

Annual Mineral Resources and Ore Reserves Statement - as at 31 December 2019

Newcrest Mining Limited has updated its Mineral Resource and Ore Reserve estimates for the twelve month period ending 31 December 2019 and for this purpose, has completed a detailed review of all production sources. The review has taken into account long-term metal prices, foreign exchange and cost assumptions, and mining and metallurgy performance to inform cut-off grades and physical mining parameters.

Newcrest announced on 11 March 2019 that it had entered into an agreement with TSX-listed Imperial Metal Corporation to acquire a 70% joint-venture interest in, and operator ship of, the Red Chris mine and surrounding tenements in British Columbia, Canada (Red Chris) (refer to market release “Newcrest to acquire potential Tier 1 orebody in Canada” dated 11 March 2019). Newcrest has completed the joint venture transaction with Imperial Metals Corporation (Imperial) and now owns a 70% interest in the Red Chris operation in British Columbia, Canada (refer to market release “Newcrest completes 70% acquisition of Red Chris” dated 16 August 2019).

Red Chris is a copper-gold porphyry with an operating open-pit mine. Imperial Metals has reported estimated Mineral Resources of 20 million ounces of gold and 13 billion pounds of copper¹. The acquired property comprises 23,142 hectares of land with 77 mineral tenures, five of which are mining leases and sits within the traditional territory of the Tahltan Nation.

Newcrest has commenced its planned work program, including additional exploration and resource definition drilling (refer to market release “Quarterly Exploration report for the three months ended 31 December 2019” date 30 January 2019), collection of geological, geotechnical and metallurgical data and studies to define the optimum high value open pit and underground mining scenarios, and is on track to complete these within a 3 year timeframe from the acquisition date. This work program will continue during 2020 and enable the Mineral Resource and Ore Reserves to be reported in accordance with the JORC Code 2012 when completed.

Molybdenum has been added to Mineral Resources and Ore Reserves at Cadia East as a minor by-product following approval of the Cadia molybdenum plant project (refer to market release “Quarterly Report For the three months ended 30 June 2019” dated 25 July 2019).

Group Ore Reserve

As at 31 December 2019, Group Ore Reserves are estimated to contain 52 million ounces of gold, 6.9 million tonnes of copper, 36 million ounces of silver and 0.12 million tonnes of molybdenum. This represents a decrease of approximately 2.2 million ounces of gold (~4%) and 0.1 million tonnes of copper (~1%), with an increase of approximately 0.1 million ounces of silver (~1%) and 0.12 million tonnes of molybdenum, compared with the estimate as at 31 December 2018.

¹ The information in this announcement that relates to the Mineral Resource estimates of Imperial is based on the “National Instrument 43-101 Technical Report” dated 30 September 2015 and filed by Imperial on SEDAR (www.sedar.com) in accordance with National Instrument 43-101 as required by Canadian securities regulatory authorities. The estimates of the Imperial Mineral Resources contain Measured and Indicated Mineral Resources of 1.0Bt at 0.35 g/t Au and 0.35% Cu for 12Moz contained gold and 8.0Blb contained copper and Inferred Mineral Resources of 0.7Bt at 0.32 g/t Au and 0.29% Cu for 8.1Moz contained gold and 5.0Blb contained copper (Data reported to two significant figures and this may cause discrepancies in totals). Note under Newcrest reporting convention for copper 13Blb contained copper is equivalent to 5.9Mt contained copper. See also Red Chris foreign estimates in the disclaimers of this presentation.

The Group Ore Reserves estimates as at 31 December 2019 are set out in Tables 7 to 11.

The Group Ore Reserves as at 31 December 2019 includes the following changes:

- Estimated mining depletion of approximately 3 million ounces of gold, 0.1 million tonnes of copper and 1 million ounces of silver, offset by minor additions at operating sites
- The addition of 0.12 million tonnes of molybdenum as a minor by-product at Cadia East.

Group Mineral Resources

As at 31 December 2019, Group Mineral Resources are estimated to contain 110 million ounces of gold, 19 million tonnes of copper, 94 million ounces of silver and 0.19 million tonnes of molybdenum. This represents a decrease of approximately 3.5 million ounces of gold (~3%) and 0.1 million tonnes of copper (~1%), with an increase of 1.5 million ounces of silver (~2%) and 0.19 million tonnes of molybdenum, compared with the estimate as at 31 December 2018. The Group Mineral Resources estimates as at 31 December 2019 are set out in Tables 2 to 6. Mineral Resources are reported inclusive of Ore Reserves.

The Group Mineral Resources as at 31 December 2018 includes changes at numerous deposits following updated notional constraining shells and/or resource models. These include:

- Estimated mining depletion of approximately 3.1 million ounces of gold, 0.1 million tonnes of copper and 1 million ounces of silver
- Decrease at Telfer, post mining depletion, of approximately 0.5 million ounces of gold and 0.02 million tonnes of copper following updated resource models and re-optimised notional constraining shells for the open pit and sterilisation underground as the mine approaches end of operational life.
- The addition of 0.19 million tonnes of molybdenum as minor by-product at Cadia East.

Mineral Resource and Ore Reserve Assumptions

Updated mining, metallurgical and long-term cost assumptions were developed with reference to recent performance data. The revised long-term assumptions include changes in performance consistent with changing activity levels at each site over the life of the operation and the latest study for each deposit.

Long-term metal prices and foreign exchange assumptions for Mineral Resources and Ore Reserves are set out in Table 1. Gold, copper and silver metal price assumptions remain unchanged from those used for December 2018 reporting. Molybdenum has been added to the Cadia East Mineral Resource and Ore Reserve. Refer to the Cadia East Summary of Mineral Resource and Ore Reserve and attached Appendix 1-JORC Table. Following review of exchange rate assumptions the AUD:USD exchange rate assumption remains unchanged at 0.75 and local currency assumptions for the PNG Kina remain unchanged. Morobe Mining Joint Ventures (MMJV) and the Namosi Joint Venture (NJV) long-term metal price and exchange rate assumptions (refer Table 1) are aligned to Newcrest assumptions. Where appropriate, Mineral Resources are also spatially constrained within notional mining volumes based on metal prices of USD 1,400/oz for gold and USD 4.00/lb for copper. This approach is adopted to eliminate mineralisation that does not have reasonable prospects of eventual economic extraction from Mineral Resource estimates.

Table 1

Long-term Metal Price Assumptions	Newcrest, MMJV & NJV
Mineral Resource Estimates	
Gold – USD/oz	1,300.00
Copper – USD/lb	3.40
Silver – USD/oz	21.00
Molybdenum – USD/lb	10.00
Ore Reserve Estimates	
Gold – USD/oz	1,200.00
Copper – USD/lb	3.00
Silver – USD/oz	18.00
Molybdenum – USD/lb	8.00
Long-term Exchange Rate AUD: USD	0.75

JORC Code 2012 and ASX Listing Rules Requirements

This annual statement of Mineral Resources and Ore Reserves has been prepared in accordance with the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' (the JORC Code 2012). Mineral Resource and Ore Reserve estimates reported for the Morobe Mining Joint Ventures (MMJV) are based on Competent Persons' statements provided by the MMJV and are quoted as Newcrest's 50% interest.

Red Chris Foreign Estimates

The estimates of Mineral Resources for the Red Chris deposit are qualifying foreign estimates under the ASX Listing Rules reported in accordance with the National Instrument 43-101 (NI 43-101) by Imperial and filed on SEDAR (www.sedar.com) on 30 September 2015. These qualifying foreign estimates were re-stated by Imperial in their July 2017 Mineral Resource and Mineral Reserve statement (www.imperialmetal.com) but have not been updated since 30 September 2015, and have not been depleted for production to date.

The supporting information required by ASX Listing Rule 5.12 was contained in the market release titled "Newcrest to acquire potential Tier 1 orebody in Canada" dated 11 March 2019 (original Red Chris release). Newcrest confirms that it is not aware of any new information or data relating to the Red Chris qualifying foreign estimates that materially impacts on the reliability of the estimates or Newcrest's ability to verify such foreign estimates following completion as mineral resources in accordance with Appendix 5A of the ASX Listing Rules. The supporting information provided in the original Red Chris release referred to in ASX Listing Rule 5.12 continues to apply and has not materially changed.

Cautionary statement

The estimates of Mineral Resources for the Red Chris deposit are qualifying foreign estimates under the ASX Listing Rules and are not reported in accordance with the JORC Code. Competent persons have not done sufficient work to classify the qualifying foreign estimates as Mineral Resources in accordance with the JORC Code. It is uncertain, that following evaluation and further exploration, the foreign estimates will be able to be reported as Mineral Resources in accordance with the JORC code.

Table 2 – 31 December 2019 Gold Mineral Resources

Dec-19 Mineral Resources	Competent Person	Measured Resource		Indicated Resource		Inferred Resource		Dec-19 Total Resource			Comparison to Dec-18 Total Resource				
		Dry Tonnes (million)	Gold Grade (g/t Au)	Dry Tonnes (million)	Gold Grade (g/t Au)	Dry Tonnes (million)	Gold Grade (g/t Au)	Dry Tonnes (million)	Gold Grade (g/t Au)	Insitu Gold (million ounces)	Dry Tonnes (million)	Gold Grade (g/t Au)	Insitu Gold (million ounces)		
Operational Provinces															
Cadia East Underground	Luke Barbetti	-	-	2,900	0.36	-	-	2,900	0.36	33	2,900	0.36	34		
Ridgeway Underground		-	-	110	0.57	41	0.38	150	0.52	2.4	150	0.52	2.4		
Other		32	0.30	80	0.35	11	0.70	120	0.37	1.4	120	0.37	1.5		
Total Cadia Province										37			38		
Main Dome Open Pit (incl.stockpiles)	Ashok Doorgapershad	4.7	0.38	16	0.66	0.35	0.23	21	0.59	0.41	24	0.60	0.46		
West Dome Open Pit		-	-	120	0.66	0.02	0.66	120	0.66	2.5	150	0.63	3.1		
Telfer Underground		-	-	32	1.7	11	1.4	44	1.6	2.3	50	1.6	2.7		
Other		-	-	0.44	2.9	4.4	1.1	4.9	1.3	0.20	4.9	1.3	0.20		
Total Telfer Province										5.4			6.4		
Lihir	Benjamin Likia	83	1.9	530	2.3	67	2.3	680	2.3	49	690	2.3	50		
Gosowong ¹	Denny Lesmana	-	-	2.7	10	0.41	8.2	3.1	10	1.0	3.3	10	1.1		
Total Operational Provinces										93			96		
Non-Operational Provinces															
MMJV - Golpu / Wafi & Nambonga (50%) ²	David Finn / Greg Job	-	-	400	0.84	110	0.77	510	0.83	13	500	0.83	13		
Namosi JV (72.49%) ³	Vik Singh	-	-	1,300	0.11	120	0.08	1,400	0.11	5.0	1,400	0.11	4.9		
Total Non-Operational Provinces										18			18		
Total Gold Mineral Resources										110			110		

NOTE: Data are reported to two significant figures to reflect appropriate precision in the estimate and this may cause some apparent discrepancies in totals

¹ Gosowong (inclusive of Toguraci and Kencana) is owned and operated by PT Nusa Halmahera Minerals, an incorporated joint venture company (Newcrest 75%). The figures shown represent 100% of the Mineral Resource. On 31 January 2020 Newcrest announced that it had agreed to sell its interest in PT Nusa Halmahera Minerals to PT Indotan Halmahera Bangkit (refer market release "Newcrest agrees to divest Gosowong for \$90m" dated 31 January 2020).

