

Atrum: Tier 1 hard coking coal quality

Global HCC markets and the Elan Project, May 2019



Important information

Forward Looking Statements

This presentation includes various forward looking statements which are identified by the use of forward looking words such as “may”, “could”, “will”, “expect”, “believes”, “intend”, “plan”, “estimate”, “anticipate”, “continue”, and “guidance”, or other similar words and may include, without limitation statements regarding plans, strategies and objectives of management, anticipated production or construction commencement dates and expected costs or production outputs. Statements other than statements of historical fact may be forward looking statements. Atrum believe that it has reasonable grounds for making all statements relating to future matters attributed to it in this presentation.

Forward looking statements inherently involve known and unknown risks, uncertainties and other factors that may cause the Company's actual results, performance and achievements to differ materially from any future results, performance or achievements. Relevant factors may include, but are not limited to, changes in commodity prices, foreign exchange fluctuations and general economic conditions, increased costs and demand for production inputs, the speculative nature of exploration and project development, including the risks of obtaining necessary licences and permits and diminishing quantities or grades of resources or reserves, political and social risks, changes to the regulatory framework within which the Company operates or may in the future operate, environmental conditions including extreme weather conditions, recruitment and retention of personnel, industrial relations issues and litigation. Investors should note that any reference to past performance is not intended to be, nor should it be, relied upon as a guide to any future performance.

Forward looking statements are based on the Company and its management's good faith assumptions relating to the financial, market, regulatory and other relevant environments that will exist and affect the Company's business and operations in the future. The Company does not give any assurance that the assumptions on which forward looking statements are based will prove to be correct, or that the Company's business or operations will not be affected in any material manner by these or other factors not foreseen or foreseeable by the Company or management or beyond the Company's control.

Although the Company attempts to identify factors that would cause actual actions, events or results to differ materially from those disclosed in forward looking statements, there may be other factors that could cause actual results, performance, achievements or events not to be anticipated, estimated or intended, and many events are beyond the reasonable control of the Company. Accordingly, readers are cautioned not to place undue reliance on forward looking statements. Actual results, values, performance or achievements may differ materially from results, values, performance or achievements expressed or implied in any forward looking statement. None of Atrum, its officers or any of its advisors make any representation or warranty (express or implied) as to the accuracy or likelihood of fulfilment of any forward looking statement, or any results, values, performance or achievements expressed or implied in any forward looking statement except to the extent required by law.

Forward looking statements in this release are given as at the date of issue only. Subject to any continuing obligations under applicable law or any relevant stock exchange listing rules, in providing this information the Company does not undertake any obligation to publicly update or revise any of the forward looking statements or to advise of any change in events, conditions or circumstances on which any such statement is based.

Competent Person Statement

Exploration Results and Coal Resources

The information in this document that relates to Exploration Results and Coal Resources is based on, and fairly represents, information and supporting documentation prepared by Mr. Brad Willis, who is a Member of the Australasian Institute of Mining and Metallurgy (#205328) and is a full-time employee of Palaris Australia Pty Ltd (Palaris).

Mr. Willis has read and understands the requirements of the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012 Edition). Mr. Willis is a Competent Person as defined by the JORC Code, 2012 Edition, having twenty years' experience that is relevant to the style of mineralisation and type of deposit described in this document.

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 report, apart from standard contractual arrangements for independent consulting work. In preparing this information, Palaris has been paid a fee for time expended. 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. Mr. Willis has visited the Elan project area in September 2018 during the 2018 Elan South drilling program.

The Company confirms that it is not aware of any new information or data that materially affects the Previous Announcements and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the Prior Announcements continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the Prior Announcements

Mr. Willis consents to the inclusion in the report of the matters based on the information, in the form and context in which it appears.

