL RESOURCE ESTIMATES

11.1 GENERAL

For the purposes of this PA Marston has prepared a Statement of Estimated Coal Resources for the Goldsource Border Property. It is the opinion of the Marston QPs that the stated resource estimate complies with the disclosure guidelines and definitions referenced in NI 43-101, the associated companion policy (NI 43-101CP), and GSC Paper 88-21 (Hughes et. al., 1989). Marston has not prepared a Statement of Estimated Coal Reserves at this time pending completion of additional exploration, geologic modelling, economic and marketing analysis, and detailed mine planning. The effective date for the Statement of Coal Resource Estimate for the Goldsource Border Property is February 15th, 2011.

For the purpose of this PA Marston refers to the CIM Definitions Standards (CIMDS) adopted December 11, 2005 by the Canadian Institute of Mining, Metallurgy and Petroleum Council. CIMDS for mineral resources and mineral reserves are:

A Mineral Resource is defined as "a concentration or occurrence of diamonds, natural solid inorganic material, or natural solid fossilized organic material including base and precious metals, coal, and industrial minerals in or on the Earth's crust in such form and quantity and of such a grade or quality that is has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge." Mineral Resources are subdivided into classes of Measured, Indicated, and Inferred, with the level of confidence reducing with each class respectively. Resources are always reported as in-situ tonnage and are not adjusted for mining losses or mining recovery.

A Mineral Reserve is defined as "the economically mineable part of a Measured or Indicated Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified. A Mineral Reserve includes diluting materials and allowances for losses that may occur when the material is mined." A Mineral reserve is subdivided into two classes, Proven and Probable, with the level of confidence reducing with each class respectively. The CIMDS provides for a direct relationship between Indicated Mineral Resources and Probable Mineral Reserves, and between Measured Mineral Resources and Proven Mineral Reserves. Inferred Mineral Resources cannot be combined or reported with other categories.

Marston has categorized the Mineral Resources of the Border Property into the categories of Indicated and Inferred Mineral Resources, with the estimation confidence decreasing for each category as per the guidelines and definitions presented in NI 43-101 and its supporting documents. Marston has not categorized Measured Resources at this time. It is Marston's opinion that the nature of the deposit and the availability and type of exploration data providing the basis for current geologic interpretations and models presently preclude estimation of measured confidence level resources. It is Marston's opinion that additional drilling and modelling would allow for the possibility of categorizing measured category resources in the future and their exclusion at this time is merely a factor of the current data set and model confidence levels.

All resources and coal tonnages presented in this section of the PA are reported In-Situ and have not been adjusted for mining loss and dilution parameters. A discussion of the resource estimation methods and procedures is detailed in the following sections.

11.2 DATABASE

EBA was responsible for the compilation, interpretation, and validation of the primary geological and coal quality data and were also responsible for the creation of the geological model for the Border Coal Project. Marston was involved with EBA throughout the data review and validation processes as well as during the modeling process, providing guidance and oversight to ensure the final geological database and model was appropriate for the purposes of preparing a statement of coal resources for this PA as per NI 43-101 guidelines. At several stages during the project Marston processed the available exploration drilling data (including collar coordinates, down hole interval depths, seam picks, etc.) and coal quality data through a series of internally developed software modules. These modules are designed to identify errors and omissions and to flag them for adjustments or deactivation prior to establishing a final validated database to be used in the geological and quality modeling processes.

The primary component of the geological database is 21,038 m of exploration drilling and 1,072 coal quality samples from 146 surface drill holes. All drill holes included in the modelling database were drilled by Goldsource over a series of exploration programs spanning 2008 to 2010. Marston was not involved, directly nor indirectly, at any time during the exploration programs. EBA was involved in the exploration programs during 2009-2010. Prior to EBA's involvement, Goldsource conducted their exploration programs with the guidance of several other independent consulting firms with experience in coal exploration, modelling, and resource estimation.

Coal seam roof and floor picks and coal seam correlations between drill holes were performed by EBA personnel using down-hole geophysical logs. As per industry standards the seam roof and floor depths picked from the geophysical logs were used in place of the visual core and cuttings log depth intervals for modelling purposes. Marston performed several reviews while EBA was performing the seam picks and correlations and provided recommendations where necessary. It is Marston's opinion that the appropriate methods have been used and the seam picks and correlation are free of any significant errors or exclusions.

In addition to the exploration drilling data, Goldsource has used airborne geophysical surveys to identify the limits of the sink holes that host the coal deposits. The airborne geophysical surveys were performed by Fugro, with interpretation of the results and differentiation of the coaliferous sink holes from the surrounding Devonian limestone performed by Goldsource, EBA, and Fugro personnel.

11.3 BLOCK MODELLING

The Border Property geological model was constructed as a solids model in the Gemcom software platform (Gems 6.2.3) by EBA personnel. Drill hole data from the verified drill holes was imported into Gems and interpretive polygons linking correlated coal seams were digitized on 100-200 m spaced cross-sections through each of the sink hole areas. Each interpretive polygon was then linked with the corresponding polygon for that particular seam on the adjacent cross sections to create a 3D wireframe or solid for each coal seam. The interpretive polygons from the Fugro airborne geophysical surveys were then used in plan view to define the spatial limits of the sink holes. Unless otherwise indicated by drilling intersections, each seam within the geophysical polygon was extended and clipped to the geophysical interpretive polygon. In most instances the geophysical polygons are in agreement with the drilling data. However, there are several isolated occurrences where drill holes near the interpreted boundaries conflict with the boundary limit (i.e. barren drill holes inside the boundary or coal bearing holes outside the boundary). These isolated occurrences are typically within 20-50m of the boundary, and highlight the need for additional drilling in the future in order to properly establish the limits of the sink hole and to provide a better understanding on the resolution of the geophysical boundaries.

Once the Border Property geologic model was prepared by EBA, the seam solids were exported from Gems as dxf format CAD files and provided to Marston for import to the MineScape software platform. The dxf files were imported and converted to MineScape wireframes. The wireframes were reviewed by Marston to ensure there were no over lapping issues or general defects. Several minor issues were identified and were adjusted by EBA and Marston prior to finalizing the geological model.

When the geologic model was complete Marston used the MineScape Blockmodel application to develop block models for the Border Property. Each of the individual sink hole areas identified by Goldsource and EBA were modeled as an individual block model within the spatial limits as defined by the airborne geophysical interpretation polygons.

Each seam within the geophysical limits was populated with 5x5x1m (xyz) model blocks. The model blocks were chosen based on the geometry of the coal deposits and taking in to consideration potential mining methods for subsequent mine planning. Coal quality data from the validated quality database was utilized for quality parameter interpolation into the block models on a seam by seam basis. Only data from a given seam within a given sink hole area was used for block model interpolation for that particular seam in the given block model. This prevented potential mixing of quality parameters from seams in adjacent sink holes, as seam correlations between the various sink holes has not yet been well established. In some instances it is unclear if a named seam in one sink hole is the exact stratigraphic equivalent to a named seam in an adjacent sink hole.

The block models were constructed using air-dry basis proximate data; interpolated values included moisture, ash, fixed carbon, volatile matter, total sulphur, and calorific value (kj/kg). To allow for conversion to other moisture bases after the modeling process was complete the as-received total moisture was also interpolated into the blocks. The weighting parameter was RD_calc, which was a combination of available lab relative density measurements and values estimated using a regression analysis of ash content and relative density when no lab measurement was present, see Figure 27, Regression Analysis – Relative Density vs. Ash Content.

11.4 STATISTICS

Variography and other geostatistical methods were not used by EBA or by Marston for the purpose of defining the search parameters for the geological and coal quality block models. The search parameters were selected based on observations of seam geometry and based on considerable past experience in modeling coal resources.

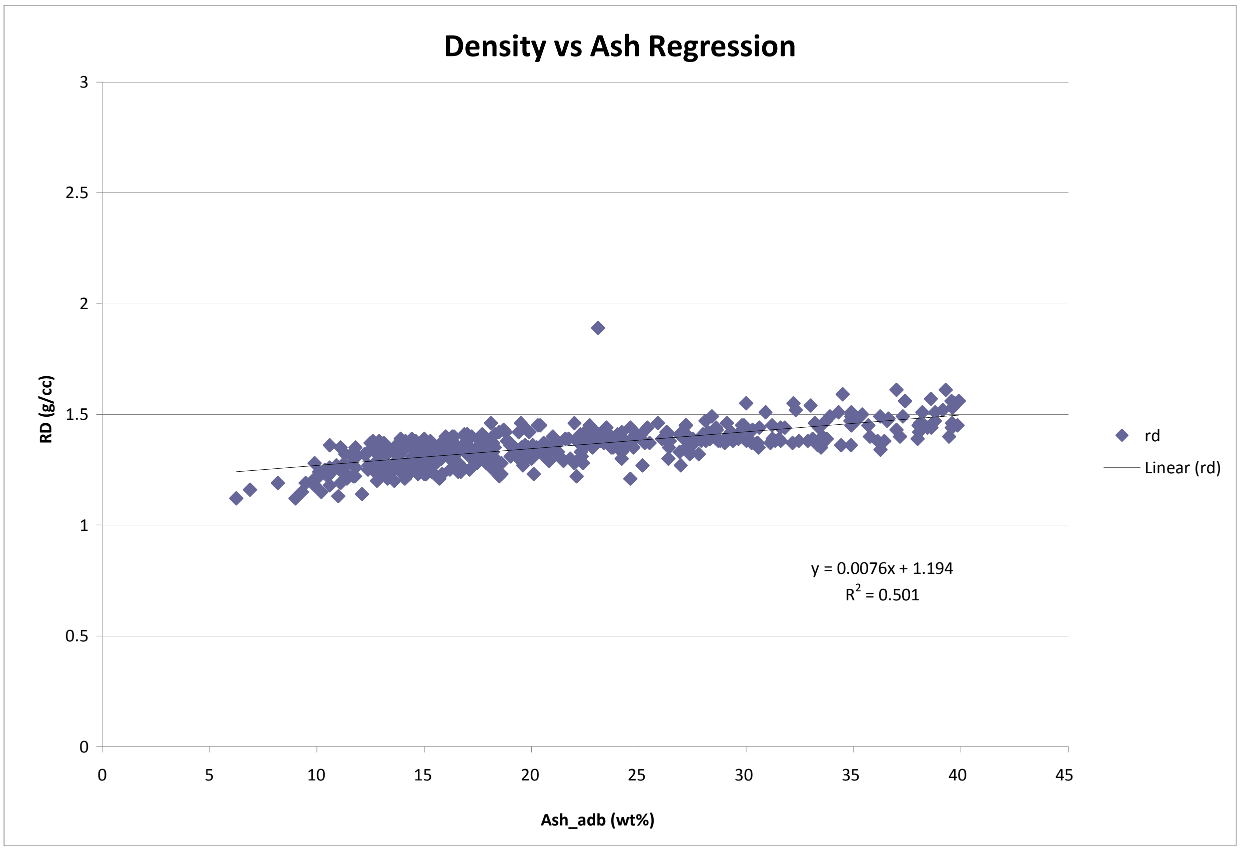


Figure 27 Regression Analysis – Relative Density vs. Ash Content

11.5 COMPOSITING

Coal quality samples were composited on a 1.0m down-hole composite interval. Geological boundaries were honoured during the compositing process so that only a single rock type (i.e. coal or waste) was present in each of the composite samples. Parting material occurring within the coal seams that falls below the minimum separable parting thickness of 0.30 m has been included in the coal composite samples. During the down-hole compositing process residual samples were retained regardless of length (i.e. remaining samples less than the 1m composite length occurring at the floor of the seam).

11.6 SEARCH PARAMETERS

The coal quality data was interpolated into each of the individual block models using an inverse distance interpolator with a power of 2. The interpolator search ellipsoid was a flattened disk (100m x 100m x 1m) representative of the geometry of the coal seams within the sink holes. Search parameters and sample interpolation restrictions included three search radii (500m, 2500m, and 5000m) and a minimum of 1 sample bearing octant required, with a minimum of 1 sample per octant and a maximum of 4 samples per octant.

11.7 CLASSIFICATION

The coal resources for the Border Property have been estimated as Indicated and Inferred coal resources according to the guidelines presented in NI 43-101, the associated companion policy (NI 43-101CP), and GSC Paper 88-21. GSC Paper 88-21 provides the general methodology for estimation and reporting of Canadian coal resources and reserves. Due to a degree of reduced confidence in the geological database and resultant models arising from the current exploration drilling coverage, uncertainty regarding the resolution of the airborne geophysical polygons in defining the sink hole limits, and minor concerns regarding the geological modelling methodology, none of the estimates conform to the requirements for statements of Measured Resources. Resources that fall within the GSC Paper 88-21 categorization criteria of distance from reliable data points for Measured Resources are currently included in the Indicated Resources category. It is Marston's opinion that additional exploration drilling and remodelling to resolve these concerns is required for improvements in the confidence levels that could allow for the re-categorization of the resources.

The primary aspect of resource and reserve categorization in GSC Paper 88-21 focuses on the identification of the level of structural complexity associated with the coal deposit being evaluated. GSC Paper 88-21 identifies four primary categories of structural complexity, namely low, moderate, complex, and severe, with the structural complexity increasing in each category respectively. The low complexity category is further sub-divided into Type A, B, and C according to slight variations in the structural characteristics present. The identification of the appropriate structural complexity category along with other parameters (such as potential for surface mining versus underground mining) allow for categorization of the resources and reserves into confidence categories. In GSC Paper 88-21 the confidence categories are linked to a range of search radii from known data points (i.e. drill holes or samples).

The coal seams at the Border Property are relatively thick, flat-lying seams and there appears to be no significant impact relating to post-depositional structural deformation. Although many of the stratigraphic and structural characteristics are consistent with deposits that typically fall into the Low Complexity sub-categories, the deposition of the coal into the sink holes that form the karst topography within the Devonian limestone is not a common mode of occurrence and adds a degree of uncertainty or complexity to the categorization process. The fact that the limits of the sink holes are identified for the most part by airborne geophysics rather than closely spaced grid drilling adds an additional degree of uncertainty to the categorization of the resources. The use of the airborne geophysics to delineate the limits of the sink holes may well prove an appropriate method, but until additional drilling data is available to confirm the location of the sink hole limits and thus better define the resolution limits of the geophysics, it is appropriate to consider the coal mineralization at the Border Property in a slightly higher structural complexity category than the general seam characteristics may reflect. Based on these considerations, it is Marston's opinion that the Border coal deposit is best accommodated by the data availability requirements for moderate complexity coal deposits. The categories and their parameters are as follows:

Indicated: 0-900 m search radii centered around drill holes, only applicable for seams with 4 or more quality analyses in the quality model;

Inferred: 900-2,400 m spacing between drill holes for seams with quality data plus all seams with spacing between 0-2,400 m but with only 2-3 coal quality analyses in the quality model.

It is Marston's opinion that with additional drilling to confirm the resolution of the geophysical interpretations and to understand potential structural complexities within the sink holes and near their margins, it may be possible to re-categorize the coal resources for the Border Property using the parameters for a lower complexity category as well as enable the possible inclusion of measured category resources in the future.

Additional discussion of the resource categorization, including presentation of the categorized coal resources is provided in Section 12.1.2 Pit Limit Determination.

11.8 CUT-OFF GRADE

A cut-off grade was not applied to the coal quality block model and resultant resource estimates. No incremental strip ratio or maximum mining depth factors were applied to the in-situ resource estimates. For a discussion of the estimated Run of Mine (ROM) tonnes and grades, please refer to Section 12.

11.9 BLOCK MODEL VALIDATION

Marston has performed various analyses and reviews of the data collection, interpretation, and geological modelling procedures carried out by EBA and Goldsource (including duties performed by pervious consulting firms on their behalf). A number of issues were identified in these review processes and for the most part all were evaluated by EBA and Goldsource and the appropriate adjustments were made to improve the integrity of the base data and the resultant geological model. It is Marston's opinion that there is potential uncertainty regarding the resolution of the interpreted geophysics in accurately identifying the limits of the sink hole boundaries. Therefore, Marston recommends completion of additional drilling to quantify the geophysical resolution better for future use in exploration, geological modeling and resource and reserve estimation. Additionally, there are discrepancies between drill hole collar survey positions and elevations from the topography model used in the modeling process. Marston recommends that the drill hole collar locations be confirmed using an independent surveyor, and that a high accuracy, high resolution digital elevation model be acquired for the property. This would certainly be a requirement prior to commencing any detailed mine planning in the future.

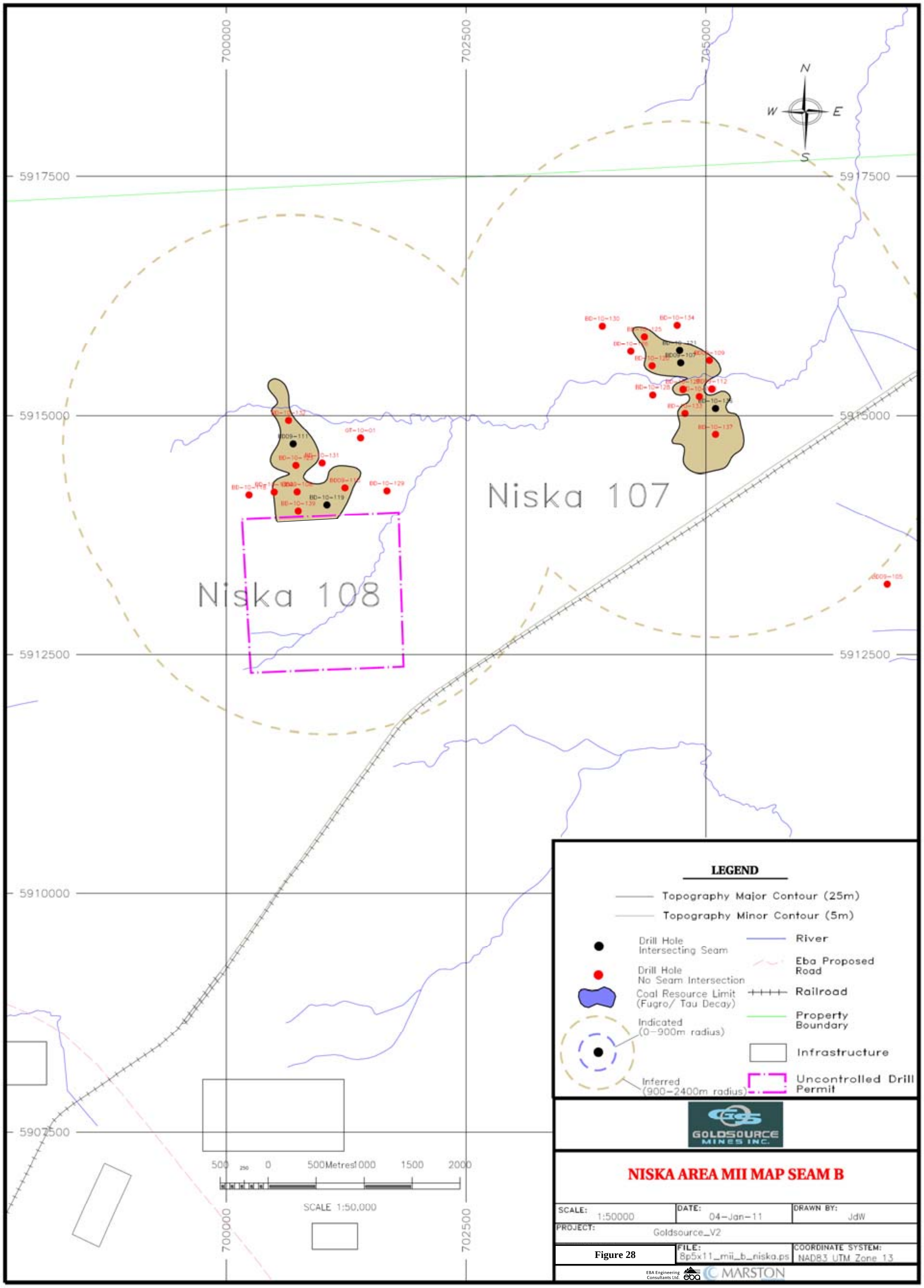
It is also Marston's opinion that the geology may be better represented using a grid modeling method, common in most coal modeling programs, instead of the current interpreted solid model.