² MMJV refers to projects owned by the Morobe Mining unincorporated joint ventures between subsidiaries of Newcrest (50%) and Harmony Gold Mining Company Limited (50%). The figures shown represent 50% of the Mineral Resource.

³ Namosi refers to the Namosi unincorporated joint venture, in which Newcrest has a 72.49% interest. The figures shown represent 72.49% of the Mineral Resource at December 2019 compared to 71.82% of the Mineral Resource at December 2018.

Table 3 – 31 December 2019 Copper Mineral Resources

Dec-19 Mineral Resources	Competent Person	Measured Resource		Indicated Resource		Inferred Resource		Dec-19 Total Resource			Comparison to Dec-18 Total Resource		
		Dry Tonnes (million)	Copper Grade (% Cu)	Dry Tonnes (million)	Copper Grade (% Cu)	Dry Tonnes (million)	Copper Grade (% Cu)	Dry Tonnes (million)	Copper Grade (% Cu)	Insitu Copper (million tonnes)	Dry Tonnes (million)	Copper Grade (% Cu)	Insitu Copper (million tonnes)
Operational Provinces													
Cadia East Underground	Luke Barbetti	-	-	2,900	0.26	-	-	2,900	0.26	7.5	2,900	0.26	7.6
Ridgeway Underground		-	-	110	0.30	41	0.40	150	0.33	0.48	150	0.33	0.48
Other		32	0.13	80	0.19	11	0.52	120	0.20	0.25	120	0.20	0.25
Total Cadia Province										8.2			8.3
Main Dome Open Pit (incl.stockpiles)	Ashok Doorgapershad	4.7	0.098	16	0.094	0.35	0.012	21	0.093	0.020	24	0.092	0.022
West Dome Open Pit		-	-	120	0.062	0.02	0.058	120	0.062	0.072	150	0.062	0.10
Telfer Underground		-	-	32	0.40	11	0.43	44	0.41	0.18	50	0.40	0.20
Other		-	-	-	-	14	0.37	14	0.37	0.052	14	0.37	0.052
O'Callaghans		-	-	69	0.29	9.0	0.24	78	0.29	0.22	78	0.29	0.22
Total Telfer Province										0.54			0.59
Total Operational Provinces										8.8			8.9
Non-Operational Provinces													
MMJV - Golpu / Wafi & Nambonga (50%) ⁴	David Finn / Greg Job	-	-	340	1.1	92	0.68	440	1.0	4.4	440	1.0	4.4
Namosi JV (72.49%) ⁵	Vik Singh	-	-	1,300	0.35	330	0.37	1,600	0.35	5.8	1,600	0.35	5.7
Total Non-Operational Provinces										10			10
Total Copper Mineral Resources										19			19

NOTE: Data are reported to two significant figures to reflect appropriate precision in the estimate and this may cause some apparent discrepancies in totals

⁴ MMJV refers to projects owned by the Morobe Mining unincorporated joint ventures between subsidiaries of Newcrest (50%) and Harmony Gold Mining Company Limited (50%). The figures shown represent 50% of the Mineral Resource.

⁵ Namosi refers to the Namosi unincorporated joint venture, in which Newcrest has a 72.49% interest. The figures shown represent 72.49% of the Mineral Resource at December 2019 compared to 71.82% of the Mineral Resource at December 2018.

Table 4 – 31 December 2019 Silver Mineral Resources

Dec-19 Mineral Resources	Competent Person	Measured Resource		Indicated Resource		Inferred Resource		Dec-19 Total Resource			Comparison to Dec-18 Total Resource		
		Dry Tonnes (million)	Silver Grade (g/t Ag)	Dry Tonnes (million)	Silver Grade (g/t Ag)	Dry Tonnes (million)	Silver Grade (g/t Ag)	Dry Tonnes (million)	Silver Grade (g/t Ag)	Insitu Silver (million ounces)	Dry Tonnes (million)	Silver Grade (g/t Ag)	Insitu Silver (million ounces)
Silver Mineral Resources (inclusive of Silver Ore Reserves)													
Operational Provinces													
Cadia Valley Operations	Luke Barbetti	-	-	3,000	0.68	41	0.43	3,100	0.68	66	3,100	0.68	67
Gosowong ⁶	Denny Lesmana	-	-	2.7	14	0.41	11	3.1	14	1.3	3.3	14	1.5
Total Operational Provinces										68		69	
Non-Operational Provinces													
MMJV - Golpu / Wafi (50%) ⁷	David Finn / Greg Job	-	-	400	1.7	87	1.7	480	1.7	27	480	1.6	24
Total Non-Operational Provinces										27		24	
Total Silver Mineral Resources										94		93	

Table 5 – 31 December 2019 Molybdenum Mineral Resources

Dec-19 Mineral Resources	Competent Person	Measured Resource		Indicated Resource		Inferred Resource		Dec-19 Total Resource			Comparison to Dec-18 Total Resource		
		Dry Tonnes (million)	Molybdenum Grade (ppm Mo)	Dry Tonnes (million)	Molybdenum Grade (ppm Mo)	Dry Tonnes (million)	Molybdenum Grade (ppm Mo)	Dry Tonnes (million)	Molybdenum Grade (ppm Mo)	Insitu Molybdenum (million tonnes)	Dry Tonnes (million)	Molybdenum Grade (ppm Mo)	Insitu Molybdenum (million tonnes)
Molybdenum Mineral Resources (inclusive of Molybdenum Ore Reserves)													
Operational Provinces													
Cadia Valley Operations	Luke Barbetti	-	-	2,900	64	-	-	2,900	64	0.19	-	-	-
Total Operational Provinces										0.19			
Total Molybdenum Mineral Resources										0.19			

NOTE: Data are reported to two significant figures to reflect appropriate precision in the estimate and this may cause some apparent discrepancies in totals

⁶ Gosowong (inclusive of Toguraci and Kencana) is owned and operated by PT Nusa Halmahera Minerals, an incorporated joint venture company (Newcrest 75%). The figures shown represent 100% of the Mineral Resource. On 31 January 2020 Newcrest announced that it had agreed to sell its interest in PT Nusa Halmahera Minerals to PT Indotan Halmahera Bangkit (refer market release "Newcrest agrees to divest Gosowong for \$90m" dated 31 January 2020).

⁷ MMJV refers to projects owned by the Morobe Mining unincorporated joint ventures between subsidiaries of Newcrest (50%) and Harmony Gold Mining Company Limited (50%). The figures shown represent 50% of the Mineral Resource.

Table 6 – 31 December 2019 Polymetallic Mineral Resources

Dec-19 Mineral Resources	Competent Person	Tonnes	Grade			Contained Metal		
Polymetallic Mineral Resources (inclusive of Polymetallic Ore Reserves)		Dry Tonnes (million)	Tungsten Trioxide Grade (% WO ₃)	Zinc Grade (% Zn)	Lead Grade (% Pb)	Insitu Tungsten Trioxide (million tonnes)	Insitu Zinc (million tonnes)	Insitu Lead (million tonnes)
O'Callaghans								
Measured	Ashok Doorgapershad	-	-	-	-	-	-	-
Indicated		69	0.34	0.53	0.26	0.24	0.36	0.18
Inferred		9.0	0.25	0.19	0.11	0.023	0.017	0.0097
Total Polymetallic Mineral Resources		78	0.33	0.49	0.24	0.26	0.38	0.19
Comparison to Dec-18 Total Polymetallic Mineral Resources								
<i>Measured</i>	<i>Ashok Doorgapershad</i>	-	-	-	-	-	-	-
<i>Indicated</i>		69	0.34	0.53	0.26	0.24	0.36	0.18
<i>Inferred</i>		9.0	0.25	0.19	0.11	0.023	0.017	0.0097
Comparison to Dec-18 Total Polymetallic Mineral Resources		78	0.33	0.49	0.24	0.26	0.38	0.19

NOTE: Data are reported to two significant figures to reflect appropriate precision in the estimate and this may cause some apparent discrepancies in totals.

Table 7 – 31 December 2019 Gold Ore Reserves

Dec-19 Ore Reserves	Competent Person	Proved Reserve		Probable Reserve		Dec-19 Total Reserve			Comparison to Dec-18 Total Reserve		
		Dry Tonnes (million)	Gold Grade (g/t Au)	Dry Tonnes (million)	Gold Grade (g/t Au)	Dry Tonnes (million)	Gold Grade (g/t Au)	Insitu Gold (million ounces)	Dry Tonnes (million)	Gold Grade (g/t Au)	Insitu Gold (million ounces)
Gold Ore Reserves											
Operational Provinces											
Cadia East Underground	Geoffrey Newcombe	-	-	1,400	0.45	1,400	0.45	20	1,400	0.47	21
Ridgeway Underground		-	-	80	0.54	80	0.54	1.4	80	0.54	1.4
Other		-	-	-	-	-	-	-	-	-	-
Total Cadia Province								21			22
Main Dome Open Pit (incl. stockpiles)	Glenn Patterson-Kane	4.7	0.38	2.2	0.57	7.0	0.44	0.099	9	0.52	0.15
West Dome Open Pit		-	-	47	0.77	47	0.77	1.2	63	0.75	1.5
Telfer Underground	Gito Patani	-	-	1.5	2.3	1.5	2.3	0.11	4.9	1.9	0.30
Total Telfer Province								1.4			2.0
Lihir	David Grigg	83	1.9	230	2.4	320	2.3	23	330	2.3	24
Gosowong ⁸	Mark Kaesehagen	-	-	1.2	7.5	1.2	7.5	0.30	1.4	8.1	0.37
Total Operational Provinces								46			49
Non-Operational Provinces											
MMJV - Golpu (50%) ⁹	Pasqualino Manca	-	-	200	0.86	200	0.86	5.5	200	0.86	5.5
Total Non-Operational Provinces								5.5			5.5
Total Gold Ore Reserves								52			54

NOTE: Data are reported to two significant figures to reflect appropriate precision in the estimate and this may cause some apparent discrepancies in totals.

