

EPA recommends Cyclone project

2 week review, 2 more to final Ministerial approval

Recommendation

BUY, High Risk

Price

1.2c

Valuation

6.0c

Products :

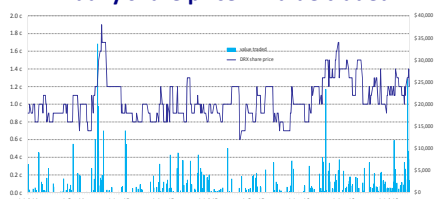
Mineral Sands

- On 9 August 2016, DRX announced that EPA had recommended approval of the Cyclone project.
- There is a 2 week public review period and then 2 weeks for Ministerial approval. After this, there are some procedural issues, but progress is now in DRX's control.
- DRX has begun a final Definitive Feasibility Study to ensure that off-take investors and other project financiers have highest quality information.
- Beer & Co's risked, base case valuation assumes zircon at \$1,250/t and rutile at \$1,000/t, and AUD-USD 0.750.

Snapshot

Market Cap	\$9.7m
Cash on hand (March. 2016)	\$0.15m
Includes \$1.67m drawn on Convertible Note	
Shares on Issue	809.96m
52 Week High	1.8c
52 Week Low	0.6c
1 month / 6 month VWAP	1.15 c / 1.27c

DRX : daily share price v. value traded



In March 2012, DRX announced the results of its Pre-Feasibility Study on the Cyclone mineral sands deposit, with a pay-back period of 2.1 years.

DRX had announced, in August 2010, an MOU with the largest end user of zircon in China. Four key assurances are required; 3 have now been delivered, with the final, environmental clearance for an access road, now imminent.

A formal commitment to project construction can be expected in early 2017, with first product in 2018.

DRX also has an EL at Cape Bedford which has high grade silica sands and Heavy Mineral Sands, as well as 50% of the Tick Hill Gold project.

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Cyclone Environmental Approval recommended

On 29 June 2015, after a 2 year study period, the Public Environmental Review for the Cyclone project was released for a 5 week open period followed by a 4 month consultation period. Submissions were received from 8 parties.

At the end of the period, the EPA asked for more information which was provided at the end of January, 2016.

After a period of more than 6 months, the EPA has finally recommended approval. There is now a 2 week public comment period, and then there is a further 2 weeks for Ministerial approval.

Project progress now in DRX's hands

DRX still requires further permits, but these are now procedural with the final permit requiring a Definitive Feasibility Study (DFS).

The enhancement study, announced on 15 June, recommended further metallurgical testwork to enhance recoveries from the wet plant.

Capital and operating costs also need to be updated to 2016 terms.

DRX is engaging with potential off-takers and other financiers that will incorporate DFS results into their decision.

Beer & Co's valuation 6.0c/share

Beer & Co risked valuation includes assumptions on

- Capital and operating costs updated to 2016 prices;
- Project financing, with sales of further stakes in the Cyclone project; and
- Commodity prices, with zircon at US\$ 1,250/t and Rutile US\$ 1,000/t.

Beer & Co expects the Cyclone project to produce 737kt of saleable zircon over 14 years at an all in cost of US\$ 887/t, net of by-product credits.

With higher grades in early years, our estimated pay-back is 30 months.

Beer & Co conclusions

Beer & Co expects the major driver of the DRX share price will be the conclusion of an investment agreement. However, there is a high risk around our valuation. Beer & Co affirms our BUY, High Risk recommendation.

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DRX's Cyclone project progressing