Marston performed reviews on an initial coal quality block model constructed in Gemcom by EBA, and after identifying several issues with the model it was decided to prepare the coal quality block model in the MineScape Blockmodel application rather than move forward with the initial Gemcom block model. As such, Marston prepared the block model using the geological model and raw data along with input from EBA personnel. The resultant block model was then subject to internal Marston reviews and was also shared with Goldsource and EBA for review and discussion. As a result of several review meetings, minor adjustments to the geological and block models were performed before the models were finalized.

It is Marston's opinion that the modeling database and the modeling methodology employed by Goldsource, EBA, and Marston is generally free of any significant errors or omissions and that the data and models can be considered appropriate for use in the estimation of categorized coal resources for the purposes of this PA.

11.10 MINERAL RESOURCES

The Categorized Mineral Resources for the Goldsource Border Property are presented in Table 11-1 and 11-2. Resource categorization confidence polygons for the various areas are presented in Figure 28 and Figure 29. As noted in Section 4.0 within the project area there is a single drilling permit which is held by another party. This permit is located at the south end of Niska 108 and can be found on these figures. Reported resources for Niska 108 only include the tonnes within Goldsource's drill permits and do not include the tonnes associated with the permit under control by the other party. As indicated previously, the resources discussed in this section are representative of in-situ coal resources and have not been adjusted for mining parameters.



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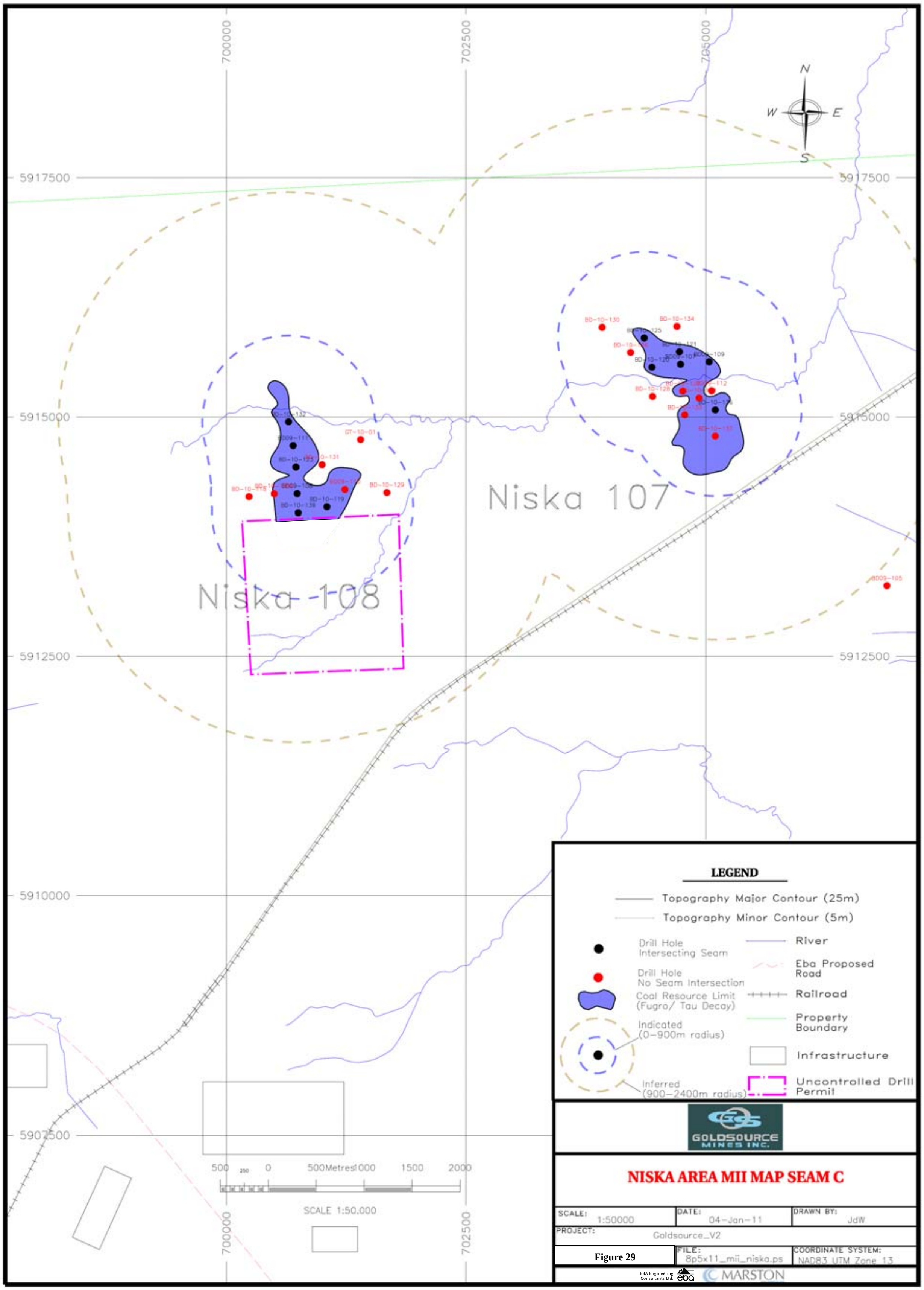
Topography Minor Contour (5m)
Drill Hole Intersecting Seam
Drill Hole No Seam Intersection
Coal Resource Limit (Fugro/ Tau Decay)
Indicated (0-900m radius)
Inferred (900-2400m radius)
River
Eba Proposed Road
Railroad
Property Boundary
Infrastructure
Uncontrolled Drill Permit
GOLDSOURCE MINES INC.
NISKA AREA MII MAP SEAM B
SCALE: 1:50000
DATE: 04-Jan-11
DRAWN BY: JdW
PROJECT: Goldsource_V2
FILE: 8p5x11_mii_b_niska.ps
COORDINATE SYSTEM: NAD83 UTM Zone 13
EBA Engineering Consultants Ltd.
MARSTON

Figure 28



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Topography Major Contour (25m)
Topography Minor Contour (5m)
Drill Hole Intersecting Seam
Drill Hole No Seam Intersection
Coal Resource Limit (Fugro/ Tau Decay)
Indicated (0–900m radius)
Inferred (900–2400m radius)
River
Eba Proposed Road
Railroad
Property Boundary
Infrastructure
Uncontrolled Drill Permit
GOLDSOURCE MINES INC.
NISKA AREA MII MAP SEAM C
SCALE: 1:50000
DATE: 04–Jan–11
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PROJECT: Goldsource_V2
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COORDINATE SYSTEM: NAD83 UTM Zone 13
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SCALE 1:50,000
EBA Engineering Consultants Ltd.
MARSTON

Figure 29

TABLE 11-1 BORDER PROPERTY INDICATED MINERAL RESOURCES (FEBRUARY 15, 2011)									
Area	**Category**	**Volume (000's BCM)**	**Mass (000's Tonnes, arb)**	**TM (wt%, arb)**	**IM (wt%, adb)**	**Ash (wt%, adb)**	**FC (wt%, adb)**	**Sulphur (wt%, adb)**	**CV (wt%, adb)**
C6	Indicated	5,619	7,530	29.83	8.20	22.46	39.41	2.44	19,975
N107	Indicated	16,083	21,613	29.29	7.99	20.17	42.25	3.06	20,903
N108	Indicated	12,330	17,220	24.36	5.88	28.57	37.68	2.80	18,630
P02	Indicated	15,006	20,436	29.07	6.67	22.85	39.84	1.97	19,698
P05	Indicated	3,943	5,738	28.70	4.50	32.39	35.88	3.09	17,555
SLN	Indicated	4,749	6,624	27.29	4.11	27.40	39.62	2.15	18,982
Total	Indicated	57,729	79,161	28.00	6.63	24.40	39.68	2.59	19,606

TABLE 11-2 BORDER PROPERTY INFERRED MINERAL RESOURCES (FEBRUARY 15, 2011)									
Area	**Category**	**Volume (000's BCM)**	**Mass (000's Tonnes, arb)**	**TM (wt%, arb)**	**IM (wt%, adb)**	**Ash (wt%, adb)**	**FC (wt%, adb)**	**Sulphur (wt%, adb)**	**CV (wt%, adb)**
C20	Inferred	6,270	8,392	35.29	9.54	19.27	42.33	2.94	21,059
C3	Inferred	4,495	5,881	33.26	6.97	18.95	43.18	2.24	21,337
N107	Inferred	3,566	4,817	25.72	8.70	26.83	36.82	2.81	18,903
N108	Inferred	4,728	6,413	23.16	5.91	22.88	41.99	3.37	20,902
P02	Inferred	253	413	24.03	2.72	48.09	26.50	2.10	12,616
P05	Inferred	2,372	3,626	31.04	4.01	41.79	31.00	2.19	14,725
P05 SE	Inferred	2,448	3,460	29.54	5.76	31.16	36.46	2.85	17,803
Total	Inferred	24,132	33,003	29.96	7.16	25.10	39.55	2.78	19,620

12.0 ADDITIONAL REQUIREMENTS FOR DEVELOPMENT AND PRODUCTION PROPERTIES

12.1 MINING OPERATION

12.1.1 General

The development plan for the Border Coal Project is designed to produce approximately 1.8 million tonnes per year (Mtpy) of a washed coal product to serve as one of the primary feed stocks for a coal-to-liquids facility. Over its life, the proposed operations would produce a minimum of 90 million tonnes (Mt) of run-of-mine (ROM) coal, with clean coal production of about 54 Mt.

The development strategy is based on open pit surface coal mining methods. The planned operation would utilize proven conventional truck and shovel mining equipment to excavate and dispose of overburden and interburden (waste material over and between coal layers) and to mine and transport coal. Waste material will be placed in adjacent overburden dumps or in previously mined pit areas. Soil materials will be stockpiled for later use or placed directly on reclamation areas as they become available.

The mine equipment fleets will be primarily diesel fuel-powered with the exception of a large electric cable shovel for waste stripping. The remainder of the proposed fleet includes a hydraulic excavator for coal mining, rotary drills for overburden blasting, rear-dump off-highway mine trucks with 363 t payload capacities for overburden, 91 t payload capacity trucks for coal and standard auxiliary equipment such as dozers, graders, fuel and lube trucks, maintenance trucks and other items.

12.1.2 Pit Limit Determination

The first step in the development of the mine plan was the identification of the ultimate pit limits based on the results of the geological and block modeling. This involved consideration of safe pit slope angles, practical mining aspects such as minimum pit width, proximity to any limiting infrastructure and physical features (rivers, lakes, etc.), pit access considerations, and practical guidelines for resource recovery.

Pits were only developed for those areas that contained modeled coal solids defined by greater than 3 drill holes. As the coal is generally flat lying and does not come near surface, the pit limits were established by locating the toe of the high wall at the lateral extents of the modeled coal seams. These lateral limits were defined by the airborne geophysics. These highwall toe lines were projected upward at a 45° (1H:1V) angle up to the base of the glacial till. In the glacial tills, the walls were flattened to an 18° angle (3H:1V) up to surface. Marston recommends completion of thorough geotechnical testing and analyses for the purpose of establishing excavation design criteria for future planning.

The resultant pit limits were used in conjunction with the block models to estimate available mineable coal tonnages and associated waste volumes for each pit. For estimates of run-of-mine coal quantities and qualities, Marston applied a 20 cm coal loss and a 20 cm dilution thickness at each coal:waste contact to accommodate the effects of mining. The estimated mining quantities for each pit are listed in Table 12-1. The overall stripping ratio, expressed as bank cubic meters (bcm) of waste required to be removed per tonne of run-of-mine coal (rmt), is 5.6 bcm/rmt.

TABLE 12-1 SUMMARY OF ESTIMATED COAL TONNAGES BY PIT

Area	Waste Volume (000's BCM)	Coal Volume (000's BCM)	Coal Mass (000's Tonnes arb)	Stripping Ratio (BCM/RMT)	Ash ADB (%)	CV ADB (kj/kg)	FC ADB (%)	IM (%)	TM (%)	Sulphur ADB (%)
N108	109,610	16,367	22,697	4.83	27.20	19,190	38.77	5.83	24.03	2.96
N107	117,198	19,630	26,412	4.44	21.21	20,525	41.35	8.32	28.56	2.97
P02	74,411	15,250	20,845	3.57	23.40	19,547	39.56	6.58	28.97	1.98
C20	57,034	6,349	8,501	6.71	19.35	21,029	42.28	9.55	35.24	2.94
C3	33,231	4,503	5,891	5.64	18.93	21,345	43.19	6.97	33.26	2.24
C6	54,776	5,648	7,566	7.24	22.44	19,983	39.42	8.20	29.82	2.44
P05 and P05 SE	115,857	7,426	10,741	10.79	33.06	17,351	35.60	4.77	28.86	2.85
SLN	43,514	4,677	6,518	6.68	27.27	19,024	39.69	4.13	27.32	2.14
Total Coal	**605,631**	**79,850**	**109,172**	**5.55**	**24.22**	**19,705**	**39.85**	**6.88**	**28.51**	**2.64**

12.1.3 Production Rate

The production rate of the mine was tailored to provide the feed required for a single coal-to-liquids (CTL) processing train. Technical staff with the CTL company indicated that due to ash content, an ROM coal product was not suitable for direct feed to the coal-to-liquids plant. Preliminary analyses also indicated that washing the coal prior to feeding to the CTL plant provided an economic benefit, as projected increases in product yields resulted in suitable returns on the estimated cost of the wash plant.

The single CTL train requires approximately 1.8 million tonnes of washed coal per year. An estimated wash plant yield of 65% on an air dried moisture content basis was established based on review of available washability data. Therefore, annual requirements for ROM coal production total 3 million tonnes per year.

12.1.4 Mine Development and Schedule

Pre-production activities include:

- Baseline data collection for studies in support of development of regulatory application documents
- acquisition of regulatory approvals for mining and industrial development
- initial site preparation activities for merchantable timber harvest and surficial dewatering.

As necessary, a merchantable timber harvest plan will be developed in conjunction with the holders of forest management rights, targeting clearing at least two years in advance of mining operations. Residual woody material will be stockpiled, burned, or chipped and spread for removal with the reclamation materials.

An operational water management plan must be developed to provide guidelines for the release of water that has not come into contact with disturbed areas. The release water drainage systems include the following:

- muskeg drainage ditches;
- overburden dewatering ditches, sumps, wells and pumps;
- stream diversion channels;
- overburden disposal and reclamation stockpile drainage ditches; and
- sedimentation ponds.

Industry opinions in the Athabasca mineable oil sands operations indicate that optimal drainage of muskeg can be achieved with three open-water seasons of drainage. Shallow (1 to 2 m deep) muskeg drainage ditches at about 100 m spacing and extending 0.5 m below the bottom of the muskeg layer are effective where the underlying soil is composed of relatively impervious soils. If the underlying soil is composed of pervious sands or gravel, muskeg dewatering ditches may be deepened to provide both muskeg and overburden dewatering. Overburden dewatering ditches may be as deep as 5 m with spacing of 300 m. Muskeg areas shallower than 0.5 m are not commonly drained in advance of stripping.

A pro-forma mine development plan was completed, with initial development proposed for the Niska 108 pit. Pre-development activities would include pre-stripping within this pit with the overburden directed to an external waste dump. Suitable overburden materials would also be utilized to construct at least an initial tailings structure for the coal wash plant. If possible, coarse rejects from the coal wash process may prove suitable for future augmentation of the tailings dyke structures.

Mining operations are planned to continue in Niska 108 until its completion. The overburden stripping shovel would be relocated to the east and begin pre-stripping operations in Niska 107. As coal removal operations continued in Niska 108, pre-production boxcut waste would be placed in an external waste dump planned just north of Niska 107. Overburden materials from Niska 107 would be directed to backfill Niska 108 as soon as coal removal operations end in that pit.

Upon completion of Niska 107, the mining operation would be relocated to the central portion of the project area. Niska 107 will be left largely un-backfilled and would be the site of an end-of-mine lake. The Pasquia and Chemong Pits would be mined in succession with overburden directed back in pit when space allows or else directed to a centrally located external dump. The pro-forma mine plan has been designed to maximize in-pit backfill of overburden and coarse tailings materials in order to minimize ex-pit disturbance. Conceptual end of mining operations site status is illustrated in Figure 30.

Throughout the proposed mine life, muskeg and suitable mineral soils will be recovered after dewatering and in advance of mining. The material will be stored as required in temporary stockpiles until reclamation areas are available for final placement. These areas are located to minimize haul distances for storage and for subsequent placement. The stockpiled reclamation materials will be used as required for closure.

The order of mining is as follows:

Niska 108 > Niska 107 > Pasquia 2 > Chemong 20 > Chemong 3 > Chemong 6

Pasquia 5 and Split leaf North (which are higher ratio pits) were not required to meet the 90 million rmt feed requirement.

The production forecast for the Border Coal Project is contained in Table 12-2. In order to levelize the waste stripping requirements overburden material was moved forward in the mine plan to allow for mining at a constant strip ratio. The production schedule and ultimately the cash flow model were limited to 30 years based on the projected life of the processing facilities.

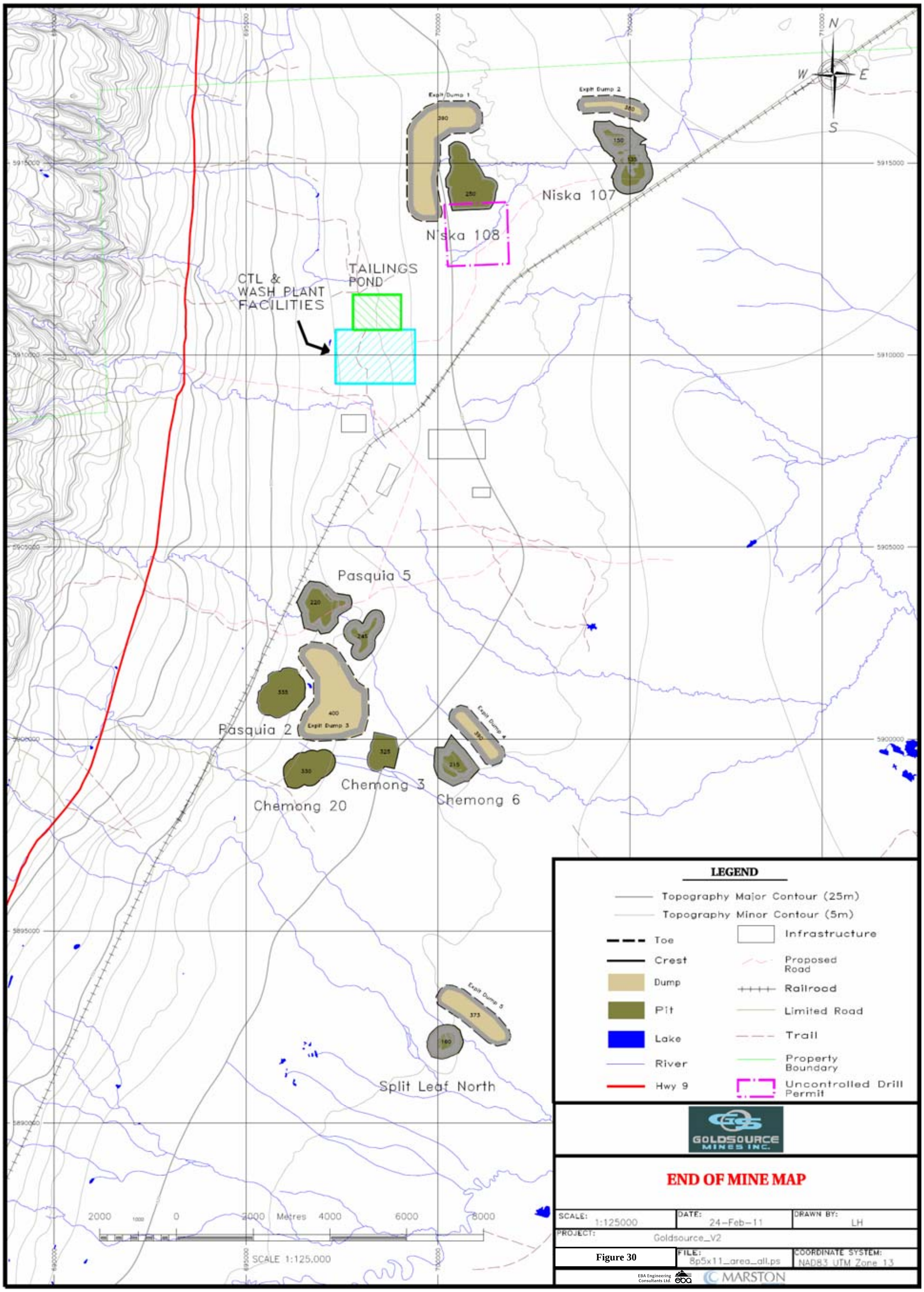

N
W
E
S
Expit Dump 1
Expit Dump 2
Niska 107
N'ska 108
TAILINGS POND
CTL &
WASH PLANT
FACILITIES
Pasquia 5
Pasquia 2
Expit Dump 3
Expit Dump 4
Chemong 3
Chemong 6
Chemong 20
Expit Dump 5
Split Leaf North
2000 1000 0 2000 Metres 4000 6000 8000
SCALE 1:125,000
LEGEND
Topography Major Contour (25m)
Topography Minor Contour (5m)
Toe
Crest
Dump
Pit
Lake
River
Hwy 9
Infrastructure
Proposed Road
Railroad
Limited Road
Trail
Property Boundary
Uncontrolled Drill Permit
GOLDSOURCE MINES INC.
END OF MINE MAP
SCALE: 1:125000
DATE: 24-Feb-11
DRAWN BY: LH
PROJECT: Goldsource_V2
FILE: 8p5x11_area_all.ps
COORDINATE SYSTEM: NAD83 UTM Zone 13
EBA Engineering Consultants Ltd.
MARSTON

