

### Cautionary Statement: ELAN PROJECT UPDATED SCOPING STUDY

The Updated Scoping Study referred to in this ASX release has been undertaken for the purpose of initial evaluation of a potential development of the Elan Project hard coking coal deposits. It is a preliminary technical and economic study of the potential viability of the Elan Project. The Updated Scoping Study outcomes, production target and forecast financial information referred to in this release are based on low accuracy level technical and economic assessments that are insufficient to support estimation of Ore Reserves. While each of the modifying factors was considered and applied, there is no certainty of eventual conversion to Ore Reserves or that the production target itself will be realised. Further exploration and evaluation work and appropriate studies are required before Atrum will be in a position to estimate any Ore Reserves or to provide any assurance of an economic development case. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the Updated Scoping Study.

Of the Mineral Resources scheduled for extraction in the Updated Scoping Study production plan approximately 86% are classified as Measured or Indicated and 14% as Inferred. There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target itself will be realised. Inferred Resources comprise 10% of the production schedule in the first year of operation and an average of 7% over the first three years of operation. Atrum confirms that the financial viability of the Elan Project is not dependent on the inclusion of Inferred Resources in the production schedule.

The Mineral Resources underpinning the production target in the Updated Scoping Study have been prepared by a competent person in accordance with the requirements of the JORC Code (2012). The Competent Person's Statement is found in Appendix A of this ASX release. For full details of the Mineral Resources estimate, please refer to Atrum ASX release dated 25 November 2020, *Isolation South Resource Update*. Atrum confirms that it is not aware of any new information or data that materially affects the information included in that release. All material assumptions and technical parameters underpinning the estimates in that release continue to apply and have not materially changed.

This release contains a series of forward-looking statements. Generally, the words "expect," "potential", "intend," "estimate," "will" and similar expressions identify forward-looking statements. By their very nature forward-looking statements are subject to known and unknown risks and uncertainties that may cause our actual results, performance or achievements, to differ materially from those expressed or implied in any of our forward-looking statements, which are not guarantees of future performance. Statements in this release regarding Atrum's business or proposed business, which are not historical facts, are forward-looking statements that involve risks and uncertainties, such as Mineral Resource estimates, market prices of metallurgical coal, capital and operating costs, changes in project parameters as plans continue to be evaluated, continued availability of capital and financing and general economic, market or business conditions, and statements that describe Atrum's future plans, objectives or goals, including words to the effect that Atrum or management expects a stated condition or result to occur. Forward-looking statements are necessarily based on estimates and assumptions that, while considered reasonable by Atrum, are inherently subject to significant technical, business, economic, competitive, political and social uncertainties and contingencies. Since forward-looking statements address future events and conditions, by their very nature, they involve inherent risks and uncertainties. Actual results in each case could differ materially from those currently anticipated in such statements. Investors are cautioned not to place undue reliance on forward-looking statements, which speak only as of the date they are made.

Atrum has concluded that it has a reasonable basis for providing these forward-looking statements and the forecast financial information included in this release. This includes a reasonable basis to expect that it will be able to fund the development of the Elan Project upon successful delivery of key development milestones and when required. The detailed reasons for these conclusions are outlined throughout this ASX release and the original Scoping Study (April 2020) release (including Section 20). While Atrum considers all of the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the Updated Scoping Study will be achieved.

To achieve the range of outcomes indicated in the Updated Scoping Study, pre-production funding in excess of US\$800M may be required. There is no certainty that Atrum will be able to source that amount of funding when required. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of Atrum's shares. It is also possible that Atrum could pursue other value realisation strategies such as a sale, partial sale or joint venture of the Elan Project. This could materially reduce Atrum's proportionate ownership of the Elan Project.

No Ore Reserve has been declared. This ASX release has been prepared in compliance with the current JORC Code (2012) and the ASX Listing Rules. All material assumptions, including sufficient progression of all JORC modifying factors, on which the production target and forecast financial information are based have been included in this ASX release.

## ASX Announcement

8 December 2020

# ELAN PROJECT UPDATED SCOPING STUDY

Atrum Coal Ltd (**Atrum** or the **Company**) (ASX: ATU) advises of completion of an Updated Scoping Study on its 100%-owned Elan Hard Coking Coal (**HCC**) Project (**Elan Project**) in southern Alberta, Canada.

## UPDATED SCOPING STUDY HIGHLIGHTS

- **Sustained, world-class operating scale:** 10Mtpa ROM throughput for 6Mtpa Tier 1 quality HCC
- **Simplified, fast-tracked project:** sole focus on Isolation South deposit to drive development efficiency
- **Initial mine life now 21 years (increased 6 years):** total product HCC production now 112Mt (+47%)
- **ROM coal strip ratio of 3.1 (reduced 28%):** includes 44% reduction in the first 10 years to 2.3
- **Unit cash operating costs of US\$75/t FOB Vancouver (reduced 6%):** lower strip ratio
- **Pre-production capital cost of US\$773M (increased 13%):** additional allowance for utilities, infra.
- **Post-tax NPV<sub>9%</sub> of US\$1.4B (increased 62%):** represents a US\$535M value addition
- **Post-tax IRR of 29.1% (uplift of 4.1%):** payback period (post-tax) reduced to 3.7 years

The Updated Scoping Study **incorporates the recent Isolation South resource upgrade<sup>1</sup>** into an enlarged and enhanced mine schedule, which also displaces all Elan South mining to drive project simplification, permitting efficiency and development fast-tracking. It also incorporates **refined capital cost estimates** from the current Pre-Feasibility Study (**PFS**) (which remains on track for completion by mid-2021). All other key input parameters from the Scoping Study (April 2020)<sup>2</sup> remain unchanged (including throughput, yield and HCC price assumptions) and were applied to the Updated Scoping Study.

The Updated Scoping Study delivers a **62% increase to post-tax NPV<sub>9%</sub> (now US\$1.4B)**, driven by a 28% reduction in ROM strip ratio (44% decrease in the first 10 years) and a 6-year mine life extension. This substantial value uplift is inclusive of a 13% increase in estimated pre-production capital cost and the displacement of all mined tonnes at Elan South from the mine schedule.

## KEY OPPORTUNITIES

- **Higher product yield.** Regional experience indicates potential upside to 60% product yield used in Updated Scoping Study. Comprehensive washability testwork results expected to inform PFS input.
- **HCC price.** Conservative HCC benchmark price of US\$141/t FOB Queensland and 0.79 C\$/US\$.
- **Exploration upside and multiple mines.** Substantial further resource potential exists across the entire Elan Project tenement base, which is targeted to be realised via future drilling. Teck Resources' proximate Elk Valley complex produces over 25Mtpa of premium HCC from four mines.
- **Elan South Phase 2 expansion / extension options.** Clear potential for Elan South to be permitted and mined in the future as an expansion development and/or mine life extension for the Elan Project.

<sup>1</sup> For full details of the Mineral Resources estimate, please refer to ASX release dated 25 November 2020, *Isolation South Resource Update*. Atrum confirms that it is not aware of any new information or data that materially affects the information included in that release. All material assumptions and technical parameters underpinning the estimates in that release continue to apply and have not materially changed.

<sup>2</sup> For full details of the Elan Project Scoping Study (April 2020), please refer to ASX release dated 10 February 2020, *Elan Project Scoping Study*. Atrum confirms that, other than the revisions to the mine schedule and capital cost estimates reflected in this Updated Scoping Study, it is not aware of any new information or data that materially affects the information included in that release. All other material assumptions and technical parameters underpinning the estimates in that release continue to apply and have not materially changed.

## Updated Scoping Study parameters

Leading coal technical consultant, Palaris Australia Pty Limited, was the external Study Manager for the Updated Scoping Study.

The Updated Scoping Study has seen three key revisions to the Scoping Study (April 2020). These changes involve:

1. A revised mine schedule incorporating the recently upgraded Isolation South resource estimate;
2. Sole sourcing of mined tonnes from Isolation South (i.e. displacement of all Elan South mined tonnes from the revised mine schedule); and
3. Adoption of further refined pre-production capital cost estimates.

All other key input parameters from the Scoping Study (April 2020) remain materially unchanged and were applied to the Updated Scoping Study.

This release contains requisite information with respect to the select modifying factors and outcomes that have changed as part of the Updated Scoping Study. Relevant information pertaining to all other unchanged parameters from the Scoping Study (April 2020) can be found in Atrum ASX release dated 16 April 2020, *Elan Project Scoping Study*.

Atrum confirms that, other than the revisions to the mine schedule and capital cost estimates reflected in this Updated Scoping Study, it is not aware of any new information or data that materially affects the information included in that release. All other material assumptions and technical parameters underpinning the estimates in that release continue to apply and have not materially changed.

### 1. New mine schedule incorporating upgraded Isolation South resource

The Updated Scoping Study incorporates the recent interim Isolation South resource update into a revised mine and process schedule. The resource update followed the 2020 drilling program at the Elan Project, which focused solely on Isolation South. This program comprised 125 rotary air blast (**RAB**) holes, 32 large diameter core (**LDC**) holes and 6 HQ geotechnical and hydrogeological holes.

The updated estimate saw total Isolation South resources increase 32 Mt to 262 Mt (+14%) (see Table 1). Critically, and in-line with the core objective of the program, Measured + Indicated (**M+I**) resources at Isolation South increased 93 Mt to 175 Mt (+113%).

**Table 1: Isolation South resource (November 2020)**

Isolation South area	Measured (Mt)	Indicated (Mt)	Inferred (Mt)	Total (Mt)
Northern area	6.9	168	66	240
Southern area	-	-	22	22
<b>Total</b>	<b>6.9</b>	<b>168</b>	<b>88</b>	<b>262</b>
<b>Increase from Feb 2020</b>	<b>6.9</b>	<b>86</b>	<b>-60</b>	<b>32</b>
<b>Increase from Feb 2020</b>	<b>nmf</b>	<b>105%</b>	<b>-41%</b>	<b>14%</b>

Total Elan Project resources now stand at 486 Mt (7 Mt Measured, 228 Mt Indicated and 252 Mt Inferred) (see Table 2). Following the substantial classification upgrade to the Isolation South resource, higher confidence M+I resources now comprise almost 50% of the total Elan Project resource base (including approximately two thirds of the Isolation South resource).