Global coking coal market fundamentals

Coal for steel

Critical to global steel production

Direct demand linkage with no baseload substitute available

Highly concentrated seaborne supply; by producer and production region

▶ The basic coal split

For personal use only

**COKING
COAL**



**STEEL
PRODUCTION**

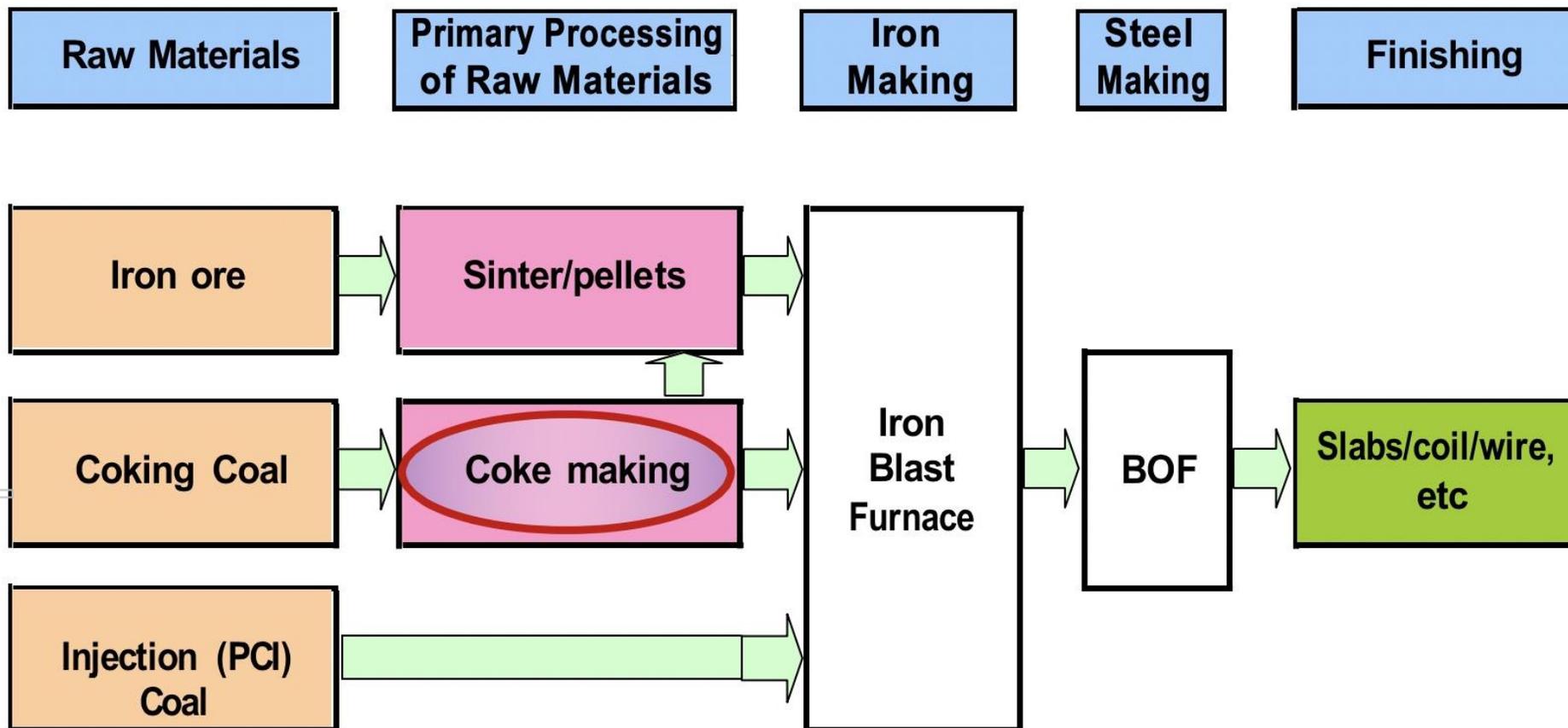
**THERMAL
COAL**



**POWER
GENERATION**

Coal for steel: blast furnace production route

Iron ore + coke + PCI coal + limestone + air = pig iron



Approx. 0.8t coking coal produces approx. 0.6t coke to produce approx. 1.0t steel via the blast furnace (pig iron) route, which produces ~75% of global steel products



Coking coal quality directly impacts on blast furnace economics

- The coke quality and its impact on BF efficiency is directly impacted by the quality of the coking coals used to make it
- An increase in coke strength and/or reduction in coke impurities:
 - Increases BF productivity (iron output per day)
 - Decreases total coke requirements
 - Allows higher PCI usage (increased coke replacement)
- Due to its premium coking properties, **hard coking coal is not substitutable in any baseload sense**
- HCC is the majority foundation of any coke blend and, therefore, every blast furnace operation

