



**Coronado Global Resources Inc.  
Statement of Coal Resources and Reserves for the  
Buchanan Mine Complex in Accordance with  
the JORC Code and United States SEC Regulation S-K 1300 as of December 31, 2022  
Central Appalachian Coal Basin  
Virginia, USA**

*February 2023*

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## Statement of Use and Preparation

This Technical Report Summary (TRS) was prepared by **Marshall Miller & Associates, Inc. (MM&A)** for the sole use of **Coronado Global Resources Inc. (Coronado)** and its affiliated and subsidiary companies and advisors. Copies or references to information in this report may not be used without the written permission of Coronado.

This report provides a statement of coal resources and coal reserves for Coronado, as defined under the ***Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code)*** as well as under Subpart 1300 of Regulation S-K (Regulation S-K 1300) promulgated by the **United States Securities and Exchange Commission (SEC)**. Subject to the comments below, this report was also prepared in accordance with the ***Australasian Code for Public Reporting of Technical Assessments and Valuations of Mineral Assets (VALMIN Code)***.

The statement is based on information provided by Coronado and reviewed by *Qualified Persons (QPs)* who are full-time employees of MM&A.

As noted above, this report is a “Public Report” for the purposes of the VALMIN Code. However, in accordance with paragraph 12.1 of the VALMIN Code, it is noted that this report is not a “Valuation of Mineral Assets” and it also does not comply with the following requirements that apply to “Technical Assessments” (as defined in the VALMIN Code):

This report does not include a determination of the status of tenure (as required by paragraph 7.2 of the VALMIN Code) on the basis that tenure was separately reviewed by Coronado’s legal advisors.

This report does not include separate commentary on the reasonableness and quality of the Resources and Reserves estimates and the basis on which they have been reported (as required by paragraph 7.3 of the VALMIN Code). MM&A did not consider that this was appropriate in circumstances where MM&A was engaged for the specific purpose of preparing those estimates. However, MM&A notes that, in accordance with its usual practice, a separate team of MM&A employees undertook a peer review of this report and confirmed that both the process followed by the authors of this report and the estimates prepared were reasonable and comply with the requirements of the JORC Code.





The information in this TRS related to coal resources and reserves is based on, and fairly represents, information compiled by the QPs. At the time of reporting, MM&A's QPs have sufficient experience relevant to the style of mineralization and type of deposit under consideration and to the activity they are undertaking to qualify as a QP as defined by Regulation S-K 1300 and the JORC Code. Each QP consents to the inclusion in this report of the matters based on their information in the form and context in which it appears.

**Marshall Miller & Associates, Inc. (MM&A)** hereby consents to the use of the information contained in this report dated December 31, 2022, relating to estimates of coal resources and coal reserves controlled by Coronado.

Qualified Person: **/s/ Marshall Miller & Associates, Inc.**

Date: February 15, 2023



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# 1 Executive Summary

## 1.1 Property Description

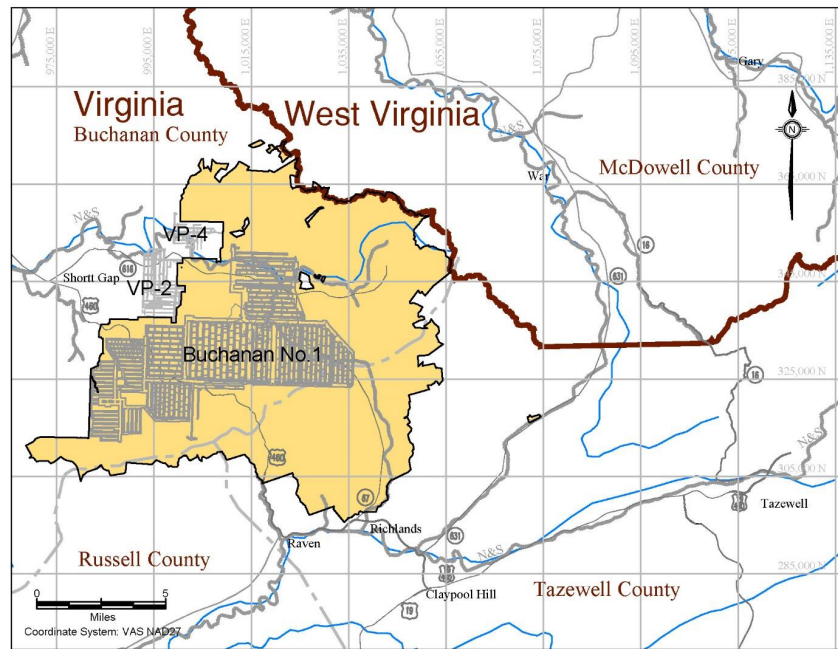
**Coronado Global Resources Inc. (Coronado)** authorized **Marshall Miller & Associates, Inc. (MM&A)** to prepare this Technical Report Summary (TRS) of its controlled coal resources and reserves located at the **Buchanan Division (Buchanan)** in Buchanan and Tazewell Counties, Virginia (the *Property*). An updated TRS was prepared in February 2023 due to material differences in the key financial modifying factors including coal sales price assumptions, operating costs and capital costs from December 31, 2021 to December 31, 2022. Coal sales price assumptions are discussed in *Sections 12 and 16* of the TRS, while operating costs and capital costs are discussed in *Sections 18 and 19* of the TRS. This report provides a statement of coal resources and coal reserves for Coronado, as defined under the ***Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code)*** as well as under Subpart 1300 of Regulation S-K (Regulation S-K 1300) promulgated by the **United States Securities and Exchange Commission (SEC)**. This report was also prepared in accordance with the ***Australasian Code for Public Reporting of Technical Assessments and Valuations of Mineral Assets (VALMIN Code)***.

Coal resources and coal reserves are herein reported in imperial units of measurement and are rounded to millions of metric tonnes (*Mt*).

The Buchanan No. 1 Mine Complex is located in Buchanan County in southwest Virginia. The Property is 24 kilometers northwest of the town of Richlands, Virginia and 65.9 kilometers southeast of Pikeville, Kentucky. The nearest major population centers are Lexington, Kentucky (290 kilometers northwest) and Roanoke, Virginia (153 kilometers northeast) (see *Figure 1-1*). The Property is composed of approximately 33,577 total hectares, of which 25,852 are leased or subleased from private landholders under approximately 150 individual coal lease tracts, and 7,725 hectares are owned by Coronado. Subject to Coronado's exercising its renewal rights thereunder, all the leases expire upon exhaustion of the relevant coal reserves, which is expected to occur in 2044.



Figure 1-1: Coronado Buchanan Mine Complex Property Location Map



## 1.2 Ownership

The Property was formerly controlled by **Consolidation Coal Company (CONSOL)**. Mine development was started by CONSOL in 1983 and longwall production began in 1987. Coronado acquired the Buchanan Mine from CONSOL in March 2016.

## 1.3 Geology

Operations at the Buchanan Mine Complex extract the Pocahontas No. 3 coal bed by longwall mining methods. Strata of economic interest for this TRS are of the Pennsylvanian-age Pocahontas Formation and the subject Pocahontas No. 3 seam is the principal coal seam of that formation. Due to the high value of this low-volatile coking coal, it has been extensively mined in the region. The seam is situated below drainage throughout the Property and is accessed by existing mine shafts.

## 1.4 Exploration Status

The Property has been extensively explored, largely by drilling using continuous coring methods, rotary drilling but also by obtaining coal measurements at mine exposures, ongoing drilling associated with degas activities, and by downhole geophysical methods. The majority of the data was acquired or generated by previous owners of the Property. These sources comprise the primary data used in the evaluation of the coal resources and coal reserves on the Property.

MM&A examined the data available for the evaluation and incorporated all pertinent information into this TRS. Where data appeared to be anomalous or not representative, that data was excluded from the digital databases and subsequent processing by MM&A.

Ongoing exploration has been carried out by Coronado since acquiring the Buchanan Mine. The exploration data acquired by Coronado has been consistent with past drilling activities.

## 1.5 Operations and Development

Due to its coal reserve and seam characteristics, the Buchanan No. 1 Mine operates using the longwall method. The model was therefore generated with longwall-mining constraints in mind for Buchanan's underground resources. The mine produces coal that is suitable for the low-volatile metallurgical coal markets.

The Buchanan No. 1 Mine in Buchanan County, Virginia, is the only active longwall mine currently being operated by Coronado.

Coronado currently operates a coal preparation plant at Buchanan. The Buchanan Plant operates at a feed rate of approximately 1,270 raw tonnes per hour (*tph*). Processes are typical of those used in the coal industry and are in use at adjacent coal processing plants.

## 1.6 Mineral Resource

Mineral resources, representing in-situ coal from a portion of which reserves are derived, are presented below. A coal resource estimate, summarized in *Table 1-1*, was prepared as of December 31, 2022, for property controlled by Coronado.

**Table 1-1: Coal Resources Summary as of December 31, 2022**

Area	Coal Resource (Dry Tonnes, In Situ, Mt)				Resource Quality (Dry)		
	Measured	Indicated	Inferred	Total	Ash%	Sulfur%	VM%
Inclusive of Reserves	158.0	10.2	0.0	168.2			
Exclusive of Reserves	33.9	5.9	0.0	39.8	25	0.7	16
<b>Total 12/31/2022</b>	<b>191.9</b>	<b>16.1</b>	<b>0.0</b>	<b>208.0</b>			

*Note: Resource tonnes are inclusive of reserve tonnes since they include the in-situ tonnes from which recoverable coal reserves are derived.*

*Note 2: Coal resources are reported on a dry basis. Surface moisture and inherent moisture are excluded.*

*Note 3: The Property contains 39.8 Mt of dry, in-place measured and indicated coal resources exclusive of reserves as of December 31, 2022.*

## 1.7 Mineral Reserve

Reserve tonnage estimates provided herein report coal reserves derived from the in-situ resource tons presented in *Table 1-1*, and not in addition to coal resources. Proven and probable coal reserves were derived from the defined coal resource considering relevant mining, processing, infrastructure, economic (including estimates of capital, revenue, and cost), marketing, legal, environmental, socio-economic and regulatory factors. The Resource estimate has been used as the basis for this Reserve calculation, which utilizes a reasonable preliminary feasibility study, a life-of-mine (*LOM*) mine plan and practical recovery factors. Production modeling was completed with an effective start date of October 1, 2022. Additions and depletion have been used to bring the Reserve estimate forward to December 31, 2022.

Factors that would typically preclude conversion of a coal resource to coal reserve, include the following: inferred resource classification; absence of coal quality; poor mine recovery; lack of access; geological encumbrances associated with overlying and underlying strata; seam thinning; structural complication; and insufficient exploration have all been considered. Reserve consideration excludes those portions of the resource area which exhibit the aforementioned-geological and operational encumbrances.

Coal reserves are presented on a run-of-mine (ROM) basis in *Table 1-2*. Proven and probable coal reserves were derived from the defined in-situ coal resource considering relevant processing, economic (including technical estimates of capital, revenue, and cost), marketing, legal, environmental, socioeconomic, and regulatory factors. The proven and probable coal reserves on the Property are summarized below in *Table 1-3*.

**Table 1-2: Coal Summary (ROM (Moist)) as of December 31, 2022**

Area / Mine	Demonstrated Coal Reserves (Mt, Moist ROM)											Vol
	By Reliability Category			By Mining Type		By Control Type			Quality (Dry)			
	Proven	Probable	Total	Surface	UG	Owned	Leased	Subleased	Ash	Sulfur		
Buchanan	144.9	8.7	153.6	0.0	153.6	21.7	127.9	4.0	42	0.7	12	

**Table 1-3: Coal Reserves Summary (Marketable Sales Basis) as of December 31, 2022**

Area / Mine	Demonstrated Coal Reserves (Wet Tons, Washed or Direct Shipped, Mt)										Quality (Dry Basis)		
	By Reliability Category			By Mining Type		By Control Type							
	Proven	Probable	Total	Surface	UG	Owned	Leased	Subleased	Ash%	Sulfur%	VM%		
Buchanan Mine Complex	87.5	5.4	92.9	0.0	92.9	14.4	75.9	2.6	6	0.7	19		

Note: Marketable reserve tonnes are reported on a moist basis, including a combination of surface and inherent moisture. The combination of surface and inherent moisture is modeled at 6-percent. Actual product moisture is dependent upon multiple geological factors, operational factors, and product contract specifications and can exceed 8-percent. As such, the modeled moisture values provide a level of conservatism for reserve reporting.

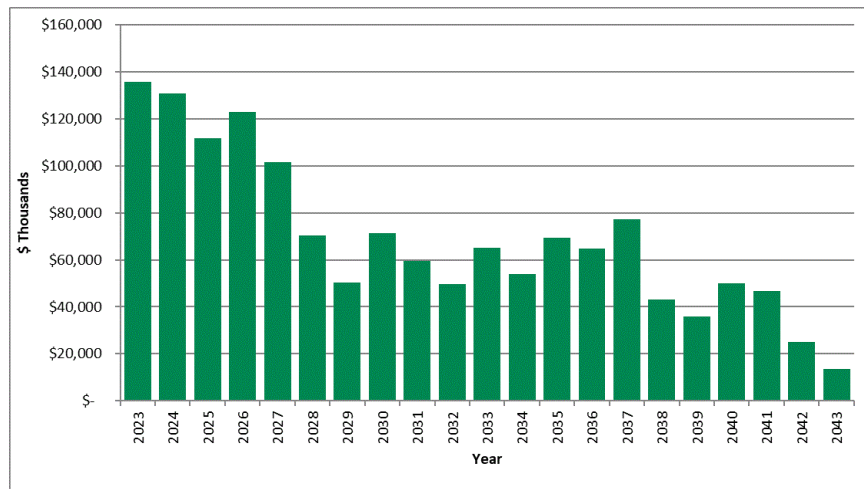
In summary, Coronado controls a total of 92.9 Mt (moist basis) of marketable coal reserves, at Buchanan, as of December 31, 2022. Of that total, 94 percent are proven, and 6 percent are probable. There are 14.4 Mt of owned coal reserves and 75.9 Mt of leased coal reserves and 2.6 Mt of subleased reserves. All the Buchanan reserves are considered suitable for the metallurgical coal market, and all of the Buchanan reserves are assigned.

## 1.8 Capital Summary

Coronado provided MM&A with an inventory of operating equipment available at Buchanan. MM&A's capital schedules assume that major equipment rebuilds occur over the course of each machine's remaining assumed operating life. Replacement equipment was scheduled based on MM&A's experience and knowledge of mining equipment and industry standards with respect to the useful life of such equipment. A summary of the estimated capital for the Property is provided in *Figure 1-2* below.



Figure 1-2: CAPEX



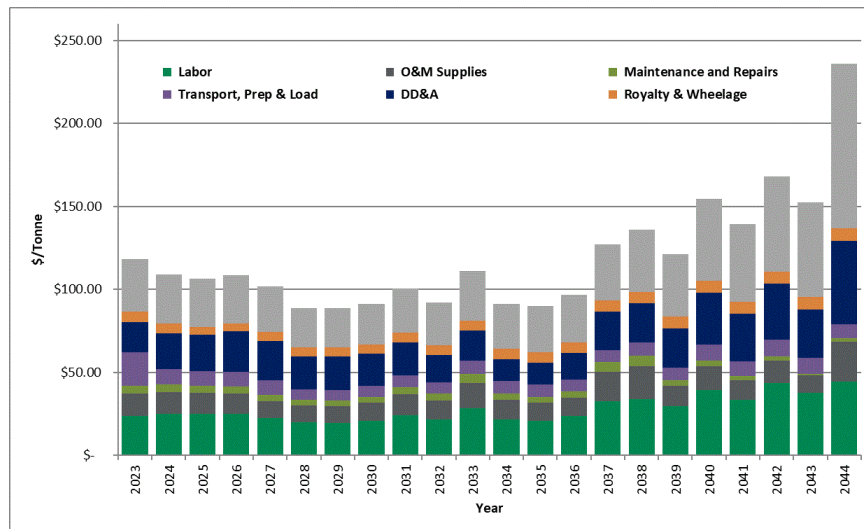
### 1.9 Operating Costs

Coronado provided historical and preliminary 5-year projections of operating costs for Buchanan for MM&A's review. MM&A used the historical and/or budget cost information as a reference and developed personnel schedules for the mine and support facilities. Hourly labor rates and salaries were based upon information contained in Coronado's financial summaries. Fringe-benefit costs were developed for vacation and holidays, federal and state unemployment insurance, retirement, workers' compensation and pneumoconiosis, casualty and life insurance, healthcare, and bonuses. A cost factor for mine supplies was developed that relates expenditures to mine advance rates for roof-control costs and other mine-supply costs at underground mines. Other factors were developed for maintenance and repair costs, rentals, mine power, outside services and other direct mining costs.

Operating costs factors were also developed for the coal preparation plant processing, refuse handling, coal loading, property taxes, and insurance and bonding. Appropriate royalty rates were assigned for production from leased coal lands, and sales taxes were calculated for state severance taxes, the federal black lung excise tax, and federal and state reclamation fees.

A summary of the projected operating costs for the Property is provided in *Figure 1-3*.

Figure 1-3: OPEX



### 1.10 Economic Evaluation

The pre-feasibility financial model prepared for this TRS was developed to test the economic viability of the coal resource area. The results of this financial model are not intended to represent a bankable feasibility study, required for financing of any current or future mining operations contemplated for the Coronado properties, but are intended to establish the economic viability of the estimated coal reserves. Cash flows are simulated on an annual basis in nominal dollars assuming a 2% inflation rate based on projected production from the coal reserves. The discounted cash flow analysis presented herein is based on an effective date of January 1, 2023.

On an un-levered basis, the net present value (*NPV*) of the project cash flow after taxes represents the Enterprise Value of the project. The project cash flow, excluding debt service, is calculated by subtracting direct and indirect operating expenses and capital expenditures from revenue. Direct costs include labor, operating supplies, maintenance and repairs, facilities costs for materials handling, coal preparation, refuse disposal, coal loading, reclamation and general and administrative costs. Indirect costs include statutory and legally agreed upon fees related to direct extraction of the mineral. The indirect costs are the federal black lung tax, federal and state reclamation taxes, property taxes, coal production royalties, and income taxes.

Table 1-4 shows LOM tonnage, profit & loss (*P&L*), and earnings before income tax, depreciation & amortization (*EBITDA*) for Buchanan.



**Table 1-4: Life-of-Mine Tonnage, P&L before Tax, and EBITDA**

	LOM Tonnes	LOM Pre-Tax P&L	P&L Per Tonne	LOM EBITDA	EBITDA Per Tonne
Buchanan	92,923	\$4,280,077	\$46.06	\$6,174,578	\$66.45

As shown in *Table 1-4*, the Buchanan Mine shows positive EBITDA over the LOM. Overall, the Coronado consolidated operations show positive LOM P&L and LOM EBITDA of \$4.3 billion and \$6.2 billion, respectively.

Coronado's consolidated Buchanan cash flow summary in nominal dollars assuming a 2% interest rate, excluding debt service, is shown in *Table 1-5* below.

**Table 1-5: Project Cash Flow Summary (000)**

	Total	YE12/31 2023	YE12/31 2024	YE12/31 2025	YE12/31 2026	YE12/31 2027
Production & Sales tonnes	92,924	3,786	3,811	4,363	4,446	5,112
Total Revenue	\$14,194,747	\$675,923	\$544,435	\$574,963	\$592,283	\$692,273
EBITDA	\$6,174,578	\$295,749	\$209,789	\$206,065	\$217,757	\$294,147
Net Income	\$3,368,328	\$179,131	\$103,854	\$91,899	\$90,456	\$138,196
Net Cash Provided by Operating Activities	\$5,181,846	\$188,692	\$200,765	\$186,416	\$195,463	\$245,493
Purchases of Property, Plant, and Equipment	\$(1,448,505)	\$(135,766)	\$(130,803)	\$(111,896)	\$(122,768)	\$(101,557)
Net Cash Flow	\$3,733,342	\$52,926	\$69,962	\$74,520	\$72,695	\$143,936
	YE12/31 2028	YE12/31 2029	YE12/31 2030	YE12/31 2031	YE12/31 2032	YE12/31 2033
Production & Sales tonnes	6,242	6,462	6,200	5,444	6,226	4,814
Total Revenue	\$862,187	\$910,476	\$890,951	\$798,054	\$930,819	\$734,119
EBITDA	\$431,599	\$469,093	\$445,727	\$357,721	\$458,785	\$288,024
Net Income	\$240,334	\$262,860	\$254,666	\$197,893	\$280,873	\$159,996
Net Cash Provided by Operating Activities	\$339,674	\$386,828	\$379,000	\$320,798	\$362,834	\$277,786
Purchases of Property, Plant, and Equipment	\$(70,382)	\$(50,228)	\$(71,184)	\$(59,572)	\$(49,573)	\$(65,133)
Net Cash Flow	\$269,292	\$336,600	\$307,815	\$261,226	\$313,262	\$212,653



	YE12/31 2034	YE12/31 2035	YE12/31 2036	YE12/31 2037	YE12/31 2038	YE12/31 2039
Production & Sales tonnes	6,474	6,423	5,249	3,447	3,009	2,914
Total Revenue	\$1,007,101	\$1,019,070	\$849,433	\$569,043	\$506,626	\$500,552
EBITDA	\$501,730	\$526,779	\$424,763	\$211,060	\$168,369	\$216,035
Net Income	\$326,060	\$344,381	\$266,105	\$105,424	\$79,886	\$116,181
Net Cash Provided by Operating Activities	\$372,442	\$424,330	\$368,367	\$223,842	\$158,704	\$177,921
Purchases of Property, Plant, and Equipment	\$(54,007)	\$(69,272)	\$(64,919)	\$(77,383)	\$(43,070)	\$(35,719)
Net Cash Flow	\$318,435	\$355,058	\$303,449	\$146,459	\$115,634	\$142,202
	YE12/31 2040	YE12/31 2041	YE12/31 2042	YE12/31 2043	YE12/31 2044	YE12/31 2045
Production & Sales tonnes	2,093	2,254	1,703	1,714	737	-
Total Revenue	\$366,649	\$402,822	\$309,918	\$317,808	\$139,240	\$-
EBITDA	\$108,191	\$153,415	\$80,892	\$106,596	\$2,291	\$-
Net Income	\$34,854	\$71,326	\$19,002	\$46,332	\$(34,676)	\$(3,773)
Net Cash Provided by Operating Activities	\$119,167	\$128,269	\$89,128	\$92,258	\$24,650	\$(47,861)
Purchases of Property, Plant, and Equipment	\$(50,131)	\$(46,604)	\$(24,930)	\$(13,606)	\$-	\$-
Net Cash Flow	\$69,036	\$81,665	\$64,198	\$78,652	\$24,650	\$(47,861)
	YE12/31 2046	YE12/31 2047	YE12/31 2048	YE12/31 2049	YE12/31 2050	YE12/31 2051
Production & Sales tonnes	-	-	-	-	-	-
Total Revenue	\$-	\$-	\$-	\$-	\$-	\$-
EBITDA	\$-	\$-	\$-	\$-	\$-	\$-
Net Income	\$(1,534)	\$(785)	\$(403)	\$(209)	\$(0)	\$(0)
Net Cash Provided by Operating Activities	\$(16,273)	\$(8,299)	\$(4,232)	\$(4,317)	\$-	\$-
Purchases of Property, Plant, and Equipment	\$-	\$-	\$-	\$-	\$-	\$-
Net Cash Flow	\$(16,273)	\$(8,299)	\$(4,232)	\$(4,317)	\$-	\$-

Consolidated cash flows are driven by annual sales tonnage, which at steady-state level ranges from a peak of 6.5 million tonnes in 2034 to a low of 0.7 million tonnes in 2044. Projected consolidated revenue ranges from \$317.8 million to \$1.019 billion at a steady state. Revenue totals \$14.2 billion for the project's life.

Consolidated cash flow from operations is positive throughout the projected operating period, with the exception of post-production years, due to end-of-mine reclamation spending. Consolidated cash flow from operations peaks at \$424.3 million in 2035 and totals \$5.2 billion over the project's life. Capital expenditures total \$602.8 million through 2027 and \$1.4 billion over the project's life.

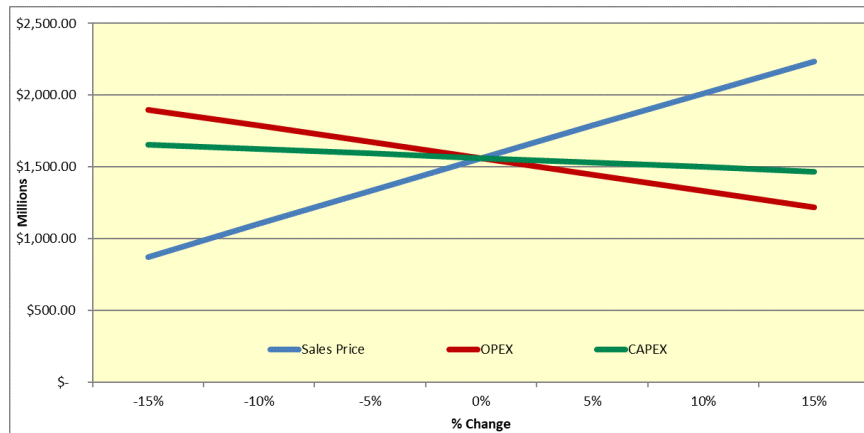
#### 1.10.1 Discounted Cash Flow Analysis

Cash flow after tax, but before debt service, generated over the life of the project was discounted to NPV at a 10.0% discount rate, which represents Coronado's estimate of the nominal dollar, risk adjusted weighted average cost of capital (WACC) for likely market participants if the subject reserves were offered for sale. On an un-levered basis, the NPV of the project cash flows represents the Enterprise Value of the project and amounts to \$1.562 billion. The pre-feasibility financial model prepared for the TRS was developed to test the economic viability of each coal resource area. The NPV estimate was made for the purpose of confirming the economics for classification of coal reserves and not for purposes of valuing Coronado or its Buchanan assets. Mine plans were not optimized, and actual results of the operations may be different, but in all cases, the mine production plan assumes the properties are under competent management.

### 1.10.2 Sensitivity Analysis

Sensitivity of the NPV results to changes in the key drivers is presented in the chart below. The sensitivity study shows the NPV at the 10.0% discount rate when Base Case sales prices, operating costs, and capital costs are increased and decreased in increments of 5% within a +/- 15% range.

Figure 1-4: Sensitivity of NPV



As shown, NPV is quite sensitive to changes in sales price and operating cost estimates, and slightly sensitive to changes in capital cost estimates.

### 1.11 Permitting

Coronado has obtained all mining and discharge permits to operate its mine and processing, loadout, or related support facilities. MM&A is unaware of any obvious or current Coronado permitting issues that are expected to prevent the issuance of future permits. Buchanan, along with all coal producers, is subject to a level of uncertainty regarding future clean water permits due to **United States Environmental Protection Agency (EPA)** and **United States Fish and Wildlife (USFW)** involvement with state programs.

### 1.12 Conclusion and Recommendations

Sufficient data have been obtained through various exploration and sampling programs and mining operations to support the geological interpretations of seam structure and thickness for coal horizons situated on the Property. The data are of sufficient quantity and reliability to reasonably support the coal resource and coal reserve estimates in this TRS.

The geological data and preliminary feasibility study, which consider mining plans, revenue, and operating and capital cost estimates are sufficient to support the classification of coal reserves provided herein.