**Table 2: Global Elan Project resource (November 2020)**

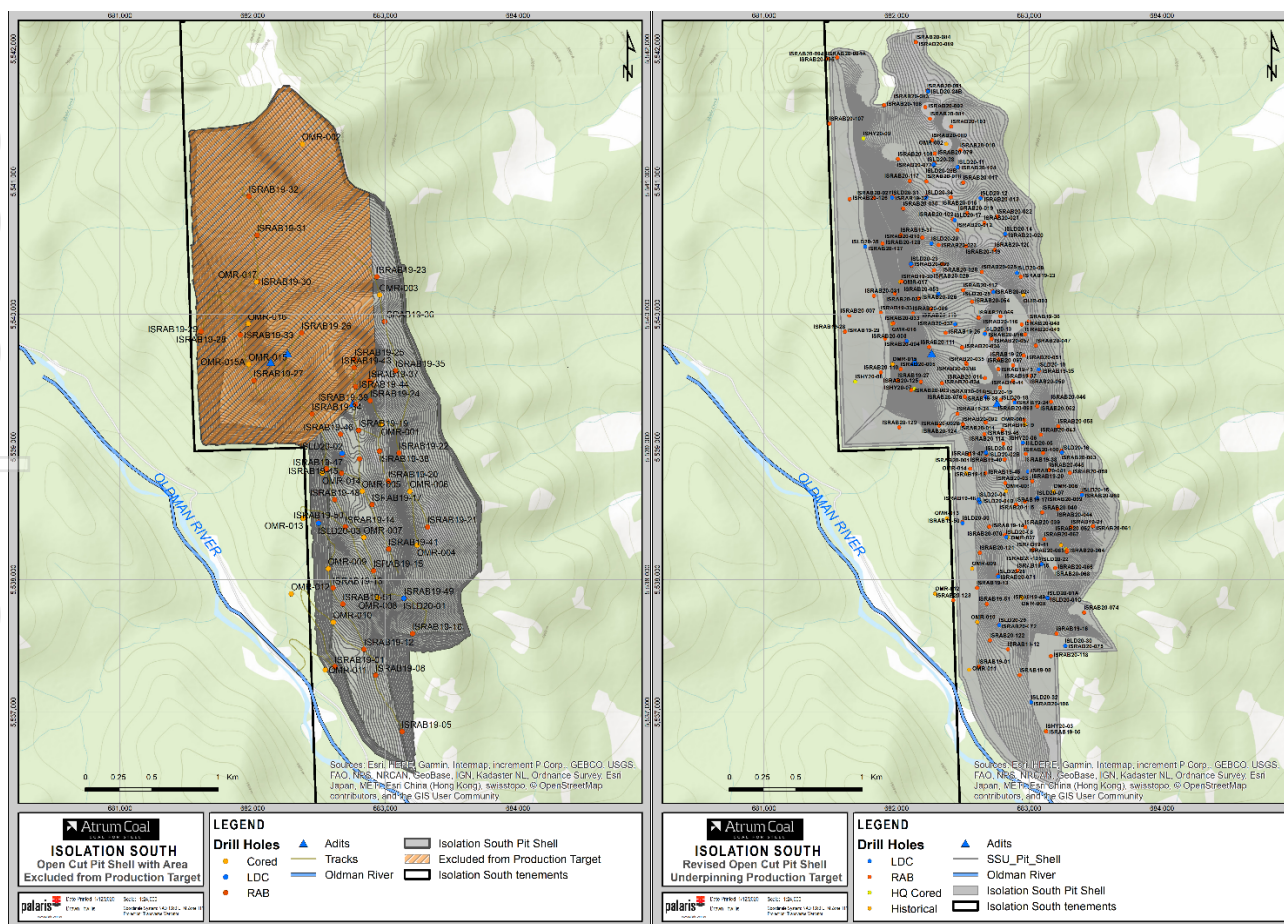
Isolation South area	Measured (Mt)	Indicated (Mt)	Inferred (Mt)	Total (Mt)
Elan northern tenements (including Isolation South)	7	168	169	343
Elan South	-	60	83	143
<b>Total</b>	<b>6.9</b>	<b>228</b>	<b>252</b>	<b>486</b>

For full details of the Mineral Resources estimate, please refer to ASX release dated 25 November 2020, *Isolation South Resource Update*. Atrum confirms that it is not aware of any new information or data that materially affects the information included in that release. All material assumptions and technical parameters underpinning the estimates in that release continue to apply and have not materially changed.

More immediately, the magnitude of the classification upgrades delivered with the interim Isolation South resource has allowed Atrum to enlarge and enhance the mine schedule and production target from the Scoping Study (April 2020).

The context to this is that approximately 108 Mt of Inferred resource within the original Isolation South optimised pit shell (of 188 Mt) was excluded from the mine schedule and production target in the Scoping Study (April 2020), in accordance with the current ASX/ASIC regulatory framework (see Figure 1 and Atrum ASX release dated 16 April 2020, *Elan Project Scoping Study*). The result was that the Scoping Study (April 2020) mine schedule was limited to 126 Mt, being 79.5 Mt from Isolation South and 46.7 Mt from Elan South.

**Figure 1: Isolation South optimised pit shell: Scoping Study (April 2020) on left (with material excluded from mine schedule in brown shading) and Updated Scoping Study on right**





The now successful upgrade of large portions of previously Inferred (and low stripping ratio) resources within that optimised pit shell to Measured and Indicated status has allowed for its inclusion in the life-of-mine production target and forecast base case economics presented in the Updated Scoping Study results. This inclusion has also allowed the acceleration of lower stripping ratio Isolation South tonnes earlier into the production target, thereby reducing expected stripping ratios and operating costs further in the earlier years of the mine life.

## 2. Sole sourcing from Isolation South

Following the recent resource upgrade, the flagship, low-strip Isolation South resource can now independently support an initial +20-year mine life operation at the world-class scale of 10 Mtpa ROM (6 Mtpa HCC).

As a result of this dynamic, Atrium has elected to defer the potential development of Elan South. Concurrently, the decision was taken to remove any mining activity at Elan South from the Updated Scoping Study mine schedule. The key driver of this decision was the considerable simplification of the overall Elan Project scope and footprint that it delivers. This simplification is directly targeted at maximising efficiency in the permitting process and fast-tracking the development of the Elan Project.

It has also reduced the average strip ratio (and expected operating cost) for the Elan Project further. This is a function of the fact that the Elan South mined tonnages included in the Scoping Study (April 2020) (47 Mt), while relatively low-strip by global standards, possess a higher strip ratio than the Isolation South in-pit resources.

It is important to note that Elan South remains a readily viable proposition for future mining activity. As such, clear potential exists for Elan South to be permitted and mined in the future as a Phase 2 expansion development and/or mine life extension for the Elan Project.

## 3. Further refined capital cost estimates

The Updated Scoping Study is also informed by further refined pre-production capital cost estimates derived from the current Elan Project PFS workstream. Updated capital expenditure estimates were provided for two major items – the covered overland conveyor systems (+US\$56M) and utilities supply to site (+US\$34M).

The updated capex estimates for these items were based on updated budget quotes for the conveyor system and increased allowances for the power transmission connection.

**Table 3: Updated pre-production capital expenditure estimates**

Capital item	Inclusions	Estimate (US\$M)	Variance to Scoping Study (April 2020) (US\$M)
Utilities supply to site	Raw and potable water, site-wide electrical, controls & instrument infrastructure, internet	67	+34
On site coal handling	Overland conveyor from Product Stockpile to TLO	238	+56
<b>Total</b>		<b>773</b>	<b>+90</b>

All other pre-production capital cost estimates remain unchanged from the Scoping Study (April 2020). Total pre-production capital expenditure for the Updated Scoping Study is therefore US\$773M (an increase of US\$90M from the Scoping Study (April 2020)). Mining fleet is assumed to be equipment leasing (as was the case in the Scoping Study (April 2020)).

Forecast sustaining capex of US\$1.7/t ROM is unchanged from the Scoping Study (April 2020). It was estimated using unit rates derived from similar operations having considered the Elan Project's proposed fixed infrastructure and mining operations.

## A world-class hard coking coal mine

The Updated Scoping Study contemplates a nameplate mining and processing capacity of 10Mtpa ROM (for 6Mtpa product HCC), which is in-line with Case 1 (10Mtpa ROM) from the Scoping Study (April 2020).

Table 4 outlines the key physical and economic outcomes from the Updated Scoping Study.

**Table 4: Updated Scoping Study key physical and economic outcomes**

	Unit	Updated Study (Nov 2020)	Scoping Study (Apr 2020)	Change	
Total ROM coal mined	Mt ROM	<b>187</b>	126	<b>+ 61 Mt</b>	✓
Annual throughput	Mtpa ROM	<b>10</b>	10		
Initial life-of-mine	years	<b>21</b>	15	<b>+ 6 years</b>	✓
Average strip ratio (ROM)	bcm:t	<b>3.1</b>	4.2	<b>- 28%</b>	✓
Average strip ratio (ROM) – first 10 years	bcm:t	<b>2.3</b>	4.0	<b>- 44%</b>	✓
Processing yield	%	<b>60</b>	60		
Nameplate HCC production	Mtpa saleable	<b>6.0</b>	6.0		
Total product coal (HCC)	Mt saleable	<b>112</b>	76	<b>+ 36 Mt</b>	✓
Resultant clean coal strip ratio (HCC)	bcm:t	<b>5.2</b>	7.2	<b>- 28%</b>	✓
Pre-production capital expenditure	US\$M	<b>773</b>	683	<b>+ US\$90 M</b>	
Cash operating cost (FOB Vancouver)	US\$/t saleable	<b>75</b>	81	<b>- 7%</b>	✓
HCC price (Elan MV HCC FOB Vancouver)	US\$/t saleable	<b>138</b>	138		
NPV <sub>9%</sub> (post-tax, real basis, ungeared, Y-1)	US\$M	<b>1,395</b>	860	<b>+ US\$535 M</b>	✓
IRR (post-tax, real basis, ungeared, Y-1)	%	<b>28.8</b>	25.0	<b>+ 43.8%</b>	✓
Project net cashflow (post-tax)	US\$M	<b>4,580</b>	2,610	<b>+ US\$1,970 M</b>	✓