⁸ Gosowong (inclusive of Toguraci and Kencana) is owned and operated by PT Nusa Halmahera Minerals, an incorporated joint venture company (Newcrest 75%). The figures shown represent 100% of the Ore Reserve. On 31 January 2020 Newcrest announced that it had agreed to sell its interest in PT Nusa Halmahera Minerals to PT Indotan Halmahera Bangkit (refer market release "Newcrest agrees to divest Gosowong for \$90m" dated 31 January 2020).

⁹ MMJV refers to projects owned by the Morobe Mining unincorporated joint ventures between subsidiaries of Newcrest (50%) and Harmony Gold Mining Company Limited (50%). The figures shown represent 50% of the Ore Reserve.

Table 8 – 31 December 2019 Copper Ore Reserves

Dec-19 Ore Reserves	Competent Person	Proved Reserve		Probable Reserve		Dec-19 Total Reserve			Comparison to Dec-18 Total Reserve		
		Dry Tonnes (million)	Copper Grade (% Cu)	Dry Tonnes (million)	Copper Grade (% Cu)	Dry Tonnes (million)	Copper Grade (% Cu)	Insitu Copper (million tonnes)	Dry Tonnes (million)	Copper Grade (% Cu)	Insitu Copper (million tonnes)
Operational Provinces											
Cadia East Underground	Geoffrey Newcombe	-	-	1,400	0.29	1,400	0.29	4.0	1,400	0.30	4.1
Ridgeway Underground		-	-	80	0.28	80	0.28	0.23	80	0.28	0.23
Other		-	-	-	-	-	-	-	-	-	-
Total Cadia Province								4.3			4.3
Main Dome Open Pit (incl. stockpiles)	Glenn Patterson-Kane	4.7	0.098	2.2	0.084	7.0	0.094	0.0065	9	0.088	0.0082
West Dome Open Pit		-	-	47	0.080	47	0.080	0.037	63	0.076	0.048
Telfer Underground	Gito Patani	-	-	1.5	0.33	1.5	0.33	0.005	4.9	0.29	0.014
O'Callaghans	Michael Sykes	-	-	44	0.29	44	0.29	0.13	44	0.29	0.13
Total Telfer Province								0.18			0.20
Total Operational Provinces								4.4			4.5
Non-Operational Provinces											
MMJV - Golpu (50%) ¹⁰	Pasqualino Manca	-	-	200	1.2	200	1.2	2.5	200	1.2	2.5
Total Non-Operational Provinces								2.5			2.5
Total Copper Ore Reserves								6.9			7.0

NOTE: Data are reported to two significant figures to reflect appropriate precision in the estimate and this may cause some apparent discrepancies in totals.

¹⁰ MMJV refers to projects owned by the Morobe Mining unincorporated joint ventures between subsidiaries of Newcrest (50%) and Harmony Gold Mining Company Limited (50%). The figures shown represent 50% of the Ore Reserve.

Table 9 – 31 December 2019 Silver Ore Reserves

Dec-19 Ore Reserves	Competent Person	Proved Reserve		Probable Reserve		Dec-19 Total Reserve			Comparison to Dec-18 Total Reserve		
		Dry Tonnes (million)	Silver Grade (g/t Ag)	Dry Tonnes (million)	Silver Grade (g/t Ag)	Dry Tonnes (million)	Silver Grade (g/t Ag)	Insitu Silver (million ounces)	Dry Tonnes (million)	Silver Grade (g/t Ag)	Insitu Silver (million ounces)
Silver Ore Reserves											
Operational Provinces											
Cadia Valley Operations	Geoffrey Newcombe	-	-	1,500	0.77	1,500	0.77	36	1,400	0.78	36
Gosowong ¹¹	Mark Kaesehagen	-	-	1.20	11.0	1.20	11.0	0.430	1.4	12	0.54
Total Operational Provinces											36
Total Silver Ore Reserves											36

Table 10 – 31 December 2019 Molybdenum Ore Reserves

Dec-19 Ore Reserves	Competent Person	Proved Reserve		Probable Reserve		Dec-19 Total Reserve			Comparison to Dec-18 Total Reserve		
		Dry Tonnes (million)	Molybdenum Grade (ppm Mo)	Dry Tonnes (million)	Molybdenum Grade (ppm Mo)	Dry Tonnes (million)	Molybdenum Grade (ppm Mo)	Insitu Molybdenum (million tonnes)	Dry Tonnes (million)	Molybdenum Grade (ppm Mo)	Insitu Molybdenum (million tonnes)
Molybdenum Ore Reserves											
Operational Provinces											
Cadia Valley Operations	Geoffrey Newcombe	-	-	1,300	88	1,300	88	0.12	-	-	-
Total Operational Provinces											0.12
Total Molybdenum Ore Reserves											0.12

NOTE: Data are reported to two significant figures to reflect appropriate precision in the estimate and this may cause some apparent discrepancies in totals. Molybdenum Reserve represents the probable reserve from the date of first molybdenum concentrate production which is anticipated to be 1 July 2021.

¹¹ Gosowong (inclusive of Toguraci and Kencana) is owned and operated by PT Nusa Halmahera Minerals, an incorporated joint venture company (Newcrest 75%). The figures shown represent 100% of the Ore Reserve. On 31 January 2020 Newcrest announced that it had agreed to sell its interest in PT Nusa Halmahera Minerals to PT Indotan Halmahera Bangkit (refer market release "Newcrest agrees to divest Gosowong for \$90m" dated 31 January 2020).

Table 11 – 31 December 2019 Polymetallic Ore Reserves

Dec-19 Ore Reserves	Competent Person	Tonnes	Grade			Contained Metal		
Polymetallic Ore Reserves		Dry Tonnes (million)	Tungsten Trioxide Grade (% WO ₃)	Zinc Grade (% Zn)	Lead Grade (% Pb)	In situ Tungsten Trioxide (million tonnes)	In situ Zinc (million tonnes)	In situ Lead (million tonnes)
O'Callaghans								
Proved	Michael Sykes	-	-	-	-	-	-	-
Probable		44	0.36	0.65	0.32	0.16	0.29	0.14
Total Polymetallic Ore Reserves		44	0.36	0.65	0.32	0.16	0.29	0.14
Comparison to Dec-18 Total Polymetallic Ore Reserves								
<i>Proved</i>	<i>Michael Sykes</i>	-	-	-	-	-	-	-
<i>Probable</i>		44	0.36	0.65	0.32	0.16	0.29	0.14
Comparison to Dec-18 Total Polymetallic Ore Reserves		44	0.36	0.65	0.32	0.16	0.29	0.14

NOTE: Data are reported to two significant figures to reflect appropriate precision in the estimate and this may cause some apparent discrepancies in totals.

Disclaimer

These materials include forward looking statements. Often, but not always, forward looking statements can generally be identified by the use of forward looking words such as “may”, “will”, “expect”, “intend”, “plan”, “estimate”, “anticipate”, “continue”, “outlook” 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. The Company continues to distinguish between outlook and guidance in forward looking statements. Guidance statements are a risk-weighted assessment constituting Newcrest’s current expectation as to the range in which, for example, its gold production (or other relevant metric), will ultimately fall in the current financial year. Outlook statements are a risk-weighted assessment constituting Newcrest’s current view regarding the possible range of, for example, gold production (or other relevant metric) in years subsequent to the current financial year.

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 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.

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 and has attempted 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 as 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. Forward looking statements in these materials speak only at the date of issue. 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.

Ore Reserves and Mineral Resources Reporting Requirements

As an Australian company with securities listed on the Australian Securities Exchange (ASX), Newcrest is subject to Australian disclosure requirements and standards, including the requirements of the Corporations Act and the ASX Listing Rules. Investors should note that it is a requirement of the ASX Listing Rules that the reporting of Ore Reserves and Mineral Resources in Australia is in accordance with the JORC Code 2012 and that Newcrest’s Ore Reserves and Mineral Resources comply with this requirement.

The Explanatory Notes for the Annual Mineral Resource and Ore Reserve Statement – 31 December 2019 containing additional information on individual Mineral Resources and Ore Reserves are available on the Newcrest website at www.newcrest.com.au and lodged with the ASX.

Competent Person's Statement

The Annual Mineral Resources and Ore Reserves Statement and Explanatory Notes have been compiled by Mr K. Gleeson. Mr Gleeson is the Head of Mineral Resource Management, a full-time employee of Newcrest Mining Limited and holds options and shares in Newcrest Mining Limited and is entitled to participate in Newcrest's executive equity long-term incentive plan, details of which are included in Newcrest's 2019 Remuneration Report. He is a Fellow of The Australasian Institute of Mining and Metallurgy. Mr Gleeson has sufficient experience which is relevant to the styles of mineralisation and types of deposits under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the JORC Code 2012. Mr Gleeson consents to the inclusion of the material in this report in the form and context in which it appears.

The information in this report that relates to specific Mineral Resources and Ore Reserves is based on and fairly represents information compiled by the Competent Persons named in Tables 2 to 11. Each of these persons, other than Mr G. Job, was at the reporting date a full-time employee of Newcrest Mining Limited or its relevant subsidiaries, holds options (and in some cases, shares) in Newcrest Mining Limited and is entitled to participate in Newcrest's executive equity long-term incentive plan, details of which are included in Newcrest's 2019 Remuneration Report. Mr Job is a full time employee of Harmony Gold Mining Company Limited, Newcrest's joint venture partner in each of the MMJVs.

All the Competent Persons named are Members of The Australasian Institute of Mining and Metallurgy and / or The Australian Institute of Geoscientists, and have sufficient experience which is relevant to the styles of mineralisation and types of deposits under consideration and to the activity which they are undertaking to qualify as a Competent Person as defined in the JORC Code 2012. Each Competent Person consents to the inclusion in this report of the matters based on his or her information in the form and context in which it appears.