This geologic evaluation conducted in conjunction with the preliminary feasibility study concludes that the 92.9 Mt of marketable underground coal reserves identified on the Property are economically mineable under reasonable expectations of market prices for metallurgical coal products, estimated operation costs, and capital expenditures.

## 2 Introduction

### 2.1 Registrant and Terms of Reference

This report was prepared for the sole use of **Coronado Global Resources Inc. (Coronado)** and its affiliated and subsidiary companies and advisors. An updated TRS was prepared in February 2023 due to material differences in the key financial modifying factors including coal sales price assumptions, operating costs and capital costs from December 31, 2021 to December 31, 2022. Coal sales price assumptions are discussed in *Sections 12 and 16* of the TRS, while operating costs and capital costs are discussed in *Sections 18 and 19* of the TRS. This report provides a statement of coal resources and coal reserves for Coronado, as defined under the ***Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code)*** as well as under Subpart 1300 of Regulation S-K (Regulation S-K 1300) promulgated by the **United States Securities and Exchange Commission (SEC)**. This report was also prepared in accordance with the ***Australasian Code for Public Reporting of Technical Assessments and Valuations of Mineral Assets (VALMIN Code)***.

This report provides a statement of coal resources and coal reserves for Coronado at Buchanan. Exploration results and Resource calculations were used as the basis for the mine planning and the preliminary feasibility study completed to determine the extent and viability of the reserve.

Coal resources and coal reserves are herein reported in metric units of measurement and are rounded to millions of metric tonnes (Mt).

### 2.2 Information Sources

This TRS is based on information provided by Coronado and reviewed by MM&A. Sources of data and information are listed below in *Table 2-1*:



**Table 2-1: Information Provided to MM&A by Coronado**

Category	Information Provided by Coronado	Report Section
Geological	Geologic data including digital databases and original source data including geologist logs, driller's logs, geophysical logs	9.1
Coal Quality	Database of coal quality information supplemented with original source laboratory sheets where available	10.1
Mining	Historical productivities and manpower from operating and future Coronado mines	13.2, 13.4
Coal Preparation	Flow sheet and other information representing current and future methods of coal processing	14.1
Waste Disposal	Engineering data and estimates representing remaining capacities for coarse and fine coal waste disposal	17.2
Costs	Historical and budgetary operating cost information used to derive cost drivers for reserve financial modeling	18.2
Economic	WACC and inflation rate used in discounted cash flow analysis	19.1, 19.2, 19.3

Note: While the sources of data listed in Table 2-1 are not exhaustive, they represent a significant portion of information which supports this TRS. MM&A reviewed the provided data and found it to be reasonable prior to incorporating it into the TRS. The TRS contains "forward-looking information" including forecasts of productivity and annual coal production, operating and capital cost estimates, coals sales price forecasts, the assumption that Coronado will continue to acquire necessary permits, and other assumptions. The TRS statements and conclusions are not a guarantee of future performance and undue reliance should not be placed on them. The ability of Coronado to recover the estimated coal reserves is dependent on multiple factors beyond the control of MM&A including, but not limited to geologic factors, mining conditions, regulatory approvals, and changes in regulations. In all cases, the plans assume the Property is under competent management.

Coronado engaged MM&A to conduct a coal resource and reserve evaluation of the Coronado coal properties as of September 30, 2022. Additions and depletion have been used to bring the Resource and Reserve estimates forward to December 31, 2022, the effective date of this TRS for Buchanan. For the evaluation, the following tasks were to be completed:

- > Conduct site visits of the mines and mine infrastructure facilities;
- > Process the information supporting the estimation of coal resources and reserves into geological models;
- > Develop life-of-reserve mine (LOM) plans and financial models;
- > Hold discussions with Coronado company management; and
- > Prepare and issue a TRS providing a statement of coal resources and reserves which would include:
  - A description of the mine and facilities.
  - A description of the evaluation process.
  - An estimation of coal resources and reserves with compliance elements as stated under the JORC Code and the SEC Regulation S-K 1300.

### 2.3 Personal Inspections

MM&A is very familiar with Buchanan, having provided a variety of services in recent years, and the QPs involved in this TRS have conducted multiple site visits.



## 3 Property Description

### 3.1 Location

The Buchanan Mine Complex is located in Buchanan County in southwestern Virginia (see *Figure 1-1*) approximately 16 kilometers southeast of Grundy, which is the county seat of Buchanan County. Surface facilities for the shaft mine are located along Garden Creek and a Norfolk Southern (NS) rail line about 6.4 kilometers south-southeast of Oakwood, Virginia.

The Property is located on the following **United States Geological Survey (USGS)** Quadrangles: Prater, Vansant, Keen Mountain, and Jewell Ridge. Current mining projections fall within the Keen Mountain and Jewell Ridge quadrangles. The coordinate system and datum used for the model of Buchanan No. 1 and the subsequent maps were produced in the Virginia State Plane South system, NAD 27.

### 3.2 Titles, Claims or Leases

The Buchanan coal reserves are located in Buchanan and Tazewell Counties, Virginia. The Property is composed of approximately 33,577 total hectares, of which 25,852 are leased or subleased from private landholders under approximately 150 individual coal lease tracts, and 7,725 hectares are owned by Coronado. Subject to Coronado's exercising its renewal rights thereunder, all the leases expire upon exhaustion of the relevant coal reserves, which is expected to occur in 2044. MM&A has not carried out a separate title verification for the coal property and has not verified leases, deeds, surveys, or other property control instruments pertinent to the subject resources. Tenure was separately reviewed by Coronado's legal advisors. Coronado has represented to MM&A that it controls the mining rights to the reserves as shown on its property maps, and MM&A has accepted these as being a true and accurate depiction of the mineral rights controlled by Coronado. The TRS assumes the Property is developed under responsible and experienced management.

### 3.3 Mineral Rights

Coronado supplied property control maps to MM&A related to properties for which mineral and/or surface property are controlled by Coronado. While MM&A accepted these representations as being true and accurate, MM&A has no knowledge of past property boundary disputes or other concerns, through past knowledge of the Property, that would signal concern over future mining operations or development potential.

Property control in Appalachia can be intricate. Coal mining properties are typically composed of numerous property tracts which are owned and/or leased from both land-holding companies and private individuals or companies. It is common to encounter severed ownership, with different entities or individuals controlling the surface and mineral rights. Mineral control in the region is typically characterized by leases or ownership of larger tracts of land, with surface control generally comprised of smaller tracts, particularly in developed areas.



Legal mining rights may reflect a combination of fee or mineral ownership and fee or mineral leases of coal lands through various surface and mineral lease agreements. There is also a relatively small amount of area where the coal is partially owned and/or partially leased on a limited number of individual tracts.

Control of the surface property is necessary to conduct surface mining but is not necessary to conduct underground mining. Given that the Buchanan Mine has been active dating back to the 1980s, Coronado, and its predecessors, have a successful history of obtaining any necessary rights and the associated permits to mine.

### **3.4 Encumbrances**

No Title Encumbrances are known. By assignment, MM&A did not complete an independent query related to Title Encumbrances.

### **3.5 Other Risks**

There is always risk involved in property control. Coronado and its predecessor, CONSOL, have both had their legal teams examine the deeds and title control in order to minimize the risk. Historically, property control has not posed any challenges related to Buchanan's operations.

## **4 Accessibility, Climate, Local Resources, Infrastructure and Physiography**

### **4.1 Topography, Elevation, and Vegetation**

The topography of the area surrounding the Buchanan Mine Complex is typical of the Central Appalachian Plateau being rugged and deeply dissected by v-shaped river valleys flanked by steep-sided upland regions. Surface elevations near the mine complex range from approximately 823 meters above sea level in upland regions to approximately 579 meters at stream level. The Property is moderately vegetated, with a mixture of hardwood and conifer forest in the temperate broadleaf category. The Property is not situated near any major urban centers, and the surrounding area is considered rural.

### **4.2 Access and Transport**

General access to the Buchanan No. 1 Mine property is via a well-developed network of primary, secondary, and unimproved roads. Highway 460 is the primary highway connecting Pike County in Eastern Kentucky to Buchanan and Tazewell Counties in Southwestern Virginia. Numerous secondary and unimproved roads provide direct access to the Property, some being state- and town-maintained. These roads typically stay open throughout the year. A **Norfolk Southern (NS)** rail line that is located approximately 6.44 kilometers south-southeast of Oakwood, Virginia, serves as the primary means of transport for produced coal. NS transports coal from the Buchanan Mine Complex either to domestic customers or to the Pier 6 export terminal at Norfolk, Virginia for overseas shipment. A small portion of production is transported via truck haul. An



extensive network of service roads to gob gas and coalbed methane (CBM) production wells exist on the subject property.

#### 4.3 Proximity to Population Centers

The Buchanan No. 1 Mine property lies near the town of Grundy in Buchanan County, Virginia approximately 290 kilometers southeast of Lexington, Kentucky and 153 kilometers southwest of Roanoke, Virginia. As of 2021, Buchanan County had a population of approximately 19,800 residents.

#### 4.4 Climate and Length of Operating Season

The climate of the region is classified as humid sub-tropical with four distinct seasons: warm summers, cold winters, and moderate fall and spring seasons. Precipitation in the region is consistent throughout the year with the most rain falling in spring and the early months of summer. Average yearly rainfall is 112.62 centimeters. Summer months typically begin in late May and end in early September and range in average temperature from 49 to 84 degrees Fahrenheit (or 9.44 to 28.89 degrees Celsius). Winters typically begin in mid to late November and run until mid to late March with average temperatures ranging from 26 to 56 degrees Fahrenheit (or -3.33 to 13.33 degrees Celsius). Precipitation in the winter typically comes in the form of snowfall or as a wintery mix (sleet and snow) with severe snowfall events occurring occasionally. Seasonal variations in climate typically do not affect underground mining in Virginia. However, weather events could potentially negatively impact efficiency of surface and preparation plant operations on a very limited basis and lasting less than a few days.

#### 4.5 Infrastructure

The Buchanan No. 1 Mine Complex has sources of water, power, personnel, and supplies readily available for use. Personnel have historically been sourced from the surrounding communities in Buchanan, Tazewell, McDowell, and Pike counties, and have proven to be adequate in numbers to operate the mine. As mining is common in the surrounding areas, the workforce is generally familiar with mining practices, and many are experienced miners. Water is sourced locally from streams that flow over Coronado-owned property. The mine also utilizes ground water from an old abandoned mine. Electricity is sourced from **American Electric Power (AEP)**. The service industry in the areas surrounding the mine complex has historically provided supplies, equipment repairs and fabrication, etc. The Coronado-owned Buchanan Preparation Plant services the mine via a skip hoist and conveyor belt system which transports extracted coal from an underground bunker to the surface facility. The NS rail line serves as the main means of transport from the mine.



## 5 History

### 5.1 Previous Operation

The Property was formerly controlled by **Consolidation Coal Company (CONSOL)**. Mine development was started by CONSOL in 1983 and longwall production began in 1987. Coronado acquired the Buchanan Mine from CONSOL in March 2016.

The most productive mining of any period since 1987 has occurred since the acquisition of Buchanan Mine by Coronado. Production history has been approximately 3.5 Mt in 2016 (in only a 9-month period), 4.9 Mt in 2017, 4.7 Mt in 2018, 4.5 Mt in 2019, 3.4 Mt in 2020, 4.4 Mt in 2021, and 3.9 Mt in 2022.

### 5.2 Previous Exploration

The Property has been extensively explored by subsurface drilling efforts carried out by numerous entities, many of which were completed prior to acquisition by Coronado. The majority of the drilling was accomplished using vertical continuous (diamond) coring or air rotary methods.

Drill records indicate that independent contract drilling operators have typically been engaged to carry out drilling on the Property. Geophysical logging on those properties acquired from CONSOL was often performed by both CONSOL's in-house logging services and outside logging firms. MM&A, via its Geophysical Logging Systems subsidiary, has logged a significant number of the past exploration holes and degas wells, and currently logs most of the recently drilled holes.

## 6 Geological Setting, Mineralization and Deposit

### 6.1 Regional, Local and Property Geology

The Property lies in the Central Appalachian Coal basin in the Appalachian Plateau physiographic province.

The coal deposits in the eastern US are the oldest and most extensively developed coal deposits in the country. The coal deposits on the Property are Carboniferous in age, being of the Pennsylvanian system. Overall, these Carboniferous coals contain two-fifths of the US's bituminous coal deposits and extend over 1,448 kilometers from northern Alabama to Pennsylvania and are part of what is known as the *Appalachian Basin*. The Appalachian Basin is more than 402 kilometers wide and, in some portions, contains over 60 coal seams of varying economic significance.

Seams of economic significance typically range between 0.30 meters and 1.83 meters in thickness, with relatively little structural deformation. Regional structure is typically characterized by gently dipping strata to the northwest at less than one percent.



Seams of the Pocahontas Formation have historically been mined in the Buchanan No. 1 Mine with the Pocahontas No. 3 seam being the principal seam in the formation. Coal from the area has historically been sold in primarily metallurgical markets.

## 6.2 Mineralization

The generalized stratigraphic columnar section in *Figure 6-1* demonstrates the vertical relationship of the principal coal seams and rock formations on the Property.

**Figure 6-1: Buchanan Stratigraphic Column**

System	Fm.	Lithology	Coal / Sandstone / Shale
Lower Pennsylvanian	Norton Fm.		Jawbone
			Tiller
			Hensley Shale
	Upper Lee Fm.		Upper Seaboard
			Upper Lee Sandstone
			Greasy Creek
			Middle Seaboard
			Lower Seaboard
	Middle Lee Fm.		Upper Horsepen
			Middle Horsepen
			Pocahontas No. 11
			Pocahontas No. 10
	Lower Lee Fm.		Lower Horsepen
			Pocahontas No. 9
			Pocahontas No. 8
			Pocahontas No. 7
	Pocahontas Fm.		Basal Lee Sandstone
			Pocahontas No. 6
			Pocahontas No. 5
			Pocahontas No. 4
			Pocahontas No. 3
			Pocahontas No. 2
			Pocahontas No. 1

Note: not to scale

## 6.3 Deposits

The coal produced at Buchanan No. 1 is typically Low Volatile (<23% volatile matter) bituminous coal. Due to the value of the Pocahontas No. 3 (P3) as a low-volatile coking coal, it has been extensively mined in the region. The P3 seam consists of multiple benches that split and merge across the Property, including in descending stratigraphic order:

- > P31, uppermost bench, represented in purple on *Figures 7-1* and *7-2*
- > P32, represented in orange on *Figures 7-1* and *7-2*
- > P33, represented in blue on *Figures 7-1* and *7-2*
- > 345, lowermost bench, represented in green on *Figures 7-1* and *7-2*

The mineable benches within the P3 horizon consist of three principal configurations determined by variable seam splitting characteristics present across the Property:

1. **Full-seam;** all four benches (P31, P32, P33, and 345) are included within the mineable section. This configuration is present within the remaining North and Northwest resource areas, as well as the upper portion of the South resource area. Refer to *Figures 7-1* and *7-2* below.
2. **P31, P32, and P33 Benches;** the underlying 345 bench extends more than two feet below the P33 bench and is no longer included within the mineable section. This configuration is present on the South side of the Property. Refer to *Figure 7-1* below.
3. **P32, P33, and 345 Benches;** the overlying P31 bench extends more than two feet above the P32 bench and is no longer included within the mineable section. This configuration is present on the Northeast side of the Property. Refer to *Figure 7-2* below.

The full-seam bench (P3) thickness ranges from 1.22 to 3.44 meters with an average of 1.86 meters, the P31, P32, P33 bench thickness ranges from 1.22 to 2.10 meters with an average of 1.43 meters, and the P32, P33, 345 bench thickness ranges from 1.22 to 2.71 meters with an average of 1.65 meters. The seam is situated below drainage throughout the Property and is accessible by existing mine shafts. Floor and roof strata vary throughout the mine area with floor strata including fireclay, claystone, shale, sandy shale, and sandstone, but primarily being fireclay and shale. Roof strata varies throughout as well but primarily is composed of sandstone, sandy shale, and shale.

## 7 Exploration

### 7.1 Nature and Extent of Exploration

Extensive exploration in the form of subsurface drill efforts has been carried out on the Property by numerous entities, most of which efforts were completed prior to the acquisition by Coronado. Diamond core, rotary, and CBM drilling are the three primary types of exploration on the Property. Data for correlation and mining conditions are derived from core descriptions and geophysical logging (e-logging). Coal quality analyses were also employed during the core exploration process. A total of 4,589 core, rotary, channel samples, mine measurements, and CBM wells with Pocahontas No. 3 seam information are found within the Coronado database, of which 1,784 data points are located within the current mine / resource area. The location of the drilling is shown on the maps included in *Appendix B*.

The concentration of exploration varies slightly across the Property, with the proposed underground mining areas having the highest concentration of drill holes. Drilling on the Property is typically sufficient for delineation of potential underground mineable benches. Core logging is typically conducted by professional geologists in cases where roof and floor strata are of particular interest and in cases where greater resolution and geologic detail are needed.

However, much of the early drill hole data comes from simplified driller's logs, which often lack specific details regarding geotechnical conditions and specific geology, making correlations and floor and roof conditions difficult to determine. Geophysical logging techniques, by contrast, document some details useful for geologic interpretation and mining conditions, but do not provide detailed lithologic information. Given the variability of data-gathering methods, definitive mapping of future mining conditions may not be possible, but projections and assumptions can be made within a reasonable degree of certainty.

Once the integrity of the database was established, stratigraphic columnar sections were generated using cross-sectional analysis to establish or confirm coal seam correlations. Cross-section illustrating the three mineable bench configurations are presented below in *Figure 7-1* and *Figure 7-2*.

Figure 7-1: Buchanan Cross-Section, A1 – A2

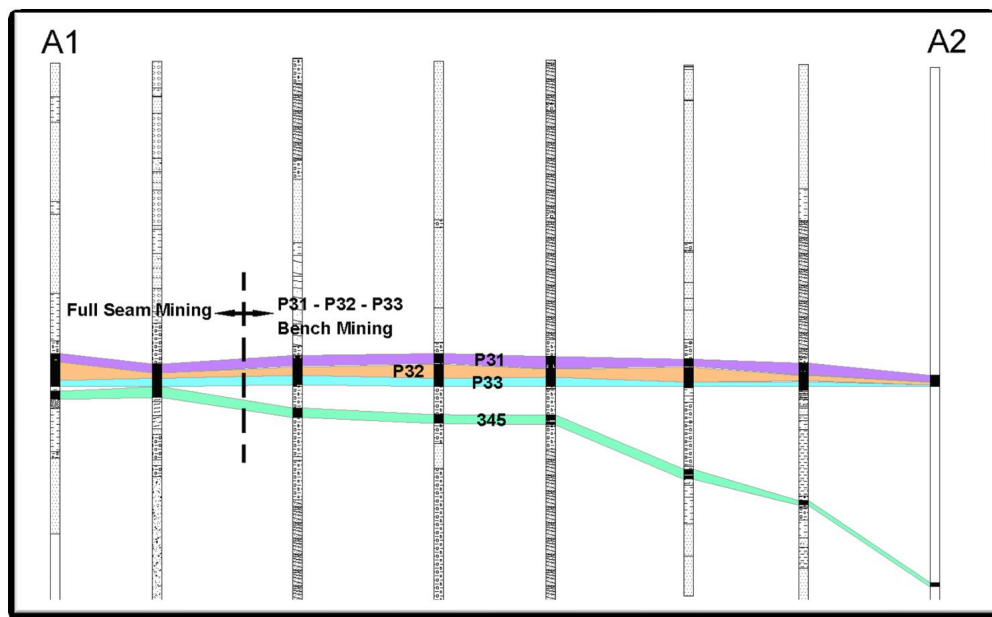
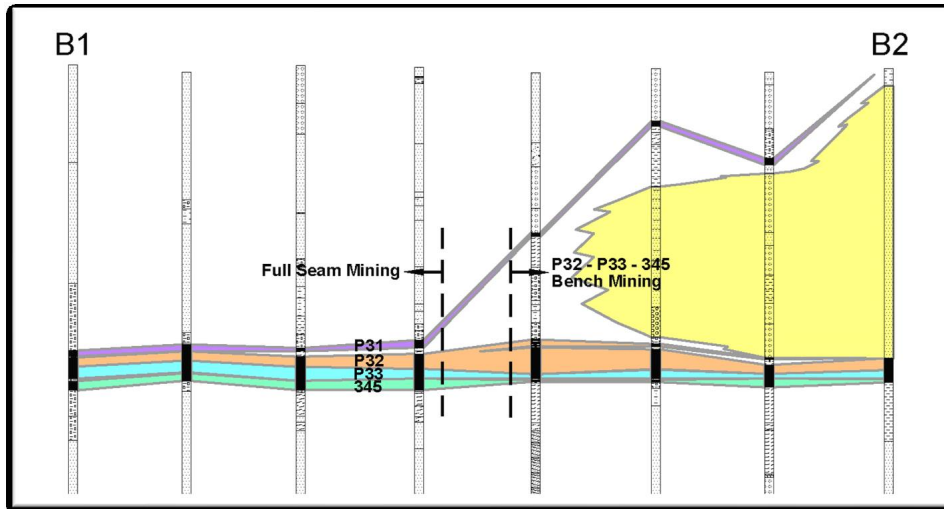


Figure 7-2: Buchanan Cross-Section, B1 – B2



Due to the extended history of exploration by various parties on the Property, a wide variety of survey techniques exist for documentation of data point locations. Many of the older exploration drill holes appear to have been located by survey and more recently completed drill holes are often located by high-resolution Global Positioning System (GPS) units. However, some holes appear to have been approximately located using USGS topography maps or other methods which are less accurate. Therefore, discretion had to be used regarding the accuracy for the location and ground surface elevation of some of these older drill holes. In instances where a drill hole location (or associated coal seam elevations) appeared to be inconsistent with the overall structural trend (or surface topography for surface-mineable areas), the data point was not honored for geological modeling. Others with apparently minor variances were adjusted and then used by MM&A.

Surveying of the underground and surface mined areas has been performed by the mine operators and/or their consulting surveyors. By assignment, MM&A did not verify the accuracy or completeness of supplied mine maps but accepted this information as being the work of responsible engineers and surveyors.

MM&A compiled comprehensive topographic map files by selecting the best available aerial mapping for each area and filling any gaps with digital USGS topographic mapping.

## 7.2 Non-Drilling Procedures and Parameters

To supplement the core hole quality database, samples have been collected from underground channel samples, mine stockpiles, and/or truck / train shipments.

### 7.3 Drilling Procedures

Core drilling methods typically utilize NX-size (5.4 centimeters) or similar-sized core cylinders to recover core samples, which can be used to delineate geologic characteristics, and for coal quality testing and geotechnical logging. For the core holes, the geophysical logs are especially useful in verifying the core recovery of both the coal samples (for assurance that a sample is representative of the full seam) and of the roof and floor rock samples (for evaluating ground control characteristics of deep mineable coal seams).

In addition to core holes, rotary-drilled holes also exist on much of the Property. Data for the rotary drilled holes are mainly derived from downhole geophysical logs, which are used to interpret coal and rock thickness and depth since logging of the drill cuttings is not reliable. From time to time, geological staff at MM&A have been engaged by Coronado to interpret geophysical logs within specific areas of interest, the results of which have been added to the Coronado geologic database. Moreover, MM&A field geologists have conducted gas content (desorption) testing of core samples as part of an ongoing effort to assess levels of coalbed methane gas (*CBM*) present within the seam. Additionally, there is an ongoing active surface drilling program for degassing the mined seam ahead of mining. The degas holes are typically logged geophysically, and the resulting interpreted data are incorporated into the geological model. Exploratory drilling generally requires drilling to depths of over 305 meters to penetrate the target coal seam at Buchanan.

A wide variety of core logging techniques exist for the Property. For many of the core holes, the primary data source is a generalized lithology description by the driller, which may be supplemented by a more detailed core log completed by a geologist. These logs were provided to MM&A as a geological database. MM&A geologists were not involved in the production of original core logs but did perform a basic check of information within the provided database. Where geophysical logs for such holes are available, they were used by MM&A geologists to verify the coal thickness and core recovery of seams.

### 7.4 Hydrology

Buchanan is an active mine with no hydrologic concerns or material issues experienced in its history. Future mining is projected to occur in areas exhibiting similar hydrogeological conditions as past mining, including stream undermining, undermining of aquifers, and mining through hydraulically fractured (frac'd) coalbed methane wells. Based upon the successful history of the operation with regards to hydrogeological conditions, MM&A assumes that the operation will not be hindered by such issues in the future.

### 7.5 Geotechnical Data

Mining plans for potential underground mines were developed by Coronado and modified by MM&A to fit current property constraints. Pillar stability was tested by MM&A using the *Analysis of Retreat Mining Pillar Stability (ARMPS)* and *Analysis of Longwall Pillar Stability (ALPS)* programs that were developed by the **National Institute for Occupational Safety and Health (NIOSH)**. MM&A reviewed the results from the ARMPS and ALPS analysis and considered them in the development of the LOM plan.





## 8 Sample Preparation, Analyses and Security

### 8.1 Prior to Sending to the Lab

Most of the coal samples have been obtained from the Property by subsurface exploration using core drilling techniques. The protocol for preparing and testing the samples has varied over time and is not well documented for the older holes drilled on the Property. Typical core-drilling sampling methods for coal in the United States involves drilling through the seam, removing the core from the barrel, describing the lithology, wrapping the sample in a sealed plastic sleeve and placing it lengthwise into a covered core box, and carefully marking hole ID and depth intervals on each box and lid, allowing the core to be delivered to a laboratory in correct stratigraphic order, and with original moisture content. This process has been the norm for both historical and ongoing exploration activities at the Property.

This work is typically performed by the supervising driller, geologist, or company personnel. Samples are most often delivered to the company by the driller after each shift or acquired by company personnel or representatives. Most of the coal core samples were obtained by previous or current operators on the Property. MM&A did not participate in the collection, sampling, and analysis of the core samples. However, it is reasonable to assume, given the consistency of quality from previous operators, that these samples were generally collected and processed under industry best practices. This assumption is based on MM&A's familiarity with the operating companies and the companies used to perform the analyses.

### 8.2 Lab Procedures

Coal-quality testing has been performed over many years by operating companies using different laboratories and testing regimens. Some of the samples have raw analyses and washabilities on the full seam (with coal and rock parting layers co-mingled) and are mainly useful for characterizing the coal quality for projected production from underground mining. Other samples have coal and rock analyzed separately, the results of which can be utilized to forecast underground mining quality. Care has been taken to use only those analyses that are representative of the coal quality parameters for the appropriate mining type for each sample. Unlike many Appalachian properties, Buchanan has interest in a single deep-mineable seam, the Pocahontas No. 3 seam; therefore, the analyses have been conducted following a consistent protocol.

Standard procedure upon receipt of core samples by the testing laboratory is to: 1) log the depth and thickness of the sample; then 2) perform testing as specified by a representative of the operating company.

Samples are analyzed in accordance with procedures defined under **ASTM International (ASTM)** standards including, but not limited to (not all analytical tests identified in the list below have been run on each sample): washability (ASTM D4371); ash (ASTM D3174); sulfur (ASTM D4239); Btu/lb. (ASTM D5865); volatile matter (ASTM D3175); Free Swell Index (FSI) (ASTM D720).



While not confirmed by MM&A, it is assumed that best practices and ASTM (or equivalent standards at the time of testing) were utilized in laboratory quality testing.

