# **ASX RELEASE**



#### 26 APRIL 2017

Fast Facts	ASX: JAL
Share Price Range (6mths)	\$0.08 - \$0.12
Shares on Issue	223,151,333
Market Capitalisation	~\$18M

**Major Shareholders** (as at 20 APRIL 2017)

JP Morgan Nominees Australia	13.6%
Hillboi Nominees	5.6%
Wholesalers (Morley) Pty Ltd	5.0%

# Directors & Management

Art Palm (Chairman & CEO) Steve van Barneveld (Non Executive Director) Joel Nicholls (Non Executive Director)

#### **Key Projects**

**Crown Mountain Coking Coal Project** Elk Valley Coal Field, Canada **Dunlevy Coal Project** Peace River Coal Field, Canada

#### **Investment Highlights**

- Positioned in world class metallurgical coalfields
- Significant development expertise on board with successful track record Modern rail and port facilities
- Strong financial position

#### Newsflow / Catalysts

Q2 2017 Crown PFS update Complete Crown EA pre-app Q2/Q3 2017 Off-take and JV discussions ongoing

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# PFS Update Yields Lower CAPEX and OPEX and **Outstanding Financials, Demonstrating the Significant Potential of Crown Mountain**

#### **FOB US\$75/t** IRR of 40% Payback Period 2.3 Yrs

# Highlights

- The PFS assessed the economics of an operation producing 1.7 million clean tonnes per annum over the project's 16 year mine life
- Hard coking coal comprises approximately 84% of life-of-mine clean coal output, with the balance a low to mid volatile PCI product
- FOB cash cost averages US\$66/t during the first four years of operation; lifeof-mine average is US\$75/t
- After-tax Payback Period of 2.3 years
- Internal Rate of Return (IRR) is 40% pre-tax (31% after-tax)
- NPV<sub>10</sub> US\$440 million pre-tax (US\$267 million after-tax)
- Start-up Capital of US\$281 million (pre contingency) can be reduced by leasing or utilizing low-hour used equipment
- Low life-of-mine clean coal strip ratio (excluding start-up pre-stripping) of 9.8:1 BCM:t supports low cost open pit production, with an average 7.5:1 BCM:t in the first four years of operation
- ROM reserves total 56 million tonnes, of which 50 million tonnes are Proven and 6 million tonnes Probable, excluding the Southern Extension inferred resource of 24 million tonnes that presents additional potential.
- Discussions have commenced with end users in relation to potential offtake contracts

Jameson Resources ("Jameson", the "Company") is pleased to report that the Prefeasibility Study Update ("PFS" the "Update") on its Crown Mountain Coking Coal project ("Crown Mountain", the "Project") in Canada has achieved the objective of reducing CAPEX and OPEX. This has resulted in more robust economics than the original PFS, despite using a lower coal sales price.

Additionally, the use of three world-class parties (Norwest, Kiewit, and Sedgman) to perform the Update has resulted in an increased level of confidence.

Jameson can now proceed to negotiate with interested end users or other offtake partners with the aim of moving the Project towards development.

# Introduction

Crown Mountain is located in the Elk Valley of southeast British Columbia, source of the majority of Canada's hard coking coal exports, and home to five operating mines, with annual production of approximately 25mt. Crown Mountain is ideally situated between Teck's Line Creek and Elkview operations, and displays similar geology and coal quality. With an attractive low strip ratio, Crown Mountain has several competitive advantages relative to the field of other developing coking coal assets worldwide, including being located in an infrastructure-rich area of stable and politically favourable Canada.

The PFS was originally completed in August 2014. Since that time the Company has identified several areas of improvement, particularly the potential for CAPEX and OPEX reductions. In addition, certain economic parameters have changed with respect to the coking coal market. Jameson elected in November 2016 to capture all identified material changes into an Update to the PFS.

To lend a high level of confidence to the Update, a team of three highly regarded leaders in their respective fields were selected:

- <u>Norwest Corporation</u> of Vancouver, British Columbia, Canada served as the team leader in compiling the update. Norwest is one of the world's leading consulting firms; their Vancouver office has extensive experience with open pit coal mining in Western Canada.
- <u>Kiewit</u>, based in Omaha, Nebraska, USA, has a long and successful history of operating mines in a wide variety of conditions. In addition, Kiewit is a well-known and respected contract miner. Kiewit provided costing for the execution of the mine plan, as well as mine construction, yielding significant productivity improvements and cost savings as a result of optimizing equipment selection and usage. The Kiewit review also confirmed the suitability of the overall mine plan.
- <u>Sedgman</u>, operating worldwide, is a leading designer, builder, and operator of coal processing facilities. They also possess expertise in the area of mine infrastructure. The Sedgman team developed a modified washing plant flow sheet and provided updated CAPEX and OPEX costs. Sedgman also reviewed the washability data and validated Norwest's conclusions regarding coal characteristics, quality and product yield.

The objectives of the Update to the 2014 PFS were:

- Incorporate all material economic and market changes since the 2014 PFS was issued.
- Capture all material improvements identified during the past two plus years, with a focus on reducing CAPEX and OPEX via process improvements and optimization.
- Bring additional real-world experience into the process (Kiewit and Sedgman) thus de-risking the project and adding confidence to the result.
- Address any material issues discovered in the original PFS.

The Update did not examine or make any changes to the geological model or the mine plan. Those items will be addressed in a future Bankable Feasibility Study.

Jameson management believes the stated objectives were met. The result is a high quality study yielding significantly better economics than the original.

The Summary on the next page presents a high level review of the Update results. A more detailed explanation follows the Summary in compliance with ASX disclosure requirements.

### Summary

The Update examined several alternate operating scenarios, ranging from a company owned and operated project to turn-key contract operation. After analysing the results, Jameson has identified a preferred scenario as the best current path forward under existing economic conditions.

The preferred scenario is a company owned and operated project. This delivers the lowest OPEX of all evaluated alternatives. Although it also represents the highest CAPEX scenario, potential CAPEX reductions have been identified via the use of used equipment and/or leasing. The used equipment and leasing alternatives are discussed later in this announcement. Contract mining, which remains of interest to Jameson, is an alternative that may be considered further as the project becomes closer to construction and production, when binding negotiations can occur. Only then can the contractor margin be weighed against other considerations such as cost of capital.

In this announcement, all financial figures are expressed in US Dollars ("US\$") using an exchange rate of 0.75 US\$ per Canadian Dollar ("CAD") which approximates the trailing and current spot rate.

Future coal prices used in the Update are significantly lower than both current sales prices and those assumed in the original PFS. Recognized coal market expert Kobie Koornhof Associates, of Vancouver, Canada, provided the following range of prices for the Crown Mountain products:

PERIOD	COAL TYPE	NORTH	SOUTH
Life-of-mine	Hard Coking PCI	US\$140 - US\$170 US\$92 - US\$112	US\$126 - US\$153 US\$92 - US\$112
	1.61	03332 033112	03332 033112

The Update uses the average price forecast by Koornhof: US\$155/t and US\$140/t for North and South Block coking coal respectively, and US\$102/t for the PCI product. Norwest also evaluated sensitivity to changing coal prices, discussed later in this document.

The Company released its 2014 Pre-feasibility study results on 11 August 2014 in an announcement entitled "Prefeasibility study confirms Crown Mountain coking coal project will enjoy outstanding economics." The material information contained in that announcement has been restated in the current announcement, and where applicable, updated if it differs from the referenced 2014 announcement.

#### **CAUTIONARY STATEMENT**

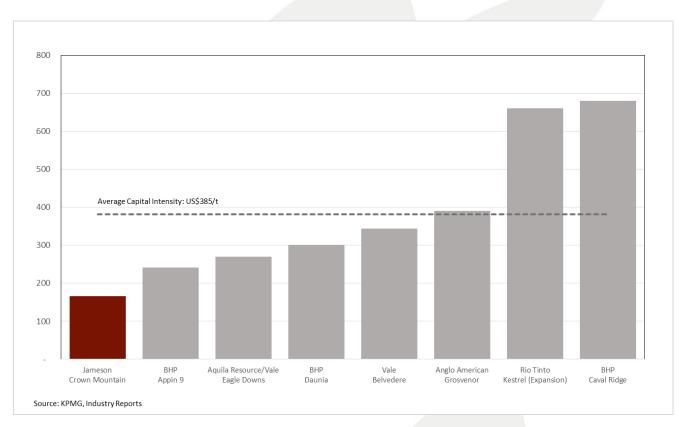
The Pre-Feasibility Study referred to in this report is based on medium level technical and economic assessments, it is sufficient to support reporting of Ore Reserves using the JORC Code but not sufficient to prove definitive assurance of an economic development case or to provide certainty that the conclusions of the Pre-Feasibility Study will be realised.

Start-up capital expenditure to support the mining and processing operation has been estimated in the Update to be US\$281.3 million, plus contingency, as detailed below.

Pre-Production Capital	US\$M
Major Mobile Equipment	99.1
Minor Mobile Equipment	9.7
Wash Plant	63.7
Infrastructure (rail load-out, roads, power, offices, shop etc) and permitting	93.2
Pre-Strip	15.6
SUBTOTAL – CAPITAL	281.3
Contingency @ 10%	28.1
TOTAL CAPITAL	309.5

Note: Totals may be off due to rounding

A common relative measure regarding project start-up capital can be used to compare Crown Mountain to other coking coal projects. "Capital intensity" is defined as the capital expended per unit of annual saleable production. For Crown Mountain, capital intensity is relatively low versus other recent coking coal development projects, as presented in the chart below. The lower capital intensity is attributable to the topography of the project, low initial developments costs due to favourable pre-stripping ratio, and proximity to established infrastructure (power, rail and port).



Operating costs, as presented in the next table, position Crown Mountain in the lower half of worldwide producers.

Cost Category	Cash Cost Per Clean Tonne Initial Four Years US\$	Cash Cost Per Clean Tonne Life-Of-Mine US\$
Waste Removal	21.51	26.47
Coal Mining	3.32	4.35
Plant	6.25	7.76
Clean Coal Handling	2.24	2.24
Reclamation	1.01	1.01
Minor equipment	0.65	0.77
Marketing/Corporate	1.01	1.01
Administration	4.54	5.51
Total Costs – Site	40.53	49.13
Rail and Port Costs	25.50	25.50
Total Costs - FOB (pre-tax and royalty)	66.03	74.63

Note: Totals may be off due to rounding.

Sustaining capital averaging US\$4.18/t LOM is excluded from the above table.

Financial measures for the Project are presented below:

	IRR %	NPV <sub>10</sub> US\$M	NPV <sub>10</sub> A\$M
Pre-Tax	40	440	587
After-Tax	31	267	356

Note: USD/AUD 0.75 exchange rate

#### The Payback Period is 2.3 years.

The Update also evaluated alternate equipment acquisition and financing strategies. In particular, two alternatives were examined:

- 1. Acquiring low-hour used major mining equipment. This option reduced capital and increased operating costs. The used equipment market is cyclical, and any opportunity to employ this strategy will be evaluated during the equipment procurement process.
- 2. Leasing the major mining equipment. Large capital reductions are possible via leasing, albeit at an increase in operating cost. As development progresses, Jameson shall evaluate leasing as an alternative.

These alternatives are widely practiced throughout the mining industry, and represent viable methods for Jameson to consider once project funding decisions must be made.

The effects of the used equipment and leasing options are summarized below:

Scenario	Start-Up Capital	LOM FOB	IR	R %	NPV <sub>10</sub>	US\$M
	US\$M	US\$/tonne	PreTax	After Tax	PreTax	After Tax
All Capital	309	74.63	40	31	440	267
With used equipment	272	76.81	44	35	456	280
With leased equipment	227	80.11	47	38	457	284

Note: Capital includes 10% contingency

The alternative financing/procurement options are attractive in that they reduce capital without adversely affecting the  $NPV_{10}$  values.

The ASX Disclosure, JORC Table, and Forward-Looking Statements explanation that follow contain additional details and are an integral part of this announcement.

With the exceptional economics of Crown Mountain now clearly defined, Jameson will be moving forward in planning the permitting and Definitive Feasibility processes as it moves the Project closer to an investment decision to develop the mine.

On Behalf of the Board of Directors,

Art Palm Chairman & Chief Executive Officer

# ASX LISTING RULE 5.16 DISCLOSURE AND COMPLIANCE STATEMENT

The results and underlying assumptions for the 2014 PFS were reported to ASX on 11 August 2014 in an ASX announcement entitled "Prefeasibility study confirms Crown Mountain coking coal project will enjoy outstanding economics" and further detailed in the 2014 and 2015 Annual Reports to Shareholders.

The PFS was preceded by a PEA reported to ASX on 17 April 2013 in an ASX announcement entitled "PEA Confirms Potential Robust Economics on Crown Mountain Coal Project" and further detailed in the 2013 Jameson Annual Report. In addition, updated coal quality results were reported to ASX on 14 March 2014 in an announcement entitled "Positive Property-Wide Coal Quality, Crown Mountain Coking Coal Project".

Included in the above-referenced documents was information with respect to how production targets were determined. The Company is not aware of any material changes to the assumptions, technical parameters, and engineering methodology supporting the in-situ resource and run-of-mine reserve estimates in the relevant market announcements. The PFS Update did not make any changes to in-situ resources or run-of-mine reserves, or the basis for their determination. They are restated below for completeness.

### Resources

In early 2013, Norwest Corporation completed a compliant Resource Report and estimated a total of 66.6 million measured and indicated tonnes in Crown Mountain's North and South blocks. An additional 23.7 million tonnes was identified as inferred resource, in the Southern Extension area.

This initial resource estimate was updated by Norwest in March 2014 (Table 1). The update, based on summer 2013 drilling results, resulted in an increase of Measured and Indicated resources to 74.9 million tonnes (the inferred category remained unchanged, as the Southern Extension was not explored in 2013). It is the 74.9 million tonne resource (Table 2) upon which the PFS is based.

RESOURCE AREA	Measured (Mt)	Indicated (Mt)	Measured & Indicated (Mt)	Inferred (Mt)	Measured, Indicated & Inferred (Mt)
North Block	7.9	7.1	15.0	0	15.0
South Block	51.3	0	51.3	0	51.3
Southern Extension	0	0	0	23.7	23.7
TOTAL	59.2Mt	7.1Mt	66.3Mt	23.7Mt	90.0Mt

Table 1: Crown Mountain Resource 2013 (Effective January 21, 2013)

RESOURCE AREA	Measured (Mt)	Indicated (Mt)	Measured & Indicated (Mt)	Inferred (Mt)	Measured, Indicated & Inferred (Mt)
North Block	8.0	6.0	14.0	0	14.0
South Block	60.9	0	60.9	0	60.9
Southern Extension	0	0	0	23.7	23.7
TOTAL	68.9Mt	6.0Mt	74.9Mt	23.7Mt	98.6Mt

Table 2 – Crown Mountain Resource 2014 (Effective March 11, 2014)

Note: Data for Tables 1 and 2 was prepared in accordance with provisions of NI 43-101 and presented above in accordance with the JORC Code (2012 Edition), Clause 26.

#### **Mineral Resource**

The information in this ASX Announcement relating to the Mineral Resource estimates on the Company's Crown Mountain Coal Project is extracted from the ASX Release entitled "Positive Property-Wide Coal Quality, Crown Mountain Coking Coal Project" announced on 14 March 2014 and is available to view on the ASX website (ASX:JAL), and the Company's website. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, that all material assumptions and technical parameters underpinning the resource estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

### Reserves

The 2014 PFS and 2017 Update identified 55.8 million run-of-mine ("ROM", "raw") tonnes as a coal reserve (Table 3), of which 49.7 million tonnes are classified as Proven and 6.1 million tonnes as Probable. These reserves are underpinned by the resources contained in the referenced PEA.

		Run of Mine Coal Reserves				
A	ASTM	(Ktonnes)				
Area	Group	Prove	en	Probable		
		COKING	PCI	COKING	PCI	
North Pit		7,252	756	4,907	1,192	
East Pit	Bituminous	3,563	461	0	0	
South Pit		31,784	5,913	0	0	
Sub-Total		42,599	7,131	4,907	1,192	
Total Proven & Probable 49,730		6,09	9			
Total		55,829				

Table 3 – Run of mine surface mineable reserve summary (ktonnes)(as at April 1, 2017)

# **PFS Basic Assumptions and Design Parameters**

Several key elements of the 2014 PFS have been held as constant for the Update. These include:

- The geologic model: there was no new information to incorporate.
- Mining method: open pit
- The mine plan: it was decided to keep the mine plan itself intact, although the actual execution of the mine plan was evaluated by Kiewit and Norwest and altered where warranted.
- Annual production rate: identical to the original PFS at a peak annual rate of 3.7 million run-of-mine tonnes.
- Infrastructure location: mine and processing facility locations were not altered.
- Target coal quality: clean coal quality parameters are identical to the 2014 study.

For full disclosure purposes, these items are restated below in the text and/or the JORC table that follows.