Figure 30

TABLE 12-2 PRODUCTION FORECAST

Year		Pre-development Period	1	2	3	4	5	6	7	8	9	10	Years 11-15	Years 16-20	Years 21-25	Years 26-30	Total/Average
Waste Volume	(000's BCM)	42,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	75,000	75,000	75,000	77,400	494,400
Coal Mass	(000's Tonnes AR)	0	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	15,000	15,000	15,000	15,000	90,000
Ash ADB	(%)	-	31.48	31.48	27.53	27.53	21.52	21.52	29.39	29.39	28.54	28.54	23.92	24.58	24.14	22.61	25.10
CV ADB	(kj/kg)	-	18,130	18,130	18,804	18,804	20,847	20,847	18,771	18,771	18,792	18,792	20,251	19,024	19,326	20,119	19,476
FC ADB	(%)	-	35.51	35.51	37.92	37.92	42.56	42.56	37.58	37.58	37.94	37.94	40.46	38.63	39.15	40.48	39.22
IM	(%)	-	4.78	4.78	6.74	6.74	7.08	7.08	4.96	4.96	5.97	5.97	6.12	9.50	6.68	8.01	7.02
TM	(%)	-	23.85	23.85	23.16	23.16	24.07	24.07	23.00	23.00	25.22	25.22	27.63	28.05	28.54	32.61	27.42
Sulphur ADB	(%)	-	2.59	2.59	2.51	2.51	2.98	2.98	3.05	3.05	3.13	3.13	3.09	2.53	1.92	2.55	2.63
Ash AR	(%)	-	25.18	25.18	22.69	22.69	17.58	17.58	23.81	23.81	22.70	22.70	18.43	19.53	18.48	16.60	19.64
CV AR	(kj/kg)	-	14,499	14,499	15,492	15,492	17,035	17,035	15,209	15,209	14,945	14,945	15,607	15,128	14,799	14,726	15,189
FC AR	(%)	-	28.40	28.40	31.24	31.24	34.78	34.78	30.45	30.45	30.17	30.17	31.21	30.72	29.98	29.63	30.59
Sulphur AR	(%)	-	2.08	2.08	2.07	2.07	2.43	2.43	2.47	2.47	2.49	2.49	2.38	2.01	1.47	1.86	2.06

ADB - denotes Air Dried Basis

AR - denotes As Received Basis

12.1.5 Pit Slopes

A preliminary geotechnical site investigation was completed by EBA. Based on limited data a summary of rock mass strength ratings were complied. In general, the bedrock characterization placed the material in the fair to good category. For the purposes of generating pit shells Marston utilized an overall highwall angle of 45° through the bedrock. Above the bedrock, Marston implemented a flattened slope of 18° through the unconsolidated glacial till material.

12.1.6 Mining Equipment Selection

The Border Coal Project is best suited for a truck and shovel operation. The main types of equipment are listed in Table 12-3.

TABLE 12-3 MAJOR MINING EQUIPMENT

Major Mining Equipment	Size	Possible Model
Overburden Stripping Shovel	64.8 m^3	P&H 4100
Coal Stripping Shovel	10 m^3	Hitachi EX 1900
Blast Hole Drill	273mm	Sandvik 1190E
Waste Trucks	363 t	Cat 797
Coal Trucks	91 t	Cat 777
Dozers		Cat D10, D11
Graders		16G

12.2 MINE WASTE ROCK MANAGEMENT

The proposed mine development plan emphasizes in-pit backfilling for overburden disposal. As the coal is found in a number of different sink holes there will not always be an opportunity to dispose of materials in pit. During the first 30 years of mine life, a total of 4 ex-pit dumps are required.

In addition to in-pit placement of the overburden materials, two additional waste streams are planned to be directed back to the pit. The first is the coarse rejects from the wash plant and the second is the ash from the on-site power plant. At this stage it is contemplated that both waste streams would be directed back to the mine for disposal in a mined out pit. A swell factor of 30% was assumed for all overburden materials.

12.2.1 Potential Acid-Generating (PAG) and Non Acid-Generating (NAG) Material

A report summarizing the acid rock drainage (ARD) and metal leaching (ML) potential on the Border Coal Property was prepared. To date, a limited amount of analytical data has been collected which is relevant to ARD and ML characterization, therefore the assessment is preliminary in nature and focuses on recommendations for future ARD/ML testwork.

The analysis indicates that due to presence of pyrite in ore and waste rocks there may be potential for acid mine drainage generation. The waste rocks also contain significant neutralization potential (NP), as demonstrated by fizz tests during logging, and that one of the primary waste lithologies is limestone units. It is recommended that representative samples be taken from each of the waste rock lithologies and from the coal unit for acid-base accounting (ABA) to determine acid generation potential. To properly evaluate maximum potential acidity (MPA) and NP and assess ARD, static testwork should be undertaken. Metals content of ore and waste lithologies is evaluated based on bulk rock chemistry, however leachable metals should be evaluated by shake flask testing to investigate metal leaching potential.

12.3 MINERAL PROCESSING

12.3.1 Introduction

Goldsource engaged Marston to evaluate and recommend options to utilize a significant coal resource discovered in east central Saskatchewan near the town of Hudson Bay. The stated desire of Goldsource was to find a way to monetize the resource, either by onsite utilization or off site options, including export markets. The potential for access to wood waste in the project area has been indicated by Goldsource, however not quantities, costs or likely life time of this resource was provided. Because of this, biomass was considered an option for spot use, when and if economically available. The preliminary assessment of the coal resource, performed by Moose Mountain Technical Services and EBA, consultants to Goldsource, was utilized to characterize the resource.

12.3.2 Utilization Options

The quality of the Border coal, a high sulfur, high moisture, high alkali, low heating value low rank coal, would require that any monetization strategy include either upgrading to allow for offsite transport and marketing or onsite use. The high sulfur content of the coal as well as its high alkali in ash represented a challenge for either potential use.

Upgrading Options

To produce a marketable product for offsite transportation and sales, a thermally and mechanically stable upgraded product would be required. Coal upgrading to produce this product, including a coal drying process marketed by Western Syncoal to upgrade low rank coals and a briquetting process developed by White Energy of Australia to upgrade low sulfur Australian brown coal were explored.

The White Energy process, demonstrated in Australia, uses a combination of drying and mechanical briquetting to produce a stable fuel product from suitable feed material. Briquetting relies on the physical properties of the heated coal to agglomerate during briquetting. The process does not significantly change the character of the ash in the MAF coal briquette, resulting in a product with high sulfur and high slagging and fouling potential from Border coal. Because of these shortcomings the discussion of the potential for upgrading Border Coal via briquetting was abandoned by White Energy.

The Western Syncoal upgrading process, termed Syncoal Gen2, is an evolution of the coal drying process developed by Western Energy and partners in the 1980's. The upgraded process is reported to reduce moisture, pyritic sulfur and some ash while stabilizing the coal. The process as planned is to be sited at an end user power plant to allow the thermal requirements of the coal dryer to be supplied from the flue gas of the host power plant. Because the process is reported to reduce some of the ash, but not to change the ash characteristics, the high sodium in ash should not be lowered by this process. Accordingly, it is not anticipated that the potential slagging characteristics of the Border ash will be reduced. Based on this information, analysis of Western Syncoal as an option for processing Border Coal into a marketable commodity has not been pursued.

Mine Mouth Options

Onsite uses for Border Coal included power generation and coal-to-liquids processing. Again, the high alkali content in the Border ash as well as its other characteristics, including high sulfur and high oxygen content, has proved to be a challenge for these uses.

SaskPower, the likely local market for any generation from a Border mine mouth generating facility, has identified a need for power in its published Future Demand. The quantity of power anticipated to be required, to meet load growth and replace aging resources, is of such a magnitude that generation from a mine mouth facility could potentially help meet the demand.

The identified resource requirements are:

i. 2009-2014: 1,091 MW
ii. 2015-2022: 1,017 MW
iii. 2023- 2033: 1,985 MW

SaskPower is required to meet these resource requirements through an RFP/Bidding process, subject to the following descriptions:

1. Low carbon emissions are required
2. Lowest cost/lowest emissions price set by natural gas CCCT (Note: The winner in the most recent SaskPower RFP award was natural gas generation.)
3. Natural gas is viewed as a transitional energy source and will set the transitional energy price.
4. Biomass, carbon capture and sequestration are among the favored technologies for long term sourcing.
5. Interconnection of new generation requires all costs be borne by the generator. This will require
   i. An Interconnection Study
   ii. Costs could include more than just the immediate transmission interconnection

(Note: Interconnection costs that may need to be addressed include system stability, loop flow and other costs associated with the location and size of the generator in addition to the physical interconnection cost.)

Because of the need to address the option of carbon capture and a biomass fuel, Marston investigated two generating plant technology options for direct fired power generation. These technologies are Flexiburn options for Foster-Wheeler Circulating Fluidized Bed (CFB) and Pulverized Coal (PC) steam generators. A CFB boiler was chosen due to its stated ability to burn efficiently coals with a high slagging and fouling potential as well as control sulfur emissions by in bed capture of sulfur.

The Flexiburn technology would allow future conversion to plants with essentially 100% carbon capture while burning coal or have a negative carbon emission when biomass is incorporated as a fuel source. This is possible because Flexiburn utilizes oxygen enrichment for combustion and flue gas capture of essentially pure CO_2 for optional sequestration. Foster-Wheeler provided cost estimates for both a PC boiler and a CFB boiler. While the cost estimate for a CFB exceeds that for a PC boiler, it was estimated by Foster-Wheeler that the additional cost for sulfur emissions control with a PC boiler, compared with CFB in-bed capture utilizing limestone would likely make the two systems have equivalent capital cost. Upon evaluation of the ash characteristics of Border coal, in particular the slagging and fouling potential of the ash due to its high alkali content, Foster-Wheeler observed that the ash characteristics would significantly increase the capital and operating cost of a PC boiler and would prevent the efficient operation of a CFB boiler due to the need for low bed temperature to maintain bed circulation.

Discussions with a well established industrial supplier who has developed a CFB technology deemed more suitable for gasification of low rank coals, were held to explore using their gasification technology either to produce a fuel gas for generation using CCCT or coupled with their Syngas-to-Ammonia/Urea technology to covert Border coal into a marketable commodity. This gasification technology, is represented to be suitable for lignite, low rank and high ash coals. However, after reviewing the typical proximate and ash analysis for Border coal concluded that the sodium content is above the range that their CFB gasifier can process the coal without modifications to operation, lowering bed temperature and use of additives. The problem arises from the high sodium causing bed agglomeration and stopping bed circulation.

Based on the above issues it was decided to investigate a proprietary coal liquefaction process. This particular technology utilizes slurry phase hydrocracking/hydrogenation. Based on standard petroleum refinery technology, the process takes advantage of the current and expected low price for natural gas to provide the hydrogen to convert coal to liquids, in particular high value transportation fuelsIn addition to the technologies discussed above, Marston reviewed competing gasification technologies, including entrained flow gasifiers, such as the technologies being marketed by Shell, Conocophillips and General Electric, moving bed gasifiers, such as the Lurgi gasifier, other fluidized bed gasifiers such as the single stage fluidized bed gasifier being developed by Synthesis Energy Systems (SES) and other proprietary Coal to Liquids technologies, such as being developed by Quantex Energy Inc.

Coal gasifiers in general require a syngas cooler to provide a means to reduce the outlet gas temperature of the gasifier, allowing further efficient gas processing and cleanup. Due to the high potential slagging and fouling of the Border coal ash, a syngas cooler would experience significant fouling and potential plugging and high operating cost. Some gasifiers, such as the General Electric moving bed gasifier, only operate efficiently on higher rank coal than would be produced at the Border project. As acknowledged by some of the suppliers , the ash characteristics of Border coal will severely impact the operation of a fluidized bed system, possibly even preventing the bed from operating. The single stage fluidized bed gasifier being developed by SES may provide a technology that can utilize the lower quality coal anticipated to be produced by the Border project. However the gasifier, being a fluidized bed process and utilizing a syngas cooler/HRSG (Heat Recovery Steam Generator) should experience the same operating issues as gasifiers in general.

Quantex Energy, Inc. is developing a low pressure, low temperature coal liquefaction process developed by the University of Virginia. The Quantex process is reported to produce a heavy synthetic crude oil as well as solid carbon and pitch material. The materials produced do not require as much hydrogen as that required by the as selected CTL process; however they require further refining in a suitable heavy oil refinery and coking to produce transportation fuels. This further processing and upgrading will require much the same hydrogen consumption as the as selected CTL process. There are open issues regarding the impact of Border coal oxygen on the hydrogen consumption on the economics of the Quantex products slate. Quantex is reported to be constructing a full scale plant in Texas to demonstrate the commercial conversion of coal to synthetic crude and carbon products by 2014 (Quantex termed Commercial Phase 1).

Based on evaluation of available technologies and their relative maturity, the quality of Border coal and the location of the coal resource, Marston recommended the proprietary CTL technology for a preliminary economic analysis for the monetization of the Border coal resource. This choice to further analyze this particular CTL technology was made because:

1. Able to process high alkali coal feeds with low ash melting points and slagging/fouling potential,
2. Able to directly produce marketable transportation fuels which can be shipped via rail from the plant site,
3. A modular design allowing expansion as needed,
4. A proven technology based on earlier operating process plants and petroleum refining technology,
5. Involvement of major industrial companies
6. Available test facilities to demonstrate processing of Border coal,

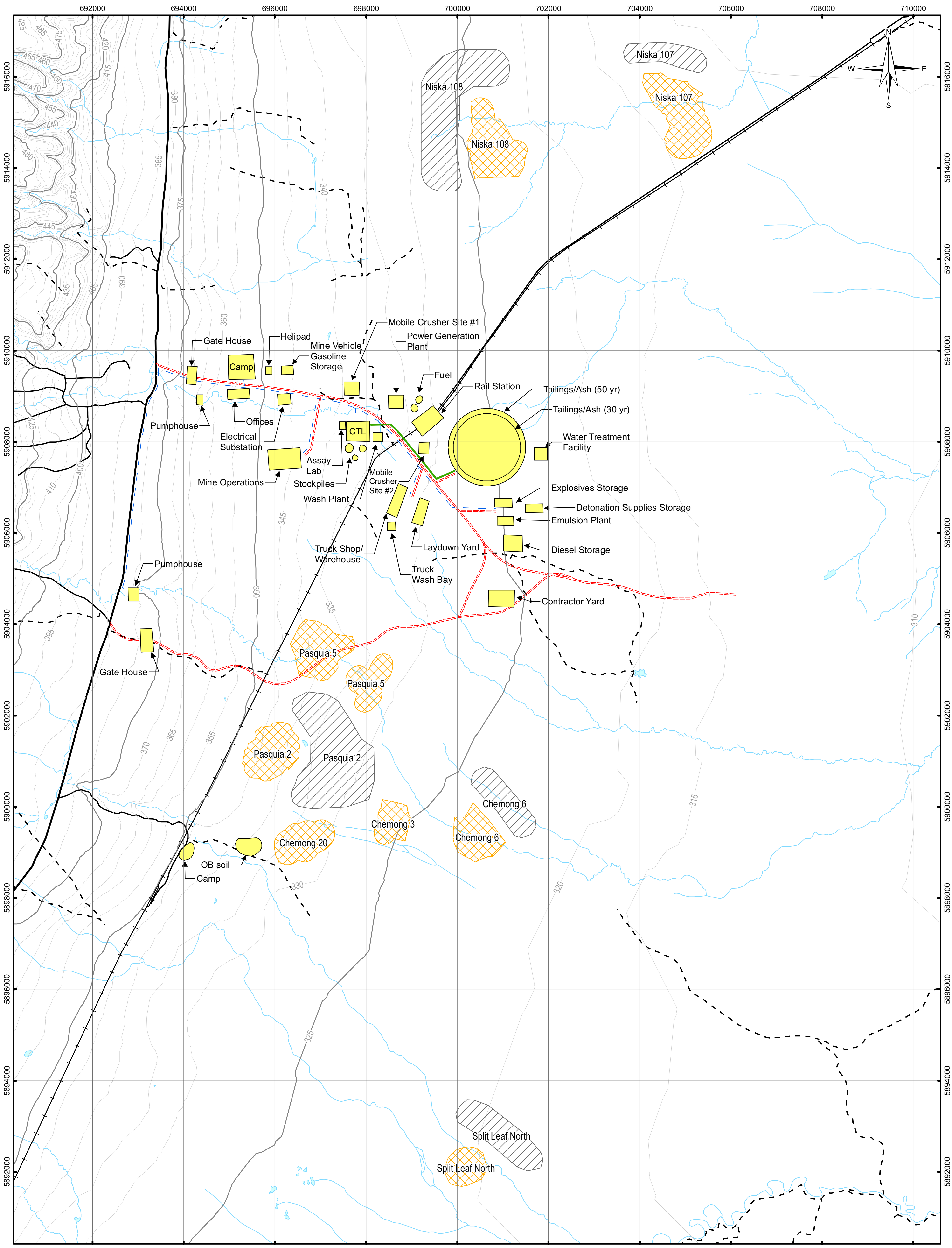
7. Able to co-process coal and biomass
8. Small plant carbon emissions.

The CTL technology provider performed a preliminary analysis of a plant to convert 1.8 million tonnes of washed coal at a 16% (air dried) ash content into a mixed slate of transportation fuels and LPG. The run-of-mine coal required is 3.0 million raw metric tonnes per year. The plant design is self-contained, only requiring principle inputs of coal, process catalysts, natural gas (for hydrogen) and possible water. Process steam and electricity for plant operation would be produced from process heat and by burning process reject hydrocarbon material. Natural gas for hydrogen supply, and possibly power generation, would be transported to the plant site by TransGas and purchased on the open market at market prices. Because of the high oxygen content of Border coal, hydrogen consumption will increase converting the oxygen into water. However, some value may be recovered from the produced water by using it as process water or for off plant sales. Sulfur released during liquefaction of the coal could be reduced to elemental sulfur or converted to sulfuric acid, both commodities having market value that were not estimated in this PA. Reject hydrocarbon material from the CTL plant will have an expected heating value of 17,500 Btu per pound on an ash free basis. In the CTL technology provider's view, this material should be adequate to generate the power required for the facility. Ash separation may be required to burn the reject material. The ash stream from the CTL facility would be returned to the mine for disposal along with the reject material from the wash plant.