Authorised for release by the Newcrest Board Executive Committee

For further information please contact

Investor Enquiries

Chris Maitland
+61 3 9522 5717
+61 439 525 135

Chris.Maitland@newcrest.com.au

Kasun Liyanaarachchi
+61 3 9522 5576
+61 477 068 440

Kasun.Liyanaarachchi@newcrest.com.au

North American Investor Enquiries

Tamara Brown
+1 647 255 3139
+1 416 930 4200

Tamara.Brown@newcrest.com.au

Media Enquiries

Chris Maitland
+61 3 9522 5717
+61 439 525 135

Chris.Maitland@newcrest.com.au

Rebecca Murphy
+61 3 9522 5282
+61 428 179 490

Rebecca.Murphy@newcrest.com.au

This information is available on our website at www.newcrest.com.au

Cadia East Mineral Resources and Ore Reserves

There has been no material change to Cadia East Mineral Resources or Ore Reserves from that previously reported in the Annual Statement of Mineral Resources and Ore Reserves as at 31 December 2018. However, as Molybdenum has now been added to the Cadia East Mineral Resources and Ore Reserves as a minor by-product following approval of the Molybdenum plant, an updated summary of material assumptions and JORC Table 1 is provided below.

Summary of Mineral Resource

Geology and Geological Interpretation

The Cadia gold copper deposits are hosted by a late Ordovician to early Silurian volcano-intrusive complex which forms part of the larger zone of arc-related volcanic and associated intrusive rocks in the eastern Lachlan Fold Belt. Mineralisation at Cadia is hosted by the mid to late Ordovician Forest Reefs Volcanics and the underlying Weemalla Formation and by the late Ordovician to early Silurian Cadia Intrusive Complex. Post-mineral cover comprises Silurian Cadia Coach Shale and a relatively thin capping of Tertiary basalts and gravels in some areas. Recognised structural controls include the regional northwest corridor – dilation zone thought to control the emplacement of the Cadia Intrusive Complex and post-mineral faulting in two dominant orientations striking northwest and north-south.

The Cadia East deposit is hosted within the Forest Reef Volcanics and porphyry intrusions. A north-east trending mass of narrow sheet like dykes of monzonitic to dioritic compositions intrude the lower parts of the Forest Reef Volcanics at Cadia East. These intrusives are largely restricted to the eastern half of the deposit although some narrow dykes and isolated bodies of monzonite have been recognised in the western end. At the upper western end of the deposit immediately underneath the Gibb fault, isolated narrow intersections have been identified with south dipping mineralised quartz veining. These occurrences are interpreted to be the Cadia Hill Monzonite.

Mineralisation at Cadia East can be divided into two broad overlapping zones: an upper, copper rich disseminated zone and a deeper gold-rich zone associated with sheeted veins. The upper zone forms a relatively small cap to the overall mineralised envelope and has a core of disseminated chalcopyrite, capped by chalcopyrite-pyrite mineralisation. The upper zone mineralisation is stratigraphically controlled within the volcanoclastic unit. This zone is transitional to the deeper vein style mineralization. The deeper zone is localised around a core of steeply dipping sheeted quartz-calcite-bornite-chalcopyrite-molybdenite, with the highest gold grades associated with the bornite-bearing veins. Copper and molybdenite form a mineralised blanket above and to the east of the higher grade gold envelope.

The geology model for the Cadia East deposit includes lithology, alteration, and structural faults. The structural interpretation includes the pyrite faults, Ca-La Crunch faults and Carbonate faults. Modelling of the fault planes and lithological boundaries comprises data obtained from drill core and underground mapping. The major faults were used as estimation domains, with semi-soft boundaries implemented where geostatistical testing warranted. The factor most influencing grade continuity is that Cadia East is a porphyry copper-gold mineralisation exhibiting properties of the diffusion model.

Drilling Techniques

The drilling of the Cadia East deposit is diamond core NQ3, HQ3, and PQ. Triple tube is used to maximise core recovery. Most drill holes are collared as PQ or HQ for accurate and safe drilling.

Sampling and Sub-sampling

Data used for resource estimation is obtained from drill core, which is sampled and assayed on 2.0 metre intervals. Drill core is sampled by cutting the core in half with a diamond saw. The left hand of the cut core is placed in a calico bag, marked with the appropriate sample number and sent to the laboratory for assaying. The remaining half-core is stored in the original tray on a pallet at the core processing facility for an unspecified period and then moved to storage at the Cadia Core Farm. Sample preparation is conducted at the Newcrest Laboratory facility located in Orange and all routine drill core samples are processed on site. Pulp replicates and crushed coarse reject duplicates are routinely undertaken.

Sample Analysis Methods

Samples are routinely assayed for gold by fire assay and copper, silver, molybdenum, lead, zinc, and sulphur by ICP-OES analysis, with additional cyanide-soluble copper analysis. Comprehensive QA/QC procedures have been in place since drilling and sampling programs at Cadia East began. These processes are undertaken at both the laboratory and site that includes a combination of check samples (blind reference material, random blanks, duplicates, repeats, replicates, and second lab checks), meetings, visits, and external audits. Various primary laboratories located on Orange have been used including Newcrest Services Laboratory since June 2010, ALS-Chemex between May 2004 and May 2010, and AMDEL prior to May 2004.

Estimation Methodology

Ordinary Kriging of copper, gold, sulphur, silver, molybdenum and fluorine are undertaken directly into 20 m x 20 m x 20 m blocks. The resource model was domained utilising structural surfaces for gold, copper, silver, molybdenum and sulphur. Semi-soft boundaries were used between the Ca-La Crunch faults while the lower porphyry surface was treated as a hard boundary. The 0.1% copper grade shell was used to constrain estimation as a global domain. The fluorine estimation domains utilise the Ca-La Nth structure, the lower porphyry surface and the combined basalt lithology. Kriging Neighbourhood Analysis is used to define the search neighbourhood for all elements. All elements are estimated independently of each other. Copper and gold grades are not capped. The resource model is validated via visual, geostatistical and production reconciliation methods.

Mineral Resource Classification

The Mineral Resource has been classified as an Indicated Mineral Resource only, based on an assessment of geological confidence as a function of geological and mineralisation continuity. Grade continuity and drill hole density is assessed using Extension Variance methods, whilst the reported resources were constrained within a 'value' shell representing the limit to eventual economic extraction.

Cut-off Grade

A value algorithm is used to calculate the net smelter return (NSR) for each block using revenue and cost assumptions as at 31 December 2017. The NSR calculation takes into account Mineral Resource revenue factors, metallurgical recovery assumptions, transport costs and refining charges and royalty charges. The break even cut off value takes into account the site operating costs include mining cost, processing cost, relevant site general and administration costs and relevant sustaining capital costs. The break even cut off value equates to approximately AUD18.50/t milled.

Mining and Metallurgical methods and parameters and other modifying factors

No mining or environmental factors have been incorporated into the estimation. Metallurgical factors have been incorporated into the value algorithm which constrains the Mineral Resource classification.

Summary of Ore Reserve

Material Assumptions for Ore Reserves

A Pre-Feasibility Study was completed in 2018 to provide supporting basis for the Cadia East Ore Reserve estimate. Cadia East Panel Cave is an operating mine for the Cadia Operations (Cadia) province and the Pre-Feasibility Study incorporates learnings from operational execution to date. A Feasibility Study for the PC2-3 mining block has been completed. This study provides an update for the mining plan for this specific area of the operation along with updates to the production plan, site cost and metallurgical parameters for the life of mine reserves plan. These updates did not result in any material change in the Ore Reserve estimate.

Ore Reserve Classification

The Ore Reserve classification is based on Indicated Mineral Resources with a small portion of diluting material included within the estimate due to the nature of the mining method chosen. No Measured Mineral Resources are stated for this deposit. This classification is based on geological confidence as a function of continuity and complexity of geological features; data spacing and distribution and estimation quality parameters including distance to informing samples for block grade estimation.

Mining Method

The Pre-Feasibility Study completed in 2018 and current underground cave mining activities at Cadia East support the appropriateness of the selected caving mining method as the basis of the forward Ore Reserve estimate. The Feasibility Study for PC2-3 has also recommended panel caving as the mining method for this mining block. Ongoing geotechnical studies and monitoring utilising experience and data from the current underground operations provide ongoing key direction for stability, design and schedule sequence parameters.

Ore Processing

Processing of the Cadia East underground ore stream will be through Cadia Valley Operations Ore Treatment Plant concentrators 1 and 2. Metal recovery is through gravity and conventional flotation to a Copper/Gold concentrate. This circuit currently processes Cadia East material with similarly styled material to future ore sources. Cadia East is the sole source of feed for both Concentrator 1 and Concentrator 2. Production of 33mtpa is anticipated to be produced through the concentrators. While the scale of processing will position the operation among the world's largest gold mines, the technology associated with the ore processing is industry standard for this style of deposit and is already custom and practice at Cadia Valley Operations.

An update to the process plant infrastructure and recovery assumptions were completed during the Cadia Expansion Feasibility Study (2019) including proposed upgrades to the circuit to boost throughput and recovery. These assumptions have been validated to at least a PFS level through detailed analysis, laboratory testwork and the baseline confirmed as representative by reconciliation of production parameters to date of Cadia East ore through the currently installed processing plant. Recoveries for gold are anticipated to range between approximately 70% and 85% and recoveries of copper are expected to range between approximately 80% and 87% through the life of the project upon completion of Stage 1 and Stage 2 of the Cadia East Expansion.

The construction of a molybdenum plant has been gated into execution, driven by the production schedule with grades of molybdenum expected to rise to economic levels. The molybdenum plant is planned to create a specific molybdenum concentrate sold as a separate saleable product with revenue from molybdenum included in the Ore Reserve estimation process. Fluorine is the key deleterious element for the gold/copper concentrate product with smelter penalties incurred on the basis of fluorine content. Newcrest has installed sufficient auxiliary processing facilities to remove fluorine from the final concentrate as a penalty element from sales of its concentrate.

Cut-off Grade

Cadia East Ore Reserve employs a value based cut-off by determining the NSR value equal to the relevant site operating cost. The NSR calculation takes into account Ore Reserve revenue factors, metallurgical recovery assumptions, transport costs and refining charges and royalty charges. The site operating costs include mining cost, processing cost, relevant site general and administration costs and relevant sustaining capital costs. This cost equates to a break even cut off value of approximately AUD18.50/t milled.

Estimation Methodology

Estimation of the Cadia East Ore Reserve involved standard steps of mine optimisation, mine design, production scheduling and financial modelling. Factors and assumptions have been based on operating experience and performance in Cadia Valley Operations caving operations. The Ore Reserve has been evaluated through a financial model. All operating and capital costs as well as revenue factors stated in this document were included in the financial model. A discount factor of 4.75% real was applied. This process demonstrated the Cadia East Ore Reserve to have a positive NPV. Sensitivities were conducted on the key input parameters including commodity prices, capital and operating costs, ore grade, discount rate, exchange rate and recovery which confirmed the estimate to be robust.