Jameson provided guidance to Norwest regarding the desired annual output of the operation. The guidance provided by Jameson is presented in Table 4:

Preliminary Economic Assessment – Parameters			
Resource Base	Measured and Indicated only: exclude all Inferred		
Mine Life	Through to exhaustion of economic resources		
Clean Coal Production Rate	1.5 to 2.0 million tons per annum (Mtpa)		
Time To First Production	Base schedule on fast-tracking project		

Material changes from the original PFS assumptions can be categorized into five areas:

- Currency and Exchange Rates
- Mining
- Processing
- Coal Sales Price
- General

The above items are also discussed below.

#### **Currency and Exchange Rates**

All costs discussed in the Update are in Canadian dollars ("CAD"). Coal sales prices are presented in United States dollars ("USD", "US\$").

The exchange rate assumed is 0.75 USD per CAD. This rate was selected by Norwest based on current economic conditions and publicly available data from various sources. The 2014 study used an exchange rate of 0.92 USD per CAD.

For the purpose of simplicity, all economic figures presented in this announcement have been converted to USD.

#### Mining

The mining method selected for Crown Mountain in the PFS is open pit. Mining equipment includes excavators, front end loaders, and haul trucks, supported by dozers, backhoes, and blasthole drills. This type of equipment is typical for Elk Valley mining operations, and includes equipment specific to selective mining in certain thinner seams present on the property. The majority (90%) of overburden removal is projected to require blasting.

Part of the initial screening work on the 2014 PFS was to develop break even strip ratio (BESR) mining pits. Norwest accomplished that objective by using costs from the 2013 Preliminary Economic Assessment and revised coal sales price forecasts of US\$155 per tonne for hard coking coal (down from the \$202 sales price assumed in the PEA) and US\$110 for PCI coal (versus US\$142 in the PEA). This work, and the mine design and economic evaluation process that followed, resulted in the identification of project reserves, as are presented in this announcement.

The mine plan has been sequenced to extract the low strip ratio North block first, followed by the smaller East block (a subset of the South block, but a distinctly higher quality and discrete mine pit) and ultimately the large South block. After pre-stripping, North block coal is mined.

Following geotechnical evaluation of the core recovered during the 2013 exploration program, and considering available regional data, the following design parameters were used in the pit design:

Highwall	Inter-ramp Angle = 48° for a maximum wall height of 150m. Walls higher than 150 m require an additional 20 m catch bench between stacks.		
	Bedding Plane Dip	Berm Width	Berm Frequency
	< 35°	0 m	Not required
Footwall	36° to 50°	8 m	70 m
	51° to 65°	8 m	30 m
	> 65°	10 m	30 m

Table 5 – Crown Mountain Pit Slope Guidelines

It has been assumed that coal loss and out-of-seam dilution ("OSD") occurs at every rock/coal interface except where partings are mined as part of the ROM product. Evaluation of site-specific conditions, and review of both local and other comparable operations, have resulted in the assumption of coal loss (pit loss) of 0.15m per contact, and concurrent OSD of 0.10m. Best practice selective mining will be employed over much of the Crown Mountain project area. ROM cutoffs for estimated plant yield result in any coking coal seams under 15 percent yield and PCI under 25 percent yield being treated as waste.

Mined ROM coal is hauled from the pit to a rotary breaker where some of the larger size OSD is removed.

Kiewit reviewed the mine plan in detail and recommended certain execution changes to Norwest that resulted in a more efficient and productive operation. Additional changes were made by Norwest in select areas. Material changes versus the original PFS are:

- The primary haul truck size was increased from 200 tonnes to 250 tonnes.
- Shovel productivity for the primary waste units was increased based on real-world experience, and the planned incorporation of state-of-the art dispatching and simulator training systems.
- Blasting was changed from in-house to the use of a contractor, which is a common practice in Western Canada.
- The number and size of dozers and graders were changed to match the truck fleet and spoil pile (including selenium management) requirements.
- Unit operating costs were adjusted based on data provided by Kiewit to reflect a combination of experience and updated figures reflective of comparable operations.
- Equipment replacement schedules were revised based on the above changes and operating experience, resulting in a significantly lower sustaining capital requirement.
- Numerous small equipment items not specifically detailed in the PFS were identified by Kiewit and included in the Update.

Major mining equipment includes:

- Hitachi model EX-2600, EX-3600, and EX-5600 diesel powered excavators
- Caterpillar model 793 haul trucks
- Caterpillar model D10T crawler-mounted bulldozers and model 854 rubber-tired dozers
- Caterpillar model 992 and 993 loaders
- Caterpillar model 16M and 24M graders
- Western Star model WSW 6900XD haul trucks (for clean coal haul)
- Blasthole drills and other support equipment

#### Processing

As with the majority of Canadian metallurgical coals, a wash plant is required. The PFS located the plant proximate to the mine pits. This accomplishes multiple goals: (a) it reduces trucking costs for the ROM material, (b) it allows plant reject disposal to occur at or near the mine site, and (c) plant reject (high in shales and clays) will be used to form barriers across the spoil piles, thus reducing permeability and mitigating the potential for metal leaching (metal leaching, particularly but not limited to selenium, is an issue in the Elk Valley).

Plant yield peaks in the early years when North pit seams make the major ROM contribution. North block plant yield is 60.6 percent. The East block plant yield is 56.5 percent, followed by a 49.0 percent plant yield in the South block. The life-of-mine plant yield is 52.6 percent post rotary breaker. The primary processing method is heavy media cyclone and reflux classifier, supplemented by column cell flotation for fines recovery. A hyperbaric filter is included in plant design to reduce the product moisture of the fine coal.

The 2014 PFS plant was constructed in two phases: the main plant was placed into service coincident with first coal production, and a middlings recycling circuit was installed once production from the lower yield south pit began in year 4.

A thermal drier was included in the 2014 PFS to reduce product moisture prior to shipping.

Material changes in plant design versus the PFS are:

- Sedgman recommended replacement of the thermal drier with a hyperbaric filter. This resulted in equivalent product moisture at a lower capital and operating cost.
- Rather than add the middlings circuit in year 4, it is included in the plant from first production, with the following effects:
  - Higher start-up capital, but lower total capital as this strategy avoids extra mobilization costs and the inefficiency associated with constructing a plant addition.
  - Moderately higher plant yields (coal recovery) in the early years, as the middlings circuit is now active during production from the North and East pits.
  - Total clean production life-of-mine increased from 26.9 million tonnes to 27.1 million tonnes.

Washed coal will be conveyed down the mountain (3 km) and then trucked approximately 13 km to a stockpile/loadout area where the product will ultimately be loaded via 16,000 tonne capacity silo onto railcars on a new rail loop to be located adjacent to Canadian Pacific's ("CP") existing common-user railway. The loadout facility includes silo storage with a batch weigh bulk loading system for accurate load control and freight cost management.

There is one material modification to the PFS with respect to clean coal transportation from plant to loadout:

• Norwest identified an alternate truck model/configuration for the clean coal haul that requires less start-up capital and incurs lower operating cost. Being narrower than the PFS-specified truck, it also has a positive effect on haulroad size, and thus cost.

#### Infrastructure

The Project is located in an infrastructure-rich area. Teck operates a total of five coking coal mines in the Elk Valley and general vicinity: two of these operations are south of Crown Mountain and three are north. As a result, mainline rail, power, supporting communities and services are all nearby.

CP's rail is a combined 16 km from the wash plant: 3 km of overland conveyor and 13 km truck haul.

Power lines will be extended 14 km from the main transmission line to the preparation plant. A natural gas line of similar length is planned to provide heat for the plant, shop, and support facilities.

Existing access roads to the Project will be upgraded: these roads have already been used for logging operations and product transportation by a local quarry.

Water supply will originate from a storage pond to be located adjacent to Grave Creek. Seasonal flow studies and estimated Project water requirements indicate this is a viable solution.

The towns of Sparwood, Elkford, Fernie, and Crowsnest Pass will be the source of the Crown Mountain work force, and house numerous mining-related service industries.

#### Transport

Once loaded onto rail, carrier CP will transport the coal to either Westshore Terminals ("Westshore") near Vancouver, or to Ridley Terminals ("Ridley") near Prince Rupert, where it will be loaded into ships. Westshore, at a distance of approximately 1,200 km, is the terminal of choice for Crown Mountain coal, with an estimated transportation cost (combined rail and port) of US\$25.50/tonne.

Capacity expansion continues at the Vancouver ports and it is believed Westshore will have available capacity when the first coal from Crown Mountain is ready for shipment.

All clean coal production from Crown Mountain is assumed to be exported. Coal is sold FOB vessel.

# General

As Sedgman focused on processing and infrastructure, and Kiewit on mining, Norwest was collecting updated cost quotations for many items, including spare parts, fuel, labour, etc.

Material changes to the PFS assumptions in this category are:

- Labour rates have increased. Local mines recently negotiated new labour agreements that included higher wages. The higher wages result in an increase in mining and processing costs across-the-board. It is assumed Crown Mountain will pay prevailing local wages.
- Fuel prices have decreased by approximately 12 percent from the 2014 assumption in Canadian dollars (28 percent in US dollars).
- Omissions in the 2014 PFS have been identified and addressed:
  - A small contract coal testing lab, and associated staffing, has been added.
  - Additional dozer time has been included to address the proposed spoil disposal strategy designed to mitigate the liberation of selenium.
  - Construction staffing has now been included for years -1 and -2.
- A truck dispatch system (capital equipment and staffing) has been added to support the higher productivities associated with the mining cycle and be consistent with evolving technology and industry best practice.
- Initial pit haul road re-design resulted in a reduced construction cost.
- Performing pre-stripping with Company employees versus contractors achieved considerable savings in mine start-up costs.

# **Coal Quality and Product Mix**

Norwest determined from the 2013 bulk sampling program that the majority of Crown Mountain product will be hard coking coal. A minority amount of PCI coal will be produced. There will be no material amount of thermal coal produced at Crown Mountain.

Based on assumptions employed by Norwest in the PFS, the clean coal product mix is estimated as:

Hard Coking coal	84%
PCI coal	16%

Kobie Koornhof Associates ("Koornhof"), a well-respected coal market specialist, has indicated the North and East Block coals will command near benchmark pricing. The South block hard coking coal product has been discounted to reflect certain parameters that are not as attractive as the North block counterpart, placing that product in a Tier 2 category.

Blending of North and South Block coals, evaluated during the extensive lab testing performed on core, shows potential to increase life-of-mine revenue, and will be investigated by Jameson moving forward. Koornhof has estimated a small premium over South-only coal. Blending was not part of the final optimization process for the PFS, and thus there does exist potential upside in this area. Should blending be pursued, some additional bulk sampling will be required to acquire coal for quality testing. Koornhof has also suggested additional material, particularly from the South Block, be acquired for advanced coking tests and to confirm existing results.

Table 6 presents a summary of Crown Mountain coal quality compared to other western Canadian sources, as contained in the PFS. Of particular note is the relatively high (and attractive) CSR (coke strength after reaction), a property of great importance to coal buyers.

	Crown Mountain Coking Coal <sup>1</sup>		Canadian	Canadian	Control
	North and East Blocks	South Block	NEBC <sup>2</sup> HCC <sup>4</sup>	SEBC³ HCC⁴	Central Alberta <sup>4</sup>
Total Moisture (% as received)	8 - 9	8 - 9	8 - 9	8 - 9	8 - 9
Volatile Matter (% dry)	20.5	18	23 - 24.5	21 - 27	17 - 27
Ash Content (% dry)	9	9	8.3 - 8.6	8.5 - 9.6	8.5 – 9.5
Sulphur Content (% dry)	0.6	0.6	0.45 - 0.55	0.35 - 0.75	0.45 - 0.5
Free Swelling Index (FSI)	7 - 8	4 - 5	7 - 8	6 - 8	5 - 7
Vitrinite Reflectance R <sub>0</sub> Max (%)	1.45	1.59	1.15 - 1.25	1.10 - 1.35	1.10 - 1.60
Maximum Fluidity (ddpm)	30	5	150 - 300	40 - 300	15 - 700
Phosphorus in Coal (% dry)	0.060	0.100	0.008 - 0.040	0.010 - 0.065	0.016 - 0.050
Base/Acid Ratio of Ash	0.07	0.05	0.12 - 0.18	0.07 - 0.10	0.11
CSR (Coke Strength after Reaction)	75	67	58 - 60	68 - 72	58 - 60

*Table 6* – Quality Comparison of Crown Mountain Coal with Other Canadian Export Coking Coals Notes:

<sup>1</sup> Results are based on laboratory scale washing and testing of exploration samples.

<sup>2</sup> North east British Columbia.

<sup>3</sup> South east British Columbia.

<sup>4</sup> Results are based on full washing plant under operating conditions.

Data source: Kobie Koornhof Associates

# **Coal Pricing**

Koornhof has provided coal price forecasts (USD) over the life-of-mine for Crown Mountain's two products (main product: hard coking coal and secondary product: PCI coal), which are shown in the table below:

PERIOD	COAL TYPE	NORTH	SOUTH
Life-of-mine	Hard Coking	\$140 - \$170	\$126 - \$153
	PCI	\$92 - \$112	\$92 - \$112

Table 7 - Coal Pricing Assumptions (USD)

The Update uses the average price forecast by Koornhof: US\$155/t and US\$140/t for North and South Block coking coal respectively, and US\$102/t for the PCI product. Norwest also evaluated sensitivity to changing coal prices, discussed later in this document.

#### **Environmental Issues**

The PFS and ongoing Environmental Assessment ("EA") effort have significantly added to the Company's understanding of environmental issues at Crown Mountain. Importantly, with the Project located in an area populated by operating coal mines, the environmental factors are relatively well defined.

One of the major environmental issues in the Elk Valley relates to metal leaching and its effect on water quality. In particular selenium (and to a lesser degree cadmium, calcite, and other substances) has reached elevated levels in the Elk River watershed. As a result, the province formed a task force headed by Teck that developed the Elk Valley Water Quality Plan (draft report was submitted by Teck on 22 July 2014 and approved later that year by the province). Mitigation and control methodologies to address these issues have played a large role in the conceptual design of the Crown Mountain spoil piles and the use of clay-rich wash plant reject to systematically "cap" spoil areas to reduce water infiltration. The Company is committed to utilizing environmental best practices across the entire operation, and will closely monitor actions by other local mines, and emerging technologies, during the course of mine design and construction.

Jameson installed multiple ground water monitoring stations in 2013 and collects quarterly data. Norwest has evaluated that information and utilized the results to address issues such as pit dewatering and groundwater contamination. The PFS does not anticipate any material environmental challenges associated with groundwater.

Additional permits must be acquired by the Company before mine construction can commence. To apply for these permits, significant study must be performed on areas such as wildlife, water quality, air quality, archaeological issues, etc. While the Company has not submitted any permit applications at this stage, it has been busy collecting the requisite data, and it is Norwest's opinion that the timing schedule provided in the PFS Update (initial mine production by 2020) is reasonably achievable, provided Jameson executes the required critical path permitting and development activities in a timely and administratively complete manner.

As a precursor to permitting, Jameson entered the pre-application phase of the Environmental Assessment ("EA") process in 2014 and has progressed through development and submittal of the Valued Components Document ("VCD"). The final formal step in the pre-application process is to submit and gain acceptance of the Application Information Requirements ("AIR"): Jameson has submitted draft versions of the AIR to the province and expects acceptance during Q2/Q3 of 2017. At that time, preparation of the Application for an Environmental Assessment certificate may commence. The Mine Permit itself, and other related permits, must also be prepared and submitted for approval.

# First Nations, Governmental, and Third Party Issues

Crown Mountain is located in traditional First Nations territory. Specifically, both the Ktunaxa and Shuswap bands claim such traditional use. Jameson has been in contact with these organizations and has established a policy of close cooperation and communication as the project moves forward. First Nations are intimately involved in the mine permitting process through the referral and consultation routines established between First Nations and provincial government. It is incumbent on the province, and in turn Jameson, to understand and address the issues brought forth by First Nations.

Jameson representatives have consulted frequently with First Nations since acquiring the original option on Crown Mountain, and will continue to do so during permitting, construction, and mine operation.

In addition to First Nations, there are governmental and private entities that have certain interests with respect to land use, and can be expected to participate in the permitting process through referral and comment. Such entities include, but are not limited to, local governing authorities and special use organizations such as recreational clubs, etc.

The Company has met with the local governments (councils, mayors) of all the nearby towns including Sparwood, Elkford, Fernie, and the District of Crowsnest Pass. Through events such as an Open House, and the VCD commenting process, Jameson has also had discussions with non-governmental organizations regarding their special issues and concerns.

Norwest has evaluated potential issues that may arise during the permitting process and believes it is reasonably likely Jameson will be able to adequately address these issues and receive the required permits per the project schedule.

All mining and coal processing activities, including refuse and spoil disposal, will occur on land now controlled by Jameson via License. The water supply, access and haulage roads, and preferred rail loop/loadout site are on property controlled by one or more third parties. It is assumed in the PFS that the necessary access and surface disturbance rights will be acquired without major issue. Negotiations are in progress, and certain preliminary documents such as road use agreements and limited access agreements have been in place for several years.