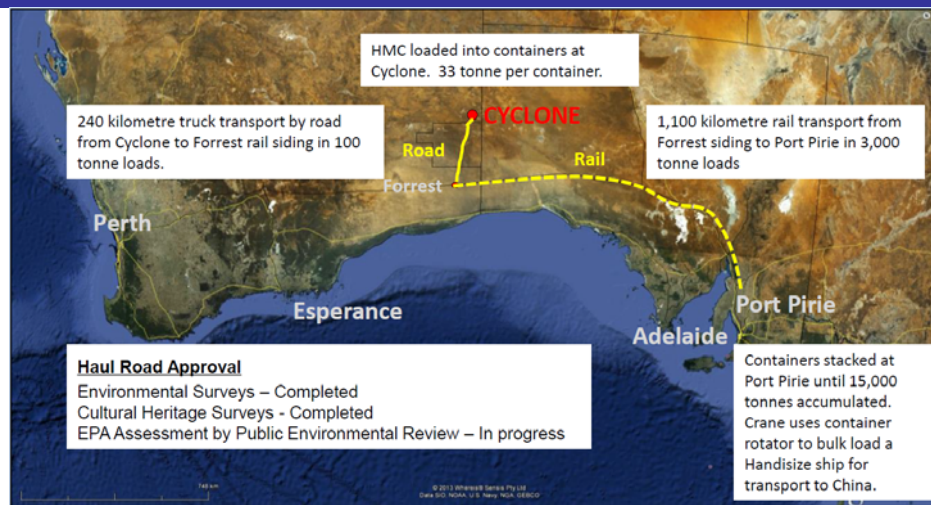
DRX's key project - Cyclone

Beer & Co's 6 July update of DRX (see [DRX 2016July06.pdf](#)) showed that while DRX has 3 projects that are identifiably valuable, the value of DRX is dominated by Cyclone, a zircon rich mineral sands deposit on the WA side of the WA-SA border, on the northern margin of the Eucla Basin within the Great Victoria Desert.

The project lies within the traditional lands of the Pila Ngaru Spinifex People, in Anangu Pitjantjatjara Yankunytjatjara (APY) land. Figure 1 shows the location of the Cyclone project.

DRX's key project, the Cyclone zircon project, is on the WA side of the WA-SA border.

Figure 1 : Diatreme's Cyclone project



Source : DRX Presentation, March 2016

Four Key Assurances

In August 2010, DRX announced an MOU with a major potential off-taker to develop the Cyclone project. To finalise the agreement, four key assurances were required

There are four key conditions for investment in the Cyclone project by off-takers

DRX has met most of them

Delivery is (nearly) now in DRX's control

- Executed agreements with the Traditional Owners
 - On 17 November, 2014, DRX announced that had signed an agreement with the Traditional Owners of the land for the development of the Cyclone project;
 - Following this, the Mining Lease was awarded;
- Adequate, assured water supply
 - On 11 November 2013, DRX announced the drilling of a water bore which , after a period of testing, confirmed sufficient volume and quality of water for the Cyclone project;
- Feasibility Study, with a sufficient mine life
 - On 24 March 2015, DRC announced the acquisition of the Cyclone Extended deposit, which increased the project life from 10 years to 14 years;
 - On 14 March 2016, DRX announced the result of a Feasibility Study on a 14 year project at Cyclone; and
- All necessary permits granted
 - On 9 August, 2016, DRX announced that the EPA had recommended approval;
 - Grant of Environmental Approval is the final key approval, with the Works Approval following after lodging the Feasibility Study and final EA.

Environmental Approval

Long time coming

The Public Environmental Review, which has a 5 week time frame, began in June 2015

In March 2013, The Environmental Protection Authority (EPA) for WA advised DRX of the environmental review process.

After a 2 year period of data collection, DRX released the Public Environment Review (PER) on 29 June 2015.

The review was open for 5 weeks, followed by a 4 month consultation period.

This was followed by a 4 month consultation period.

Comments were received from 8 parties and DRX responded in October 2015 to the concerns raised.

On 23 November, 2015, EPA asked for more information and following a meeting on 17 December between DRX and the EPA and on 29 January, 2016, DRX provided all the required information.

The final information was provided in January

It then took the EPA until 9 August to finally recommend approval.

Impact

It took a further 7 months to be recommended for approval

There is still a 2 week public review period and then there is a further 2 weeks for Ministerial approval.

The Works Approval is still required, but this is issued by the department and requires the environmental approval and the final feasibility study.

The project timing is now in the control of DRX.

Definitive Feasibility Study

DRX is now undertaking a Definitive Feasibility Study

DRX has commenced its DFS.