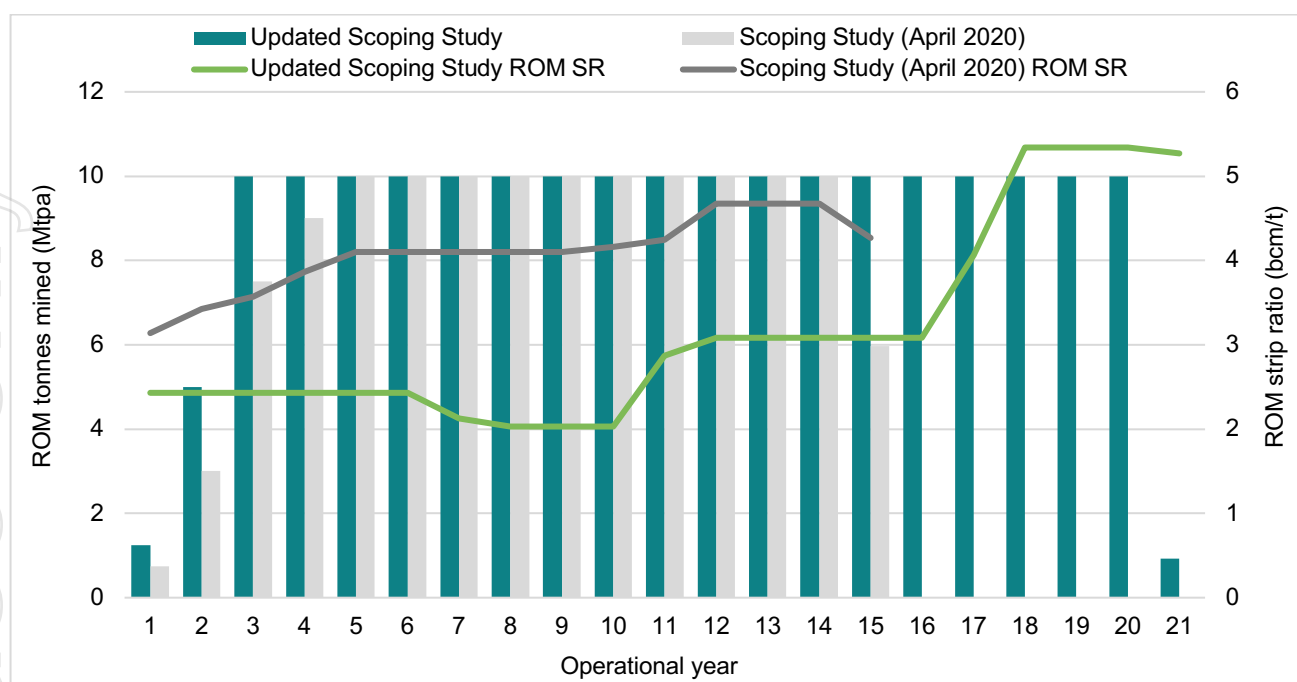
### Key physical outcomes

Scheduled production is now sourced solely from the Isolation South area throughout the project operating life. The net effect of incorporating additional Isolation South tonnage (+108 Mt), and removing all production from Elan South (-47 Mt), is that the ROM production target increases by 61 Mt and overall life-of-mine is increased to approximately 21 years (from 15 years).

The life-of-mine ROM strip ratio is reduced to 3.7 (from 4.3) from solely the inclusion of additional Isolation South tonnes. It is then decreased further to 3.1 (a total reduction of almost 30%) upon the removal of all Elan South material from the mine schedule.

The Updated Scoping Study retains a conservative production ramp-up (albeit more rapid than the original mine schedule given the relative simplicity of solely Isolation South mining activity), with nameplate production not forecast to be reached until Year 3 (see Figure 2).

**Figure 2: Updated Scoping Study mine schedule vs Scoping Study (April 2020) mine schedule**



Inferred resources comprise only 14% of the overall mine schedule and an average of less than 10% over the first three years of operation. Atrum confirms that the financial viability of the Elan Project is not dependent on the inclusion of Inferred resources in the production schedule. The resource classification underpinning the life-of-mine schedule and production target in the Updated Scoping Study is outlined in Table 5.

**Table 5: Resources incorporated in Updated Scoping Study mine schedule and production target**

	Measured (Mt)	Indicated (Mt)	Inferred (Mt)	Total (Mt)
Resources (Mt)	6.3	154	27	187
<b>Total %</b>	<b>3.4%</b>	<b>82.4%</b>	<b>14.2%</b>	<b>100.0%</b>

The implied product coal (clean coal) LOM strip ratio for the Elan Project is now approximately 5.2 bcm/t HCC (comparing with 7.2 in the Scoping Study (April 2020)).

This product strip ratio is considered very low, particularly when compared with:

- The 2019 average of 11.4 at the nearby Teck Resources' mines in the Elk Valley (see Teck Resources' Q4 2019 Financial Report (page 46), 20 February 2020); and
- The LOM average of 9.2 for the nearby Grassy Mountain HCC Project (see Riversdale Resources' Target's Statement, Grassy Mountain Technical Report by RPM Global (page 8), 28 March 2019).

## Key economic outcomes

Projected economics for the Elan Project from the Updated Scoping Study are outlined in Table 6.

Realised coal price and foreign exchange inputs are unchanged from the Scoping Study (April 2020). This represents an average LOM benchmark HCC price of US\$141/t FOB Queensland, which is conservative based on the historical price average over the past 10 years (~US\$180/t). With a forecast 2% discount for Elan medium-to-low volatile HCC products applied, this equates to a realised Elan HCC price of approximately US\$138/t FOB Vancouver. A C\$/US\$ exchange rate of 0.79 has been utilised over the LOM. Royalty unit costs increased from the Scoping Study (April 2020) due to both the reduced payback period and increased revenue from lower strip ratio production. Royalties in Alberta increase significantly

once the project has surpassed the payback period when an additional rate of 13% of the net revenue takes effect.

All capital and operating cost forecasting is structured on an owner operator basis, with mining fleet equipment leased. Forecast estimation accuracy of the Updated Scoping Study is +/- 35-40%.

**Table 6: Key financial forecasts**

Key financial outcomes	Unit	Updated Study (Nov 2020)	Scoping Study (Apr 2020)
<b>Price inputs (LOM average)</b>			
C\$/US\$ (long term forecast)	USc	<b>0.79</b>	0.79
HCC price (Platts Premium LV FOB Queensland)	US\$/t	<b>141</b>	141
HCC price (Elan MV HCC FOB Vancouver)	US\$/t	<b>138</b>	138
<b>NPV, returns and key metrics</b>			
NPV <sub>9%</sub> (post-tax, real basis, ungeared, Y-1 basis)	US\$M	<b>1,395</b>	860
NPV <sub>9%</sub> (pre-tax, real basis, ungeared, Y-1 basis)	US\$M	<b>1,880</b>	1,180
IRR (post-tax, real basis, ungeared, Y-1 basis)	%	<b>28.8</b>	25
IRR (pre-tax, real basis, ungeared, Y-1 basis)	%	<b>32.9</b>	29
Payback period (post-tax, from first production)	years	<b>3.7</b>	4.4
Payback period (pre-tax, from first production)	years	<b>3.4</b>	4.0
Capital efficiency (post-tax NPV / PP capex)	x	<b>1.8</b>	1.3
Pre-production capital expenditure	US\$M	<b>773</b>	683
LOM sustaining capital expenditure	US\$ / ROM t	<b>1.7</b>	1.7
Project net cashflow (post-tax)	US\$M	<b>4,580</b>	2,610
Project net cashflow (pre-tax)	US\$M	<b>5,968</b>	3,400
<b>Unit cash operating costs</b>			
Mining	US\$/t ROM	<b>18</b>	23
Processing	US\$/t ROM	<b>4</b>	4
Free on Rail (FOR) cash cost	US\$/t ROM	<b>22</b>	27
	US\$/t saleable	<b>37</b>	44
Rail transport and port	US\$/t saleable	<b>29</b>	29
Marketing, commissions and corporate	US\$/t saleable	<b>2</b>	2
Royalties	US\$/t saleable	<b>8</b>	6
Total cash operating cost - Free on Board (FOB)	US\$/t saleable	<b>75</b>	81

Totals may not sum correctly due to rounding differences

Key economic attributes from the Updated Scoping Study include:

- Attractive cash operating cost for Elan product HCC averaging US\$75/t FOB, inclusive of royalties and marketing. This compares with average opex at the nearby Teck Resources' Elk Valley operations of US\$79/t FOB in 2019 (excluding royalties and marketing). This operating cost estimate places the Elan Project in the upper first quartile / lower second quartile of the global seaborne hard coking coal operating cost curve (based on S&P Global Market Intelligence 2019 FOB cash cost curve).
- Forecast pre-production capital expenditure of US\$773M. This represents a highly competitive upfront capital intensity of circa US\$130 per tonne of installed saleable HCC production.
- Ungeared, real, post-tax NPV<sub>9%</sub> of US\$1.4B and internal rate of return (IRR) of 29%.
- Upfront capital efficiency (pre-production capital expenditure divided by post-tax NPV) of approximately 1.8x.



- Forecast LOM net cashflow of US\$6.0B (pre-tax) and US\$4.6B (post-tax), with pre-production capital payback of less than 3.5 years (post-tax).

Key valuation sensitivities are outlined in Appendix A.

## Regulatory and social licence to operate

The learnings from the adjacent Grassy Mountain HCC Project (Riversdale Resources) permitting process, which has similar or identical environmental, social, and geological settings, are being actively applied and utilised for baseline studies, stakeholder engagement, impact assessment and permit applications with respect to the Elan Project.

Atrum has already undertaken early engagement with First Nations, government, communities and other relevant stakeholders in relation to development of the Elan Project. Ownership of all regulatory applications and early, proactive engagement of federal and provincial regulators remains an ongoing focus.

Atrum commenced a comprehensive environmental study program in 2019 and has continued detailed baseline work through the 2020 field program. This has been designed to characterise the environmental setting and identify potential sensitive aquatic and terrestrial receptors within the Elan Project area. The results of the baseline program will form the foundation for mine planning and impact assessment.

Since the release of the Scoping Study (April 2020), the Alberta Government has announced the repeal of the Coal Development Policy for Alberta (1976). This repeal was effective from 1 June 2020. Repeal of the policy has eliminated the use of coal categories in Alberta, a land use classification system that directed how and where coal leasing, exploration and development could occur. Removal of the outdated coal categories means that the coal industry in Alberta is now subject to the same land use policies as other commodities within the province.

The Elan Project is located on tenure that was previously deemed to be Category 2 land. Under the previous policy, Category 2 designation referred to land that was generally considered not to be appropriate for open pit coal mining. This meant that any open pit permitting approval for Elan would have required an exemption to be granted. The repeal of that policy means that the prior categorisation of lands is no longer relevant for Atrum. It is important to note however that the repeal sees zero loss of integrity with respect to proper environmental process. The Elan Project will still be subject to the highly robust and targeted Federal environmental approvals process as well as the full scrutiny of the Alberta Energy Regulator in its future development applications.

## Key opportunities

Several opportunities exist to potentially significantly enhance the outcomes presented in the Updated Scoping Study.