# **UPDATE RESULTS**

### **Capital and Operating Costs**

Start-up capital expenditure to support the mining and processing operation has been estimated in the Update to be \$309.5 million as detailed in Table 8.

Pre-Production Capital	US\$M
Major Mobile Equipment	99.1
Minor Mobile Equipment	9.6
Wash Plant	63.7
Infrastructure (rail load-out, roads, power, offices, shop etc) and permitting	93.2
Pre-Strip	15.6
SUBTOTAL – CAPITAL	281.3
Contingency @ 10%	28.1
TOTAL CAPITAL	309.5

Table 8 – Pre-Production Capital

The mine operating cost estimate considers all aspects of the mining operation, including coal processing, coal and waste loading and haulage, topsoil salvage and replacement, road maintenance, water management, reclamation and site administration. Operating costs are summarised in Table 9.

Cost Category	Cost Per Clean Tonne Life-Of-Mine US\$
Waste Removal	26.47
Coal Mining	4.35
Plant	7.76
Clean Coal Handling	2.24
Reclamation	1.01
Minor equipment	0.77
Marketing/Corporate	1.01
Administration	5.51
Total Costs – Site	49.13
Rail and Port Costs	25.50
Total Costs - FOB (pre-tax and royalty)	74.63

Note: Totals may be off due to rounding.

Table 9 – FOB Costs (Pre-Tax Basis) (excludes sustaining capital)

Alternate acquisition and financing scenarios have also been examined by Norwest designed to reduce startup capital whilst preserving the overall performance of the project.

Two variations were considered:

- <u>Used equipment</u>: For the major mining equipment category only, Norwest estimated selling prices for low-hour used equipment. Operating costs were then adjusted (higher) to reflect the loss of the low-cost early hours of operation.
- <u>Leased equipment</u>: For the major mining equipment, Norwest obtained leasing information as an alternative to buying. Lease rates were obtained for new equipment over a 5 year life with no residual. Longer and more favourable terms may be available once actual bids are placed, potentially lowering operating cost.

Table 10 summarizes the effects on capital and operating cost of the used equipment and leasing alternatives.

Scenario	Start-Up Capital US\$M	LOM CASH FOB US\$/tonne
All Capital	309.5	74.63
With Used Equipment	272.4	76.81
With Leased Equipment	227.3	80.11

Table 10: Used equipment and leasing alternatives effect on CAPEX and OPEX

Sustaining capital requirements, including contingency, included in the NPV and IRR calculations in the section below, are US\$113 million, US\$97 million, and US\$49 million for the base, used equipment, and leased equipment cases respectively.

# **Financial Measures**

The life-of-mine (LOM) is estimated at 16 years, with annual clean coal sales ranging up to 2.1Mtpa based on plant yields, which vary by mining area. A total of 27.1 million tonnes of clean coal are estimated to be sold, of which 22.9 million tonnes is hard coking coal, and the balance PCI.

The clean coal stripping ratio (BCM of waste to tonne of clean coal) ranges from 6.4:1 to 8.7:1 during the first 4 years of operation. This is considered to be low and attractive relative to other surface coking coal projects. The low life-of-mine clean strip ratio of 9.8:1 is due to Crown Mountain's topography and the presence of several major coal seams near surface.

Primary outputs from the PFS Update are listed in Table 11 (pre-tax) and Table 12 (after-tax). Results for the alternate acquisition/financing options are included.

Scenario	Start-Up Capital US\$M	LOM CASH FOB US\$/tonne	IRR %	NPV <sub>10</sub> US\$M
All Capital	309	74.63	40	440
With Used Equipment	272	76.81	44	456
With Leased Equipment	227	80.11	47	457

Table 11 – Prefeasibility Economics (Pre-Tax Basis) (Capital includes 10% contingency)

Scenario	Start-Up Capital US\$M	LOM CASH FOB US\$/tonne	IRR %	NPV <sub>10</sub> US\$M
All Capital	309	74.63	31	267
With Used Equipment	272	76.81	35	280
With Leased Equipment	227	80.11	38	284
With Leased Equipment	227	80.11	38	

Table 12 – Prefeasibility Economics (After-Tax Basis except FOB) (Capital includes 10% contingency)

# Staffing

The mine and plant are staffed to operate 365 days per year, 24 hours per day, less statutory holidays scheduled downtime, and estimated delays due to weather and other events.

Peak hourly labour employment is 270 persons. Staff, which includes supervisory and administrative personnel, totals 54.

#### **Sensitivity Analysis**

Norwest has performed a sensitivity analysis by varying certain factors over the life of the operation, the results of which are presented in Table 13. The selected parameters evaluated are:

• Coal Sales Price: The model is very sensitive to the coal sales price. However, the favourable economics at Crown Mountain provide for positive economics even in the face of lower prices. As the summary (Table 13) demonstrates, the project displays a 31% pre-tax IRR (24% after-tax) at a 10% coal price reduction (equivalent to US\$140/t for North coking coal). Even at a 20% coal price reduction (to US\$ 124/t) the pre-tax and after-tax IRRs are 21% and 17% respectively, highlighting Crown Mountain's attractive cost structure. Similarly, when coal prices are increased above the base assumptions, the benefits are significant: 55% pre-tax and 44% after tax IRR at a 20% increase on sales price (which, at US\$186/t is still considerably below the current market price). The price variations were applied to both coking coal and PCI, across all production areas life-of-mine.

- **Port:** The PFS has assumed shipping out of Vancouver. Should that prove unachievable due to capacity constraints (which are not considered likely in the PFS Update), there is an additional cost of US\$12 to transport coal to the Ridley terminal in NW BC. The base case pre-tax IRR of 40% would drop to 33% in that event.
- **Operating Cost:** Sensitivities to +/- 10% and +/- 20% were evaluated. Operating costs include ore and waste mining, preparation plant, clean coal handling, reclamation, minor equipment, marketing, corporate, and administration (rail and port costs are excluded). The effect on economics is not as significant as coal sales price variation.
- **Capital Cost:** As with operating cost, the effect is not as impactful as varying the coal sales price. The +/- 10% is applied to base capital and contingency.

	NP	V10 (US\$M)			
		Pre	-Tax	Afte	r Tax
	Sensitivity Range	+	-	+	-
Base Case		44	0.6	26	7.2
Selling Price	+/-10%	590.0	291.4	364.4	169.8
Selling Price	+/-20%	739.4	141.7	461.6	70.6
Rail & Port	+US\$12/tonne	313.4		184.3	
<b>Operating Cost</b>	+/-10%	391.0	490.1	235.0	299.3
<b>Operating Cost</b>	+/-20%	302.2	539.7	182.2	331.5
Capital Cost	+/-10%	411.5	469.6	245.9	288.4
		IRR %			
		Pre	-Tax	Afte	r Tax
	Sensitivity Range	+	-	+	-
Base Case		39	.6%	31	.3%
Selling Price	+/-10%	47.6%	31.1%	37.7%	24.5%
Selling Price	+/-20%	55.0%	21.4%	43.7%	16.5%
Rail & Port	+US\$12/tonne	32.5%		25.6%	
<b>Operating Cost</b>	+/-10%	37.2%	42.0%	29.3%	33.3%
<b>Operating Cost</b>	+/-20%	34.6%	44.3%	27.2%	35.1%
Capital Cost	+/-10%	35.6%	44.4%	28.2%	35.1%

Table 13- Sensitivity Analysis

# Key Risks

The material risks identified in the Update are listed below:

- **Market Risk**: While the Norwest economics are based on pricing forecasts from a reputable and respected source (Koornhof), there is no guarantee these forecasts will prove accurate. The Update has used sales prices significantly lower than those prevailing today.
- **Coal Quality**: While the historical, 2012, and 2013 exploration programs have provided what is believed to be reliable and detailed coal quality information; there remains some risk until actual sample shipments have been made from Crown Mountain to prospective customers and accepted as compliant to their specifications.
- **Plant Yield**: Significant information on coal washability was acquired during the summer 2013 bulk sampling and evaluation program. This data is deemed to be sufficient for PFS level engineering. Plant yield has been specifically estimated for each mining area (North, East, and South). The risk of

these estimates being materially in error is judged to be low, particularly after Sedgman's confirmation of the Norwest work

- Environmental/Permitting: Any mining operation must be engineered and managed to meet existing environmental standards, including but not limited to air and water quality. While the environmental base line program and ongoing Environmental Assessment data collection has greatly expanded the knowledge base at Crown Mountain, Jameson is not in a position at this time to accurately determine the government's reaction to what environmental and mining permits Jameson may in the future submit. Further, the siting of certain infrastructure is subject to ongoing environmental studies and the cooperation of the parties controlling the respective areas.
- Port: At this time, it appears likely that sufficient port capacity will exist once Crown Mountain commences operation. However, there are several other coal projects under evaluation in western Canada which also contemplate export. Jameson does not at this time hold a contract for port capacity. Until a contract is executed (currently under management discussion) there remains a risk associated with this category. In addition, should a contract be signed, a new risk may be present if the contracts contain any economic penalties for not meeting committed tonnages, such as take-or-pay stipulations.
- **Mining Risk**: The assumptions regarding the mining operation are based on exploration results and experience in similar conditions, by both Norwest and Kiewit. Equipment selection and performance are based on assumptions believed to be suitable for the Project, however, there is no guarantee the results predicted in the Update will be achieved should excursions from the assumptions occur.

#### **Other Alternatives to Development**

In the course of completing the PFS Update, Norwest, Kiewit, and Sedgman discussed the potential to employ certain alternative methods to a company owned and operated project.

The methods discussed included contract mining. Also reviewed was the possibility of a build-own-operate ("BOO") or build-own-operate-transfer ("BOOT") approach to the processing facilities whereby a third party constructs, owns, and operates the plant and related infrastructure.

These alternatives have merit. However, it was decided not to formally evaluate them at this time. Several factors affect the cost of contractors (labour availability, equipment availability, prevailing interest rates, the cost of bonding, etc) that cannot be fixed at this time to the level of accuracy desired by Jameson.

Despite not fully evaluating these alternatives in the PFS Update, the Company intends to explore all viable alternatives to developing and operating Crown Mountain as the project progresses.

#### **Summary**

The Crown Mountain project is located in an infrastructure-rich area, and work performed to date has concluded that it has a favourable clean coal stripping ratio and will produce predominantly hard coking coal generating attractive economics.

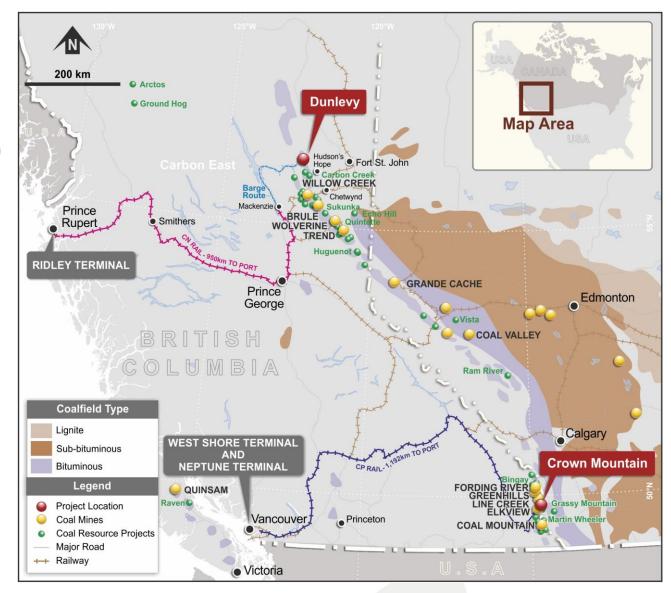


Figure 1: Project Location Plan – Western Canada

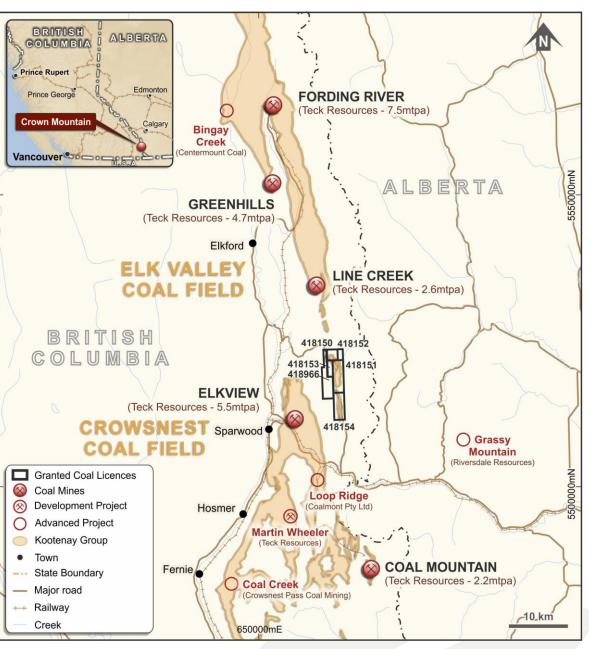


Figure 2: Crown Mountain Regional Location Plan

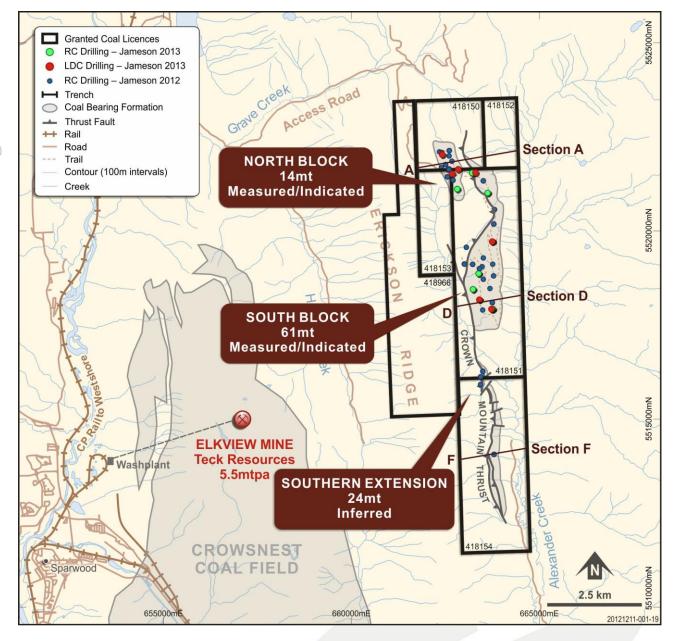


Figure 3: Crown Mountain Exploration Plan with Measured, Indicated, and Inferred Resources Note: Inferred Resources are excluded from the PFS and shown for historical purposes only

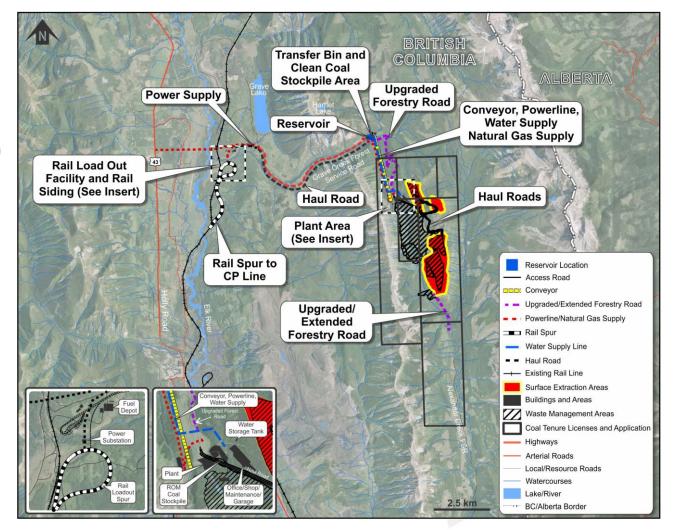


Figure 4: Crown Mountain Site Plan

# **About Jameson Resources Limited**

Jameson Resources Limited (ASX:JAL) is a junior resources company focused on the acquisition, exploration and development of strategic coal projects in western Canada. The Company has a 90% interest in the Crown Mountain coal project in southeast British Columbia, and 100% in the Dunlevy project in northeast British Columbia.

Jameson's tenement portfolio in British Columbia is positioned in coalfields responsible for the majority of Canada's metallurgical coal exports and are all close to railways connecting to export facilities.

To learn more, please contact the Company at +61 89200 4473 visit: www.jamesonresources.com.au

#### **Competent Person Statement**

#### **Reserve Estimate and Prefeasibility Study**

The information in this ASX Announcement that relates to the Coal Reserve Estimate, and the Prefeasibility Study of the Crown Mountain Coal Project as updated in 2017, accurately reflects information prepared by Mr. Jay Horton P. Eng, who is a competent person (as defined by the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves). The information in this public statement that relates to the Coal Reserve Estimate and Prefeasibility Study of the Crown Mountain Coal Project is based on information resulting from works carried out by Norwest Corporation. Mr Horton is a Member of a Recognised Overseas Professional Organisation (ROPO) included in a list promulgated by the ASX from time to time, being the Association of Professional Engineers and Geoscientists of British Columbia. Mr. Horton is an employee of Norwest Corporation and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Horton consents to the inclusion in the document of the matters based on his information in the form and context in which it appears.