12.4 TAILINGS STORAGE FACILITY

A conceptual tailings storage facility (TSF) for the Border Coal mining operation has been considered and designed based on the inferred and estimated parameters used within this report. This proposed design is preliminary and no detailed study has been undertaken. Further work is necessary to refine the tailings input volumes, dry and wet densities of the packed waste materials, and geological and geotechnical parameters of the earth materials underlying the proposed TSF. The proposed TSF design has incorporated an estimated annual effluent containing 236,900 tonnes (air dry basis) of fine solids and 407,500 tonnes of water comprising a total of 644,400 tonnes per annum of tailings slurry effluent from the processing mill as a basis for geometric calculations of the shape and size of the facility. These values do not consider water volumes reclaimed to mill operations as discussed in Section 12.8 or moisture contained in the void ratio of the packed fine solid refuse.

The TSF is a proposed storage and containment facility for tailings and waste effluent from the wash plant operation and is located in a flat area in the centre of the property east of the railway (Figure 31). The proposed location and extent of the TSF will accommodate 402,700 m3 per annum dry-weight tailings with an estimated total 7.1 Mt (12.1x106 m3) dry-weight material over a 30 year mine life period and 11.8 Mt (20.1x106 m3) dry-weight material over a 50 year mine life period using an average dry density of 1.7 t/m3 after consolidation (Vick, 1983).



LEGEND

- HDPE Pipe
- Water Line
- 30 m Proposed Road Corridor
- Deposit/Pit
- Waste Dump
- Infrastructure

Contour (5 m)
- Index (25 m)
- Intermediate (5 m)

- Provincial Highway 9
- Limited Use Road
- Trail
- Railway
- Watercourse
- Waterbody

NOTES
Base data source:
NTS 1:50,000 (Sheets 63E01, 63E08, 63F04 & 63F05)

ISSUED FOR USE

BORDER COAL PROJECT

Infrastructure Map

PROJECTION: UTM Zone 13
DATUM: NAD83

Scale: 1:80,000
1 0.5 0 1 2
Kilometres

FILE NO.: V15101005_008_Figure31_Insfrastructure_v2.mxd

PROJECT NO.: V15101005.008 | DWN: SL | CKD: MD | REV: 0

OFFICE: EBA-VANC | DATE: March 9, 2011

MARSTON

EBA Engineering Consultants Ltd.

Figure 31

The conceptual TSF will be cylindrical with a staged downstrean-style construction of an embanked retention wall around the enclosed perimeter of the facility. To accommodate the scheduled fine grain solid slurry waste output from the washing plant, the diameter of the cylindrical facility is estimated to be 1,475 m for the first 30 years and expanding to a diameter of 1,700 m from years 30 to 50. A retaining wall will be built around the perimeter of the TSF using non-acid generating (NAG) waste rock excavated from glacial till removed from the site of the TSF and from pre-stripping material removed from the pits. Ten metres of surface till will be excavated within the initial retaining wall limits prior to mine operations and will be used for initial construction of the retention wall. This 10 m deep cylindrical cavity will be used for the initial deposition of tailings. Further geotechnical and hydrogeological characterization of the glacial till underlying the facility is required to evaluate permeability and potential seepage from the facility, if required use of a synthetic geomembrane liner will minimize seepage. During operations, any water seepage through this structure will be collected and managed within a containment ditch located downgradient of the regional groundwater flow direction relative to the TSF. Any seepage that is collected in the containment ditch will be pumped back into the TSF or the wash plant, as required.

Construction of the retention wall will be a stepped process, as accumulated tailings volumes increase, the height of the retaining wall will be built upwards and outwards. The estimated average tailings thickness will be approximately 15 m after 30 years of mine operation and 23 m after 50 years of mine operation.

During operation of the TSF, a water cap of approximately 1 m will be maintained over the majority of the tailings surface. For closure and reclamation it is the intent to maintain a permanent water cap of 2 m over the tailings. The maximum water level within the facility will be controlled by the construction of a spillway on the upper portion of the retention wall located on the regional groundwater gradient downstream side of the TSF at the end of mining operations. A material cap, either with or without a liner, may be placed over the exposed tailings instead of maintaining a 2 m water cover. This may be a more effective and easier to maintain long term closure scenario to ensure minimal environmental impacts on the receiving environment.

12.4.1 Overburden Soil and Bedrock Geology

Borehole drilling in 2010 in proximity to the Niska targets, located approximately 500 m northeast of the proposed TSF, encountered thicknesses of overburden material ranging from 11 to 37 m, averaging around 25 m. Core recovery is poor in the overburden material, with limited to no recovery over the first 5 to 15 m of the boreholes. A rich dark brown organic peat dominates the top 4 m of the boreholes. The peat is underlain by clay and then by unsupported, slightly weathered/rounded limestone and granite cobbles. This is the dominant unit recovered in the overburden. The cobbles are often underlain by a light brown silty-sand calcareous matrix supporting poorly sorted sub-rounded to sub-angular limestone clasts. This unit is generally well consolidated. Bedrock geology is described in detail in Section 7.2 Property and Local Geology.

12.4.2 TSF Retaining Wall Design and Construction

The conceptual retaining wall will be initially built at grade, outward from the initial TSF retention wall perimeter in a downstream-style design. Slope gradients will be required to be assessed based on the properties of the materials being used. The initial circular retaining wall is estimated to have a perimeter of 4.63 km and will reach a maximum perimeter at 50 year mine life of 5.34 km, based on the internal diameters of 1,475 m and 1,700 m, respectively.

This design is conceptual and is not the result of an in-depth study. Further investigation of earthworks and geotechnical conditions at the proposed TSF will be required to assess ground considerations for the construction. The investigation will include work necessary for construction of the TSF retaining wall, possible foundations and diversion berms/ditches. No subsurface geotechnical information has been collected to date from the proposed TSF location.

12.4.3 Seepage Control and Collection Systems

It is anticipated that seepage ponds/interception ditches with pump back systems will be required to manage seepage from the TSF. A closure spillway will be required to maintain a permanent water cap over tailings. Monitoring wells are recommended to measure seepage from the TSF during operations.

The retaining wall is to be low permeability. If suitable properties do not exist in local glacial till removed from pre-striping operations, the possibility of using clay material from local sources will be considered to augment the material. Seepage control measures using frozen core dams will not be considered as part of the design. The need for an HDPE impermeable liner should be assessed in future studies.

12.4.4 Tailings Delivery, Reclaim Water Pipelines

It is estimated from projected plant output and water balance calculations that approximately 2,200 m^3 of tailings slurry refuse containing approximately 1,100 m^3 of fine solid waste (estimated density of 1.7 t/m^3) and 1,100 m^3 of contained water will be pumped into the TSF per day at 37% solid concentration by weight. Water will be recovered from the TSF for re-use in the wash plant. It is estimated that 560 m^3 of water will be pumped back to the mill per day as discussed as part of the water balance in section 12.8. A 120 hp pump in a 200 mm diameter pipe will be used to pump the tailings to a discharge point at the center of the TSF. A 60 hp pump in a 200 mm diameter pipe will be used to transport the reclaim water to the mill. Figure 31 shows the tailings deposition layout.

12.5 INFRASTRUCTURE

12.5.1 Mine Site Layout

Figure 31 presents the overall site layout for the Border Project and details the proposed locations of all items discussed herein. As described the following sections, facilities have been located in close proximity to minimize travel, maximize efficiencies and minimize the overall project footprint. The flat terrain will minimize cut and fill costs. Engineering design will be used to stabilize infrastructure on the muskeg.

12.5.2 Roads and Rail

The property can be accessed year-round by the Saskota Highway (HWY 9). The present road layout at the site will be utilized and additional roads developed to provide access surface facilities as shown in Figure 31. Two permanent 30 m wide gravel roads corridors will be constructed to access the site – one for facilities access and one for construction / operations access. The roads will enable two-way traffic for operational vehicles and will be used year round. Security posts will be built and manned at each mine entrance. Limited use roads that provide access to site and other areas of the property will be gated for security purposes.

Quarried rock and clean non-acid generating (NAG) crushed wasted rock will be used in roadway construction with finer dressing material possibly coming from a local borrow pit and/or esker. Drainage control measures will be utilized to maintain road embankment and prevent road washout.

There is an active rail line (CNR) that will run through site. Goods will be transported to and from site using rail services. Operational roads will be planned to minimize rail line crossing. Goldsource will construct a rail station to load and unload goods in accordance to CN Rail regulations. The proposed located of the rail station is included in Figure 31. A more detailed description of the station is to be provided in the prefeasibility study. Rail line traffic measures will be implemented as per Saskatchewan WCB and CN Rail regulations.

12.5.3 Water Services

12.5.3.1 Process Water

Effluent and waste water from the wash plant will be deposited into the tailings storage facility (TSF). Potentially acidic water generated by PAG waste dumps will be collected in ponds and deposited into the TSF. Water will be recovered from the TSF for use in the wash plant. Any excess water will be stored in holding ponds or treated for release into the environment.

12.5.3.2 Fresh Water

A fresh water collection system will consist of pump houses, pipes and storage tanks that will provide potable water and emergency fire suppression to site facilities from nearby rivers and aquifers. Pumping rates will be controlled to minimize disturbance to natural river water levels. Pipe insulation may be advisable to reduce the chance of pipe freezing. Two pump houses and two 25 kL water tanks will provide potable water for offices, camp and operational facilities. Another two pump houses and two 500 kL tanks will to supply the wash plant and mill with potable water.

12.5.3.3 Dewatering

In-pit sumps will be needed to manage excess surface water and groundwater inflows, particularly from large flows generated from incidental rainfall, into the pits. Pit dewatering pumps will be diesel powered and use HDPE pipe.

Collection ponds for PAG run off will also be pumped to the TSF. Sizing of sumps will be provided in the prefeasibility study.

12.5.4 Camp

The permanent mining camp will accommodate a minimum of 400 permanent and contract workers, visitors and consultants. Extra rooms will be necessary during the years when the camp is at its maximum capacity.

The camp will consist of eighteen 24-person dormitories, a kitchen/diner unit, a unit comprised of recreation, TV, exercise, and laundry facilities. A fully contained water/sewage treatment plant and an incinerator for disposal of solid wastes will be included with the camp.

The proposed camp is located approximately 2,000 m west of the mill as shown in Figure 31. The camp facility will be founded within an area measuring approximately 750 m by 500 m.

12.5.5 Electricity

A power generation plant will be on site to generate electricity. The electricity for mill operations would be produced from process heat and by burning process reject hydrocarbon material. Most of the power requirements on site will be fulfilled from power generated from the power generating plant. Additional power can be obtained from the SaskPower grid.

The maintenance facility, offices, magazine and pump houses will also use generated/grid power. Isolated equipment including pit dewatering and lighting plants will be diesel powered.

12.5.6 Fuel Storage

Diesel fuel will be used to power heavy equipment, trucks and operational vehicles. The diesel storage will be located in close proximately to the truck shop and maintenance facility to be used by operation vehicles.

Site storage facilities to accommodate 1.2 ML of diesel will be required to supply the mobile equipment, assuming electricity is supplied by the power generation plant or SaskPower power lines.

Diesel storage at Border will consist of a truck unload facility with metering, filtration, and pumping to three bulk storage tanks, each with a capacity of 400,000 L. A platform measuring 300 m by 200 m will be prepared to accommodate the proposed facilities and will be equipped with appropriate spill recovery apparatus and have sufficient bonding to contain fuel spills as required. The tanks require insulation from freezing temperatures. Transfer pumps will deliver diesel to a truck fill station for site vehicles.

12.5.7 Maintenance Facilities

The principal function of the truck shop complex is to provide servicing facilities for mining equipment for the Border operations. The facility will be constructed of structural steel with metal clad wall and roof systems. The facilities shop will include the following:

- Five Heavy Duty Repair Bays
- One Weld Bay
- Maintenance Workshop
- Truck wash bay
- Light vehicle wash bay
- Tire Change Bay
- Warehouse
- Lube Storage
- Separate light vehicle building
- Go line for equipment
- Outdoor laydow n area for tyres and service parts
- Separate warehouse for maintenance supplies
- Separate Offices

Truck shop will be located on the first floor of a two-storey heated building measuring 150 m by 100 m. The second floor of the building will be occupied by offices. A level platform measuring 500 m by 500 m will be prepared as shown on Figure 31.

The truck shop building will be erected on a concrete pad placed at the northeast end of the platform at the first alternate location or at the south end of the platform at the second alternate location. The rest of the platform area measuring 150 m by 100 m will be used for parking, maintenance yard, and the truck shop laydown area, as shown on Figure 31.

12.5.8 Warehouse and Workshop Complex

The warehouse complex will provide storage and workshop facilities for the operation and mill. The facility will be constructed of a structural steel with metal clad wall and roof systems. Located adjacent to maintenance facilities, it will be located on the same level platform as the maintenance facilities. The warehouse / workshop complex will be a heated building measuring 250m by 250m.

12.5.9 Process Plant

The process plant will comprise of a mobile primary crusher, wash plant and CTL plant. Explosives and Chemical Storage

The operational requirement for explosives and chemicals are based in the general concept of the site emulsion batch plant. The components to be brought onto site will include:

- Emulsion batch plant
- Ammonium Nitrate (AN) in bulk
- Diesel Fuel (special for the emulsion)
- Emulsifier in drums
- Primers
- Detonators

The explosives will have a powder factor of 0.72 kg/m^3 and will be stored in two separate buildings as shown on Figure 31. A larger building will be used for the AN explosive storage. A smaller building will be used for detonation supplies (caps). These two facilities will be located approximately 6.0 km southwest of the main camp as shown on Figure 31. A level rectangular platform measuring approximately 300m by 300m will be prepared as shown in Figure 31.

An emulsion batch plant will be located on site and will be connected by an access road to the explosive storage magazines as shown on Figure 31. A square level platform measuring 100 m by 100 m will be prepared.

The proposed explosive storage facilities and an emulsion plant will comply with the Table of Distances designated in the Saskatchewan WCB regulations and with any requirements by Natural Resources Canada (NRCan).

12.5.10 Laydown Areas

A key component of project construction planning is the provision of adequate laydown areas to accommodate construction equipment and materials that will be brought to the site. The flat topography at the Border site will accommodate for low-cost temporary storage areas. The proposed laydown area is shown on Figure 31.

12.5.11 Transportation

Regular bus services will run at the beginning and end of shift to transport workers from the camp to offices, mine operation, mill and truck shops. There will also be bus services for employees travelling between buildings. Otherwise, mine personnel will be provided company vehicles.

Mine operations will determine mine site traffic protocol and safety measures. Extra precautions will be taken for railroad crossings.

12.6 AUXILLARY INFRASTRUCTURE

12.6.1 Administration Offices

The administration building will be located adjacent to the security post and camp facilities as shown in Figure 31. The administration building will have conference rooms and offices for a minimum of 40 workers. Long term storage area will be located inside this building. The structure will be pre-engineered. The facility will be heated and air conditioned.

12.6.2 Mine Operations

The mine operations building will include offices, a mine dry room, and meeting areas for operations personnel. There will be 40 technical service staff housed in the building. Both the mine dispatch and fleet management system will be located in the facility assist mine operations. The mine dry will also be located in the building. Enclosed storage areas will also be located in the area. The structure will be pre-engineered. The facility will be heated and air conditioned.

12.6.3 Gate-House

The primary gate-house is designed to provide security access to the site. The facility will store and operate emergency and rescue units. This will be a pre-engineered structure supplied with a remotely operated security access gate. General personnel processing area as well as security officer and first aid offices will be provided. The facility will be heated and air conditioned. This facility will be located at the entry point of the north access road; adjacent to camp and administration offices

A secondary gate-house will have a remotely security access gate. It will be located at the entry point of the south access road.

12.6.4 Laboratories

The building holding the assay and metallurgical laboratory will be located adjacent to the mill building (Figure 31). This lab is designed to analyze field and mill samples for quality. The lab will process approximately 150 to 200 samples per day.

12.6.5 Reagents Storage

Reagents will be stored in a building located next the mill. The pre-engineered structure will be will be heated. The square level platform measuring 100m by 75m will be prepared.

12.6.6 Sewage and Water Treatment

Sewage from the operations will be processed through a sewage treatment plant with final specification provided in the design phase. Treated sewage may be combined with the mill tailings and pumped to the TSF.

12.6.7 Fire Protection

A fire protection system will be established for Border Coal facilities. Water for this system will be supplied by emergency water tanks. An emergency fire supplies and vehicles will be located on site beside the camp facilities. Infrastructure will have automatic sprinkler systems in place. Any critical infrastructure deemed susceptible to fire hazards will have extra processes in place to protect against fire.

A fire truck will onsite at all times to uses for fire suppression for mine vehicles and infrastructure.

12.6.8 Medical Services

A first aid station will be located the north gate-house. It will be operated 24 hour per day by triage and nursing staff. Medical emergencies will be dealt with by medical evacuation to the hospital in Hudson Bay about 50 kilometres south of site. Ambulance services will be located on site.

An emergency landing pad for medical excavation will be built adjacent to camp.

12.6.9 Site Access

The proposed mine plan will have two main entrances – one for mine personnel and another for construction / operations access. The roads will enable two-way traffic for operational vehicles and will be used year round. The north gate-house will be manned by a security guard and the south gate-house will be access remotely using security cards or call in. Minor roads leading to site will have gated access.

12.7 MANPOWER

Manpower requirements are based owner mining. The total mine workforce is estimated at 436 persons with four operational crews. The mine and mill operations crew schedule will be an even-time 4 days on / 4 days off, working 12-hour shifts. Mining and Mill support will run the same schedule as day shift to support operations. Administrative, management and technical personnel will work on a 5 days on / 2 days off schedule. A combination of local and fly in, fly out workforce will be employed.

Contractors will be present on site during the construction and operation phases. They will work on a rotational basis and reside in the camp facilities.

The expected total workforce near the start of the operation can be seen in Table 12-4.

TABLE 12-4 SUMMARY OF STAFFING REQUIREMENTS

Area of Operation	# Employed
Administrative	18
Health and Safety	8
Environmental	13
Camp	40
Warehousing	22
Open Pit Operation	108
Operations Support	50
Process Plant	88
Process Support	40
Technical Staff (Mine, Mill)	49
Total	**436**

Note: these numbers do not include contractors. Contractors will be on site on a temporary basis.

12.7.1 General and Administrative and other support staff

General and administration personnel inclusive of the General Manager are estimated at 18 persons. The majority of this group will work on the dayshift only.

Other support staffs include health and safety, environmental, warehousing and camp workers and are estimated at 123 persons. The majority of this group will work dayshift only on a five days on/ two days off schedule.

12.7.2 Mining Operations Staff

Manpower requirements for owner-operated mining and associated operations are estimated at 158 persons. The roles and expected staff requirements are presented in Table 12-5. The crew will need to take care of all mining, equipment maintenance, road maintenance, crusher feeding, and waste dump compaction. Mining operations will have two 12-hour shifts daily and operations support staff will work 12-hour day shifts only. Technical service personnel will work 5 days on / 2 days off.

TABLE 12-5 MINING OPERATIONS STAFF REQUIREMENTS	
Mining Shift 4x4 Shift	
Truck Operators	11
Shovel Operators 2 (Shovel plus support vehicle)	4
Shift Foreman	1
Field Mechanics	2
Road Maintenance	2
Crusher Operator	1
Other Support Operators (dozer, excavator, water truck)	6
Per Shift	27
Total	***108***
Operations Support - Days Only 4x4 Shift	
Heavy Duty Mechanics	10
Shop Foreman	1
Drill/Blast Foreman	1
Drill Operators	1
Blasters	2
Electrician Foreman	1
Electricians	3
Tireman	2
Welder	4
Per Shift	25
Total	***50***
Technical Services Days Only - 5 Days	
Superintendent	1
Chief Mining Eng	1
Senior Mine Eng	1
Drill / Blast Eng	1
Mine Eng	2
Geotechnical Eng	1
Senior Surveyor	1
Survey Tech	3
Senior Geologist	1
Maintenance Planner	2
Maintenance Superintendent	1
Mechanical Foreman	1
Equipment Trainer	2
Clerks	4
Total	***22***

12.7.3 Process Plant

Manpower requirements for the process plant are estimated at 128 persons. The crew will be in charge of the wash plant, mill, CTL processing, tailing facilities, and power generation system. Roles and expected staff requirements are presented in Table 12-6

TABLE 12-6 MILL OPERATIONS STAFF REQUIREMENTS

Mill Shift 4x4 Shift	
Mill Control Room Operators	2
Power Plant Control Room Operators	2
CTL Plant Operators	10
Millwrights	4
Electrician	1
Foremen	1
Coal to Liquid Operators	2
Per Shift	22
Total	***88***
Mill Support - Days Only 4x4 Shift	
Maintenance Planner	2
Welder	4
Mill Serviceman	5
Electrician	4
Carpenter	2
Lab Operators	3
Per Shift	20
Total	***40***
Processing Technical Services Days Only - 5 Days	
Superintendent	1
Chief Process Eng	1
Senior Process Eng	2
Processing Eng	2
Maintenance Eng	3
Technician – Process	3
Technician – Maintenance	1
Senior Lab Assay	1
Assayer	3
Maintenance Planner	2
Maintenance Superintendent	1
Mechanical Foreman	1
Electrical Foreman	1
Training Coordinator	1
Clerks	4
Total	***27***

12.8 WATER BALANCE

12.8.1 Objectives

The primary objective of the water balance report is to determine the amount of water the wash plant requires in the form of reclaim from the tailings pond and freshwater makeup throughout the year. To be able to evaluate the volumes of water required, the water balance was established on a monthly basis to account for climatic variation throughout the year for an average year, 10-year wet and 10-year dry conditions.

