

**GLENCORE**  
**Resources & Reserves**  
as at 31 December 2022

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# About this report

We report our resources and reserves in accordance with the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code), the 2016 edition of the South African Code for Reporting of Mineral Resources and Mineral Reserves (SAMREC), the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Standards on Mineral Resources and Reserves (2014 edition) and the Petroleum Resources Management System (PRMS) for reporting oil and natural gas Reserves and Resources.

The term 'Ore Reserves', as defined in Clause 28 of the JORC Code, has the same meaning as 'Mineral Reserves' as defined in the CIM Definition Standards for Mineral Resources and Mineral Reserves.

## Overview

The resource and reserve data in the following tables are as at 31 December 2022, unless otherwise noted. For comparison purposes, data for 2021 has been included.

Metric units are used throughout.

All data is presented on a 100% asset basis, with the Glencore attributable percentage shown against each asset, with the exception of Oil assets which are shown on a working interest basis.

All tonnage information has been rounded to reflect the relative uncertainty in the estimates; there may therefore be small differences in the totals.

The Measured and Indicated resources are reported inclusive of those resources modified to produce reserves, unless otherwise noted.

Commodity prices and exchange rates used to establish the economic viability of reserves are based on long-term forecasts applied at the time the reserve was estimated.

Where resources and reserves have not been updated, on the basis that the information has not materially changed since it was reported under JORC 2004, this information has not been updated to comply with the JORC code 2012. Reference is given in the report where this is the case.

## Competent/Qualified Persons

Resource and reserve estimates are based on information compiled by Competent Persons (as defined by the JORC, SAMREC Codes), Qualified Persons (as defined by CIM Definition Standards for Mineral Resources and Mineral Reserves) and Adequately Qualified Persons (as defined by PRMS).

Each of the Competent/Qualified Persons has the appropriate professional membership and the relevant experience in relation to the resources and/or reserves being reported by them to qualify as a Competent or Qualified Person as defined in the relevant code or standard. Each has consented to the inclusion of their resource and reserve estimates in the form and context in which it appears in this report.

## Copper

The Copper Mineral Resources and Ore Reserves Statement at 31 December 2022 has been compiled in accordance with the JORC Code.

The Mineral Resources and Ore Reserves statements have been reviewed and the relevant data extracted and compiled by Mark Jamieson, Glencore Copper (AusIMM).

## Zinc

The Zinc Mineral Resource and Ore Reserve Statement at 31 December 2022 has been compiled in accordance with the JORC Code.

The Mineral Resource and Ore Reserve statements have been reviewed and the relevant data extracted and compiled by Jody Todd, Glencore Zinc (AusIMM).

## Nickel

The Canadian and New Caledonian Mineral Resource and Reserve estimates are prepared in accordance with the CIM Definition Standards on Mineral Resources and Mineral Reserves, adopted by CIM Council on 10 May 2014, and the CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines, adopted by CIM Council on 29 November 2019, and have been compiled using geo-statistical and/or classical methods, plus economic and mining parameters appropriate to each project.

The Mineral Resource and Ore Reserve estimates at Murrin in Australia have been prepared in accordance with the JORC Code.

The Mineral Resource and Ore Reserve statements at 31 December 2022 have been reviewed and the relevant data extracted and compiled by Steve Kormos (PGO), Glencore Nickel.

## Ferroalloys

South African chromite, vanadium and manganese Mineral Resources and Ore Reserves in this report were prepared in accordance with the JORC Code.

The Chromite, Vanadium and Manganese Mineral Resource and Ore Reserve Statement at 31 December 2022 is based on the Glencore Ferroalloys "Procedure for the Estimation of Mineral Resources and Ore Reserves". Definitions of all the terms used in this report can be found in the relevant code.

The Mineral Resource and Ore Reserve statements have been reviewed and the relevant data extracted and compiled by Sulayman Yousuf Vaid, Glencore Ferroalloys (SAGC).

# About this report

## Coal

Australian, Canadian and Colombian Coal Resources and Reserves have been prepared in accordance with the JORC Code.

South African Coal Resources and Reserves have been prepared in accordance with the 2016 edition of the South African Code for Reporting of Mineral Resources and Mineral Reserves (SAMREC).

The Coal Resource and Reserve Statements as at 31 December 2022 conform to the requirements of these Codes and are consistent with Glencore Coal's internal Coal Resource and Reserve Estimation and Reporting Standard.

Coal resources have been estimated for all coal seams that have reasonable prospects for eventual economic extraction by open cut or underground mining methods within mining leases or exploration licences. In general, Coal Resources are reported within a geoshell limited by the areal and depth extent of the drill holes; i.e. there is very little inclusion of Coal Resources extrapolated beyond the extent of the geological data.

Coal Resources are excluded from those areas where the seam has been extracted or sterilised by mining.

The Coal Resource and Reserve Competent Person statements have been reviewed and the relevant data extracted and compiled by Matthew White, Glencore Coal.

## Oil

Oil and natural gas Resources and Reserves have been prepared in accordance with the PRMS jointly published by the Society of Petroleum Engineers, the World Petroleum Council, the American Association of Petroleum Geologists and the Society of Petroleum Evaluation Engineers, as amended.

The Oil Reserves statement has been reviewed and the relevant data extracted and compiled by McDaniel & Associates.

The Oil Resources statements for Equatorial Guinea and Cameroon have been reviewed and the relevant data extracted and compiled by Glencore.

## Relevant portfolio changes

### Acquisitions

Jan.22 Cerrejon (additional 66.7%)

### Disposals

Jan.22 Ernest Henry (Copper)  
 Mar.22 Bolivian operations (Zinc)  
 Jun.22 Chad E&P (Oil)  
 Dec.22 Los Quenuales (Zinc)

The Bracemac-McLeod zinc mine in Canada reached end of life during the year. There are no remaining Mineral Resources.

Disposed and depleted operations are no longer presented in this report (including comparatives).

Iron ore Mineral Resources and Ore Reserves have not been re-estimated since 2015 (refer earlier Glencore reports). They are not financially material to the Group and are, therefore, not reproduced in this report.

## Rounding convention

All tonnage information (including comparatives) has been rounded to reflect the relative uncertainty in the estimates; there may therefore be small differences in the totals. The application of the rounding convention in 2022 has led to small differences in the 2021 comparatives.

Values expressed in the text have not been rounded and therefore do not correlate directly with the tables. These refer to run-of-mine figures unless otherwise stated.

Individual tonnage assessments are added to show Group or Complex tonnages and geographical accumulations. These are not subjected to further rounding.

### Metals

Classification	Tonnage range	Rounding
Measured + Indicated	<0.1Mt	1 significant figure
Resources	0.1-50Mt	Nearest 0.1Mt
Proved + Probable	50-1,000Mt	Nearest 1Mt
Reserves	>1,000Mt	3 significant figures
Inferred	<0.1Mt	Not reported
	0.1-50Mt	Nearest 1Mt
	50-100Mt	Nearest 5Mt
	>100Mt	2 significant figures
Grades	%	2 decimal places
	g/t	2 significant figures

### Coal

Classification	Tonnage range	Rounding
Measured + Indicated	<10 Mt	1 significant figure
Resources	10Mt - 30Mt	2 significant figures
	30Mt - 100Mt	Nearest 5 Mt
Proved + Probable	>100Mt	2 significant figures
Reserves	>1,000Mt	Nearest 50Mt
Inferred	<100Mt	Nearest 10Mt
	100Mt - 400Mt	Nearest 50Mt
	>400Mt	Nearest 100Mt

# Definitions

Throughout this report, the following abbreviations and definitions have been used:

## Technical and industry terms:

3PGE	Three Platinum Group Elements (Pt, Pd and Rh)	NSR	Net Smelter Return
CV (kcal/kg)	Calorific Value, kilocalories per kilogramme	OC	Open cast or Open cut
DTC	Davis Tube Concentrate	OR	Ore reserves
EL	Exploration licence	QQ	Quantile quantile plot, a geostatistical method to assess modelled data against actual data
Geoshell	A broad envelope limited by the depth and areal extent of geological data points (primarily drill holes)	ROM	Run of mine
kt	Thousand tonnes	SX/EW	Solvent extraction and electrowinning
LOM	Life of mine	UG	Underground
LOX	Limit of oxidation	UG2	Upper Group No2 chromitite layer
LOZ	Lower oxidised zone	VMS	Volcanogenic Massive Sulphide
Mt	Million tonnes		

## Professional bodies and applicable standards:

AIG	Australian Institute of Geoscientists	ICOG-EurGeol	Ilustre Colegio Oficial de Geólogos – European Geologist
APEGBC	Association of Professional Engineers and Geoscientists of BC	JORC	Joint Ore Reserves Committee
APEGGA	Association of Professional Engineers Geologists and Geophysicists of Alberta	OGQ	Ordre des Géologues du Québec
		OIQ	Ordre des Ingénieurs du Québec
APEGNB	Association of Professional Engineers and Geoscientists of New Brunswick	PEO	Professional Engineers Ontario
		PGO	Professional Geoscientists Ontario
APGO	Association of Professional Geoscientists of Ontario	SAGC (formerly PLATO)	South African Council for Professional and Technical Surveyors
AusIMM	Australasian Institute of Mining and Metallurgy	PRMS	Petroleum Resources Management System
CIM	Canadian Institute of Mining, Metallurgy and Petroleum	SACNASP	The South African Council for Natural Scientific Professions
ECSA	Engineering Council of South Africa	SAMREC	South African Code for Reporting of Mineral Resources and Mineral Reserves
GSL	Geological Society of London		

Marketable Coal Reserves (CIM/JORC) and Saleable Coal Reserves (SAMREC) are the tonnage and coal quality expected to be available for sale, either in the raw ROM state at specific moisture content or after beneficiation. Definitions of many of the terms used in this report can be found in the relevant codes.