## 9 Data Verification

### 9.1 Procedures of Qualified Person

MM&A reviewed the digital geologic database supplied by Coronado. The database consists of data records, which include drill hole information for holes that lie within and adjacent to the Property and records for numerous supplemental coal seam thickness measurements. Upon completion of the database verification, copies of each entry were printed, and cross referenced to the original document for verification. Once the initial integrity of the database was established, stratigraphic columnar sections were generated using cross-sectional analysis to establish or confirm coal-seam correlations. Geophysical logs were used wherever available to assist in confirming the seam correlation and to verify proper seam thickness measurements and recovery of coal samples.

After establishing and/or verifying proper seam correlation, seam data-control maps and geological cross-sections were generated and again used to verify seam correlations and data integrity. Once the database was fully vetted, seam thickness, base-of-seam elevation, roof and floor lithology, and overburden maps were independently generated for use in the mine planning process.

### 9.2 Limitations

As with any exploration program, localized anomalies cannot always be discovered. The greater the density of the samples taken, the less the risk. Once an area is identified as being of interest for inclusion in the mine plan, additional samples are taken to help reduce the risk in those specific areas. In general, provision is made in the mine planning portion of the study to allow for localized anomalies that are typically classed more as a nuisance than a hinderance. Longwall production has been de-rated in thinner coal zones.

### 9.3 Opinion of Qualified Person

Sufficient data have been obtained through various exploration and sampling programs and mining operations to support the geological interpretations of seam structure and thickness for coal horizons situated on the Property. The data are of sufficient quantity and reliability to reasonably support the coal resource and coal reserve estimates in this TRS.

## 10 Mineral Processing and Metallurgical Testing

### 10.1 Testing Procedures

Separate tabulations have been compiled for basic chemical analyses (both raw and washed quality), petrographic data, rheological data and chlorine, ash, ultimate and sulfur analysis. The

latter two data types are not as prevalent and have been supplemented by samples collected from mine stockpiles and either truck- or train-shipment samples.

Available coal-quality data were tabulated by resource area in a Microsoft® EXCEL workbook and the details of that work are maintained on file at the offices of Coronado and MM&A. These tables also provide basic statistical analyses of the coal quality data sets, including average value; maximum and minimum values; and the number of samples available to represent each quality parameter of the seam. Coal samples that were deemed by MM&A geologists to be unrepresentative were not used for statistical analysis of coal quality, as documented in the tabulations. A representative group of drill hole samples from the Property were then checked against the original drill laboratory reports to verify accuracy and correctness.

The amount and areal extent of coal sampling for geological data is generally sufficient to represent the quality characteristics of the coal horizons and allow for proper market placement of the subject coal seams. For some of the coal deposits there are considerable laboratory data from core samples that are representative of the full extent of the resource area; and for others there are more limited data to represent the resource area. For example, in the active operations with considerable previous mining, there may be limited quality data within some of the remaining resource areas; however, in those cases the core sampling data can be supplemented with operational data from mining and shipped quality samples representative of the resource area.

## 10.2 Relationship of Tests to the Whole

The extensive sampling and testing procedures typically followed in the coal industry result in an excellent correlation between samples and marketable product. Shipped analyses of the coal from Buchanan were reviewed to verify that the coal quality and characteristics were as expected. Buchanan has a long history of saleable production in the low-volatile metallurgical markets, confirming exploration results. Degradation of coking coal characteristics over time is not anticipated to be an issue.

## 10.3 Lab Information

As noted previously, samples are analyzed at area Laboratories that operate in accordance with procedures defined under ASTM standards including, but not limited to the following (Note: not all analytical tests identified in this list have been run on each sample.):

- > **ASTM D 4371** – Test Method for Determining Washability Characteristics of Coal
- > **ASTM D 3174** – Method for Ash in the Analysis Sample of Coal and Coke
- > **ASTM D 4239** – Test Methods for Sulphur in the Analysis Sample of Coal and Coke Using High-Temperature Tube Furnace Combustion Methods
- > **ASTM D 5865** – Test Method for Gross Calorific Value of Coal and Coke
- > **ASTM D 3175** – Test Method for Volatile Matter in the Analysis Sample of Coal and Coke
- > **ASTM D 3176** – Standard Practice for Ultimate Analysis of Coal and Coke



- > **ASTM D 3178** - Test Method for Carbon and Hydrogen in Coal and Coke
- > **ASTM D 3179** - Test Method for Nitrogen in Coal and Coke
- > **ASTM D 720** – Test Method for Free-Swelling Index (*FSI*) of Coal
- > **ASTM D 5515** - Test Method for Determination of the Swelling Properties of Bituminous Coal Using a Dilatometer (Arnu)
- > **ASTM D 2639** – Test Method for Plastic Properties of Coal (Gieseler)
- > **ASTM D 3683** – Trace Elements in Coal and Coke Ash by the Atomic Absorption Method
- > **ASTM D 1857** – Standard Test Method for Fusibility of Coal and Coke Ash
- > **ASTM D 2798** – Microscopical Determination of the Reflectance of Vitrinite in a Polished Specimen of Coal

Ultimate analysis is a process typically used which gives the composition of coal in terms of carbon, hydrogen, nitrogen, oxygen, ash, and sulfur without regard to origin. The sum of the carbon, hydrogen, nitrogen, sulfur, and ash are subtracted from 100 percent to calculate oxygen percent.

Heating value or calorific value is a measure of the heat produced from a unit weight of coal. In the United States, it is commonly expressed in British thermal units per pound (*Btu/lb.*). Other units are kilocalories per kilogram (*Kcal/kg*) and kilojoules per gram (*KJ/g*). Heating value is generally determined by burning a weighed coal sample, in oxygen, in a calorimeter.

#### 10.4 Relevant Results

No critical factors have been found that would adversely affect the recovery of the Reserve.

## 11 Mineral Resource Estimates

MM&A independently created a geologic model to define the coal resources at Buchanan. Coal resources were estimated as of December 31, 2022.

#### 11.1 Assumptions, Parameters and Methodology

Geological data were imported into Carlson Mining® (formerly SurvCADD®) geological modelling software in the form of Microsoft® Excel files incorporating drill hole collars, seam and thickness picks, bottom seam elevations and raw and washed coal quality. These data files were validated prior to importing into the software. Once imported, a geologic model was created, reviewed, and verified with a key element being a gridded model of coal seam thickness.

Resource tonnes were estimated by using the seam thickness grid based on each valid point of observation and by defining resource confidence arcs around the points of observation. Points of observation for Measured and Indicated confidence arcs were defined for all valid drill holes that intersected the seam using standards deemed acceptable by MM&A based on a detailed geologic evaluation and a statistical analysis of all drill holes within the projected reserve areas as described



in Section 11.1.1. The geological evaluation incorporated an analysis of seam thickness related to depositional environments, adjacent roof and floor lithologies, and structural influences.

After validating coal seam data and establishing correlations, the thickness and elevation for seams of economic interest were used to generate a geologic model. Due to the relative structural simplicity of the deposits and the reasonable continuity of the tabular coal beds, the principal geological interpretation necessary to define the geometry of the coal deposits is the proper modeling of their thickness and elevation. Both coal thickness and quality data are deemed by MM&A to be reasonably sufficient within the resource areas. Therefore, there is a reasonable level of confidence in the geologic interpretations required for coal resource determination based on the available data and the techniques applied to the data.

Table 11-1 below provides the geological mapping and coal tonnage estimation criteria used for the coal resource and reserve evaluation. These cut-off parameters have been developed by MM&A based on its experience with the Coronado property and are typical of mining operations in the Central Appalachian coal basin. This experience includes technical and economic evaluations of numerous properties in the region for the purposes of determining the economic viability of the subject coal reserves.

**Table 11-1: General Reserve and Resource Criteria**

Item	Parameters	Technical Notes & Exceptions*
<b>• General Reserve Criteria</b>		
Reserve Classification	Reserve and Resource	
Reliability Categories	Reserve (Proven and Probable) Resource (Measured, Indicated and Inferred)	To better reflect geological conditions of the coal deposits, distance between points of observation is standard USGS (in meters), respectively, for measured and indicated and inferred.
Effective Date of Resource Estimate	December 31, 2022	Coal resources were updated for depletion based on information from Coronado. Effective date for coal resources is as of December 31, 2022.
Effective Date of Reserve Estimate	December 31, 2022	Coal reserves were updated for depletion based on information from Coronado. Effective date for coal reserves is as of December 31, 2022.
Seam Density	Variable, dependent upon seam characteristics (based on available drill hole quality). In the absence of laboratory data, estimated by (1) assuming specific gravity of 1.30 for coal and 2.25 to 2.5 for rock parting, or (2) 1280 kg/m <sup>3</sup> to 1324 kg/m <sup>3</sup> for a "clean" seam	
<b>• Underground-Mineable Criteria</b>		
Map Thickness	Total seam thickness	
Minimum Seam Thickness	1.2 meters (locally <1.2 m for limited areas integral to the mine plan)	
Minimum Mining Thickness	1.83 meters	
Minimum In-Seam Wash Recovery	40 percent	
Wash Recovery Applied to Coal Reserves	Based on average yield for drill holes within reserve area, or in the absence of laboratory washability data, based on estimated visual recovery using specific gravities noted above and 95 percent yield on "clean" coal	
Out-of-Seam Dilution Thickness for Run-of-Mine Tonnes Applied to Coal Reserves	0.05 meters	2243 kg/m <sup>3</sup> density used for dilution tonnage estimate
Mine Barrier	61-meter distance from abandoned mines and sealed or pillared areas.	
Adjustments Applied to Coal Reserves	6 percent moisture increase; 5 percent preparation plant inefficiency	
Note: Exceptions for application of these criteria to resource and reserve estimation are made as warranted and demonstrated by either actual mining experience or detailed data that allows for empirical evaluation of mining conditions. Final classification of coal reserve is made based on the pre-feasibility evaluation.		

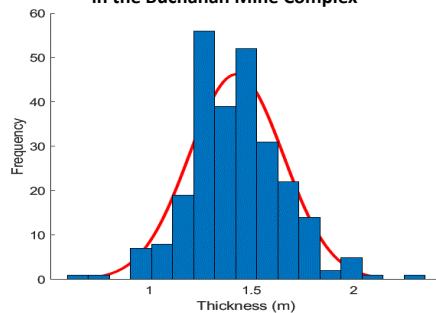
### 11.1.1 Geostatistical Analysis for Classification

MM&A completed a geostatistical analysis on drill holes within the reserve boundaries to determine the applicability of the common United States classification system for measured and indicated and inferred coal resources. Historically, the United States has assumed that coal within 0.4 kilometers of a point of observation represents a measured resource whereas coal between 0.4 kilometer and 1.2 kilometers from a point of observation is classified as indicated. Inferred resources are commonly assumed to be located between 1.2 kilometers and 4.8 kilometers from a point of observation. Per SEC regulations, only measured and indicated resources may be considered for reserve classification, respectively as proven and probable reserves.

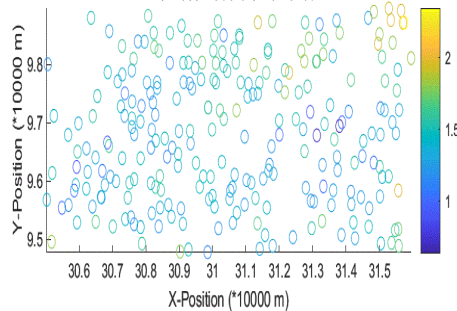
MM&A performed a geostatistical analysis of the Buchanan data set using the Drill Hole Spacing Analysis (DHSA) method. This method attempts to quantify the uncertainty of applying a measurement from a central location to increasingly larger square blocks and provides recommendations for determining the distances between drill holes for measured, indicated, and inferred resources.

To perform DHSA the data set was processed to remove any erroneous data points, clustered data points, as well as directional trends. This was achieved through the use of histograms, as seen in *Figure 11-1*, color coded scatter plots showing the geospatial positioning of the borings, *Figure 11-2*, and trend analysis.

**Figure 11-1: Histogram of the Total Seam Thickness for the Pocahontas No. 3 Seam Present in the Buchanan Mine Complex**



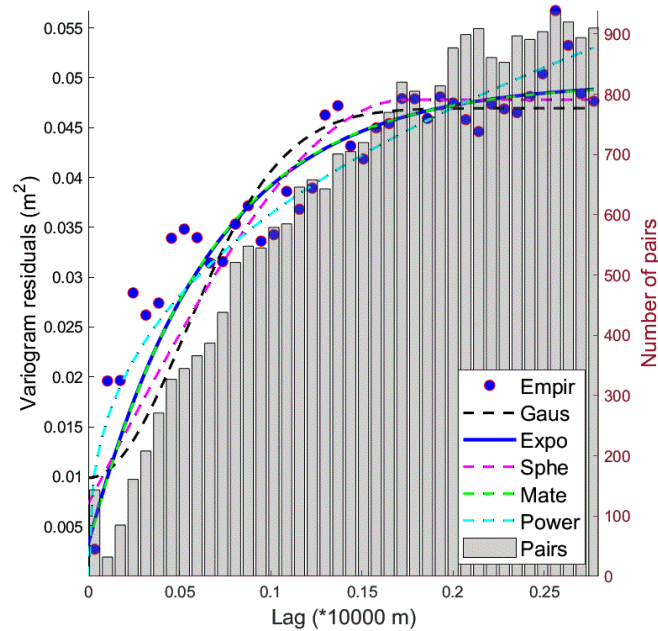
**Figure 11-2: Scatter plot of the Total Seam Thickness for the Pocahontas No. 3 Seam Present in the Buchanan Mine Complex Thickness - Outliers Removed**



Following the completion of data processing, a variogram of the data set was created, *Figure 11-3*. The variogram plots average square difference against the separation distance between the data pairs. The separation distance is broken up into separate bins defined by a uniform lag distance (e.g., for a lag distance of 152 meters the bins would be 0 – 152 meters, 153 – 305 meters, etc.). Each pair of data points that are less than one lag distance apart are reported in the first bin. If the data pair is further apart than one lag distance but less than two lag distances apart, then the variance is reported in the second bin. The numerical average for differences reported for each bin is then plotted on the variogram. Care was taken to define the lag distance in such a way as to not overestimate any nugget effect present in the data set. Lastly, modeled equations, often

spherical, gaussian, or exponential, are applied to the variogram in order to represent the data set across a continuous spectrum.

**Figure 11-3: Variogram of the Total Seam Thickness for the Pocahontas No. 3 Seam Present in the Buchanan Mine Complex**



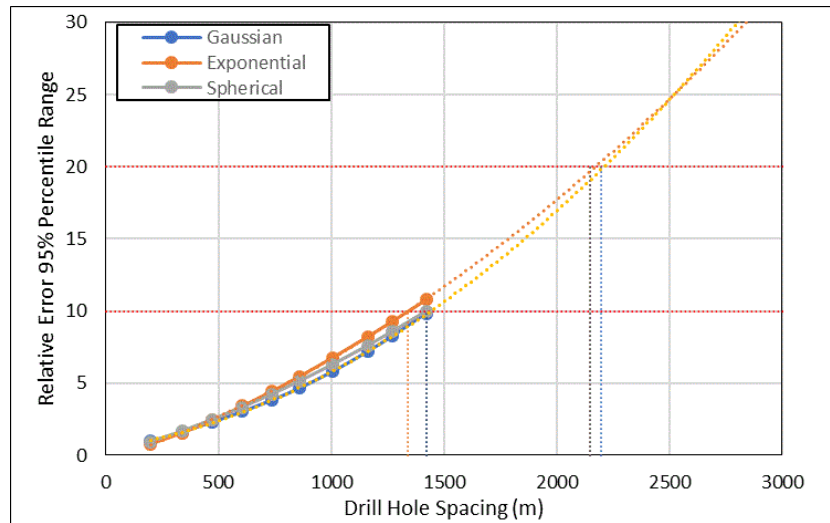
The estimation variance is then calculated using information from the modeled variogram as well as charts published by Journel and Huijbregts (1978). This value estimates the variance from applying a single central measurement to increasingly larger square blocks. Care was taken to ensure any nugget effect present was added back into the data. This process was repeated for each test block size.

The final step of the process is to calculate the global estimation variance. In this step, the number of square blocks that would fit inside the selected study area is determined for each block size that was investigated in the previous step. The estimation variance is then divided by the number of blocks that would fit inside the study area for each test block size. Following this determination, the data is then transformed back to represent the relative error in the 95th-percentile range.

Figure 11-4 shows the results of the DHSA performed on the Pocahontas No. 3 seam data for the Buchanan Mine. DHSA provides hole to hole spacing values; these distances need to be converted to radius from a central point in order to compare to the historical standards. A summary of the radius data is shown in Table 11-2. DHSA prescribes that measured, indicated, and inferred drill

hole spacing be determined at the 10-percent, 20-percent, and 50-percent levels of relative error, respectively.

**Figure 11-4: Result of DHSA for the Pocahontas No. 3 Seam Present in the Buchanan Mine Complex**



**Table 11-2: DHSA Results Summary for Radius from a Central Point**

Model:	Measured Radial Distance (10% Relative Error) (km)	Indicated Radial Distance (20% Relative Error) (km)	Inferred Radial Distance (50% Relative Error) (km)
Gaussian:	0.71	1.10	2.76
Spherical:	0.71	1.08	2.67
Exponential:	0.67	1.08	3.08

Comparing the results of the DHSA to the historical standards, it is evident that the historical standards are more conservative than even the most conservative DHSA model with regards to determining measured resources. The Exponential model recommends using a radius of 0.67 kilometers for measured resources compared to the historical value of 0.4 kilometers. With respect to indicated resources, the DHSA falls in line closely with the historical standards. The Exponential and Spherical models recommend using a radius 1.08 kilometers, while the Gaussian model recommends a radius of 1.10 kilometers. These values line up closely with the historical radius of 1.2 kilometers. These results have led the QPs to report the data following the historical classification standards, rather than use the results of the DHSA.

## 11.2 Qualified Person's Estimates

Mineral resources, representing in-situ coal from a portion of which reserves are derived, are presented below. Based on the work described and detailed modelling of the areas considering all the parameters defined, a coal resource estimate, summarized in *Table 11-3*, was prepared as of December 31, 2022, for property controlled by Coronado.



**Table 11-3: Coal Resources Summary as of December 31, 2022**

Area	Coal Resource (Dry Tonnes, In Situ, Mt)			Total	Resource Quality (Dry)		
	Measured	Indicated	Inferred		Ash%	Sulfur%	VM%
Inclusive of Reserves	158.0	10.2	0.0	168.2			
Exclusive of Reserves	33.9	5.9	0.0	39.8	25	0.7	16
<b>Total 12/31/2022</b>	<b>191.9</b>	<b>16.1</b>	<b>0.0</b>	<b>208.0</b>			

*Note: Resource tonnes are inclusive of reserve tonnes since they include the in-situ tonnes from which recoverable coal reserves are derived.*

*Note 2: Coal resources are reported on a dry basis. Surface moisture and inherent moisture are excluded.*

*Note 3: The Property contains 39.8 Mt of dry, in-place measured and indicated coal resources exclusive of reserves as of December 31, 2022.*

### 11.3 Resources Exclusive of Reserves

The Property contains multiple resource blocks which were not deemed to exhibit reserve potential at the time of the study. These resources, formally identified as resources exclusive of reserves, are located in the Pocahontas No. 3 coal seam. Reasons which may preclude elevation of resources to reserves include, but are not limited to:

1. Insufficient density of drilling and/or coal quality data available at the time of this evaluation.
2. Unfavorable economics at the PFS level, yet economics could become attractive in the future under different market conditions.
3. Exclusion from LOM planning by mining operator due to remaining resource blocks which are relatively small, isolated blocks and not currently attractive from an operational perspective. Multiple resource blocks in the active Buchanan Mine have not been considered as reserve due to relatively small size and isolation.

#### 11.3.1 Initial Economic Assessment

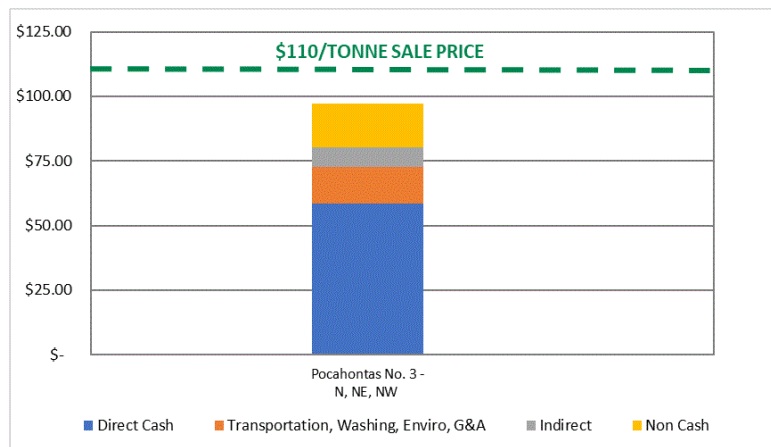
MM&A completed an initial economic assessment to determine the potential economic viability of resources exclusive of reserves. Unlike the economic analysis presented in *Section 19* developed to test reserves, the initial economic assessment below is presented on a real basis in 2022 dollars. MM&A applied relevant technical factors to estimate potential saleable tonnes without the resource blocks, should the resources be extracted via deep, continuous mining methods (given that their irregular and isolated nature *may* preclude longwall mining).

MM&A developed cash cost profiles for the resource blocks, including direct cash costs (labor, supplies, roof control, maintenance and repair, power, and other); washing, trucking, materials handling, general and administrative, and environmental costs; and indirect cash costs (royalties, production taxes, property tax, insurance). Costs were developed based off relevant cost drivers (per-meter, per-raw-tonne, per-clean-tonne). Additionally, MM&A estimated capital costs to extract resources. Capital costs associated with mine development were amortized across the resource's potential saleable tonnages. Additional non-cash items (depreciation of equipment and depletion) and cash costs were compared to an assumed sale price of \$110 per tonne (FOB loadout), representing the long-term average price forecast for Buchanan supplied by Coronado. The results of the analysis are shown below and demonstrate potential profitability on a fully loaded cost basis. Detailed summaries are shown in *Appendix D*.

**Table 11-4: Results of Initial Economic Assessment**

Seam	Resource Block	Direct Cash	Transportation, Washing, Enviro, G&A	Indirect	Non-Cash	Total Cost	Fully Loaded P&L
P3	N, NE, NW	\$58.63	\$14.14	\$7.52	\$16.77	\$97.06	\$13.18

**Figure 11-5: Results of Initial Economic Assessment**



#### 11.4 Qualified Person's Opinion

While there is some level of stratigraphically controlled seam-thickness variability, the Pocahontas No. 3 coal seam at Buchanan demonstrates reasonable thickness consistency according to the classification system of **measured** (0 – 0.4 kilometer), **indicated** (0.4 to 1.2 kilometers), and **inferred** (1.2 to 4.8 kilometers). MM&A geologists and engineers modeled the deposit and delineated mineable regions to reflect the nature of each seam and the practicality of mining constraints. Based on MM&A's geostatistical analysis, it would be possible to extend the measured arcs slightly beyond historically accepted practices due to consistent geological settings. These results have led the QPs to report the data following the historical classification standards, rather than use the results of the DHSA.

Based on the data review, the attendant work done to verify the data integrity and the creation of an independent geologic model, the QPs believe this is a fair and accurate representation of the Buchanan coal resources.

## 12 Mineral Reserve Estimates

### 12.1 Assumptions, Parameters and Methodology

Coal Reserves are classified as *proven* or *probable* considering "modifying factors" including mining, metallurgical, economic, marketing, legal, environmental, social, and governmental factors.

- > **Proven Coal Reserves** are the economically mineable part of a measured coal resource, adjusted for diluting materials and allowances for losses when the material is mined. It is based on appropriate assessment and studies in consideration of and adjusted for reasonably assumed modifying factors. These assessments demonstrate that extraction could be reasonably justified at the time of reporting.
- > **Probable Coal Reserves** are the economically mineable part of an indicated coal resource, and in some circumstances a measured coal resource, adjusted for diluting materials and allowances for losses when the material is mined. It is based on appropriate assessment and studies in consideration of and adjusted for reasonably assumed modifying factors. These assessments demonstrate that extraction could be reasonably justified at the time of reporting.

Upon completion of delineation and calculation of coal resources, MM&A generated a LOM plan for Buchanan. The footprint of the reserve area is shown on the map in *Appendix B*. The Mine plan was generated based on the forecast mine plan and permit plan provided by Coronado with modifications by MM&A where necessary due to current property control limits, modifications to geologic mapping, or other factors determined during the evaluation.

Carlson Mining software was used to generate the LOM plan for Buchanan. The mine plan was sequenced based on productivity schedules provided by Coronado. MM&A judged the productivity estimates and plans to be reasonable based on experience and current industry practice.

At the Buchanan No. 1 Mine, a minimum mining height of 1.83 meters was used due to the longwall mining method being employed. For coal seams thinner than the assigned mining height, the difference between the coal seam height and assigned mining height consists of out-of-seam dilution (*OSD*). Mine recovery generally varies between 40 and 60 percent for continuous mining panels, and 100 percent for longwall. Plant recovery is a function of in-seam recovery, *OSD* and plant efficiency factor, which is set at 95 percent. Typical entry width is 5.79 meters to 6.10 meters.

Raw, ROM production data outputs from LOM plan sequencing were processed into Microsoft® EXCEL spreadsheets and summarized on an annual basis for processing into the economic model. Average seam densities were estimated to determine raw coal tonnes produced from the LOM plan. Average mine recovery and wash recovery factors were applied to determine coal reserve tonnes.

Coal reserve tonnes in this evaluation are reported at a 6.0-percent moisture basis and represent the saleable product from the Property.

Pricing data as provided by Coronado is described in *Section 16.2*. The pricing data assumes a weighted average domestic and international FOB-mine price of approximately \$179 per metric tonne for calendar year 2023. The weighted average price decreases to approximately \$132 to \$143 per metric tonne through year 2027 and averages approximately \$153 per metric tonne over the LOM.



The coal resource mapping and estimation process described in this report was used as a basis for the coal reserve estimate. Proven and probable coal reserves were derived from the defined coal resource considering relevant processing, economic (including technical estimates of capital, revenue, and cost), marketing, legal, environmental, socio-economic, and regulatory factors and are presented on a moist, recoverable basis.

As is customary in the US, the categories for proven and probable coal reserves are based on the distances from valid points of measurement as determined by the QPs for the area under consideration. For this evaluation, measured resource, which may convert to a proven reserve, is based on a 0.4-kilometer radius from a valid point of observation.

Points of observation include exploration drill holes, degas holes, and mine measurements which have been fully vetted and processed into a geologic model. The geologic model is based on seam depositional modeling, the interrelationship of overlying and underlying strata on seam mineability, seam thickness trends, the impact of seam structure (i.e., faulting), intra-seam characteristics, etc. Once the geologic model was completed, a statistical analysis, described in *Section 11.1.1* was conducted and a 0.4-kilometer radius from a valid point of observation was selected to define Measured Resources.

Likewise, the distance between 0.4 and 1.2 of a kilometer radius was selected to define Indicated Resources. Indicated Resources may convert to Probable Reserves.

There are no Inferred Resources (greater than a 1.2-kilometer radius from a valid point of observation) at Buchanan.