#### **Forward Looking Statements**

Some of the statements contained in this ASX announcement are forward-looking statements. Forward looking statements include but are not limited to, statements relating to, among other things, the operations of Jameson and the environment in which it operates. Generally, forward-looking statements can be identified by the use of words such as "plans", "expects" or "does not expect", "is expected", "budget", "scheduled", "estimates", "forecasts", "intends", "anticipates" or "does not anticipate", or variations of such words and phrases or statements that certain actions, events or results "may", "could", "would", "might" or "will be taken", "occur" or "be achieved.

This announcement contains "forward-looking statements". Such forward-looking statements include, without limitation: estimates of future earnings, the sensitivity of earnings to commodity prices and foreign exchange rate movements; estimates of future production and sales; estimates of future cash flows, the sensitivity of cash flows to commodity prices and foreign exchange rate movements; statements regarding future debt repayments; estimates of future capital expenditures; estimates of resources and statements regarding future exploration results; and where the Company expresses or implies an expectation or belief as to future events or results, such expectation or belief is expressed in good faith and believed to have a reasonable basis. However, forward looking statements are subject to risks, uncertainties and other factors, which could cause actual results to differ materially from future results expressed, projected or implied by such forward-looking statements. Such risks include, but are not limited to commodity price volatility, currency fluctuations, the exploration, development and mining of mineral properties; the inability to obtain mine licenses, permits and other regulatory approvals required in connection with mining and processing operations; increased production costs and variances in resource or reserve rates from those assumed in the company's plans, as well as political and operational risks in the countries and states in which we operate or sell product to, and governmental regulation and judicial outcomes. For a more detailed discussion of such risks and other factors, see the Company's Annual Reports, as well as the Company's other ASX announcements. Although the company believes that its expectations reflected in the forward-looking statements are reasonable, such statements involve risk and uncertainties and no assurance can be given that actual results will be consistent with these forward-looking statements.

Various factors could cause actual results to differ from these forward-looking statements and include the potential that the Company's projects may experience technical, geological, metallurgical and mechanical problems, changes in product prices and other risks not anticipated by the Company or disclosed in the Company's published material. The Company does not undertake any obligation to release publicly any revisions to any "forward looking statement" to reflect events or circumstances after the date of this release, or to reflect the occurrence of unanticipated events, except as may be required under applicable securities laws. Forward looking statements are provided as a general guide only and should not be relied on as a guarantee of future performance. The reader is cautioned not to place undue reliance on forward-looking statements or information. Readers are also cautioned to review the risk factors identified by Jameson in its regulatory filings made from time to time with the ASX.

# JORC Code, 2012 Edition – Table 1

### Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul> <li>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as downhole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg, submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul> <li>Reverse circulation ("RC") and large diameter core ("LDC") drilling was used to collect samples.</li> <li>RC samples were collected on 0.5m intervals as soon as coal zones were reached. Drilling was stopped between each sample for dewatering and to allow accurate interval separation.</li> <li>Sample bags were assigned hole and individual sample numbers, zipped tied and stored in heavy duty plastic tubs for transportation to laboratory.</li> <li>For LDC drilling, all coal seams ≥0.5m were sampled. The entire coal zone was sampled and bagged for analysis. Rock partings ≥0.5m were sampled and bagged separately.</li> <li>A suite of geophysical logs, including density, gamma, neutron, temperature and drill hole deviation were run both within drill pipe on all holes and in the open hole where ground conditions permitted.</li> </ul>
Drilling techniques	<ul> <li>Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).</li> </ul>	<ul> <li>In 2012 Jameson Resources Limited ("Jameson") undertook an exploration drilling program which included 40 reverse circulation drill holes for a total of 5,707m.</li> <li>In 2013 Jameson undertook an exploration drilling program which included a total of 6 RC drill holes for 796m and 7 LDC (150mm) core holes for 853m using standard tube.</li> <li>LDC holes were twinned from existing 2012 and 2013 RC pilot holes. Holes were drilled vertical. The majority of the hole was cored. Certain sections of thick interburden (sandstone) were hammer drilled.</li> <li>RC holes were drilled using a conventional face hammer, PDC or tri-cone drill bit.</li> </ul>

Criteria	JORC Code explanation	Commentary
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>	<ul> <li>Core recovery from the LDC was excellent - overall greater than 95%. Prognosis depth to coal seams was known from the geophysical log of the RC pilot hole. The driller was advised prior to reaching the top of the seam. Core catcher tools were used through less competent coal zones to ensure maximum recovery.</li> <li>For the majority of LDC holes all of the coal seam recovered was submitted to a laboratory for coal quality test work</li> <li>2012 RC samples were largely wet and passed over a static 100 mesh screen. 2013 RC samples were passed over a 325 mesh vibrating screen to ensure the vast majority of fine coal was retained and dewatered as much as possible.</li> <li>Sample was collected in polywoven cloth bags on 0.5 metre intervals.</li> </ul>
Logging	<ul> <li>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul> <li>All core was photographed immediately following separation of split barrel at the rig and also following mark-up.</li> <li>Core was geologically and geotechnically logged before sampling and shipment to lab.</li> <li>RC holes were geologically logged.</li> <li>Holes were geophysically logged as described in the section above.</li> <li>All geophysical tools were calibrated by the logging Company (Century Wireline) using their internal calibration procedures.</li> <li>Geophysical logs are analysed extensively and used to confirm and correct geological logs. Validation of geological logs against geophysics is undertaken to ensure accuracy.</li> </ul>

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul> <li>All core coal samples were bagged and placed into heavy duty plastic tubs on site before being transported to Birtley Coal &amp; Minerals ("Birtley") in Calgary for coal quality test work.</li> <li>Roof and floor dilution samples were also collected and sent to the laboratory for test work.</li> <li>Core samples from the roof and floor along with selected zones of interburden have been retained for metal leaching and acid rock drainage analysis. The British Columbia Ministry of Energy and Mines requires this data as part of the environmental approvals process.</li> <li>All remaining core sample (non-coal) was retained in wooden boxes and has been retained on pallets at each drill site within project area.</li> <li>The majority of RC sample collected through the coal zones was retained.</li> <li>Birtley complies with Australian Standards for sample preparation and subsampling.</li> <li>The collection of LDC ensured sufficient bulk sample was retained for all the required coal quality test work.</li> </ul>
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</li> <li>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</li> </ul>	<ul> <li>Birtley adheres to ASTM and ISO preparation and testing specifications and has Quality Control processes in place.</li> <li>Birtley adopts standard quality control procedures and have participated in the International Canadian Coal Laboratories Round Robin Series (CANSPEX) since its inception.</li> <li>Geophysical tools were calibrated by the logging Company Century Wireline using their internal calibration procedures.</li> </ul>

Criteria	JORC Code explanation	Commentary
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul> <li>Many levels of analysis results verification are included in the ASTM standards relating to coal quality analysis.</li> <li>All LDC holes are twinned holes from RC pilot holes drilled in 2012 and 2013 by Jameson. All holes have geophysical logs.</li> <li>Sample and coal quality results were verified by Jameson and Norwest Corporation before being reported or used in the resource model.</li> <li>All analytical data is provided by the coal laboratory and reviewed by external consultants for comments and reporting. No adjustments are made to any coal quality data: they are reported as received from the laboratory.</li> <li>Coal quality data is stored in electronic format (Microsoft Excel) and then transferred to a database retained by Norwest Corporation in Calgary.</li> </ul>
Location of data points	<ul> <li>Accuracy and quality of surveys used to locate drill holes (collar and downhole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>All Jameson drill hole and trench locations are positioned by external professional contract surveyors Garrett Winkel Land Surveying Ltd both prior to and on completion of drilling campaign.</li> <li>Holes are surveyed in UTM NAD83 CSRS datum with geodetic (sea level) elevation.</li> <li>LIDAR topographic survey data with a 1m by 1m spacing was used to create gridded topographical surface.</li> </ul>
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>Drill holes were nominally spaced at 150m in the North Block where geology is classified as Complex and at 250-300m spacings in the South Block where geology is classified as moderate.</li> <li>A total of 12 trenches were constructed using a back hoe. Coal seams exposed were surveyed and provided additional data points used to confirm the geological model.</li> <li>The data spacing is considered sufficient to give accurate control to the resource model and give the required confidence to the resource areas.</li> <li>Coal quality samples were individually analysed. Individual samples from coal intervals from the 2013 drill campaign were subsequently composited on a seam basis.</li> </ul>

Criteria	JORC Code explanation	Commentary
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</li> </ul>	<ul> <li>The orientation and spacing of the drilling grid is deemed to be suitable to detect geological structures and coal seam continuity within the resource area.</li> </ul>
Sample security	• The measures taken to ensure sample security.	<ul> <li>Core when removed from the borehole remains in the core splits until identified and photographed.</li> <li>All coal samples are then bagged and labelled both internally and externall then placed in heavy duty sealed plastic tubs.</li> <li>Samples are transported to laboratory on a hole by hole basis at the completion of each drill hole. A list of samples is created and a receipt is provided by the local courier.</li> <li>All of the un-sampled core is placed in heavy duty sealed wooden boxes an placed on pallets, strapped with metal banding and stored on-site.</li> </ul>
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	<ul> <li>Jameson together with Norwest Corporation, Birtley Coal &amp; Minerals Laboratory and other independent consultants were responsible for implementing and developing the sampling techniques and data capture.</li> <li>Birtley adheres to ASTM and ISO preparation and testing specifications and has Quality Control processes in place.</li> <li>All drill hole and analytical data is stored and retained by Norwest Corporation in a database. Jameson has retained copies of all analytical reports and data in excel format</li> </ul>

# **Section 2 Reporting of Exploration Results**

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</li> <li>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</li> </ul>	<ul> <li>Jameson through its wholly owned Canadian subsidiary NWP Coal Canada Ltd ("NWP Coal") has a 100% interest in the six granted coal licenses covering the Crown Mountain project. The licenses 418150, 418151, 418152, 418153, 418154 and 418966 cover a combined area of 3,563 ha.</li> <li>NWP Coal acquired the coal license rights from Robert J Morris in 2011. On completion of the transaction, Jameson acquired a 90% interest in the property, the remaining 10% being retained by Mr Robert J Morris as an undivided 10% interest (non-profit sharing)</li> <li>Jameson holds an option to acquire the remaining 10% interest. The option agreement requires that Jameson pay an annual rental fee of C\$100,000. If Jameson elects to exercise the option and acquire the remaining 10% interest in the property it is obliged to pay Mr Robert J Morris a fee of C\$2,000,000 which may take the form of a series of staged payments.</li> <li>The only other payment that the property is subject to is the annual rental fee of C\$25,000 and the statutory production royalties to the BC Provincial government.</li> <li>The licences are in good standing, with the most recent payment in April 2017, and Jameson is unaware of any impediments to the security of tenure.</li> </ul>

Criteria	JORC Code explanation	Commentary
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	<ul> <li>In 1969, Crowsnest Industries Ltd. completed a drilling program of 11 holes for a total of 1,668m. Geophysical logs and survey data of the hole collars are the only records that remain from this drill program.</li> <li>In 1979, Crowsnest Resources Ltd / Shell Canada completed a drilling program of 7 holes for a total of 901m. Core drilling was attempted in two shallow holes.</li> <li>In 1980 and 1981, exploration using other methods was completed</li> <li>Only minimal coal quality data was available from the historical exploration programs.</li> </ul>
Geology	Deposit type, geological setting and style of mineralisation.	<ul> <li>The Crown Mountain Coal project lies within the Elk Valley coal field in southeast British Columbia, Canada.</li> <li>The property is divided into three structural domains with separate geological attributes. The domains are referred to as the North Block, South Block, and Southern Extension. The Crown Mountain thrust fault ("CMF") separates the North Block from the South Block and Southern Extension.</li> <li>Coal seams are hosted within the Jurassic to Lower Cretaceous Mist Mountain Formation. The coal bearing Mist Mountain Formation is underlain by the Morrissey Formation which includes the regional cliff forming Moose Mountain Member.</li> <li>Drilling has intersected three principal seams, named 8 Seam, 9 Seam and 10 Seam. The 8 and 10 Seams consist of three major plies. The term major seam has been defined to include all seven seams in order to distinguish them from other coal horizons referred to as rider seams.</li> <li>The seven major seams have combined average net coal zone thickness of 35.32m in the North Block, 15.04m in the South Block and 14.79m in the Southern Extension.</li> </ul>

Criteria	JORC Code explanation	Commentary
Drill hole Information	<ul> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:         <ul> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul>	<ul> <li>At Crown Mountain a total of 71 holes have been drilled on site. A total of 40 holes were drilled by Jameson in 2012 and a total of 13 holes in 2013. Some of the holes were drilled as angle holes.</li> <li>All of the holes excluding CMR79-104 were used in the 2012 resource model. In addition, 12 trenches, 39 outcrop points with coal description an 203 outcrop points with dip and dip direction data were used in the 2012 resource model.</li> <li>A full list of the drill holes used in the resource estimates including easting, northing, elevation, dip and azimuth, downhole depth and coal zone combined thickness and hole length is presented at the end of Table 1.</li> </ul>
Data aggregation methods	<ul> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul> <li>For Crown Mountain a minimum coal thickness of 0.5m and a maximum non-separable parting thickness of 0.5m was used for coal and waste discrimination</li> <li>The compositing of the Reverse Circulation (RC) samples was done by checking the thicknesses and depths of the recorded sample intervals against the depths on the geophysical logs. The sample intervals were ther corrected to the logs, where needed. The composites of the 0.5m samples were assembled based on the sample description and the seam limits of the coal interval from the geophysical logs.</li> <li>The compositing of the core samples was completed in a similar manner as the RC samples; the first step was to adjust the sample depths to those of the geophysical logs and then prepare the composites based on sample description, seam limits of the core photographs. Separable and non-separable partings greater than a thickness of approximately 20cm were sampled independently from the coal. Depending on the parting thicknesses they were included or excluded in the composites. Selected rock parting, roof, and floor samples were analyzed separately from the coal.</li> </ul>

Criteria	JORC Code explanation	Commentary
Relationship between mineralisation widths and intercept lengths	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').</li> </ul>	<ul> <li>All 2013 holes were drilled vertical. Drill holes had a natural tendency to deviate from vertical because of the varying dips of strata and also variance in competency between coal seams and harder sandstone partings.</li> <li>Any bias in apparent thickness was eliminated using geophysical logs.</li> <li>Differentiation of coal of mineable thickness from separable waste intervals is based on true thickness. Using the down-hole survey for each drill hole, ir combination with footwall polylines of each seam, an algorithm was used to convert down-hole lengths into true thickness for each of the intervals in a given coal zone.</li> </ul>
Diagrams	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	<ul> <li>Formal resource and other technical reports containing diagrams drawn to JORC listed requirements have been prepared by independent consulting firm, Norwest Corporation.</li> <li>Diagrams include location maps, drill hole location plans and appropriate sectional views.</li> <li>Jameson has also prepared diagrams for external reporting according to JORC listed requirements.</li> </ul>
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	<ul> <li>Norwest completed a resource estimate for Crown Mountain based on Jameson's 2012 drilling campaign. The resource estimate was released in February 2013 and expressed the opinion that the majority of Crown Mountain coal is expected to be hard coking coal similar to that shipped from neighbouring mines.</li> <li>Norwest also identified the need to perform additional exploration, including bulk sampling, before definitive clean coal quality (and plant yield) can be determined. Results from the coal quality test work from the 2013 drilling campaign are complete.</li> </ul>

Criteria	JORC Code explanation	Commentary
Other substantive exploration data	<ul> <li>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</li> </ul>	<ul> <li>Crown Mountain seams appear to have more non-separable partings than nearby mines; plant yield will be below the prevailing yields of 60 to 70 % in the Elk Valley.</li> <li>Some groundwater has been encountered in drill holes. Five ground water monitoring stations (piezometers) have been installed in selected drill holes. In addition a well has been installed in one of the drill holes in the North Block to monitor water volumes.</li> <li>As a requirement of the Environmental Assessment, significant rock core and cuttings have been collected from the 2013 drilling campaign to assess potential metal leaching and acid rock drainage issues. The consultant (SRK) concluded the Crown Mountain overburden has similar leaching characteristics to the other nearby operating mines in the Elk Valley.</li> </ul>
Further work	<ul> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul> <li>Jameson commenced a pre-feasibility study following revision of the geological model.</li> <li>Further drilling will be required to upgrade the resource status in the Southern Extension from Inferred to Indicated or Measured.</li> </ul>

### Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	<ul> <li>Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.</li> <li>Data validation procedures used.</li> </ul>	• Data is recorded manually onto log sheets in the field. Information is entered into the Norwest database. Data correction and validation checks are undertaken both internally and by external consultants before the data is used for modelling purposes.
Site visits	<ul> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	<ul> <li>Jameson has undertaken several site visits during the year including being present for the duration of the 2012 and 2013 drilling programs.</li> <li>Several reviews were conducted of the field procedures and sampling practices, and they were deemed to be of an acceptable industry standard at the time of the visit.</li> <li>The Vice President of Geology and the Project CP of independent consultants Norwest Corporation's Calgary office undertook several site visits in 2012 and 2013</li> </ul>
Geological interpretation	<ul> <li>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</li> <li>Nature of the data used and of any assumptions made.</li> <li>The effect, if any, of alternative interpretations on Mineral Resource estimation.</li> <li>The use of geology in guiding and controlling Mineral Resource estimation.</li> <li>The factors affecting continuity both of grade and geology.</li> </ul>	<ul> <li>Geological interpretation of stratigraphy and seam continuity is at a stage where confidence is high.</li> <li>An improved interpretation of the overall strata has been undertaken based on the 3D geological model which has been updated with 2013 exploration data.</li> </ul>

Criteria	JORC Code explanation	Commentary
Dimensions	• The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	<ul> <li>The Crown Mountain property is divided into two distinct structural domains separated by a northerly trending thrust fault or CMF. There are three prospects within the project area, the "North Block" which is positioned above the CMF and the "South Block" and "Southern Extension" which are both below the CMF.</li> <li>Strike lengths for each of the three prospects are; North Block – 1.5km, South Block - 4.4km and Southern Extension – 4.1km.</li> <li>The major seams in the North Block are structurally bound within a south plunging syncline, extending from surface to a maximum depth of 155m. Coal seams in the South Block and Southern Extension extend from surface to a maximum depth of 150m and are structurally bound within a dip slope monoclinal setting.</li> </ul>
Estimation and modelling techniques	<ul> <li>The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.</li> <li>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</li> <li>The assumptions made regarding recovery of by-products.</li> <li>Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).</li> <li>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</li> <li>Any assumptions about correlation between variables.</li> <li>Description of how the geological interpretation was used to control the resource estimates.</li> <li>Discussion of basis for using or not using grade cutting or capping.</li> <li>The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</li> </ul>	<ul> <li>The resource model for the Crown Mountain project was developed using Mintec's geological modelling and mine planning software, Minesight<sup>®</sup>. This system is widely used throughout the mining industry for digital resource model development.</li> <li>The selected block size was based on the density of the drill hole dataset as well as the requirements for the mining selectivity of this deposit, in this case being 25m x 25m x 5m.</li> <li>The Geological Type is classified as "Moderate" in the South Block and Southern Extension and "Complex" in the North Block.</li> <li>Thickness models were prepared for the seven major seams 8 upper, 8 middle, 8 lower, 9, 10 upper, 10 middle and 10 lower plus the Rider Seams where appropriate.</li> <li>The depth limit for the potential surface mineable resource was based on a vertical cut-off ratio limit of approximately 20:1 m<sup>3</sup>/tonne, at the discretion of the Qualified Person.</li> <li>Seam specific coal densities were used for the conversion of in-place volumes to in-place tonnes, with the average being 1.56 g/cc.</li> <li>The resource areas include a provision at the coal outcrop to allow for oxidation and weathering of the coal near the surface. The oxidation limit ranges from 10 m to 30 m.</li> <li>Coal thicknesses were determined from drill hole intersections on the property, as well as from geophysical logs.</li> </ul>

Criteria	JORC Code explanation	Commentary				
Moisture	• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	• The tonnages are reported on an As Received Basis with natural moisture included. The moisture content is determined from the results of Proximate Analysis laboratory testing.				
Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	• The resource estimate was made using a minimum thickness of 0.5 m. The estimate was used to define potential surface mineable coal in the individual seams and the results were planned for use in examining different mining options.				
Mining factors or assumptions	<ul> <li>Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.</li> </ul>	<ul> <li>The targeted coal seams at Crown Mountain are suitable for open-cut operations using the truck/shovel mining method. It is expected that the mining conditions at Crown Mountain will be very similar to those at the nearby mines which also use the truck/shovel method.</li> </ul>				
Metallurgical factors or assumptions	<ul> <li>The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.</li> </ul>	<ul> <li>In January 2013, the coal quality aspects of Crown Mountain were reviewed by independent consultants Kobie Koornhof Associates Inc. using public data from historic exploration, regional quality studies and data from the adjacent coal mines. They concluded that in the absence of detailed quality data which would allow a definitive classification of these coals, and based on the information available, the coking coals from Crown Mountain are considered to be similar in quality or very close to, the premium Canadian coking coals.</li> <li>Norwest Corporation made recommendations in February 2013 to undertake a LDC drilling program to obtain bulk sample for washability test work to determine plant yield as well as develop a definitive understanding of the coking properties of clean coal product.</li> <li>Results from the LDC test work have been completed by various laboratories (CANMET, Birtley, SGS, CoalTech, and Pearson) and have beer incorporated into the PFS.</li> <li>Kobie Koornhof Associates reviewed and opined on the lab results in 2014 and in 2017.</li> </ul>				

Criteria	JORC Code explanation	Commentary
Environmental factors or assumptions	<ul> <li>Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.</li> </ul>	<ul> <li>The Preliminary Economic Assessment ("PEA") study shows open-pit mining will commence from the North and advance southwards to the Southern Extension over a 24 year mine life. Waste will be placed as either back-fill as mining is completed or delivered to a West Dump adjacent to the South and North pits. The PFS mine life was reduced to 1 years primarily due to eliminating the "inferred" resource category from consideration, thus removing the southern extension resource area.</li> <li>The PEA and PFS show the wash plant facility will be located on the west side of the North Pit. It is proposed to deliver plant refuse to the West Dump.</li> <li>The greatest potential impacts of surface mining are likely to be those tha affect surface water. In mines developed some years ago in similar physical locations with such topographical constraints, it was the accepte practice in waste dump areas to construct rock drains in the core of the dump as a means to conveying run-off. This method is no longer acceptable for water management since precipitation and runoff waters still interact with mined materials and can thus dissolve substances that occur in those rocks. These affects can cause the surface waters to acquire elevated levels of chemicals beyond those of the original water state. Thus the mine design will require that a diversion ditch and water retention system be employed that minimizes this interaction while ensuring that all mine-affect waters can be treated, if necessary, prior to release.</li> <li>Environmental baseline studies are well advanced with the BC MOE required two year monthly water sampling and quality test work achiever in April 2014. In 2016 sampling was reduced from monthly to quarterly.</li> <li>Hydrological studies including the installation of several down-hole groun water monitoring stations were completed in conjunction with the LDC drilling program in September 2013.</li> <li>Interburden rock samples for the purpose of geochemical analysis to evaluate the p</li></ul>

Criteria	JORC Code explanation	Commentary				
Bulk density	<ul> <li>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.</li> <li>The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.</li> <li>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</li> </ul>	<ul> <li>Seam specific coal densities were used for the conversion of in-place volumes to in-place tonnes, with the average being 1.56 g/cc.</li> </ul>				
Classification	<ul> <li>The basis for the classification of the Mineral Resources into varying confidence categories.</li> <li>Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> </ul>	<ul> <li>The Resource Estimate has been prepared in accordance with the requirements of the Canadian National Instrument (NI) 43-101 and the CIM Definition Standards. NI 43-101 is the Canadian equivalent of the JORC Standard.</li> <li>The mineral resources are classified as to the assurance of their existence into one of three JORC equivalent categories Measured, Indicated and Inferred. The category to which a resource is assigned depends on the level of confidence in the geological information available (CIM Definition Standards –GSC Paper 88-21).</li> </ul>				
Audits or reviews	• The results of any audits or reviews of Mineral Resource estimates.	An internal Company review of the Resource and the associated Technical Reports was undertaken prior to public release of this information.				
Discussion of relative accuracy/ confidence	<ul> <li>Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.</li> <li>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</li> <li>These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</li> </ul>	<ul> <li>The Categories were considered acceptable by the Qualified Person during the classification of the resources.</li> <li>The accuracy of resource estimates is, in part, a function of the quality and quantity of available data and of engineering and geological interpretation and judgment by the Qualified Person.</li> <li>Based on the historical, 2012 and 2013 drill hole data, the resource estimate is considered reasonable.</li> <li>Additional data and analysis available subsequent to the 2013 Resource Estimate estimates has necessitated revisions. These revisions have been included in the Technical Report.</li> <li>There is no guarantee that all or any part of the estimated resources will be recoverable</li> </ul>				

## Section 4 Estimation and Reporting of Ore Reserves

Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.

Criteria	JORC Code explanation	Commentary				
Mineral Resource estimate for conversion to Ore Reserves	<ul> <li>Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserves.</li> <li>Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.</li> </ul>	<ul> <li>The Coal Resource Estimate was first published by Norwest Corporation o January 21, 2013 and re-estimated on March 11, 2014.</li> <li>The Coal Reserves are a subset of the previously released Coal Resources.</li> </ul>				
Site visits	<ul> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	<ul> <li>Jameson has undertaken several site visits including being present for the duration of the 2012 and 2013 drilling programs.</li> <li>Several reviews were conducted of the field procedures and sampling practices, and they were deemed to be of an acceptable industry standard at the time of the visit.</li> <li>The Vice President of Geology and the Project CP of independent consultants Norwest Corporation's Calgary office undertook several site visits in 2012 and 2013</li> </ul>				
Study Status	<ul> <li>The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.</li> <li>The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.</li> </ul>	The Coal Reserves were determined by execution of a Prefeasibility Study.				
Cut-off parameters	• The basis of the cut-off grade or quality parameters applied.	• As with the resource estimate, the cut-off thickness for determining coal reserves was 0.5 meters.				

Criteria	JORC Code explanation	Commentary
Mining factors or assumptions	<ul> <li>The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (ie: either by application of appropriate factors by optimisation or by preliminary or detailed design.</li> <li>The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.</li> <li>The assumptions made regarding geotechnical parameters (ie: pit slopes, stope sizes, etc), grade control and pre-production drilling.</li> <li>The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).</li> <li>The mining dilution factors used.</li> <li>Any minimum mining widths used.</li> <li>The manner in which Inferred Mineral Resources and utilised in mining studies and the sensitivity of the outcome to their inclusion.</li> <li>The infrastructure requirements of the selected mining methods.</li> </ul>	<ul> <li>The method of mining used in the Prefeasibility study is open cut mining, using a fleet of excavators, loaders, dozers, and trucks consistent with similar operations in the general vicinity of western Canada.</li> <li>Pit slopes and berm width/spacing were determined after review of available geotechnical information. Additional geotechnical data must be collected to refine this information.</li> <li>Optimisation was based on a break even stripping ratio analysis using a coal sales price of \$155 USD per tonne at a USD:CAD exchange rate of 0.92.</li> <li>Mining dilution is assumed to be 0.1m of out-of-seam dilution per coal/rock contact with an associated 0.15m pit loss of coal.</li> <li>Mining recovery is the result of applying the dilution factors above, and varies by seam thickness.</li> <li>The minimum mineable seam thickness is 0.5m.</li> <li>Inferred Mineral Resources are excluded from consideration.</li> <li>Infrastructure required includes electrical power, natural gas, roadway, rail loop, and water supply. These items have been included in the capital cost estimate.</li> </ul>
Metallurgical factors or assumptions	<ul> <li>The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.</li> <li>Whether the metallurgical process is well-tested or novel in nature.</li> <li>The nature, amount, and representativeness of metallurgical test work undertaken, the nature of metallurgical domaining applied and the corresponding metallurgical recovery factors applied.</li> <li>Any assumptions or allowances made for deleterious elements.</li> <li>The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.</li> <li>For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?</li> </ul>	<ul> <li>Coal processing will be by heavy media washing and froth floatation.</li> <li>Only well-tested coal washing processes have been incorporated into the plan.</li> <li>A significant amount of coal washability testing was performed in 2013/2014 on bulk samples collected in Q3 2013 via large diameter coring. It is believed this work is representative of the project area. Recovery (plant yield) varies from area to area across the project, but averages 53 percent.</li> <li>Deleterious material (out of seam reject) was assumed to comprise 0.10 meters per coal/rock contact. In addition, 0.15 meters of coal is assumed lost per contact. This is a normal occurrence during the mining process.</li> <li>A rotary breaker is assumed to remove approximately 8 percent of the rock in the ROM material.</li> <li>The 2013 bulk samples are considered to be representative of the coal deposits in the North and South Blocks, which form the study area for the PFS.</li> <li>The coal reserve estimation has been based on producing a product that</li> </ul>

		meets specifications for a high quality hard coking coal shipped from western Canada.
Environmental	• The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	<ul> <li>Significant work on environmental issues has been performed and/or remains in progress. The Company submitted an EA (Environmental Assessment) Project Description in Q4 2014 and is currently (Q2 2017) awaiting EAO approval of the Application Information Requirements portion of the pre-application phase of the EA process.</li> <li>Waste rock characterisation was completed by SRK laboratories on selected rock core collected during the 2013 drilling campaign. That study concluded the waste at Crown Mountain is similar to waste rock found at other local mines. Additional evaluation work is required in this area.</li> <li>No approvals have been sought for waste disposal methods to-date: this will be part of the EA and Mine Permit application processes.</li> </ul>

Criteria	JORC Code explanation	Commentary
Infrastructure	• The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	<ul> <li>Power and natural gas infrastructure is located within 14 km from the project area, and will be extended to site.</li> <li>Rail is within 11 km of the site: the PFS provides for construction of a rail loop alongside of the existing mainline rail.</li> <li>Water supply is approximately 3 km from site. A storage pond will be constructed and water will be pumped along an overland conveyor route to the plant and mine site.</li> <li>Land is available within the tenured area to construct a wash plant and associated facilities. The loadout system is proposed to be constructed on land controlled by others: Jameson has meet with that party and discussions are active, however a siting agreement must still be negotiated and executed.</li> </ul>
Costs	<ul> <li>The derivation or, or assumptions made, regarding projected capital costs in the study.</li> <li>The methodology used to estimate operating costs.</li> <li>Allowances made for the content of deleterious elements.</li> <li>The source of exchange rates used in the study.</li> <li>Derivation of transportation charges.</li> <li>The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specifications, etc.</li> <li>The allowances made for royalties payable, both Government and private.</li> </ul>	<ul> <li>Capital costs for the project were based on actual quotations from vendors and existing comparable data maintained and updated by Norwest Corporation in Q2 2017 with input from Sedgman and Kiewit.</li> <li>Unit operating costs for major equipment were estimated by Kiewit and Norwest by applying updated comparable unit costs from other operations to calculated equipment hours for the project. Sedgman provided processing cost estimates from their extensive database, which was then reviewed by Norwest and incorporated into the Update.</li> <li>Deleterious elements removed in mining are costed the same as ROM material. Some of that material is rejected at the de-rocking station, while the remaining material is processed through the plant: in either case, the appropriate costs are applied.</li> <li>An exchange rate of 0.75 USD per CAD has been used. This rate was obtained from a variety of published, publicly available sources.</li> <li>Transportation charges were estimated through contact with the applicable rail and port facilities, as well as comparing to publicly available information from competing mines in the same area.</li> <li>No allowance has been made for penalties associated with failure to meet product specifications.</li> <li>All applicable Canadian taxes and royalties have been accounted for. There are no private royalties payable.</li> </ul>

Revenue Factors	<ul> <li>The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity prices, exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.</li> <li>The derivation of assumptions made of metal or commodity prices, for the principal metals, minerals, and co-products.</li> </ul>	Coal revenue estimates are based on sales prices provided by Kobie Koornhof Associates, a recognized expert in price forecasting for coal.
Market assessment	<ul> <li>The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.</li> <li>A customer and competitor analysis along with the identification of likely market windows for the product.</li> <li>Price and volume forecasts and the basis for these forecasts.</li> <li>For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.</li> </ul>	<ul> <li>The market assessment was performed by Norwest Corporation with input from Kobie Koornhof Associates and publicly available data from numerous sources.</li> <li>The likely market for project output is the worldwide export market for two products: hard coking coal, and PCI coal.</li> <li>The price and volume forecasts were prepared by Norwest Corporation from internal and external sources and updated by Kobie Koornhof Associates in Q1 2017.</li> <li>Testing and acceptance criteria vary by customer. As the project is located in an area that has historically produced high quality hard coking coal for the export market, there is an established knowledge base for the predicted product. However, additional testing will be required as customer agreements are being negotiated. This would not occur until during or after a Feasibility-level study.</li> </ul>
Economic	<ul> <li>The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.</li> <li>NPV ranges and sensitivity to variations in the significant assumptions and inputs.</li> </ul>	<ul> <li>The inputs to the economic analysis are the operating costs, capital cost estimates, transportation costs, tax and royalty rates, and sales revenue. These inputs are sourced from the PFS.</li> <li>There is no provision in the PFS for inflation or escalation: all economic data was prepared in 2014 dollars and Updated in Q2 2017 to 2017 dollars.</li> <li>A discount rate of 10 percent was used for the NPV evaluation. Sensitivities were evaluated to sales price, operating cost, capital, and various project financing methods (ie: leasing versus purchase).</li> </ul>
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	<ul> <li>Jameson has developed a relationship with affected First Nations. No agreements currently exist.</li> <li>Other key stakeholders include local communities, recreation groups, and special-interest organizations. Several discussions, both formal and informal, have occurred.</li> </ul>
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore	<ul> <li>Naturally occurring risks include environmental factors such as potential metal leaching issues, ground water, and wildlife concerns. These issues</li> </ul>

	<ul> <li>Reserves:</li> <li>Any identified material naturally occurring risks.</li> <li>The status of material legal agreements and marketing arrangements.</li> <li>The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.</li> </ul>	<ul> <li>will be addressed during execution of the EA process.</li> <li>There are no material legal or marketing agreements.</li> <li>It is anticipated all required approvals can be obtained to construct and operate a mine within the timeframe specified in the PFS. There are five other operating coal mines in the area, and Crown Mountain does not possess any unique challenges to the area.</li> <li>Several governmental permits are required before mine construction can begin. These have not yet been applied for; however, the Company has entered the pre-application phase of the EA process, having submitted the valued Components Document ("VCD") and an advanced draft of the Application Information Requirements ("AIR"). The next significant permitting activity is the formal Environmental Assessment process, which is estimated to take approximately two years to successfully complete. During that timeframe several other specialized permitting activities will occur. While the Company does not foresee material issues that would preclude the required permits.</li> <li>Extraction of the reserve is contingent on governmental approvals. It is also contingent on successfully constructing a processing facility on privately owned land (Teck) or an alternate location. Discussions are underway with multiple parties.</li> </ul>
Classification	<ul> <li>The basis for the classification of the Ore Reserves into varying confidence categories.</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> <li>The proportion of probable Ore Reserves that have been derived from the Measured Mineral Resources (if any).</li> </ul>	<ul> <li>The basis for reserve classification are the NI43-101 and JORC 2012 reporting requirements.</li> <li>The Competent Person is in full agreement with the results and has so indicated by written consent.</li> </ul>
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	• The coal reserve estimates prepared by Norwest Corporation were subjected to internal peer review. Norwest is a non-related third party, and the Company has not undertaken any formal audit of the Norwest work.
Discussion of relative accuracy/ confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an	<ul> <li>The Categories were considered acceptable by the Qualified Person during the classification of the resources.</li> <li>The accuracy of resource estimates is, in part, a function of the quality and quantity of available data and of engineering and geological interpretation and judgment by the Qualified Person.</li> <li>Based on the historical, 2012 and 2013 drill hole data, the resource</li> </ul>

<ul> <li>approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.</li> <li>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</li> <li>Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.</li> <li>It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</li> </ul>	
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## **Section 5 Estimation of Diamonds and Gems**

This section is not addressed as no diamonds or other gemstones are reported for this project.