Material Modifying Factors

All development has mining factors for dilution and recovery applied to accurately represent the expected mined tonnes. PCBC™ software is used for cave production scheduling and estimation of grade for material drawn from the block caves. Due to the approach adopted in the resource model where low grade material is included within all mining zones, no additional mining dilution or recovery factors have been applied to the Ore Reserve estimate. This assumption is supported by the actual reconciliation between resource model and mill performance at the project to date being within an acceptable uncertainty range for the style of mineralisation under consideration.

Other Modifying Factors

Modifications to this Project Approval under the NSW Environmental Planning and Assessment Act 1979 (EP&A Act) will be required over the life of the Ore Reserves period with the storage of tailings and efficient recovery of water a key consideration. Studies to finalise the engineering approach to the repair of the current Northern Tailings Storage Facility (NTSF) and to determine the long-term tailings storage beyond the current facilities are ongoing and will be submitted for modification as required over the life of the asset. Studies that look to improve water recovery from tailings, including the use of alternative technologies, are also ongoing.

Appendix 1: JORC Code 2012 Edition – Table 1

Section 1 Sampling Techniques and Data

Criteria	Commentary
Sampling techniques	The data used for resource estimation is obtained from drill core (PQ, HQ, NQ), which is sampled and assayed on 2.0 metre intervals. Drill core is sampled by cutting the core in half with a diamond saw; this ensures sample representivity. The left hand of the cut core is placed in a calico bag, marked with the appropriate sample number (generated in acQuire) and sent to the laboratory for assaying. The remaining half-core is stored in the original tray on a pallet at the core processing facility for an unspecified period and then moved to storage at the Cadia Core Farm.
Drilling techniques	The Cadia East deposit has been diamond drilled with core sizes ranging from NQ3 (45.1 mm core diameter), HQ3 (61.1 mm core diameter) and PQ (85 mm core diameter). Triple tube is used to maximise core recovery. Most drill holes are collared as PQ or HQ for accurate and safe drilling.
Drill sample recovery	Core recovery is recorded as a measure of the drill run against the actual core in tray, and stored in an acQuire software database. Triple tube is used to maximise core recovery. There are only minor zones of lost core or poor core recovery. In total, not including the surface core to 20 metres depth, the average recovery equates to 99.5%.
Logging	The majority of diamond drill holes are geologically and geotechnically logged. The geological log includes lithology, alteration, structure, mineralisation and geotechnical parameters. All core is logged and photographed after marking up metre intervals and prior to cutting and sampling. Logging data are entered into the acQuire database via a laptop computer or historically via manual data entry. Logging intervals have been 1 m historically for various drilling programmes from 1993 to 2000. Subsequent to these programmes lithology has been logged with intervals derived from combinations of rock type, alteration, structure, and mineralization. Hyperspectral imaging of selected drill core for type sections have been undertaken to assist in alteration modelling.
Sub-sampling techniques and sample preparation	Core samples are half core. Sample preparation is conducted at the Newcrest Laboratory facility located in Orange and all routine drill core samples are processed on site. Sample preparation for analysis is as follows: Samples are dried in an oven at 105°C for several hours. All of the samples are crushed to 2 mm maximum diameter by a Boyd crusher and split to a maximum weight of ~2.5 kg using a rotary sampler. Each sample is pulverised using a Labtechnics LM5 pulverizing mill to specified grind parameters of 95% passing 106 µm. A 250 g sub-sample is collected for analysis and submitted to the assay laboratory. From the 250 g sample, 30 g (historically 50 g) sample is used for fire assay and ~0.5 g used ICP-OES analysis. Pulp replicates and crushed coarse reject duplicates are routinely undertaken (1 in 20 samples). The sampling protocols are adequate to ensure representivity of porphyry copper-gold type mineralisation.
Quality of assay data and laboratory tests	Since June 2010 Newcrest Services Laboratory (Orange, NSW) has been the primary laboratory used for assaying. Prior to this ALS-Chemex (Orange) was used between May 2004 and May 2010. AMDEL (Orange) was used as the primary laboratory for assaying till May 2004. ALSChemex (Orange) is now the second laboratory for check assaying of samples. Check assays have also been completed at Genalysis (Townsville) and ALS-Chemex (Townsville) in the past. Samples are routinely assayed for gold, copper, silver, molybdenum, lead, zinc, sulphur and cyanide-soluble copper. Gold analysis is by fire assay with 30 g and 50 g charge and Atomic Absorption Spectroscopy (AAS) finish and detection limit of 0.01 ppm (g/t). Newcrest resource development QA/QC procedures have been in place since drilling and sampling programs at Cadia East began. All data received are checked and verified in accordance with the Newcrest Resource Management QA/QC and database management procedures. A monthly report is created to highlight current successes and issues. This report is issued to the laboratory and Newcrest management.

Criteria	Commentary
	<p>The laboratory QA/QC currently involves analysis of the following.</p> <ul style="list-style-type: none"> • Blind reference material (standards) at a rate of one in twenty samples or one per batch, whichever is more. • Random Blank samples (Silurian samples or quartz pebbles sourced from local landscape suppliers). • Duplicates from the Boyd crusher coarse splits. • Duplicates from the LM5 pulveriser pulp. • Checks on grind and crush size from the sample preparation stage. • Replicate submissions of pulps to an alternate laboratory for analysis. • Visits to the laboratory and laboratory audits to confirm procedures are in place and applied/executed correctly. • Monthly QA/QC meetings with laboratory personnel to discuss results, procedures, issues arising. • Analysis of received sample weights. • External audits of QA/QC. <p>CVO procedures include:</p> <ul style="list-style-type: none"> • Visits to the laboratory for confirmation of actual procedures applied. • Monthly QA/QC meetings with laboratory personnel. • External audit of QA/QC. Cadia East QA/QC dates from 2000 to 2009. • From 2005, five standards manufactured from Cadia East material and prepared by Ore Research have been used. Three new standards were generated and certified in 2015 for gold, copper, silver, molybdenum, and sulphur. • The gold and copper standards performed well with no systematic biases present. Standard performance in general varies between -1 and +1 standard deviation. • Sulphur standards in general exhibited a negative grade bias and underperformed till December 2014. From this point sulphur standards continually exhibit a positive bias. • Duplicates show around 60% of the gold population has a relative paired difference (RPD) below 10%, unlike copper that has in excess of 95% below 10%. • Repeat assays at 1 in 20 from the Boyd crusher are regularly analysed for gold, copper and sulphur. No issues are observed in the repeat assay analysis. • Pulps from two complete drill holes were re-submitted to a second laboratory. Results confirmed good repeatability between the laboratories with no systematic bias apparent.
<p>Verification of sampling and assaying</p>	<p>Cadia East is a bulk underground producing mine with relatively low grade variability (copper-gold porphyry), and there is no independent verification of significant intersections or use of twinned holes.</p> <p>All data and interpretative inputs to Mineral Resource estimates are checked and verified in accordance with a range of Newcrest standard operating procedures. Diamond drill core samples are processed in-house using a dedicated core processing facility, sample preparation and analytical laboratory. All resource logging data is automatically uploaded to the resource database via logging notebook computers. Newcrest employs a centralised resource drill hole database team to check, verify and validate new data and to ensure the integrity of the total resource database.</p> <p>Day-to-day management of the resource data is undertaken by the database administrator on site using the acQuire database system. Prior to resource estimation a centralised resource team conducts further data checks to ensure data integrity prior to estimation. The 2012 resource model flagged issues with Ag assays and detection limits for a range of drill holes. The 2016 resource model addressed these issues by validating the database against the original hard copy results. This saw the removal of negative values, correction of values below detection limit and correction of the raw assay values in the database to reflect that of the original hard copy. In addition, a campaign of re-assaying of stored pulps for silver was undertaken to bring the precision levels for silver assays to industry standard for Mineral Resource and Ore Reserve reporting.</p> <p>Regular internal and external reviews of all geological and Mineral Resource estimation processes are conducted to check the quality and integrity of these procedures. No adjustments have been made to assay data.</p>
<p>Location of data points</p>	<p>The Cadia East grid and coordinate system is consistent with all Cadia Valley Operations. The grid is aligned at 30 degrees to the east of true north and at 19 degrees to the east of magnetic north. Local RL is sea level +5000 metres.</p>

Criteria	Commentary
	<p>Surface topography across the Cadia East area is based on a combination of theodolite surveyed ground pick-ups and air photogrammetry. Photogrammetry is levelled by ground surveyed points. The data are considered accurate to within 500 mm.</p> <p>Drill hole collars positions are determined by mine surveyors.</p> <p>Currently, drill holes are surveyed using a Axis Champ Gyro Navigator system, with single shot surveys completed at 15m intervals downhole. Holes with a dip between +15 degrees from horizontal and -15 degrees from horizontal are surveyed using continuous survey method, producing a relative survey from collar. This system provides a rudimentary control on the drill hole path.</p> <p>Previously, drill holes were surveyed using a combination of electronic and gyroscope survey tools. Normally single shot surveys using the Ranger EMS system are completed at 30m intervals downhole. This system provides a rudimentary control on the drill hole path. Multi Shot EMS Surveys using the Reflex system are conducted at end of hole.</p> <p>Where drilling angles have permitted, recent holes have been gyroscope surveyed as close to the end of hole as possible. Where Gyro surveys were not taken due to poor access or unavailability, the Multishot surveys are checked, edited if required and smoothed with a 5 point smoothing formula.</p>
Data spacing and distribution	<p>The data spacing varies from 20 m x 20 m to 200 m x 200 m. In current caving operations the drill hole spacing is 60 m x 60 m. Cadia East is a copper-gold porphyry deposit mined on a bulk underground scale with grade distributions characterised by low nugget effects and long variogram ranges. As such the data spacing is sufficient to establish the degree of geological and grade continuity appropriate for Indicated Mineral Resource and Probable Ore Reserve classification.</p> <p>Drill hole data are 10 m downhole composited for geological interpretation and grade estimation. No other type of samples (e.g. grabs) nor compositing have been applied.</p>
Orientation of data in relation to geological structure	<p>Gold and copper mineralisation at Cadia East is predominately hosted in a sheeted quartz vein system that strikes East-West and dips 75° towards the north. Majority of the drill programs conducted prior to 2012 are surface drill holes and drilled orthogonal to the vein system orientation (North to South or South to North).</p> <p>Drill holes since 2012 are underground sub-vertical primarily for preconditioning of Panel Cave 1 Stage 1 and Panel Cave 2 Stage 1. These holes are assayed and used in resource estimates. In addition, horizontal infill holes are drilled occasionally from underground to map major structures and provide grade confidence for production reliability.</p> <p>There does not appear to be any bias between drilling orientation and assay results.</p>
Sample security	<p>Samples are transported from drill site to the core shed by the drilling contractor. On completion of cutting the core, the samples are dispatched by courier to the Newcrest Laboratory in Orange. Sample dispatches are reconciled against Laboratory samples received and discrepancies reconciled by geology staff.</p>
Audits or reviews	<p>Independent external reviews of sampling techniques have been undertaken in the past with no fatal flaws identified.</p>