## 12.2 Qualified Person's Estimates

Reserve tonnage estimates provided herein report coal reserves derived from the in-situ resource tonnes presented in *Table 11-3*, and not in addition to coal resources. Coal reserves are presented on a ROM basis in *Table 12-1*. Proven and probable coal reserves were derived from the defined coal resource considering relevant mining, processing, infrastructure, economic (including estimates of capital, revenue, and cost), marketing, legal, environmental, socio-economic and regulatory factors. The coal reserves, as shown in *Table 12-2*, are based on a technical evaluation of the geology and a preliminary feasibility study of the coal deposits. The extent to which the coal reserves may be affected by any known environmental, permitting, legal, title, socio-economic, marketing, political, or other relevant issues has been reviewed rigorously. Similarly, the extent to which the estimates of coal reserves may be materially affected by mining, metallurgical, infrastructure and other relevant factors has also been considered.

**Table 12-1: Coal ROM (Moist) Summary as of December 31, 2022**

Area / Mine	Demonstrated Coal Reserves (Mt, Moist ROM)										
	By Reliability Category			By Mining Type		By Control Type			Quality (Dry)		
	Proven	Probable	Total	Surface	UG	Owned	Leased	Subleased	Ash	Sulfur	Vol
Buchanan	144.9	8.7	153.6	0.0	153.6	21.7	127.9	4.0	42	0.7	12

**Table 12-2: Coal Reserves Summary (Marketable Sales Basis) as of December 31, 2022**

demonstrated Coal Reserves (Wet Tons, Washed or Direct Shipped, Mt)											
Area / Mine	By Reliability Category			By Mining Type		By Control Type			Quality (Dry Basis)		
	Proven	Probable	Total	Surface	UG	Owned	Leased	Subleased	Ash%	Sulfur%	VM%
Buchanan Mine Complex	87.5	5.4	92.9	0.0	92.9	14.4	75.9	2.6	6	0.7	19
Note: Marketable reserve tonnes are reported on a moist basis, including a combination of surface and inherent moisture. The combination of surface and inherent moisture is modeled 6-percent. Actual product moisture is dependent upon multiple geological factors, operational factors, and product contract specifications and can exceed 8-percent. As such, the modeled moisture values provide a level of conservatism for reserve reporting.											

As shown below, coal shipments during 2022 (primarily from the northern portion of the Property) exhibit a year-to-date average quality comparable to quality projected from core samples (refer to Table 12-2 above).

- > Moisture content: 8.3%
- > Ash content: 5.8% (db)
- > Sulfur content: 0.7% (db)
- > VM content: 17% (db)

The results of this TRS define an estimated 92.9 Mt of proven and probable marketable coal reserves. Of that total, 94 percent are proven, and 6 percent are probable. There are 14.4 Mt of owned coal reserves and 75.9 Mt of leased coal and 2.6 Mt of subleased reserves. All the Buchanan reserves are considered suitable for the metallurgical coal market, and all are assigned.

### 12.3 Qualified Person's Opinion

The estimate of coal reserves was determined in accordance with the JORC Code along with SEC Regulation S-K 1300.

The LOM mining plan for Buchanan was prepared to the level of preliminary feasibility. Mine projections were prepared with a timing schedule to match production with coal seam characteristics. Production timing was carried out from current locations to depletion of the coal reserve area. Coal reserve estimates could be materially affected by the risk factors described in Section 22.2.

Based on the preliminary feasibility study and the attendant economic review, the QPs believe this is a fair and accurate calculation of the Buchanan coal reserves.

## 13 Mining Methods

### 13.1 Geotech and Hydrology

Mining plans for potential underground mines were developed by Coronado and MM&A. Pillar stability was tested by MM&A using the *Analysis of Retreat Mining Pillar Stability (ARMPS)* and *Analysis of Longwall Pillar Stability (ALPS)* programs that were developed by the **National Institute**

**for Occupational Safety and Health (NIOSH).** MM&A reviewed the results from the ARMPS and ALPS analysis and considered them in the development of the LOM plan.

Hydrology has not been an issue of concern at Buchanan. Based on numerous site visits to both the surface and underground portions of the Property by the QPs, it has been determined that this is not a significant concern. Mining of future reserves is projected to occur in areas which exhibit similar hydrogeological characteristics as those formerly mined areas.

### 13.2 Production Rates

The Buchanan mine is active with six continuous mining sections and one longwall section currently operating. Operations at Buchanan by Coronado and its predecessor have been ongoing for many years. The mine plan and productivity expectations reflect historical performance and efforts have been made to adjust the plan to reflect future conditions. MM&A is confident that the mine plan is reasonably representative to provide an accurate estimation of coal reserves. Mine development and operation have not been optimized within the TRS.

Longwall production is scheduled for approximately 295 to 312 days each year, which represents production on Monday through Saturday with allowances for holidays and longwall moves. On each day, the continuous mining sections and longwall produce coal on three shifts. The sections are configured as regular sections with one continuous miner available for production on each section. Productivity is planned at the rate of 18.2 meters to 21.3 meters of advance per shift of operation for the continuous miner sections, and 5.79 meters to 7.32 meters per shift of longwall retreat. A second longwall is scheduled to begin production in the first quarter of 2025.

Carlson Mining software was used by MM&A to generate mine plans for the underground mineable coal seam. Coronado recently revised the Buchanan mine plan with an independent headgate and tailgate for longwall panels in the South and Northeast districts. Such a change was made to allow for an effective panel width of 982 feet, as opposed to an effective width of 688 feet used previously. The active areas in the North and East, along with the future Northwest area, are still based on an effective panel width of approximately 688 feet. MM&A incorporated this mine plan revision into the layout and subsequent reserve estimates contained herein. Mine plans were sequenced based on productivity schedules provided by Coronado, which were based on historically achieved productivity levels. All production forecasting ties assumed production rates to geological models as constructed by MM&A's team of geologists and mining engineers.

As shown in *Table 13-1*, the areas planned for underground production continue until 2044. Clean coal production varies directly with coal thickness.



**Table 13-1: Summary of Production by Year (Tonnes x 1,000)**

Mine Name	2023	2024	2025	2026	2027	2028	2029	2030
Buchanan	3,786	3,811	4,363	4,446	5,112	6,242	6,462	6,200
Mine Name	2031	2032	2033	2034	2035	2036	2037	2038
Buchanan	5,444	6,226	4,814	6,474	6,423	5,249	3,447	3,009
Mine Name	2039	2040	2041	2042	2043	2044	2045	2046
Buchanan	2,914	2,093	2,254	1,703	1,714	737	0	0

### 13.3 Mining Related Requirements

Although the continuous miner sections are significantly more expensive to operate on a cost-per-tonne basis, they are necessary to open up areas of the mine for the longwall. At the time of this study, Buchanan had 6 operating continuous miner stations that were used to develop main entries and gate roads in preparation for the longwall. As the mine develops, this number will be able to be reduced.

An additional requirement at Buchanan is the drilling of degas holes prior to mining. This process was initially developed as a safety measure to extract methane from the coal seam prior to exposure to the workforce. As such, it has been very effective.

More recently, the methane extracted has been able to be processed and sold. However, degasifying of the coal seam will continue as a safety measure regardless.

### 13.4 Required Equipment and Personnel

The Buchanan Mine is currently Coronado's only longwall operation. The longwall shearing machine is used for extraction of coal at the production face. A chain conveyor is used to remove coal from the longwall face for discharge onto the conveyor belt which then ultimately delivers it to an underground storage bunker. Development for the longwall is conducted by the extraction of coal from the production faces using continuous miners and haulage using shuttle cars to a feeder-breaker located at the tail of the section conveyor belt. The feeder-breaker crushes large pieces of coal and rock and regulates coal feed onto the mine conveyor. Roof-bolting machines are used to support the roof on the development sections of the longwall mines. Roof-bolting machines are used to install roof bolts, and battery scoops are available to clean the mine entries and assist in delivery of mine supplies to work areas. Other supplemental equipment such as personnel carriers, supply vehicles, etc., are also used daily.

Mine conveyors typically range in width up to 1.83 meters. Multiple belt flights are arranged in series to deliver raw coal to the underground storage. Along the main and sub-main entries and panels, a travel way is provided for personnel and materials by rubber-tired equipment or on rail. The Buchanan No. 1 Mine utilizes a skip hoist in order to transport ROM coal from the underground storage bunker to the surface where the coal may be sampled, crushed and washed in the preparation plant and stockpiled to await shipment.

Surface ventilation fans are installed as needed to provide a sufficient volume of air to ventilate production sections, coal haulage and transport entries, battery charging stations, and transformers in accordance with approved plans. High-voltage cables deliver power throughout the mine where transformers reduce voltage for specific equipment requirements. *The Mine Improvement and New Emergency Response Act of 2006 (MINER Act)* requires that carbon monoxide detection systems be installed along mine conveyor belts and that electronic two-way tracking and communications systems be installed throughout underground mines. Water is required to control dust at production sections and along conveyor belts, and to cool electric motors. Water is available from nearby sources and is distributed within the mine by pipelines as required. A total of 588 salary and hourly employees are assigned to the mine in 2023, and a total of 672 salary and hourly employees are assigned to the mine beginning in 2025 when the second longwall begins operation.

## 14 Processing and Recovery Methods

### 14.1 Description or Flowsheet

Coronado currently operates a coal preparation plant at Buchanan. The Buchanan Plant operates at a feed rate of approximately 1,270 raw tonnes per hour (*tph*). Coarse material is washed in a heavy medium vessel, the intermediate-size material is washed in heavy medium cyclones and fine material is washed using froth flotation. These processes are supported by the requisite screens, centrifuges, vacuum filters, sumps, pumps, and distribution systems. Processes and equipment are typical of those used in the coal industry and are in use in nearly all plants in the Central Appalachian Basin.

### 14.2 Requirements for Energy, Water, Material and Personnel

Personnel have historically been sourced from the surrounding communities in Buchanan, Tazewell, McDowell, and Pike Counties, and have proven to be adequate in numbers to operate the mine. As mining is common in the surrounding areas, the workforce is generally familiar with mining practices, and many are experienced miners.

The Buchanan No. 1 Mine Complex has sources of water, power, personnel, and supplies readily available for use. Water is sourced locally from a nearby abandoned underground mine. Electricity is sourced from AEP. The service industry in the areas surrounding the mine complex has historically provided supplies, equipment repairs and fabrication, etc.

## 15 Infrastructure

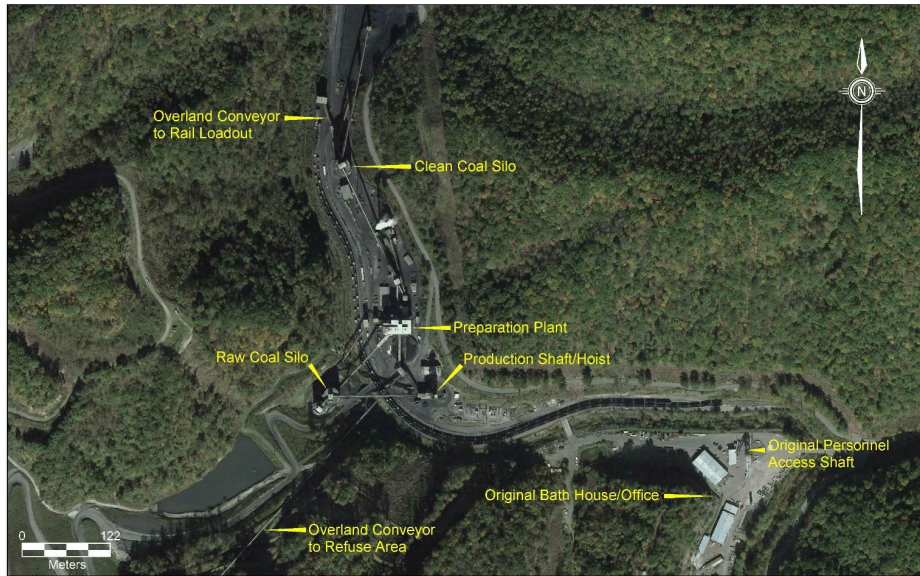
The Coronado-owned Buchanan Preparation Plant services the mine via a skip hoist and conveyor belt system which transports extracted coal from an underground bunker to the surface facility. The NS rail line serves as the main means of transport from the mine.





As an active operation, the necessary support infrastructure for Buchanan is in place. In addition to the plant and loadout, there are also portal facilities, including personnel access to the mine, ventilation fans and a coal hoisting skip shaft. A map of the existing facilities in *Figure 15-1*.

**Figure 15-1: Buchanan Surface Facilities**



## 16 Market Studies

### 16.1 Market Description

The quality characteristics for the subject coal resources and coal reserves have been reviewed in detail by MM&A. The drill hole data were utilized to develop average coal quality characteristics for the mining site. These average coal quality characteristics were then utilized as the basis for determining the various markets into which the saleable coal will likely be placed.

The projected quality specifications for the Buchanan products are as shown in *Table 16-1*.

**Table 16-1: Quality Specifications by Product**

	Buchanan	
	HCC	PCI
Moisture (%)	7.50	7.50
Ash (%)	5.50	6.00
Sulfur (%)	0.75	0.85
Volatile Matter (%)	18.00	18.00
Btu/lb.	N/A	14,926
Fluidity (ddpm)	130	N/A
MMR (%)	1.69	N/A
CSR	40	N/A
FSI	8.5	N/A

Note: All Specs are dry basis except Moisture and Thermal

All the mine production serves the metallurgical markets. The metallurgical coal is marketed as a low-volatile (typically less than 23 percent volatile matter content) product.

## 16.2 Price Forecasts

Coronado provided MM&A with price forecasts for the Buchanan operation. Customer coal pricing is derived from market observed forward estimates based on global economic supply and demand analysis which is applied to mine plan sales volumes and product mix and is supplemented with Coronado's in-house knowledge of applicable rail transportation charges, ocean freight charges and port charges. Concurrent with the active operation, Buchanan's production is assumed to enter domestic and international low volatile coking coal markets. Pricing provided by Coronado assumes applicable quality adjustments. Pricing was provided through calendar year 2044.

Coal price forecasts for the Buchanan products were provided by Coronado for various coal markets in terms of US nominal dollars per metric tonne.

## 16.3 Contract Requirements

Some contracts are necessary for successful marketing of the coal. For Buchanan, since all mining, preparation and marketing is done in-house, the remaining contracts required are:

- > **Transportation** – The Mine contracts with NS to transport the coal to either the domestic customers or to the Pier 6 export terminal for overseas shipment.
- > **Handling** – Contracts for loading vessels for export sales are necessary. These are typically handled by annual negotiations based on projected shipments.
- > **Sales** – Sales contracts are a mix of spot and contract sales. With the volatility of the market, long-term contracts are not typically written.

## 17 Environmental Studies, Permitting and Plans, Negotiations or Agreements with Local Individuals

### 17.1 Results of Studies

MM&A completed a Limited Phase I Environmental Site Assessment (ESA) on the Property in April 2016 on behalf of Coronado. Coronado reports not having conducted such a study since the MM&A study. The ESA completed by MM&A included a site inspection, review of historical records, a database search of state and federal regulatory records and interviews to identify potential recognized environmental conditions (RECs) that may create environmental liability for the sites. MM&A concluded that no long-term liabilities existed at the time of the ESA.

Based on the former ESA completed by MM&A, it is the QPs' opinion that Buchanan generally has a record consistent with industry standards regarding compliance with applicable mining, water quality, and environmental laws. Estimated costs for mine closure, including water quality monitoring during site reclamation, are included in the financial models.

### 17.2 Requirements and Plans for Waste Disposal

Based on a study commissioned by Coronado in June 2020, the current Buchanan refuse disposal site adjacent to the preparation plant has a capacity of 29 million cubic meters (CM) as currently designed; with an additional lift (No. 11), the capacity is 37 million CM. Projected requirements within the MM&A financial model are 28.0 million CM. Permitting for such an expansion is anticipated to be achievable.

### 17.3 Permit Requirements and Status

All mining operations are subject to federal and state laws and must obtain permits to operate mines, coal preparation and related facilities, haul roads, and other incidental surface disturbances necessary for mining to occur. Permits generally require that the permittee post a performance bond in an amount established by the regulatory program to provide assurance that any disturbance or liability created during mining operations is properly restored to an approved post-mining land use and that all regulations and requirements of the permits are fully satisfied before the bond is returned to the permittee. Significant penalties exist for any permittee who fails to meet the obligations of the permits including cessation of mining operations, which can lead to potential forfeiture of the bond. Any company, and its directors, owners and officers, which are subject to bond forfeiture can be denied future permits under the program.<sup>1</sup>

New permits or permit revisions will occasionally be necessary to facilitate the expansion or addition of new mining areas on the properties, such as amendments to existing permits and new permits for mining of reserve areas. Exploration permits are also required. Property under lease includes provisions for exploration among the terms of the lease. New or modified mining permits are subject to a public advertisement process and comment period, and the public is provided an

<sup>1</sup> Monitored under the Applicant Violator System (AVS) by the Federal Office of Surface Mining.



opportunity to raise objections to any proposed mining operation. MM&A is not aware of any specific prohibition of mining on the subject property and given sufficient time and planning, Coronado should be able to secure new permits to maintain its planned mining operations within the context of current regulations. Necessary permits are in place to support current production on the Property, but future permits are required to maintain and expand production. Portions of the Property are located near local communities. Regulations prohibit mining activities within 91.44 meters of a residential dwelling, school, church, or similar structure unless written consent is first obtained from the owner of the structure. Where required, such consents have been obtained where mining is proposed beyond the regulatory limits.

Coronado has obtained all mining and discharge permits to operate its mines and processing, loadout, or related facilities. MM&A is unaware of any obvious or current Coronado permitting issues that are expected to prevent the issuance of future permits. Buchanan, along with all coal producers, is subject to a level of uncertainty regarding future clean water permits due to **United States Environmental Protection Agency (EPA)** and **United States Fish and Wildlife (USFW)** involvement with state programs.

The active Mining permit currently held by Buchanan is shown in *Table 17-1*.

**Table 17-1: Buchanan Mining Permit**

Type	Permit ID	Permit Name	\$ Bond	Current Status	Issued Date	Expiration Date	Hectares	NPDES No.
Coal Underground	1402152	Buchanan No. 1 Mine	\$2,484,000	Active	03/08/1983	03/08/2023	334.79	VA0082152

#### 17.4 Local Plans, Negotiations or Agreements

MM&A found no indication of agreements beyond the scope of federal or state regulations.

#### 17.5 Mine Closure Plans

Applicable regulations require that mines be properly closed, and reclamation commenced immediately upon abandonment. In general, site reclamation includes removal of structures, backfilling, regrading, and revegetation of disturbed areas. Sediment control is required during the establishment of vegetation, and bond release generally requires a minimum five-year period of site maintenance, water sampling, and sediment control following mine completion. This requirement is reduced to two years for certain operations involving re-mining. Reclamation of underground mines includes closure and sealing of mine openings such as portals and shafts in addition to the items listed above.

Estimated costs for mine closure, including water quality monitoring during site reclamation, are included in the financial model. As with all mining companies, an accretion calculation is performed annually so the necessary Asset Retirement Obligations (ARO) can be shown as a Liability on the balance sheet.

## 17.6 Qualified Person's Opinion

The Buchanan Mine is an operating facility; all necessary permits for current production have been obtained. The QPs know of no reason that any permits revisions that may be required cannot be obtained.

Estimated expenditures for site closure and reclamation are included in the financial model for this site.

# 18 Capital and Operating Costs

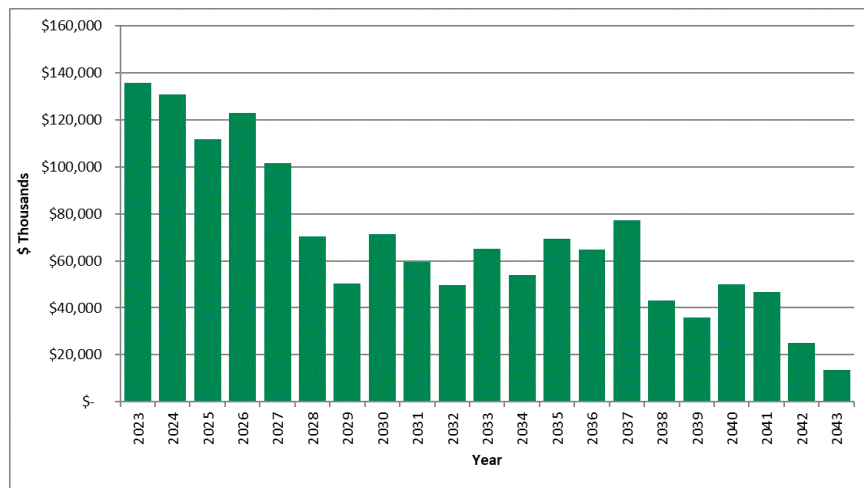
## 18.1 Capital Cost Estimate

The production sequence selected for a property must consider the proximity of each reserve area to coal preparation plants, river docks and railroad loading points, along with suitability of production equipment to coal seam conditions. The in-place infrastructure was evaluated, and any future needs were planned to a level suitable for a Preliminary Feasibility Study and included in the Capital Forecast.

Coronado provided MM&A with an inventory of operating equipment available at Buchanan. MM&A's capital schedules assume that major equipment rebuilds occur over the course of each machine's remaining assumed operating life. Replacement equipment was scheduled based on MM&A's experience and knowledge of mining equipment and industry standards with respect to the useful life of such equipment.

A summary of the estimated capital for the Property is provided in *Figure 18-2* below.

**Figure 18-1: CAPEX**



## 18.2 Operating Cost Estimate

Coronado provided historical and a preliminary five-year projection of operating costs for MM&A's review. MM&A used the historical and/or budget cost information as a reference and developed a personnel schedule for the mine. Hourly labor rates and salaries were based upon information contained in Coronado's financial summaries. Fringe-benefit costs were developed for vacation and holidays, federal and state unemployment insurance, retirement, workers' compensation and pneumoconiosis, casualty and life insurance, healthcare, and bonuses. A cost factor for mine supplies was developed that relates expenditures to mine advance rates for roof-control costs and other mine-supply costs experienced at underground mines. Other factors were developed for maintenance and repair costs, rentals, mine power, outside services and other direct mining costs.

Other cost factors were developed for coal preparation plant processing, refuse handling, coal loading, property taxes, and insurance and bonding. Appropriate royalty rates were assigned for production from leased coal lands, and sales taxes were calculated for state severance taxes, the federal black lung excise tax, and federal and state reclamation fees.

Mandated Sales Related Costs such as Black Lung Excise are summarized in *Table 18-1*.



**Table 18-1: Estimated Coal Production Taxes and Sales Costs**

Description of Tax or Sales Cost	Basis of Assessment	Cost
Federal Black Lung Excise Tax - Underground	Per Tonne	\$1.21
Federal Reclamation Fees – Underground	Per Tonne	\$0.13
Virginia Reclamation Tax – Underground	Per Tonne	\$0.05
Virginia Severance Tax		2%
Royalties – Underground	Percentage of Revenue	4.0%
Notes:		
1. Federal black lung excise tax is paid only on coal sold domestically. MM&A assumed 45% of total coal sales to be domestic in the economic analysis discussed below.		

A summary of the projected Operating Costs is in *Table 18-2*.

**Table 18-2: Buchanan Mine Operating Costs**

		YE 12/31 2023	YE 12/31 2024	YE 12/31 2025	YE 12/31 2026	YE 12/31 2027	YE 12/31 2028	YE 12/31 2029	YE 12/31 2030	Remaining LOM Average
ROM Production Tonnes	Total	153.6	7.4	7.5	8.8	9.5	11.1	9.4	9.2	5.8
Yield		60.48%	50.98%	50.61%	49.81%	46.98%	46.16%	66.22%	68.89%	67.70%
Saleable Production Tonnes		92.9	3.8	3.8	4.4	4.4	5.1	6.2	6.5	6.2
Thermal Tonnes		-	-	-	-	-	-	-	-	-
Domestic & Non-Asia										
Export Met Tonnes		29.9	1.2	1.2	1.4	1.4	1.6	2.0	2.1	2.0
Export Met Tonnes		63.0	2.6	2.6	3.0	3.0	3.5	4.2	4.4	4.2
Total Saleable Tonnes		92.9	3.8	3.8	4.4	4.4	5.1	6.2	6.5	6.2
Cash Costs per Tonne:										
Mining Costs		\$65.99	\$66.53	\$66.60	\$64.95	\$64.94	\$58.16	\$51.67	\$50.89	\$53.95
Processing and Transport		\$8.22	\$20.33	\$9.40	\$9.03	\$9.11	\$8.84	\$6.32	\$6.20	\$6.44
Sales Related Costs		\$9.48	\$9.78	\$8.92	\$8.04	\$7.64	\$8.60	\$8.68	\$8.84	\$9.01
G&A		\$2.65	\$3.79	\$2.89	\$2.54	\$2.54	\$2.27	\$2.32	\$2.36	\$2.41
Total Cash Costs		\$86.33	\$100.43	\$87.80	\$84.55	\$84.24	\$77.88	\$68.98	\$68.30	\$71.81

## 19 Economic Analysis

### 19.1 Assumptions, Parameters and Methods

A pre-feasibility LOM plan was prepared by MM&A for the Buchanan operations. MM&A prepared mine projections and production timing forecasts based on coal seam characteristics. Production timing was carried out from 2023 to depletion (exhaustion) of the coal reserve areas, which is projected for the year 2044. All costs and prices are based on 2022 nominal United States dollars.

The Mine plan, productivity expectations and cost estimates generally reflect historical performance by Coronado and efforts have been made to adjust plans and costs to reflect future conditions. MM&A is confident that the mine plan and financial model are reasonably representative to provide an accurate estimation of coal reserves.

Capital schedules were developed by MM&A for mine development, infrastructure, and on-going capital requirements for the life of the mine. Staffing levels were prepared, and operating costs estimated by MM&A. MM&A utilized historical cost data provided by Coronado and its own knowledge and experience to estimate direct and indirect operating costs.

The preliminary feasibility financial model, prepared for this TRS, was developed to test the economic viability of the coal reserve area. The results of this financial model are not intended to represent a bankable feasibility study, required for financing of any current or future mining operations, but are intended to prove the economic viability of the estimated coal reserves. All costs and prices are based on 2022 nominal United States dollars assuming a 2% inflation rate.

On an unlevered basis, the NPV of the project cash flows after taxes was estimated for the purpose of classifying coal reserves. The project cash flows, excluding debt service, are calculated by subtracting direct and indirect operating expenses and capital expenditures from revenue. Direct costs include labor, drilling and blasting, operating supplies, maintenance and repairs, facilities costs for materials handling, coal preparation, refuse disposal, coal loading, sampling and analysis services, reclamation and general and administrative costs. Indirect costs include statutory and legally agreed upon fees related to direct extraction of the mineral. The indirect costs are the federal black lung tax, federal and state reclamation taxes, property taxes, local transportation prior to delivery at rail or barge loading sites, coal production royalties, sales and use taxes, income taxes and state severance taxes. Coronado's historical costs provided a useful reference for MM&A's cost estimates.

Sales revenue is based on the metallurgical coal price information provided to MM&A by Coronado.

Projected debt service is excluded from the P&L and cash flow model in order to determine Enterprise Value.

The financial model expresses coal sales prices, operating costs, and capital expenditures in current day dollars without adjustment for inflation. Capital expenditures and reclamation costs are included based on engineering estimates for each mine by year. The Coronado division's existing allocations of administrative costs are continued in the future projections.

Coronado will pay royalties for the various current and projected operations. The royalty rates vary by mining method and location. The royalty rates for Buchanan are estimated to be 4.0% of the sales revenue.