Hole Name         Easting (m)           CM12-01-CH         662429           CM11-12-CH         662221           CM11-12-CH         662221           CM13-15         663221           CM13-15         663221           CM13-15         663221           CM13-15         663223           CM13-16         662232           CM13-12         663765           CM13-25         663769           CM1-12-CH         663769           CM1-12-CH         663262           CM1-19-CH         663409           CM1-10         662264           CM1-10         662643           CM1-10         662643           CM1-10         662582           CM1-10         662582           CM1-10         662582           CM1-10         662590           CM1-10         663500           CM1-12         663750           CM1-14         663500           CM1-15         663763           CM1-16         663763           CM1-17         66311           CM1-28         663752           CM1-18         663763           CM1-18         663763										0					
CM11-12-CH         662256           CM13-15         663221           CM13-15         663221           CM13-15         663221           CM13-15         663221           CM13-15         663221           CM13-16         663223           CM13-17         663623           CM12-2CH         663756           CM13-25         663769           CM1-22-CH         663756           CM13-25         663769           CM1-19-CH         663409           CM1-102         662260           CM1-102         662260           CM1-102         662643           CM1-102         662643           CM1-03B         662437           CM1-04         662502           CM1-02B         662622           CM1-04         663500           CM1-12B         663502           CM1-12B         663275           CM1-12B         663262           CM1-12B         663275           CM1-12B         663276           CM1-12B         663763           CM1-12B         663763           CM1-2B         663272           CM1-2B         663272	Name	Easting (m)	Northing (m)	Elev (m)	Dip	Azm	Lease	Prospect	Hole Type	Coal Zone Combined Net	Geological Model	Core Diameter	Geophysical Tools Run	Total Depth (m)	Year Drilled
CM11-12-CH         662856           CM11-15-CH         662212           CM13-15-CH         663221           CM13-15-CH         663223           CM11-11-CH         662204           CM13-15-CH         663756           CM12-12-CH         663756           CM13-12-CH         663756           CM13-12-CH         663756           CM13-22-CH         663756           CM13-20         662264           CM1-19-CH         663409           CM1-102         662260           CM1-02         662260           CM1-03B         662476           CM1-04         662623           CM1-02         662830           CM1-03B         662437           CM1-04         662530           CM1-03B         662437           CM1-04         662530           CM1-05         663350           CM1-104         663500           CM1-128         663757           CM1-14         663500           CM1-121         663763           CM1-122         663753           CM1-124         663763           CM1-124         663763           CM1-245         6	01-CH	662429	5522037	2143	Vertical	-	418150	North	LDC	Thickness (m) 32.89	YES	150mm	CDRGNVT	152	2013
CM13-15-CH         663225           CM11-11-CH         667704           CM11-11-CH         662704           CM13-06         662823           CM13-17         663621           CM13-25-CH         663769           CM13-25-CH         663769           CM13-19         663402           CM13-19         663402           CM1-102         662626           CM1-102         662669           CM1-103B         662476           CM1-104         662621           CM1-103B         662476           CM1-104         662523           CM1-107         662689           CM1-108         6633705           CM1-104         663523           CM1-105         663481           CM1-104         663523           CM1-105         663481           CM1-106         663432           CM1-119         663407           CM1-121         663755           CM1-128         663755           CM1-19         6634307           CM1-218         663755           CM1-218         663752           CM12-19         663732           CM12-19         663742 </td <td></td> <td></td> <td>5521641</td> <td>2171</td> <td>Vertical</td> <td>-</td> <td>418150</td> <td>North</td> <td>LDC</td> <td>15.42</td> <td>YES</td> <td>150mm</td> <td>CDRGNVT</td> <td>73</td> <td>2013</td>			5521641	2171	Vertical	-	418150	North	LDC	15.42	YES	150mm	CDRGNVT	73	2013
CM11-11-CH         662704           CM13-10         662823           CM13-20         663756           CM13-22-CH         663756           CM13-25         663769           CM13-25         663769           CM13-20         663262           CM13-20         663262           CM1-19-CH         663409           CM1-102         662603           CM1-102         662623           CM1-103A         662476           CM1-03A         662521           CM1-04         663500           CM1-02B         662521           CM1-04         663500           CM1-14         663500           CM1-14         663500           CM1-14         663500           CM1-14         663500           CM1-16C         663481           CM1-17         663511           CM1-21         663763           CM1-21         663763           CM1-21         663763           CM1-21         663763           CM1-21         663763           CM1-21         663763           CM1-22         663415           CM1-24         663773			5521546	2132	Vertical	-	418151	East	RC	8.8	YES	n/a	CDRGNVT	139	2013
CM13-06         662823           CM13-07         663621           CM13-27         663769           CM13-25-H         663769           CM13-25-H         663769           CM13-27-H         663402           CM13-19         663402           CM1-19-CH         663264           CM13-19         663402           CM1-104         662263           CM1-104         662263           CM1-103         662476           CM1-104         662621           CM1-103         662483           CM1-104         662503           CM1-02         663393           CM1-104         662521           CM1-105         662323           CM1-106         662398           CM1-118         663500           CM1-121         663407           CM1-122         663069           CM1-121         663755           CM1-122         663307           CM1-123         663755           CM1-124         663752           CM1-218         663752           CM12-19         663413           CM12-17         663152           CM12-28         663752 <td></td> <td></td> <td>5521545</td> <td>2132</td> <td>Vertical</td> <td>-</td> <td>418151</td> <td>East</td> <td>LDC</td> <td>10.22</td> <td>YES</td> <td>150mm</td> <td>CDRGNVT</td> <td>124</td> <td>2013</td>			5521545	2132	Vertical	-	418151	East	LDC	10.22	YES	150mm	CDRGNVT	124	2013
CM13-17         663621           CM13-12         C663769           CM13-25-CH         663769           CM13-25-CH         663769           CM13-25-CH         663769           CM13-19-CH         663409           CM13-19         663402           CM13-19         663402           CM1-102         662566           CM1-03B         662476           CM1-04         662638           CM1-07         662689           CM1-08         662398           CM1-108         662392           CM1-104         663501           CM1-105         663407           CM1-106         663481           CM1-122         663751           CM1-124         663752           CM1-125         663742           CM1-126         663481           CM1-127         663512           CM1-28         663753           CM1-29         663753           CM1-218         663763           CM12-19         663732           CM12-19         663732           CM12-19         663743           CM12-28         663743           CM12-29         663415 </td <td></td> <td></td> <td>5521503 5521114</td> <td>2088 1998</td> <td>Vertical Vertical</td> <td>-</td> <td>418151 418151</td> <td>North North</td> <td>LDC RC</td> <td>13.67 4.95</td> <td>YES</td> <td>150mm n/a</td> <td>CDRGNVT CDRGNVT</td> <td>126 54</td> <td>2013</td>			5521503 5521114	2088 1998	Vertical Vertical	-	418151 418151	North North	LDC RC	13.67 4.95	YES	150mm n/a	CDRGNVT CDRGNVT	126 54	2013
CM11-22-CH         663756           CM13-25         663756           CM13-25         663769           CM13-25         663769           CM13-20         663240           CM13-19-CH         663409           CM13-20         662240           CM13-19         663409           CM1-102         6622609           CM1-104         662651           CM1-038         662476           CM1-034         662432           CM1-034         662521           CM1-034         662532           CM1-104         663500           CM1-114         663500           CM1-142         663763           CM1-142         663763           CM1-14         663500           CM1-14         663500           CM1-17         663311           CM1-28         663763           CM1-21         663763           CM1-21         663763           CM1-21         663763           CM1-21         663763           CM1-21         663763           CM12-18         663763           CM12-19         663752           CM12-29         663412 <t< td=""><td></td><td></td><td>5520986</td><td>2138</td><td>Vertical</td><td>-</td><td>418151</td><td>South</td><td>RC</td><td>8.35</td><td>YES</td><td>n/a</td><td>CDRGNVT</td><td>194</td><td>2013</td></t<>			5520986	2138	Vertical	-	418151	South	RC	8.35	YES	n/a	CDRGNVT	194	2013
CM13-25-CH         663769           CM13-29-CH         663409           CM11-19-CH         663409           CM11-02         662264           CM11-02         662269           CM11-03B         662476           CM11-04         662613           CM11-07         662689           CM11-08         662476           CM11-07         662689           CM11-08         662398           CM11-108         663375           CM11-14         663500           CM11-18         663690           CM11-18         663407           CM11-18         663407           CM11-22         6633751           CM11-18         6636309           CM11-18         663763           CM1-21         663752           CM1-21         663753           CM1-21         663753           CM12-21         663173           CM12-21         663173           CM12-21         663173           CM12-21         663173           CM12-21         663173           CM12-21         663173           CM12-23         663252           CM12-24         663763			5519710	2121	Vertical	-	418151	South	LDC	15.74	YES	150mm	CDRGNVT	126	2013
CM11-19-CH         663409           CM13-19         663240           CM13-19         662243           CM1-102         662609           CM1-104         662513           CM1-103B         662476           CM1-104         662521           CM1-103B         662476           CM1-102B         662621           CM1-102B         662621           CM1-102B         662621           CM1-102B         662532           CM1-104         663520           CM1-122         663757           CM1-14         663520           CM1-18         663492           CM1-19         663492           CM1-10         663492           CM1-120         6633763           CM1-21         663763           CM1-21         663763           CM1-21         663763           CM1-21         663763           CM1-21         663773           CM1-21         663773           CM1-228         663722           CM12-19         663712           CM12-29         663413           CM12-29         663413           CM12-21         663763	25	663769	5517927	1938	Vertical	-	418151	South	RC	12	YES	n/a	CDRGNVT	115	2013
CM13-20         663264           CM13-20         663402           CM11-19         662402           CM11-02         662263           CM11-12         662856           CM11-03A         662483           CM11-04         662285           CM11-03A         662483           CM11-03B         662245           CM11-04         662523           CM11-07         662623           CM11-08         662327           CM11-14         663500           CM11-18         6636492           CM11-19         663407           CM11-19         663407           CM11-19         663407           CM11-19         6633796           CM11-19         6633796           CM12-12         6633755           CM12-13         663252           CM12-10         6624120           CM12-10         662420           CM12-10         662421           CM12-10         662420           CM12-10         662420           CM12-10         662420           CM12-10         662420           CM12-13         662525           CM12-24         663152 </td <td>25-CH</td> <td>663769</td> <td>5517924</td> <td>1938</td> <td>Vertical</td> <td>-</td> <td>418151</td> <td>South</td> <td>LDC</td> <td>10.89</td> <td>YES</td> <td>150mm</td> <td>CDRGNVT</td> <td>102</td> <td>2013</td>	25-CH	663769	5517924	1938	Vertical	-	418151	South	LDC	10.89	YES	150mm	CDRGNVT	102	2013
CM13-19         663402           CM13-19         662402           CM1-02         662609           CM1-04         662613           CM1-103B         662476           CM1-04         662633           CM1-07         662689           CM1-08         662232           CM1-108         662398           CM1-104         663502           CM1-122         663757           CM1-14         663500           CM1-122         6633757           CM1-14         6633600           CM1-16C         663481           CM1-17         663311           CM1-18         663796           CM1-19         663796           CM1-21         663795           CM1-28         663753           CM1-29         663723           CM1-201B         662422           CM12-17         663512           CM12-18         6633763           CM12-29         663415           CM12-29         663415           CM12-21         663725           CM12-24         663763           CM12-25         663252           CM12-34         663763			5518162	1886	Vertical	-	418151	South	LDC	18.55	YES	150mm	CDRGNVT	150	2013
CM11-02 662609 CM11-04 662513 CM11-03A 662476 CM11-03A 662483 CM11-03B 662476 CM11-03A 662483 CM11-02B 662621 CM11-02B 662621 CM11-02B 662621 CM11-02B 662621 CM11-02 663757 CM11-14 663520 CM11-22 663757 CM11-14 663520 CM11-14 663520 CM11-14 663492 CM11-19 663407 CM11-17 663511 CM12-12 663796 CM11-17 663511 CM12-21 663796 CM12-116 663763 CM12-12 663763 CM12-12 663763 CM12-12 663763 CM12-12 663763 CM12-12 663763 CM12-13 663763 CM12-14 665422 CM12-19 663415 CM12-29 663415 CM12-29 6634515 CM12-21 663752 CM12-21 663752 CM12-13 663752 CM12-14 665752 CM12-15 663232 CM12-29 663415 CM12-28 663752 CM12-28 663752 CM12-28 663752 CM12-28 663752 CM12-34 663763 CM12-34 663763 CM12-34 663763 CM12-34 663763 CM12-34 663763 CM12-34 663763 CM12-34 663763 CM12-34 663776 CM12-34 663776 CM12-34 663776 CM12-34 663776 CM12-34 663776 CM12-34 663776 CM12-34 663776 CM12-34 663776 CM12-34 663777 CM12-34 663777 CM12-34 663777 CM12-34 663777 CM12-34 663777 CM12-34 663777 CM12-34 663777 CM12-34 663778 CM12-34 66378 CM12-34 663778 CM12-34 663778 CM12-34 663778 CM12-34 663778 CM12-34 663778 CM12-34 663778 CM12-34 663778 CM12-34 66378 CM12-34 663			5518426	1877	Vertical	-	418151	South	RC	11.85	YES	n/a	CDRGNVT	158	2013
CM11-04         662613           CM11-03         662245           CM11-03A         662483           CM11-03A         662483           CM11-03A         6622483           CM11-03B         662243           CM11-03B         662243           CM11-04         662523           CM11-02B         662527           CM11-14         663520           CM11-14         6635492           CM11-18         6636492           CM11-19         663407           CM11-19         663407           CM11-12         6633796           CM11-12         6633796           CM11-12         6633796           CM12-12         6633793           CM12-13         663222           CM12-14         663752           CM12-16         663752           CM12-17         663512           CM12-18         663752           CM12-19         663752           CM12-17         663512           CM12-28         663752           CM12-29         6631415           CM12-24         663152           CM12-24         663145           CM12-348         663748			5518852	1929	Vertical	-	418151	South	RC	4.5	YES	n/a	CDRGNVT	136 174	2013
CM1-12         662856           CM1-03B         662476           CM1-03B         662476           CM1-03B         662476           CM1-03C         662689           CM1-02B         662621           CM1-12C         663757           CM1-122         663757           CM1-122         663757           CM1-14         663590           CM1-14         663375           CM1-16C         663481           CM1-22         66307           CM1-21         663376           CM1-22         663755           CM1-21         663796           CM1-22         663753           CM1-23         663755           CM1-24         663755           CM1-25         663222           CM1-208         663743           CM12-18         663743           CM12-19         663732           CM12-28         6631415           CM12-29         663415           CM12-29         663415           CM12-29         663415           CM12-21         663763           CM12-24         663763           CM12-348         6637461			5522132 5521986	2209 2200	50 Vertical	60	418150 418150	North North	RC	27.1 19.45	YES	n/a n/a	CDRGNV CDRGNV	174	2012 2012
CM11-03B 662476 CM11-03A 662483 CM11-07 662689 CM11-02B 662621 CM11-11 662692 CM11-02B 663757 CM11-12 663757 CM11-14 663520 CM11-12 663370 CM11-18 663492 CM11-18 663492 CM11-17 663310 CM11-17 663310 CM12-21 663096 CM12-21 663096 CM12-21 663763 CM12-18 663809 CM12-21 663763 CM12-18 663809 CM12-01A 662422 CM12-01A 662421 CM12-01B 662420 CM12-02 663252 CM12-10 662417 CM12-12 6633763 CM12-12 663763 CM12-12 663763 CM12-12 663763 CM12-12 663752 CM12-23 663252 CM12-24 663752 CM12-24 663752 CM12-25 663232 CM12-24 663752 CM12-34 663763 CM12-34 663776 CM12-34 663776 CM12-34 663763 CM12-34 663776 CM12-34 663776 CM12-34 663776 CM12-34 663776 CM12-34 663778 CM12-34 663778 CM12-34 663777 CM12-34 663777 CM12-34 663777 CM12-34 663777 CM12-34 663777 CM12-34 663777 CM12-34 663778 CM12-35 663232 CM169-31 663278 CM169-32 663232 CM169-33 663442 CM169-31 663278 CM169-34 663488 CM169-34 663488 CM169-34 663488 CM169-34 663488 CM169-34 663488 CM169-34 663488 CM169-34 663488 CM169-37 663807 CM169-31 663278 CM169-31 663278 CM169-32 663308 CM169-34 663488 CM169-35 663428 CM169-34 663488 CM169-35 663428 CM169-34 663488 CM169-34 66348			5521636	2171	Vertical	-	418150	North	RC	14.8	YES	n/a	CDRGNV	116	2012