Hard coking coal

Semi-hard coking coal

Semi-soft coking coal

For personal use only

Highly concentrated global export market flows

Fig 137 Internationally traded metallurgical coal supply and demand outlook

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Import Demand												
China												
Total Consumption	709	766	771	737	733	724	728	728	720	703	690	677
Total Imports ⁽¹⁾	49	72	59	45	53	63	50	52	50	52	52	52
Change in inventories	0	0	0	0	0	0	0	0	0	0	0	0
Apparent Domestic Production	661	694	712	692	680	661	678	676	670	651	638	625
JKT (Japan, SK and Taiwan)	91	98	97	99	101	95	94	103	101	101	101	100
India	38	40	46	48	48	51	55	57	60	63	65	68
Europe	67	66	68	65	65	67	68	67	66	65	68	67
Others	25	26	32	36	35	33	36	39	43	45	47	48
Total imports	271	301	301	293	303	310	302	318	320	326	333	336
Export Supply												
Australia	145	169	186	186	189	173	177	185	193	192	193	200
United States	56	49	37	34	43	49	51	45	38	45	50	45
Canada	30	33	29	25	25	27	30	31	31	31	31	31
Russia	18	22	21	18	22	23	23	23	25	25	25	25
Mozambique	3	4	5	5	5	7	8	11	11	11	11	14
Others	20	17	14	12	21	22	13	22	22	22	22	22
Total exports	271	294	291	281	305	302	302	318	320	326	333	336
Market balance (Change in US supply)	3	7	12	3	-9	-6	-2	6	7	-7	-5	6
HCC price	191	148	115	88	143	190	206	185	150	150	163	145

Source: Custom Statistics, CRU, IHS, Macquarie Commodity Strategy, December 2018

By producer (2018, controlled basis, Mtpa):

BHP 78 Mt

Teck 26 Mt

 **AngloAmerican** 22 Mt

GLENCORE 12 Mt

Source: Macquarie Commodity Strategy, December 2018

Current and emerging supply challenges

- Perennial wet season interruption and supply concentration risk from Queensland
- Rail and port infrastructure constraints
- Sovereign risk (eg Mozambique, Mongolia)
- Chinese domestic supply rationalisation and closures
- Sulphur content levels and BF restrictions
- Tighter, more onerous permitting requirements (globally)

For personal use only



Elan Hard Coking Coal Project (100%)

A premium flagship asset

Large, Tier 1 quality hard coking coal deposits

Located in a premier coal production and infrastructure hub; 13km from export rail

Open-pit focus with multi-mine development scale potential

Key regional context

Atrum's Elan HCC Project (100%) in southern Alberta, Canada, is located approx. 30km from Teck's Elk Valley HCC complex