Inflows into the tailings pond will consist of:

- water content of the tailing slurry;
- direct precipitation on the tailing pond;
- runoff from the catchment area above the tailing pond, if any; and
- tailing dam seepage return;

Outflows and losses would consist of:

- reclaim to the process;
- seepage;
- water retained in voids;
- direct evaporation from the tailing pond; and
- releases to the environment.

There are larger outflows than inflows for the Border Coal water balance. The total annual water requirement for the wash plant was found to be 202,820 m^3. In order to supply 202,820 m^3 of water as reclaim and ensure that there is enough water to compensate for the other losses such as evaporation for an average year, 430,000 m^3 of fresh-water make-up would be required on an annual basis. Similarly, for 10-year wet and 10-year dry conditions, 245,000 m^3 and 630,000 m^3 freshwater would be required, respectively.

12.9 ENVIRONMENTAL CONSIDERATIONS

12.9.1 Environmental Assessment and Permitting

The Border Coal Project could be subject to both provincial and federal legislation through the Saskatchewan *Environmental Assessment Act* (*EAA*) (Government of Saskatchewan 2002) and *Canadian Environmental Assessment Act* (*CEAA*) (Government of Canada 1992), respectively. In the event that these two processes apply, they have been harmonized to increase regulatory efficiency and reduce redundancy. The Border Coal Project will also require other permits, authorizations, and licenses in order to construct and operate the mine.

12.9.1.1 Provincial Regulatory Process

Under the Saskatchewan *EAA*, proponents looking to develop a project that is likely to have significant environmental effects will require approval from the Saskatchewan Minister of Environment before proceeding. The Environmental Assessment (EA) process includes a thorough evaluation of the potential environmental, socio-economic, and cultural effects associated with developing the project. It also provides an opportunity to inform the public and regulatory agencies involved of the proposed benefits and risks.

12.9.1.2 Federal Regulatory Process

An EA under *CEAA* is required for all proposed private and public sector projects that necessitate specific approvals or decisions by federal agencies. A number of steps are generally involved in the federal EA process including determining if an EA is required, identifying who should be involved, planning and conducting the EA (which involves identifying the scope of the proposed project, establishing timelines, and identifying potential environmental effects), reviewing the resulting environmental assessment report, and deciding whether the proposed project should proceed.

In order for *CEAA* to apply to a proposal, the following four criteria must all be met:

1. the proposal is defined as a "project" under CEAA
2. the project is not exempt from the requirement to conduct an EA under CEAA
3. a federal authority is involved
4. the proposal contains a "trigger" that requires a decision or action by a federal authority, such as:
   i. projects where the proponent is a federal authority
   ii. the provision of money or other financial assistance to a proponent to enable the conduct of a project
   iii. the disposition of land or any interest in land to enable the conduct of a project
   iv. the exercising of a regulatory function in relation to a project.

<u>Federal Regulations for New Coal-fired Power Plants</u>

One of the potential uses for the coal from the Border Coal Project is electricity generation. On June 23, 2010, the federal government announced a plan to regulate coal-fired electricity generation and the associated emissions of greenhouse gases (Environment Canada 2010).

The regulations will impose strict performance standards on new coal-fired power plants and emissions will need to be comparable or more efficient than those produced through high-efficiency natural-gas generation.

Draft and final regulations to reduce greenhouse gases are expected to be released in 2011 and will come into effect July 1, 2015. New coal-fired plants that incorporate Carbon Capture and Storage (CCS) technology will be exempt from the new standards until 2025.

12.9.1.3 Canada – Saskatchewan Agreement on Environmental Assessment Cooperation (2005)

The first Canada-Saskatchewan Agreement on Environmental Assessment Cooperation was signed in 1999 in an effort to streamline the review of projects requiring EA pursuant to both the *CEAA* and *EAA*. The Agreement was updated in 2005 largely to incorporate amendments to the *CEAA* that were implemented in 2003.

Under the Agreement, both Canada and Saskatchewan maintain their rights, privileges, jurisdiction, power, and immunity. The Agreement does not create any new legal duties or powers, nor does it alter the established duties and powers of the *CEAA* and *EAA*.

Each Party designates an office that will be responsible for the administrative and regulatory duties of the Agreement and the conduct of a cooperative EA. The designated office for Saskatchewan will be the Environmental Assessment Branch office in Regina, while the designated office for Canada will be the Agency office in Winnipeg.

In a cooperative EA, a Lead Party is generally identified as follows:

- Canada is to be the Lead Party for projects occurring on federal lands and requiring federal approvals
- Saskatchewan is to be the Lead Party for projects occurring on provincial lands and where provincial approvals are required
- In the event that a project occurs on lands under both federal and provincial jurisdiction, a mutual agreement will be reached by both Parties in the determination of the Lead Party.

12.9.1.4 Statutory Requirements and Approvals

In addition to obtaining provincial and possibly federal approval to proceed, the Border Coal Project will require a number of permits, licenses, and authorizations. Regulations that may be applicable include:

- Environmental Management and Protection Act
- Fisheries Act
- Wildlife Act
- Wildlife Habitat Protection Act
- Species at Risk Act
- Navigable Waters Act
- Heritage Property Act

- Metal Mining Effluent Regulations
- Spill Control Regulations
- the Clean Air Regulations
- the Hazardous Materials Regulations

12.9.1.5 Environmental and Social Baseline Conditions

Preliminary environmental and social baseline programs for the Border Coal Project were initiated in 2010 and provided initial descriptions of the current conditions of the Project area and its vicinity. Baseline programs included meteorology, surface water quality and quantity, groundwater quantity, fisheries and aquatics, surficial materials and soils, ecosystems and vegetation, wildlife and wildlife habitat, socio-economics, archaeology, and Aboriginal relations.

12.9.1.5.1 Meteorology

A meteorological station has not yet been installed on the property. Active Environment Canada met stations located at Hudson Bay, SK (45 km to the south), The Pas, MB (100 km to the northeast) and Nipawin, SK (125 km to the west) record wind speed and direction, air temperature and relative humidity in hourly intervals as well as daily precipitation. Currently, meteorological conditions at the site are interpolated from these sources.

Daily precipitation is available from the regional Environment Canada stations described above. Interpolation of regional precipitation records may provide an estimate of conditions at site, however regional variability in precipitation patterns is quite significant in the region, especially during a high precipitation year such as 2010.

Potential evaporation over the property has also been estimated to date based on interpolation of regional hourly wind speeds, relative humidity, and air temperatures. Regional variability was found to be quite large due to differences in tree and vegetation cover, terrain, and micro-meteorology and it is recommended that a meteorological station and evaporation pan be installed on the property to provide an accurate assessment.

12.9.1.5.2 Surface Water Quality and Quantity

Two continuous all-season water level and water temperature recorders were installed in creeks identified as having the highest impact on preliminary mining operations at the site. The Pasquia River hydrometric station (N 53º 12' 25.3" W 102º 6' 46.6") is located on the left bank of the creek, below the east side of the Hwy 9 bridge. A Saskatchewan Watershed Authority instrumentation shed is located approximately 100 metres downstream of this station. The status and duration of the SWA data collection program on the Pasquia is currently being investigated in order to quality control and extend the existing record.

The Niska Creek hydrometric station (N53º 19' 30.7" W 102º 5' 39.0") is located on the right bank of a pool immediately south of the culvert which allows the creek to pass east under Hwy 9.

Water samples were collected from both creeks in the vicinity of the flow monitoring stations during site visits. Water quality testing is being performed by Maxxam Laboratories located in Burnaby, BC. Water samples are being analyzed for physical properties (hardness, colour, conductivity, solids, turbidity, and pH), nitrates, anions (nitrite, chloride, and sulphate), dissolved metals, total metals, inorganics, and nutrients.

12.9.1.5.3 Groundwater Quantity

Preliminary groundwater information has been compiled from existing information for the Pasquia Hills area as well as from exploration well logs, geologic mapping data, and initial packer testing results completed by EBA. The stratigraphy and coal geology of the mine area has been defined by extensive exploration drilling which started largely in 2008. The drill hole data include driller's logs, geologic logs, and downhole geophysical logs.

Approximately 5 to 10% of the annual precipitation of the Project area can be expected to recharge groundwater in the bedrock. In the Pasquia Hills area, the groundwater recharge infiltrates downward to the water table, moves downward and laterally under the influence of gravity, and eventually discharges back to the ground surface at some point of lower elevation. This water discharges to local surface water bodies, streams, and to the east-flowing rivers east of the Pasquia Hills. No information is available regarding the occurrence and nature of groundwater discharge locations or springs (if any) in the proposed mining area nor the contributions of these discharges to local surface water flows.

Aquifers in the study area may be contained within the surficial deposits, the Cretaceous-aged rocks and coal, and in the underlying Mesozoic and Paleozoic-aged rocks. Glacial till, clays, and sparsely-fractured bedrock units will likely form local or regional aquitards, which will limit vertical and horizontal groundwater flow. Depending upon aquifer depth, characteristics, and location, confined, unconfined, and potentially artesian aquifers may be present. Unconfined aquifers are more likely to be encountered in shallow sediments, while deeper groundwater in bedrock will likely be confined.

Shallow groundwater in the deposit area will likely occur primarily within near-surface glacial drift and colluvium. These surficial deposits are generally composed of low permeability silts and clays, and higher permeability sands and gravels. Shallow groundwater flow will generally follow local surface topography with overall flow trending generally to the east-southeast in the southern deposit area and to east-northeast in the northern deposit area.

Hydraulic properties of the glacial drift unit are likely to be heterogeneous and will be controlled by soil grain sizes and density. Fine-grained surficial deposits will have low permeability and thus have limited potential to produce significant groundwater during mining. However, potentially substantial groundwater flows may be produced from higher-permeability coarse-grained surficial deposits.

Deeper groundwater is contained within pore spaces and fractures in the underlying bedrock, including the four major coal seams. Groundwater flow in bedrock will likely also follow the overall topographic character with flow likely towards the east, northeast, and southeast in the deposit area.

Groundwater flow can also be strongly influenced by faults or fault zones that offset and displace bedrock units. Depending on the physical properties of the rock involved, faulting may create either barriers (if full of fine or clay-rich gouge) or conduits (if full of coarse breccia) for groundwater flow.

Groundwater head distribution in bedrock will depend upon depths to specific bedrock units, geologic structures, and the hydraulic connection between other rock units, overlying unconsolidated sediments and the unit recharge and discharge areas. It is important to understand the hydrostratigraphic units, the head distribution and the confined or unconfined nature of aquifers in understanding the hydrogeologic setting of the proposed mining area, and in mine planning.

12.9.1.5.4 Fisheries and Aquatics

Fisheries and aquatic resources information in the Border Coal Project area was compiled through a combination of desktop research and a preliminary field investigation that was conducted in July 2010.

The Pasquia and Porcupine region contains many wetlands, fens and bogs which feed numerous streams and tributaries of seven major drainage basins. These seven drainage basins include:

- Saskatchewan River
- Carrot River
- Pasquia River
- Overflowing River
- Upper Red Deer River
- Red Deer-Armit River and
- Swan River.

The immediate Project area contains eight major waterways of potential significance to fisheries:

- Overflowing River
- Leaf River
- Chemong Creek
- Pasquia River
- Niska Creek
- Waskei River and

- Bainbridge River.

Among these, the Pasquia River and Overflowing River are known major drainages, whose upper reaches and smaller tributaries contain naturalized brook trout (*Salvelinus fontinalis*), which was first stocked in the 1950's.

The lakes and larger streams of the Pasquia drainage contain native fish species of northern pike (*Esox lucius*), walleye (*Stizostedion vitreum*) and yellow perch (*Perca flavescens*), while smaller streams contain a variety of minnow and baitfish species. The Cumberland Lake and Saskatchewan River Delta are sources of important commercial fish species of goldeye (*Hiodon alosoides*), lake whitefish (*Coregonus clupeaformis*), sauger (*Stizostedion canadense*), and sturgeon (*Acipenser fulvescens*). In addition, there appears to be migration of northern pike and walleye from the Saskatchewan River in Manitoba up the Carrot River, into the Pasquia Hills. Naturalized populations of brook trout were first stocked in the 1950s (Armit, Red Deer, Pasquia, Overflowing, and Swan rivers) and 1930s (Fir River), and currently inhabit many of the upper reaches and smaller tributaries. The Fir and Swan rivers' trout fisheries have been sustained with supplemental fish stocking.

A total of five game fish and 24 baitfish species have the potential to occur in the Border Coal Project area (data not shown). Additionally, several invertebrate species were identified in drainages within the Border Coal Project area (data not shown). Many of the invertebrates identified are known to be fish prey as well as good indicators of ecosystem health (e.g., mayflies).

Threatened and endangered species identified by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), and protected under the Saskatchewan *Wildlife Act*, were also researched. Results indicated that there are no such fish species in the Mid-Boreal Lowland Ecoregion, which encompasses the Border Coal development area.

The field survey involved the assessment of fish and fish habitat as well as sampling using baited Gee (minnow) traps and electrofishing. A total of 575 fish specimens representing four species (brook stickleback [*Culaea inconstans*], ninespine stickleback [*Pungitius pungitius*], pearl dace [*Margariscus margarita*], and fathead minnow [*Pimephales promelas*]) were captured by minnow trapping, while 14 fish specimens representing two species (ninespine stickleback and pearl dace) were sampled by backpack electrofishing.

The fish habitat surveys characterized all watercourses as being permanent with seasonal variations in water levels. Riparian vegetation consisted of boreal mixed woods dominated with willows, aspen, and spruce. The largest watercourses included the Pasquia River and Otosquen Creek, both exhibiting evidence of high to moderate seasonal flow fluctuations, with scoured banks (i.e., from ice and flood waters) and large woody debris. Chemong and Niska creeks exhibited moderate seasonal fluctuations in water level with only slight evidence of bank scouring and rafted debris. The channels of the Pasquia River, Otosquen, Chemong, and Niska creeks were clearly confined in western upstream sections; however channel morphology appeared less confined in eastern portions. The downstream reaches of tributaries contributing to the Overflowing River exhibited either flooding of low-lying areas, some beaver activity, meandering channels and flooded swamps.

Baitfish species including brook stickleback, ninespine stickleback, pearl dace, and fathead minnow were identified during the reconnaissance field study, confirming the presence of select species identified during the desktop study. Fish habitat surveys also confirmed that smaller tributaries within the Project area provided suitable habitat conditions for baitfish species.

The management and protection of aquatic resources in Saskatchewan is a shared responsibility between the provincial and federal governments. It is apparent that considerable overlap exists between provincial and federal legislation in regulating activities affecting waterbodies that contain fish. Provincial legislation prohibits the modification of a watercourse without a permit, while the *Fisheries Act* prohibits unauthorized fish habitat alteration, disruption, or destruction (HADD). In effect the bed, banks and water of a watercourse are inseparable from fish habitat. In practical terms, only the province can issue a permit for a watercourse alteration; the federal government does not have jurisdiction over such matters. The habitat provisions of the *Fisheries Act* serve to discourage impacts to fish habitat since penalties for infraction of these sections of the *Act* can be severe.

Although the Border Coal Project is in the very early stages of permitting, it is possible to identify issues that will likely have to be addressed during the federal and provincial environmental assessment process. These include direct mining impacts to aquatic and riparian habitats (i.e. channel relocation), potential releases of deleterious substances into fish bearing waters, air emissions, ancillary activities including land clearing, use of explosives, transportation and storage of dangerous goods, infrastructure construction (e.g., roads, culverts, power lines), and public concern over impacts to aquatic and terrestrial resources.

It is expected that mining activities will result in localized fish habitat alteration, disruption, and destruction (HADD), which can only proceed under Authorization from DFO, subject to a negotiated, contractual compensation agreement. At this stage, it is premature to speculate on the level of risk of the Project to aquatic resources and as such, costs of compensation cannot be accurately determined. However, previous experience with large project developments suggests that compensation costs often range from 1-3% of project capital costs. In addition, compensation agreements normally include requirements for effects monitoring for a period of several years following completion of compensation works.

12.9.1.5.5 Surficial Materials and Soils

The surficial materials in the vicinity of the Border Coal Project are reflective of the surrounding landscape. Morainal deposits form the uplands and mid-slopes of the Pasquia Hills and tend to be hummocky and ridged along upper slopes and crests in particular. Lower slope positions are composed of colluvial materials that are increasingly dissected by organic deposits as the area transitions into more gentle topography.

Organic plains dominate the flatter, low-lying areas that cover the majority of the claim block area. Along the boundary with the Pasquia Hills, these organic materials become interspersed with glaciofluvial outwash plain, and by morainal and glaciolacustrine plains further to the south (e.g., in the vicinity of Leaf Lake).

Geysolic soils with poor drainage dominate along the crests and upper slopes. Gleysolic soils tend to develop in the presence of permanent or temporary water saturation. Mid-slopes consist primarily of orthic dark-gray chernozems which are typically a grassland soil with a high organic matter content. These soils grade into terric mesisols and terric fibrisols along lower slope positions. Both of these soil types are organic that form under water-saturated conditions and are characteristic of the boreal forest.

Soils within the lowland portions of the landscape are primarily organic, classified as typic fibrisols. Orthic dark-gray chernozems were also mapped in the vicinity of Leaf Lake.

12.9.1.5.6 Ecosystems and Vegetation

The proposed Border Coal Project is located within the Goldsource claim boundary which occurs in the Boreal Plain Ecozone, Mid-Boreal Lowland Ecoregion, and Overflowing River Lowland landscape area. The claim boundary overlies an area that is largely characterized by flat plains with very little relief. The western edge of the claim boundary transitions into a more localized occurrence of the Mid-Boreal Upland Ecoregion known as the Pasquia Hills (which are composed of the Pasquia Escarpment and Pasquia Plateau), which consists of a range of landforms including level and rolling glacial plains, and steep, sloping escarpments (Saskatchewan Environment 2004).

The ecosystems in the vicinity of the Project area are reflective of the surficial materials and soils present, as well as the surrounding landscape. The better drained crests and upper slopes of the Pasquia Hills support dense to open conifer forest, while the more poorly drained areas of these same topographic positions support tree and shrub-dominated wetlands and numerous small waterbodies. Side slopes, likely composed of more freely draining materials, support open mixedwood forest as well as open to dense broadleaf forest. Wetlands become more prominent at the base of the Pasquia Hills, likely the result of more gentle topography combined with the development, over time, of poorly drained organic soils.

Lowland areas consist largely of treed wetlands (bog) interspersed with some shrub and herb-dominated wetlands. Dense and open stands of conifer forest are also present but tend to occur in narrow bands and are often located on slightly raised topography. To the south, around Hudson Bay, wetland cover is replaced by pasture and farmland.