### 1. Higher product yield

Regional experience shows Teck Resources' Elk Valley mines, with a similar raw coal ash content range, have product processing yields that typically range from 60 to 70% (which compares with the 60% assumption utilised for the Scoping Study). Further detailed Isolation South washability testwork results are expected in the next few months, which will inform the final PFS input for product coal processing yield.

**Table 7: Product yield sensitivities**

Average process yield	55%	56%	57%	58%	59%	60%	61%	62%	63%	64%	65%
Post-tax NPV (US\$M)	1,150	1,203	1,256	1,291	1,343	1,395	1,447	1,499	1,552	1,604	1,656

## 2. HCC price

The HCC price and C\$/US\$ inputs utilised for the Updated Scoping Study are unchanged from those used in the Scoping Study (April 2020).

The HCC benchmark price forecast of US\$141/t (FOB Queensland) is based on the long-term real hard coking coal price forecast provided by Consensus Economics (February 2020). It compares with the quarterly average price of nearly US\$180/t over the past decade. Utilising a 10% higher benchmark HCC price input (US\$155/t) increases the Updated Scoping Study Elan Project NPV to approximately US\$1,768M, an approximate 27% increase from the Updated Scoping Study base case.

The long-term C\$/US\$ foreign exchange rate forecast of 0.79 has also been adopted from Consensus Economics (February 2020). This exchange rate drives all US\$ cost assumptions in the Updated Scoping Study that are denominated in C\$ (which is much of the forecast Elan operating cost base).

**Table 8: Post-tax NPV sensitivity analysis (Updated Scoping Study HCC price and C/US\$ inputs)**

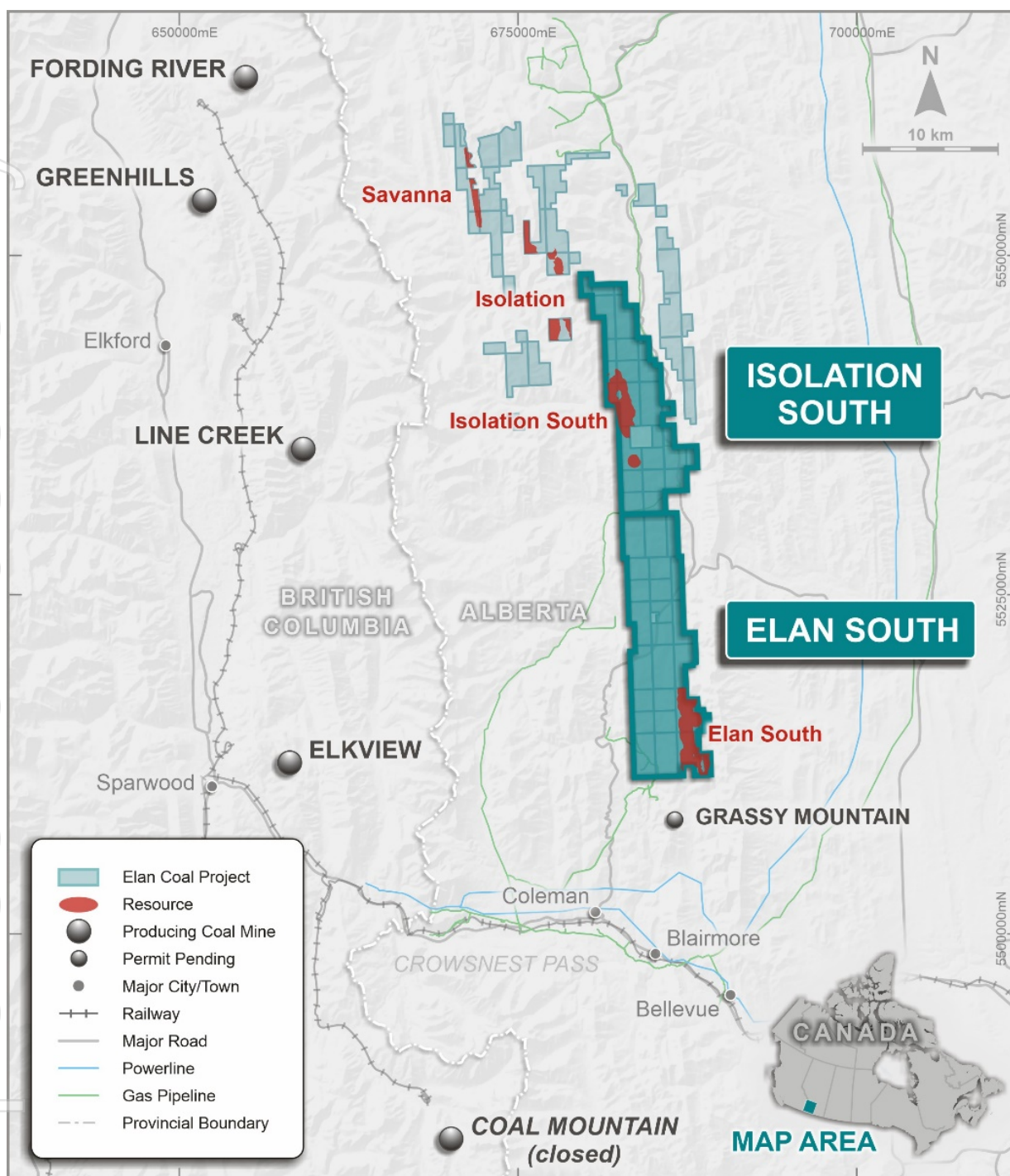
Post-tax NPV (US\$M)		C/US\$ rate				
		0.95	0.87	0.79	0.71	0.63
HCC price (US\$/t)		20%	10%	0%	-10%	-20%
113	-20%	152	400	638	873	1,101
127	-10%	543	781	1,011	1,248	1,478
141	0%	934	1,160	1,395	1,623	1,871
155	10%	1,310	1,542	1,768	2,016	2,229
169	20%	1,690	1,913	2,161	2,408	2,615
183	30%	2,058	2,306	2,553	2,758	3,002

## 3. Exploration upside and multiple developments

Substantial resource upside exists across the entire Elan Project tenement base, including at Isolation South and Elan South (see Figure 3). This potential is targeted to be realised via further extensional drilling in future field programs.

Further resource delineation has the clear potential to supplement the currently planned Elan Project development by extending operating life, delivering expansion potential and/or lowering average strip ratios.

**Figure 3: Elan Project tenement base and proximate Elk Valley HCC mines to the west**



Moreover, the total areal footprint of the Elan tenement base, combined with its thick, shallow and high-quality coal seam depositions, evidences clear potential for it to host multiple, large Tier 1 hard coking coal developments. Teck Resources' proximate Elk Valley complex produces over 25Mtpa of premium HCC from four operating mines.

#### 4. Elan South extension and/or acceleration options

While Elan South has been removed from the Updated Scoping Study mine schedule (targeting permitting efficiency and fast-tracking of Elan Project development), it remains a readily viable proposition for future mining activity. Clear potential exists for Elan South to be permitted and mined in the future as a Phase 2 expansion development and/or mine life extension for the Elan Project.

## Next steps

The significant increase in M+I resources at Isolation South provides the potential for declaration of a substantial maiden Coal Reserve in accordance with JORC (2012), upon completion of the Elan Project PFS. The Elan Project PFS remains on track for completion by mid-2021.

A further update to the Isolation South resource is expected in 1Q 2021, following receipt of residual coal quality testwork results. Further resource classification upgrades are expected with this final resource update from the 2020 exploration program.

### **Atrum Managing Director and CEO, Andy Caruso, commenting on the Updated Scoping Study results said:**

*“The Updated Scoping Study is further evidence of the sheer quality and scale of the Elan Project. We now have a 20-year operating life, at the world-class scale of 6Mtpa hard coking coal, from solely Isolation South. At the same time, we have substantially lowered the forecast life-of-mine strip ratio and operating cost estimate, with the greatest benefit being delivered in the early years. These dynamics are what has driven a post-tax NPV for the Elan Project that is now almost US\$1.4 billion, with an internal rate of return approaching 30%. These economics are quite simply outstanding for a project that is expected to produce Tier 1 hard coking coal at that scale for that initial operating life.*

*“We now look forward to delivery of the Elan Project PFS by mid-2021. This document is set to provide the more detailed pathway for future development of Elan. The declaration of a substantial maiden reserve is also expected to accompany the release of the PFS. Our approach to the PFS has aligned with our commitment to a best-in-class development and operating philosophy. Key stakeholder engagement has advanced over 2020, including with First Nations, and interaction with government and regulatory bodies continues to be highly proactive. Comprehensive environmental data collection continues in preparation for eventual submission of an EIA for the project.*

*“Just as there is no mainstream substitute for hard coking coal in the production of steel via the blast furnace process, there are very few large depositions of Tier 1 quality hard coking coal globally that are amenable to development. There are even fewer in mining jurisdictions as robust as Canada, and that are proximate to existing rail and port infrastructure with surplus capacity. The Elan Project is a compelling candidate to fill the growing need of seaborne markets for a major new supply basin of premium hard coking coal.*

*“Development of Elan will deliver much needed investment into the Crowsnest Pass area of south-western Alberta. This includes the creation of several hundred full-time jobs set to be sourced from local towns including Blairmore, Coleman, Sparwood and other nearby communities, as well as the obvious flow-on benefits to local businesses in the area. The Elan Project is also set to be a significant contributor to Alberta, with expected provincial royalties of approximately US\$884M to be paid over the life of the mine based on the Updated Scoping Study. The indirect contributions to local, provincial and federal economies and taxes will also be many times larger than this provincial royalty total.*

*“Throughout the communication and engagement process, local municipalities and provincial government have been positive and supportive towards the rapid advancement of the Elan Project. We will continue to engage early and proactively with all key stakeholders as we advance the Elan Project towards targeted development.”*

## Key processing assumptions (materially unchanged from Scoping Study (April 2020))

### Processing requirements

Sedgman Canada was engaged to provide a conceptual design and capital expenditure estimates for coal handling and processing requirements. The processing design for the Elan Project is based on a single stage processing plant, consistent with other mines and projects targeting the Mist Mountain Formation coals in the region.

The CHPP design basis incorporates dense media cyclones (DMC), reflux classifiers and a flotation circuit, with product drying completed with a hyperbaric filter process. While several options were analysed, the selected processing plant is based on a throughput capacity of 1,650 tph (10 Mtpa ROM).