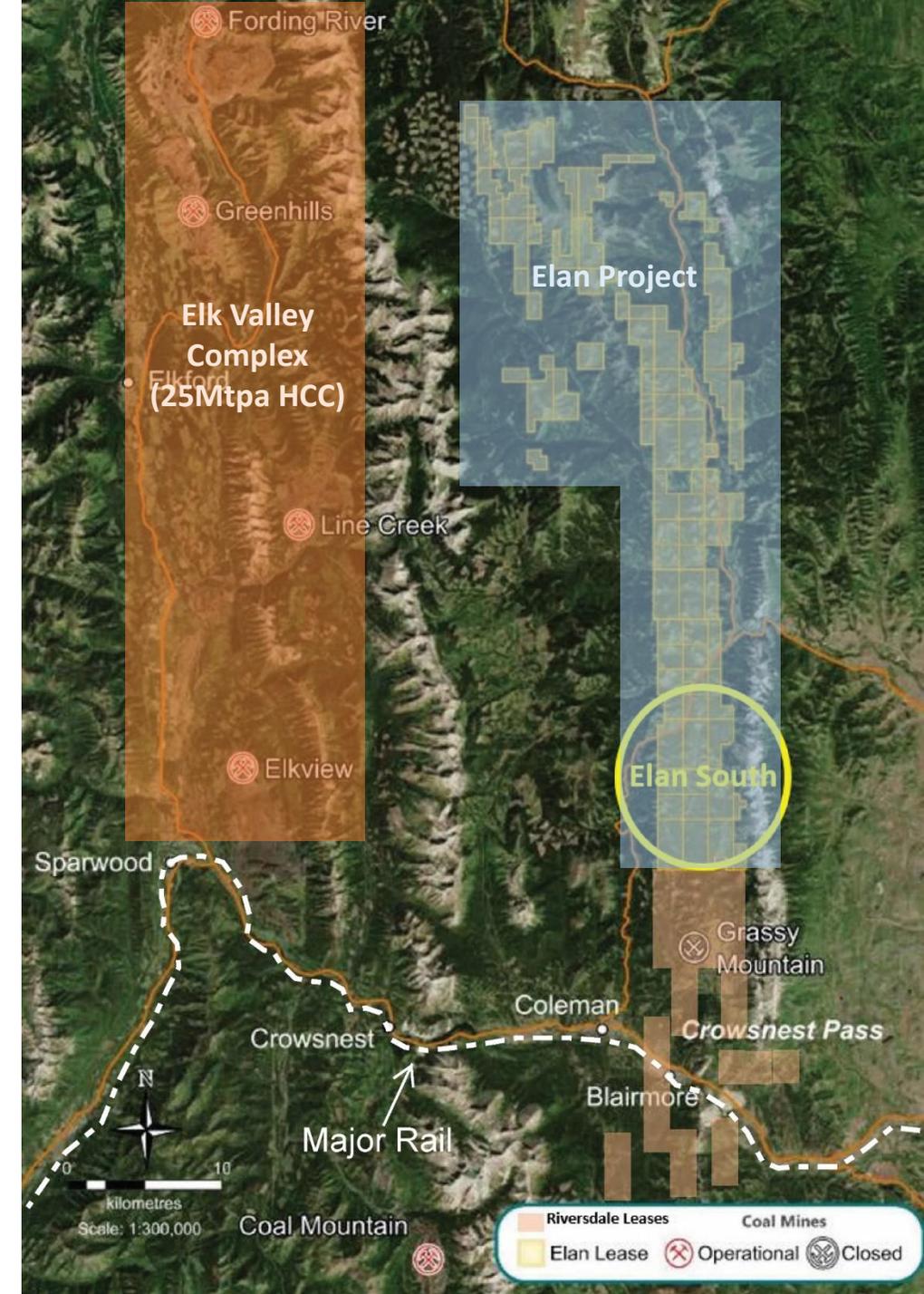
The Elk Valley mine complex is a +25Mtpa producer of premium Canadian HCC for global export markets

Elan deposition is in the same coal basin and directly correlated with the Elk Valley coal seams and settings

Elk Valley's 35 seam splits converge under the separating mountain range into effectively three seams in the Elan tenements