The land cover in the area is a combination of boreal forest, wetlands, and peatlands, all of which are highly dynamic systems that are often influenced by fire in this region of Saskatchewan (Beckingham et al. 1996). Forested landscapes are often composed of a combination of white spruce (*Picea glauca*), black spruce (*Picea mariana*), jack pine (*Pinus banksiana*), balsam fir (*Abies balsamea*), tamarack (*Larix laricina*), white birch (*Betula papyrifera*), trembling aspen (*Populus tremuloides*), and balsam poplar (*Populus balsamifera*). Three tree species, green ash (*Fraxinus pennsylvanica*), white elm (*Ulmus americana*), and Manitoba maple (*Acer negundo*), occur exclusively in the Mid-Boreal Lowland Ecoregion.

Non-forested wetlands are characterized largely by bogs and fens. Typical plant species include Labrador tea (*Ledum groenlandicum*) dwarf birch (*Betula glandulosa*), sedges (*Carex* sp.) and peat mosses (various species including *Sphagnum*).

The Government of Saskatchewan has developed a number of initiatives in support of the conservation and responsible management of Saskatchewan's natural resources. Two initiatives in particular that focus on ecosystems and plant species include the Representative Areas Network (RAN) and the compilation of various tracking lists that identify endangered, invasive, and noxious weed species, as well as non-vascular plants and fungi.

The Pasquia-Porcupine RAN includes two Parkland Reserves which fall within the GMI claim boundary. The Overflowing River Representative Area covers 550 ha and is composed of low bog and upland forest. The Pasquia River Representative Area covers 5,100 ha and is characterized by well-developed peat bogs which have the potential to support several provincially rare plants, although none have been reported in the area to date. This Representative Area serves as a benchmark for peat harvesting that is ongoing to the west of the site.

The Saskatchewan Conservation Data Centre (CDC) has compiled a list of plant species (including non-vascular plants and fungi) that are considered rare and endangered within the province. Federal species lists have also been compiled by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

There are 28 vascular plant species with the potential to occur within the Overflowing River Lowland landscape area (which covers the GMI claim boundary) that are currently tracked by the Saskatchewan CDC (data not shown). These plants occupy a range of habitats, from upland forest to wetland. The list of fungal species of conservation interest is extensive and covers the entire province.

There are currently 17 plant species (16 vascular plants and one moss) listed as being "at-risk" federally within Saskatchewan (data not shown). Some of these species might not occur within the habitats of the Mid-Boreal Ecoregion that comprises the Project area; however, given that the list covers the province as a whole.

12.9.1.5.7 Wildlife and Wildlife Habitat

The Project Area lies within Wildlife Management Zone 58 (WMZ58) and extends into a small section of WMZ 59 to the west. The WMZs are managed by the Ministry of Environment Fish and Wildlife Branch (MoE). The MoE is responsible for maintaining healthy wildlife populations in the province. To assist in this, the MoE conducts wildlife surveys throughout the year. Several inquiries were made to MoE requesting wildlife information for the Border Coal Project area. The following was confirmed:

- No furbearer studies have been conducted in this area.

- Telemetry surveys on the Pasquia-Bog woodland caribou herd have been conducted for at least the last six years by Manitoba Natural Resources. While they focused on the Manitoba side, some collared animals made trans-boundary movements that may have included the Leaf Lake area. Other than a record of incidental sightings, MoE collected pellet samples which came primarily from the Pasquia Hills.

The Border Coal Project lies within the Pasquia/Porcupine Planning Area. The Integrated Forest Land Use Plan (IFLUP) was published in 1998 and covers the Pasquia Hills, the Porcupine Hills and part of the Cumberland area. The plan applies only to Crown lands within the planning area, not to privately owned lands or Indian reserves within the planning boundaries.

The Planning Area is home to five species of big game: moose, elk, white-tailed deer, black bear and woodland caribou. Mule deer are found in some locations, but populations are very small. Sightings of cougar are made every year in the Planning Area, usually along the west side of the Pasquia Hills (Saskatchewan Environment 1998).

Lists of mammal, bird, amphibian, and reptile species with the potential to occur in the Overflowing River Lowland landscape area were compiled as part of the preliminary wildlife baseline studies. Wildlife identified included three mammal species, woodland caribou (*Rangifer tarandus caribou*), cougar (*Puma concolor*), and plains grizzly bear (*Ursus arctos horribilis*), 102 bird species (data not shown), and five amphibian/reptile species (data not shown).

Saskatchewan also has developed a species at risk program which is designed to protect species from extirpation or extinction, and to prevent additional species from becoming threatened with extinction. The focus of the program is directed at the needs of provincially threatened and endangered species, and is integrated with Canada's species at risk program.

The Fish and Wildlife Branch of the Saskatchewan Ministry of Environment is legislated to address species at risk in Saskatchewan under *The Wildlife Act* (1998). There are currently nine (9) animals identified in the *Act*: black-footed ferret (*Mustela nigripes*), plains grizzly bear (*Ursus arctos horribilis*) (believed to be extirpated in SK), greater prairie chicken (*Tympanuchus cupido*), Eskimo curlew (*Numenius borealis*), burrowing owl (*Athene cunicularia*), piping plover (*Charadrius melodus*), sage grouse (*Centrocercus urophasianus*), whooping crane (*Grus americana*), and swift fox (*Vulpes velox*). Only the whooping crane and plains grizzly bear have the potential to occur in the Border Coal Project area.

The potential for species at risk under the federal *Species at Risk Act* (Schedule 1) to occur in the vicinity of the Border Coal Project area was also assessed. Five Schedule 1 species including, Canada Warbler (*Wilsonia canadensis*), Chimney Swift (*Chaetura pelagica*), Common Nighthawk (*Chordeiles minor*), Olive-sided Flycatcher (*Contopus cooperi*), and Rusty Blackbird (*Euphagus carolinus*) were identified as having the potential to occur in the area of interest.

12.9.1.5.8 Socio-economics

The proposed Border Coal Project is located approximately 250 km due east of Prince Albert, 45 km northeast of Hudson Bay and 250 km southwest of The Pas, Manitoba. The area is considered remote and has reasonably good infrastructure in place with easy access to Highway #9. A CN rail line transects the property and a 230 kv power transmission line is located about 60 km north of the proposed site. Highway #10, which travels south along the Manitoba border, is also within a short driving distance.

Due to the extensive occurrence of muskeg in the region, the area has experienced little human settlement. The nearest community, Hudson Bay, has a population of roughly 1,400 residents and has a history steeped in forestry, mining, agriculture and the transportation industry. Other large communities within a two hour drive include Melfort, Tisdale, Yorkton, and The Pas, Manitoba.

Forestry remains a strong regional economic driver in the area, although in recent years it has experienced a sharp decline in productive capacity. Only recently has one of the local mills reopened. The trucking, agriculture, rail and public sectors also are major employers in the area, however, with the changing nature of the local economy, many residents have sought employment in the oil and natural gas industry in and around Fort McMurray, Alberta.

The Border Coal Project is situated on unsurveyed Crown lands held by the Government of Saskatchewan and administered through the Ministry of Environment. The Rural Municipality of Hudson Bay is the regional planning authority in which this proposed Project is located.

In general terms, the mineral claims area appears to be clear of any known development covenants. There are no known competing mineral claims in the area, although a peat extraction operation by Premier Horticulture is under development south of the Pasquia Hills. Westcore Energy and Saturn Minerals both have mineral lease areas to the north, east and west of the GMI's claim. Oil, natural gas, and water rights, should they be used for development, storage, or power generation purposes, do not appear to b have been issued in the region.

Similarly, there are no known agricultural or grazing leases in the area. Fur conservation areas have been delineated for trapping throughout the region, however, the presence of suitable habitat is likely limited due to the extensive muskeg in the area. Additionally, hunting, fishing, and guide outfitting tenures are quite limited, with only eight having been issued in the area, mostly for moose, black bear and whitetail deer.

Forestry tenure in the area is held by Weyerhaeuser. The company bought the license from the Saskfor MacMillian Limited Partnership in 1999. Weyerhaeuser's range of forestry operations is mostly on the west side of Highway #9, although there appear to be pockets of logging and silviculture activities east of the highway to as far as the CN rail line. In 2009 Weyerhaeuser began holding public consultation meetings with government, stakeholders and non-governmental organizations (NGOs) to discuss their proposed twenty year forest management plan.

Ecotourism and recreation are increasingly becoming an alternative form of land use in the area as well, however the extent to which these activities translate into permitted rights is not widely known or expected to be extensive. Snowmobiling is growing in scale and drawing more people to the general area around Hudson Bay in the winter. The local snowmobile club has set up a network of trails, mostly on the west side of Highway #9, although it is believed snowmobilers use areas east of the highway and rail line as well. The Premier of Saskatchewan recently participated in a snowmobile tour of the Hudson Bay area illustrating the potential significance as an economic driver snowmobiling is having in the region. Similarly, a number of cabins also exist throughout the region, largely along Highway 9 near Ruby Beach, Chemong Road and in isolated pockets east of Ruby Lake. The legal standing and extent of these types of tenures is not fully known.

Unlike land use considerations which focus on the potential effects of a proposed Project on natural systems, socio-economic considerations examine the relationship between various economic and social services, and how these attributes are affected by changing land use conditions. Economic and social drivers can be critical factors in determining the fate of an industrial project. In the case of Border Coal, a number of socio-economic issues should be considered to better understand how a coal mine or power generation facility would compliment existing activities and factors influencing governance in the Rural Municipality of Hudson Bay.

The Rural Municipality of Hudson Bay (RMHB) is one of the larger municipalities in Saskatchewan based on land mass, but one of the smallest based on demographics. The municipality includes the Town of Hudson Bay and the hamlets of Clemenceau, Armit, Bertwell, Erwood and surrounding areas. It also includes the Shoal Lake and Red Earth First Nation communities. The 2006 census lists the population at 1,359 residents, a decline of 8.9% from the 2001 census.

From an economics perspective, the RMHB is largely reflective of many rural communities with people working either directly or indirectly in the natural resource extraction industries. According to the 2006 census, 775 people were working in the district with the dominant sectors being the resource extraction sector (28%), manufacturing (20%), other services (17%), construction (8%), business services (7%) and health care (6%). Primary occupations in the RMHB include trades, trucking, and jobs in primary industry, followed by positions in sales and business. The major employer in the area is Weyerhaeuser at its OSB plant and woodland operations.

The employment rate around Hudson Bay has fluctuated considerably since the last census four years ago. Presently, northern Saskatchewan (Prince Albert and Saskatoon) has an unemployment rate of roughly 8% to 9%. Anecdotally, professionals involved in economic development in the region have suggested that the unemployment rate is actually higher than is represented in the press as many trades people have left the area to work in Fort McMurray. Locally, Weyerhaeuser recently reopened one of its mills which resulted in the reestablishment of approximately 60 jobs. When operating at full capacity the mill employs between 140 to 160 people.

First Nation unemployment in the region is difficult to identify, however Human Resources Canada has stated that the figure is approximately 15%. First Nation residents often compete for the same jobs as people with higher educational attainment levels. The 2006 census for Shoal Lake First Nation listed the unemployment rate at 36.4%. Statistics for Red Earth First Nation were not readily available.

Of the communities most likely to be affected by a proposed coal mine or power generation facility, Hudson Bay is the closest town to the mineral claim with the broadest set of amenities in the area. Large construction projects impose varying demands on a community's amenities during the construction versus operational stage of a project. Given the large number of construction services that workers can draw on, a community needs to have a depth of services available to accommodate a large influx of workers. Typically workers will reside in a camp or a small community, and in some cases, commute to a job site from farther away reducing the needs for community's services.

Potential socio-economic constraints that could result from a large industrial project in the Hudson Bay area include land use compatibility, effects on various levels of government, and access to social services. Depending on how the Border Coal Project is developed, the socio-economic constraints would likely change, as could the level of public interest and debate.

There do not appear to be any major socio-economic drawbacks associated with the development of the Border Coal Project The local planning area in which the proposed Project is located is appropriately zoned for mineral development and does not appear to have any development covenants in place for the mineral leases in question. Access to necessary public infrastructure and services are largely available. However, constructing a coal fired power generation facility could produce a range of public queries particularly as these types of facilities are being phased out in many jurisdictions.

12.9.1.5.9 Archaeology

A desktop archaeological overview of the Border Coal Lease Property was conducted by Western Heritage Archaeological Consultants of Saskatchewan. Research confirmed the presence of recorded archaeological sites within the Border Coal Lease Property and affirmed there is a high potential for heritage resources occurring within the proposed Project area.

Importantly, the identification of heritage resources within the Border Coal Project area could pose a significant problem to the development of the Border Coal Project into an operating mine, as there are highly significant known heritage resources in the region. Examples include:

- Paleontological remains, the most notable of which are vertebrate fossils of feathered birds, which have been found immediately northeast of the Border Coal Lease Property, and
- Ancient archaeological sites, dating to the Middle Prehistoric Period, circa 5,000 – 2,000 years ago (Oxbow, McKean and Pelican Lake complexes), which have been found adjacent to and within the proposed Project area.

Heritage sites in Saskatchewan are protected under the *Heritage Property Act* (1979-1980). The *Act* requires that a Heritage Resource Impact Assessment (HRIA) be conducted prior to development of the area. The *Act* also requires mitigation of known sites threatened by development.

Western Heritage archaeological consultants have recommended:

- a Detailed Heritage Overview and
- a Heritage Resource Impact Assessment (HRIA) of the Border Coal Lease property be conducted.

There are over 30 registered archaeological sites within the boundaries of the Border Coal Lease Property and another dozen immediately to the east. The majority of these sites are in close proximity to Highway 9. The following comments from Western Heritage Consultants relate to the highway corridor and are based upon a Traditional Land Use Study conducted in the region for Saskatchewan Forest Products and MacMillan Blodel (Russell 1997):

"The CNR and, later Highway #9, generally followed established trails on the network of ridges between Hudson Bay north to Overflowing River (Moodie 1908:147; Stewart 1908:184, 191). According to the people at James Smith Reserve, the route for Highway #9 followed an old trail which was shown to the surveyors by Charles Whitehead, a resident of the Reserve" (1997:43).

Describing the nature of archaeological deposits on these ridges, Western Heritage notes:

"The sand ridges have little soil deposition, indicating that even ancient sites have almost no ground cover to protect them. Any road construction on such ridges, or expansions of existing roads, will require assessment."

As part of their desktop heritage overview, Western Heritage provided a map of archaeological sites within and adjacent the Border Coal Lease Property but did not provide particulars of heritage sites identified. A typology and evaluation of heritage sites will be addressed in subsequent studies. A few particulars on these sites are provided in an earlier study of the region (Finnigan and Gibson 1997).

Although not identified within the Project area, significant paleontological remains have been recovered nearby, in the Carrot River area, north and west of the Border Coal Lease Property.

Western Heritage archaeological consultants also identified areas of 'high', 'medium', and 'low' heritage site potential within the Project area. Terrain areas of high potential include:

- Level to slightly rolling terrain adjacent major water courses,
- Areas near drainage junctions,
- Higher ground landforms, including ridges and eskers, and
- Landforms suitable for habitation within 250 meters of potable water.

In 1997, Western Heritage offered the following comments on the local terrain:

"The eastern bases of both the Pasquia and Porcupine Hills often adjoin broad, low marshy areas. Here, the ancient beach ridges of glacial Lake Agassiz are often the only high ground in the area. These were known to the Aboriginal inhabitants as "Pitching Ridges" since they travelled along these as they pitched their camps." (1997:43)

Further information is provided by Finnigan and Gibson in their 1997 archaeological report:

"In understanding the human history of the landscape it is necessary to summarize some of the important late-Pleistocene/early Holocene developments in the area. As the glacier began to withdraw from the region, a giant inland sea formed known as Glacial Lake Agassiz. At its maximum extent, Glacial Lake Agassiz covered an area from northwestern Saskatchewan to northwestern Ontario and south into southern Minnesota.

The Manitoba escarpment kept much of the FMLA dry although the area north of the Pasquia Hills was inundated. Hudson Bay sites on the Campbell Phase beach ridge and therefore land to the east of Hudson Bay was within the lake.

…The shoreline of Agassiz would have been a favourable site location for First Nations camping locations. As the lake levels dropped, these camping locations would have moved east.

The relic beach ridges became important for travel. Pat Baterscher reports they were referred to as "pitching tracks" by the early settlers in Manitoba (1982:24). Much of the current road/rail system follows these ridges where possible. In addition to providing important travel routes for First Nations and settlers, they were also used as locations for farms and early settlements in more easterly areas of Manitoba." (1997:19)

Information provided by Finnigan and Gibson (1997) suggest that the greater Pasquia area and the entire area covered by the Border Coal Lease Property was inundated by Lake Agassiz until about 8,700 years ago. Known heritage sites within the Border Coal Lease Property area are identified, primarily, as Late Prehistoric sites (less than 2,000 years old), although two Middle Prehistoric sites (circa 5,000 – 2,000 years old) have been recorded.

It is recommended that archaeological research focus on areas where there are known, significant coal deposits slated for development and that areas of 'low' coal potential be excluded from HRIA surveys. A comprehensive HRIA should be conducted to ensure sufficient information is gathered to help direct future Project development. No development will be permitted under Saskatchewan law until an HRIA has been completed.

12.9.1.5.10 Aboriginal Relations

The preliminary assessment of Aboriginal relations indicated that the development of the Border Coal Project will have minimal impact on Aboriginal and Treaty Rights. The most significant impacts would be to traditional hunting activities, notably for moose and elk. Impacts to traditional activities in general appear to be limited as much of the area surrounding the Border Coal Project area is wetland. Similarly, impacts to traditional trapping and gathering activities are also anticipated to be minimal.

A primary recommendation is that GMI actively pursue a process of consultation with the Government of Saskatchewan, with the clear objective of ensuring that adequate consultation with First nations is initiated and carried out by the Ministry of Environment, which would be the lead government agency.

There are eight – and possibly as many as twelve – First Nations that have traditional interests within the proposed project area. Eight First Nations are identified by the Government of Saskatchewan's Ministry of Environment as having interests associated with Northern Fur Conservation Areas, including: Key, Kinistin, Yellow Quill, Keeseekoose, Cote and James Smith (which also includes Peter Chapman and Chakastapasin First Nations). Other Bands that may have traditional interests based on geographical proximity, historical interest (e.g., Treaty areas) and Land Use Agreements include the Red Earth, Shoal Lake, Cumberland House and Opaskwayak Cree Nations.

The nearest Band to GMI's Border Coal lease property is the Shoal Lake Cree Nation. Band representatives were spoken to on July 6, 2010, with follow-up e-mail communications sent over the course of the same week. Chief Kevin Bear and Charles Whitecap, Shoal Lake's Director of Lands and Trust, asserted that the Border Coal lease property falls within Shoal Lake's traditional territory. The Shoal Lake Cree Nation expressed that they wish to be a full participant in the Border Coal project and want capacity funding to assist in this process. Band representatives expressed they are open to economic development opportunities.

GMI is under no legal obligation to initiate consultation with First Nations and is under no obligation to provide capacity funding to bands to assist them participating in the consultation process. The Duty to consult is the honour of the Crown (Government of Saskatchewan) and the obligation to initiate consultation rests with the Ministry of Environment, the ministry responsible for authorizations associated with the project. Consultation funding is available to First Nations and Métis organizations through 'The First Nations and Métis Consultation Participation Fund' administered by the Ministry of First Nations and Métis Relations.

GMI is, however, expected to collaborate with appropriate Government ministries in the consultation process. The lead ministry in this process is the Ministry of Environment and the key contact is Ryan Mulligan. Other ministries which are likely to be involved include: Ministry of First Nations and Métis Relations, the Ministry of Energy and Resources, and Ministry of Justice.

GMI's consultation expectations are set out in the Government of Saskatchewan's 'First Nation and Métis Consultation Policy Framework' (June 2010). GMI's obligations under Provincial government policy include, but are not limited to, the following:

- To provide project information to potentially impacted First Nations and Métis communities
- To provide materials in appropriate formats, notably: clear, accurate, complete and in plain language
- To participate in Government meetings with potentially impacted First Nations and Métis communities
- To engage in the consultation process with the Government of Saskatchewan and First Nations as early as possible.

GMI is responsible for all costs associated with its engagement in consultation processes with First Nations and for all procedural aspects assigned to them by the Government of Saskatchewan. GMI is also responsible for all costs associated with any necessary adjustments or actions to project activities required to avoid, minimize or mitigate adverse impacts on Treaty and Aboriginal rights and traditional uses.