The projection model also includes consolidated income tax calculations at the Coronado level, incorporating statutory depletion calculations, as well as state income taxes, and a federal tax rate of 21%. To the extent the mine generates net operating losses for tax purposes, the losses are carried over to offset future taxable income. The terms "cash flows" and "project cash flows" used in this report refer to after tax cash flows.

Consolidated cash flows are driven by annual sales tonnage, which at steady-state level ranges from a peak of 6.5 million tonnes in 2034 to a low of 0.7 million tonnes in 2044. Projected consolidated revenue ranges from \$317.8 million to \$1.019 billion at a steady state. Revenue totals \$14.2 billion for the project's life.

Consolidated cash flow from operations is positive throughout the projected operating period, with the exception of post-production years, due to end-of-mine reclamation spending.





Consolidated cash flow from operations peaks at \$424.3 million in 2035 and totals \$5.2 billion over the project's life. Capital expenditures total \$602.8 million through 2027 and \$1.4 billion over the project's life.

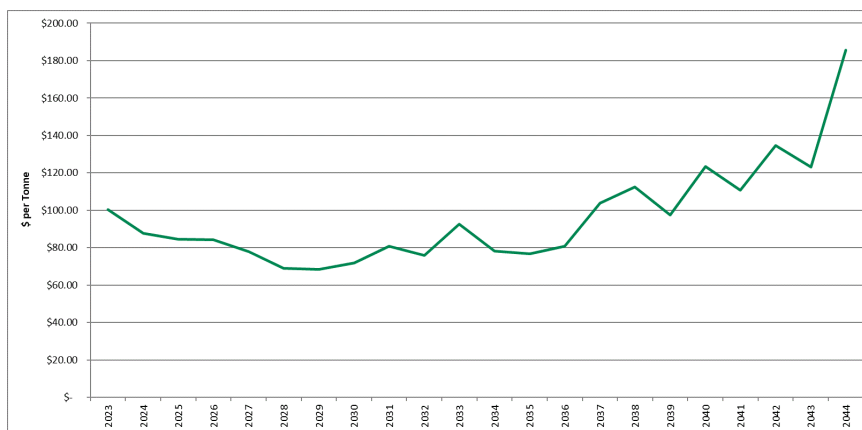
Coal price forecasts for coal products were prepared by Coronado for its active operations. Such prices were used for the revenue input into the financial model. Sales variable costs such as production royalties and severance taxes were based upon the revenue input.

## 19.2 Results

The pre-feasibility financial model, prepared by MM&A for this TRS, was developed to test the economic viability of each coal resource area. The results of this financial model are not intended to represent a bankable feasibility study, as may be required for financing of any current or future mining operations contemplated but are intended to prove the economic viability of the estimated coal reserves. Optimization of the LOM plan was outside the scope of the engagement.

Figure 19-1 shows the annual variance of cash costs per ton. Table 19-1 shows LOM tonnage, P&L, and EBITDA for Buchanan.

Figure 19-1: Cash Costs per Tonne



As shown above, the Buchanan Mine's average cash cost ranges between approximately \$68 and \$111 per tonne for most of the operating period.

Table 19-1: Life-of-Mine Tonnage, P&L before Tax, and EBITDA

	LOM Tonnes	LOM Pre-Tax P&L	P&L Per Tonne	LOM EBITDA	EBITDA Per Tonne
Buchanan	92,923	\$4,280,077	\$46.06	\$6,174,578	\$66.45

As shown in Table 19-1, the Buchanan Mine shows positive EBITDA over the LOM. Overall, Coronado's consolidated operations show positive LOM P&L and EBITDA of \$4.3 billion and \$6.2 billion, respectively. A summary of the key financial performance metrics projected through 2030 is provided below in Table 19-2.



**Table 19-2: Summary of Buchanan Key Financial Performance Metrics (2023-2030)**

		YE 12/31	YE 12/31	YE 12/31	YE 12/31	YE 12/31	YE 12/31	YE 12/31	YE 12/31	Remaining LOM Average
	Total	2023	2024	2025	2026	2027	2028	2029	2030	
ROM Production Tonnes	153.6	7.4	7.5	8.8	9.5	11.1	9.4	9.4	9.2	5.8
Yield	60.48%	50.98%	50.61%	49.81%	46.98%	46.16%	66.22%	68.89%	67.70%	64.48%
Saleable Production Tonnes	92.9	3.8	3.8	4.4	4.4	5.1	6.2	6.5	6.2	3.8
Thermal Tonnes	-	-	-	-	-	-	-	-	-	-
Domestic & Non-Asia										
Export Met Tonnes	29.9	1.2	1.2	1.4	1.4	1.6	2.0	2.1	2.0	1.2
Export Met Tonnes	63.0	2.6	2.6	3.0	3.0	3.5	4.2	4.4	4.2	2.5
Total Saleable Tonnes	92.9	3.8	3.8	4.4	4.4	5.1	6.2	6.5	6.2	3.8
Cash Costs per Tonne:										
Mining Costs	\$65.99	\$66.53	\$66.60	\$64.95	\$64.94	\$58.16	\$51.67	\$50.89	\$53.95	\$71.83
Processing and Transport	\$8.22	\$20.33	\$9.40	\$9.03	\$9.11	\$8.84	\$6.32	\$6.20	\$6.44	\$7.74
Sales Related Costs	\$9.48	\$9.78	\$8.92	\$8.04	\$7.64	\$8.60	\$8.68	\$8.84	\$9.01	\$10.05
G&A	\$2.65	\$3.79	\$2.89	\$2.54	\$2.54	\$2.27	\$2.32	\$2.36	\$2.41	\$2.70
Total Cash Costs	\$86.33	\$100.43	\$87.80	\$84.55	\$84.24	\$77.88	\$68.98	\$68.30	\$71.81	\$92.31
EBITDA per Tonne	\$66.45	\$78.12	\$55.04	\$47.23	\$48.98	\$57.54	\$69.15	\$72.59	\$71.90	\$68.66
Expansion CapEx (\$M)	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-
Maintenance CapEx (\$M)	\$1,448.5	\$135.8	\$130.8	\$111.9	\$122.8	\$101.6	\$70.4	\$50.2	\$71.2	\$46.7
Total CapEx	\$1,448.5	\$135.8	\$130.8	\$111.9	\$122.8	\$101.6	\$70.4	\$50.2	\$71.2	\$46.7

After Tax Cash Flows were developed in order to calculate the NPV for this Property. The NPV is estimated to be \$1.562 billion at a discount rate of 10.0%. A summary of the Buchanan after-tax cash flow is shown in *Table 19-3*.



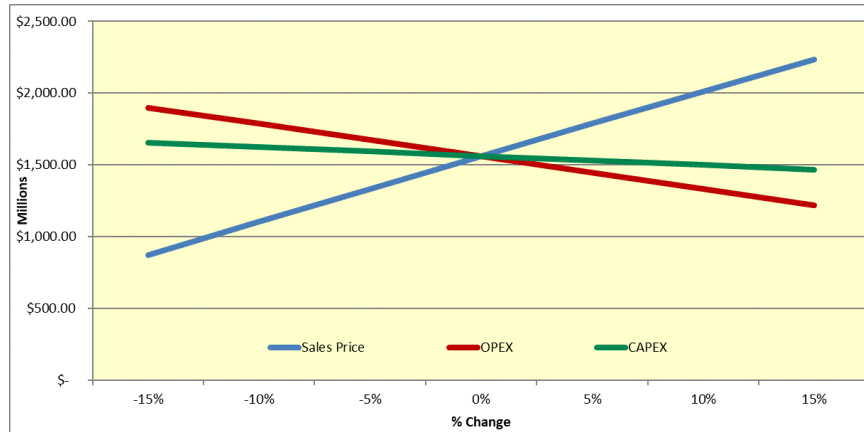
**Table 19-3: Project Cash Flow Summary (000)**

	Total	YE12/31 2023	YE12/31 2024	YE12/31 2025	YE12/31 2026	YE12/31 2027
Production & Sales tonnes	92,924	3,786	3,811	4,363	4,446	5,112
Total Revenue	\$14,194,747	\$675,923	\$544,435	\$574,963	\$592,283	\$692,273
EBITDA	\$6,174,578	\$295,749	\$209,789	\$206,065	\$217,757	\$294,147
Net Income	\$3,368,328	\$179,131	\$103,854	\$91,899	\$90,456	\$138,196
Net Cash Provided by Operating Activities	\$5,181,846	\$188,692	\$200,765	\$186,416	\$195,463	\$245,493
Purchases of Property, Plant, and Equipment	\$(1,448,505)	\$(135,766)	\$(130,803)	\$(111,896)	\$(122,768)	\$(101,557)
Net Cash Flow	\$3,733,342	\$52,926	\$69,962	\$74,520	\$72,695	\$143,936
	YE12/31 2028	YE12/31 2029	YE12/31 2030	YE12/31 2031	YE12/31 2032	YE12/31 2033
Production & Sales tonnes	6,242	6,462	6,200	5,444	6,226	4,814
Total Revenue	\$862,187	\$910,476	\$890,951	\$798,054	\$930,819	\$734,119
EBITDA	\$431,599	\$469,093	\$445,727	\$357,721	\$458,785	\$288,024
Net Income	\$240,334	\$262,860	\$254,666	\$197,893	\$280,873	\$159,996
Net Cash Provided by Operating Activities	\$339,674	\$386,828	\$379,000	\$320,798	\$362,834	\$277,786
Purchases of Property, Plant, and Equipment	\$(70,382)	\$(50,228)	\$(71,184)	\$(59,572)	\$(49,573)	\$(65,133)
Net Cash Flow	\$269,292	\$336,600	\$307,815	\$261,226	\$313,262	\$212,653
	YE12/31 2034	YE12/31 2035	YE12/31 2036	YE12/31 2037	YE12/31 2038	YE12/31 2039
Production & Sales tonnes	6,474	6,423	5,249	3,447	3,009	2,914
Total Revenue	\$1,007,101	\$1,019,070	\$849,433	\$569,043	\$506,626	\$500,552
EBITDA	\$501,730	\$526,779	\$424,763	\$211,060	\$168,369	\$216,035
Net Income	\$326,060	\$344,381	\$266,105	\$105,424	\$79,886	\$116,181
Net Cash Provided by Operating Activities	\$372,442	\$424,330	\$368,367	\$223,842	\$158,704	\$177,921
Purchases of Property, Plant, and Equipment	\$(54,007)	\$(69,272)	\$(64,919)	\$(77,383)	\$(43,070)	\$(35,719)
Net Cash Flow	\$318,435	\$355,058	\$303,449	\$146,459	\$115,634	\$142,202
	YE12/31 2040	YE12/31 2041	YE12/31 2042	YE12/31 2043	YE12/31 2044	YE12/31 2045
Production & Sales tonnes	2,093	2,254	1,703	1,714	737	-
Total Revenue	\$366,649	\$402,822	\$309,918	\$317,808	\$139,240	\$-
EBITDA	\$108,191	\$153,415	\$80,892	\$106,596	\$2,291	\$-
Net Income	\$34,854	\$71,326	\$19,002	\$46,332	\$(34,676)	\$(3,773)
Net Cash Provided by Operating Activities	\$119,167	\$128,269	\$89,128	\$92,258	\$24,650	\$(47,861)
Purchases of Property, Plant, and Equipment	\$(50,131)	\$(46,604)	\$(24,930)	\$(13,606)	\$-	\$-
Net Cash Flow	\$69,036	\$81,665	\$64,198	\$78,652	\$24,650	\$(47,861)
	YE12/31 2046	YE12/31 2047	YE12/31 2048	YE12/31 2049	YE12/31 2050	YE12/31 2051
Production & Sales tonnes	-	-	-	-	-	-
Total Revenue	\$-	\$-	\$-	\$-	\$-	\$-
EBITDA	\$-	\$-	\$-	\$-	\$-	\$-
Net Income	\$(1,534)	\$(785)	\$(403)	\$(209)	\$(0)	\$(0)
Net Cash Provided by Operating Activities	\$(16,273)	\$(8,299)	\$(4,232)	\$(4,317)	\$-	\$-
Purchases of Property, Plant, and Equipment	\$-	\$-	\$-	\$-	\$-	\$-
Net Cash Flow	\$(16,273)	\$(8,299)	\$(4,232)	\$(4,317)	\$-	\$-

### 19.3 Sensitivity

Sensitivity of the NPV results to changes in the key drivers is presented in the chart below. The sensitivity study shows the NPV at the 10.0% discount rate when Base Case sales prices, operating costs, and capital costs are increased and decreased in increments of 5% within a +/- 15% range.

Figure 19-2: Sensitivity of NPV



As shown, NPV is quite sensitive to changes in sales price and operating cost estimates, and slightly sensitive to changes in capital cost estimates.

## 20 Adjacent Properties

### 20.1 Information Used

No proprietary information associated with neighboring properties was used as part of this study.

## 21 Other Relevant Data and Information

MM&A performed a previous audit of all the properties in year 2017 for Coronado based on SEC Industry Guide 7 standards. In addition, MM&A completed a Limited Phase I Environmental Site Assessment (ESA) on the Property in 2016 on behalf of Coronado. MM&A has subsequently conducted Joint Ore Reserve Committee (JORC) compliant resource and reserve assessments of the Buchanan assets as of: (1) December 31, 2017, (2) December 31, 2020, and (3) December 31, 2021. By assignment, the JORC assessment included a preliminary feasibility level study of the subject coal reserves, encompassing detailed mine planning and cost analysis through depletion of Buchanan's JORC-compliant coal reserves. MM&A utilized these former preliminary feasibility studies as the basis of an updated study which meets those standards set forth by the SEC.

## 22 Interpretation and Conclusions

### 22.1 Conclusion

Sufficient data have been obtained through various exploration and sampling programs and mining operations to support the geological interpretations of seam structure and thickness for coal horizons situated on the Property. The data are of sufficient quantity and reliability to reasonably support the coal resource and coal reserve estimates in this TRS.

The geological data and preliminary feasibility study, which consider mining plans, revenue, and operating and capital cost estimates are sufficient to support the classification of coal reserves provided herein.

This geologic evaluation conducted in conjunction with the preliminary feasibility study is sufficient to conclude that the 92.9 Mt of marketable underground coal reserves identified on the Property are economically mineable under reasonable expectations of market prices for metallurgical coal products, estimated operation costs, and capital expenditures.

### 22.2 Risk Factors

Risks have been identified for operational, technical and administrative subjects addressed in the Pre-Feasibility Study. A risk matrix has been constructed to present the risk levels for all the risk factors identified and quantified in the risk assessment process. The risk matrix and risk assessment process are modelled according to the Australian and New Zealand Standard on Risk Management (AS/NZS 4360).

The purpose of the characterization of the project risk components is to inform the project stakeholders of key aspects of the Coronado projects that can be impacted by events whose consequences can affect the success of the venture. The significance of an impacted aspect of the operation is directly related to both the probability of occurrence and the severity of the consequences. The initial risk for a risk factor is herein defined as the risk level after the potential impact of the risk factor is addressed by competent and prudent management utilizing control measures readily available. Residual risk for a risk factor is herein defined as the risk level following application of special mitigation measures if management determines that the initial risk level is unacceptable. Initial risk and residual risk can be quantified numerically, derived by the product of values assigned to probability and consequence ranging from very low risk to very high risk.

The probability and consequence parameters are subjective numerical estimates made by practiced mine engineers and managers. Both are assigned values from 1 to 5 for which the value 1 represents the lowest probability and least consequence, and the value 5 represents the highest probability and greatest consequence. The products, which define the Risk Level, are classified from very low to very high.



#### Risk Level Table ( $R = P \times C$ )

Risk Level (R)  
Very Low (1 to 2)  
Low (3 to 5)  
Moderate (6 to 11)  
High (12 to 19)  
Very High (20 to 25)

Risk aspects identified and evaluated during this assignment total 12. No residual risks are rated Very High. One (1) residual risk is rated High. Seven (7) of the risk aspects could be associated with Moderate residual risk. Four (4) of the risk aspects were attributed Low or Very Low residual risks.

##### 22.2.1 Governing Assumptions

The listing of the aspects is not presumed to be exhaustive. Instead that listing is presented based on the experiences of the contributors to the TRS.

1. The probability and consequence ratings are subjectively assigned, and it is assumed that this subjectivity reasonably reflects the condition of the active and projected mine operations.
2. The Control Measures shown in the matrices presented in this chapter are not exhaustive. They represent a condensed collection of activities that the author of the risk assessment section has observed to be effective in coal mining scenarios.
3. Mitigation Measures listed for each risk factor of the operation are not exhaustive. The measures listed, however, have been observed by the author to be effective.
4. The monetary values used in ranking the consequences are generally-accepted quantities for the coal mining industry.

##### 22.2.2 Limitations

The risk assessment proposed in this report is subject to the limitations of the information currently collected, tested, and interpreted at the time of the writing of this report.

##### 22.2.3 Methodology

The numerical quantities (i.e., risk levels) attributable to either “initial” or “residual” risks are derived by the product of values assigned to probability and consequence ranging from very low risk to very high risk.

$$R = P \times C$$

Where: R = Risk Level  
P = Probability of Occurrence  
C = Consequence of Occurrence

The Probability (P) and Consequence (C) parameters recited in the formula are subjective numerical estimates made by practiced mine engineers and managers. Both P and C are assigned integer values ranging from 1 to 5 for which the value 1 represents the lowest probability and



least consequence, and the value 5 represents the highest probability and greatest consequence. The products ( $R = P \times C$ ) which define the Risk Level, are thereafter classified from very low to very high.

#### Risk Level Table

**Risk Level (R)**  
**Very Low (1 to 2)**  
**Low (3 to 5)**  
**Moderate (6 to 11)**  
**High (12 to 19)**  
**Very High (20 to 25)**

Very high initial risks are considered to be unacceptable and require corrective action well in advance of project development. In short, measures must be applied to reduce very high initial risks to a tolerable level.

As shown and discussed above, after taking into account the operational, technical, and administrative actions that have been applied or are available for action when required, the residual risk can be determined. The residual risk provides a basis for the management team to determine if the residual risk level is acceptable or tolerable. If the risk level is determined to be unacceptable, further actions should be considered to reduce the residual risk to acceptable or tolerable levels to provide justification for continuation of the proposed operation.

#### 22.2.4 Development of the Risk Matrix

Risks have been identified for the technical, operational, and administrative subjects addressed in the TRS. The risk matrix and risk assessment process are modelled according to the Australian and New Zealand Standard on Risk Management (AS/NZS 4360).

##### 22.2.4.1 Probability Level Table

Table 22-1: Probability Level Table

Category	Probability Level (P)		
1	Remote	Not likely to occur except in exceptional circumstances.	<10%
2	Unlikely	Not likely to occur; small in degree.	10 - 30%
3	Possible	Capable of occurring.	30 - 60%
4	Likely	High chance of occurring in most circumstances.	60 - 90%
5	Almost Certain	Event is expected under most circumstances; impossible to avoid.	>90%

The lowest rated probability of occurrence is assigned the value of 1 and described as remote, with a likelihood of occurrence of less than 2 percent. Increasing values are assigned to each higher probability of occurrence, culminating with the value of 5 assigned to incidents considered to be almost certain to occur.

##### 22.2.4.2 Consequence Level Table

Table 22-2 lists the consequence levels.

**Table 22-2: Consequence Level Table**

Correlation of Events in Key Elements of the Project Program to Event Severity Category

Category	Severity of the Event	Financial Impact of the Event	Unplanned Loss of Production (Impact on Commercial Operations)	Events Impacting on the Environment	Events Affecting the Program's Social and Community Relations	Resultant Regulatory / Sovereign Risk	Events Affecting Occupational Health & Safety
1	<b>Insignificant</b>	< USD \$0.5 million	≤ 12 hours	Insignificant loss of habitat; no irreversible effects on water, soil and the environment.	Occasional nuisance impact on travel.	-	Event recurrence avoided by corrective action through established procedures (Engineering, guarding, training).
2	<b>Minor</b>	USD \$0.5 million to \$2.0 million	≤ 1 day	No significant change to species populations; short-term reversible perturbation to ecosystem function.	Persistent nuisance impact on travel. Transient adverse media coverage.	-	<b>First aid – lost time.</b> Event recurrence avoided by corrective action through established procedures.
3	<b>Moderate</b>	USD \$2.0 million to \$10.0 million	≤ 1 week	Appreciable change to species population; medium-term (≤10 years) detriment to ecosystem function.	Measurable impact on travel and water/air quality. Significant adverse media coverage / transient public outrage.	Uncertainty securing or retaining essential approval / license. Change to regulations (tax; bonds; standards).	<b>Medical Treatment – permanent</b> incapacitation. Avoiding event recurrence requires modification to established corrective action procedures.
4	<b>Major</b>	USD \$10.0 million to \$50.0 million	1 to 2 weeks	Change to species population threatening viability; long-term (>10 years) detriment to ecosystem function.	Long-term, serious impact on travel and use of water resources; degradation of air quality; sustained and effective public opposition.	Suspension / long-delay in securing essential approval / license. Change to laws (tax; bonds; standards).	<b>Fatality.</b> Avoiding event recurrence requires modification to established corrective action procedures and staff retraining.
5	<b>Critical</b>	>USD \$50.0 million	>1 month	Species extinction; irreversible damage to ecosystem function.	Loss of social license.	Withdraw / failure to secure essential approval / license.	<b>Multiple fatalities.</b> Avoiding event recurrence requires major overhaul of policies and procedures.



The lowest rated consequence is assigned the value of 1 and is described as an Insignificant Consequence, parameters of which include non-reportable safety incidents with zero days lost accidents, no environmental damage, loss of production or systems for less than one week and cost of less than USD \$0.5 million. Increasing values are assigned to each higher consequence, culminating with the value of 5 assigned to critical consequences, the parameters of which include multiple-fatality accidents, major environmental damage, and loss of production or systems for longer than one month and cost of greater than USD \$50.0 million.

#### Composite Risk Matrix $R = P \times C$ and Color-Code Convention

The risk level, defined as the product of probability of occurrence and consequence, ranges in value from 1 (lowest possible risk) to 25 (maximum risk level). The values are color-coded to facilitate identification of the highest risk aspects.

**Table 22-3: Risk Matrix**

		Consequence (C)				
		Insignificant	Minor	Moderate	Major	Critical
		1	2	3	4	5
Probability Level (P)	Remote	1	2	3	4	5
	Unlikely	2	4	6	8	10
	Possible	3	6	9	12	15
	Likely	4	8	12	16	20
	Almost Certain	5	10	15	20	25

#### 22.2.5 Categorization of Risk Levels and Color Code Convention

Very high risks are considered to be unacceptable and require corrective action. Risk reduction measures must be applied to reduce very high risks to a tolerable level.

#### 22.2.6 Description of the Coal Property

The Buchanan Mine Complex is located in Buchanan and Tazewell Counties, Virginia and operates a longwall section with supporting continuous mining sections. Operations are projected to continue in the present mode until reserves are depleted in 2044.

#### 22.2.7 Summary of Residual Risk Ratings

Each risk factor is numbered, and a risk level for each is determined by multiplying the assigned probability by the assigned consequence. The risk levels are plotted on a risk

matrix to provide a composite view of the Coronado risk profile. The average risk level is 7.1, which is defined as Moderate.

**Table 22-4: Risk Assessment Matrix**

Consequence	Critical	>\$50 MM	8,9					
	Major	\$10-50MM				6		
	Moderate	\$2-10 MM	11	1,2,4	3			
	Minor	\$0.5-\$2 MM			12	5	7	
	Low	<\$0.5 MM			10			
			<10% Remote	10-30% Unlikely	30-60% Possible	60-90% Likely	>90% Almost Certain	

#### 22.2.8 Risk Factors

A high-level approach is utilized to characterize risk factors that are generally similar across a number of the active and proposed mining operations. Risk factors that are unique to a specific operation or are particularly noteworthy are addressed individually.

##### 22.2.8.1 Geological and Coal Resource

Coal mining is accompanied by risk that, despite exploration efforts, mining areas will be encountered where geological conditions render extraction of the resource to be uneconomic, or that coal quality characteristics disqualify the product for sale into target markets.

Offsetting the geological and coal resource risks are the massive size of the controlled property which allows large areas to be mined in the preferred mine areas sufficiently away from areas where coal quality and mineability may be less favorable. This flexibility, combined with the extensive work done to define the reserve, reduces the risk at Buchanan below that of other mine properties.

**Table 22-5: Geological and Coal Resource Risk Assessment (Risks 1 and 2)**

Aspect	Impact	Control Measures	Initial Risk Level			Mitigation Measures	Residual Risk Level		
			P	C	R		P	C	R
Recoverable coal tonnes recognized to be significantly less than previously estimated.	Reserve base is adequate to serve market commitments and respond to opportunities for many years. Local adverse conditions may increase frequency and cost of production unit relocations.	Previous and ongoing exploration and extensive regional mining history provide a high level of confidence of coal seam correlation, continuity of the coal seams, and coal resource tonnes.	3	4	12	Optimize mine plan to increase resource recovery; develop mine plan to provide readily available alternate mining locations to sustain expected production level.	2	3	6
Coal quality locally proves to be lower than initially projected.	If uncontrolled, production and sale of coal that is out of specification can result in rejection of deliveries, cancellation of coal sales agreements and damage to reputation.	Exploration and vast experience and history in local coal seams provide confidence in coal quality; limited excursions can be managed with careful product segregation and blending.	2	5	10	Develop mine plan to provide readily available alternate mining locations to sustain expected production level; modify coal sales agreements to reflect coal quality.	2	4	8

#### 22.2.8.2 Environmental

MM&A completed a Limited Phase I Environmental Site Assessment (ESA) on the Property in April 2016 on behalf of Coronado. MM&A concluded that no long-term liabilities existed at the time of this ESA.

Water quality and other permit requirements are subject to modification and such changes could have a material impact on the capability of the operator to meet modified standards or to receive new permits and modifications to existing permits. Permit protests may result in delays or denials to permit applications.

Environmental standards and permit requirements have evolved significantly over the past 50 years and to date, mining operators and regulatory bodies have been able to adapt successfully to evolving environmental requirements.

**Table 22-6: Environmental (Risks 3 and 4)**

Aspect	Impact	Control Measures	Initial Risk Level			Mitigation Measures	Residual Risk Level		
			P	C	R		P	C	R
Environmental performance standards are modified in the future.	Delays in receiving new permits and modifications to existing permits; cost of testing and treatment of water and soils	Work with regulatory agencies to understand and influence final standards; implement testing, treatment and other actions to comply with new standards.	3	4	12	Modify mining and reclamation plans to improve compliance with new standards while reducing cost of compliance.	3	3	9
New permits and permit modifications are increasingly delayed or denied.	Interruption of production and delayed implementation of replacement production from new mining areas.	Comply quickly with testing, treatment and other actions required; continue excellent compliance performance within existing permits.	2	4	8	Establish and maintain close and constructive working relationships with regulatory agencies, local communities and community action groups. Prepare and submit permits well in advance of needs.	2	3	6

### 22.2.8.3 Regulatory Requirements

Federal and state health and safety regulatory agencies occasionally amend mine laws and regulations. The impact is industry-wide. Mining operators and regulatory agencies have been able to adapt successfully to evolving health and safety requirements.