On 15 June 2016, DRX announced the results of an Enhanced Pre-feasibility Study. This updated the results of the Pre-Feasibility Study, the results of which were announced on 20 March 2012, for a bigger project, with a revised reserve and mining plan based on the incorporation of Cyclone Extended.

The incorporation of Cyclone Extended increased :

- Measured + Indicated Resources from 137Mt to 211Mt; and
- Reserves from 97Mt to 140Mt.

A key part is further metallurgical testwork to improve recoveries in the (first stage) wet plant process

The DFS will update the study for

- Metallurgical testwork, expecting to improve recovery from the wet plant;
- Update capital and operating costs.

The revised wet plant is expected to have a lower capital cost than that assumed in the PFS.

The revised study will be the basis for project financing.

Valuation

Capital and Operating Costs

Beer & Co's valuation anticipates updated capital and operating costs

Capital costs are expected to be lower due to

- More competitive environment for capital equipment, with many fewer projects in train; and
- Improvement in quality of Chinese equipment, which is significantly lower cost than more traditional suppliers; and
- Lower cost wet plant.

Operating costs are also expected to be lower, due to :

- Lower oil prices; and
- More competitive environment for contractors.

Beer & Co's analysis is based on current cost estimates.

Financing

Beer & Co expects DRX to find a further project investor, similar to January 2014, to fund the DFS cost

DRX currently has a 94% stake in the Cyclone project, having sold a 6% project stake in the project, for \$2m, in January 2014. This implies a value for 100% of the Cyclone project or \$33m.

DRX requires about \$3m - \$5m to complete the DFS.

Beer & Co expects the DFS to facilitate investment by an off-take party

Beer & Co expects that DRX will be able to sell a similar stake in the project to secure the funding required. This follows from the contacts that the Board of DRX has within China.

Beer & Co expects that DRX will finalise off-take / investment following completion of the DFS. This competes the announcement first made on 10 August 2010. Whether this final agreement is with BaoTi, or another Chinese party, is totally open.

Beer & Co expects the off-take investment to assist in securing debt finance

Beer & Co expects that, with completion of the DFS, and off-take agreements, then the project will be able to secure a higher level of project finance.

Commodity Prices

Beer & Co assumes commodity prices of :

- \$1,250/t for zircon
- \$1,000/t for rutile
- AUD-USD 0.750

Beer & Co's analysis assumes :

- Zircon prices of US\$ 1,250/t
 - current prices are around \$1,100/t
- Rutile prices of US\$ 1,000/t;
 - Current price is around \$900/t;
 - The Cyclone project will NOT produce any rutile, but the Cyclone project will produce 2 titaniferous products, an 87% TiO₂ and a 67% TiO₂;
 - Beer & Co projects that the HiTi 87 will sell for 90% of the contained TiO₂ level (ie. 90% of 87/95 x \$1,000), or \$824/t;
 - Beer & Co projects that the HiTi67 will sell for 65% - 70% of the contained TiO₂ level (ie. 67% of 67/95 x \$1,000), or \$353/t; and
- AUD-USD rate of 0.750.

Commodity prices have been strengthening

Commodity prices have been strengthening and Beer & Co's projections could turn out to be a little conservative.

Beer & Co calculates a pay-back period, after taxes, of less than 30 months from first product.

Conclusions

Beer & Co's research note of 6 July (see [DRX_2016July06.pdf](#)) details the operational and financial outcomes from Beer & Co's modelling.

Beer & Co expects the Cyclone project to produce 737kt of saleable zircon over its 14 year project life.

Beer & Co calculates an All-In cost, including royalties and sustaining capital, for zircon of \$887/t, but due to higher grades in early years, Beer & Co calculates a pay-back period, after taxes, is about 30 months.

Figure 2 shows the detail of Beer & Co's risked, base case valuation.