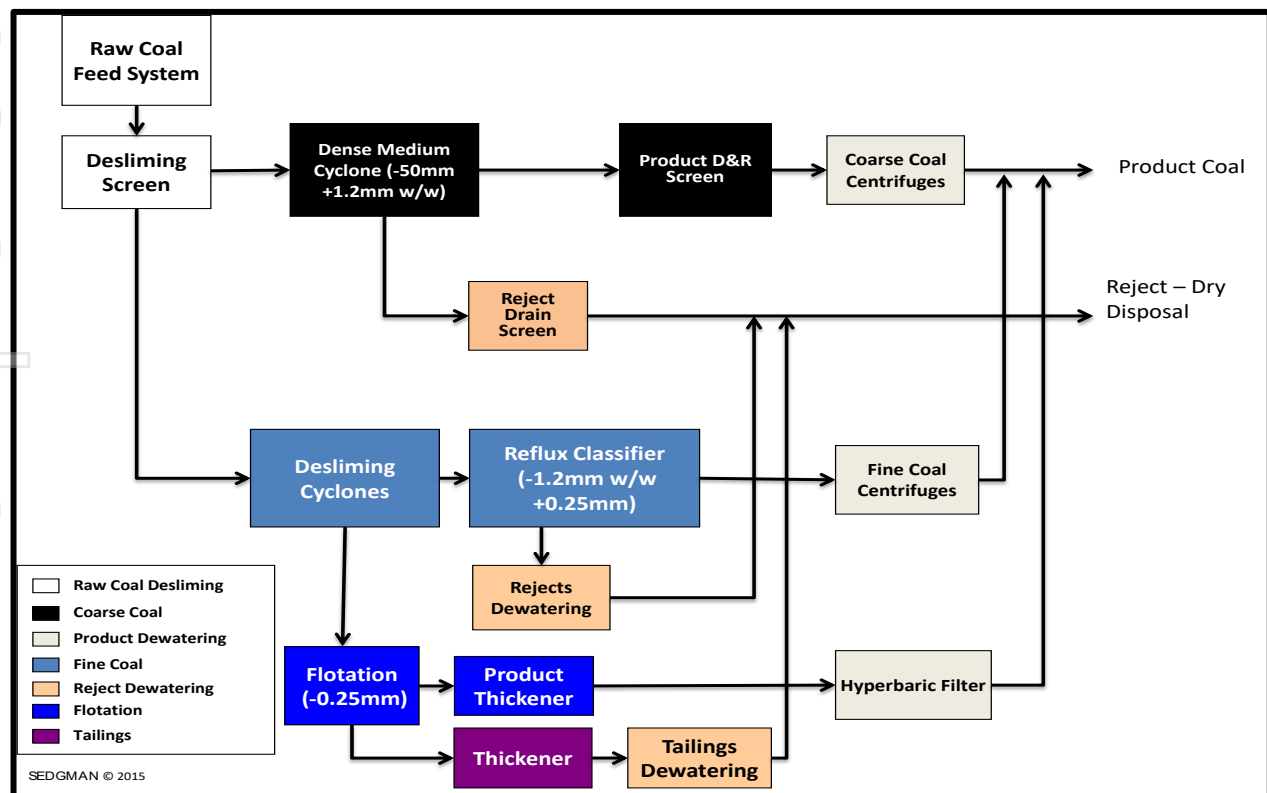
### Design objectives

To develop the capital and operating costs, a high-level flowsheet was initially established, including ROM handling, the coal preparation plant, rejects and product handling. Based on these flowsheets, high-level capital and operating cost estimates were developed. A baseline premium mid-vol hard coking coal quality was assumed.

The following principal design objectives were applied for the proposed CHPP:

- CHPP facilities are designed for a nominal 30-year mine life, operating 24 hours per day, 7 days per week, with assumed operating hours of 7,200 hours per year excluding wear and tear.
- CHPP facilities are based on safe, economical, durable and functional designs.
- A single coal processing plan is based on dense media cyclone (DMC), reflux classifier and flotation circuits with product sizing on the drain and rinse screen (see Figure 4).

Figure 4: Block flow diagram of the CHPP



The CHPP design is easily capable of delivering 6 Mtpa saleable product at an assumed CHPP yield of 60% and 7,200 operating hours per annum.



### **Processing assumptions**

The Scoping Study (and Updated Scoping Study) utilises a forecast processing yield of 60% for all seams based on theoretical yield results, washability testwork completed on Isolation South samples to date, and regional experience. The following additional considerations are relevant:

- There is still insufficient data to be able to reliably predict CHPP yield on a seam by seam basis in each area, with the laboratory testing of samples from the 2020 program ongoing.
- Theoretical washability results from float sink testwork have not accounted for CHPP efficiency, mining losses and dilution.

Further exploration testwork and washability simulation will be required to enable a more detailed assessment of product yield and quality. Wash yield sensitivities have been included in the financial analysis in recognition of potential practical yield variability.

### **Plant location**

The CHPP has been located in proximity to the Isolation South pit (to the south-east).

### **Key infrastructure, rail logistics and port access assumptions (materially unchanged from Scoping Study (April 2020))**

#### **On site infrastructure**

The Project will require onsite surface facilities to support mine operations that includes the following:

- Administration facilities including offices, training and meeting, first aid, emergency response facilities as well as workers' shift change and sanitary facilities.
- Warehouse facilities.
- Mining equipment workshop facilities and fuel facilities.
- Surface coal handling and processing plant (CHPP) including stockpiles (ROM and product) and coal loadout facilities.
- Tailings and waste rock storage facilities.
- Services and associated facilities for fresh water supply and treatment, waste-water treatment, water storage for fire and process water.
- Sewage treatment plant.
- Electrical reticulation and communications.
- First aid and Emergency Response facilities (first aid room, monitoring room, control room).

### **Power supply**

A high voltage power transmission line runs east and south of the Elan Project tenements. Requisite power supply for the Elan Project can be readily sourced from this line via a short link. The optimal tap-in location is planned to be determined during the PFS phase.

### **Water source**

Water licences or allocations for coal processing are to be permitted under the Alberta Water Act, and may be granted or transferred from other licence holders. Atrum has engaged specialty water resource management consultant, WaterSmart, to assist in identifying the best option for water licences, and this evaluation work will feed into the PFS. Possible water intake locations have been identified for the Scoping Study with details to be further examined during the PFS. Atrum plans to employ industry best practices in water conservation and water management in designing and operating the CHPP, where site water retention, recycling and re-use will be maximised.

## **Product coal logistics**

Hatch was commissioned to undertake a review of logistical options to transport product from the CHPP to a proposed train loadout site. The use of a dedicated conveyor system was deemed the optimal solution. The conveyor will have a nominal capacity of 2,000 tph and be covered to minimise any environmental impact.

## **Tailings storage**

The reject handling system will combine the coarse rejects with the dewatered fine rejects and tailings filter cake. The combined rejects will be transferred into a rejects bin and will be discharged into haul trucks for co-emplacement back in the pit. The rejects tailings would be co-mingled and returned to the mine for emplacement with the mine waste to avoid a tailings dam.

## **Rail loadout**

The Elan Project will require the construction of a new railway spur line from the Crowsnest subdivision mainline to the proposed Elan train loadout area. The preferred train loadout area identified by Hatch is located to the west of Coleman in the Crowsnest Pass.

This location was deemed the superior of a number of options considered given that it allows for heavy grade tolerance to be available and is expected to minimally impact on the local community or surrounding environment. The spur track length required is 4.7 km plus an additional 5.5 km for the loading loop.

## **Rail transport**

Product coal will be railed to coal export terminals in Vancouver on the West Coast of Canada, a distance of approximately 1,100 km from the Project. The rail networks linking the Crowsnest Pass to Vancouver are operated by Canadian Pacific Rail (CPR) and Canadian National Railways (CN).

From the Elan rail loadout site to the west of Coleman, the proposed spur line would connect to the CPR mainline on the northern side of Highway 3. The first section of track is operated by CPR and transports the coal in a north-westerly direction to Kamloops, British Columbia. From Kamloops, the rail network to the West Coast is jointly operated by CPR and CN, with westbound loaded trains using the CN operated tracks and returning trains utilising the CPR operated tracks.

Expected rail quantities are around 16,500 tonnes per train. This equates to approximately one train per day (at 6 Mtpa product HCC) once the Elan Project ramps up to full production.

## **Access**

Preliminary assessment indicates the strong likelihood of there being ample capacity on the CPR / CN lines for the Elan Project's forecast product coal transport requirement of 6 Mtpa HCC. Discussions with CPR have indicated track capacity for the full extent of Atrium's requirements, in addition to the expected Grassy Mountain Project output. CPR has an approximate two year required lead time to purchase new rolling stocks, recruit and train operators, and upgrade maintenance shops.

## **Port facilities and access**

### **Westshore and Neptune (Vancouver)**

The Westshore coal terminal in the Vancouver region, British Columbia, is the most attractive option for the Elan Project in terms of both relative proximity and expected availability of capacity.

Westshore Terminals Investment Corporation operates the Westshore coal terminal, located on a man-made island at Roberts Bank, 30 km south of Vancouver. Westshore has a nominal capacity of 33 Mtpa, with 31 Mt of shipments exported from the terminal in 2019. It has nine existing contracts with coking and thermal coal producers located in Canada and the north-western US. The largest exporter through Westshore currently is Teck Resources, which accounted for 60% of Westshore's volumes in 2019 (the

two largest US coal producers accounted for an additional 31.5%, with approximately 11 Mt of thermal coal shipped in 2019). Teck's current agreement with Westshore concludes in March 2021.

As a result of recent decisions that Teck has made with respect to apparent preferred export logistics – including the expansion of Neptune coal terminal and signed commitment of 6 Mtpa (with an option for up to 9 Mtpa) through the northern BC Ridley coal terminal – there is expected to be significant excess capacity available at the Westshore coal terminal from 2021.

The Neptune port, located north of Vancouver, is jointly owned by Canpotex Bulk Terminals (54%) and Teck Resources (46%). Neptune primarily exports Canadian potash and metallurgical coal. The Neptune coal terminal is currently being expanded, via funding from Teck, with this work expected to be completed in Q1 2021. This expansion is expected to see metallurgical coal export capacity from Neptune increased to 18.5 Mtpa. However, as a result of the ownership and funding structure, Neptune is essentially dedicated to Teck's shipments in terms of current and planned future coal export capacity.

Overall, current assessment indicates that there is set to be ample Vancouver port capacity available (at Westshore) to handle the full production output of the Elan Project (6 Mtpa HCC) on top of the future volumes planned from the Grassy Mountain Project and US Powder River Basin thermal coal producers.