Where an adverse impact on Treaty or Aboriginal rights and/or traditional uses is identified, GMI is expected to work with Government and the First Nations being consulted to develop and implement measures to address these impacts.

Engaging with First Nations is all about relationships. The government of Canada recently released a pamphlet on mining companies in Canada to demonstrate this point entitled 'Map of Agreements Between Mining Companies and Aboriginal Communities or Governments' (available online at: http://www.nrcan.gc.ca/smm-mms/aborauto/pdf/agr-ent-10-eng.pdf). It is strongly recommended that GMI representatives review this document and determine what type of relationship it wants to have with local First Nations, prior to full engagement in the consultation process.

12.9.2 Closure and Reclamation

Closure and reclamation planning will be required for the Border Coal Project for all associated infrastructure. A conceptual reclamation plan will be compiled as part of the effects assessment and permitting process.

Reclamation of the Border Coal Project will follow guidelines and practices that promote the re-establishment of basic ecological functioning and the development of self-sustaining plant communities. Where possible, areas will be progressively reclaimed throughout operations, in addition to the implementation of the closure and decommissioning phase of the Project.

General reclamation activities that will be required include:

- Decommissioning of site infrastructure

- Removal of buildings and foundations
- Re-sloping dump faces (e.g., to 2H:1V slopes)
- Re-establishing drainage channels
- Closure of tailings storage facility

- Backfilling of pits with waste (where applicable)
- General site preparation in advance of seeding and re-vegetation
- Re-vegetation and seeding of disturbed areas

Much of the success of the reclamation program will rely on the salvage and stockpiling of suitable topsoil materials. A soil handling plan will be developed as part of the conceptual reclamation plan to be submitted as part of the effects assessment.

Reclamation trials will also be established during the operations phase in order to identify approaches that are best suited to the site and prevailing conditions. These approaches can then be implemented more confidently and extensively during closure and decommissioning.

Preliminary assessments of ore and waste rock for trace element chemistry, ash chemistry, acid rock drainage (ARD), and metal leaching (ML) potential have been conducted, the results of which suggest the following issues may be required for consideration in the reclamation plan:

- Selenium (Se) concentrations are consistently 20 to 30 times higher than average crustal abundance in both ore and waste rock
- Elevated levels of arsenic (As), mercury (Hg), chloride (Cl), and boron (B) were also evident which could be problematic to the receiving environment (particularly with respect to fish and aquatic life)
- Pyrite is present in both ore and waste rock which suggests there is the potential for acid mine drainage

12.10 RECOVERABILITY

No laboratory studies to investigate coal recoverability have been completed to date.

12.11 MARKETS AND CONTRACTS

For the purposes of the scoping study Marston assumed that the finished products would be moved by rail to Saskatoon where they would then enter the market place. Saskatchewan is a net exporter of petroleum products and participates in the domestic Canadian and United States energy market place. The products anticipated to be produced at the Mine Mouth CTL complex, naptha, low sulfur diesel and propane/LPG, are either suitable for direct end user marketing (e.g low sulfur diesel and propane/LPG) or, in the case of naptha, can be marketed to petroleum refineries in Saskatchewan or sold to other domestic Canadian refineries or exported. Naptha is used primarily as a feedstock for producing high octane gasoline. The province of Saskatchewan's and Canada's 2009 market for direct sales of low sulfur diesel and propane/LPG as well at the sales of motor gasoline compared to annual CTL plant output (See Table 12-12 for anticipated plant output volumes), is shown in Table 12-7. The 2,419,800 cubic meter motor gasoline market for Saskatchewan is supplied in part by two provincial refineries located in Regina (which will have a capacity of 130,000 bbls per day when its current upgrade is completed in 2012, and in Lloydminster (which has a capacity of 25,000 bbls per day). (Source: Statistics Canada, The Supply and Disposition of Refined Petroleum Products in Canada – September 2010, Table 1-9 Domestic sales of refined petroleum products by province – Saskatchewan).

TABLE 12-7 DOMESTIC SALES OF PRODUCTS (2009) VS. CTL PLANT OUTPUT

Commodity	Thousands of Cubic Meters		
	Canada	Saskatchewan	CTL Annual Output
Propane and Propane Mixes	1,269	87	200
Diesel	26,010	2,086	393
Gasoline	42,319	2,420	220*

* - Indicates that the CTL plant produces Naptha, a feedstock for refinery gasoline production

The anticipated production of petroleum products by the CTL plant can represent a significant addition to the product supply in Saskatchewan and Canada and provide an opportunity to export products to the U.S. upper Midwest market place.

12.12 TAXES AND ROYALTIES

In Saskatchewan the royalty and tax regime for resources is controlled by the Saskatchewan Ministry of Energy and Resources. Royalty and tax calculations for traditional coal mining operations (where coal is sold for power generation) are set forth in The Coal Disposition Regulations, 1988 and The Freehold Coal Production Tax Regulations. These are referenced in The Crown Minerals Act and The Mineral Taxation Act, 1983. An Information Circular outlining coal royalty and tax information is available at the following Government of Saskatchewan web site:

http://www.er.gov.sk.ca/Default.aspx?DN=a3fa9a7c-f9c1-4ae8-8900-4aece0581839

Royalty/tax obligations differ if the coal development property consists of Crown coal leases or freehold mineral rights. The coal royalty and freehold production tax are ad valorem regimes, calculated as a percentage of the mine mouth value of coal produced. Royalty/tax payments for traditional mining operations are 15% of the mine mouth value of coal for Crown coal leases and 7% of the mine mouth value of coal for freehold coal production, where:

Mine Mouth Value = Gross Sales less:

- Transportation Costs to the point of sale (if different than the mine gate)
- Ex-Mine Costs (as approved by the Minister)

e.g. Coal Handling Facilities
Depreciation Costs for Capital Expenditures

Where coal sale or consumption is not at arm's length, fair market value of the coal is based on the average price of all Saskatchewan coal sold under contract at arm's length.

Saskatchewan also has a Resource Credit in place (SRC) to partially offset the Corporation Capital Tax Surcharge. The SRC is a credit of 1% of the gross value (before deduction of ex-mine costs) that can be applied to offset royalty and tax obligations.

Saskatchewan does not currently have a royalty regime in place for non-traditional mining operations such as the Border Coal Project, where coal sales and consumption is not at arm's length. During conversations with the Saskatchewan Ministry of Energy and Resources, Marston was informed that they realize that the current royalty regime is not competitive for value added projects and that they will enter into discussions with the operator to determine an equitable royalty regime. One possibility is to institute a system that allows for the recovery of capital and operating costs prior to the institution of royalty payments. This system is currently in place for other resources in Saskatchewan. The Minister of Energy and Resources has stated the Government of Saskatchewan is committed to ensuring that the royalty regime will not stand in the way of value added projects.

The key contact for these discussions at the Saskatchewan Ministry of Energy and Resources is:

Mike Balfour
Director, Energy Economics
(306) 787-2479
mike.balfour@gov.sk.ca

In addition to the crown royalties, the Goldsource property is subject to a 2% NSR (net smelter return) to Minera Pacific Inc., half of which can be bought for US$1 million. Marston has applied a 1% NSR to the gross revenue for the life of the project in the cash flow projection.

12.13 CAPITAL COST ESTIMATE

12.13.1 Introduction

As discussed in Section 12.3.2, Marston recommended a particular CTL technology for a preliminary economic analysis for the monetization of the Border coal resource. This choice to further analyze CTL technology was made because:

1. Able to process high alkali coal feeds with low ash melting points and slagging/fouling potential,
2. Able to directly produce marketable transportation fuels which can be shipped via rail from the plant site,
3. A modular design allowing expansion as needed,
4. A proven technology based on earlier operating process plants and petroleum refining technology,
5. Involvement of major industrial companies
6. Available test facilities to demonstrate processing of Border coal,
7. Able to co-process coal and biomass
8. Small plant carbon emissions.

12.13.2 Coal-to-liquids Plant

Marston relied on the CTL technology provider for the capital cost estimates associated with the coal-to-liquids facility. The total installed cost of the facility has been estimated to be $1.23 billion and was allocated over 3 years. The plant systems included in the CTL battery limits for capital cost estimate by the technology provider are given in Table 12-8. Costs not included in the CTL capital cost estimate are shown in Table 12-9. The most significant cost item not addressed, carbon sequestration, is not included in this analysis as it is not know when or if carbon sequestration will be required for a Coal to Liquids plant. However, because virtually all the CO_2 produced by this process is virtually pure CO_2 at high pressure (300 to 600 psi), should carbon sequestration be required it would be relatively simple to capture this stream for treatment or disposal.

TABLE 12-8 CTL BATTERY LIMITS

Coal Delivery	Tail gas scrubber	Inert Gas System
Coal Storage	Sulfur recovery	Hot Oil System
Coal Grinding and Drying	Gas scrubber	Flare System
Catalyst Supply and Storage	Phenol Recovery	Stack
Slurry Preparation	Ammonia recovery	Fire fighting System
LPH	Instrument compressed air	Tank Farm
Integrated Raffination (Hydrotreatment)	Fuel gas unit	Slop System
Vacuum Distillation	Water treatment	Thermal Post-Combustion
Vacuum resid Storage	Cooling water system	Connecting Pipes and Pipe Racks
Hydrogenation resid solidifiaction	Steam generation	Streets and Railway tracks
Atmospheric Distillation	Steam distribution and condensate system	Fleet
Slurry Oil Distillation	Condensate regeneration	Central control room/Admin and social buildings
Emergency Decompression System	Waste water system	Workshop/Warehouse
H2 and Recycle gas compression	Electricity Supply and Distribution	Laboratory
Recycle gas separation	Measurement and Control System	Hydrogen Generation

TABLE 12-9 EXCLUDED COSTS

Power Plant	Cost of Land	Commissioning and Startup
Carbon sequestration	Site preparation	License and Training Cost

12.13.3 Power Generating Plant

Estimated capital costs for the on-site power plant were based on recent experience with similarly sized units. These are pro-forma capital estimates, suitable for preliminary economic assessment only. A 90 MW size plant was recommended by the CTL technology provider to power the facilities. Capital costs for power plant equipment acquisition and construction were allocated over a three year period.

12.13.4 Wash Plant

Estimated capital costs for the coal beneficiation plant were also based on recent experience with similarly sized units. Again, these are pro-forma capital estimates, suitable for preliminary economic assessment only.

12.13.5 Natural Gas Supply

As mentioned previously, the coal-to-liquids plant requires hydrogen, which is planned to be delivered to the plant in the form of natural gas. Marston consulted with Transgas, who is the natural gas transmission provider in the province of Saskatchewan to provide a high level estimate of the cost to deliver the required gas in the quantities and pressures required by the coal-to-liquids facility. A capital cost of $165 million was estimated. This included $160 million for 375 km of pipeline from an interconnect located near the town of Whitewood, Saskatchewan and $5 million for a meter/regulation facility located at the site. Indications from Transgas are that the project would take approximately 2 years to complete. These costs were therefore applied during pre-production years -2 and -1 in the cash flow estimates.

12.13.6 Mine Equipment and Facilities

Based on the pro-forma mine plan, established to meet the feed requirements of a single CTL unit, Marston developed a mining equipment and facility capital profile. Equipment capital costs were obtained from Marston data archives and factored as necessary. Please refer to table Table 12-10.

TABLE 12-10 MINE EQUIPMENT AND FACILITIES CAPITAL

	Equipment Fleet	# of Units	capacity	Unit Cost	Total Cost
Waste	Electric Cable Shovel	1	64.8 m^3	$ 24,800,000	$ 24,800,000
	Haul Trucks	5	363 tonnes	$ 6,200,000	$ 31,000,000
	Bulldozer	1	850 hp	$ 2,300,000	$ 2,300,000
	Rubber Tire Dozer	1	-	$ 1,600,000	$ 1,600,000
	Blasthole Drill	1	273mm	$ 3,200,000	$ 3,200,000
Coal	Hydraulic Shovel	1	12 m^3	$ 5,600,000	$ 5,600,000
	Haul Trucks	6	91 tonnes	$ 1,700,000	$ 10,200,000
	Bulldozer	1	580 hp	$ 1,500,000	$ 1,500,000
	Rubber Tire Dozer	1	-	$ 400,000	$ 400,000
	Loader	1	12 m^3	$ 1,800,000	$ 1,800,000
Support	Grader	2	297 hp	$ 950,000	$ 1,900,000
	Dozer	1	580 hp	$ 1,500,000	$ 1,500,000
	Loader	1	12 m^3	$ 1,800,000	$ 1,800,000
	Water Truck	1		$ 1,700,000	$ 1,700,000
	Lowboy Tractor	1		$ 1,700,000	$ 1,700,000
	Lowboy Trailer	1		$ 500,000	$ 500,000
	Misc. Support	lot		$ -	$ 5,500,000
Shop					$ 24,000,000
				Total	**$ 121,000,000**

12.13.7 Contractor Pre-Stripping

Initial coal production pit will require an estimated 42 million bcm of waste material to be excavated and hauled to ex-pit dump areas. Utilization of a mining contractor for this effort was planned, at an estimated cost of $3.00 per bcm placed. These costs were allocated over 3 years immediately in advance of initial coal production.

The total capital for the pre-development period has been estimated at $1.95 billion and is summarized in Table 12-11.

TABLE 12-11 SUMMARY OF ESTIMATED PRE-PRODUCTION CAPITAL EXPENDITURES

Capital by project area (000's)	Year -5	Year -4	Year -3	Year -2	Year -1	Total
Permitting/Engineering/Drilling	$ 15,000	$ 15,000	$ 5,000	$ 5,000	$ 5,000	$ 45,000
CTL Facility	$ -	$ -	$ 410,125	$ 410,125	$ 410,125	$ 1,230,375
Powerplant and power line	$ -	$ -	$ 20,000	$ 30,000	$ 50,000	$ 100,000
Wash Plant	$ -	$ -	$ -	$ 50,000	$ 60,000	$ 110,000
Natural Gas Feed line/facilities	$ -	$ -	$ -	$ 82,500	$ 82,500	$ 165,000
Mine (equip and facilities)	$ -	$ -	$ -	$ 60,000	$ 61,000	$ 121,000
Contract pre-stripping	$ -	$ -	$ 42,000	$ 42,000	$ 42,000	$ 126,000
Misc.	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 50,000
Total	**$ 25,000**	**$ 25,000**	**$ 487,125**	**$ 689,625**	**$ 720,625**	**$ 1,947,375**

12.14 OPERATING COST ESTIMATE

12.14.1 Mining Costs

Mining operating costs were estimated for the proposed mine plan based on equipment work effort, operating hours and labour hours required to accomplish the planned work at an assumed overall strip ratio of 5.5 bcm/rmt. Hourly equipment operating and labour costs were derived based on the current costs of commodities, wages and overheads prevailing in Western Canada. Mine operating costs were estimated to be $23 per raw metric tonne (rmt). This equates to approximately $1.90 per total tonne moved.

12.14.2 Wash Plant Operating Costs

Wash plant operating costs of $3.50 /rmt was assumed in the analysis. This is consistent with coal beneficiation plants currently in operation in Western Canada.

12.14.3 CTL Plant Operating Costs

The CTL technology provider supplied the basis for estimates of the CTL plant operating costs. These costs, exclusive of natural gas, were estimated to be 3% of the total installed cost for the plant. Natural gas costs of $4.01 per million BTU (mmBTU) were applied, based on the December 3, 2010 year-to-date AECO average price. Using information supplied by Transgas an additional charge of $0.16 per mmBTU has been included to cover transportation charges along with an Elevated Pressure Service cost of $4.5 million/year due to the requirement to have a regulated service pressure of 550 psig. Approximately 760 million cubic meters of natural gas is required per year for a single CTL unit processing train. This is the single biggest operating cost input and is driven in part by the high oxygen content of the coal which is converted to water by reaction with hydrogen in the CTL process.

12.14.4 Power Plant Operating Costs

Estimated power costs from the on-site facility totaled $5 per MWhr. The low operating cost reflects the assumption that the resultant waste stream can be utilized as fuel for the plant.

12.14.5 Rail Costs

The calculation of rail costs was based on an assumption of railing the finished products to Saskatoon for entry into the marketplace.

12.14.6 Royalty Costs

In light of the discussion with the Director of Energy Resources in Saskatchewan, Marston applied coal royalty payments beginning after the recovery of the initial capital cost. Marston assumed an annual royalty beginning in year 11 based a 7% royalty rates against the cost of coal of $23/rmt. A 1% NSR was also applied to the gross revenues starting in year 1.

The government of Saskatchewan retains a 15% royalty of all coals mined in the province. This royalty is negotiable based on economic viability.

There is currently a 2% gross overriding royalty placed on the Border Coal property. This royalty is held by Minera Pacific Inc. Fifty percent of the royalty can be purchased for $2 million.

12.15 CASH FLOW AND ECONOMIC ANALYSIS

At the end of the process there are three different resultant products. These are naphtha, diesel and LPG/propane. The cash flow assumes the following pricing for each commodity produced:

- Naphtha @ $2.11 gallon (spot price Oct 26, 2010)

- Diesel @ $2.25/gallon (spot price Oct 26, 2010)
- LPG/Propane @ $1.29/gallon (spot price Oct 19, 2010)
- The spot market price for oil in late October, 2010 was $US76/bbl.

Under the assumptions of this Preliminary Assessment, the estimated annual product revenues average $425 million/year with estimated operating costs of approximately $266 million/year. Natural gas costs of an estimated $117 million/year amount to approximately 44% of the total operating costs. A summary of the expected quantities of the various productions streams has been summarized in Table 12-12.

TABLE 12-12 FINISHED PRODUCTS QUANTITIES

	Ave Annual Production/Year (million gallons)	Total Life of Plant (billion gallons)
Naptha	58	1.74
Diesel	104	3.12
LPG/Propane	53	1.58

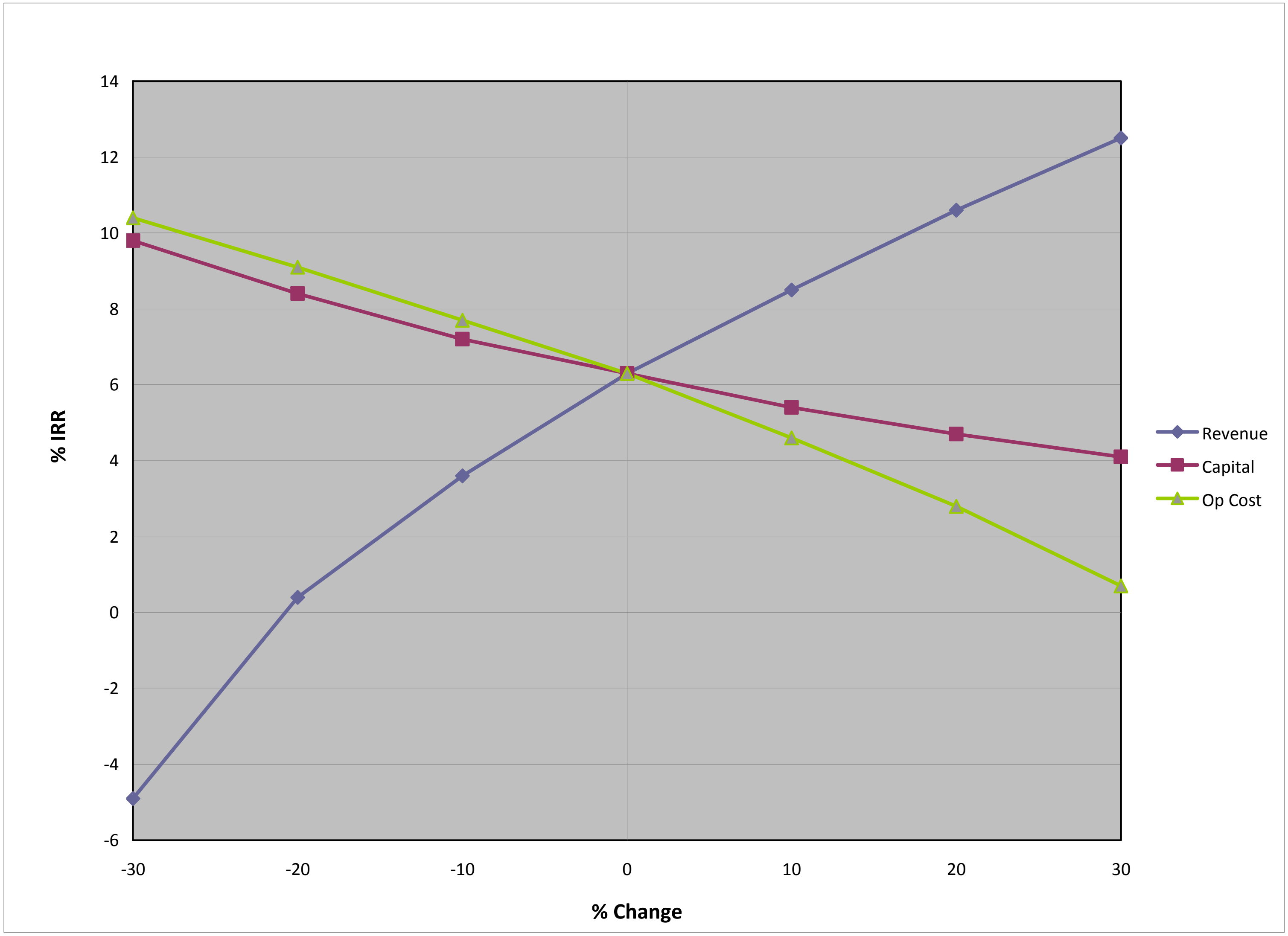
Based on the pro-forma development plan, technology for upgrading, and estimated costs of operations, the project generates a positive pre-tax internal rate of return of approximately 6.3% and a Net Present Value of $256 million at a 5% discount factor, see Table 12-13

12.16 PAYBACK/SENSITIVITY ANALYSIS

Based on the results of the cash flow analysis the project payback occurs in year 13. A sensitivity analysis was completed on the cash flow model by varying the capital cost, operating cost and commodity selling price. The analysis suggests that the same relative change in the capital and operating costs will impact the overall project economics in a similar manner. Please refer to Figure 32.