Figure 2 : Beer & Co's valuation of DRX

	discount rate = 12.0 %	31-Dec-15		13-Aug-16	
		risk :	100%	Product	per share
Cyclone	70 %	\$ 60m	\$ 42m	4.0 c	4.3 c
franking credits	40 %	\$ 13m	\$ 5m	0.5 c	0.5 c
Cape Bedford	nom	\$ 5m	\$ 5m	0.5 c	0.5 c
Tick Hill	nom	\$ 4m	\$ 4m	0.4 c	0.4 c
Corporate	100 %	(\$24m)	(\$24m)	(2.3c)	(2.4c)
Exploration	80 %	\$ 0m	\$ 0m	0.0 c	0.0 c
Asset Sales	70 %	\$ 30m	\$ 21m	2.0 c	0.8 c
Cash to be raised	100 %	\$ 2m	\$ 2m	0.2 c	0.1 c
Cash	100 %	(\$3m)	(\$3m)	(0.2c)	1.8 c
TOTAL		\$ 90m	\$ 55m	5.3 c	6.0 c
Shares on issue		809.7m	FPO shares	56.6m	options
		231m	Issued later	0.0m	ex'd

Source : Beer & Co estimates

Beer & Co confirms our base case, risked, valuation of 6.0c/share.

Completion of the DFS will further de-risk the project and raise Beer & Co's valuation.

Figure 2 shows that Beer & Co projects that DRX will not need to raise any more equity, with the 231m shares shown "to be issued" having been issued during 2016 already, including the recently concluded SPP.

Asset sales have 2 components :

- \$5m for an 8% project stake later this year, which values the project at \$63m, or nearly 2x the value of the sale of 6% stake in early 2014; and
- \$33m for a 35% project stake after the DFS has been completed.

Conclusion

Progress of the Cyclone project is now (nearly) within the control of DRX.

Beer & Co is confident that DRX will be able to secure finance to develop the project through its connections with consumers of the product.

While Cyclone is the focus, DRX has other projects and Beer & Co is excited by the potential, especially of the Cape Bedford project.

Beer & Co affirms a BUY, High Risk, recommendation on DRX

Beer & Co affirms our BUY, High Risk, recommendation.

Beer & Co Research

Diatreme Minerals (DRX.ASX)

August 2016

Year ended December	2015	2016	2017	2018	2019	2020	
Section 1 - P&L							
Sales revenue	\$A m	0	0	0	30	68	77
Interest revenue	\$A m	0	0	1	0	0	1
Other revenue	\$A m	0	0	0	0	0	0
Total Revenue	\$A m	0	0	1	30	69	78
Cost of Goods Sold	\$A m	0	0	0	(13)	(27)	(30)
Royalties	\$A m	0	0	0	(2)	(4)	(5)
Exploration Expense	\$A m	0	0	0	0	0	0
Corporate Costs	\$A m	(1)	(1)	(2)	(4)	(4)	(4)
Total Operating Expenses	\$A m	(1)	(1)	(2)	(19)	(35)	(39)
EBITDA	\$A m	(1)	(1)	(1)	12	33	39
Dep'n & Amort'n	\$A m	0	0	0	(3)	(6)	(6)
EBIT	\$A m	(1)	(1)	(1)	8	27	33
Interest Expense	\$A m	0	0	(0)	(3)	(3)	(2)
Other	\$A m						
Pre-Tax Profit	\$A m	(1)	(1)	(2)	5	24	30
Tax Expense	\$A m	0	0	0	(2)	(7)	(9)
NPAT	\$A m	(1)	(1)	(1)	4	17	21

Section 2 - Key Data

	2015	2016	2017	2018	2019	2020	
Ordinary shares - year end	m	810	1,040	1,040	1,040	1,040	1,040
Fully diluted shares on issue	m	810	1,040	1,040	1,040	1,040	1,040
Weighted # shares	m	799	884	1,040	1,040	1,040	1,040
Earnings per Share	(0.1c)	(0.1c)	(0.1c)	0.4 c	1.6 c	2.0 c	
Dividends Per Share	0.0 c	0.0 c	0.0 c	0.0 c	0.0 c	0.0 c	