### **Ridley (Prince Rupert)**

An alternative port option on the West Coast is the Ridley coal terminal in Prince Rupert, British Columbia (served via CN rail). Ridley Terminals is owned by a partnership that includes AMCI Group, Riverstone Holdings, Lax Kw'alaams Band and Metlakatla First Nation. Ridley primarily exports coal and LPG, with a current coal export capacity of around 18 Mtpa. Teck recently struck an agreement with Ridley Terminals to increase its attributable capacity there from 3 to 6 Mtpa, with further optionality to increase to 9 Mtpa. While there is expected to be some excess capacity at Ridley following the planned expansion, the Ridley terminal is located a further approximate 500 km from the Elan Project, relative to the Vancouver ports.

### **Access**

Atrum plans to commence detailed port (and rail) access preparations during the PFS phase. Rail and port access pricing is not regulated by the Canadian government and commercial discussions are expected to take place as the Elan Project progresses towards PFS completion.

### **Reasonable basis for funding assumption (materially unchanged from Scoping Study (April 2020))**

To achieve the range of outcomes indicated in the Scoping Study, pre-production funding in excess of US\$800M may be required.

There is no certainty that Atrum will be able to source that amount of funding when required. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of Atrum's shares. It is also possible that Atrum could pursue other value realisation strategies such as a sale, partial sale or joint venture of the Elan Project. This could materially reduce Atrum's proportionate ownership of the Elan Project.

An assessment of various funding alternatives for the Elan Project has been made based on precedent funding transactions in the coking coal mining industry.

Atrum has formed the view that there is a reasonable basis to believe that requisite future funding for development of the Elan Project will be available when required. There are a number of grounds on which this reasonable basis is established:

- Global debt and equity finance availability for high-quality coking coal projects remains robust. Recent examples of significant funding being made available for progression or construction of metallurgical coal projects, and/or strategic acquisitions of such projects, that are owned by Australian listed or unlisted companies include:

- Golden Investments (Australia) Pte. Ltd launching an on-market takeover offer at A\$1.00 cash per share for the residual interest in Stanmore Coal Limited (ASX:SMR) in April 2020, valuing this residual stake at approximately A\$175M;
- Warburton Group acquiring 16.7% of Atrum Coal Limited (ASX:ATU) for total cash consideration of A\$13M in March 2020;
- TerraCom Limited (ASX:TER) seeking to acquire over 90% of the shareholding in Universal Coal Plc (ASX:UNV) and proceed to a mandatory sell-out process in March 2020;
- Bowen Coking Coal (ASX:BCB) receiving a finance facility of up to A\$15M and a marketing agreement with M Resources in March 2020;
- Tiger's Realm Coal Limited (ASX:TIG) raising new equity funding of A\$58M via an accelerated renounceable entitlement offer (February 2020) for its Amaam North and Amaam Projects Chukotka, Russia;
- Aspire Mining Limited (ASX:AKM) securing A\$33M of new equity funding (placement to major strategic shareholder in September 2019) for its Ovoot Project in Mongolia;
- TerraCom Limited (ASX:TER) achieving a new US\$80M term loan facility in July 2019 for its BNU Mine in Mongolia, and Blair Athol Mine in Queensland, Australia;
- Hancock Prospecting Limited acquiring the remainder of Riversdale Resources Limited (unlisted), owner of the Grassy Mountain Project in Alberta, Canada, in May 2019 for total cash consideration of approximately A\$650M (valuing 100% of Riversdale at approximately A\$800M);
- TerraCom Limited (ASX:TER) securing A\$35M of new equity funding (entitlement offer) and US\$20M of convertible bond finance (from OCP Asia) in May 2019 for its BNU Mine in Mongolia, and Blair Athol Mine in Queensland, Australia;
- Kingfisher Capital Pte Ltd acquiring 8.2% of Riversdale Resources Limited (unlisted), owner of the Grassy Mountain Project in Alberta, Canada, in December 2018 for an undisclosed total cash consideration.
- Aspire Mining Limited (ASX:AKM) raising A\$15M of new equity funding (placement to major strategic shareholder and Noble Group in December 2018) for its Ovoot Project in Mongolia;
- Allegiance Coal Limited (ASX:AHQ) obtaining C\$7M of new equity funding (announced November 2018) from staged placement to major coal player, Itochu Corporation of Japan, for its Tenas Project in British Columbia, Canada;
- Hancock Prospecting Limited acquiring 19.99% of Riversdale Resources Limited (unlisted), owner of the Grassy Mountain Project in Alberta, Canada, in August 2018 via a A\$69M placement of new equity;
- Jameson Resources Limited (ASX:JAL) achieving staged project equity funding from Bathurst Resources Limited (ASX:BRL) for up to a total of C\$121M in exchange for 50% equity ownership in its Crown Mountain Project in British Columbia, Canada (announced June 2018; first two tranches now paid); and
- Bounty Mining Limited (ASX:B2Y) undertaking an Initial Public Offering (IPO) to successfully raise A\$18M of new equity funding in June 2018 for its Cook Colliery Project in Queensland, Australia.

- Atrum has held preliminary, confidential discussions with respect to project and corporate funding/ownership with a number of potential strategic partners and financiers. These include international mining companies, trading houses, senior lenders and other parties capable of providing

up to 100% of the financing required to develop the Elan Project. These discussions have indicated that the Elan Project possesses physical and financial attributes that deliver Atrum a reasonable likelihood of securing the requisite funding for its development as it is required.

- The Elan Project is world-class by scale and hard coking coal quality parameters. The technical and financial parameters detailed in the Elan Project Scoping Study (and now Updated Scoping Study) are robust and economically attractive. The Elan Project is ideally located in a first world country and within the well-established and low-risk mining region of Crowsnest Pass in Alberta. Release of these Scoping Study fundamentals (and now Updated Scoping Study) also now provides a platform for Atrum to advance discussions with potential strategic partners, off-takers, debt providers and equity investors.
- Atrum has a current market capitalisation of approximately A\$185M, and zero debt. The Company has an uncomplicated, clean corporate and capital structure. Atrum also owns 100% of the Elan Project. Finally, 100% of the forecast hard coking coal production from the Elan Project remains uncommitted. These are all factors expected to be highly attractive to potential strategic investors, offtake partners and conventional equity investors. These factors also deliver considerable flexibility in engagement with potential debt or quasi-debt providers.
- The Atrum Board and management team has extensive experience in the global coal industry. They have played leading roles previously in the exploration and development, including project financing, of several large coking coal projects globally. In this regard, key Atrum personnel have a demonstrated track record of success in identifying, acquiring, defining, funding, developing and operating quality coking coal assets of significant scale.
- The Company has a strong track record of raising equity funds as and when required to further the exploration and evaluation of the Elan Project. Atrum's two prior equity raisings were a A\$20M institutional placement that was successfully undertaken in March 2019 and a A\$22M institutional placement that was successfully undertaken in May 2020.
- Funding for Elan Project pre-production and initial working capital is not expected to be required until close to or post completion of a Definitive Feasibility Study (DFS). Finalisation of a DFS on the Elan Project is not expected before 1H 2022. The majority of market analysts/commentators globally forecast demand, and market prices, for hard coking coal to be robust in the medium and longer term.
- Atrum is targeting total pre-production and working capital funding being comprised of one, some or all of: senior project debt, mezzanine debt, offtake prepayment, equipment leasing, Build-Own-Operate-Transfer (BOOT) contract, sale of a strategic asset interest, equity issuance and/or royalty funding. As noted earlier, total pre-production funding (or equivalent) in excess of US\$800M may be required. The final mix will depend on general market and mineral industry conditions, specific counterparty appetite and terms, and the Atrum Board's prevailing views on optimal funding mix and balance sheet configuration. However, a general view is that debt financing has the potential to form at least 50% of the total pre-production capital requirement.
- It should be noted that this funding strategy is subject to change at the Atrum Board's discretion at any point. It should also be noted that, while the Atrum Board holds a reasonable basis to believe that funding will be available as required, there is no assurance that the requisite funding for the Elan Project will be secured.

### **Key risks (materially unchanged from Scoping Study (April 2020); excepting removal of land categorization given repeal of Alberta Coal Policy (1976))**

Key project risks and mitigation measures identified during the Scoping Study process are summarised below.



**Table 9: Key project risks**

Risk	Issue Description/Finding	Risk	Potential Controls
<b>Stakeholder relations</b>	Need a strong relationship with the First Nations and other stakeholders and their support for the project development	High	Proactive engagement, meaningful consultation and future employment opportunity creation
<b>Selenium</b>	Potential for rock storage area(s), coarse coal reject and other mining related material to leach Selenium creating elevated levels in the receiving environment.	High	<p>Mine Planning and design to ensure that potential selenium sources and all mitigation strategies (e.g. Saturated backfill) are incorporated.</p> <p>Holistic water management approach to minimize contact water and capture/treat all water emanating from disturbed areas.</p> <p>Potential water treatment solution for final discharge point to ensure compliance in the receiving environment (final option).</p>
<b>Westslope Cutthroat Trout habitat</b>	Listed as threatened under provincial and federal regulations. The proposed 2019 Westslope Cutthroat trout recovery and action plan identifies Daisy Creek as critical habitat.	High	Providing a robust offsetting and enhancing plan for habitat that is directly impacted by mine development
<b>Approval timeframe longer than anticipated</b>	Uncertain approvals timeframe	High	Streamline the approvals process, learning from Grassy Mountain, engagement with AER and Federal IAA
<b>Conveyor and road hauling</b>	Environmental issues relating to covered conveyor belts and / or truck hauling	Medium	Further work to optimise logistics plan and minimise environmental impacts during PFS
<b>Land use and access</b>	Need to secure land use and access rights for conveyor and rail	Medium	Mostly on Crown land; start any required negotiation with private land parcel owner(s) during the PFS phase to secure access
<b>Water licence</b>	Need transfer of existing water licenses and/or allocations	Medium	Proactive and early engagement of Alberta Environment and Parks (AEP) as well as the AER to address the water source issue. Progress has been made with AEP.
<b>Aquatic health</b>	Potential for elevated levels of parameters of interest within the receiving environment resulting in bioaccumulation within sensitive aquatic receptors	Medium	Water management planning, mine design and rock management strategy, defining aquatic receptor thresholds for impact assessment.
<b>Metal Leaching/Aid Rock Drainage (ML/ARD)</b>	Similar to Selenium, leaching of metal and acid from mine rocks/waste (e.g. Cadmium, Sulphate, etc.) entering the receiving environment needs to be mitigated.	Medium	Rock management and disposal area strategies to ensure that material blending targets a net neutral (i.e. non-potential acid generating) ratio and minimizes probability of acidic conditions developing. Combine the mitigation strategy with selenium solutions to ensure effectiveness and efficiency.
<b>Vegetation</b>	Vegetation within the project footprint includes rare and endangered plants, Whitebark Pine, and Fescue ssp. (e.g. Rough Fescue)	Medium	Conservation and reclamation plan will be developed to incorporate consideration for managing identified species.
<b>Wildlife</b>	Potential for habitat fragmentation and direct impacts to certain species (e.g. amphibian, songbirds) natal territory as a result of mine development.	Medium	Mine closure planning, progressive reclamation, avoidance of sensitive ecosystems with high wildlife values (e.g. wetlands).
<b>Proposed production levels not achieved</b>	Out-of-pit spoil capacity may be insufficient	Medium	Investigate opportunities to sequentially mine and backfill the Isolation South pit in PFS
<b>Accuracy of geological models</b>	Potential for differences in pit ROM tonnes and stripping ratio based on geological complexity and early stage of exploration	Medium	Further exploration work to increase geological confidence, upgrading of resource classification and detailed mine design during next phase of study