CM11-03A         662483           CM11-07         662683           CM11-07         662683           CM11-08         662523           CM11-08         662523           CM11-14         663520           CM11-18         663590           CM11-18         663690           CM11-10         663492           CM11-10         663492           CM11-12         663307           CM11-12         663306           CM11-12         663307           CM11-12         663376           CM11-12         663376           CM11-12         663376           CM12-12         663376           CM12-13         663222           CM12-01B         662420           CM12-10         662412           CM12-10         662421           CM12-10         662422           CM12-10         662420           CM12-28         663752           CM12-29         663152           CM12-24         663152           CM12-24         663152           CM12-348         663761           CM12-348         663478           CM12-348         663478			5521050	2141	50	265	418150	North	RC	23.6	YES	n/a	DGN	125	2012
CM1-02B         662621           CM1-10         662692           CM1-11         662592           CM1-22         663757           CM1-14         663520           CM1-14         663520           CM1-18         663520           CM1-18         663492           CM1-19         663492           CM1-19         663492           CM1-19         663491           CM1-21         663363           CM1-21         663763           CM1-21         663763           CM1-21         663763           CM1-21         663763           CM1-21         663763           CM1-218         663763           CM12-19         663712           CM12-29         663415           CM12-29         663417           CM12-29         663417           CM12-29         6634175           CM12-21         663522           CM12-21         663523           CM12-23         663542           CM12-24         663763           CM12-25         663232           CM12-34A         663763           CM12-34B         663478			5521909	2142	Vertical	-	418150	North	RC	31.9	YES	n/a	CDRGNV	186	2012
CM11-11         662692           CM11-08         662398           CM11-08         663398           CM11-22         663357           CM11-18         663690           CM11-19         663492           CM11-19         663492           CM11-19         663492           CM11-10         663492           CM11-12         663069           CM11-13         663536           CM1-121         663766           CM11-15         663755           CM12-18         663890           CM12-018         662420           CM12-019         662412           CM12-10         662412           CM12-10         662417           CM12-10         662412           CM12-10         663415           CM12-12         663152           CM12-13         663523           CM12-24         663152           CM12-31         662529           CM12-348         663761           CM12-348         663761           CM12-348         663478           CM12-348         663478           CM12-348         663478           CM12-348         663478 </td <td>07</td> <td>662689</td> <td>5521856</td> <td>2184</td> <td>Vertical</td> <td>-</td> <td>418150</td> <td>North</td> <td>RC</td> <td>18.8</td> <td>YES</td> <td>n/a</td> <td>CDRGNV</td> <td>163</td> <td>2012</td>	07	662689	5521856	2184	Vertical	-	418150	North	RC	18.8	YES	n/a	CDRGNV	163	2012
CM1-08         662398           CM1-08         662398           CM1-122         6633757           CM1-14         663350           CM1-14         663357           CM1-14         663350           CM1-16C         663481           CM1-17         663151           CM1-17         6633765           CM1-21         663796           CM1-22         663755           CM1-21         663796           CM1-22         663755           CM1-218         6633765           CM12-018         662422           CM12-018         662422           CM12-018         662422           CM12-019         6633755           CM12-19         6633793           CM12-29         663415           CM12-29         663415           CM12-29         663415           CM12-29         663415           CM12-29         663415           CM12-29         663415           CM12-31         662580           CM12-34A         663763           CM12-34B         663478           CM12-34B         663478           CM12-34B         663478	02B	662621	5522137	2209	Vertical	-	418150	North	RC	22.8	YES	n/a	CDRGNV	144	2012
CM1-22         663757           CM1-14         663520           CM1-18         663520           CM1-18         663492           CM1-18         663492           CM1-19         663492           CM1-19         663492           CM1-19         663311           CM1-21         663363           CM1-21         6633763           CM1-21         663763           CM1-21         663763           CM1-21         663763           CM1-218         663809           CM12-01A         662422           CM12-19         663793           CM12-29         663415           CM12-29         663415           CM12-28         663752           CM12-29         663415           CM12-28         663763           CM12-31         662581           CM12-34A         663763           CM12-34B         663478           CM12-34B         663478           CM12-34B         663478           CM12-34B         663478           CM12-34B         663478           CM12-34B         663478           CM12-34B         663478 <tr< td=""><td>11</td><td>662692</td><td>5521515</td><td>2087</td><td>Vertical</td><td>-</td><td>418151</td><td>North</td><td>RC</td><td>14.25</td><td>YES</td><td>n/a</td><td>CDRGNV</td><td>142</td><td>2012</td></tr<>	11	662692	5521515	2087	Vertical	-	418151	North	RC	14.25	YES	n/a	CDRGNV	142	2012
CM11-14         663520           CM11-18         663690           CM11-18         663690           CM11-19         663492           CM11-19         663407           CM11-170         663492           CM12-11         663069           CM12-121         663765           CM12-131         663755           CM12-14         663809           CM12-15         663755           CM12-16         662420           CM12-10         6624212           CM12-10         6624212           CM12-10         6624212           CM12-10         6624212           CM12-10         6624212           CM12-10         6624212           CM12-17         663512           CM12-28         663752           CM12-29         663415           CM12-28         663752           CM12-29         6631415           CM12-31         6625289           CM12-348         663761           CM12-348         663761           CM12-348         663748           CM12-348         663742           CM12-348         663742           CMR69-25         662503 <td></td> <td></td> <td>5521673</td> <td>2059</td> <td>Vertical</td> <td>-</td> <td>418150</td> <td>North</td> <td>RC</td> <td>2.85</td> <td>YES</td> <td>n/a</td> <td>CDRGNV</td> <td>82</td> <td>2012</td>			5521673	2059	Vertical	-	418150	North	RC	2.85	YES	n/a	CDRGNV	82	2012
CM1-18         663690           CM1-16C         663481           CM1-16C         663481           CM1-19         663407           CM1-10         663312           CM1-17         663511           CM1-21         663796           CM1-21         663795           CM1-21         663795           CM1-21         663795           CM1-21         663795           CM1-21         663755           CM1-21         663755           CM1-21         663755           CM1-21         663755           CM12-01         662422           CM12-01         662422           CM12-01         662422           CM12-01         662422           CM12-01         662422           CM12-10         663793           CM12-24         663745           CM12-25         662520           CM12-31         662588           CM12-34         663761           CM12-34         663763           CM12-348         663478           CM12-348         663478           CM12-348         663478           CM12-348         663478			5519707	2121	Vertical	-	418151	South	RC	14.8	YES	n/a	CDRGV	166	2012
CM11-16C         663481           CM11-10         663492           CM11-12         663492           CM11-17         663307           CM12-11         663306           CM12-12         663069           CM11-15         663763           CM12-12         663753           CM12-12         663753           CM12-12         663752           CM12-101B         662420           CM12-101B         663752           CM12-19         663752           CM12-19         663752           CM12-28         663752           CM12-29         663455           CM12-28         663752           CM12-29         663455           CM12-28         663752           CM12-29         663455           CM12-31         662568           CM12-34A         663761           CM12-34B         663740           CM12-34B         663741           CM12-34B         663742           CM12-34B         663742           CM12-34B         663742           CM12-34B         663742           CM12-34B         663742           CM12-34B         663742			5519291	2000	Vertical	-	418151	South	RC	17.1	YES	n/a	DGN	136	2012
CM11-20 663492 CM11-17 663511 CM12-21 663069 CM11-17 663516 CM12-21 663766 CM11-15 663763 CM11-15 663763 CM11-15 663763 CM12-18 663809 CM12-01B 662420 CM12-01B 662420 CM12-01B 662420 CM12-01B 662420 CM12-01B 662420 CM12-01B 662421 CM12-10 662417 CM12-17 663512 CM12-10 662413 CM12-28 663752 CM12-28 663752 CM12-28 663752 CM12-24 663015 CM12-28 663752 CM12-24 663015 CM12-31 662558 CM12-31 662559 CM12-04 662590 CM12-04 662590 CM12-04 662590 CM12-04 662590 CM12-04 663761 CM12-38 663440 CM12-38 663442 CM12-38 66342 CM12-38 66342 CM12-39 66350 CMR69-31 663278 CMR69-31 663278 CMR69-33 662585 CMR69-34 663438 CMR69-35 663542 CMR79-101 662587 CMR79-102 663809 CMR79-102 663809 CMR79-102 663809 CMR79-104 663253			5518475	1957	Vertical	-	418151	South	RC	13.25	YES	n/a	DGNV	109	2012
CM11-19 663407 CM11-17 663511 CM12-17 663511 CM12-21 6633796 CM12-21 6633796 CM12-21 6633796 CM12-21 663755 CM12-18 663755 CM12-18 6632422 CM12-01B 662420 CM12-09 662427 CM12-01B 662420 CM12-09 662427 CM12-17 663512 CM12-19 663373 CM12-19 663373 CM12-29 663415 CM12-29 663415 CM12-24 6633752 CM12-31 662579 CM12-34 663763 CM12-34 663763 CM12-34 663763 CM12-34 663746 CM12-34 663746 CM12-34 663746 CM12-34 663745 CM12-34 663745 CM2-34 66344 CM2-34 663745 CM2-34 66374 CM2			5519045 5517898	1957 1862	Vertical Vertical	-	418151 418151	South South	RC	13.8 12.1	YES	n/a n/a	DGN CDRGNV	111	2012 2012
CM11-17         663511           CM12-21         663069           CM12-21         663069           CM12-21         663763           CM11-21         663763           CM11-21         663753           CM11-21         663753           CM12-01A         662422           CM12-01B         662422           CM12-01B         662422           CM12-01B         662420           CM12-10         662312           CM12-17         663512           CM12-29         663352           CM12-29         663415           CM12-24         663015           CM12-31         662558           CM12-34         663761           CM12-34         663761           CM12-348         663762           CM2-34         663785           CMR69-25         662584			5518158	1885	Vertical	-	418151	South	RC	14.5	YES	n/a	CDRGNV	172	2012
CM1-21         663796           CM1-15         663763           CM1-15         663763           CM1-218         663763           CM12-18         663763           CM12-18         663242           CM12-01A         662420           CM12-01B         662420           CM12-01B         662421           CM12-10         663732           CM12-11         6633732           CM12-29         663415           CM12-29         663415           CM12-29         663415           CM12-24         6633732           CM12-25         663232           CM12-31         662558           CM12-34         663763           CM12-348         663763           CM12-348         663742           CM12-348         663478           CM12-348         663478           CM12-348         663763           CM12-348         663742           CM12-348         663781           CMR69-25         662297           CMR69-26         662749           CMR69-27         663371           CMR69-28         663782           CMR69-31         663227	17		5518711	1955	Vertical	-	418151	South	RC	19.35	YES	n/a	DGN	169	2012
CM11-15         663763           CM11-2B         663755           CM12-12B         663755           CM12-01A         662422           CM12-01B         662420           CM12-101B         662420           CM12-101B         662420           CM12-101C         662417           CM12-101C         663151           CM12-102         6633152           CM12-29         663415           CM12-29         663415           CM12-24         663015           CM12-31         662558           CM12-34         663761           CM12-348         663762           CMD79-10158         663242           CMD79-10158         663242           CMR69-30         663278           CMR69-31         6625278           CMR69-32	21	663069	5519560	1861	Vertical	-	418151	South	RC	0	YES	n/a	DGN	160	2012
CM1-22B         663755           CM1-21B         663809           CM12-1B         662400           CM12-01B         662420           CM12-01B         662420           CM12-01B         662420           CM12-01P         663512           CM12-17         663512           CM12-28         663752           CM12-28         663752           CM12-24         663015           CM12-24         663015           CM12-24         663212           CM12-24         663213           CM12-31         662558           CM12-34B         663761           CM12-34B         663476           CM12-34B         663476           CM12-34B         663478           CM12-34B         663478           CM12-34B         663478           CM12-38B         663478           CM12-38B         663478           CMR69-25         662503           CMR69-26         662749           CMR69-27         663327           CMR69-31         663278           CMR69-32         663440           CMR69-33         663424           CMR69-34         663438<			5518821	1988	Vertical	-	418151	South	RC	6.65	YES	n/a	DGN	62	2012
CM12-18         663809           CM12-18         662422           CM12-01A         662422           CM12-01B         662422           CM12-01B         662352           CM12-10         663373           CM12-19         6633732           CM12-19         6633732           CM12-29         663415           CM12-29         663415           CM12-29         663415           CM12-24         663052           CM12-31         662558           CM12-46         662709           CM12-48         663763           CM12-34A         663763           CM12-38B         663440           CM12-38B         663478           CM12-38B         663478           CM12-38B         663478           CMR69-25         662503           CMR69-26         662749           CMR69-27         663362           CMR69-28         663781           CMR69-29         663232           CMR69-31         663242           CMR69-32         663404           CMR69-33         663245           CMR69-34         663442           CMR69-35         663452			5519115	2021	Vertical	-	418151	South	RC	11.8	YES	n/a	CDRGNV	141	2012
CM12-01A         662422           CM12-01B         662420           CM12-01B         662420           CM12-01C         662417           CM12-17         663512           CM12-18         663752           CM12-19         663415           CM12-29         663415           CM12-19         663152           CM12-24         663015           CM12-16         662709           CM12-34         663761           CM12-34         663761           CM12-38         663440           CM12-38         663478           CM12-38         663442           CM12-38         663442           CM12-38         66342           CM12-38         66342           CM12-38         66342           CM12-38         66342           CM12-38         66342           CM2-39         66325           CM2-55         662503           CMR69-26         662749           CMR69-27         663278           CMR69-31         663278           CMR69-32         663404           CMR69-33         662585           CMR69-34         663438			5519712 5520572	2121 2216	50 Vertical	75	418151 418151	South	RC	13.35 9.7	YES	n/a	CDRGNV CDRGNV	160 231	2012 2012
CM12-01B         662420           CM12-00         662352           CM12-10         663512           CM12-17         663512           CM12-19         663793           CM12-28         663752           CM12-29         663415           CM12-24         663052           CM12-24         663015           CM12-24         663015           CM12-31         662558           CM12-44         663761           CM12-04         662597           CM12-34B         6634761           CM12-34B         6634761           CM12-38B         663442           CM12-38B         663442           CM12-38B         663478           CM12-38B         663478           CMR69-25         662503           CMR69-26         662749           CMR69-27         663327           CMR69-38         663428           CMR69-39         663237           CMR69-31         663278           CMR69-32         663404           CMR69-33         663424           CMR69-34         663488           CMR69-35         663527           CMR69-36         663527			5520572	2143	Vertical	-	418151	North	RC	30.9	YES	n/a n/a	CDRGNV	178	2012
CM12-09 662352 CM12-10 662417 CM12-17 663512 CM12-19 6633793 CM12-28 663752 CM12-29 663415 CM12-29 663415 CM12-29 663415 CM12-21 663253 CM12-31 662558 CM12-31 662558 CM12-46 663709 CM12-04 662597 CM12-34A 663763 CM12-34A 663763 CM12-34B 663440 CM12-34B 663440 CM12-34B 663440 CM12-34B 663440 CM12-34B 663440 CM12-34B 663440 CM12-34B 663478 CM12-34B 663478 CM12-34B 663478 CM12-34B 663478 CM12-34B 663478 CM12-34B 663478 CM12-34B 663478 CM2-34B 663478 CM2-34B 663478 CM2-34B 663478 CM2-34B 66348 CM2-34B 663			5522040	2143	50	265	418150	North	RC	29.2	YES	n/a	CDRGNV	148	2012
CM12-17         663512           CM12-19         663733           CM12-19         663733           CM12-29         663415           CM12-28         663372           CM12-28         663155           CM12-21         663202           CM12-231         662558           CM12-04         662597           CM12-34B         663761           CM12-34B         6634761           CM12-34B         6634763           CM12-34B         663478           CM12-34B         663478           CM12-34B         663478           CM12-34B         663478           CM12-34B         663478           CM12-34B         663478           CMR69-26         662254           CMR69-27         66375           CMR69-28         663785           CMR69-29         663523           CMR69-31         663278           CMR69-32         663240           CMR69-33         662585           CMR69-34         663462           CMR69-35         663452           CMR69-36         663452           CMR79-1010         663802           CMR79-1010 <td< td=""><td></td><td></td><td>5522095</td><td>2134</td><td>Vertical</td><td>- 7</td><td>418150</td><td>North</td><td>RC</td><td>13.05</td><td>YES</td><td>n/a</td><td>CDRGNV</td><td>163</td><td>2012</td></td<>			5522095	2134	Vertical	- 7	418150	North	RC	13.05	YES	n/a	CDRGNV	163	2012