Section 3 - Balance Sheet

	2015	2016	2017	2018	2019	2020	
Cash	\$A m	(1)	35	8	11	23	41
Receivables	\$A m	0	0	0	8	10	12
Other	\$A m	0	0	0	0	0	0
CURRENT ASSETS	\$A m	(1)	35	8	19	34	52
Receivables	\$A m	0	0	0	0	0	0
P, P & E	\$A m	0	0	49	63	58	53
Mining Properties / Exploration	\$A m	8	9	9	9	8	7
Other	\$A m	0	0	0	0	0	0
NON-CURRENT ASSETS	\$A m	9	10	58	72	66	60
TOTAL ASSETS	\$A m	8	45	66	91	100	113
Payables	\$A m	0	0	0	2	3	3
Debt	\$A m	0	0	0	8	8	9
Other	\$A m	0	0	0	0	0	0
CURRENT LIABILITIES	\$A m	0	0	0	8	8	9
Long Term Debt	\$A m	0	0	27	28	20	11
Deferred Tax Liability	\$A m	0	0	0	0	0	0
Other	\$A m	0	0	0	0	0	0
Provisions	\$A m	0	0	0	0	0	0
NON-CURRENT LIABILITIES	\$A m	0	0	27	28	20	11
TOTAL LIABILITIES	\$A m	0	0	27	36	28	20
NET ASSETS	\$A m	8	45	39	55	72	92
Accumulated Profit (Loss)	\$A m	(33)	(34)	(35)	(31)	(14)	7
Reserves	\$A m	(7)	28	24	33	33	32
Contributed Equity	\$A m	48	51	51	51	51	51
Total Equity	\$A m	8	44	39	53	69	89

Section 4 - Cashflow

	2015	2016	2017	2018	2019	2020	
Net Cashflow from operations	\$A m	(1)	(1)	(2)	11	33	38
Net Interest Paid	\$A m	0	0	(0)	(3)	(3)	(2)
Taxes Paid	\$A m	0	0	0	0	0	0
Change in Working Capital	\$A m	(0)	0	0	(6)	(2)	(1)
OPERATING CASHFLOW	\$A m	(1)	(1)	(2)	2	28	35
Exploration Expenditures	\$A m	(1)	(1)	0	0	0	0
Maintenance Capex	\$A m	0	0	0	(1)	(1)	(1)
Expansion Capex	\$A m	0	0	(49)	(16)	0	0
PPE Acquisitions (Total Capex)	\$A m	(1)	(1)	(49)	(17)	(1)	(1)
PPE Divestments	\$A m	0	33	0	0	0	0
INVESTING CASHFLOW	\$A m	(1)	32	(49)	(17)	(1)	(1)
Change in Equity	\$A m	1	2	0	0	0	0
Dividends Paid	\$A m	0	0	0	0	0	0
Change in Debt	\$A m	0	0	27	10	(8)	(8)
FINANCING CASHFLOW	\$A m	1	2	27	10	(8)	(8)
Free Cashflow	\$A m	(2)	31	(51)	(15)	27	34
Net Cashflow	\$A m	(1)	33	(24)	(5)	19	25

Major Shareholders

14-Aug-16

Andrew Tsang	111.5m	Non-Executive Director	13.8%
Zhenbin Jiang	82.0m		10.1%
Yufeng Zhang	59.6m	Non-Executive Director	7.4%
Chenxia Zhou	50.0m		6.2%
Longqiang Zhuang	41.7m		5.1%

Year ended December	2017	2018	2019	2020	2021	2022
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Commodity price assumptions

AUD/USD	0.750	0.750	0.750	0.750	0.750	0.750
Zircon USD /t	1,113	1,225	1,250	1,250	1,250	1,250
Rutile USD /t	828	913	1,000	1,000	1,000	1,000
HITI 87 USD/t	682	752	824	824	824	824
HITI 67 USD/t	292	322	353	353	353	353

Mine Production, 100% basis

	'000t	2017	2018	2019	2020	2021	2022
Mine production	'000t	0	4,875	10,000	10,000	10,000	10,000
Zircon in HMC,	'000t	0	37	82	91	78	61
HITI 87 in HMC,	'000t	0	0	10	23	28	24
HITI 67 in HMC,	'000t	0	0	10	23	28	24
TOTAL HMC	'000t	0	0	59	134	153	131

Attributable production (DRX share)

Heavy Mineral Conc. '000t	0	0	30	68	78	67
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Resources