<b>Coal quality</b>	Potential for further testing to indicate a lower coal quality than the data has shown to date	Low	Historical data and testing to date have provided a reasonable confidence. Conduct more comprehensive testing in the next phase to further confirm the coal quality.
<b>Proposed production levels not achieved</b>	Geotechnical risks associated with steep dips, complex structure and bedding plane weaknesses	Medium	Undertake comprehensive exploration and geotechnical sampling and testing in order to underpin geotechnical design parameters in further studies.
<b>Key personnel</b>	The loss of key personnel and failure to recruit and retain qualified staff for critical positions needed to progress the project into the next phases	Medium	Focused effort in staff recruitment and development, competitive compensation including share-based compensation as incentives and a retention tool.
<b>Project funding</b>	Failure to secure funding for project exploration and development as well as start-up CAPEX	Medium	Produce high quality PFS and DFS and work closely with advisors to progress and execute on project financing options.

**This ASX release was authorised on behalf of the Atrum Board by:**

Andy Caruso, Managing Director and CEO

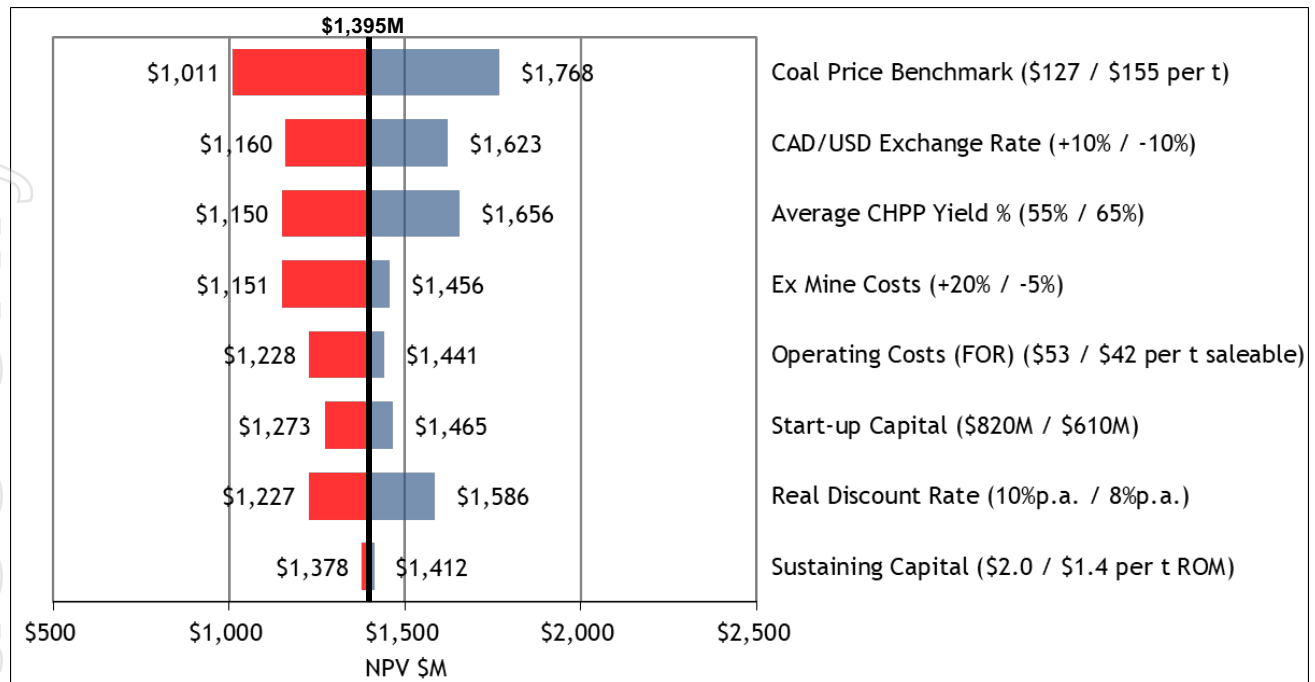
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## APPENDIX A: KEY UPDATED SCOPING STUDY SENSITIVITIES



## APPENDIX B: COMPETENT PERSON'S STATEMENT

The results of the Updated Scoping Study and Coal Resources that underpin the production target are based on, and fairly represent, information and supporting documentation compiled by Mr Brad Willis, who is a Member of the Australasian Institute of Mining and Metallurgy (205328).

Brad Willis is Principal Geologist at Palaris. He has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity he is undertaking to qualify as a Competent Person, as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Willis has 20 years' experience in exploration and mining of coal deposits. Mr Willis consents to the inclusion of the Updated Scoping Study results disclosed by the Company in the form in which it appears.

Neither Mr Willis nor Palaris have a direct or indirect financial interest in, or association with Atrum Coal, the properties and tenements reviewed in this statement, apart from standard contractual arrangements for the preparation of this report and other previous independent consulting work. In preparing this Annual Coal Resource and Reserve Statement, Palaris has been paid a fee for time expended on this report. The present and past arrangements for services rendered to Atrum Coal do not in any way compromise the independence of Palaris with respect to this estimate.

### Competent Person

Mr Brad Willis  
Member AusIMM (#205328)  
Principal Geologist  
Palaris Australia Pty Ltd

Signature



## APPENDIX C: REASONABLE BASIS FOR FORWARD LOOKING STATEMENTS

No Ore Reserve has been declared. This ASX release has been prepared in compliance with the current JORC Code (2012) and the ASX Listing Rules. All material assumptions on which the Scoping Study production target and forecast financial information are based have been included in this release and disclosed in the table below.

**Consideration of Modifying Factors (in the form of Section 4 of the JORC Code (2012) Table 1)**

Criteria	JORC Code explanation	Commentary
<b>Mineral Resource estimate for conversion to Ore Reserves</b>	<ul style="list-style-type: none"> <li><i>Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.</i></li> <li><i>Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.</i></li> </ul>	<ul style="list-style-type: none"> <li>As an exploration project at Scoping Study level, the resource base underpinning the production target for the Updated Scoping Study is 3.4% Measured, 82.4% Indicated and 14.2% Inferred.</li> <li>No Ore Reserve has been declared.</li> </ul>
<b>Site visits</b>	<ul style="list-style-type: none"> <li><i>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</i></li> <li><i>If no site visits have been undertaken indicate why this is the case.</i></li> </ul>	<ul style="list-style-type: none"> <li>The Competent Person has undertaken several site visits to the Elan project in 2018 and 2019 to oversee field exploration activities</li> <li>The Competent Person has been involved in many aspects of the project since 2018</li> </ul>
<b>Study status</b>	<ul style="list-style-type: none"> <li><i>The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.</i></li> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>The Elan Project is a greenfield exploration project with a Scoping Study completed</li> <li>The project has proceeded to Pre-Feasibility Study level, with the PFS now underway (expected completion mid-2021) and an Ore Reserve has not been declared.</li> </ul>
<b>Cut-off parameters</b>	<ul style="list-style-type: none"> <li><i>The basis of the cut-off grade(s) or quality parameters applied.</i></li> </ul>	<ul style="list-style-type: none"> <li>Cut off grades or limits to particular coal quality attributes have not been applied in the estimation of the production target</li> <li>The basis for this is that all coal seams included in the production target can be processed and blended into the final product</li> <li>There are no particular seams identified that have negative coal quality attributes that would justify their exclusion from the production target</li> </ul>
<b>Mining factors or assumptions</b>	<ul style="list-style-type: none"> <li><i>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).</i></li> <li><i>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.</i></li> <li><i>The assumptions made regarding geotechnical parameters (eg pit slopes, slope sizes, etc), grade control and pre-production drilling.</i></li> </ul>	<ul style="list-style-type: none"> <li>ROM and/or Marketable Ore Reserves have not been declared.</li> <li>The production target in this report was estimated by undertaking a pit optimisation process followed by practical pit adjustments</li> <li>Open cut mining has been selected as the mining method and will be a mix of strip and terrace mining. This is related to the sometimes complex geological structure that implies underground mining would not be suitable</li> <li>The geotechnical design parameters are largely based on nearby mining projects and advice from geotechnical consultants</li> <li>The highwalls are designed on overall slope angles of 45°</li> </ul>