# Copper

## African Copper (Katanga, Mutanda)

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources		CP	Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves			
				2022	2021	2022	2021	2022	2021	2022	2021		2022	2021	2022	2021	2022	2021	2022	2021
<b>Katanga</b>																				
Kamoto	75%	UG/OC	Ore (Mt)	-	-	56	77	56	77	12	12	JE	-	-	11.6	24.9	11.6	24.9	TR/	
			Copper (%)	-	-	4.50	4.61	4.50	4.61	1.20	1.49	-	-	-	-	3.07	3.71	3.07	3.71	SH
			Cobalt (%)	-	-	0.60	0.55	0.60	0.55	0.40	0.44	-	-	-	-	0.50	0.49	0.50	0.49	
T17	75%	UG/OC	Ore (Mt)	-	-	20.9	20.9	20.9	20.9	-	-	JE	-	-	7.6	9.5	7.6	9.5	TR	
			Copper (%)	-	-	5.10	5.09	5.10	5.09	-	-	-	-	-	-	3.66	4.12	3.66	4.12	
			Cobalt (%)	-	-	0.80	0.77	0.80	0.77	-	-	-	-	-	-	0.59	0.67	0.59	0.67	
Mashamba East	75%	UG/OC	Ore (Mt)	-	-	21.1	22.8	21.1	22.8	22	22	JE	-	-	13.6	15.9	13.6	15.9	TR	
			Copper (%)	-	-	2.60	2.69	2.60	2.69	1.20	1.26	-	-	-	-	2.33	2.39	2.33	2.39	
			Cobalt (%)	-	-	0.80	0.86	0.80	0.86	0.60	0.56	-	-	-	-	0.77	0.79	0.77	0.79	
KOV	75%	OC	Ore (Mt)	-	-	115	117	115	117	25	25	JE	-	-	58	59	58	59	TR	
			Copper (%)	-	-	6.00	6.00	6.00	6.02	2.00	2.10	-	-	-	-	4.93	5.15	4.93	5.15	
			Cobalt (%)	-	-	0.50	0.48	0.50	0.48	0.30	0.33	-	-	-	-	0.43	0.47	0.43	0.47	
Kananga	75%	OC	Ore (Mt)	-	-	-	4.1	-	4.1	-	4	JE	-	-	-	-	-	-	-	
			Copper (%)	-	-	-	1.61	-	1.61	-	2.00	-	-	-	-	-	-	-	-	-
			Cobalt (%)	-	-	-	0.79	-	0.79	-	0.98	-	-	-	-	-	-	-	-	-
Tilwezembe	75%	OC	Ore (Mt)	-	-	9.5	9.5	9.5	9.5	14	14	JE	-	-	-	-	-	-	-	
			Copper (%)	-	-	1.90	1.89	1.90	1.89	1.80	1.75	-	-	-	-	-	-	-	-	-
			Cobalt (%)	-	-	0.60	0.60	0.60	0.60	0.60	0.60	-	-	-	-	-	-	-	-	-
KITD	75%	OC	Ore (Mt)	-	-	-	1.5	-	1.5	-	-	JE	-	-	-	1.5	-	-	1.5	TR
			Copper (%)	-	-	-	1.31	-	1.31	-	-	-	-	-	-	-	1.31	-	-	1.31
			Cobalt (%)	-	-	-	0.14	-	0.14	-	-	-	-	-	-	-	0.14	-	-	0.14
Stockpiles	75%	OC	Ore (Mt)	-	-	22.3	16.5	22.3	16.5	-	-	JE	-	-	22.3	16.5	22.3	16.5	TR	
			Copper (%)	-	-	1.10	0.97	1.10	0.97	-	-	-	-	-	-	1.14	0.97	1.14	0.97	
			Cobalt (%)	-	-	0.40	0.40	0.40	0.40	-	-	-	-	-	-	0.41	0.40	0.41	0.40	
<b>Total Katanga</b>	<b>75%</b>		<b>Ore (Mt)</b>	-	-	<b>245</b>	<b>269</b>	<b>245</b>	<b>269</b>	<b>73</b>	<b>77</b>		-	-	<b>113</b>	<b>127</b>	<b>113</b>	<b>127</b>		
			<b>Copper (%)</b>	-	-	<b>4.68</b>	<b>4.71</b>	<b>4.68</b>	<b>4.71</b>	<b>1.59</b>	<b>1.70</b>	-	-	-	-	<b>3.59</b>	<b>3.86</b>	<b>3.59</b>	<b>3.86</b>	
			<b>Cobalt (%)</b>	-	-	<b>0.57</b>	<b>0.56</b>	<b>0.57</b>	<b>0.56</b>	<b>0.46</b>	<b>0.50</b>	-	-	-	-	<b>0.48</b>	<b>0.52</b>	<b>0.48</b>	<b>0.52</b>	

### Katanga

The Katanga operations are located at the north western end of the DRC / Zambia copper belt approximately 10km to the west of the town of Kolwezi in the Democratic Republic of Congo.

The Katanga mineralisation is a typical DRC copper belt metasedimentary copper and cobalt. The mineralisation generally occurs as infilling of fissures and open fractures associated with brecciation. The typical copper minerals are mainly chalcocopyrite, malachite and pseudomalachite while cobalt is in the form of heterogenite, carrolite and sphaerocobaltite.

The comparative has been restated for 17Mt of Ore Reserves moved from KOV to Kamoto, with no overall change, to align with the presentation of Mineral Resources.

The primary changes to the Mineral Resource are due to:

- annual depletion of ore from production (-8.9Mt)
- adjustment of the historical mined surface (-18.6Mt)
- updating the price and recovery data (9.3Mt)
- letting the extension of Kananga (PE11601) permit lapse (-8.1Mt).

The primary changes to the Ore Reserves are due to:

- depletion of 5.1Mt from the open pits and 0.7Mt from Kamoto underground mine.
- addition of 5.8Mt of stockpiled material which has been classified as Probable.

- updating of Etang South open pit (within Kamoto) and a correction for historical mining (prior to Glencore ownership) removing 8.3Mt.

Permits relevant to declared Mineral Resources and Ore Reserves are expected to be renewed in 2024.

Glencore owns 75% of Katanga. La Generale des Carrieres et des Mines ("Gecamines") and La Société Immobilière du Congo, which are state-owned mining companies in the DRC, own the remaining 25%.

The Tilwezembe resource is dormant and has been occupied by illegal miners since estimation (2009). The amount of resources remaining is uncertain.