12.17 MINING LIFE

The useful economic life of the processing facilities was estimated to be 30 years. The mine was tailored to provide enough feed (90 million rmt) for the life of the facility. The site has significantly more resources along with many more localized exploration targets. Should the facility prove to be scalable, which will likely depend on the ability to bring in sufficient quantities of natural gas, the production rate could be increased and would be supported by the resources on site.



CLIENT

GOLDSOURCE MINES INC.

MARSTON

EBA Engineering Consultants Ltd.

PRELIMINARY ASSESSMENT FOR THE BORDER COAL PROPERTY, SASKATCHEWAN

Sensitivity Analysis

PROJECT NO.	DWN	CKD	REV
V15101005	MO	MD	1
OFFICE	DATE		
EBA-VANC	January 13, 2011		

Figure 32

TABLE 12-13 ESTIMATED BORDER COAL PROJECT CASH FLOW PROJECTION

Product Volumes '000 Gallons	**Saleable Items**		Year -5	Year -4	Year -3	Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Years 11-15	Years 16-20	Years 21-25	Years 26-30	Total
	Naptha		-	-	-	-	-	58,131	58,131	58,131	58,131	58,131	58,131	58,131	58,131	58,131	58,131	290,656	290,656	290,656	290,656	1,743,937
	Diesel		-	-	-	-	-	103,994	103,994	103,994	103,994	103,994	103,994	103,994	103,994	103,994	103,994	519,970	519,970	519,970	519,970	3,119,820
	LPG/Propane		-	-	-	-	-	52,727	52,727	52,727	52,727	52,727	52,727	52,727	52,727	52,727	52,727	263,634	263,634	263,634	263,634	1,581,802
								214,852	214,852	214,852	214,852	214,852	214,852	214,852	214,852	214,852	214,852	1,074,260	1,074,260	1,074,260	1,074,260	6,445,560
Product Revenues $(000)	**Revenue**																					
	Naptha		$ -	$ -	$ -	$ -	$ -	$122,657	$122,657	$122,657	$122,657	$122,657	$122,657	$122,657	$122,657	$122,657	$122,657	$613,285	$613,285	$613,285	$613,285	$3,679,708
	Diesel		$ -	$ -	$ -	$ -	$ -	$233,987	$233,987	$233,987	$233,987	$233,987	$233,987	$233,987	$233,987	$233,987	$233,987	$1,169,933	$1,169,933	$1,169,933	$1,169,933	$7,019,595
	LPG/Propane		$ -	$ -	$ -	$ -	$ -	$68,018	$68,018	$68,018	$68,018	$68,018	$68,018	$68,018	$68,018	$68,018	$68,018	$340,088	$340,088	$340,088	$340,088	$2,040,525
	Total	$						$424,661	$424,661	$424,661	$424,661	$424,661	$424,661	$424,661	$424,661	$424,661	$424,661	$2,123,305	$2,123,305	$2,123,305	$2,123,305	$12,739,828
			Year -5	Year -4	Year -3	Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Years 11-15	Years 16-20	Years 21-25	Years 26-30	
Operating Costs $('000)																						
	Mine Op Costs		$ -	$ -	$ -	$-	$ -	$69,000	$69,000	$69,000	$69,000	$69,000	$69,000	$69,000	$69,000	$69,000	$69,000	$345,000	$345,000	$345,000	$345,000	$2,070,000
	CTL Plant Op Costs(@3% TIC)		$ -	$ -	$ -	$ -	$ -	$36,911	$36,911	$36,911	$36,911	$36,911	$36,911	$36,911	$36,911	$36,911	$36,911	$184,556	$184,556	$184,556	$184,556	$1,107,338
	Wash Plant Op Costs		$ -	$ -	$ -	$ -	$ -	$10,500	$10,500	$10,500	$10,500	$10,500	$10,500	$10,500	$10,500	$10,500	$10,500	$52,500	$52,500	$52,500	$52,500	$315,000
	Power Plant		$ -	$ -	$ -	$ -	$ -	$3,548	$3,548	$3,548	$3,548	$3,548	$3,548	$3,548	$3,548	$3,548	$3,548	$17,739	$17,739	$17,739	$17,739	$106,434
	Natural gas		$ -	$ -	$ -	$ -	$ -	$117,045	$117,045	$117,045	$117,045	$117,045	$117,045	$117,045	$117,045	$117,045	$117,045	$585,224	$585,224	$585,224	$585,224	$3,511,346
	Coal Royalties		$ -	$ -	$ -	$ -	$ -	$4,247	$4,247	$4,247	$4,247	$4,247	$4,247	$4,247	$4,247	$4,247	$4,247	$40,553	$45,383	$45,383	$45,383	$219,168
	Rail Costs		$ -	$ -	$ -	$ -	$ -	$25,066	$25,066	$25,066	$25,066	$25,066	$25,066	$25,066	$25,066	$25,066	$25,066	$125,330	$125,330	125,330	125,330	751,982
	Total Operating		$ -	$ -	$ -	$ -	$ -	$266,317	$266,317	$266,317	$266,317	$266,317	$266,317	$266,317	$266,317	$266,317	$266,317	$1,350,903	$1,355,733	$1,355,733	$1,355,733	$8,081,267
Capital Costs $('000)	CTL Process Plant		$ -	$ -	$410,125	$410,125	$410,125	$-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -					$1,230,375
	Mine Pre-Strip		$ -	$ -	$42,000	$42,000	$42,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$126,000
	Mine (equip and facilities)		$ -	$ -	$ -	$60,000	$61,000	$ -	$ -	$ -	$ -	$ -	$4,000	$4,000	$ -	$ -	$ -	$13,600	$43,000	$9,800	$ -	$195,400
	Permitting/Engineering/Drilling		$15,000	$15,000	$5,000	$5,000	$5,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$45,000
	Powerplant		$ -	$ -	$20,000	$30,000	$50,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$100,000
	Misc		$10,000	$10,000	$10,000	$10,000	$10,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$50,000
	Natural gas pipeline		$ -	$ -	$ -	$82,500	$82,500	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
	Coal Wash Plant		$ -	$ -	$ -	$50,000	$60,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$110,000
	Total Capital		$25,000	$25,000	$487,125	$689,625	$720,625	$ -	$ -	$ -	$ -	$ -	$4,000	$4,000	$ -	$ -	$ -	$13,600	$43,000	$9,800	$ -	$5,600
	Pre-Tax Cash Flow		**($25,000)**	**($25,000)**	**($487,125)**	**($689,625)**	**($720,625)**	**$158,344**	**$158,344**	**$158,344**	**$158,344**	**$158,344**	**$154,344**	**$154,344**	**$158,344**	**$158,344**	**$158,344**	**$758,802**	**$724,572**	**$757,772**	**$767,572**	**$2,636,785**
	Cumulative		($25,000)	($50,000)	($537,125)	($1,226,750)	($1,947,375)	($1,789,031)	($1,630,686)	($1,472,342)	($1,313,998)	($1,155,653)	($1,001,309)	($846,965)	($688,620)	($530,276)	($371,932)	$386,870	$1,111,442	$1,869,214	$2,636,785	
	IRR	**6.30%**																				
	NPV_5 ($000's)	**255,839**																				

13.0 EXPLORATION POTENTIAL

Exploration drilling and geophysics surveys demonstrate that there is significant exploration potential on the Border property. The potential to delineate additional resources in a number of defined basins is considered high, and geophysics indicates that there are a number of undrilled target basins.

There exists a significant amount of exploration potential in the dominantly unexplored basins, including Pasquia 96,97,98; Chemong 7,100; Niska 105; and Split Leaf South. These are basins in which only a discovery hole has been drilled, intersecting a significant interval of coal. The potential to delineate additional resources in these basins is based on the thickness of the intercepted coal and the outline of the deposit as suggested by geophysics surveys. The success rate associated with the accuracy of the proprietary geophysics tool, as discussed in section 8.3, lends credence to the exploration potential in these areas.

There exists significant exploration potential in more thoroughly explored basins such as Niska 107 and Niska 108 as well. Geophysics suggests that the Niska 107 deposit extends approximately 400m to the south beyond the extent of drilling marked by BD-10-137. Similar extensions of Niska 108 and Chemong 3 are possible based on the geophysics signature.

Exploration continues on other potential satellite deposits, that if economical, may be able to provide additional resources. The agreement between Goldsource and Westcore Energy (Section 9.0) provides Goldsource with a 25% working interest in the surrounding claims in Saskatchewan and Manitoba owned by Westcore.

14.0 INTERPRETATION AND CONCLUSIONS

Based on the findings of this study it is recommended that the project proceed to the prefeasibility study level. Additional work required to advance the project to this level is detailed below. The costs associated with all tasks required for advancing the project to a prefeasibility level are estimated by Goldsource to cost approximately $3,033,000.

Work required to advance the project to the pre-feasibility stage should focus on the following items identified as conclusions of the report:

1. Exploration drilling to convert Inferred resources into Indicated resources. Exploration drilling of new targets to increase resources.
2. Geotechnical information is required to develop a geotechnical model used to assess pit stability
3. Collection of a bulk sample is required to investigate coal quality and identify upgrade potential for alternative uses of the coal.
4. Continued review of alternatives to coal to liquids technology is required to reduce capital and operating costs.

5. Continued collection of environmental baseline data is required in working towards mine permitting.
6. Investigation into the technologies available to reduce the sodium content of the coal.

15.0 RECOMMENDATIONS

Marston, EBA and other independent qualified representatives recommend the following:

1. If the results of the PA cash flow analysis are acceptable to Goldsource, further refinement of the product slate and yields from coal-to-liquid conversion of Border coal can be obtained from the CTL technology provider pilot plant. A test run at this facility would require 2 tonnes of a representative sample of washed coal. The cost of a test run, including product samples and a written report, would be $400,000US. Based on this test, the technology provider would be able to refine the plant design, produce an updated product slate and product yield estimates and update the capital and operating cost estimates.
2. A rigorous marketing study is recommended to determine the impact of bringing these products, in the projected quantities, to the marketplace.
3. Due to the high capital cost associated with supplying natural gas to the site a potential option would be to locate the CTL processing facilities closer to the Province's main natural gas transmission and other product pipelines. A suggested location by Transgas would be to locate the facilities in southern Saskatchewan. Clean coal would be railed here from the mine for further downstream processing. This may provide an economic benefit on the cost side as well as possibly providing easier access to the market for the finished products.
4. As noted above, there are other potential technologies that could be used to monetize the Border resource, such as the Quantex CTL process or the SES Gasification process. It is recommended that Goldsource continue to monitor these options if the resource development proceeds.
5. Carry out the proposed winter program to:
   a. Collect a coal bulk sample from Pasquia 2, Chemong 3 and Niska 107. Target collection of approximately 10 tonnes of coal using large diameter drilling.
   b. Do coal to liquids laboratory testwork.
   c. Drill to delineate additional resources in several defined basins.
   d. Drill several new exploration targets including Pasquia 98 basin and Red Deer basin for increased resources.
6. Compile the results of this program and previous work into a Preliminary Feasibility Study to be completed in early 2012.
7. Continue collecting environmental baseline data for 2011.

8. Continue to review alternative coal to liquids technologies for reduced capital and operating costs.
9. Test (mechanical and chemical) coal for sodium and sulphur reduction to upgrade for potential power generation. Use part of bulk sample to carry out this work.

16.0 DATE AND SIGNATURE PAGE

This report titled "Preliminary Assessment Report on the Border Coal Project, Saskatchewan, Canada" is effective as of February 15, 2011, amended as of March 5, 2012, and was prepared by the following authors:

Dated this 5th Day of March, 2012

"James B. McQuaid"

[original signed and sealed]

James B. McQuaid, P.Eng

"Lara Reggin"

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17.0 REFERENCES

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18.0 CERTIFICATE OF QUALIFICATIONS

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CERTIFICATE of AUTHOR

I, James B. McQuaid, P.Eng., do hereby certify that:

1. I am a Senior Mining Consultant at:

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   During preparation of the Technical Report I was the Vice President at:

   Marston Canada, Ltd.

   2116 – 27 Avenue NE Suite 220

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2. I graduated with a Bachelor of Science - Mining Engineering, from the University of Alberta, Edmonton, Alberta, in 1995.

3. I am licensed as a professional engineer in both British Columbia and Alberta.

4. I have worked in the mining industry for the past 16 years. The last 5 years have been spent working as a consulting mining engineer for Marston Canada Ltd. Prior to that I worked for a Canadian coal company and held various positions within the engineering department including engineering manager. I have also held mine operations positions in the coal industry from pit foreman to mine operations manager.

5. I have read the definition of "qualified person" as defined in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

6. I am responsible for the preparation of sections 10, 11, 12.1, 12.3, and 12.12-12.17 of the technical report entitled *Preliminary Assessment Report on the Border Coal Project for Goldsource Mines Inc. – which is dated effective as of February 15th, 2011 and amended as of March 5, 2012.* I visited the Border Property in March 2010. I have witnessed the exploration drill working within the Border Coal area and the development of the revised geological model.

7. I certify that, as of the date of the effective date of the Technical Report, to the best of my knowledge, information and belief, the portions of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

8. I am independent of Goldsource Mines Inc. as the term "independent is defined in section 1.5 of NI 43-101.

9. I have had no previous involvement with the property that is the subject of the Technical Report.

10. I have read NI 43-101 and Form 43-101F1, and the portions of the Technical Report for which I am responsible have been prepared in compliance with that instrument and form.

11. I consent to filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 5th Day of March, 2012

"James B. McQuaid"

[original signed and sealed]

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Signature of Qualified Person

James B. McQuaid, P.Eng.

Print name of Qualified Person

LARA REGGIN

I, Lara Reggin., P. Geo., as a co-author of this report entitled "Preliminary Assessment Report on the Border Coal Project, Saskatchewan, Canada" (the "Technical Report"), prepared for Goldsource Mines Inc., and dated effective February 15th, 2011, and amended as of March 5, 2012, do hereby certify that:

1) I am a Senior Project Geologist and Project Director for EBA Engineering Consultants Ltd. My office address is 9th Floor, 1066 West Hastings Street Vancouver, B.C.
2) I am a graduate of the University of British Columbia in 1995 with a Bachelor of Science degree in Geological Sciences.
3) I am registered as a Certified Professional Geologist registered with the Association of Professional Engineers and Geoscientists of the Province of British Columbia (Reg.# 28236). I have worked as a geologist for a total of 15 years since my graduation. My relevant experience for the purpose of the Technical Report is:
   a) Review and report as a geologist and consultant on numerous exploration and mining projects within Canada for due diligence, operations and regulatory requirements, including:
      - Geotechnical, Preliminary Assessment and Prefeasibility reports for the Yellowknife Gold Project, NWT from January 2005 to 2009.
      - Technical Report on the Courageous Lake Deposit, NWT.
      - Geotechnical Preliminary Assessment of the DO27 Project, NWT
      - Technical Report on the Bonanza Ledge Gold Deposit, Wells, B.C.
   b) Mine geologist with duties including reserves and grade control at operational mine sites including:
      - Echo Bay Mines Lupin Gold Mine, Nunavut, Canada;
      - Echo Bay Mines, Ulu advanced exploration project (gold), Northwest Territories;
      - Battle Mountain Gold's Golden Giant Gold Mine, Ontario, Canada.
4) I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI43-101.
5) I visited the Border Coal Property on January 25th to 29th, 2010.
6) I am responsible for sections 4, 5, 6, 7, 8, 9, and 12.2 of the Technical Report.
7) I am independent of Goldsource Mines Inc. as the term "independent" is described in Section 1.5 of National Instrument 43-101.

8) I was previously involved with the Resource Evaluation report for the property that is the subject of the Technical Report.

9) I have read NI 43-101 and Form 43-101F1, and the portions of the Technical Report for which I am responsible have been prepared in compliance with National Instrument 43-101 and Form 43-101F1.

10) To the best of my knowledge, information, and belief, as of the effective date of the Technical Report, the portions of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated the 5th day of March, 2012

"L. Reggin"

[original signed and sealed]

L. Reggin, P. Geo.

MOHAMMAD DADMANESH

I, Mohammad Dadmanesh., P. Eng., as a co-author of this report entitled "Preliminary Assessment Report on the Border Coal Project, Saskatchewan, Canada" ("the Technical Report'), prepared for Goldsource Mines Inc., with an effective date of February 15th, 2011 as amended March 5, 2012, do hereby certify that:

1) I am a Mining Engineer for Silver Wheaton Corp. My office address is Suite 3150 – 666 Burrard Street, V6C 2X8, Vancouver, B.C. I was a Mining Engineer with EBA Engineering Consultants Ltd. during the preparation of the Technical Report.

2) I am a graduate of the University of British Columbia in 1997 with a Bachelor of Applied Science degree in Mining and Mineral Process Engineering.

3) I am registered as a Certified Professional Engineer with the Association of Professional Engineers and Geoscientists of the Province of British Columbia (Reg.# 35011). I have worked as a mining engineer for a total of 7 years since my graduation. My relevant experience for the purpose of the Technical Report is:

    - Validated the drillhole data and conducted a desktop study of a coal resource for Rukwa project in Africa and developed geological model and estimated the potential resource.
    - Geological and block modeling of coal seams at Border coal for the NI 43-101 report
    - Reviewed the existing data and developed geological modeling, block modeling and resource estimation for a gold project in Russia.
    - Developed underground workings and stopes for the pre-feasibility studies of an open pit/underground gold deposit in the Yukon.

4) I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI43-101.

5) I visited the Border Coal Property on March 1st to 4th, 2010.

6) I am responsible for sections 1, 2, 3, 12.4 -12.11, 13, 14, 15 of the Technical Report.

7) I am independent of Goldsource Mines Inc. as the term "independent" is described in Section 1.5 of National Instrument 43-101.

8) I was previously involved with the Resource Evaluation report for the property that is the subject of the Technical Report.

9) I have read NI 43-101 and Form 43-101F1, and the portions of the Technical Report for which I am responsible have been prepared in compliance with National Instrument 43-101 and Form 43-101F1.

10) To the best of my knowledge, information, and belief, as of the effective date of the Technical Report, the portions of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated the 5th day of March, 2012

"M. Dadmanesh"

[original signed and sealed]

M. Dadmanesh, P.Eng.