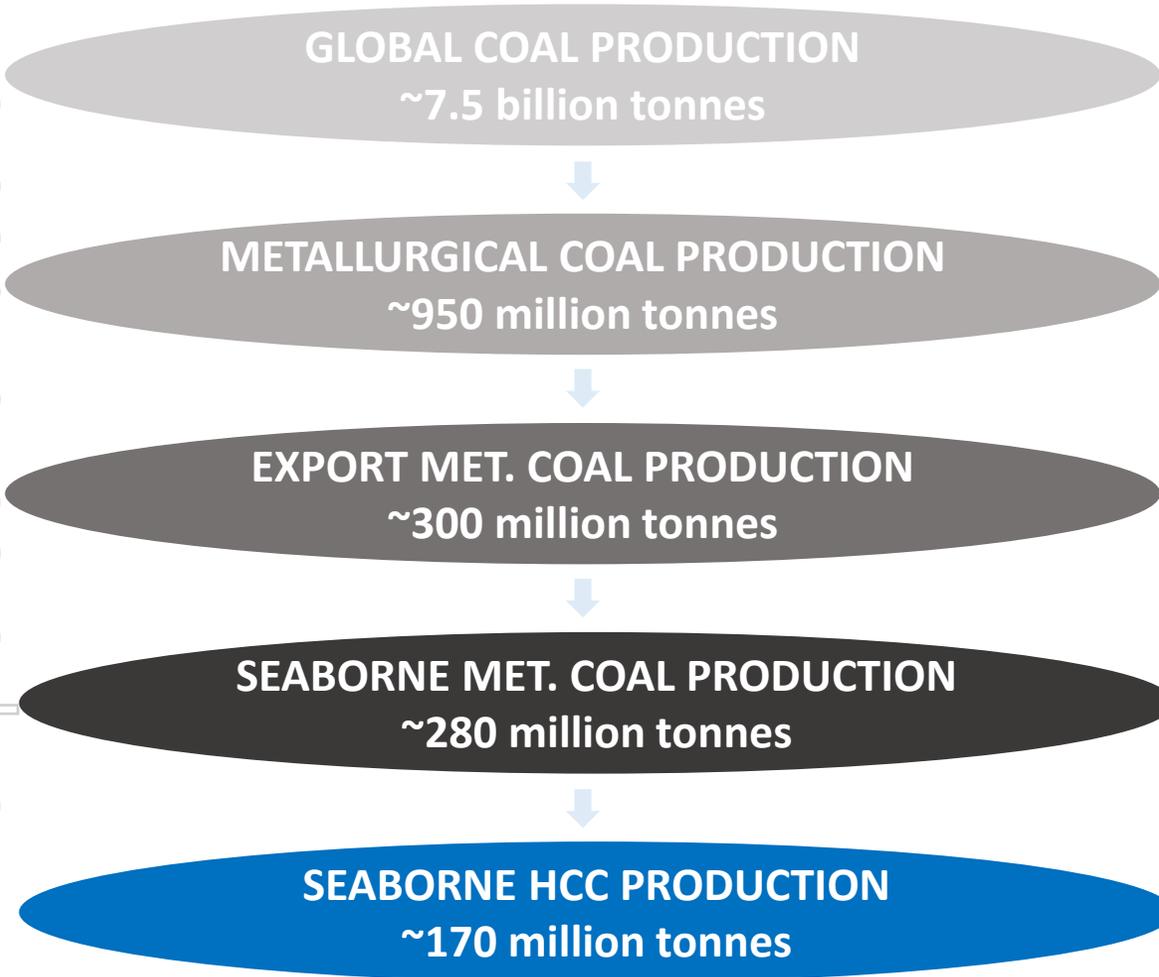
Recent detailed coal quality testwork has evidenced strong comparability with premium Teck products (Elan South CSR of 71)

Premium mid-vol Canadian HCC is a global Tier 1 product that is highly valued by steelmakers, particularly in high-growth Asia & India



Elk Valley is approx. 15% of the seaborne HCC market

For personal use only



The Elk Valley complex is the Bowen Basin (Queensland) equivalent in Canada.

With annual hard coking coal production of approx. 25Mtpa, Teck's Elk Valley complex represents approx. 15% of the global seaborne HCC market



Excellent Elan South clean coal quality results

For personal use only

- Historical data indicates that other areas of the Elan project has potential to be even higher quality than the data shown from 2018 testing, as coal rank increases northward into low volatile hard coking coal
- Full product specification for Elan South HCC will be established after the 2019 field program and associated coal quality testing
- Current average data¹ shows:
 - **General:** Ash 7% (ad) - likely spec 8.5% +/- 1%; V.M. 26% (ad); Sulphur 0.65% (ad); Phosphorus 0.050% (ad)
 - **Coking:** CSR 71; FSI (CSN) 7.5; Fluidity 160 ddpm; RoMax 1.13%; Reactives 68%; JIS DI30 94
- Moveable Wall Oven Tests confirm that the Elan South coal will exert very low wall pressure and the resultant coke shrinks away from the oven wall (thus not creating any problems with coke oven walls or pushing the coke out of the oven)