**Table 22-7: Regulatory Requirements (Risk 5)**

Aspect	Impact	Control Measures	Initial Risk Level			Mitigation Measures	Residual Risk Level		
			P	C	R		P	C	R
Federal and state mine safety and health regulatory agencies amend mine laws and regulations.	Cost of training, materials, supplies and equipment; modification of mine examination and production procedures; modification of mining plans.	Participate in hearings and workshops when possible to facilitate understanding and implementation; work cooperatively with agencies and employees to facilitate implementation of new laws and regulations.	4	3	12	Familiarity and experience with new laws and regulations results in reduced impact to operations and productivity and improved supplies and equipment options.	4	2	8

### 22.2.8.4 Market and Transportation

Most of the current and future production is expected to be directed to domestic and international metallurgical markets. Historically the metallurgical markets have been cyclical and highly volatile.

**Table 22-8: Market and Transportation (Risk 6)**

Aspect	Impact	Control Measures	Initial Risk Level			Mitigation Measures	Residual Risk Level		
			P	C	R		P	C	R
Volatile coal prices drop precipitously.	Loss of revenue adversely affects profitability; reduced cash flow may disrupt capital expenditures plan.	Cost control measures implemented; capital spending deferred.	4	5	20	High-cost operations closed, and employees temporarily furloughed.	4	4	16

Occasional delay or interruption of rail, river and terminals service may be expected. The operator can possibly minimize the impact of delays by being a preferred customer by fulfilling shipment obligations promptly and maintaining close working relationships.

**Table 22-9: Market and Transportation (Risk 7)**

Aspect	Impact	Control Measures	Initial Risk Level			Mitigation Measures	Residual Risk Level		
			P	C	R		P	C	R
Rail or river transport is delayed; storage and shipping access at river and ocean terminals is not available.	Fulfillment of coal sales agreements delayed; limited coal storage at mines may increase cost of rehandling; production may be temporarily idled.	Provide adequate storage capacity at mines; coordinate continuously with railroad and shipping companies to respond quickly and effectively to changing circumstances.	5	3	15	Provide back-up storage facility along with personnel, equipment and rehandle plan to sustain production and fulfill sales obligations timely.	5	2	10

### 22.2.8.5 Mining Plan

Occupational health and safety risks are inherent in mining operations. Comprehensive training and retraining programs, internal safety audits and examinations, regular mine inspections, safety meetings, along with support of trained fire brigades and mine-rescue teams are among activities that greatly reduce accident risks. Employee health-monitoring programs coupled with dust and noise monitoring and abatement reduce health risks to miners.

As underground mines are developed and extended, observation of geological, hydrogeological and geotechnical conditions leads to modification of mine plans and procedures to enable safe work within the mine environments.

Highlighted below are selected examples of safety and external factors relevant to Coronado operations.

#### 22.2.8.5.1 Methane Management

Coalbed methane is present in coal operations below drainage. Often the methane concentration in shallow coal seams is at such low levels that it can be readily managed with frequent testing and monitoring, vigilance, and routine mine ventilation. Very high methane concentrations may be present at greater depths, as experienced in the Pocahontas No. 3 seam at Buchanan Mine Complex in Virginia. High methane concentrations may require

degasification of the coal seam to assure safe mining. The Buchanan Mine has operated safely for many years in one of the most intense methane environments in the United States through careful management of coal seam degasification, gob degasification and mine-ventilation procedures.

**Table 22-10: Methane Management (Risk 8)**

Aspect	Impact	Control Measures	Initial Risk Level			Mitigation Measures	Residual Risk Level		
			P	C	R		P	C	R
Methane hazard is present in mines operating below drainage.	Injury or loss of life; possible ignition of gas and mine explosion; potential loss of mine and equipment temporarily or permanently; additional mine fan, mine power, ventilation, monitoring and examination requirements.	Low to moderate levels can be managed with frequent examinations, testing and monitoring within the mine ventilation system. Excellent rock dust maintenance minimizes explosion propagation risk should an ignition occur.	1	5	5	Very high-level methane concentrations may require coal seam degasification and gob degasification if longwall or pillar extraction methods are employed.	1	5	5

#### 22.2.8.5.2 Mine Fires

Mine fires, once common at mine operations, are rare today. Most active coal miners have not encountered a mine fire. Vastly improved mine power and equipment electrical systems, along with safe mine practices, reduce mine fire risks. Crew training and fire brigade support and training improve response for containment and control if a fire occurs. Spontaneous combustion within coal mines, which is the source of most fires that occur today, is not expected to occur at Buchanan.

**Table 22-11: Mine Fires (Risk 9)**

Aspect	Impact	Control Measures	Initial Risk Level			Mitigation Measures	Residual Risk Level		
			P	C	R		P	C	R
Mine fire at underground or surface mine operation.	Injury or loss of life; potential loss of mine temporarily or permanently; damage to equipment and mine infrastructure.	Inspection and maintenance of mine power, equipment and mine infrastructure; good housekeeping; frequent examination of conveyor belt entries; prompt removal of accumulations of combustible materials.	1	5	5	If spontaneous combustion conditions are present, enhanced monitoring and examination procedures will be implemented; mine design will incorporate features to facilitate isolation, containment and extinguishment of spontaneous combustion locations.	1	5	5

#### 22.2.8.5.3 Availability of Supplies and Equipment

The industry has periodically experienced difficulty receiving timely delivery of mine supplies and equipment. Availability issues often accompanied boom periods for coal demand. Any future delivery of supplies and equipment delays are expected to be temporary with limited impact on production.

**Table 22-12: Availability of Supplies and Equipment (Risk 10)**

Aspect	Impact	Control Measures	Initial Risk Level			Mitigation Measures	Residual Risk Level		
			P	C	R		P	C	R
Disruption of availability for supplies and equipment.	Temporary interruption of production.	Force majeure provision in coal sales agreements to limit liability for delayed or lost sales.	3	2	6	Work closely with customers to assure delayed coal delivery rather than cancelled sales; monitor external conditions and increase inventory of critical supplies; accelerate delivery of equipment when possible.	3	1	3

#### 22.2.8.5.4 Labor

Work stoppage due to labor protests are considered unlikely and are accompanied by limited impact should it occur. Excellent employee relations and communications limit the exposure to outside protesters. Loss of supervisors and skilled employees to retirement is inevitable; the impact can be lessened with succession planning and training and mentorship of new employees.

**Table 22-13: Labor – Work Stoppage (Risk 11)**

Aspect	Impact	Control Measures	Initial Risk Level			Mitigation Measures	Residual Risk Level		
			P	C	R		P	C	R
Work stoppage due to strikes, slowdowns or secondary boycott activity.	Loss of production and coal sales; damaged customer and employee relations; reputation loss.	Maintain excellent employee relations and communications; maintain frequent customer communications.	1	3	3	Develop plan for employee communications and legal support to minimize impact of secondary boycott activities.	1	3	3



**Table 22-14: Labor – Retirement (Risk 12)**

Aspect	Impact	Control Measures	Initial Risk Level			Mitigation Measures	Residual Risk Level		
			P	C	R		P	C	R
Retirement of supervisors and skilled employees.	Loss of leadership and critical skills to sustain high levels of safety, maintenance and productivity.	Monitor demographics closely and maintain communications with employees who are approaching retirement age; maintain employee selection and training programs.	3	3	9	Maintain selection of candidates and implementation of in-house or third-party training for electricians and mechanics; develop employee mentoring program.	3	2	6

## 23 Recommendations

Coronado is continuing to work both internally and with outside assistance to further define their resource base and to optimize the LOM plan.

## 24 References

Publicly available information from various state and federal agencies was used where relevant.

## 25 Reliance on Information Provided by the Registrant

A summary of the information provided by Coronado relied upon by MM&A for the purposes of this TRS is provided in *Table 25-1*.

**Table 25-1: Information from Registrant Relied Upon by MM&A**

Category	Information Provided by Coronado	Report Section
Marketing	Long-term price forecast used in financial projections	16.2
Legal	Mineral control and surface control rights as shown on maps	3.2, 3.3
Environmental	Permit and bonding information	17.3





## APPENDIX

# A

### MM&A QUALIFICATIONS



MM&A provides geological and engineering services to both surface and underground mine operations throughout the world in support of Mineral Resource and Mineral Reserve Reporting. MM&A geologists and engineers have extensive backgrounds in a variety of mining scenarios.



**Technical Reports (TRs)** are prepared in order to document in-place mineral resource estimates and mineral reserve estimates on a recoverable basis by different mining methods both on small tracts and on properties encompassing several thousand acres. The goal of the TRs is to document the economic viability of the mineral reserves as well as the preliminary economic outlook of the mineral resources. Evaluations of mineral deposits satisfy legal, economic and technical feasibility criteria, consistent with regulations and guidelines of the United States Securities and Exchange Commission (SEC) Industry Guide 7 or S-K 1300 standards, the Australasian Joint Ore Reserve Committee (JORC) guidelines, Canada's National Instrument 43-101, and the AIM standards on the London Exchange. The resource assessment addresses pertinent geologic parameters that are related to the deposit thickness, grade, and geographic distribution. MM&A's technical staff include Registered Members of the Society of Mining Engineers or are Registered Certified Professional Geologists by the American Institute of Professional Geologists. Both organizations are listed as approved Recognized Professional Organizations, and therefore MM&A's technical staff are considered Competent Persons by international standards. Reserve Technical Reports have been prepared for reporting in stock exchanges in the United States as well as Australia, Southeast Asia, China, Canada, Great Britain, Turkey, and other countries. MM&A professionals are experienced with coal and other deposits used in industrial minerals applications.

## Geological Services

- > Exploration Program Development and Implementation
- > Field Mapping
- > Field Exploration Supervision
- > Geological Assessment
- > Detailed Core Logging
- > Core or Mineral Sampling
- > Geophysical Logging
- > Supervise Analytical Testing
- > Database Compilation
- > Computer-Aided Geologic Modeling
- > Resource/Reserve Computation
- > Hazard Mapping
- > Lineament Mapping

- > Geotechnical Analysis
- > Mine Roof and Floor Condition Assessment
- > Pillar Stability Analysis
- > Subsidence Studies
- > Horizontal Stress Mapping

## Mining Engineering Services

- > Determine Optimum Mining Methods
- > Equipment Selection
- > Productivity Estimates
- > Labor Requirements and Scheduling
- > Life-of-Mine Plans for Proposed and Existing Mines

- > Mine and Facilities Layout and Planning
- > Market and Transportation Studies
- > Environmental Review and Reclamation Liability Estimates
- > Capital Requirements
- > Ventilation, Permitting and Drainage Control

## Economic Analysis

- > Estimate of Operating Costs (Labor, Supplies, and Fixed Costs)
- > Capital Budget Assessments
- > Discounted Cash Flow Analysis
- > Risk Assessment

For More Information Contact:

582 Industrial Park Road, Bluefield, VA 24605 • Telephone +1 276 322 5467 • [www.mma1.com](http://www.mma1.com)

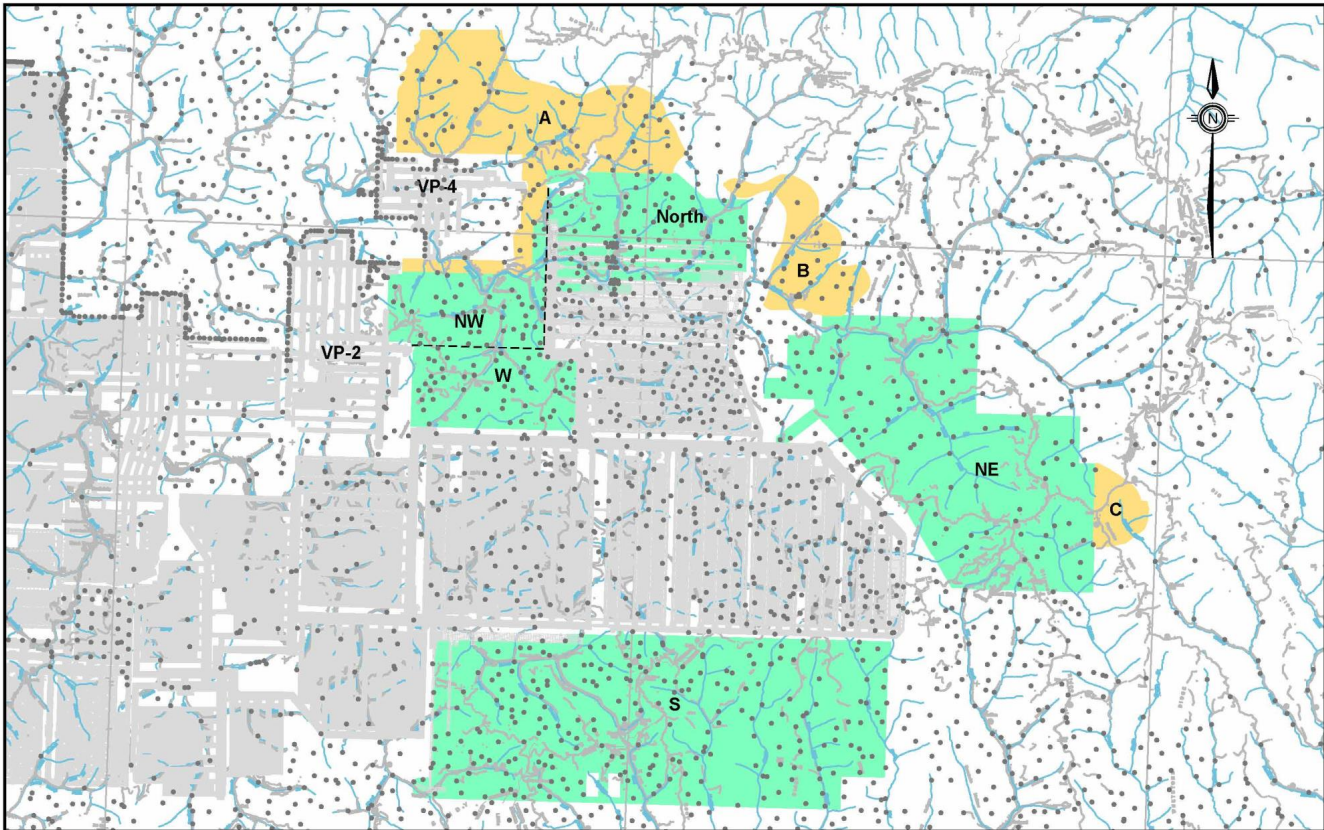
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## APPENDIX

# B

MAP





M62199 Bluefield, VA 1/23  
Buch1-P3 mh

- Data Point Location
- Previous Underground Mining
- Controlled Underground Reserve / Resource as of 12/31/22
- Resource Inclusive of Reserve / Converted to Reserve
- Resource Exclusive of Reserve / Not Converted to Reserve

0 1.75  
Scale In Miles

Map 1  
Buchanan 1 Mine  
Pocahontas No. 3 Seam

Coronado Global Resources Inc.  
Buchanan County, Virginia  
Coordinate System: Virginia South State Plane NAD 27

## APPENDIX

# C

### GLOSSARY OF ITEMS



## Glossary of Abbreviations and Definitions

Abbreviation	Definition
AIPG	American Institute of Professional Geologists
ARMPS	Analysis of Retreat Mining Pillar Stability
ASTM	ASTM International
AVS	Applicant Violator System
bcm	Bank cubic meters
Btu/lb.	British Thermal Unit per pound
CAT®	Caterpillar Inc.
C.P.G.	Certified Professional Geologist
Carlson	Carlson Mining – formerly SurvCADD® – a prevalent software package used for modeling in the Appalachian region
CFR	Code of Federal Regulations
CBM	Coalbed Methane
Coronado	Coronado Global Resources Inc.
CSR	Codes of State Rules
CSX	CSX Corporation, a rail-based freight transportation company
CTR	Contour mining
Demonstrated reserves	Demonstrated reserves are the sum of proven and probable reserves.
DEP	Department of Environmental Protection
EBITDA	Earnings before Interest, Taxes, Depreciation, and Amortization
EOM	End-of-mine reclamation
EPA	United States Environmental Protection Agency
ESA	Limited Phase I Environmental Site Assessment
EVR	Estimated Visual Recovery
Feasibility Study	“...comprehensive technical and economic study of the selected development option for a mineral project, which includes detailed assessments of all applicable modifying factors together with any other relevant operational factors, and detailed financial analysis that are necessary to demonstrate, at the time of reporting, that extraction is economically viable. According to the proposed definition, the results of the study may serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project. Thus, a feasibility study is more comprehensive, with a higher degree of accuracy, and yielding results with a higher level of confidence, than a pre-feasibility study.”
Hitachi	Hitachi Construction Machinery Co., Ltd.
HWM	Highwall mining
In situ	Its natural position; said specific of a rock, soil, or fossil when in the situation in which was originally formed or deposited
Indicated Resources	Indicated resources are those lying between 0.4-kilometer and 1.2-kilometer radius from such an observation point and reported herein as in-situ mineral resources.
Inferred Resources	Inferred resources lie more than a 1.2-kilometer radius from a valid point of measurement but less than 4.8 kilometers from one and reported herein as in-situ mineral resources.
JORC Code	Australasian Code for Reporting of Exploration Results, Mineral Resources and

Abbreviation	Definition
	Ore Reserves
lb. SO <sub>2</sub> / mm Btu	Pounds per sulfur dioxide per million British thermal units
LJ Hughes	LJ Hughes & Sons, Inc. - drilling Company
LOM	Life-of-mine
M&R	Maintenance and repair
M.B.A.	Master of Business Administration
Measured Resources	Measured resources are those lying within 0.4-kilometer radius from a valid point of measurement and reported herein as in-situ mineral resources.
MINER Act	Mine Improvement and New Emergency Response Act of 2006
Mineral Reserve	"...the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes dilution materials and allowances for losses, which occur when the material is mined or extracted and is defined by studies at Preliminary Feasibility or Feasibility level as appropriate that include Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction of the mineral reserve is economically viable under reasonable investment and marketing assumptions."
Mineral Resource	"...a concentration or occurrence of solid material of economic interest or on the Earth's crust in such form, grade or quality that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, continuity and other geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling."
MM&A	Marshall Miller & Associates, Inc.
Modifying Factors	"...considerations used to convert Mineral Resources to Mineral Reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental compliance, plans, negotiations, or agreements with local individuals or groups and governmental factors."
MRMR	Mineral Resources to Mineral Reserves
MSHA	United States Department of Labor Mine Safety and Health Administration
MSL	Mean sea level
Mt	Million metric tonnes
NAIP	National Agricultural Imagery Program
NIOSH	National Institute for Occupational Safety and Health
NS	Norfolk Southern Corporation, a rail-based freight transportation company
O&M	Operating and maintenance
OSD	Out-of-seam dilution
OSM	U.S. Office of Surface Mining Reclamation and Enforcement
P&L	Profit and loss before tax
P.E.	Professional Engineer
Preliminary Feasibility Study	"...as a comprehensive study of a range of options for the technical and economic viability of a mineral project that has advanced to a stage where a qualified person has determined (in the case of underground mining) a preferred mining method, or in the case of surface mining) a pit configuration, and in all cases has determined an effective method of mineral processing and an effective plan to sell the product. The study's financial analysis must have



Abbreviation	Definition
	the level of detail necessary to demonstrate, at the time of reporting, that extraction is economically viable. In addition, as noted in the proposed definition of a pre-feasibility study, while a pre-feasibility study is less comprehensive and results in a lower confidence level than a feasibility study, a pre- feasibility study is more comprehensive and results in a higher confidence level than an initial assessment.”
Property(ies)	Bituminous coal deposits located in Buchanan and Tazewell Counties, Virginia.
QP	Qualified Person
Qualified Person	“...a person who is a mineral industry professional with at least five years of relevant experience in the type of mineralization and type of deposit under consideration and in the specific type of activity that person is undertaking on behalf of the registrant. In addition, the proposed definition requires a qualified person to be an eligible member or licensee in good standing of a recognized professional organization at the time the technical report is prepared.”
Rec.	Recovery
RECs	Recognized Environmental Conditions
Resource Database	The Resource Database is established by the collection, validation, recording, storing and processing of data and forms the foundation necessary for the estimation of Mineral Resource and Mineral Reserve.
	A quality assurance and quality control program is essential and must be established to govern the collection of all data. In reporting, a Mineral Resource must meet the minimum requirement of “reasonable prospects for economic extraction”. This will require the concurrent collection and storage of preliminary economic, mining, metallurgical, environmental, legal and social data and other information for use in the estimation of MRMR.
	The Resource Database will include both “primary” (observation and measurement) and “interpreted” data. It is recommended that data be stored digitally, using a documented, standard format and a reliable storage medium that allows for easy and complete retrieval of the data.
ROM	Run-of-mine
RPO	Recognized Professional Organizations
S-K 1300	United States Securities and Exchange Commission Regulation S-K 1300 Modernization of Property Disclosures
SEC	U.S. Securities and Exchange Commission
SME	Society for Mining Engineers
SMCRA	Surface Mining Control and Reclamation Act of 1977 is the primary federal law that regulates the environmental effects of coal mining in the United States.
Strip Ratio	Represented by bcm of overburden to recoverable coal tonnes
tph	tonnes per hour
TRS	Technical Report Summary
USA	United States of America
USFW	United States Fish and Wildlife
USGS	United States Geologic Survey



Abbreviation	Definition
VALMIN Code	Australasian Code for Public Reporting of Technical Assessments and Valuations of Mineral Assets
Vulcan™	Vulcan™ software is a product of Maptek™, a provider of software for the global mining industry.



## APPENDIX

# D

INITIAL ECONOMIC ASSESSMENT FOR RESOURCES EXCLUSIVE  
OF RESERVES





**Coronado Global Resources Inc. and Coronado Group LLC**  
**Initial Economic Assessment**  
*Buchanan Resources Exclusive of Reserves (per Metric Tonne)*

Appendix D

	Pocahontas No. 3 Buchanan Blocks N, NE, NW
In-Place Resource Tonnes	39,825,422
Potentially Recoverable Tonnes*	14,061,368
Mining Method	Deep - CM
Assumed Sales Realization at Plant**	\$ 110
Initial Capex Estimate to Access Resources***	\$ -
<b>Direct Mining Costs:</b>	
Labor****	\$ 30.34
Supplies, Excluding Roof Control	\$ 4.21
Roof Control	\$ 4.91
M&R	\$ 9.58
Power	\$ 7.67
Other	\$ 1.92
<b>Total Direct Cash Costs</b>	<b>\$ 58.63</b>
<b>Transportation, Washing, Environmental &amp; G&amp;A Costs:</b>	
Coal Prep*****	\$ 7.67
Materials Handling	\$ 1.92
Raw Coal Trucking*****	\$ -
Clean Coal Trucking	\$ 1.38
Enviro*****	\$ 1.10
G&A	\$ 2.07
<b>Total Transportation, Washing, Environmental &amp; G&amp;A Costs:</b>	<b>\$ 14.14</b>
<b>Indirect Cash Costs</b>	
Royalty	\$ 4.02
Black Lung Excise Tax	\$ 0.61
SMCRA	\$ 0.13
State Severance	\$ 2.20
Property Tax & Insurance	\$ 0.55
<b>Total Indirect Cash Costs</b>	<b>\$ 7.52</b>
<b>Non Cash Costs</b>	
Amortization of Development Capital	\$ -
Depreciation of Initial Equipment and Sustaining Capital	\$ 15.67
Depletion	\$ 1.10
<b>Total Non Cash</b>	<b>\$ 16.77</b>
<b>Total Cash Cost</b>	<b>\$ 80.28</b>
<b>EBITDA</b>	<b>\$ 29.95</b>
<b>Fully Loaded Cost</b>	<b>\$ 97.06</b>
<b>Fully Loaded P&amp;L</b>	<b>\$ 13.18</b>
<b>Passes Resource Initial Economic Assessment?</b>	<b>YES</b>

\*Potentially recoverable tons are calculated by applying appropriate modifying factors to in-place resource tonnages

\*\*Sales realization represents estimated long range sales price provided by Coronado.

\*\*\*No initial capital required. Resources are accessible from existing Buchanan Mine.

\*\*\*\*Labor rates are driven based off of super section productivities assuming 250 feet per unit shift per section.

\*\*\*\*\*Processing assumed to occur at Buchanan plant, hoisted directly to plant.

\*\*\*\*\*Environmental costs assumed to include permitting, outfall maintenance, etc.