Section 2 Reporting of Exploration Results

Criteria	Commentary
Mineral tenement and land tenure status	<p>The Cadia East copper-gold deposit is located approximately 20 km south-west of Orange in central NSW. Cadia East is situated within ML1405, granted 5 Oct 1996 and covering 3116 ha. Leases are wholly owned by Newcrest. Infrastructure relating to mining of the deposit is also contained within ML1481, granted 8th March 2001 covering 584.1 ha., ML1689, granted 11 Sept 2012 covering 153.6 ha., and ML1690, granted 10 Sept 2013 covering 70.4 ha</p>
Exploration done by other parties	<p>Gold was discovered in the Cadia Valley in 1851. Little Cadia was discovered and excavated by Samuel Stutchbury (Government Geologist) in May 1851. Mining occurred by the Canobolas Copper Mining Company from 1856 to 1861. Activity commenced in 1856 at the Cadiangullong Mine. The Scottish Australian Mining Company leased the land in July 1861. Mining commenced in October 1861. The erection of a smelter established a focus for the mine and a village arose for the mine and smelter workers. During the period from the 1870's to the turn of the century, the local population was largely sustained by small scale gold mining and brief periods of copper mining but never on a scale similar to the 1860s.</p> <p>In 1899 the Scottish Australian Mining Company turned to possible exploitation of the iron ores at Big Cadia. The lease at Big Cadia was confirmed in November 1907, but required the construction of a branch rail line</p>

Criteria	Commentary
	<p>from Spring Hill to Cadia. In February 1908, Carne reported that the principal focus of the Syndicate was to exploit the secondary copper ore under the Big Cadia (Iron Duke) iron lode. Other lodes in the area were being mined for sulphide ore for fluxing. Mining peaked during 1913 but closed down in 1914 when WW1 broke out. Intermittent mining was carried out until 1917 when the mine was permanently closed.</p> <p>Modern era exploration at Cadia was prompted by its proximity to the Cadia mineralised district, and in particular by the recognition of magnetic features, which can easily be interpreted as westward extensions or repetitions of the magnetic anomaly over the magnetite skarn at Big Cadia. In 1985, Homestake Australia drilled two percussion holes to a depth of 95 metres to test a magnetic anomaly with poor results.</p> <p>The Cadia area was acquired by Newcrest Mining in 1991. After initially exploring the Big Cadia (Iron Duke) skarn, the focus changed to Cadia Hill. The recognition of the porphyry-style system, partially obscured by post mineral Silurian sediment cover, resulted in a core drilling programme with the discovery hole being drilled in 1992. At the same time an extensive halo of low grade mineralisation was delineated to the northwest of the deposit confirming the northwest – southeast alignment of mineralisation.</p>
Geology	<p>The Cadia gold copper deposits are hosted by a late Ordovician to early Silurian shoshonitic volcano-intrusive complex which forms part of the larger zone of arc-related volcanic and associated intrusive rocks in the eastern Lachlan Fold Belt. Mineralisation at Cadia is hosted by the mid to late Ordovician Forest Reefs Volcanics and the underlying Weemalla Formation and by the late Ordovician – early Silurian Cadia Intrusive Complex (CIC). The CIC is a multi-phase alkalic intrusive suite petrographically ranging from gabbro to syenite with volumetric dominance by monzonite and diorite. All mineralisation in the CVO area is thought to be related to igneous and hydrothermal fluids derived from this complex of intrusive rocks. Post-mineral cover comprises Silurian Cadia Coach Shale and a relatively thin capping of Tertiary basalts and gravels in some areas. Recognised structural controls include the regional northwest corridor and post-mineral faulting. The NW corridor is a dilation zone thought to control the emplacement of the CIC. The post-mineral faulting is in two dominant orientations: northwest striking faults (including the PC40 fault through the Big Cadia skarn deposit and the North Fault at Ridgway); and north-south faults typically west over east thrust systems (including Cadiangullong and Gibb Fault).</p> <p>The Cadia East deposit is hosted within the Forest Reef Volcanics (FRV) and porphyry intrusions. A north-east trending mass of narrow sheet like dykes of monzonitic to dioritic compositions intrude the lower parts of the FRV at Cadia East. These intrusives are largely restricted to the eastern half of the deposit although some narrow dykes and isolated bodies of monzonite have been recognised in the western end. At the upper western end of the deposit immediately underneath the Gibb Fault, isolated narrow (10 m) intersections have been identified with south dipping mineralised quartz veining. These occurrences are interpreted to be the Cadia Hill Monzonite.</p> <p>Mineralisation at Cadia East can be divided into two broad overlapping zones: an upper, copper rich disseminated zone and a deeper gold-rich zone associated with sheeted veins. The upper zone forms a relatively small cap to the overall mineralised envelope and has a core of disseminated chalcocopyrite, capped by chalcocopyrite-pyrite mineralisation. The upper zone mineralisation is stratigraphically controlled within the volcanoclastic unit. This zone is transitional to the deeper vein style mineralization. The deeper zone is localised around a core of steeply dipping sheeted quartz-calcite-bornite-chalcocopyrite-molybdenite, with the highest gold grades associated with the bornite-bearing veins. Copper and molybdenite form a mineralised blanket above and to the east of the higher grade gold envelope.</p>
Drill hole Information	<p>No exploration results are reported in this release, therefore this section is not relevant.</p> <p>The treatment of drill data has been articulated in Section 1.</p>
Data aggregation methods	<p>No exploration results are reported in this release, therefore this section is not relevant.</p> <p>Drill hole data are downhole composited to 10 m and used in the Mineral Resource estimate in entirety.</p>
Relationship between mineralisation widths and intercept lengths	<p>No exploration results are reported in this release, therefore this section is not relevant.</p> <p>Drill hole data are downhole composited to 10 m and used in the Mineral Resource estimate in entirety.</p>
Diagrams	<p>No exploration results are reported in this release, therefore this section is not relevant.</p>
Balanced reporting	<p>No exploration results are reported in this release, therefore this section is not relevant.</p>
Other substantive exploration data	<p>No exploration results are reported in this release, therefore this section is not relevant.</p>

Criteria	Commentary
Further work	No exploration results are reported in this release, therefore this section is not relevant.

Section 3 Estimation and Reporting of Mineral Resources

Criteria	Commentary
Database integrity	Data are stored in a SQL acquire database. Assay and geological data are electronically loaded into acquire and the database is replicated in Newcrest's centralised database system in Melbourne. Regular reviews of data quality are conducted by site and corporate teams prior to resource estimation, in addition to external reviews.
Site visits	The Competent Person for the Mineral Resource estimate is an employee of Newcrest Mining Limited and is based on Cadia.
Geological interpretation	<p>The geology model for the Cadia East deposit includes lithology and major structural faults. The structural interpretation was updated from the 2012 model for the pyrite faults, Ca-La Crunch faults and Carbonate faults across the Cadia East deposit. Modelling of the fault and lithological boundaries/planes relies on data obtained from drill core and underground mapping.</p> <p>Alteration and lithology were both interpreted in anticipation of being used as estimation domains, however, statistical testing did not give any convincing evidence of either being a major control on mineralisation so they have not been required to date.</p> <p>The major faults were used as estimation domains, with semi-soft boundaries implemented where geostatistical testing warranted.</p> <p>The factor most influencing grade continuity is that Cadia East is a porphyry copper-gold mineralisation exhibiting properties of the diffusion model, which adds high confidence in the geological interpretation.</p>
Dimensions	The Cadia East deposit occupies a mineralised zone 2.3 km in a strike length (East – West), 1.1 km in width and 1.8 km in a vertical extent. The deposit does not outcrop as it is overlain by between 80 and 200 metres of post mineralisation sandstones and shales.
Estimation and modelling techniques	<p>Geostatistical testing of the gold and copper grade distributions showed that the Cadia East mineralization exhibits classical diffusion properties (where the grades transgress from the high-grade core to lower-grade peripheries in a systematic and controlled manner).</p> <p>Variogram models for copper and gold also exhibit low nuggets and long ranges. The coefficient of variation of copper and gold are relatively low at around 1 - 1.5 indicating that grade estimation will not be problematic.</p> <p>Cadia East is a bulk mining (block cave) operation, and the SMU is basically the whole panel footprint divided vertically into yearly draw increments. However, individual draw point dimensions are taken into account for local estimation precision (the mineralisation style allows so).</p> <p>Ordinary Kriging (OK) of copper, gold, sulphur, silver, molybdenum and fluorine are undertaken directly into 20 m x 20 m x 20 m blocks.</p> <p>Prior to 2012 estimation domains were defined based on grade shells. Domain boundaries were treated as hard contacts. The 2012 and 2016 Resource Models were domained utilising structural surfaces for gold, copper, silver, molybdenum and sulphur. Semi-soft boundaries (20 m) were used between the Ca-La Crunch faults while the lower porphyry surface was treated as a hard boundary. The 0.1% copper grade shell was used to constrain estimation as a global domain. A review of the 2012 fluorine domains was conducted as per SRK recommendation and the fluorine estimation domains for the 2016 resource model utilises the Ca-La Nth structure, the lower porphyry surface and the combined basalt lithology. Fluorine is a potentially deleterious element.</p> <p>Kriging Neighbourhood Analysis is used to define the search neighbourhood for all elements. All elements are estimated independently of each other regardless of the degree of correlation, as each element has its own grade continuity characteristics which are not necessarily reflected in the correlations.</p> <p>Copper and gold grades are not capped as Monte Carlo based Metal-at-Risk analysis indicates that all the 10 m composites are representative of the mineralisation style.</p> <p>The resource model is validated via visual, geostatistical and production reconciliation methods.</p>
Moisture	All tonnages are calculated and reported on a dry tonnes basis.