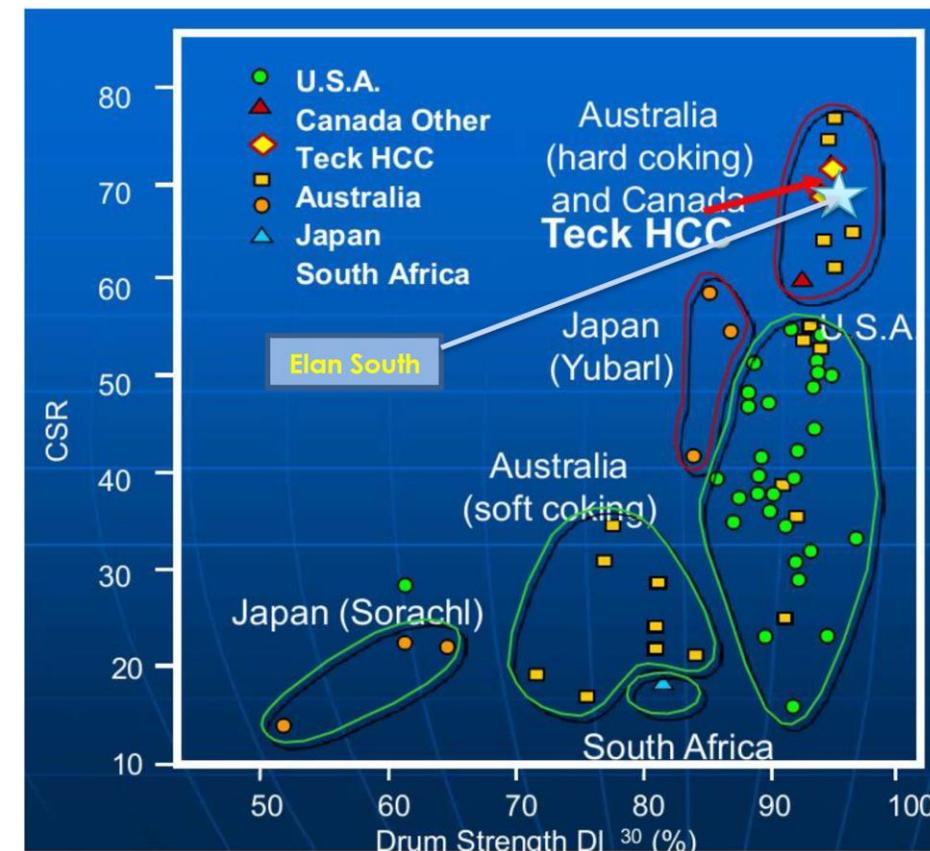
Tier 1 hard coking coal quality

For personal use only

	Elan South ¹ (Atrum)	Grassy Mount. (Riversdale)	Platts Aust. HCC 64	Elk Valley (Teck Premium) ⁴	IHS Aust. Prime HCC
CSR	71²	65	64	(EST 65 – 70)	71
Coal Rank RoMax (%)	1.13	1.2	-	1.07 – 1.17	1.15 – 1.55
Yield (%)	> 65	55	-	-	-
Volatile Matter (%)	26	23.5	25 – 26	24.5 – 26.5	26 max
Total Moisture (%)	< 10	10	9 – 10	< 10	10 max
Sulfur (%)	0.65	0.5	0.5 – 0.7	0.65 – 0.70	0.7 max
Phosphorus (%)	0.05³	0.04	0.05	0.075	0.05
Fluidity (ddpm)	160	150	1,500 – 1,700	200 – 500	100 min

Elan South is a high quality mid-volatile hard coking coal, classified in the top tier of globally traded coking coals

1. Elan South data based on test work programs conducted in 2014 & 2018
2. Results from 2018 carbonisation test work (see recent Atrum ASX release)
3. South area (2018 samples) shows 0.060 – 0.085% while North area (2014 samples) shows 0.010 – 0.020%
4. Properties other than CSR are from NI 43-101 Technical Report on Coal Resources and Reserves of the Fording River Operations (2011)