# Copper

## African Copper (Katanga, Mutanda)

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources		CP	Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves		CP	
				2022	2021	2022	2021	2022	2021	2022	2021		2022	2021	2022	2021	2022	2021		2022
<b>Mutanda</b>																				
Mutanda South	95%	OC	Ore (Mt)	300	300	78	78	379	379	17	17	PO								
			Copper (%)	1.38	1.38	0.95	0.95	1.30	1.30	0.68	0.68									
			Cobalt (%)	0.57	0.57	0.42	0.42	0.54	0.54	0.55	0.54									
Mutanda South Oxide ore	95%	OC	Ore (Mt)										8.6	22.5	17.8	3.9	26.4	26.4	JP	
			Copper (%)											3.57	1.85	0.97	1.99	1.82	1.82	
			Cobalt (%)											1.35	0.92	0.68	0.98	0.90	0.90	
Mutanda South Sulphide ore	95%	OC	Ore (Mt)										-	-	75	75	75	75	JP	
			Copper (%)											-	-	1.56	1.56	1.56	1.56	
			Cobalt (%)											-	-	0.74	0.74	0.74	0.74	
Stockpiles			Ore (Mt)	31.2	32.5	-	-	31.2	32.5	-	-	PO	0.04	29.7	31.2	2.7	31.2	32.5	JP	
			Copper (%)	1.12	1.17	-	-	1.12	1.20	-	-		1.15	1.11	1.12	1.84	1.12	1.17		
			Cobalt (%)	0.41	0.45	-	-	0.41	0.50	-	-		1.14	0.43	0.41	0.61	0.41	0.45		
Mutanda South ungerground	95%	UG	Ore (Mt)	28.8	28.8	9.1	9.1	37.9	37.9	-	-	PO	-	-	-	-	-	-	-	
			Copper (%)	1.86	1.86	1.14	1.14	1.69	1.69	-	-	-	-	-	-	-	-	-	-	
			Cobalt (%)	0.51	0.51	0.49	0.49	0.51	0.51	-	-	-	-	-	-	-	-	-	-	
Mutanda North	95%	OC	Ore (Mt)	9.0	9.0	9.9	9.9	18.9	18.9	0.4	0.4	PO	-	-	-	-	-	-	-	
			Copper (%)	1.14	1.14	0.88	0.88	1.00	1.00	2.27	2.27	-	-	-	-	-	-	-	-	
			Cobalt (%)	0.47	0.47	0.57	0.57	0.52	0.52	0.04	0.04	-	-	-	-	-	-	-	-	
<b>Total Mutanda</b>			<b>Ore (Mt)</b>	<b>369</b>	<b>370</b>	<b>97</b>	<b>97</b>	<b>467</b>	<b>468</b>	<b>17</b>	<b>17</b>		<b>8.6</b>	<b>52</b>	<b>124</b>	<b>82</b>	<b>133</b>	<b>134</b>		
			<b>Copper (%)</b>	<b>1.39</b>	<b>1.39</b>	<b>0.96</b>	<b>0.96</b>	<b>1.31</b>	<b>1.31</b>	<b>0.72</b>	<b>0.72</b>		<b>3.57</b>	<b>1.43</b>	<b>1.36</b>	<b>1.59</b>	<b>1.51</b>	<b>1.52</b>		
			<b>Cobalt (%)</b>	<b>0.55</b>	<b>0.55</b>	<b>0.44</b>	<b>0.44</b>	<b>0.53</b>	<b>0.53</b>	<b>0.54</b>	<b>0.53</b>		<b>1.35</b>	<b>0.64</b>	<b>0.65</b>	<b>0.75</b>	<b>0.70</b>	<b>0.70</b>		

### Mutanda

The Mutanda open pit operations are located at the north-western end of the DRC / Zambia copper belt approximately 40km to the east of the town of Kolwezi in the Democratic Republic of Congo.

The Mutanda mineralisation is a typical DRC copper belt metasedimentary copper and cobalt deposit. The mineralisation generally occurs as infilling of fissures and open fractures associated with brecciation. The typical copper minerals are mainly chalcopyrite, malachite and pseudomalachite while cobalt is in the form of heterogenite, carrolite and spherocobaltite.

The remaining mine life is estimated to be approximately 20 years (assuming approval and investment in sulphide ore processing).

The relevant mining permits ("permis d'exploitation") PE662 and PE643 were successfully renewed by Mutanda Mining in 2022 for an additional period of 15 years. The renewal of the mining titles triggered the transfer of 5% of the equity of Mutanda Mining to the DRC in accordance with the DRC Mining Code.

Mutanda was placed into care and maintenance in November 2019 and remained on care and maintenance until September 2021 - when processing of low-grade oxide stockpiles recommenced, and this has continued throughout 2022. Changes in stated Mineral Resources and Ore Reserves are solely due to the processing of these oxide stockpiles.

Due to recent price volatility in key input costs for Mutanda's processing operations, the Marginal Oxide ores (stockpiles and in pit) have been reclassified from Proved to Probable to account for the increase in uncertainty in the input costs.

A new detailed Concept Study into sulphide mining and processing was completed in August 2022, and a Pre-Feasibility Study of sulphide mining has commenced.

# Copper

## Collahuasi

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources		CP	Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves		
				2022	2021	2022	2021	2022	2021	2022	2021		2022	2021	2022	2021	2022	2021	2022
Collahuasi	44%	OC	Sulphide (Mt)	809	847	4,640	4,680	5,450	5,530	4,800	4,800	RO	446	476	3,710	3,690	4,160	4,170	RZ
			Copper (%)	0.79	0.80	0.79	0.79	0.79	0.79	0.73	0.73		1.03	1.00	0.77	0.77	0.79	0.80	
			Molybdenum (%)	0.02	0.02	0.03	0.03	0.02	0.02	0.02	0.02		0.02	0.02	0.02	0.02	0.02	0.02	
			Oxide & Mixed (Mt)	39	36	33	33	72	69	50	50	RO	-	-	-	-	-	-	
			Copper (%)	0.67	0.67	0.75	0.75	0.71	0.71	0.58	0.58		-	-	-	-	-	-	
<b>Total Collahuasi</b>			<b>(Mt)</b>	<b>848</b>	<b>883</b>	<b>4,673</b>	<b>4,713</b>	<b>5,522</b>	<b>5,599</b>	<b>4,850</b>	<b>4,850</b>		<b>446</b>	<b>476</b>	<b>3,710</b>	<b>3,690</b>	<b>4,160</b>	<b>4,170</b>	
			<b>Copper (%)</b>	<b>0.78</b>	<b>0.80</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.73</b>	<b>0.73</b>		<b>1.03</b>	<b>1.00</b>	<b>0.77</b>	<b>0.77</b>	<b>0.79</b>	<b>0.80</b>	
			<b>Molybdenum (%)</b>	<b>0.02</b>	<b>0.02</b>	<b>0.03</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>		<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	

### Collahuasi

Collahuasi comprises two large copper-molybdenum porphyry-type deposits (Rosario and Ujina) with several peripheral vein deposits (Rosario Oeste and Rosario Sur). The Rosario deposit is the focus of current open cut mining operations.

The major sulphide copper ore minerals at Rosario and Ujina are chalcopyrite, bornite, and enargite, with minor chalcocite. Rosario Oeste features supergene chalcocite and enargite as the main copper mineral. Rosario Sur is a small oxide-bearing deposit, with chrysocolla being the main mineralisation.

Increases to reported Mineral Resources have primarily been due to new drilling information and updated geological-geostatistical models, with adjustments for depletion by production. Mineral Resources are reported within the constraints of optimized pit shells.

Ore Reserves reported has a slight reduction in comparison to prior year, corresponding to -0.2% in ore tonnage. The two main effects are as follows:

Ore Reserves depletion during 2022 was largely offset by conversion of Mineral Resources in the Rosario pit.

The present Ore Reserves Statement is derived from value-based planning resulting in 0.30% breakeven cut-off grade.

Both Mineral Resources and Ore Reserves include estimates of stockpile material at time of reporting which have been downgraded to Indicated Mineral Resources and Probable Ore Reserves to reflect a level of grade uncertainty.

Collahuasi has a life of mine of 85 years from 2023 to 2107, according to the most recent Life of Mine plan that supports the present Ore Reserves reported at a 170 ktpd plant capacity.

The mine is jointly owned by Anglo American plc (44%), Glencore (44%), and Japan Collahuasi Resources B.V. (12%). The operating company is Compañía Minera Doña Inés de Collahuasi.



# Copper

## Antamina

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources		CP	Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves		CP	
				2022	2021	2022	2021	2022	2021	2022	2021		2022	2021	2022	2021	2022	2021		
Antamina	33.75%	OC/UG	Sulphide Cu (Mt)	203	217	394	401	597	618	860	860	LC	115	133	74	82	189	215	FA	
			Copper (%)	0.82	0.83	0.83	0.82	0.82	0.83	0.98	0.95			0.90	0.92	0.98	0.98	0.93	0.94	
			Zinc (%)	0.14	0.14	0.14	0.14	0.14	0.14	0.16	0.16			0.15	0.14	0.17	0.17	0.16	0.15	
			Silver (g/t)	7	7	9	8	8	8	9	9			7	7	8	8	8	8	
			Molybdenum (%)	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02			0.04	0.04	0.03	0.04	0.04	0.04	
			Sulphide Cu-Zn (Mt)	79	89	213	218	292	307	390	400	LC	41	53	53	68	94	121	FA	
			Copper (%)	0.82	0.84	0.99	0.99	0.94	0.95	1.10	1.10			0.90	0.91	0.99	0.97	0.95	0.94	
			Zinc (%)	1.70	1.75	1.78	1.81	1.76	1.79	1.46	1.46			1.89	1.95	1.94	2.03	1.92	1.99	
			Silver (g/t)	17	16	18	17	17	17	16	15			13	13	15	15	14	14	
			Molybdenum (%)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01			0.01	0.01	0.01	0.01	0.01	0.01	
<b>Total Antamina</b>			<b>(Mt)</b>	<b>282</b>	<b>306</b>	<b>607</b>	<b>619</b>	<b>889</b>	<b>925</b>	<b>1,250</b>	<b>1,260</b>		<b>156</b>	<b>186</b>	<b>127</b>	<b>150</b>	<b>283</b>	<b>336</b>		
			<b>Copper (%)</b>	<b>0.82</b>	<b>0.83</b>	<b>0.89</b>	<b>0.88</b>	<b>0.86</b>	<b>0.87</b>	<b>1.02</b>	<b>1.00</b>		<b>0.90</b>	<b>0.92</b>	<b>0.98</b>	<b>0.98</b>	<b>0.94</b>	<b>0.94</b>		
			<b>Zinc (%)</b>	<b>0.58</b>	<b>0.61</b>	<b>0.72</b>	<b>0.73</b>	<b>0.67</b>	<b>0.69</b>	<b>0.57</b>	<b>0.57</b>		<b>0.61</b>	<b>0.66</b>	<b>0.91</b>	<b>1.01</b>	<b>0.74</b>	<b>0.81</b>		
			<b>Silver (g/t)</b>	<b>10</b>	<b>10</b>	<b>12</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>		<b>9</b>	<b>9</b>	<b>11</b>	<b>11</b>	<b>10</b>	<b>10</b>		
			<b>Molybdenum (%)</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>		<b>0.03</b>	<b>0.03</b>	<b>0.02</b>	<b>0.02</b>	<b>0.03</b>	<b>0.03</b>		