Criteria	Commentary
Cut-off parameters	<p>A value algorithm is used to calculate the net smelter return (NSR) for each block using revenue and cost assumptions as of 31 December 2017.</p> <p>The NSR calculation takes into account Mineral Resource revenue factors, metallurgical recovery assumptions, transport costs and refining charges and royalty charges.</p> <p>The site operating costs include mining cost, processing cost, relevant site general and administration costs and relevant sustaining capital costs. This cost equates to a break even cut off value of approximately AUD18.50/t milled.</p> <p>Blocks with a value above AUD18.50/t are eligible to qualify for Mineral Resource reporting.</p>
Mining factors or assumptions	<p>As Cadia East is a bulk mining operation employing panel caving, the Mineral Resource reporting does not allow a block by block classification.</p> <p>Instead a shell is generated using AUD18.50/t as the value cut-off and the contents of the shell are reported in its entirety as the Mineral Resource (provided they are also classified Indicated and/or Inferred).</p>
Metallurgical factors or assumptions	<p>Metallurgical amenability is derived from current operating Cadia Plant performance. Metallurgical factors have been incorporated into the value algorithm which constrains the Mineral Resource classification. These include recovery formulas for gold, copper, silver and molybdenum.</p>
Environmental factors or assumptions	<p>No environmental factors were deemed necessary for the resource estimate.</p>
Bulk Density	<p>All bulk density measurements are carried out in accordance with site standard procedures for Specific Gravity. Intervals for bulk density determination are selected according to lithology/ alteration/mineralisation type to best represent certain intervals as defined by the geologist. The measurements are performed on site by geologists or geological assistants as part of the logging process. Measurements are generally taken at 20 metre to 50 metre intervals down hole.</p>
Classification	<p>The Mineral Resource estimate has been classified as Indicated Mineral Resource only, based on an assessment of geological confidence as a function of geological and mineralisation continuity. Criteria used to classify the resource estimate are summarised below:</p> <ul style="list-style-type: none"> • Constrained inside a AUD18.50/t value shell; <ul style="list-style-type: none"> ○ Indicated resources are constrained within the value shell. ○ Value algorithm incorporates mining, processing, transport and administration costs. Metallurgical recovery formulas are applied to all metals. • Grade continuity and drill hole density; <ul style="list-style-type: none"> ○ Classification is based on Extension Variance methods. These methods are consistent with classification approaches used at other Newcrest and joint venture sites (for similar mineralisation styles). Based on this work; a block is Indicated if its informing data is on average \leq 100 m (weighted average distances) away and/or has a gold slope of regression value of >0.75. ○ Through the classification process, approximately 6% of gold and copper of the total undepleted mineral resource is within indicated blocks of greater than 120m weighted average distance. For an Indicated Resource it is considered reasonable for the relative uncertainty to be +/- 15% in tonnage, grade and metal (exclusive of each other, i.e., each variable has to satisfy the criteria) for an annual production volume at a 90% confidence level. Geostatistical evaluations indicate that based on the annual processing throughput this criteria are satisfied. Relative uncertainties and confidence level estimates are considered for both gold and copper. ○ Mine to mill reconciliation for FY19 was 100% tonnes, 100% gold metal and 102% copper metal supports the above classification. • Geological and mineralisation continuity; <ul style="list-style-type: none"> ○ Mineralisation at Cadia East is a very large, diffuse, low to moderate grade porphyry related gold-copper-silver-molybdenum deposit. Aside from the Gibb Fault, structural dismemberment is negligible and does not affect continuity. <p>The resource classification methodology has been tested with geostatistical evaluations, and appropriately confirms the Competent Person's view of the deposit.</p>
Audits or reviews	<p>The current Mineral Resource estimate has been externally reviewed by SRK in December 2016 and there are no issues or concerns with the Mineral Resource inputs, process and execution. SRK conclude that the</p>

Criteria	Commentary
	Mineral Resource estimate is suitable for reporting in accordance with the requirements of the JORC Code (2012).
Discussion of relative accuracy/ confidence	<p>For an Indicated Resource it is considered reasonable for the relative uncertainty to be +/- 15% in tonnage, grade and metal (exclusive of each other, i.e., each variable has to satisfy the criteria) for an annual production volume at a 90% confidence level. Geostatistical evaluations indicate that based on the annual processing throughput this criteria are satisfied. Relative uncertainties and confidence level estimates are considered for both gold and copper.</p> <p>Detailed monthly mine reconciliations have been maintained since production commenced. The mine reconciliations confirm that the in situ tonnage, grade and metal variances are well within the Indicated Resource relative uncertainty band.</p> <p>Mine to mill reconciliation for FY19 was 100% tonnes, 100% gold metal and 102% copper metal.</p>

Section 4 Estimation and Reporting of Ore Reserves

Criteria	Commentary
Mineral Resource Estimate for conversion to Ore Reserves	<p>Cadia East is a large low to moderate grade, porphyry related gold and copper deposit that is located immediately east of Cadia Hill and separated by a major thrust fault (the Gibb Fault). Known mineralisation extends approximately 2.3 kilometres east-west, 1.1 kilometres north-south and 1.8 kilometres vertically. The deposit does not outcrop as it is overlain by between 80 and 200 metres of post mineralisation sandstones and shales. The mineralisation can be divided into two broad overlapping zones; an upper, copper-rich, disseminated zone and, a deeper gold-rich zone associated with sheeted veins.</p> <p>The Mineral Resource grades were estimated with Ordinary Kriging of 10 m composites for six elements: gold, copper, silver, molybdenum, sulphur, and fluorine. The grades were estimated directly into 20 m x 20 m x 20 m blocks.</p> <p>The Mineral Resource is classified based on geological confidence as a function of grade continuity and drill hole density, as well as geological and mineralisation continuity. Indicated Mineral Resources were constrained within a 'value' shell representing the limit to eventual economic extraction.</p> <p>The reported Cadia East Mineral Resources are inclusive of Ore Reserves.</p>
Site Visits	The Competent Person for the Ore Reserve estimate is an employee of Newcrest Mining Limited and is based on site.
Study Status	<p>A Pre-Feasibility Study was completed in 2018 to update the supporting basis for the Cadia East Ore Reserve estimate. Cadia East Panel Cave is an operating mine for the Cadia Valley Operations (CVO) province and the Pre-Feasibility Study incorporates learnings from operational execution to date. The Pre-Feasibility Study shows that the mine plan is technically achievable and economically viable taking into consideration all material Modifying Factors.</p> <p>A Feasibility Study for the PC2-3 mining block has been completed as part of the Cadia East Expansion Feasibility Study. This study provides an update for the mining plan for this specific area of the operation along with updates to the production plan, site cost and metallurgical parameters for the life of mine Ore Reserves plan. These updates did not result in any material change in the Ore Reserve estimate.</p>
Cut-off Parameters	<p>The Cadia East Ore Reserve employs a value based cut-off determined from the Net Smelter Return (NSR) value equal to the site operating cost included within the Pre-Feasibility Study and as updated in the PC2-3 Feasibility Study.</p> <p>The NSR calculation takes into account revenue factors, metallurgical recovery assumptions, transport costs, refining charges, and royalty charges.</p> <p>The site operating costs include mining cost, processing cost, relevant site general & administration costs and relevant sustaining capital costs. This cost equates to a break even cut off value of approximately AUD18.50/t milled.</p>
Mining factors or assumptions	Estimation of the Cadia East Ore Reserve involved standard steps of mine optimisation, mine design, production scheduling and financial modelling. Factors and assumptions have been based on operating experience and performance in CVO caving operations. The basis of the analysis is considered at Pre-Feasibility Study level or higher.

Criteria	Commentary										
	<p>The preceding Feasibility Study (2010) and current underground cave mining activities at Cadia East support the appropriateness of the selected mining methods as the basis of the forward Ore Reserve estimate.</p> <p>Ongoing geotechnical studies and monitoring utilising experience and data from the current underground operations provide ongoing key direction for stability, design and schedule sequence parameters.</p> <table border="1" data-bbox="406 369 1396 936"> <thead> <tr> <th data-bbox="411 376 901 427">Mine Design Parameter</th> <th data-bbox="906 376 1391 427">Value</th> </tr> </thead> <tbody> <tr> <td data-bbox="411 434 901 521">Undercut Design & Strategy</td> <td data-bbox="906 434 1391 521">High Post Undercut for PC2-3 block. W Cut with Apex level for all other blocks.</td> </tr> <tr> <td data-bbox="411 528 901 580">Extraction Level Layout</td> <td data-bbox="906 528 1391 580">El Teniente</td> </tr> <tr> <td data-bbox="411 586 901 638">Extraction Spacing</td> <td data-bbox="906 586 1391 638">32m x 20m</td> </tr> <tr> <td data-bbox="411 645 901 929">Draw Column Height</td> <td data-bbox="906 645 1391 929"> Maximum PC1 – 1200 m PC2 – 1400 m PC2-3 – 1400 m PC1-2 – 1170 m PC1-4 – 1120 m PC5001 – 850 m PC3-1 – 460 m </td> </tr> </tbody> </table> <p>The following Modifying Factors have been applied:</p> <ul data-bbox="443 1037 1430 1155" style="list-style-type: none"> • All development has mining factors for dilution and recovery applied to accurately represent the expected mined tonnes; and • PCBC™ software is used for cave production scheduling and estimation of grade for material drawn from the block caves. <p>Due to the approach adopted in the resource model where low grade material is included within all mining zones, no additional mining dilution or recovery factors have been applied to the Ore Reserve estimate. This assumption is supported by the grade control processes undertaken and the actual reconciliation between resource model and mill performance at the project to date being within an acceptable uncertainty range for the style of mineralisation under consideration.</p> <p>The resource model is comprised of Indicated Mineral Resources only. Mine plans are based on the extraction of caving blocks solely delineated on the basis of these Indicated Mineral Resources.</p> <p>Ore Reserves estimates and statements are required to include estimates of dilution. The dilution included in the total Ore Reserve is approximately 75Mt which is comprised of unclassified material. This is a relatively small proportion (6% of the gold metal and 5% of the copper metal) of the tabled Ore Reserve and does not have a material impact upon the estimate. As this is dilution material associated with the block cave mining method, it has been incorporated into the Ore Reserve estimate. Even without consideration of the metal contained in the dilution incorporated in the Ore Reserve, the economic analysis indicates an economic Probable Ore Reserve.</p> <p>The remaining mining blocks for Cadia East are brownfields projects and will require the following mining infrastructure to support the caves:</p> <ul data-bbox="443 1731 1034 1850" style="list-style-type: none"> • Ventilation fans and refrigeration equipment; • Materials handling systems extensions; • Additional crushing and conveying equipment; and • Underground workshop, service and personnel facilities. 	Mine Design Parameter	Value	Undercut Design & Strategy	High Post Undercut for PC2-3 block. W Cut with Apex level for all other blocks.	Extraction Level Layout	El Teniente	Extraction Spacing	32m x 20m	Draw Column Height	Maximum PC1 – 1200 m PC2 – 1400 m PC2-3 – 1400 m PC1-2 – 1170 m PC1-4 – 1120 m PC5001 – 850 m PC3-1 – 460 m
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Metallurgical factors or assumptions	<p>Processing of the Cadia East underground ore stream will be through Cadia Valley Operations Ore Treatment Plant concentrators 1 & 2. Metal recovery is through gravity and conventional flotation to a copper/gold concentrate. This circuit currently processes Cadia East Material with a similarly styled material to future ore sources. Cadia East is the sole source of feed for both Concentrator 1 and Concentrator 2. Production of 33mtpa is anticipated to be produced through the concentrators. While the scale of processing will position the operation among the world's largest gold mines, the technology associated with the ore</p>										