Criteria	JORC Code explanation	Commentary
	<ul style="list-style-type: none"> <li><i>The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).</i></li> <li><i>The mining dilution factors used.</i></li> <li><i>The mining recovery factors used.</i></li> <li><i>Any minimum mining widths used.</i></li> <li><i>The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.</i></li> <li><i>The infrastructure requirements of the selected mining methods.</i></li> </ul>	<ul style="list-style-type: none"> <li>Low-walls are designed face angles of 37° with 8m bench width every 36 metres</li> <li>Pit optimisation was undertaken using an assumed sale price of US\$140/t and between 80% and 100% revenue factor</li> <li>Open cut working sections were built using a minimum coal thickness of 0.3m and maximum parting thickness of 0.3m</li> <li>Mining losses of 5cm and out of seam dilution (at 2.20) were added to working section roof and floors</li> <li>ROM tonnes were estimated using individual RD values for each seam (true relative density values on an air-dried basis)</li> <li>A 95% mining recovery was applied at Isolation South</li> <li>The production target includes 14% Inferred resources, and Inferred resources do not make up a material proportion of the early mine life</li> <li>Inferred resources do not feature as a significant proportion of the proposed mine plan and this confirms that the financial viability of the Elan Project is not dependent on the inclusion of Inferred resources in the production schedule</li> </ul>
<b>Metallurgical factors or assumptions</b>	<ul style="list-style-type: none"> <li><i>The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.</i></li> <li><i>Whether the metallurgical process is well-tested technology or novel in nature.</i></li> <li><i>The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.</i></li> <li><i>Any assumptions or allowances made for deleterious elements.</i></li> <li><i>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.</i></li> <li><i>For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?</i></li> </ul>	<ul style="list-style-type: none"> <li>The processing design work was undertaken by Sedgman Canada, who have significant regional experience</li> <li>The CHPP design basis incorporates dense media cyclones (DMC), reflux classifiers and a flotation circuit, with product drying completed with a hyperbaric filter process.</li> <li>This processing design and flowsheet is common in the coal industry, both in Canada and abroad</li> <li>Float sink testwork from 2020 is only partially complete and will be required in order to undertake washability simulation work and predict CHPP yields on a seam by seam basis for each mining area</li> <li>The preference for large diameter coring is favourable for sizing and washability analysis and subsequent processing design work</li> <li>The processing yield of 60% is consistent (if not conservative) with other operations mining the Mist Mountain Formation in the region</li> <li>Pilot scale carbonization testwork has been completed on large diameter seam blends in order to predict the CSR range for the indicative product specification (see ASX announcement <i>Isolation South Tier 1 HCC</i> dated 7 October 2020 for further details)</li> </ul>
<b>Environmental</b>	<ul style="list-style-type: none"> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>Atrum Coal has commenced a robust and accelerated environmental baseline program to characterize the environmental setting and identify potential sensitive aquatic and terrestrial receptors within the Project area</li> <li>The study area for the baseline program include all land areas within the proposed mine footprint that are expected to be disturbed as a result of mine development and operations</li> <li>A comprehensive Impact Assessment (IA) will be prepared to satisfy all components of the Federal Impact Assessment Act (IAA) and</li> </ul>

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		Provincial Environmental Protection and Enhancement Act (EPEA). The IA will leverage key learnings identified during the Grassy Mountain Project approval process and incorporate all requisite elements of the 'new' IAA.
<b>Infrastructure</b>	<ul style="list-style-type: none"> <li>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>The Project is located approximately 13 km north of the rail mainline that provides access to coal terminals on West Coast of BC, a railing distance of 1,100 km</li> <li>The project requires development of coal haul roads, a coal handling and processing plant, 36km of covered conveyors and a rail loop to access this infrastructure</li> <li>Land in the project area is designated as Crown Land, managed by the Alberta Government</li> <li>Atrium has engaged consultants WaterSmart to review water licensing and allocation for mining purposes</li> <li>Labour and accommodation can be accessed from nearby towns including Blairmore, Coleman, Bellevue and Sparwood</li> </ul>
<b>Costs</b>	<ul style="list-style-type: none"> <li><i>The derivation of, or assumptions made, regarding projected capital costs in the study.</i></li> <li><i>The methodology used to estimate operating costs.</i></li> <li><i>Allowances made for the content of deleterious elements.</i></li> <li><i>The source of exchange rates used in the study.</i></li> <li><i>Derivation of transportation charges.</i></li> <li><i>The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.</i></li> <li><i>The allowances made for royalties payable, both Government and private.</i></li> </ul>	<ul style="list-style-type: none"> <li>A first principles buildup of capital costs was undertaken</li> <li>The cost estimates are at varying levels of accuracy with higher levels of accuracy for the majority of fixed infrastructure based on budget quotes while factored estimates and costs sourced from Palaris' database make up the remainder</li> <li>Operating costs were estimated using a combination of first principles build ups, factored estimates and internal databases.</li> <li>Rail and port loading operating costs are largely based on actual or expected costs reported by nearby operating and proposed coal mining operations</li> <li>The Elan Project is located in Alberta and is subject to the Alberta Coal Royalty Guidelines (1993) under the Bituminous Coal category. The coal royalty is calculated in two phases, (1) Prior to project payback, and (2) Subsequent to project payback. Project payback is determined using a formula where cumulative net revenue exceeds the sum of total CAPEX, cumulative OPEX and allowances for capital returns</li> </ul>
<b>Revenue factors</b>	<ul style="list-style-type: none"> <li><i>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.</i></li> <li><i>The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.</i></li> </ul>	<ul style="list-style-type: none"> <li>A coal price forecast for premium low volatile hard coking coal is based on the long-term real forecast provided by Consensus Economics (February 2020) which has a long term price forecast of US\$141</li> <li>A 2% discount has been applied to the QLD premium LV index to account for the potentially lower pricing of the product relative to the low-volatile benchmark, although there are no attributes in the product that are likely to attract penalties</li> <li>It is noted that the expected CSR of the Elan product is expected to be close to Queensland LV HCC (Platts premium LV index)</li> <li>The long-term foreign exchange rate forecasts have been adopted from Consensus</li> </ul>

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		Economics and these rates drive all cost and revenue assumptions denominated in foreign currency
<b>Market assessment</b>	<ul style="list-style-type: none"> <li>The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.</li> <li>A customer and competitor analysis along with the identification of likely market windows for the product.</li> <li>Price and volume forecasts and the basis for these forecasts.</li> <li>For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.</li> </ul>	<ul style="list-style-type: none"> <li>There is continued demand for low and mid volatile hard coking coals with recent high demand for Canadian coking coals (in light of Chinese import restrictions)</li> <li>Atrum's proposed coking coal production will be capable of penetrating the export coal market through the projected global increases in demand, capturing market share from existing suppliers and replacing mines approaching the end of their lives</li> <li>The main target markets are Japan and South Korea, India, China and Europe</li> <li>The price forecast for premium low volatile hard coking coal is based on the long-term real forecast provided by Consensus Economics (February 2020) which has a long term price forecast of US\$141/t</li> </ul>
<b>Economic</b>	<ul style="list-style-type: none"> <li>The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.</li> <li>NPV ranges and sensitivity to variations in the significant assumptions and inputs.</li> </ul>	<ul style="list-style-type: none"> <li>The discount rate used for DCF modelling is 9% (real) which reflects the Scoping Study stage of the project and risk level</li> <li>DCF modelling was converted to US\$ using the Consensus Economics long term forecast rates of 0.79 C\$/US\$ and 0.74 A\$/US\$</li> <li>Cash flow periods expressed annually in calendar years</li> <li>Mobile equipment is assumed to be leased over a 5-year period using a 7% p.a. leasing charge, and lease principal repaid in equal annual instalments.</li> <li>Depreciation of project capital has been applied using the double declining balance method with full asset write-off at conclusion of useful life. Nominal depreciation schedule has been adjusted down to real depreciation assuming a constant inflation rate of 2%</li> <li>The intended estimation accuracy of the study is +/-35 to 40 %.</li> <li>Sensitivity analyses have been provided to demonstrate effect on NPV with regard to coal price, FX rate, processing yield, discount rate, operating costs, transport and port costs, development and sustaining capital</li> </ul>
<b>Social</b>	<ul style="list-style-type: none"> <li>The status of agreements with key stakeholders and matters leading to social licence to operate.</li> </ul>	<ul style="list-style-type: none"> <li>Atrum Coal has identified the key stakeholders and has commenced early engagement with First Nations, government, communities and other directly impacted stakeholders</li> <li>The company has commenced early engagement of government regulators to ensure alignment on objectives, scopes and terms of references</li> <li>Proactively engaging federal and provincial regulators early, Atrum has found the Government of Alberta to be supportive of its exploration efforts</li> </ul>
<b>Other (incl Legal and Governmental)</b>	<ul style="list-style-type: none"> <li>To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:</li> <li>Any identified material naturally</li> </ul>	<ul style="list-style-type: none"> <li>The Coal Development Policy for Alberta (1976), which aimed to designate land zones for coal exploration and development, was repealed effective 1 June 2020</li> <li>The repeal of this policy means that the prior</li> </ul>

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	<p>occurring risks.</p> <ul style="list-style-type: none"> <li>The status of material legal agreements and marketing arrangements.</li> <li>The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.</li> </ul>	<p>categorisation of lands no longer presents a material risk to the project</p> <ul style="list-style-type: none"> <li>However, any coal mine development would need to go through the process of preparing an Environmental Impact Assessment (EIA) and submission of an application to the Alberta Energy Regulator (AER) under the Environmental Protection and Enhancement Act (EPEA) and Canadian Environmental Assessment Act 2012 (CEAA).</li> </ul>
<b>Classification</b>	<ul style="list-style-type: none"> <li>The basis for the classification of the Ore Reserves into varying confidence categories.</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> <li>The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).</li> </ul>	<ul style="list-style-type: none"> <li>No Ore Reserve has been declared.</li> <li>The factors used in the rationalisation and determination of final resource classification polygons included: type of point of observation, reliability and spacing of the data points, consideration of 3D representivity and removal of isolated points of observation, quantity and location of coal quality data points, variability shown in continuity and grade (see ASX announcement <i>Isolation South Resource Update</i> dated 25 November 2020 for more details on resource classification)</li> </ul>
<b>Audits or reviews</b>	<ul style="list-style-type: none"> <li>The results of any audits or reviews of Ore Reserve estimates.</li> </ul>	<ul style="list-style-type: none"> <li>No Ore Reserve has been declared.</li> <li>An independent review of the Isolation South geological model and resource estimates was undertaken by Xenith Consulting in early 2020</li> <li>An independent review of the draft Scoping Study (April 2020) was also undertaken</li> </ul>
<b>Discussion of relative accuracy/confidence</b>	<ul style="list-style-type: none"> <li>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.</li> <li>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</li> <li>Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.</li> </ul>	<ul style="list-style-type: none"> <li>No Ore Reserve has been declared.</li> <li>The production target has been based on geological models and resources that are classified as Measured (3.4%), Indicated (82.4%) and Inferred (14.2%)</li> <li>In the view of the Competent Person, the improved resource classification (to 85.8% Measured + Indicated) reflects the increased level of confidence within the deposit after the 2020 exploration campaign that included 125 RAB (structure) holes, 35 large diameter cored holes, six HQ cored hydrogeological and geotechnical holes and five 2D seismic lines.</li> <li>No geostatistical assessments have been carried out.</li> <li>As a Scoping Study, the intended estimation accuracy of the study is +/-35 to 40 %.</li> <li>Key modifying factors that may impact on accuracy and confidence of the resource and study outcome include the complex geology in some areas, interim nature of the laboratory coal quality and washability testing results, and processing yield assumptions.</li> <li>The company is progressing to a PFS that is expected to be complete mid-2021.</li> </ul>

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	<ul style="list-style-type: none"><li><i>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.</i></li></ul>	