### Antamina

Antamina is a polymetallic (mainly copper, zinc and molybdenum) skarn deposit resulting from multiple, complex intrusive events. Copper mineralisation occurs mainly as chalcopyrite, except for some areas of bornite, representing approximately 5% of the deposit. Zinc mineralisation generally occurs as sphalerite. Other significant sulphide minerals include molybdenite and pyrite, while trace amounts of numerous silver and bismuth-bearing minerals and local areas of galena are also found within the deposit. Copper and Zinc productions represent approximately 90% of the total revenues.

The Mineral Resource classification is based on geological-risk factors (proportion-of-breccia indicator), geological continuity (intrusive, endoskarn, exoskarn and calcareous units), and drill-hole spacing. The Antamina deposit is sufficiently well drilled to support the classification criteria. The Mineral Resources include the material reported as Ore Reserves. An underground extraction derived for the conceptual underground mine is also included in the Mineral Resource inventory.

The total Mineral Resource inventory (Ore Reserves included) was impacted by depletion in -57 Mt. The resource block model was updated with drilling results that include additional data from 50 drillholes and 17,914 metres registering no impacts on tonnes, a slight increase in grades for Cu metal from 0.94% to 0.95%, and a slight decrease in the Zn grade from 0.62% to 0.61%.

Modifying factors for Ore Reserves were taken from 2022 planning process including a projected pit topography to the end-of-2022. Ore Reserve mine plan extends until 2028 and is primarily limited to the operation tailings-dam capacity. An environmental impact assessment that will support an extension to the mine life is currently being assessed by the relevant authorities. Ore Reserves include Measured and Indicated Mineral Resources. Depletion impacted the Ore Reserves by -56.0 Mt. The Cu grade in the Ore Reserves remains unchanged at 0.94%. A decrease in the Zn grade from 0.81% to 0.74% mainly due to a decrease in the Zn grade of the existing Cu-Zn stockpiles and minor updates on the Zn model.

# Copper

## Other South America (Lomas Bayas, Antapaccay)

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources		CP	Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves		CP
				2022	2021	2022	2021	2022	2021	2022	2021		2022	2021	2022	2021	2022	2021	
<b>Lomas Bayas</b>	100%																		
Lomas Bayas I		OC	Oxides (Mt)	97	101	416	401	513	503	85	70	MS	61	69	57	77	118	145	EC
			Copper (%)	0.33	0.32	0.24	0.24	0.26	0.26	0.22	0.22		0.35	0.34	0.27	0.26	0.3	0.30	
			Soluble Copper (%)	0.19	0.19	0.13	0.13	0.14	0.14	0.09	0.08		0.21	0.20	0.16	0.15	0.19	0.18	
		OC	Sulphides (Mt)	75	70	610	653	685	722	620	750	MS	-	-	-	-	-	-	
			Copper (%)	0.46	0.45	0.32	0.31	0.34	0.33	0.27	0.27		-	-	-	-	-	-	
			Soluble Copper (%)	0.10	0.11	0.03	0.03	0.04	0.04	0.01	0.01		-	-	-	-	-	-	
Lomas Bayas II		OC	Oxides (Mt)	117	119	126	168	243	287	5	16	MS	99	94	77	91	176	186	EC
			Copper (%)	0.32	0.33	0.26	0.27	0.29	0.30	0.13	0.14		0.32	0.33	0.26	0.27	0.29	0.30	
			Soluble Copper (%)	0.22	0.23	0.17	0.17	0.19	0.20	0.08	0.09		0.22	0.24	0.17	0.19	0.20	0.21	
<b>Antapaccay</b>	100%																		
Antapaccay		OC	Ore (Mt)	234	194	366	438	600	632	60	180	HB	225	189	275	286	499	475	GG
			Copper (%)	0.42	0.44	0.35	0.37	0.38	0.39	0.25	0.28		0.43	0.45	0.37	0.40	0.39	0.42	
			Gold (g/t)	0.080	0.080	0.07	0.080	0.07	0.080	0.05	0.050		0.08	0.08	0.07	0.08	0.07	0.08	
			Silver (g/t)	1.2	1.2	1.1	1.1	1.1	1.1	0.54	0.66		1.2	1.2	1.2	1.1	1.2	1.2	
Coroccohuayco		OC	Ore (Mt)	72	72	571	571	643	643	60	60	HB	-	-	-	-	-	-	
			Copper (%)	0.64	0.64	0.59	0.59	0.60	0.60	0.36	0.36		-	-	-	-	-	-	
			Gold (g/t)	0.080	0.080	0.08	0.080	0.08	0.080	0.05	0.050		-	-	-	-	-	-	
			Silver (g/t)	2.6	2.6	2.3	2.3	2.4	2.3	1.2	1.2		-	-	-	-	-	-	
<b>Total Other South America</b>			<b>Ore (Mt)</b>	<b>595</b>	<b>556</b>	<b>2,089</b>	<b>2,231</b>	<b>2,684</b>	<b>2,787</b>	<b>830</b>	<b>1,076</b>		<b>385</b>	<b>352</b>	<b>409</b>	<b>454</b>	<b>793</b>	<b>806</b>	
			<b>Copper (%)</b>	<b>0.42</b>	<b>0.42</b>	<b>0.38</b>	<b>0.38</b>	<b>0.39</b>	<b>0.39</b>	<b>0.27</b>	<b>0.27</b>		<b>0.39</b>	<b>0.40</b>	<b>0.34</b>	<b>0.35</b>	<b>0.35</b>	<b>0.37</b>	
			<b>Gold (g/t)</b>	<b>0.041</b>	<b>0.038</b>	<b>0.034</b>	<b>0.036</b>	<b>0.035</b>	<b>0.037</b>	<b>0.007</b>	<b>0.011</b>		<b>0.047</b>	<b>0.043</b>	<b>0.047</b>	<b>0.050</b>	<b>0.044</b>	<b>0.047</b>	
			<b>Silver (g/t)</b>	<b>0.79</b>	<b>0.75</b>	<b>0.82</b>	<b>0.80</b>	<b>0.82</b>	<b>0.79</b>	<b>0.13</b>	<b>0.18</b>		<b>0.70</b>	<b>0.64</b>	<b>0.81</b>	<b>0.71</b>	<b>0.76</b>	<b>0.68</b>	

# Copper

## Lomas Bayas (I)-Lomas Bayas (III)

The Lomas Bayas open cut operations are located in the centre of the Atacama Desert copper belt approximately 115 km to the northeast of the town of Antofagasta in Chile.

Lomas Bayas is a low grade copper-molybdenum deposit resulting from the intrusion of several porphyry and breccia systems that were later exposed to leaching and subsequent supergene enrichment and in situ oxidation. Green copper oxides, copper sulphates in various forms and less partially mixed ores are the main source of ore for the existing SX/EW operation.

Lomas I resource estimate update includes the following changes in 2022:

- Updated resource model based on new geological information gathered in the 2021 drilling campaign (2,194 m of infill drilling and 6,354 m of historical geotechnical drills ), as well as updated modelling and estimation parameters.
- An updated resource cutoff grade for Lomas I and Lomas II pits has been applied due to increase in the cost inputs for the pit optimisation process.

Changes to the Ore Reserves in 2022 are mainly a result of mining depletion, an updated operational pit life-of-mine developed in 2022, and the cut-off grade for oxides was increased due to the new operation cost inputs (update cost, October 2022).

## Lomas Bayas (II)

This low grade copper deposit is located 2 km south of Lomas Bayas (I) pit, in the same district and geological environment as Lomas Bayas deposit. The main difference is a larger presence of water soluble copper oxides and lower geotechnical rock quality. The Lomas Bayas (II) block model includes historic drill holes totalling 130 Km and sampled at 2m intervals.

The Mineral Resources are estimated using Ordinary Kriging. The infill drilling program in Lomas Bayas (II) with 2,588 m of drilling with low copper assays performed inside the pit at phases 5 and 6 during 2021 and 2022 and increasing orebody knowledge.