## APPENDIX

# E

JORC TABLE 1



## Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
<b>Sampling techniques</b>	<ul style="list-style-type: none"> <li>&gt; <i>Nature and quality of sampling (e.g. 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.</i></li> <li>&gt; <i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i></li> <li>&gt; <i>Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. '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 (e.g. submarine nodules) may warrant disclosure of detailed information.</i></li> </ul>	<ul style="list-style-type: none"> <li>&gt; Most of the coal samples have been obtained from the Properties by subsurface exploration using core drilling techniques. The protocol for preparing and testing the samples has varied over time and is not well documented for the older holes drilled on the Properties.</li> <li>&gt; Typical USA core drilling sampling technique is for the coal core sample, once recovered from the core barrel, to be described then wrapped in a sealed plastic sleeve and placed into a covered core box, which is the length of the sample so that the core can be delivered to a laboratory in relatively intact condition and with original moisture content.</li> <li>&gt; It is reasonable to assume, given the sophistication level of the previous operators, that these samples were generally collected and processed under industry best-practices. This assumption is based on MM&amp;A's familiarity with the operating companies and the companies used to perform the analysis.</li> <li>&gt; Some of the drill holes were air rotary bored and no coal core samples were collected. Seam thickness for rotary-drilled bore holes is verified by calibrated downhole gamma-density logs.</li> <li>&gt; Coal samples that were deemed by MM&amp;A geologists to be unrepresentative were not used for statistical analysis of coal quality, as documented in the tabulations. A representative group of drill hole samples from the Properties were then checked against the original drill laboratory reports to verify accuracy and correctness.</li> </ul>
<b>Drilling techniques</b>	<ul style="list-style-type: none"> <li>&gt; <i>Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. 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.).</i></li> </ul>	<ul style="list-style-type: none"> <li>&gt; The Properties have been extensively explored by subsurface drilling efforts carried out by numerous entities, most of which were completed prior to acquisition by Coronado. The majority of the drilling was accomplished using vertical continuous (diamond) coring or air rotary methods.</li> <li>&gt; Core drilling methods utilize NX-size (5.4 centimeter) or similar-sized core cylinders to recover core samples, which can be used to delineate geologic characteristics, and for coal quality testing and geotechnical logging.</li> <li>&gt; Data for the rotary drilled holes is mainly derived from downhole geophysical logs, which are used to interpret coal and rock thickness and depth since logging of the drill cuttings is not reliable.</li> <li>&gt; Geophysical logging was performed on many of the holes, either by Geological Logging Systems (a division of MM&amp;A), other geophysical logging contractors, and on those properties acquired from CONSOL geophysical logging was often performed by CONSOL's in-house logging services.</li> </ul>



Appendix E: JORC Table 1

Criteria	JORC Code explanation	Commentary
<b>Drill sample recovery</b>	<ul style="list-style-type: none"><li>&gt; Method of recording and assessing core and chip sample recoveries and results assessed.</li><li>&gt; Measures taken to maximise sample recovery and ensure representative nature of the samples.</li><li>&gt; 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 style="list-style-type: none"><li>&gt; Where available, core recovery thickness of coal samples was reconciled with the thickness interpreted from geophysical logs.</li><li>&gt; Core recovery of the older coal samples lacking geophysical logs is sometimes not well-documented: however, when the laboratory results for such holes had anomalous values, the data was disqualified and not used.</li></ul>
<b>Logging</b>	<ul style="list-style-type: none"><li>&gt; 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>&gt; Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</li><li>&gt; The total length and percentage of the relevant intersections logged.</li></ul>	<ul style="list-style-type: none"><li>&gt; A wide variety of core-logging techniques exist for the properties. For many of the core holes, the primary data source is a generalized lithology description by the driller, in some cases supplemented by a more detailed core log completed by a geologist.</li><li>&gt; The logging of core thickness and depth is quantitative. With the exception of the coal seams, logging of rock strata type is more subjective and best considered as qualitative.</li></ul>
<b>Sub-sampling techniques and sample preparation</b>	<ul style="list-style-type: none"><li>&gt; If core, whether cut or sawn and whether quarter, half or all core taken.</li><li>&gt; If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</li><li>&gt; For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li><li>&gt; Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li><li>&gt; 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>&gt; Whether sample sizes are appropriate to the grain size of the material being sampled.</li></ul>	<ul style="list-style-type: none"><li>&gt; Typical US practice in the Appalachian Basin is that core samples for deep mineable core samples are not sawn or subsampled (since seams are not of great thickness and the entire seam is mined and co-mingled).</li><li>&gt; Oftentimes, core for surface-mineable coal seams are bench sampled separately by the various coal and rock layers (plies).</li><li>&gt; MM&amp;A has exercised diligence to use only those analyses that are representative of the coal quality parameters for the appropriate mining type for each sample.</li></ul>
<b>Quality of assay data and laboratory tests</b>	<ul style="list-style-type: none"><li>&gt; The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li><li>&gt; 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>&gt; Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.</li></ul>	<ul style="list-style-type: none"><li>&gt; Sample analysis was typically carried out by accredited US laboratories.</li><li>&gt; Standard procedure upon receipt of core samples by the testing laboratory is to log the depth and thickness of the sample, then perform testing as specified by a representative of the operating company. Each sample is then analyzed in accordance with procedures defined under <b>ASTM International (ASTM)</b> standards including, but not limited to; washability (ASTM D4371); ash (ASTM D3174); sulfur (ASTM D4239); Btu/lb. (ASTM D5865); volatile matter (ASTM D3175); Free Swell Index (FSI) (ASTM D720).</li><li>&gt; Geophysical tools are calibrated by the logging company and where possible, validated using a calibration hole.</li></ul>



Appendix E: JORC Table 1

Criteria	JORC Code explanation	Commentary
<b>Verification of sampling and assaying</b>	<ul style="list-style-type: none"> <li>&gt; The verification of significant intersections by either independent or alternative company personnel.</li> <li>&gt; The use of twinned holes.</li> <li>&gt; Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>&gt; Discuss any adjustment to assay data.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; All coal intersection data used to generate the geologic model has been cross referenced with the lithological and geophysical logs by MM&amp;A.</li> <li>&gt; Laboratory quality was adjusted from dry basis to reflect the anticipated marketable product moisture.</li> <li>&gt; Coal quality results were verified by spot-check with laboratory analysis sheets by MM&amp;A before inclusion into the geologic model and use in the resource estimate.</li> </ul>
<b>Location of data points</b>	<ul style="list-style-type: none"> <li>&gt; Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</li> <li>&gt; Specification of the grid system used.</li> <li>&gt; Quality and adequacy of topographic control.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Due to the long history of exploration by various parties on the Properties, a wide variety of survey techniques exist for documentation of data point locations. Many of the older exploration drill holes appear to have been located by ground survey; more recently completed drill holes are often located by high-resolution Global Positioning System (GPS) units.</li> <li>&gt; Grid systems used are typically the State Plane Coordinate System pertinent to each property.</li> <li>&gt; Topography is based on either the USGS topographic 7.5-minute quadrangle maps or on recent aerial photogrammetry as necessary (subject to availability).</li> </ul>
<b>Data spacing and distribution</b>	<ul style="list-style-type: none"> <li>&gt; Data spacing for reporting of Exploration Results.</li> <li>&gt; <b>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.</b></li> <li>&gt; Whether sample compositing has been applied.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Spacing and distribution of data point information may vary from seam to seam within each mining area. The areas estimated for coal resource and coal reserve tonnes have been limited so that the data spacing and distribution is sufficient to establish the degree of geological continuity appropriate for the estimation and classification of the coal tonnes.</li> <li>&gt; All of the coal resource tonnes are in the measured, indicated, and inferred categories, and all of the coal reserve tonnes are in the proved and probable categories in accordance with the JORC Code and SEC standards.</li> </ul>
<b>Orientation of data in relation to geological structure</b>	<ul style="list-style-type: none"> <li>&gt; 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>&gt; 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 style="list-style-type: none"> <li>&gt; Drill holes have been vertically drilled. No downhole deviation logs have been collected and it is therefore not known if the drill holes have deviated away from vertical. Based on the relatively shallow seam depths, any deviation is expected to be insignificant and immaterial to the geologic characterization of the Property.</li> <li>&gt; The dip of the coal seams is relatively minor and not a material issue for representation of seam thickness or quality.</li> </ul>
<b>Sample security</b>	The measures taken to ensure sample security.	<ul style="list-style-type: none"> <li>&gt; Sample handling procedures employed by explorationists follow typical US protocol and should be adequate to insure sample security.</li> </ul>
<b>Audits or reviews</b>	The results of any audits or reviews of sampling techniques and data.	<ul style="list-style-type: none"> <li>&gt; MM&amp;A has reviewed all available geological information for the Properties in developing the geologic model. Only that data deemed suitable has been used for the purpose of generating the resource and reserve estimates.</li> </ul>



## Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
<b>Mineral tenement and land tenure status</b>	<ul style="list-style-type: none"> <li>&gt; 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>&gt; 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 style="list-style-type: none"> <li>&gt; The Coronado coal resources are located within three of the United State of America: Virginia; West Virginia; and Pennsylvania. Control of these Properties is governed by many hundreds of agreements.</li> <li>&gt; MM&amp;A has not carried out separate title verification for the coal properties and has not verified leases, deeds, surveys or other property control instruments pertinent to the subject resources.</li> <li>&gt; Coronado has represented to MM&amp;A that it controls the mining rights to the coal deposits as shown on its property maps, and MM&amp;A has accepted these as being a true and accurate depiction of the mineral rights controlled by Coronado. The TRS assumes the properties are developed under responsible and experienced management.</li> <li>&gt; There are no known legal or environmental encumbrances that would impede development of the subject coal reserves.</li> </ul>
<b>Exploration done by other parties</b>	<ul style="list-style-type: none"> <li>&gt; Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; The Properties have been extensively explored by subsurface drilling efforts carried out by numerous entities, most of which were completed prior to acquisition by Coronado.</li> <li>&gt; This exploration work was generally performed to prevailing US best practice standards and deemed adequate for the purposes of this TRS.</li> </ul>
<b>Geology</b>	<ul style="list-style-type: none"> <li>&gt; Deposit type, geological setting and style of mineralisation.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; The Coronado coal resources are located within the Northern and Central Appalachian Coal Basins.</li> <li>&gt; The coal deposits are Carboniferous in age, being of the Pennsylvanian system.</li> <li>&gt; Seam of economic significance typically range between 0.3 meters and 1.8 meters in thickness, with relatively little structural deformation.</li> <li>&gt; Regional structure is typically characterized by gently dipping strata to the northwest at less than one percent.</li> </ul>
<b>Drill hole Information</b>	<ul style="list-style-type: none"> <li>&gt; 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 style="list-style-type: none"> <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>&gt; 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 style="list-style-type: none"> <li>&gt; MM&amp;A reviewed and entered all pertinent data into a digital geologic database for each Coronado property. The database consists of thousands of data records, which include drill hole and supplemental coal seam thickness measurements from outcrop and mine exposures.</li> <li>&gt; All drill holes in the database are provided with a collar elevation and the State Plane Coordinate System easting and northing coordinate.</li> <li>&gt; After MM&amp;A confirmed proper coal seam thickness and correlation, the seam data was modelled and compiled into coal resource maps.</li> <li>&gt; The maps are provided in the TRS; however, a tabulation of the thousands of individual data records is not practical to include.</li> </ul>



Criteria	JORC Code explanation	Commentary
<b>Data aggregation methods</b>	<ul style="list-style-type: none"> <li>&gt; In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>&gt; 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>&gt; The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Where a coal seam has been bench sampled (typically for surface mining) the individual analyses for the coal plies are normally weight-averaged to represent the total of recoverable coal.</li> <li>&gt; Coal quality summary results have been documented in the TRS. Average coal quality on a per-seam basis is used to represent the coal resources within a given mining area.</li> <li>&gt; Average coal quality for each Coronado complex is provided in Tables 1-1, 1-2 and 1-3 of this TRS.</li> <li>&gt; No other data aggregations methods are used.</li> </ul>
<b>Relationship between mineralisation widths and intercept lengths</b>	<ul style="list-style-type: none"> <li>&gt; These relationships are particularly important in the reporting of Exploration Results.</li> <li>&gt; If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>&gt; If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Coal thickness values from all coal intersections and down hole geophysical logs are considered to be vertical thicknesses. Seam dip of approximately 2.0 to 3.0 degrees has little effect on the vertical thickness of the seam.</li> </ul>
<b>Diagrams</b>	<ul style="list-style-type: none"> <li>&gt; 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.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Diagrams and maps showing the coal seam intercepts are presented in the TRS.</li> </ul>
<b>Balanced reporting</b>	<ul style="list-style-type: none"> <li>&gt; 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.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; All of the available, qualified exploration data has been included within the tabulations, maps, and diagrams for this TRS.</li> <li>&gt; Both coal thickness and quality data are deemed by MM&amp;A to be reasonably sufficient within the resource areas. Therefore, there is a reasonable level of confidence in the geologic interpretations required for coal resource determination based on the available data and the techniques applied to the data.</li> </ul>
<b>Other substantive exploration data</b>	<ul style="list-style-type: none"> <li>&gt; 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 style="list-style-type: none"> <li>&gt; Informational material available from the U.S. Geological Survey and the respective State Surveys was used to assist in the Resource estimate.</li> </ul>
<b>Further work</b>	<ul style="list-style-type: none"> <li>&gt; The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>&gt; 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 style="list-style-type: none"> <li>&gt; Further work is expected to include additional exploration, geotechnical testing, coal quality analyses, and coal property acquisition.</li> </ul>

### Section 3 Estimation and Reporting of Mineral Resources

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

Criteria	JORC Code explanation	Commentary
<b>Database integrity</b>	<ul style="list-style-type: none"> <li>&gt; 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>&gt; Data validation procedures used.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; MM&amp;A confirmed coal seam thickness and correlations in databases used for coal deposit modelling. Representative records were spot-checked for data entry validation.</li> <li>&gt; Geophysical logs were used wherever available to assist in confirming the seam correlation and to verify proper seam thickness measurements and recovery of coal samples.</li> </ul>
<b>Site visits</b>	<ul style="list-style-type: none"> <li>&gt; Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>&gt; If no site visits have been undertaken indicate why this is the case.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; MM&amp;A is very familiar with the Properties and has conducted multiple site visits throughout the years.</li> </ul>
<b>Geological interpretation</b>	<ul style="list-style-type: none"> <li>&gt; Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</li> <li>&gt; Nature of the data used and of any assumptions made.</li> <li>&gt; The effect, if any, of alternative interpretations on Mineral Resource estimation.</li> <li>&gt; The use of geology in guiding and controlling Mineral Resource estimation.</li> <li>&gt; The factors affecting continuity both of grade and geology.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Due to the relative structural simplicity of the deposits and the reasonable continuity of the tabular coal beds, the principal geological interpretation necessary to define the geometry of the coal deposits is the proper modeling of their thickness and elevation.</li> <li>&gt; Both coal thickness and quality data are deemed by MM&amp;A to be reasonable within the resource areas.</li> <li>&gt; Therefore, there is a reasonable level of confidence in the geologic interpretations required for coal resource determination based on the available data and the techniques applied to the data.</li> </ul>
<b>Dimensions</b>	<ul style="list-style-type: none"> <li>&gt; 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.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; The subject coal resource areas mostly exist in discreet, individual deposits of highly variable dimensions, shapes and depth below the ground surface.</li> <li>&gt; Such factors are best depicted in the maps contained in the TRS.</li> <li>&gt; Details of the parameters are cited within the TRS and included in the table of Cut-off Parameters listed in Section 11.1 of the TRS.</li> </ul>
<b>Estimation and modelling techniques</b>	<ul style="list-style-type: none"> <li>&gt; 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>&gt; 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>&gt; The assumptions made regarding recovery of by-products.</li> <li>&gt; Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).</li> <li>&gt; In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Geological data was imported into Carlson Mining* (formerly SurvCADD*) geological modelling software in the form of Microsoft* Excel files incorporating, drill hole collars, seam and thickness picks, bottom seam elevations and raw and washed coal quality. These data files were validated prior to importing into the software.</li> <li>&gt; Once imported, a geologic model was created.</li> <li>&gt; The geological model was verified and reviewed.</li> <li>&gt; Resources were estimated by defining seam thickness at each point of observation and by defining resource confidence arcs around the points of observation.</li> <li>&gt; Points of observation for Measured and Indicated confidence arcs were defined for all drill holes that intersected the seam.</li> <li>&gt; As prescribed by the common United States classification system the following distances from points</li> </ul>



Criteria	JORC Code explanation	Commentary
	<ul style="list-style-type: none"><li>&gt; Any assumptions behind modelling of selective mining units.</li><li>&gt; Any assumptions about correlation between variables.</li><li>&gt; Description of how the geological interpretation was used to control the resource estimates.</li><li>&gt; Discussion of basis for using or not using grade cutting or capping.</li><li>&gt; 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>	<p>of observation were used to define the corresponding Resource category arcs:</p> <ul style="list-style-type: none"><li>- Inferred Resources – greater than 3,960 feet (1.2 kilometers) but less than 15,840 feet (4.8 kilometers)</li><li>- Indicated Resources – 3,960 feet (1.2 kilometers)</li><li>- Measured Resources – 1,320 feet (0.4 kilometers)</li></ul> <ul style="list-style-type: none"><li>&gt; The use of the standards commonly used in the United States are appropriate and customary for this resource jurisdiction and deposition type.</li><li>&gt; MM&amp;A performed a geostatistical analysis test of the Coronado data sets using the Drill Hole Spacing Analysis (DHSA) method.</li><li>&gt; Based on MM&amp;A's analysis, it would be possible to extend the measured, indicated and inferred arcs slightly beyond historically accepted practices due to consistent geological settings. The QP's have elected not to extend arc distances, introducing a level of conservatism in the coal classification.</li></ul>
Moisture	<ul style="list-style-type: none"><li>&gt; Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.</li></ul>	<ul style="list-style-type: none"><li>&gt; Coal resource tonnes are presented on a dry, in-situ basis.</li><li>&gt; Reserve tonnes are presented on a moist basis at anticipated product moisture ranging from 4.0 to 6.0 percent. Moisture content based on historic analyses of shipped coal.</li></ul>
Cut-off Parameters	<ul style="list-style-type: none"><li>&gt; The basis of the adopted cut-off grade(s) or quality parameters applied.</li></ul>	<ul style="list-style-type: none"><li>&gt; The cut-off parameters were tailored for each of the Coronado properties to be in accordance with mining/ processing capabilities and market conditions prevalent at each operation.</li><li>&gt; Examples include minimum recoverable coal thickness, acceptable ash content and wash recovery, and manageable overburden to coal ratio for surface mineable coal.</li><li>&gt; Details of the parameters are cited within the TRS and included in the table of Cut-off Parameters listed in Section 11.1 of this TRS.</li><li>&gt; These cut-off parameters have been developed by MM&amp;A based on its experience with the Coronado properties and other mining operations of the Central Appalachian coal basin. This experience includes technical and economic evaluations of numerous properties in the region for the purposes of determining the economic viability of the subject coal reserves.</li></ul>
Mining factors or assumptions	<ul style="list-style-type: none"><li>&gt; 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 style="list-style-type: none"><li>&gt; Mining factors such as dilution, mining and washing recovery are variable and have been applied at the coal deposits at each operation based on site-specific characteristics.</li><li>&gt; Details of the factors are cited within the TRS.</li><li>&gt; Factors that would typically preclude conversion of a coal resource to coal reserve include the following: inferred resource classification; absence of coal quality; poor mine recovery; lack of access; insufficient exploration; or uncontrolled surface property for areas of proposed for surface mining.</li></ul>





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Criteria	JORC Code explanation	Commentary
		<ul style="list-style-type: none"><li>&gt; While such factors were used to preclude the conversion of a very limited number of coal resources to coal reserves in this report, the extensive history of mining on the Properties would suggest that there are reasonable prospects for eventual economic extractions of all coal resources under favorable market conditions.</li></ul>
<b>Metallurgical factors or assumptions</b>	<ul style="list-style-type: none"><li>&gt; 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 style="list-style-type: none"><li>&gt; The products mined from coal resources controlled by Coronado can be sold into high-, mid-, and low-volatile metallurgical coal markets because of their inherent quality characteristics.</li><li>&gt; Run-of-mine production is washed at the coal preparation plants as needed for quality control.</li><li>&gt; Coronado may blend production from multiple sources to manage ash and sulfur content along with the rheological and petrographic characteristics of the shipped products.</li></ul>
<b>Environmental factors or assumptions</b>	<ul style="list-style-type: none"><li>&gt; 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 style="list-style-type: none"><li>&gt; MM&amp;A completed a Limited Phase I Environmental Site Assessment (ESA) on the Buchanan property in April 2016, and on the Logan County and Greenbrier Properties in May 2017 on behalf of Coronado. Coronado reports not having conducted such a study since the MM&amp;A studies.</li><li>&gt; The ESAs completed by MM&amp;A included a site inspection, review of historical records, a database search of State and Federal regulatory records and interviews to identify potential recognized environmental conditions (RECs) that may create environmental liability for the sites.</li><li>&gt; MM&amp;A identified one REC at Greenbrier associated with stained soil and gravel near a fueling and maintenance area. Coronado reported to MM&amp;A that satisfactory clean-up efforts were completed at Greenbrier.</li><li>&gt; Based on these former ESAs completed by MM&amp;A, it is MM&amp;A's opinion that Coronado has a generally typical coal industry record of compliance with applicable mining, water quality, and environmental laws. Estimated costs for mine closure, including water quality monitoring during site reclamation, are included in the TRS financial models.</li></ul>
<b>Bulk density</b>	<ul style="list-style-type: none"><li>&gt; 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>&gt; 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>&gt; Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</li></ul>	<ul style="list-style-type: none"><li>&gt; Laboratory derived seam densities measured in specific gravity were used where available. As needed, these data were supplemented by estimated seam density values based on the relative proportion of coal and non-coal material within the seam (typically at 1.30 and 2.25 specific gravity, respectively).</li><li>&gt; Average seam density was determined for each coal deposit and used to convert coal volumes into coal tonnage estimates.</li></ul>
<b>Classification</b>	<ul style="list-style-type: none"><li>&gt; The basis for the classification of the Mineral Resources into varying confidence categories.</li><li>&gt; Whether appropriate account has been taken of all relevant factors (i.e. 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>&gt; Whether the result appropriately reflects the Competent</li></ul>	<ul style="list-style-type: none"><li>&gt; The Resource has been classified based on suitable distances from points of observations prescribed in the common United States classification system.</li><li>&gt; The use of the United States standards is appropriate and customary for this resource jurisdiction and deposition type.</li><li>&gt; MM&amp;A performed a geostatistical analysis test of the Coronado data sets using the Drill Hole</li></ul>





Appendix E: JORC Table 1

Criteria	JORC Code explanation	Commentary
	<ul style="list-style-type: none"><li>&gt; Person's view of the deposit.</li></ul>	<p>Spacing Analysis (<i>DHSA</i>) method.</p> <ul style="list-style-type: none"><li>&gt; Based on MM&amp;A's analysis, it would be possible to extend the measured, indicated and inferred arcs slightly beyond historically accepted practices due to consistent geological settings. The QP's have elected not to extend arc distances, introducing a level of conservatism in the coal classification.</li><li>&gt; All relevant factors have been accounted for and reflect the Competent Person's view of the deposit.</li></ul>
Audits or reviews	<ul style="list-style-type: none"><li>&gt; The results of any audits or reviews of Mineral Resource estimates.</li></ul>	<ul style="list-style-type: none"><li>&gt; MM&amp;A completed prepared a statement of coal resources and reserves for the Properties in accordance with the JORC Code as of December 31, 2017. MM&amp;A also subsequently updated the estimate of resources and reserves for depletion as of December 31, 2018, December 31, 2019, December 31, 2020 and December 31, 2021.</li><li>&gt; MM&amp;A performed a previous audit of the Properties in year 2017 for Coronado based on U.S. Securities and Exchange Commission (SEC) Industry Guide 7 and USGS Circular 891 standards.</li><li>&gt; Earlier audits were performed by various independent consultants for predecessors-in-title to Coronado and at various levels of detail depending on the clients concerns and the allotted time for completion. Previous audits and reviews defined the primary coal resource areas and estimated the recoverable tonnes for each seam based on the expected mining methods.</li><li>&gt; Additionally, MM&amp;A has performed proprietary evaluations for predecessors-in-title to Coronado, which encompass portions of the Properties included in this TRS.</li></ul>
Discussion of relative accuracy/ confidence	<ul style="list-style-type: none"><li>&gt; 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>&gt; 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>&gt; These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</li></ul>	<ul style="list-style-type: none"><li>&gt; The relative accuracy of and confidence in the coal tonnage and quality estimates provided herein are judged to be in conformance with current industry best-practices.</li><li>&gt; The representation of average coal quality characteristics should be understood to represent a reasonably representative sampling that is generally indicative of coal quality and does not represent a statistically rigorous approach to coal quality modeling.</li><li>&gt; Resource estimation has been completed using standard coal estimation methods which are deemed appropriate for this deposit.</li></ul>

## Section 4 Estimation and Reporting of Ore Reserves

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

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	<ul style="list-style-type: none"><li>&gt; Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.</li></ul>	<ul style="list-style-type: none"><li>&gt; The coal resource estimate was prepared as part of the report Coronado Global Resources Inc. Statement of Coal Resources and Reserves in Accordance with JORC Code and United States SEC Standards as of December 31, 2022 – Northern and Central Appalachian Coal Basins – Virginia, West Virginia and Pennsylvania, USA – February 2023 prepared by MM&amp;A.</li></ul>



Criteria	JORC Code explanation	Commentary
	<ul style="list-style-type: none"> <li>&gt; Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; The resource estimation criteria were developed by MM&amp;A based on the capabilities of the mining equipment used within the production model and on industry-accepted standards to assure that the basic geologic characteristics of the coal resources are in reasonable conformity with those to be mined and marketed by Coronado.</li> <li>&gt; Coal resources generally are reported inclusive of the coal reserves. In some cases, resources are reported in addition to coal reserves. Tables 1-1 and 11-3 of the TRS clearly identify resources “inclusive of mine plan” from which coal reserves were estimated along with those resources “exclusive of mine plan” from which no reserves were estimated.</li> </ul>
Site visits	<ul style="list-style-type: none"> <li>&gt; Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; MM&amp;A is very familiar with the Properties and has conducted multiple site visits throughout the years.</li> </ul>
Study status	<ul style="list-style-type: none"> <li>&gt; The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.</li> <li>&gt; 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 will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; A preliminary feasibility LOM plan was prepared by MM&amp;A for active and proposed mines.</li> <li>&gt; This geologic evaluation conducted in accordance with JORC and SEC standards and in conjunction with the preliminary feasibility study is sufficient to conclude that the surface, highwall miner and underground coal reserves identified on the Properties are economically mineable under reasonable expectations of market prices for thermal and metallurgical coal products, estimated operation costs, and capital expenditures.</li> <li>&gt; The pre-feasibility financial models, prepared by MM&amp;A for this TRS, was developed to test the economic viability of each coal resource area.</li> <li>&gt; Proved and probable coal reserve were derived from the defined in-situ coal resource considering relevant processing, economic (including independent estimates of capital, revenue and cost, marketing, legal, environmental, socioeconomic, and regulatory factors).</li> </ul>
Cut-off parameters	<ul style="list-style-type: none"> <li>&gt; The basis of the adopted cut-off grade(s) or quality parameters applied.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; The cut-off parameters were tailored for each of the Coronado properties to be in accordance with mining/ processing capabilities and market conditions prevalent at each operation.</li> <li>&gt; Examples include minimum recoverable coal thickness, acceptable ash content and wash recovery, and manageable overburden to coal ratio for surface mineable coal.</li> <li>&gt; Details of the parameters are cited within the TRS and included in the table of Cut-off Parameters listed in Section 11.1 of this TRS.</li> <li>&gt; These cut-off parameters have been developed by MM&amp;A based on its experience with the Coronado properties and are typical of mining operations in the Central Appalachian coal basin. This experience includes technical and economic evaluations of numerous properties in the region for the purposes of determining the economic viability of the subject coal reserves.</li> </ul>
Mining factors or assumptions	<ul style="list-style-type: none"> <li>&gt; The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).</li> </ul>	<ul style="list-style-type: none"> <li>&gt; After validating coal seam data and establishing correlations, the thickness and elevation for seams of economic interest were used to generate a geologic model.</li> <li>&gt; A pre-feasibility LOM plan was prepared by MM&amp;A for active and proposed mines. MM&amp;A prepared mine projections and production timing forecasts based on coal seam characteristics. Production timing was carried out from 2023 to depletion (exhaustion) of the coal reserve areas.</li> </ul>

Criteria	JORC Code explanation	Commentary
> 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.		<ul style="list-style-type: none"> <li>&gt; The room-and-pillar mining method was selected to model the underground mining resources, utilizing continuous miners for coal extraction, shuttle cars for production section haulage and roof bolters for roof control, with the exception that the Buchanan Mine also uses longwall shearers, armored face conveyors, and hydraulic self-advancing roof support. The resource areas located above drainage are relatively small and often have irregular boundaries. The Buchanan Mine in Buchanan County, Virginia is the only active longwall mine currently being operated by Coronado.</li> <li>&gt; The Coronado underground mining resource areas which are located above-drainage require an access road and mine access development along the outcrop, whereas below-drainage mines are accessed via shaft or slope based on other proposed surface infrastructure locations and/or surface property control.</li> <li>&gt; The surface mining method selected utilizes highly productive hydraulic shovels, front-end loaders, large tractors and rock trucks for overburden removal. The mobile equipment spreads adapt readily to winding coal outcrops for contour surface mining and are effective for point-removal and area mining applications.</li> <li>&gt; Application of highwall and auger mining units is an effective method to recover coal resources not suitable for underground mining and under excessive cover for surface mining.</li> </ul>
> The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.		<ul style="list-style-type: none"> <li>&gt; Mining plans for potential underground mines were developed by MM&amp;A. Pillar stability was tested by MM&amp;A using the <i>Analysis of Coal Pillar Stability (ACPS)</i> program that was developed by the <b>National Institute for Occupational Safety and Health (NIOSH)</b>.</li> <li>&gt; Coronado must obtain approved mining plans from <b>United States Department of Labor Mine Safety and Health Administration (MSHA)</b> that define safety parameters for the highwalls developed during contour and area mining. MM&amp;A's planning model does not require input of specific highwall design parameters, but provides for timing of mining within mine plan polygons that is representative of the operation performance attained at Central Appalachia surface mines.</li> <li>&gt; Highwall and auger mining is conducted under highwalls designed and constructed to meet MSHA permit requirements. To better assure highwall stability and safety during highwall coal extraction, MSHA requires that coal fenders, or stumps, be left in place between successive cuts. Periodic barrier pillars must be left in place as an additional safeguard. MM&amp;A has adjusted the expected mining recovery for highwall and auger mining resources to reflect highwall stability and safety requirements.</li> </ul>
> The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).		<ul style="list-style-type: none"> <li>&gt; Underground Mining Resources: For metallurgical resources, minimum coal seam thickness extends down to between 0.6 and 1.2 meters and a minimum overburden (depth of cover) of 30.5 meters. A 61-meter horizontal distance is maintained from abandoned mines and sealed or pillared areas, and a 30-meter horizontal distance is maintained from planned highwall miner panels. Mine recovery is reduced when a rider coal seam is present within a 1.5- to 3.0-meter interval above the coal seam. No mining is projected when the interval between overlying and underlying reserves is less than 12 meters.</li> <li>&gt; Surface Mining Resources: For classification as a surface-mineable resource, a seam must be at least 0.3 meters in thickness as a stand-alone (principle) seam and 0.15 meters in thickness when less than 0.8 meters from a principal seam. The maximum cumulative area mining strip ratio is generally</li> </ul>