Cyclone	1.0% cut-off	H M	Zircon	70% - 95%	<70%	SITIOx
Measured	156 Mt	2.4 %	0.69 %	0.77 %	0.32 %	0.53 %
Indicated	55 Mt	1.8 %	0.36 %	0.61 %	0.37 %	0.31 %
TOTAL	211 Mt	2.2 %	0.60 %	0.73 %	0.33 %	0.47 %

Cyclone	1.5% cut-off	H M	Zircon	70% - 95%	<70%	SITIOx
Measured	102 Mt	3.1 %	0.87 %	0.96 %	0.40 %	0.67 %
Indicated	24 Mt	2.5 %	0.50 %	0.82 %	0.55 %	0.45 %
TOTAL	127 Mt	3.0 %	0.80 %	0.93 %	0.43 %	0.63 %

Assumed mining inventory

	H M	Zircon	HITI 87	HITI 67	
TOTAL	138 Mt	2.54 %	0.72 %	0.25 %	0.91 %

Asset based Valuation

	discount rate = 12.0 %	31-Dec-15		14-Aug-16	
		risking	100% Product	per share	
Cyclone	70 %	\$ 60m	\$ 42m	4.0 c	4.3 c
franking credits	40 %	\$ 13m	\$ 5m	0.5 c	0.5 c
Cape Bedford	nom	\$ 5m	\$ 5m	0.5 c	0.5 c
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Exploration	80 %	\$ 0m	\$ 0m	0.0 c	0.0 c
Asset Sales	70 %	\$ 30m	\$ 21m	2.0 c	0.8 c
Cash to be raised	100 %	\$ 2m	\$ 2m	0.2 c	0.1 c
Cash	100 %	(\$3m)	(\$3m)	(0.2c)	1.8 c
TOTAL		\$ 90m	\$ 55m	5.1 c	6.0 c
Shares on issue		809.7m	FPO shares Issued later	56.6m	options ex'd
		230.7m		0.0m	

per US \$ /t of HMC

	LoM	2018	2019	2020	2021	2022
Estimated Revenue	960	973	976	963	962	952
Estimated Cash Costs						
Overburden	99	51	47	56	66	119
Ore Mining	63	56	50	43	51	63
Mine Planning	17	22	13	11	13	16
Wet Concentrator	82	66	65	57	66	82
Site Admin & Sales	33	39	25	22	26	32
Transport of HMC	101	101	101	101	101	101
MSP Fee	227	222	223	222	224	227
Royalties	43	45	45	44	44	44
TOTAL	665	601	568	558	590	684

Financial Ratios

Year ended December	2015	2016	2017	2018	2019	2020	
Revenue	\$A m	0	0	1	30	69	78
EBITDA	\$A m	(1)	(1)	(1)	12	33	39
EBIT	\$A m	(1)	(1)	(1)	8	27	33
Adjusted EPS (cps)	(0.1c)	(0.1c)	(0.1c)	0.4 c	1.6 c	2.0 c	
EPS Growth (%)	94 %	(37%)	(4%)	447 %	351 %	25 %	
DPS (c)	0.0 c	0.0 c	0.0 c	0.0 c	0.0 c	0.0 c	
Dividend Yield (%)	0 %	0 %	0 %	0 %	0 %	0 %	
PE adj. (x)	x	(17)	(12)	(12)	3	1	
EV / EBITDA	x	27	(24)	(27)	2	(0)	
EV / EBIT (x)	x	27	(24)	(27)	2	(0)	
Gearing (%)	0 %	0 %	40 %	40 %	28 %	18 %	
Return on Assets	(11%)	(3%)	(2%)	9 %	27 %	29 %	
Return on Equity	(8%)	(2%)	(3%)	7 %	24 %	23 %	
EBITDA Margin (%)	n/a	n/a	n/a	38 %	49 %	50 %	
Interest Cove	x	n/a	n/a	(9.6)	2.7	9.2	

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The author of this report has an indirect equity interest in Diatreme Resources.

Analyst Certification

The analyst responsible for this research report certifies that all of the views expressed reflect his personal views about the securities and the issuer.

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