Seaborne coking coal product parameters

Source: Teck Resources, January 2019

A potential multi-mine development

Large landholding (approx. 230km²) proximate to Teck's Elk Valley

Over 40km of delineated coal strike extent

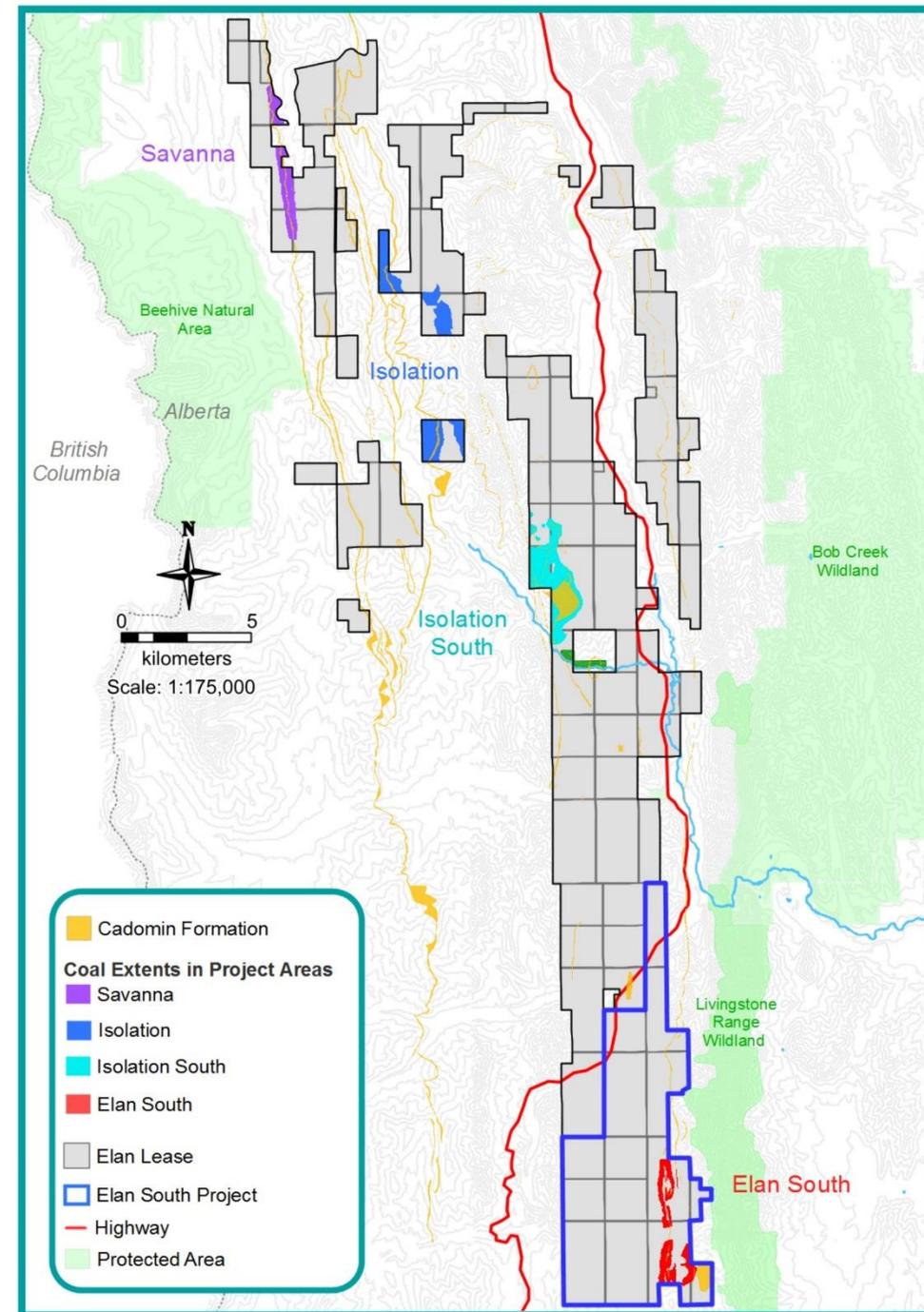
Indicated / Inferred Resources totalling 97Mt at Elan South and 201Mt at Elan North1 – with targeted substantial further growth