CM12-19         663793           CM12-28         663752           CM12-28         6633752           CM12-25         6633152           CM12-24         663015           CM12-216         6622709           CM12-16         662509           CM12-06         662509           CM12-348         663763           CM12-348         663763           CM12-348         6634761           CM12-348         6634761           CM12-348         6634761           CM12-348         6634761           CM12-348         6634762           CMR69-27         662703           CMR69-28         663785           CMR69-29         6636237           CMR69-31         663278           CMR69-33         662288           CMR69-34         6634382           CMR69-35         663428           CMR69-36         663452           CMR79-101 <td>10</td> <td>662417</td> <td>5522084</td> <td>2143</td> <td>Vertical</td> <td>/</td> <td>418150</td> <td>North</td> <td>RC</td> <td>29.25</td> <td>YES</td> <td>n/a</td> <td>CDRGNV</td> <td>172</td> <td>2012</td>	10	662417	5522084	2143	Vertical	/	418150	North	RC	29.25	YES	n/a	CDRGNV	172	2012
CM12-28         663752           CM12-29         665415           CM12-29         665415           CM12-21         663015           CM12-21         663501           CM12-16         662709           CM12-04         6633761           CM12-38         663476           CM12-388         663478           CM12-388         663478           CM12-388         663478           CM12-388         663442           CMD79-1018         662584           CMR69-25         662503           CMR69-26         662749           CMR69-31         663278           CMR69-33         662528           CMR69-31         663278           CMR69-33         662528           CMR69-34         663404           CMR69-35         663278           CMR69-31         662585           CMR69-34         663438           CMR79-101         662585           CMR79-101         662587           CMR79-102         663309           CMR79-101         662582           CMR79-101         662585           CMR79-102         663309           CMR79-102			5521328	2132	Vertical	-	418151	South	RC	10.45	YES	n/a	CDRGNV	148	2012
CM12-29         663415           CM12-29         663232           CM12-24         663015           CM12-31         662558           CM12-16         662709           CM12-04         662597           CM12-34B         663761           CM12-34B         663761           CM12-34B         663478           CM12-34B         663478           CM12-34B         663478           CM12-35B         663479           CM12-36B         663478           CM12-35C         662503           CMR69-25         662749           CMR69-26         662749           CMR69-27         663317           CMR69-28         663785           CMR69-31         663278           CMR69-32         663404           CMR69-31         663278           CMR69-31         663278           CMR69-32         663404           CMR69-34         663488           CMR79-101         6622852           CMR69-35         663452           CMR79-101         6625842           CMR79-102         663809           CMR79-102         663363           CMR79-102			5520179	2160	Vertical	-	418151	South	RC	9.85	YES	n/a	CDRGNV	182.5	2012
CM12-25         663322           CM12-25         663015           CM12-31         662509           CM12-06         662509           CM12-07         663763           CM12-34A         663763           CM12-34B         663763           CM12-34B         663761           CM12-34B         663476           CM12-34B         663440           CM12-34B         663442           CMD79-101B         662384           CMR09-27         663795           CMR69-28         663785           CMR69-29         663207           CMR69-31         662278           CMR69-34         663442           CMR69-33         662378           CMR69-31         662378           CMR69-33         662288           CMR69-34         663404           CMR69-35         662582           CMR69-31         6625278           CMR69-34         663438           CMR69-34         663428           CMR79-101         662582           CMR79-102         663809           CMR79-103         662583           CMR79-104         6632542           CMR79-104			5518099	1948 1935	Vertical	-	418151	South	RC	12.45	YES	n/a	CDRGNV	142	2012
CM12-24         663015           CM12-13         662558           CM12-16         662509           CM12-04         662597           CM12-348         663761           CM12-348         663478           CM12-348         663478           CM12-348         663442           CM12-348         663442           CM12-388         663442           CM12-388         663442           CMD79-1018         662584           CMR69-25         662503           CMR69-26         662749           CMR69-27         6633278           CMR69-31         662528           CMR69-33         662528           CMR69-34         663438           CMR69-31         6625278           CMR69-34         663438           CMR69-35         663422           CMR69-36         663452           CMR79-101         662587           CMR69-37         663438           CMR69-38         663482           CMR79-101         662587           CMR79-102         663809           CMR79-103         662583           CMR79-104         6632542           CMR79-104			5518997 5519111	1935	Vertical Vertical	-	418151 418151	South	RC	3 2.8	YES	n/a n/a	n/a CDGN	64 133	2012 2012
CM12-31         662558           CM12-16         662709           CM12-04         662597           CM12-04         663763           CM12-348         663761           CM12-338         663478           CM12-338         663478           CM12-348         663478           CM12-388         663442           CM12-382         663342           CM12-384         663342           CM12-388         663478           CMR69-25         662203           CMR69-26         662749           CMR69-28         663378           CMR69-29         663323           CMR69-31         663278           CMR69-34         663483           CMR69-35         665452           CMR69-36         663422           CMR69-37         663438           CMR69-38         663438           CMR69-39         663438           CMR69-31         662342           CMR69-34         663438           CMR69-35         663452           CMR79-102         663809           CMR79-102         663363           CMR79-104         663253			5519114	1864	Vertical	-	418151	South	RC	0	YES	n/a	CDRGNV	155	2012
CM12-06         662509           CM12-04         662597           CM12-34A         663761           CM12-34B         663761           CM12-34B         663478           CM12-34B         663440           CM12-34B         663442           CM12-38B         663442           CMD79-101B         662584           CMR69-25         662703           CMR69-26         662749           CMR69-27         663375           CMR69-28         663785           CMR69-31         663278           CMR69-33         662585           CMR69-34         663438           CMR69-35         663422           CMR69-31         662587           CMR69-31         662587           CMR69-31         662587           CMR69-31         662587           CMR69-31         662587           CMR69-31         662587           CMR69-32         663404           CMR79-101         662587           CMR79-102         663809           CMR79-102         663809           CMR79-104         663253			5521434	2038	Vertical	-	418153	North	RC	16.95	YES	n/a	DGN	100	2012
CM12-04         662597           CM12-34A         663763           CM12-34B         6637763           CM12-34B         663476           CM12-34B         663478           CM12-34B         663478           CM12-34B         663478           CM12-38B         663442           CM12-38B         663478           CM12-38B         663478           CM12-38B         663478           CM12-38B         663478           CMR69-20         663785           CMR69-27         663717           CMR69-28         663785           CMR69-31         663278           CMR69-32         663404           CMR69-34         663488           CMR69-35         663452           CMR79-102         663809           CMR79-102         663800           CMR79-103         663536           CMR79-104         663253	16	662709	5521346	2010	Vertical	-	418151	North	RC	14.1	YES	n/a	DGN	82	2012
CM12-34A         663763           CM12-34B         663761           CM12-34B         6634761           CM12-36B         663440           CM12-38B         663442           CMD79-101B         662384           CMD79-101B         6623442           CMR09-25         662503           CMR69-26         662749           CMR69-27         663175           CMR69-30         663507           CMR69-31         662278           CMR69-33         662438           CMR69-34         663438           CMR69-31         662452           CMR69-34         663438           CMR79-101         662582           CMR79-102         663809           CMR79-102         663809           CMR79-103         662583           CMR79-104         663254			5521760	2122	50	256	418150	North	RC	22.15	YES	n/a	CDRGNV	175.5	2012
CM12-348         663761           CM12-388         663478           CM12-388         663442           CM12-388         663442           CM12-388         663442           CMD79-101B         662584           CMD79-101B         662593           CMR69-25         662749           CMR69-26         662749           CMR69-27         663378           CMR69-28         663785           CMR69-31         663278           CMR69-32         663404           CMR69-35         663428           CMR69-36         663542           CMR69-36         663452           CMR79-101         662583           CMR79-102         663809           CMR79-103         663542           CMR79-104         663254			5521633	2112	Vertical	-	418150	North	RC	24.25	YES	n/a	DGN	181	2012
CM12-338         663478           CM12-388         663440           CM12-388         663442           CMD79-101B         662584           CMD79-105B         663399           CMR69-26         662574           CMR69-27         663717           CMR69-28         663785           CMR69-29         663507           CMR69-30         663507           CMR69-31         662278           CMR69-34         663438           CMR69-34         663432           CMR69-34         663432           CMR79-101         662587           CMR79-102         663309           CMR79-104         663532			5514055	1619	Vertical	- 60	418154 418154	Southern Exte	RC	17.5 17	YES	n/a	CDRGV	118 109	2012
CM12-368         663440           CM12-388         663442           CMD79-1018         662384           CMD79-1018         662393           CMR69-26         662709           CMR69-27         663175           CMR69-28         6633785           CMR69-30         663507           CMR69-31         663278           CMR69-33         662288           CMR69-34         663404           CMR69-34         663428           CMR69-310         662582           CMR69-31         662585           CMR69-31         662585           CMR69-31         663438           CMR69-32         663438           CMR69-31         663452           CMR79-101         662587           CMR79-102         663809           CMR79-103         663536           CMR79-104         663532			5514055 5516252	1619 1740	60 65	60	418154	Southern Exte Southern Exte	RC	4.6	YES	n/a n/a	DGN CDRGNV	109	2012
CM12-388         663442           CMD79-101B         662584           CMD79-101B         662503           CMD79-101B         6632703           CMR69-25         662749           CMR69-27         663175           CMR69-28         663785           CMR69-29         663362           CMR69-31         663278           CMR69-32         663404           CMR69-34         663438           CMR69-35         663452           CMR69-31         662342           CMR69-32         663404           CMR69-34         663438           CMR79-101         662587           CMR79-102         663809           CMR79-103         663536           CMR79-104         663254			5515916	1745	70	60	418154	Southern Exte	RC	0	YES	n/a	CDRGV	75	2012
CMD 79-105B         663399           CMR69-25         665203           CMR69-27         663717           CMR69-28         663785           CMR69-29         663507           CMR69-30         663507           CMR69-31         662278           CMR69-33         662385           CMR69-34         663438           CMR69-35         663425           CMR69-36         663432           CMR69-37         662852           CMR69-30         663438           CMR69-31         662852           CMR79-101         662587           CMR79-102         663809           CMR79-103         66353           CMR79-104         663232			5516101	1750	50	60	418151	Southern Exte	RC	4.55	YES	n/a	DGNV	192	2012
CMD79-105B         663399           CMR69-25         665230           CMR69-27         663717           CMR69-28         663785           CMR69-29         663507           CMR69-30         663507           CMR69-31         663278           CMR69-33         662585           CMR69-34         663438           CMR69-35         663452           CMR69-36         66352           CMR69-37         663438           CMR69-38         662585           CMR69-39         663438           CMR79-101         662587           CMR79-102         663809           CMR79-103         66353           CMR79-104         66353			5521800	2152	Vertical	-	418150	North	Core	14.62	YES	Hole dia. 4 3/4"	DGN	45.2	1979
CMR69-26         662749           CMR69-27         663117           CMR69-28         663312           CMR69-29         663623           CMR69-30         663507           CMR69-32         663404           CMR69-33         662585           CMR69-34         663438           CMR69-35         663452           CMR69-36         663522           CMR69-37         662585           CMR69-36         663452           CMR79-101         662587           CMR79-102         663809           CMR79-104         663232	9-105B		5519491	1988	Vertical	-	418151	South	Core	4.5	YES	Hole dia. 5 1/2"	DGN	66.3	1979
CMR69-27         663717           CMR69-28         663785           CMR69-29         663523           CMR69-30         663507           CMR69-31         663278           CMR69-33         662585           CMR69-34         663438           CMR69-35         663438           CMR69-36         663587           CMR69-37         663438           CMR69-36         663438           CMR69-37         663438           CMR69-36         663438           CMR79-101         662587           CMR79-102         663309           CMR79-103         666353           CMR79-104         663232	9-25		5521893	2148	Vertical	-	418150	North	Rotary	25.9	YES	n/a	n/a	152.7	1969
CMR69-28         663785           CMR69-29         663623           CMR69-30         663507           CMR69-31         663278           CMR69-33         662343           CMR69-34         663438           CMR69-35         663452           CMR79-101         662585           CMR79-102         663809           CMR79-103         66353           CMR79-104         66353			5521693	2167	Vertical	-	418150	North	Rotary	22.12	YES	n/a	GN	147.2	1969
CMR69-29         6633623           CMR69-30         663507           CMR69-31         663278           CMR69-32         663404           CMR69-33         662585           CMR69-35         663452           CMR69-36         663452           CMR69-37         663452           CMR69-38         662585           CMR69-39         663452           CMR79-101         662587           CMR79-102         663809           CMR79-104         663232			5519425	2057	Vertical	-	418151	South	Rotary	9.9	YES	n/a	GN	141.4	1969
CMR69-30         663307           CMR69-31         663278           CMR69-32         663404           CMR69-33         662585           CMR69-34         663438           CMR69-35         663452           CMR79-101         662587           CMR79-102         663300           CMR79-103         663533           CMR79-104         663353			5518954	2012	Vertical	-	418151	South	Rotary	13.71	YES	n/a	GN	126.8	1969
CMR69-31         663278           CMR69-32         663404           CMR69-33         662585           CMR69-34         663438           CMR69-35         663452           CMR79-101         66287           CMR79-102         663809           CMR79-103         663232			5518903 5519369	1953 2004	Vertical Vertical	-	418151 418151	South South	Rotary Rotary	18.32 8.3	YES	n/a n/a	GN n/a	121.6 134.1	1969 1969
CMR69-32         663404           CMR69-33         662585           CMR69-34         663438           CMR59-35         663452           CMR79-101         662587           CMR79-102         663803           CMR79-103         663653           CMR79-104         663232			5519309	1961	Vertical	-	418151	South	Rotary	11.75	YES	n/a	GN	189.6	1969
CMR69-34         663438           CMR69-35         663452           CMR79-101         662587           CMR79-102         663809           CMR79-103         663653           CMR79-104         663232			5519513	1987	Vertical	-	418151	South	Rotary	13.48	YES	n/a	GN	140.2	1969
CMR69-34         663438           CMR69-35         663452           CMR79-101         662587           CMR79-102         663809           CMR79-103         663653           CMR79-104         663232	9-33	662585	5522043	2204	Vertical	-	418150	North	Rotary	20.34	YES	n/a	GN	189.6	1969
CMR79-101         662587           CMR79-102         663809           CMR79-103         663653           CMR79-104         663232	9-34		5518625	1932	Vertical	-	418151	South	Rotary	11.2	YES	n/a	GN	164	1969
CMR79-102 663809 CMR79-103 663653 CMR79-104 663232			5518290	1901	Vertical	-	418151	South	Rotary	12.19	YES	n/a	GN	161.2	1969
CMR79-103 663653 CMR79-104 663232			5521796	2152	Vertical	-	418150	North	Rotary	23.22	YES	n/a	CDRG	201.2	1979
CMR79-104 663232			5520563 5518559	2216 1963	Vertical Vertical	-	418151 418151	South South	Rotary Rotary	6.2 9.62	YES	n/a n/a	CDRGN DGN	265 138.8	1979 1979
			5518559	1963	Vertical	-	418151 418151	South	Rotary	4.8	NO	n/a n/a	DGN	138.8	1979
			5521898	2141	60	250	418151	North	Rotary	4.8	YES	n/a	DGN	54	1979
		-			-										
												Note - Geophysical Tools C Caliper			
													D	Density	
													R	Resistivity	
													G	Gamma	
													N	Neutron (thro	ugh pipe)
													V T	Deviation Temperature	