Changes to the Ore Reserves in 2022 are mainly a result of the update of the operating costs determining an increase in the cutoff grade that produces a decrease in the reserves.

The Lomas Bayas SX/EW plant is fed by both Lomas Bayas (I) and (II) and has a current life of mine plan that extends to 2029; permits for the operation are valid to the end of the life of the mine.

## Antapaccay

Antapaccay is a copper-gold porphyry deposit with zones of gold-silver skarn mineralisation. The primary minerals are bornite and chalcopyrite.

The Mineral Resource estimate is based on a block model interpolation using Ordinary Kriging. Mineral Resources and Ore Reserves were estimated using a variable cut-off grade with a marginal cut-off grade of 0.10% Cu content considered as the minimum recoverable grade. The categorisation of mineral resources is based on the evaluation of the continuity of mineralisation and grade, structural complexity, data quality, and reasonable prospects for economic extraction.

During 2022 a complete update of the geological interpretation and resource estimation was completed including the inclusion of an additional 50km of drilling results.

The net change in the mineral resource estimate for Antapaccay is -152Mt, mainly from the inferred category.

Key changes to the mineral resource estimate are:

- Depletion of mining production (-38Mt)
- Changes to economic assumptions and RF1 pit parameters (-78Mt)
- Update of resource model including an additional 51km of drilling results reinterpretation of the mineralisation and geology, and classification changes as a result of the additional drilling (-34Mt)
- Reclassification of the resource resulted in an increase of 92Mt of material from inferred to measured and indicated

Key changes to the mineral reserve estimate are:

- Depletion of mining production and changes in economic parameters (-59Mt)
- Changes in resource classification (+83Mt)

The geological model of the deposit and the Mineral Resources estimate were updated in 2022 using a drilling database that now includes 436,776 meters (1,223 holes) total drilling data. The last geological drilling campaign was carried out in 2021 with 51,229 meters (106 drill holes).

Life of mine based on ore reserves is 13 years ending in 2035. Ore is processed through both the Tintaya and Antapaccay plants. The operating permits are valid until the end of the mine's useful life.

## Coroccohuayco

A skarn-porphyry deposit of copper and gold, the Coroccohuayco project is 9km to the southeast of Tintaya. Along with Tintaya and Antapaccay, this site is part of the mineralised Tintaya district. The main minerals containing copper are bornite, chalcopyrite and chalcocite. The site of Coroccohuayco is defined as a skarn-porphyry copper deposit, consisting of cretaceous sedimentary rocks of the formation Ferrobamba and Mara, intruded by monzonitic intrusive Andahuaylas Yauri Batholith, Eocene-Oligocene. Ore body model and mineral resources estimates were updated in 2019 using a database of perforations now includes data of 255,611 m.

Mineral resources are based on an economic Pit shell and are reported under this pit using the best concept of economic destiny with 0.10% Cu as minimum recoverable grade on the plant that it considers the valorisation of Cu, Au, and Ag.

# Copper

## Australia (Cobar)

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources		CP	Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves		
				2022	2021	2022	2021	2022	2021	2022	2021		2022	2021	2022	2021	2022	2021	CP
Cobar	100%	UG	Ore (Mt)	4.9	3.9	3.5	3.5	8.4	7.4	4	4	EA	4.8	4.2	3.1	2.6	7.9	6.8	SH
			Copper (%)	5.58	5.74	4.85	4.92	5.28	5.36	5.55	5.41		4.34	4.00	3.46	3.60	4.00	3.80	
			Silver (g/t)	23	24	19	20	22	22	20	20		18	16	14	14	16	16	

### Cobar

The mine is located approximately 10km north from the town of Cobar, in the north west of New South Wales, Australia. Economic mineralisation of copper and silver at Cobar occurs mostly as narrow lenses with short strike lengths that are depth extensive. Lenses consist of vein or semi-massive to massive chalcopyrite hosted by sub-vertical quartz-chlorite shear zones within a siltstone unit. The Cobar Mineral Resources and Ore Reserves are reported within five 'systems': Western, Eastern, QTS North, QTS South and QTS Central.

The 2022 Mineral Resource estimate shows an increase of 1Mt compared with previous year. The change is due to incorporation of resource definition drilling completed during 2021 and 2022.

The 2022 Ore Reserve estimate shows an increase of 1.1Mt when compared to the previous year. The change is due to the increased Mineral Resource estimate.

The expected remaining life of mine is approximately 7 years based on Ore Reserves and approximately 10 years based on Mineral Resources. Cobar has previously, over the past 50 years, been able to extend its expected life of mine through exploratory drilling. The expiry date of relevant mining/concession licences is 24 June 2028.

# Copper

## Other projects

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources		CP	Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves		CP
				2022	2021	2022	2021	2022	2021	2022	2021		2022	2021	2022	2021	2022	2021	
<b>PolyMet</b>	72%	OC	Ore (Mt)	285	319	351	403	636	722	400	420	RS	157	157	106	106	264	264	HW
			Copper (%)	0.26	0.24	0.25	0.23	0.25	0.23	0.25	0.24	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
			Nickel (%)	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
			Palladium (g/t)	0.24	0.22	0.23	0.21	0.23	0.21	0.24	0.23	0.27	0.27	0.26	0.26	0.26	0.26	0.26	
			Platinum (g/t)	0.07	0.06	0.07	0.06	0.07	0.06	0.07	0.06	0.08	0.08	0.08	0.08	0.08	0.08	0.08	
			Gold (g/t)	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	
			Silver (g/t)	0.94	0.88	0.93	0.87	0.93	0.87	0.92	0.87	1.05	1.05	1.08	1.08	1.06	1.06		
			Cobalt (ppm)	72	71	68	68	70	39	55	56	74	74	74	74	74	74		
<b>El Pachón</b>	100%	OC	Ore (Mt)	533	533	1,050	1,050	1,580	1,580	1,800	1,700	MM	-	-	-	-	-	-	
			Copper (%)	0.67	0.67	0.49	0.49	0.55	0.55	0.40	0.40	-	-	-	-	-	-		
			Silver (g/t)	2.4	2.4	2.0	2.0	2.2	2.1	1.8	1.8	-	-	-	-	-	-		
			Molybdenum (%)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-	-	-	-	-	-		
<b>West Wall Copper Project</b>	50%		Ore (Mt)	-	-	861	861	861	861	1,100	1,100	RT	-	-	-	-	-	-	
			Copper (%)	-	-	0.51	0.51	0.51	0.51	0.42	0.42	-	-	-	-	-	-		
			Gold (g/t)	-	-	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	-	-		
			Molybdenum (%)	-	-	0.01	0.01	0.01	0.01	0.01	0.01	-	-	-	-	-	-		
<b>Total Other projects</b>			<b>Ore (Mt)</b>	<b>818</b>	<b>852</b>	<b>2,262</b>	<b>2,314</b>	<b>3,077</b>	<b>3,163</b>	<b>3,300</b>	<b>3,220</b>	<b>157</b>	<b>157</b>	<b>106</b>	<b>106</b>	<b>264</b>	<b>264</b>		
			<b>Copper (%)</b>	<b>0.53</b>	<b>0.51</b>	<b>0.46</b>	<b>0.45</b>	<b>0.48</b>	<b>0.47</b>	<b>0.39</b>	<b>0.39</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>		

### PolyMet

PolyMet and the deposit NorthMet is located approximately 92Km north of the town of Duluth, to the west of Lake Superior in Minnesota, United States of America. Northmet is a polymetallic deposit hosting copper-nickel-platinum located at the northern margin of the Duluth Complex.

The Duluth Complex is a large, composite, layered, mafic intrusion that was emplaced into comagmatic flood basalts along a portion of the Mesoproterozoic Midcontinent Rift System. The ore-bearing units are primarily found in the basal unit of the Duluth Complex, which contains disseminated sulphides and minor massive sulphides hosted in troctolitic rocks.

The metals of interest are copper, nickel, cobalt, platinum, palladium, silver and gold. The majority of the metals are found in the sulphide minerals: chalcopyrite, cubanite, pentlandite, and pyrrhotite. Platinum, palladium and gold are found in bismuthides, tellurides, and alloys.

The Mineral Resource estimate for PolyMet in 2022 has reduced by 106Mt as a result of changes to economic assumptions impacting the NSR cut-off grade.

There are no changes to the Ore Reserve estimate for PolyMet in 2022.

Both the mineral resource and mineral reserve estimates take into consideration metallurgical recoveries, concentrate grades, transportation costs, smelter treatment charges and royalties in determining NSR values.

Ore Reserves exceed the currently approved EIS LOM ore milled limit of 204 million tonnes over a mine life of 20 years.