Clear potential for multiple, large Tier 1 HCC developments

Large undrilled or underdrilled areas

Combined Exploration Target Range for Elan of 210Mt to 900Mt¹

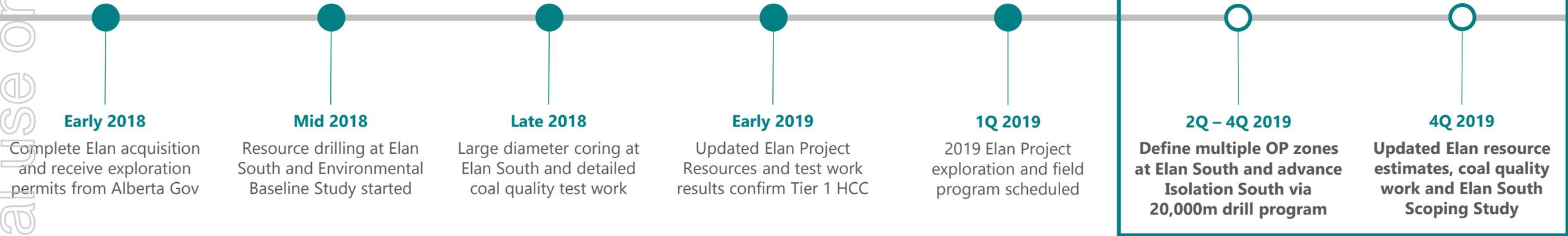
The Exploration Target potential quantities and grades are conceptual in nature and there has been insufficient exploration to date to define a mineral resource. It is not certain that further exploration will result in the determination of a Mineral Resource under the "Australian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves, the JORC Code" (JORC 2012). The Exploration Target is not being reported as part of any Mineral Resource or Ore Reserve. Elan South ETR is 70 – 320Mt and Elan North ETR is 140 – 580Mt.





Accelerated 2019 field program

For personal use only



Dual area strategy to rapidly advance multiple, large Tier 1 HCC developments across the Elan Project

Elan South

- Increase scale of current 97Mt resource base
- Upgrade JORC classification
- Extensive coal quality testing for HCC product development
- Full-scope environmental analysis for EIA preparation
- Scoping Study completion in 4Q 2019

Isolation South

- Increase scale of current 120Mt resource base
- Upgrade JORC classification
- Detailed coal quality testwork
- Preliminary development analysis



Elan is a rare opportunity

- + Shallow seams
- + Large-scale deposition with multi-mine development scale potential
- + Tier 1 quality HCC
- + First-class mining jurisdiction (and a new conservative government in Alberta)
- + Proximate to critical export rail infrastructure with surplus capacity

= A globally scarce asset (holding substantial value)

For personal use only

For personal use only



Appendix: Further Details



Preliminary/partial individual clean coal results for Elan South¹

For personal use only

Hole ID	Composite ID	Lab Yield %	Moist (IM) %	Ash %	Vol %	F.C. %	TS%	FSI
ESLD18-01A	COMP-01	82.1	0.5	7.6	23.4	68.6	0.65	5.0
ESLD18-01A	COMP-02	93.4	0.6	5.9	23.8	69.8	0.63	5.5
ESLD18-01A	COMP-03	92.7	0.5	5.4	24.9	69.1	0.70	7.0
ESLD18-01B	COMP-04	54.2	0.6	9.4	24.5	65.5	0.70	5.5
ESLD18-01B	COMP-05	96.4	0.6	5.0	26.3	68.2	0.73	7.5
ESLD18-01B	COMP-06	85.4	0.6	6.2	25.1	68.1	0.71	7.0
ESLD18-02A	COMP-08	80.3	0.6	6.4	25.9	67.1	0.68	8.5
ESLD18-02A	COMP-09	88.0	0.7	5.1	26.6	67.6	0.65	8.0

Notes: Clean coal was washed at CF1.45

1. For full details on coal quality results, see Atrum ASX releases dated 5 April 2019, *Coke Strength Tests Confirm Tier 1 Hard Coking Coal at Elan*, 25 February 2019, *Additional Clean Coal Quality Results at Elan South*, and 4 February 2019, *Coal Quality Results Confirm Premium Hard Coking Coal*.



Large diameter coring completed at Elan South in 2018

For personal use only