Criteria	Commentary
	<p>processing is industry standard for this style of deposit and is already custom and practice at CVO with many years of operational experience.</p> <p>An update to the process plant infrastructure and recovery assumptions were completed during the Cadia Expansion Feasibility Study (2019) including proposed upgrades to the circuit to boost throughput and recovery. These assumptions have been validated to at least a PFS level through detailed analysis, laboratory testwork and the baseline confirmed as representative by reconciliation of production parameters to date of Cadia East ore through the currently installed processing plant. Recoveries for gold are anticipated to range between approximately 70% and 85%. Recoveries of copper are expected to range between approximately 80% and 87% through the life of the project. Recoveries of molybdenum are expected to range between 65% and 75%.</p> <p>The construction of a molybdenum plant has been gated into execution, driven by the production schedule with grades of molybdenum expected to rise to economic levels. The molybdenum plant is planned to create a specific molybdenum concentrate sold as a separate saleable product with revenue from molybdenum included in the Ore Reserve estimation process. This plant is likely to be commissioned during calendar year 2021. For Ore Reserves estimation purposes revenue from molybdenum has only been included from 1 July 2021. Prior to this date the processing of ore will continue as currently undertaken and no specific molybdenum concentrate will be produced. Once operating, and under the operational parameters identified as likely in the Feasibility Study, the molybdenum plant will continue to operate during the full remaining life of the Cadia East deposit.</p> <p>Fluorine is the key deleterious element for the gold/copper concentrate product with smelter penalties incurred on the basis of fluorine content. Newcrest has installed sufficient auxiliary processing facilities to remove fluorine from the final concentrate as a penalty element from sales of its concentrate.</p>
Environmental	<p>Cadia presently holds a Project Approval for the Cadia East Project under both NSW and Commonwealth legislation until 30 June 2031. Minor amounts of waste will be generated from the Cadia East mine and these will be stored within existing waste storage facilities.</p> <p>Modifications to this Project Approval under the NSW Environmental Planning and Assessment Act 1979 (EP&A Act) will be required over the life of the life of the Ore Reserves period with the storage of tailings a key consideration. Studies to determine the long term tailings storage beyond the current facilities are ongoing and will be submitted for modification as required over the life of the asset.</p>
Infrastructure	<p>A majority of the surface infrastructure is now complete for the Cadia East mine. Additional surface infrastructure planned for the future includes:</p> <ul style="list-style-type: none"> • Additional circuit crushing & grinding capacity; and • Molybdenum plant. <p>Underground infrastructure will continue to operate over the mine life as additional mining blocks are established to maintain the mill rate. Both surface and additional underground infrastructure requirements are dictated by the production schedule.</p> <p>Provision has been made in the Ore Reserves estimate for future capital expenditure requirements relating to infrastructure during the life of the mine based on most recent estimates.</p>
Costs	<p>Capital and operating costs have been determined as part of the Pre-Feasibility Study. Updates to these costs have been completed as part of the PC2-3 Feasibility Study but have not materially altered the Ore Reserve.</p> <p>Capital cost estimates are based on multiple market prices across all technical disciplines and include processing upgrade and mine development costs along with associated infrastructure, project establishment and sustaining capital costs. These provisions have been allowed for during the life of the mine based on most recent Pre-Feasibility plan estimates. Contingency has also been factored into the project capital cost estimate consistent with the level of accuracy of the study.</p> <p>The operating cost estimate is based on the current operating cost base modified for changing activity levels and reasonable cost base reductions over the life of the mine. The operating costs include the mining cost, processing cost, relevant site general and administration costs. Ore Reserve cost estimates have been reviewed as part of the study execution, are reviewed annually and are considered to be to a Pre-Feasibility Study level.</p> <p>Long term metal prices and exchange rate assumptions adopted in the Pre-Feasibility 2018 are US\$1,200/oz for gold, US\$3.00/lb for copper, US\$18/oz for silver and US\$8/lb for molybdenum at a</p>

Criteria	Commentary
	<p>USD:AUD exchange rate of 0.75. These assumptions are consistent with Newcrest metal price guidelines for December 2019 Ore Reserve reporting. No cost impact is expected from deleterious elements.</p> <p>Transport and refining charges have been developed from first principles consistent with the application and input assumptions for these costs used by the current operation.</p> <p>Royalties are calculated as 4% of block revenue less all off site realisation costs (TCRC's), less ore treatments costs and less one third of site general and admin cost.</p>
Revenue factors	<p>Long term metal prices and exchange rate assumptions adopted in the Pre-Feasibility Study 2018 Ore Reserve estimation process are US\$1,200/oz for gold, US\$3.00/lb for copper, US\$18/oz for silver and US\$8/lb for molybdenum at a USD:AUD exchange rate of 0.75. These assumptions are consistent with Newcrest metal price guideline for the December 2019 Ore Reserve reporting.</p> <p>The NSR calculation takes into account reserve revenue factors, metallurgical recovery assumptions, transport costs and refining charges and royalty charges.</p>
Market assessment	<p>Newcrest is a price taker and gold is sold on the open market and subject to price fluctuations. Supply and demand for gold from CVO is not a constraint in the estimation of the Ore Reserve.</p> <p>CVO has sold copper concentrate for its operational life into the world concentrate markets and this is assumed to continue under conditions similar to Newcrest's current market agreements over the life of the operational plan.</p> <p>Concentrate volume forecasts were derived from the Pre-Feasibility Study production schedule.</p>
Economic	<p>The Ore Reserve has been evaluated through a financial model. All operating and capital costs as well as revenue factors stated in this document were included in the financial model. A discount factor of 4.75% real was applied. This process demonstrated the Cadia East Ore Reserve to have a positive NPV.</p> <p>Sensitivities were conducted on the key input parameters including commodity prices, capital and operating costs, ore grade, discount rate, exchange rate and recovery which confirmed the estimate to be robust. The NPV range has not been provided as it is commercially sensitive.</p>
Social	<p>The Cadia East project builds on the agreements and social licence for operation as developed for Ridgeway SLC & Block Cave and the Cadia Hill open pit as part of the Cadia Valley Operations permits and licencing. Socio-economic evaluations of the Cadia Valley Operations (Cadia or CVO) incorporating community and stakeholder surveys and engagement activities and regional economic impact assessments, has shown positive impacts on employment, income, business turnover and Gross Regional Product (GRP). Cadia regularly consults and this continued engagement with the community and developing and maintaining one-on-one relationships with key stakeholders, will be vital to the maintenance of a social licence to operate.</p>
Other	<p>Cadia Holdings Pty Ltd (CHPL) holds four current mining leases covering CVO. CVO has a number of legal and marketing arrangements related to its ongoing operational requirements. None of these arrangements are likely to materially impact upon the Cadia East Ore Reserve estimate. CVO are in material compliance with all legal and regulatory requirements.</p> <p>The Cadia East deposit is located in an area which has been seismically active both prior to and subsequent to mining by CVO. These events can produce seismic loading at the site and this risk is taken into account in the design of the infrastructure.</p> <p>The storage of tailings and the efficient recovery of water during tailings placement is a requirement for the Ore Reserve. CVO has recently experienced a failure of one of its tailings storage facilities, the Northern Tailings Storage Facility (NTSF). Studies to determine the storage of tailings beyond the current facilities, including components that seek to improve the recovery of water are being progressed in line with the requirements identified in the Pre-Feasibility Study and the recommendations of the NTSF Independent Technical Review Board. Modifications to the current site operating permits and licence will be submitted once these studies are complete and as required over the life of the asset. This element of the plan represents a risk to the Ore Reserves if a viable tailings storage solution cannot be found.</p>
Classification	<p>The Ore Reserve classification is based on Indicated Mineral Resources only. No Measured Mineral Resources are stated for this deposit. This classification is based on geological confidence as a function of continuity and complexity of geological features; data spacing and distribution and estimation quality parameters including distance to informing samples for block grade estimation.</p> <p>Unclassified material has been included within the Probable Ore Reserve as mined dilution due to the non-selective nature of block cave mining. This is a relatively small proportion (1.3 Moz gold or 6% & 0.2Mt</p>

Criteria	Commentary
	<p>copper or 5%) of the tabled Ore Reserve. Even without consideration of unclassified material in the mining inventory, the proportion of Indicated material would still conclusively deliver a Probable Ore Reserve.</p> <p>It is the Competent Person's view that the classifications used for the Ore Reserves are appropriate.</p>
Audits or reviews	<p>SRK Consulting (Australasia) Pty Ltd (SRK) was commissioned to conduct an independent review of the mining section of the Pre-Feasibility Study, which included the Ore Reserve estimation processes and results.</p> <p>SRK concluded that the Ore Reserve estimate had been prepared appropriately and has been appropriately classified as a Probable Ore Reserve. SRK identified that final cave volumes have the potential to be a material issue over the life of the Ore Reserve however current estimates are appropriate at this time.</p>
Discussion of relative accuracy/ confidence	<p>The accuracy of the estimates within this Ore Reserve is mostly determined by the order of accuracy associated with the Mineral Resource model, the geotechnical input and the cost factors used.</p> <p>The Competent Person views the Cadia East Ore Reserve a reasonable assessment of the global estimate. Some risk and opportunity is associated with the Ore Reserve process due to the prolonged operating life of the mine. Key opportunity and risk areas are associated with:</p> <ul style="list-style-type: none"> • Cost base assumptions rely on current technology and macroeconomic factors. Changes to these assumptions will have an impact on the Ore Reserve estimate. • The Modifying Factors (key inputs) for Ore Reserve estimation rely upon the geology and geotechnical data inherent to the orebody. This data, such as geological structures and rock mass properties, is to the appropriate definition and have been applied within Pre-Feasibility Study, however further orebody data is required to confirm the geological and geotechnical information and is planned as part of the Forward Works Programme. <p>Overall reconciled performance of the Cadia East Ore Reserve estimate for FY19 was 100% tonnes, 100% gold metal and 102% copper metal when reconciled to mill production.</p>