### El Pachón

Located in the southwest of San Juan Province of Argentina, the El Pachón orebody is a porphyry copper-molybdenum deposit in which two major stages of sulphide mineralisation contributed to the formation of the orebody. The bulk of the ore takes the form of disseminated chalcopyrite-molybdenite primary sulphides on top of which an immature, relatively small copper enrichment blanket has been developed. In this upper part of the deposit chalcocite and minor covellite are partially replacing the primary chalcopyrite ore.

The Mineral Resource estimate for El Pachón has increased by 129Mt as a result of changes in copper, molybdenum and silver price assumptions and updated ore processing costs.

Mineral Resources stated herein are based on assay and geology information from 135km of mainly diamond drill holes. Mineral Resources have been classified using a combination of criteria including geological continuity and Kriging parameters. Mineral Resources are constrained by the use of an economic pit shell determined using Measured, Indicated and Inferred Mineral Resources and current assumption for the economic and technical modifying factors conditioning the resource pit.

### West Wall

The West Wall Copper Project is located in the central Chilean Andes, approximately 100km NNE of Santiago.

West Wall is a copper-molybdenum porphyry, with two distinct mineralised zones; Lagunillas to the south of the prospect, and West Wall Norte (WWN) 2km to the north of Lagunillas. The mineralisation zones are part of an extensive NNE striking hydrothermal alteration zone of approximately 9km by 4km.

The sulphide Mineral Resource is reported within an economic pit shell at a copper cut-off and remains unchanged from 2019.

Glencore and Anglo American each have a 50% interest in the mining company West Wall SCM which holds the project.

# Zinc

## Kazzinc

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources		CP	Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves		CP
				2022	2021	2022	2021	2022	2021	2022	2021		2022	2021	2022	2021	2022	2021	
<b>Maleevsky</b>	69.7%	UG	Ore (Mt)	1.4	1.9	2.1	2.3	3.5	4.2	3	2	JG	0.9	1.3	1.0	2.1	1.8	3.4	AAA
			Zinc (%)	4.83	5.13	5.07	5.15	4.98	5.14	5.08	5.80	3.41	3.27	3.97	3.55	3.71	3.44		
			Lead (%)	0.77	0.86	1.00	1.03	0.91	0.95	1.42	1.70	0.51	0.48	0.70	0.70	0.61	0.62		
			Copper (%)	1.77	1.72	1.26	1.30	1.46	1.49	0.66	0.75	1.20	0.89	0.97	0.81	1.08	0.84		
			Silver (g/t)	53	58	46	48	49	53	41	43	35	33	34	32	35	33		
			Gold (g/t)	0.37	0.40	0.32	0.35	0.34	0.36	0.27	0.29	0.24	0.23	0.21	0.23	0.23	0.23		
<b>Ridder-Sokolny</b>	69.7%	UG	Ore (Mt)	32.0	39.9	21.6	26.7	54	67	12	12	JG	10.3	16.2	6.9	9.3	17.2	25.4	AAA
			Zinc (%)	0.30	0.70	0.23	0.61	0.27	0.66	0.21	0.48	0.25	0.43	0.17	0.39	0.22	0.40		
			Lead (%)	0.15	0.31	0.12	0.28	0.14	0.30	0.09	0.22	0.11	0.18	0.08	0.17	0.10	0.20		
			Copper (%)	0.65	0.64	0.60	0.62	0.63	0.63	0.57	0.63	0.45	0.41	0.48	0.48	0.46	0.40		
			Silver (g/t)	8.0	14	8.0	16	8.0	15	7.0	15	5.0	8.0	6.0	9.0	5.0	8.0		
			Gold (g/t)	1.9	2.3	1.6	1.8	1.8	2.1	1.6	1.7	2.0	2.3	1.8	1.9	2.0	2.2		
<b>Tishinsky</b>	69.7%	UG	Ore (Mt)	2.0	3.6	1.4	2.1	3.4	5.7	1	1	JG	0.3	0.9	0.4	0.3	0.7	1.2	AAA
			Zinc (%)	5.34	4.94	6.09	5.10	5.66	5.00	6.21	4.44	6.86	6.68	8.39	5.07	7.66	6.30		
			Lead (%)	0.81	0.77	1.29	1.09	1.01	0.89	1.13	0.71	1.35	1.54	1.76	0.79	1.56	1.30		
			Copper (%)	0.67	0.68	0.48	0.38	0.59	0.57	0.65	0.41	0.73	0.66	0.75	0.39	0.74	0.60		
			Silver (g/t)	10	10	9.0	7.0	9.6	9.0	10	6.0	12	12	15	6.0	14	10		
			Gold (g/t)	0.76	0.79	0.45	0.32	0.63	0.62	0.61	0.27	0.86	0.81	0.98	0.44	0.9	0.7		
<b>Staroye Tailings Dam</b>	69.7%		Ore (Mt)	-	-	2.4	2.4	2.4	2.4	1	1	AL	-	-	-	-	-	-	
			Silver (g/t)	-	-	11	11	11	11	10	10	-	-	-	-	-	-	-	
			Gold (g/t)	-	-	1.0	1.0	1.0	1.0	0.8	0.8	-	-	-	-	-	-	-	
<b>Chashinskoye Tailings Dam</b>	69.7%	OC	Ore (Mt)	-	-	58	58	58	58	30	30	AL	-	-	-	-	-	-	
			Silver (g/t)	-	-	5.0	5.0	5.0	5.0	5.0	5.0	-	-	-	-	-	-	-	
			Gold (g/t)	-	-	0.70	0.70	0.70	0.70	0.50	0.50	-	-	-	-	-	-	-	
<b>Shaimerden Stockpiles</b>	69.7%	OC	Ore (Mt)	-	-	0.9	1.1	0.9	1.1	-	-	AL	-	-	0.9	1.1	0.9	1.1	AAA
			Zinc (%)	-	-	24.40	24.40	24.40	24.40	-	-	-	-	24.40	24.40	24.40	24.40		
<b>Dolinnoe</b>	69.7%	UG	Ore (Mt)	5.2	6.5	2.3	1.2	7.6	7.8	7	7	AL	3.1	3.9	0.6	0.3	3.7	4.2	AAA
			Zinc (%)	1.06	1.08	0.82	0.86	0.99	1.05	0.61	0.76	0.98	1.03	0.89	0.89	0.96	1.02		
			Lead (%)	0.56	0.57	0.41	0.45	0.52	0.55	0.33	0.41	0.51	0.55	0.44	0.44	0.50	0.54		
			Copper (%)	0.13	0.14	0.11	0.13	0.13	0.14	0.09	0.11	0.12	0.13	0.11	0.13	0.12	0.14		
			Silver (g/t)	45	39	38	35	43	38	10	11	48	43	52	31	49	42		
			Gold (g/t)	2.7	2.7	1.9	2.0	2.4	2.6	1.8	1.8	2.5	2.7	1.8	2.4	2.4	2.7		