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Criteria	JORC Code explanation	Commentary
		20:1 for thermal coal and 30:1 for metallurgical coal. Some areas were assessed for their economic viability at higher ratios, and were included as reserves if deemed economic. For contour surface mining, a minimum of 38-meter bench is provided to support HWM.
> The mining dilution factors used.		<ul style="list-style-type: none"> <li>&gt; HWM and Auger Mining Resources: HWM cut depth (penetration) is established at a maximum of 244 meters. The minimum mineable coal thickness is limited at 0.6 meters. For coal seams less than 0.8 meters thick, roof and/or floor characteristics must allow OSD cutting to maintain a 0.8-meter minimum cutting height. Auger mining cut depth is established at an average of 91 meters. The minimum mineable coal thickness is limited at 0.5 meters.</li> <li>&gt; Underground Mining Reserves: The planning model assigns minimum mining heights of 1.4 to 1.8 meters for mains and panel development. At the Buchanan Mine, a minimum mining height of 1.8 meters was used due to the longwall mining method being employed. For coal seams thinner than the assigned mining height, the difference between the coal seam height and assigned mining height consists of OSD. In all cases a minimum of 0.05 meters of OSD was assumed, with the exception of the Mon Valley mines, where a minimum 0.15 meters of OSD was assumed due to weaker floor strata.</li> <li>&gt; Surface Mining Reserves: Area mining is generally limited to a cumulative overburden ratio of 30:1 and a 15:1 ratio for contour mining. Exceptions were considered for mining of metallurgical grade coal where deemed economical. It is assumed that careful cleaning of exposed coal pits will result in minimal OSD.</li> <li>&gt; HWM and Auger Mining Reserves: The mining plan assumes that the HWM cutting height is a minimum of 76 to 99 centimeters for clearance purposes. When the coal seam is less than 76 to 99 centimeters thick, OSD assumed and included in the ROM product. Because the auger has very limited OSD cutting ability, it is assumed that an appropriate auger diameter will be chosen based on the coal seam thickness and that OSD will be minimal.</li> </ul>
> The mining recovery factors used.		<ul style="list-style-type: none"> <li>&gt; Underground Mining Reserves: Mine recovery generally varies between 40 and 60 percent for continuous mining panels, and 100 percent for longwall.</li> <li>&gt; Surface Mining Reserves: Mining recovery is 90 percent for virgin areas. Mining recovery is reduced where second mining is projected in previously underground and auger mined areas.</li> <li>&gt; HWM and Auger Mining Reserves: A mine recovery of 40 percent has been applied for HWM. A mine recovery of 35 percent has been applied for auger mining.</li> </ul>
> Any minimum mining widths used.		> Underground Mining Reserves: Typical entry width is 5.8 to 6.1 meters.
> The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.		<ul style="list-style-type: none"> <li>&gt; Proved and probable coal reserve were derived from the defined in-situ coal resource considering relevant processing, economic (including independent estimates of capital, revenue and cost, marketing, legal, environmental, socioeconomic, and regulatory factors).</li> <li>&gt; Mine plan LOM tonnage includes inferred coal and those areas that do not meet the minimum coal thickness requirement for classification as reserve. Inferred coal represents approximately 0.6% of the LOM production for Mon Valley and 0.000001% of the total LOM production for Logan. None of this coal was included in the estimate of reserves.</li> </ul>





Criteria	JORC Code explanation	Commentary
	<ul style="list-style-type: none"> <li>&gt; The infrastructure requirements of the selected mining methods.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Underground Mining Resources: The continuous mining method provides for the extraction of coal from the production faces using continuous miners (and longwall shearing machine at Buchanan) and haulage using shuttle cars or battery haulers to a feeder-breaker located at the tail of the section conveyor belt. The feeder-breaker crushes large pieces of coal and rock and regulates coal feed onto the mine conveyor. A chain conveyor is used to remove coal from the longwall face at the Buchanan Mine for placement onto the conveyor belt which is ultimately delivered to an underground storage bunker. Roof-bolting machines are used to install roof bolts, and battery scoops are available to clean the mine entries and assist in delivery of mine supplies to work areas. Surface ventilation fans are installed as needed to provide a sufficient volume of air to ventilate production sections, coal haulage and transport entries, battery charging stations, and transformers in accordance with approved plans.</li> <li>&gt; Coronado currently operates three coal preparation plants, one each at the Buchanan, Logan County and Greenbrier Divisions. The Buchanan Plant operates at a feed rate of approximately 907 raw tonnes per hour (<i>tph</i>), whereas the Saunders Plant (Logan County Division) has a nominal feed rate of 816 <i>tph</i>, and the Mountaineer Plant (Greenbrier Division) operates at 544 <i>tph</i>. MM&amp;A has included capital estimates for construction of additional coal preparation plants at the Russell County and Mon Valley Complex for the purposes of this TRS.</li> <li>&gt; Surface Mining Resources: The surface mining mobile equipment spreads advance the contour and area mining pits while systematically reclaiming the trailing side of pits where coal has been removed. The coal haul roads are extended and maintained as the pits advance. Support facilities are maintained nearby but away from the active mining, and include storage areas for blasting agents, fuel and lubricants, and mine supplies along with maintenance facilities and offices. Most of the surface mine production is transported to a loading point for crushing, blending and direct-shipment to customers.</li> <li>&gt; HWM and Auger Resources: The HWM equipment advances along with the contour mining pits. The rate of advance of the contour mining is governed by the advancement rate of the HWM. A diesel-powered generator trails the highwall miner and powers the continuous mining unit. Other support facilities are provided along with the contour mining support facilities. HWM production is all transported by truck to the coal preparation plant for washing.</li> </ul>
Metallurgical factors or assumptions	<ul style="list-style-type: none"> <li>&gt; The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.</li> <li>&gt; Whether the metallurgical process is well-tested technology or novel in nature.</li> <li>&gt; The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.</li> <li>&gt; Any assumptions or allowances made for deleterious elements.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Coarse material is washed in a heavy medium vessel. Intermediate-size material is washed in heavy medium cyclones. Fine material is washed using conventional froth flotation cells.</li> <li>&gt; Processes are typical of those used in the coal industry and are in use at adjacent coal processing plants.</li> <li>&gt; The quality characteristics for the subject coal resources and coal reserves have been reviewed in detail by MM&amp;A. The drill hole data were utilized to develop average coal quality characteristics mining site. These average coal quality characteristics were then utilized as the basis for determining the various markets into which the saleable coal will likely be placed.</li> <li>&gt; No significant effects on product quality are anticipated from dilution material; float product quality was used to model final product quality.</li> </ul>



Appendix E: JORC Table 1

Criteria	JORC Code explanation	Commentary
	<ul style="list-style-type: none"><li>&gt; 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>&gt; For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet specifications?</li></ul>	<ul style="list-style-type: none"><li>&gt; No bulk sample or pilot scale work has been completed.</li><li>&gt; Notwithstanding the complexity of the coal quality data set, the seams of the central and northern Appalachian coalfields have a long history of providing both high-Btu thermal coals and high-, mid- and low-volatile coking coals with favorable metallurgical properties.</li></ul>
Environmental	<ul style="list-style-type: none"><li>&gt; 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.</li></ul>	<ul style="list-style-type: none"><li>&gt; MM&amp;A completed a Limited Phase I Environmental Site Assessment (ESA) on the Buchanan property in April 2016, and on the Logan County and Greenbrier Properties in May 2017 on behalf of Coronado.</li><li>&gt; MM&amp;A identified one REC at Greenbrier associated with stained soil and gravel near a fueling and maintenance area. Coronado reported to MM&amp;A that satisfactory clean-up efforts were completed at Greenbrier.</li><li>&gt; Based on these former ESAs completed by MM&amp;A, it is MM&amp;A's opinion that Coronado has a generally typical coal industry record of compliance with applicable mining, water quality, and environmental laws. Estimated costs for mine closure, including water quality monitoring during site reclamation, are included in the TRS financial models.</li></ul>
Infrastructure	<ul style="list-style-type: none"><li>&gt; 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.</li></ul>	<ul style="list-style-type: none"><li>&gt; Coronado currently operates one surface mine (Toney Fork Mine at the Logan Mine Complex); Coronado also controls the idle Midland Surface Mine at the Greenbrier Mine Complex.</li><li>&gt; Coronado operates five underground mines as follows: Buchanan Mine at the Buchanan Mine Complex; Winifrede, Eagle No. 1, Muddy Bridge and Lower War Eagle Mines in the Logan Mine Complex; the Mountaineer #1 Mine at the Greenbrier Mine Complex is currently idle.</li><li>&gt; All ROM production is currently planned for either truck transportation from the mines to the processing or shipping facilities, or in some cases there is either a current or planned mine mouth preparation plant and barge/rail loading facility.</li><li>&gt; There is a network of public highways that provide serviceable coal haul routes and private, internal roads on the Properties would be developed as may be needed. Rail service to the Properties is most readily provided by NS and CSX with connections to both domestic consumers and international trans-shipment points. NS track is located across the Monongahela River from the proposed Pangburn Hollow load-out facility. Coal would be shipped to customers via barge and rail and sold as both metallurgical and thermal products.</li></ul>





Criteria	JORC Code explanation	Commentary
Costs	<ul style="list-style-type: none"><li>&gt; The derivation of, or assumptions made, regarding projected capital costs in the study.</li><li>&gt; The methodology used to estimate operating costs.</li></ul>	<ul style="list-style-type: none"><li>&gt; Coronado provided historical and 5-year budget operating costs for its active mines for MM&amp;A's review. MM&amp;A used the historical and/or budget cost information as a reference and developed personnel schedules for each mine. Hourly labor rates and salaries were based upon information contained in Coronado's financial summaries. Fringe benefit costs were developed for vacation and holidays, federal and state unemployment insurance, retirement, workers' compensation and pneumoconiosis, casualty and life insurance, healthcare and bonuses. A cost factor for mine supplies was developed that relates expenditures to mine advance rates for roof control costs and other mine supply costs at underground mines. Other factors were developed for maintenance and repair costs, rentals, mine power, outside services and other direct mining costs.</li><li>&gt; Surface mine direct operating costs were developed as a function of overburden ratio for repair and maintenance supplies, diesel fuel, explosives and blasting, and miscellaneous supplies and services. Operating costs for highwall mines are based on costs per ROM tonne estimates. Other cost factors were developed for coal preparation plant processing, refuse handling, coal loading, trucking, property taxes, and insurance and bonding. Appropriate royalty rates were assigned for production from leased coal lands and sales taxes were calculated for state severance taxes, the federal black lung excise tax, and federal and state reclamation fees.</li><li>&gt; Capital schedules were developed by MM&amp;A for mine development, infrastructure, and on-going capital requirements for the life of each projected mine.</li><li>&gt; Staffing levels were prepared and operating costs estimated by MM&amp;A for each projected mine. MM&amp;A utilized historical cost data provided by Coronado and its own knowledge and experience to estimate direct and indirect operating costs.</li></ul>
	<ul style="list-style-type: none"><li>&gt; Allowances made for the content of deleterious elements.</li></ul>	<ul style="list-style-type: none"><li>&gt; No allowances have been made for deleterious elements; no impact to quality from deleterious elements is anticipated.</li></ul>
	<ul style="list-style-type: none"><li>&gt; The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products.</li></ul>	<ul style="list-style-type: none"><li>&gt; Coronado provided MM&amp;A with price forecasts for all Properties. Customer coal pricing is derived from market observed forward estimates based on global economic supply and demand analysis which is applied to mine plan sales volumes and product mix and is supplemented with Coronado's in-house knowledge of applicable rail transportation charges, ocean freight charges and port charges. Coal price forecasts for the various products were provided by Coronado for various coal markets in terms of US nominal dollars per metric tonne. MM&amp;A utilized this data for price forecasting in financial modeling.</li></ul>
	<ul style="list-style-type: none"><li>&gt; Derivation of transportation charges.</li></ul>	<ul style="list-style-type: none"><li>&gt; Coronado provided MM&amp;A with price forecasts for all Properties. Customer coal pricing is derived from market observed forward estimates based on global economic supply and demand analysis which is applied to mine plan sales volumes and product mix and is supplemented with Coronado's in-house knowledge of applicable rail transportation charges, ocean freight charges and port charges. Coal price forecasts for the various products were provided by Coronado for various coal markets in terms of US nominal dollars per metric tonne. MM&amp;A utilized this data for price forecasting in financial modeling.</li></ul>





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Criteria	JORC Code explanation	Commentary
	<ul style="list-style-type: none"><li>&gt; The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.</li><li>&gt; The allowances made for royalties payable, both Government and private.</li></ul>	<ul style="list-style-type: none"><li>&gt; MM&amp;A utilized historical cost data provided by Coronado and its own knowledge and experience to estimate direct and indirect operating costs. All ROM production is currently planned for either truck transportation from the mines to the processing or shipping facilities, or in some cases there is either a current or planned mine mouth preparation plant and barge/rail loading facility.</li><li>&gt; Appropriate royalty rates were assigned for production from leased coal lands and sales taxes were calculated for state severance taxes, the federal black lung excise tax, and federal and state reclamation fees.</li></ul>
Revenue factors	<ul style="list-style-type: none"><li>&gt; The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.</li><li>&gt; The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.</li></ul>	<ul style="list-style-type: none"><li>&gt; Coronado provided MM&amp;A with price forecasts for all Properties. Customer coal pricing is derived from market observed forward estimates based on global economic supply and demand analysis which is applied to mine plan sales volumes and product mix and is supplemented with Coronado's in-house knowledge of applicable rail transportation charges, ocean freight charges and port charges. Coal price forecasts for the various products were provided by Coronado for various coal markets in terms of US nominal dollars per metric tonne. MM&amp;A utilized this data for price forecasting in financial modeling.</li><li>&gt; Coal sales prices as defined above. All reported reserves are on a marketable basis.</li></ul>
Market assessment	<ul style="list-style-type: none"><li>&gt; 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>&gt; A customer and competitor analysis along with the identification of likely market windows for the product.</li><li>&gt; Price and volume forecasts and the basis for these forecasts.</li></ul>	<ul style="list-style-type: none"><li>&gt; Coronado provided MM&amp;A with price forecasts for all Properties. Customer coal pricing is derived from market observed forward estimates based on global economic supply and demand analysis which is applied to mine plan sales volumes and product mix and is supplemented with Coronado's in-house knowledge of applicable rail transportation charges, ocean freight charges and port charges. Coal price forecasts for the various products were provided by Coronado for various coal markets in terms of US nominal dollars per metric tonne. MM&amp;A utilized this data for price forecasting in financial modeling.</li><li>&gt; All of the mine production serves metallurgical and thermal markets. The metallurgical coal is marketed as high-volatile (typically 28 percent or greater volatile matter content); mid-volatile (typically 23- to 27-percent volatile matter content) and low-volatile (typically less than 23 percent volatile matter content) products.</li><li>&gt; Raw ROM production that requires washing is currently processed through Coronado owned and operated coal preparation plants.</li><li>&gt; ROM coal that does not require further processing is delivered directly to the loading points for sizing and delivery to customers. Coronado has access to two rail-loading points serviced by the <b>Norfolk Southern Corporation (NS)</b> and two rail-loading points serviced by <b>CSX Corporation (CSX)</b>.</li><li>&gt; Carlson Mining™ was used by MM&amp;A to generate mine plans for underground- and surface-mineable coal seams. Underground mine plans were sequenced based on productivity schedules provided by Coronado, which were based on historically achieved productivity levels. Surface mine plans were generated under productivity assumptions (bank cubic yard per shift) as provided by Coronado and reviewed by MM&amp;A, again based heavily on productivity levels achieved by Coronado. All production forecasting ties assumed production rates to geological models as constructed independently by MM&amp;A's team of geologists and mining engineers.</li><li>&gt; Coronado provided MM&amp;A with price forecasts for all Properties. Customer coal pricing is derived</li></ul>





Criteria	JORC Code explanation	Commentary
Economic	<ul style="list-style-type: none"><li>&gt; 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>&gt; NPV ranges and sensitivity to variations in the significant assumptions and inputs.</li></ul>	<p>from market observed forward estimates based on global economic supply and demand analysis which is applied to mine plan sales volumes and product mix and is supplemented with Coronado's in-house knowledge of applicable rail transportation charges, ocean freight charges and port charges. Coal price forecasts for the various products were provided by Coronado for various coal markets in terms of US nominal dollars per metric tonne. MM&amp;A utilized this data for price forecasting in financial modeling.</p> <ul style="list-style-type: none"><li>&gt; On an unlevered basis, the NPV of the project cash flows after taxes was estimated for the purpose of classifying coal reserves. The project cash flows, excluding debt service, are calculated by subtracting direct and indirect operating expenses and capital expenditures from revenue. Direct costs include labor, drilling and blasting, operating supplies, maintenance and repairs, facilities costs for materials handling, coal preparation, refuse disposal, coal loading, sampling and analysis services, reclamation and general and administrative costs. Indirect costs include statutory and legally agreed upon fees related to direct extraction of the mineral. The indirect costs are the Federal black lung tax, Federal and State reclamation taxes, property taxes, local transportation prior to delivery at rail or barge loading sites, coal production royalties, sales and use taxes, income taxes and State severance taxes. Coronado's historical costs provided a useful reference for MM&amp;A's cost estimates.</li><li>&gt; Coronado provided MM&amp;A with price forecasts for all Properties. Customer coal pricing is derived from market observed forward estimates based on global economic supply and demand analysis which is applied to mine plan sales volumes and product mix and is supplemented with Coronado's in-house knowledge of applicable rail transportation charges, ocean freight charges and port charges. Coal price forecasts for the various products were provided by Coronado for various coal markets in terms of US nominal dollars per metric tonne. MM&amp;A utilized this data for price forecasting in financial modeling.</li><li>&gt; All costs and prices are based on 2022 nominal United States dollars.</li><li>&gt; A pre-feasibility LOM plan was prepared by MM&amp;A for active and proposed mines. MM&amp;A prepared mine projections and production timing forecasts based on coal seam characteristics. Production timing was carried out from 2023 to depletion (exhaustion) of the coal reserve areas, which is projected for the year 2100.</li><li>&gt; The all-mines average cash cost ranges between approximately \$65 and \$317 per tonne for most of the operating period.</li><li>&gt; An estimate of NPV at a base discount rate of 10.0% was included in Section 19 of the TRS.</li><li>&gt; NPV of the Buchanan, Russell, Mon Valley, Logan and Greenbrier Properties was estimated to be \$1.562 billion, \$92.2 million, \$168.3 million, \$366.6 million and \$62.7 million, respectively.</li><li>&gt; The sensitivity study shows the NPV at the 10.0% discount rate when Base Case sales prices, operating costs, and capital costs are increased and decreased in increments of 5% within a +/- 15% range.</li><li>&gt; Portions of the properties are located near local communities. Regulations prohibit mining activities within 91 meters of a residential dwelling, school, church, or similar structure unless written consent is first obtained from the owner of the structure. Where required, such consents have been</li></ul>
Social	<ul style="list-style-type: none"><li>&gt; The status of agreements with key stakeholders and matters leading to social license to operate.</li></ul>	





Criteria	JORC Code explanation	Commentary
		obtained where mining is proposed beyond the regulatory limits.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves: <ul style="list-style-type: none"><li>&gt; Any identified material naturally occurring risks.</li><li>&gt; The status of material legal agreements and marketing arrangements.</li></ul>	<ul style="list-style-type: none"><li>&gt; No material naturally occurring risks have been identified.</li><li>&gt; The Coronado coal resources are located in Buchanan, Russell and Tazewell Counties, Virginia; Greenbrier, Logan, Boone, Wyoming and Greenbrier Counties, West Virginia; Allegheny, Washington and Westmoreland Counties, Pennsylvania.</li><li>&gt; MM&amp;A has not carried out separate title verification for the coal properties and has not verified leases, deeds, surveys or other property control instruments pertinent to the subject resources.</li><li>&gt; Coronado has represented to MM&amp;A that it controls the mining rights to the reserves as shown on its property maps, and MM&amp;A has accepted these as being a true and accurate depiction of the mineral rights controlled by Coronado. The TRS assumes the properties are developed under responsible and experienced management.</li></ul>
Classification	<ul style="list-style-type: none"><li>&gt; The status of government 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 part on which extraction of the reserve is contingent.</li><li>&gt; The basis for the classification of the Ore Reserves into varying confidence categories. Whether the result appropriately reflects the Competent Person's view of the deposit. The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).</li></ul>	<ul style="list-style-type: none"><li>&gt; Coronado has obtained all mining and discharge permits to operate 34 underground mines, 13 surface mines, and 18 processing, loadout or related facilities. MM&amp;A is unaware of any obvious or current Coronado permitting issues that are expected to prevent the issuance of future permits. Coronado, along with all Central and Northern Appalachian basin coal producers, is subject to a level of uncertainty regarding future clean water permits due to <b>United States Environmental Protection Agency (EPA)</b> involvement with state programs.</li><li>&gt; Measured and indicated resources have been converted to proved and probable reserves, respectively.</li><li>&gt; None of the probable coal reserves have been derived from measured resources.</li><li>&gt; In a limited number of cases where there was only very limited data available to demonstrate the metallurgical suitability of a given coal deposit, that deposit was classified as a probable reserve instead of a proved reserve.</li><li>&gt; The results of this TRS define an estimated total initial ROM recoverable ore (coal) reserve estimate of 551 million tonnes for Coronado as follows:<ul style="list-style-type: none"><li>a) Buchanan = 154 Mt</li><li>b) Logan = 138 Mt</li><li>c) Greenbrier = 12 Mt</li><li>d) Russell = 50 Mt</li><li>e) Mon Valley = 197 Mt</li></ul></li><li>&gt; Coronado controls a total of 334 Mt (moist basis) of marketable coal reserves for Coronado as of December 31, 2022 (total may not add due to rounding). Of that total, 74 percent are proved, and 26 percent are probable. Total reserves by complex are as follows:</li></ul>



Criteria	JORC Code explanation	Commentary
		a) Buchanan = 93 Mt b) Logan = 71 Mt c) Greenbrier = 7 Mt d) Russell = 30 Mt e) Mon Valley = 134 Mt
<b>Audits or reviews</b>	> The results of any audits or reviews of Ore Reserve estimates.	> MM&A completed prepared a statement of coal resources and reserves for the Properties in accordance with the JORC Code as of December 31, 2017. MM&A also subsequently updated the estimate of resources and reserves for depletion as of December 31, 2018, December 31, 2019, December 31, 2020 and December 31, 2021. > MM&A performed a previous audit of the Properties in year 2017 for Coronado based on U.S. Securities and Exchange Commission (SEC) Industry Guide 7 standards. Earlier audits were performed by various independent consultants for predecessors-in-title to Coronado and at various levels of detail depending on the clients concerns and the allotted time for completion. Previous audits and reviews defined the primary coal resource areas and estimated the recoverable tonnes for each seam based on the expected mining methods. > Additionally, MM&A has performed proprietary evaluations for predecessors-in-title to Coronado, which encompass portions of the Properties included in this TRS. > Operations on the Properties by Coronado and its predecessors have been on-going for many years. > MM&A is confident that the mine plans and financial models are reasonably representative to provide an accurate estimation of coal reserves. > Mine development and operation have not been optimized within the TRS.
<b>Discussion of relative accuracy/ confidence</b>	> 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 reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate. > 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. > 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.	> Proved and probable coal reserve were derived from the defined in-situ coal resource considering relevant processing, economic (including independent estimates of capital, revenue and cost), marketing, legal, environmental, socioeconomic, and regulatory factors on a global scale as current local data reflects the global assumptions. > The major risk factors for the active Coronado mines and future resource development are summarized below: > Mine Accidents > Highwall Failure. Highwall failures are likely to result in a temporary mine closure and should not have a material impact on the mine sustainability. The risk is considered to be probable. > Adverse Geological Conditions. Adverse geological conditions include such conditions as faults and sandstone washouts. The risk is considered to be probable. The impact is expected to be temporary with little material impact on mine sustainability. > Environmental Risk. Numerous federal and state permits are required to operate coal mines and mine surface facilities. Permitting rules are complex and may change over time, making compliance difficult or impossible. > Water Quality. Permit requirements to fulfill Clean Water Act obligations are subject to modification. The probability of water quality changes having a material impact on mine operations



Criteria	JORC Code explanation	Commentary
		is possible. As a contemporary example, the selenium discharge issue that affects western Canadian and Central Appalachian Basin operators has only recently emerged as a concern and its ultimate impact has not been determined.
		> New Permits. Permit protests by environmental groups and individuals can contribute to permit delays or denial and increase the cost of permitting and delay development. Surface mining activities, coal refuse disposal and construction of access roads in mountainous terrain often require storage of material in valley fills. Authority to dispose of fill material into waters of the United States must be granted by the <b>United States Army Corps of Engineers (COE)</b> . COE permits are increasingly difficult to obtain.
		> Regulatory Requirements. Adverse impact from regulatory changes is considered to be probable. The impact will likely affect the broader industry and is not expected to result in mine closure.
		> Market Risk. Metallurgical and thermal coal markets ultimately depend upon the global steel and thermal coal demand and are considered to be volatile. Currently, the US coal market has seen a decline in demand for thermal coal due to thermal plant closures, as a result of new air and water pollution regulations, and competition from other commodities used for power generation such as natural gas. This has resulted in an overall decline in CAPP coal production. Continued regulatory changes and declining demand could result in material changes in domestic and global coal markets. The impact cannot be predicted at this time; however, while MM&A expects the coal reserve within this TRS to remain economically viable throughout the life of the projected mines, the LOM financial model is very sensitive to changes in coal sales price and therefore market risk is not insignificant.
		> Labor Risk. Work stoppage due to organized labor protests is considered to be unlikely and not likely to lead to permanent mine closure. The mines are likely to suffer the loss of key supervisors and skilled employees due to retirement as the workforce ages. The problem is industry-wide and the impact is expected to be temporary and have no sustained impact on coal production.
		> Availability of Equipment and Supplies. Risk of equipment and supply availability is likely to be temporary and should not have a sustained adverse impact on the production of coal.
		> Transportation Delay. Interruption of coal transport services by river or rail is considered to be probable but unlikely to have a sustained impact on coal production.
		> Mine plans, productivity expectations and cost estimates generally reflect historical performance and efforts have been made to adjust plans and costs to reflect future conditions.
> 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.		