# Zinc

## Kazzinc (continued)

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources		CP	Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves		
				2022	2021	2022	2021	2022	2021	2022	2021		2022	2021	2022	2021	2022	2021	CP
Obrucheovsky	69.7%	UG	Ore (Mt)	-	-	2.7	1.7	2.7	1.7	3	5	AH	-	-	-	-	-	-	
			Zinc (%)	-	-	9.77	7.50	9.77	7.50	5.47	4.50	-	-	-	-	-	-	-	
			Lead (%)	-	-	3.99	3.60	3.99	3.60	1.97	1.60	-	-	-	-	-	-	-	
			Copper (%)	-	-	0.93	0.70	0.93	0.70	0.92	0.60	-	-	-	-	-	-	-	
			Silver (g/t)	-	-	40	18	40	18	25	30	-	-	-	-	-	-	-	
			Gold (g/t)	-	-	0.80	0.40	0.80	0.40	0.40	0.50	-	-	-	-	-	-		
Zhairem Zapadny	69.7%	OC	Ore (Mt)	5.7	5.9	1.5	5.0	7.2	11.0	-	-	JG	4.9	8.3	0.8	2.0	5.7	10.3	AAA
			Zinc (%)	4.62	4.68	3.88	4.24	4.47	4.48	-	-	-	-	4.86	4.61	4.27	3.27	4.77	4.34
			Lead (%)	1.67	1.63	0.93	1.26	1.52	1.46	-	-	-	-	1.69	1.56	0.99	0.76	1.59	1.40
			Silver (g/t)	27	30	24	26	27	28	-	-	-	-	27	29	26	21	27	27
Zhairem Dalnezapadny	69.7%	OC	Ore (Mt)	17.1	36.0	22.8	3.1	39.9	39.1	-	-	JG	14.5	39.2	20.20	0.04	34.7	39.3	AAA
			Zinc (%)	4.51	4.66	4.72	5.20	4.63	4.70	-	-	-	-	4.64	4.46	4.70	2.03	4.67	4.46
			Lead (%)	1.04	1.31	1.41	1.45	1.25	1.32	-	-	-	-	1.08	1.25	1.42	0.95	1.28	1.20
			Silver (g/t)	16	16	15	14	15	16	-	-	-	-	17	15	15	22	16	15
Zhairem Ushkatyn I	69.7%	OC	Ore (Mt)	-	-	-	-	-	-	6	6	AL	-	-	-	-	-	-	
			Zinc (%)	-	-	-	-	-	-	1.50	1.50	-	-	-	-	-	-	-	
			Lead (%)	-	-	-	-	-	-	4.60	4.60	-	-	-	-	-	-	-	
Uzhynzhal	100.0%	OC	Ore (Mt)	2.9	-	4.4	-	7.3	-	8	21	AL	-	-	-	-	-	-	
			Zinc (%)	1.53	-	1.42	-	1.5	-	1.72	1.40	-	-	-	-	-	-	-	
			Lead (%)	3.64	-	3.76	-	3.71	-	3.36	2.80	-	-	-	-	-	-	-	
			Silver (g/t)	71	-	63	-	66	-	48	48	-	-	-	-	-	-	-	
Novo-Leninogorsky	69.7%	UG	Ore (Mt)	-	-	8.0	8.0	8.0	8.0	22	22	JG	-	-	-	-	-	-	
			Zinc (%)	-	-	4.32	4.30	4.31	4.30	4.52	4.50	-	-	-	-	-	-	-	
			Lead (%)	-	-	1.68	1.70	1.70	1.70	1.65	1.70	-	-	-	-	-	-	-	
			Copper (%)	-	-	0.17	0.20	0.20	0.20	0.21	0.20	-	-	-	-	-	-	-	
			Silver (g/t)	-	-	38	38	38	38	48	48	-	-	-	-	-	-	-	
			Gold (g/t)	-	-	2.0	2.0	2.0	2.0	1.8	1.8	-	-	-	-	-	-		
Chekmar	69.7%	OC	Ore (Mt)	-	-	-	-	-	-	60	60	JG	-	-	-	-	-	-	
			Zinc (%)	-	-	-	-	-	-	2.60	2.60	-	-	-	-	-	-		
			Lead (%)	-	-	-	-	-	-	0.90	0.90	-	-	-	-	-	-		
			Copper (%)	-	-	-	-	-	-	0.50	0.50	-	-	-	-	-	-		
			Silver (g/t)	-	-	-	-	-	-	13	13	-	-	-	-	-	-		
			Gold (g/t)	-	-	-	-	-	-	0.40	0.40	-	-	-	-	-	-		
Total Polymetallic Kazzinc			Ore (Mt)	66	94	128	112	195	206	153	167		34.0	70	30.8	15.1	65	85	
			Zinc (%)	2.12	2.75	1.78	1.35	1.90	1.99	2.11	2.05		2.99	3.36	4.20	3.07	3.56	3.30	
			Lead (%)	0.73	0.82	0.64	0.39	0.67	0.59	1.04	1.17		0.81	0.99	1.03	0.32	0.91	0.86	
			Copper (%)	0.38	0.34	0.16	0.21	0.24	0.27	0.31	0.29		0.19	0.13	0.15	0.42	0.17	0.17	
			Silver (g/t)	18	18	14	13	15	15	18	21		18	17	14	14	16	16	
			Gold (g/t)	1.2	1.2	0.79	1.00	0.9	1.1	0.74	0.69		0.85	0.70	0.5	1.3	0.68	0.81	
Vasilkovsky (Gold)	69.7%	OC	Ore (Mt)	30.0	63	40.0	26.5	70	89	5	1	AL	24.6	35.4	33.2	36.0	58	71	AAA
			Gold (g/t)	2.2	1.9	2.0	1.9	2.1	1.9	1.34	0.89			2.1	2.0	2.0	1.8	2.1	1.9
			UG	Ore (Mt)	1.0	1.4	30.2	26.5	31.3	27.9	7.0	1.4	AL	-	-	-	-	-	-
			Gold (g/t)	2.6	2.1	2.3	2.3	2.3	2.3	2	2			-	-	-	-	-	
Kazzinc Gold (Vasilkovsky)			Ore (Mt)	31	64	70	53	101	117	12.0	2.4		24.6	35.4	33.2	36.0	58	71	
			Gold (g/t)	2.2	1.9	2.1	2.1	2.2	2.0	1.7	1.5		2.1	2.0	2.0	1.8	2.1	1.9	

# Zinc

## Maleevsky

Maleevsky is a typical syngenetic VMS deposit hosting ores of sulphide-polymetallic formation with associated gold and silver. The geological model and resource estimate were updated in 2022 with adjustments to wireframing and classification to reflect drilling performed in 2022. Infill drilling in various parts of the deposit enabled resource conversion to Indicated and Measured resources, particularly near the active mining fronts.

The mined material from Maleevsky during 2022 was 1.4 Mt at 2.7% Zn, 0.5% Pb, 1.0% Cu, 32 g/t Ag and 0.2 g/t Au.

The expected mine life for Maleevsky is 2 years based on Ore Reserves and up to an estimated 3 years based on the life of mine schedule which is inclusive of all available Mineral Resources categories.

## Ridder-Sokolny

The Ridder-Sokolny deposit is a unique deposit that has characteristics of several deposit styles. The total footprint of the mineralisation exceeds 20km<sup>2</sup>. The upper ore zone of the deposit consists of a cluster of sub-horizontal VMS-style lens-shaped bodies associated with a carbonaceous unit adjacent to a vertical fault structure. The lenticular VMS-style mineralisation is underlain by a steeply dipping to sub-vertical polymetallic Cu-rich stringer-stockwork ore zone. Structurally controlled gold-bearing quartz veins overprint the entire system.

Individual or small cluster of veins with high gold grades have been selectively mined.

Changes in resources from the previous year are as a result of new drilling data and resulting revised interpretation in a prominent area of the mine. Alternative advanced geostatistical methodologies and application are currently under review for this resource due to changes in tendency of mineralisation style.

The mined material from Ridder-Sokolny during 2022 was 1.8 Mt at 0.2% Zn, 0.1% Pb, 0.2% Cu, 4 g/t Ag and 1.9 g/t Au.

The expected mine life for Ridder-Sokolny is 8 years based on Ore Reserves and up to an estimated 10 years based on the life of mine schedule which is inclusive of all available Mineral Resources categories

## Tishinsky

Tishinsky is a syngenetic VMS deposit hosting ores of sulphide-polymetallic formation with associated gold and silver. Changes to the Mineral Resource are mainly due to mining depletion and sterilisation. An increase in zinc and lead grades in the Mineral Resource is due to higher-grade intersections from infill and expansion drilling into the remaining resource at depth.

The mined material from Tishinsky during 2022 was 0.4 Mt at 5.5% Zn, 0.8% Pb, 0.5% Cu, 12 g/t Ag and 0.9 g/t Au.

The expected mine life for Tishinsky is 1.5 years based on Ore Reserves and up to an estimated 3 years based on the life of mine schedule which is inclusive of all available Mineral Resources categories.

## Staroye tailings

The Staroye tailings are composed of the waste by-products of the processing of gold and polymetallic ores (primarily silver, copper, lead and zinc) from the Ridder Mining and Concentrating Complex (RMCC) and their composition reflect the major constituents of the ore. No material has been processed from the tailings in the last 5 years.

## Chashinskoye tailings

The Chashinskoye tailings are composed of the waste by-products of the processing of gold and polymetallic ores from RMCC. Four test holes were drilled in 2021 and the mineral resource is in the process of being updated. No material has been processed from the tailings in the last 5 years.

## Shaimerden

The Shaimerden stockpile is composed of high-grade, crushed zinc oxide ore which is not amenable to the concentration process; it is directly sent to the Ridder Complex Zinc refinery. Total material processed during 2022 was 190 Kt at 20.7% Zn.

## Dolinnoe

The Dolinnoe deposit is situated in the south-eastern portion of the Ridder mining district in the Rudny-Altay geotectonic block. Gold is the main mineral of economic interest with structural interpretation, modelling and classification of the mineral resource was completed on the basis of an underground infill drilling campaign. Changes to the mineral resources (and ore reserves) are due to the addition of data from infill drilling and resulting wireframe update, as well as sterilisation of unrecoverable ore near the mined out stopes.

The mined material from Dolinnoe in 2022 was 0.7 Mt at 1.4% Zn, 0.7% Pb, 0.2% Cu, 58 g/t Ag and 2.9 g/t Au.

The expected mine life for Dolinnoe is 4 years based on Ore Reserves and up to an estimated 6 years based on the life of mine schedule which is inclusive of all available economic Mineral Resources categories.

## Obruchevsky

The Obruchevsky deposit is situated 1,000 m below surface in the south-eastern portion of the Ridder mining district. Mineralisation consists of banded to massive sulphides of Zn-Pb-Cu in 3 subhorizontal lens spanning 1,000 m by 300 m with thickness from 3 to >40 m. It was discovered in 1987 and delineated with 147,000 m of drilling in 130 drillholes by the end of 1996. Confirmation and infill drilling was undertaken in 2019, 2020, and 2021. Revisions made to the geological model include a distinct metal zonation with Cu-rich base and Au-Ag enriched cap, and the action of two sets of faults. Capping strategy, estimation domain, grade and density estimation methods were reviewed and a new resource classification model was adopted following a drillhole spacing analysis.

## Zhairem

Zapadny resource changes are related to depletion.

The mined material from Zapadny Open-Pit during 2022 was 3.6 Mt at 4.3% Zn, 1.2% Pb, and 28 g/t Ag.

The expected mine life for Zapadny pit is 1.5 years based on Ore Reserves and Resources, which are constrained by the same economic pit shell. The expected mine life for Dalnezapadny pit is 7 years based on Ore Reserves and Resources, which are constrained by the same economic pit shell.

Changes in classification of the Dalnezapadny mineral resource in light of the addition of new drilling data are the result of detailed review of the historic density data.

A drilling campaign was performed in 2022 at Ushkatyn I; update of resource model will be conducted in 2023.

## Uzynzhal

The Uzynzhal sedimentary exhalative deposit is located in central Kazakhstan, in the same belt as the Zhairem deposits. Pb-Zn ores shows close spatial correlations with barite and manganese ores. The deposit is made up of an oxide cap, containing mainly Pb-oxide ores, while the sulphide portion of the deposit contains both Zn and Pb sulphides. The resource model has been updated following receipt of the 2021 drilling results which permitted interpretation of metal zonation according to geological controls. Mineral resource classification conversion was positive and the deposit was constrained by a new pit, following geotechnical study, resulting in a reduction of economic mineral inventory at higher confidence level.

## Novo-Leningorskoye

The Novo-Leningorskoye deposit is part of the Ridder-Sokolny group of polymetallic VMS deposits in Eastern Kazakhstan. Novo-Leningorskoye was discovered in 1981 and was explored between 1981 and 1985. Two styles of mineralisation can be found at Novo-Leningorskoye: barite-polymetallic and polymetallic (massive and stringers), with the mineralisation hosted by siltstones and quartzites. There was no drilling in 2022 and no update to the resource model.

## Chekmar

The Chekmar deposit comprises two main polymetallic mineralised zones: Chekmar and Gusliakov, which are separated by a distance of approximately 1.5 km. The deposits are typical syngenetic VMS deposits, with distinct metal zonation and near-surface weathering profiles. The deposits were initially explored in the 1970s. Studies are underway to confirm the Mineral Resource and to perform metallurgical testing of the mineralisation. Due to the historical nature of the previous drilling, all Mineral Resources are currently classified as Inferred.

## Vasilkovsky

The mineralisation at Vasilkovsky gold deposit is spatially associated with a stockwork of hydrothermal quartz-arsenopyrite veins. The main mineralised structures comprise gold-quartz-dominated veins locally merged on stockwork/breccia zones. The Vasilkovsky mineral inventory is being reported according to the expected mining method of open pit (OP) and underground (UG) extraction. A drilling campaign was performed in 2022. The resource will be updated in 2023 following final receipt of all new analytical results.

The mined material from Vasilkovsky Open-Pit during 2022 was 8.0 Mt at 2.0 g/t Au.

The expected mine life for Vasilkovsky is 8 years based on Ore Reserves and Resources; both are constrained by the same economic pit shell. The ore reserves at Vasilkovsky decreased based on mineral resource updates to classification within the ultimate pit design and increase in costs, including taxes. Low grade, marginal material will be stockpiled.



# Zinc

## Australia (Mount Isa, McArthur River)

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources		CP	Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves		
				2022	2021	2022	2021	2022	2021	2022	2021		2022	2021	2022	2021	2022	2021	CP
<b>Mount Isa</b>	100%																		
Mount Isa Open Pit - Zn		OC	Ore (Mt)	-	-	125	125	125	125	180	180	DC	-	-	-	-	-	-	-
			Zinc (%)	-	-	3.90	3.90	3.90	3.90	3.90	3.90		-	-	-	-	-	-	-
			Lead (%)	-	-	3.00	3.00	3.00	3.00	1.70	1.70		-	-	-	-	-	-	-
			Silver (g/t)	-	-	66	66	66	66	35	35		-	-	-	-	-	-	-
Rio Grande		UG	Ore (Mt)	-	-	2.3	2.3	2.3	2.3	13	13	DC	-	-	-	-	-	-	
			Zinc (%)	-	-	6.00	6.00	6.00	6.00	6.20	6.20		-	-	-	-	-	-	
			Lead (%)	-	-	2.40	2.40	2.40	2.40	2.30	2.30		-	-	-	-	-	-	
			Silver (g/t)	-	-	58	58	58	58	54	54		-	-	-	-	-	-	
Pb Underground		UG	Ore (Mt)	-	-	32.0	32.0	32.0	32.0	15	15	DC	-	-	-	-	-	-	
			Zinc (%)	-	-	4.80	4.80	4.80	4.80	3.70	3.70		-	-	-	-	-	-	
			Lead (%)	-	-	4.30	4.30	4.30	4.30	4.50	4.50		-	-	-	-	-	-	
			Silver (g/t)	-	-	110	110	110	110	110	110		-	-	-	-	-	-	
<b>George Fisher</b>	100%																		
South (P49) Orebodies		UG	Ore (Mt)	27.0	27.7	25.3	24.2	52	52	25	20	DC	4.9	3.8	8.8	8.4	13.7	12.2	CF
			Zinc (%)	8.39	8.35	8.21	8.13	8.30	8.25	7.66	7.63		6.26	6.50	6.06	6.30	6.13	6.40	
			Lead (%)	5.33	5.31	4.77	4.77	5.06	5.06	4.61	4.52		4.78	4.70	4.52	4.60	4.61	4.60	
			Silver (g/t)	120	120	100	100	110	110	98	94		110	100	100	100	100	100	
North (L72) Orebodies		UG	Ore (Mt)	47.5	48.1	120	121	168	169	55	60	DC	13.8	14.3	35.6	37.0	49	51	CF
			Zinc (%)	9.38	9.38	8.83	8.84	8.98	8.99	8.56	8.62		7.38	7.60	6.84	7.20	6.99	7.40	
			Lead (%)	3.35	3.39	3.31	3.31	3.32	3.34	3.35	3.38		3.40	3.40	3.37	3.30	3.37	3.40	
			Silver (g/t)	56	57	52	52	53	53	52	53		59	58	55	54	56	55	
Handlebar Hill Open Cut (primary)		OC	Ore (Mt)	1.6	1.6	3.6	3.6	5.2	5.2	1	1	DC	-	-	-	-	-	-	
			Zinc (%)	7.80	7.80	6.10	6.10	6.62	6.60	5.00	5.00		-	-	-	-	-	-	
			Lead (%)	2.60	2.60	2.00	2.00	2.18	2.20	2.00	2.00		-	-	-	-	-	-	
			Silver (g/t)	41	41	35	35	37	37	30	30		-	-	-	-	-	-	
Handlebar Hill Open Cut (oxide)		OC	Ore (Mt)	0.5	0.5	0.1	0.1	0.6	0.6	-	-	DC	-	-	-	-	-	-	
			Zinc (%)	0.40	0.40	0.40	0.40	0.40	0.40	-	-		-	-	-	-	-	-	
			Lead (%)	8.50	8.50	4.10	4.10	7.77	7.80	-	-		-	-	-	-	-	-	
			Silver (g/t)	89	89	65	65	85	85	-	-		-	-	-	-	-	-	
<b>Lady Loretta</b>	100%	UG	Ore (Mt)	4.1	4.7	1.7	2.4	5.8	7.1	1	1	DC	2.9	3.6	1.2	1.3	4.1	4.9	CF
			Zinc (%)	11.86	12.20	11.91	11.30	11.87	11.90	8.63	8.30		9.92	10.90	10.15	9.60	9.98	10.60	
			Lead (%)	2.92	3.30	1.97	2.10	2.65	2.90	2.13	2.50		2.58	3.30	1.72	1.80	2.33	2.90	
			Silver (g/t)	57	63	46	45	54	57	32	33		50	62	36	35	46	55	
<b>Total Mount Isa - Zinc bearing</b>			<b>Ore (Mt)</b>	<b>81</b>	<b>83</b>	<b>310</b>	<b>310</b>	<b>391</b>	<b>393</b>	<b>290</b>	<b>290</b>		<b>21.6</b>	<b>21.7</b>	<b>46</b>	<b>47</b>	<b>67</b>	<b>68</b>	
			<b>Zinc (%)</b>	<b>9.09</b>	<b>9.11</b>	<b>6.34</b>	<b>6.34</b>	<b>6.90</b>	<b>6.92</b>	<b>5.22</b>	<b>5.25</b>		<b>7.47</b>	<b>7.95</b>	<b>6.78</b>	<b>7.10</b>	<b>7.00</b>	<b>7.45</b>	
			<b>Lead (%)</b>	<b>4.01</b>	<b>4.04</b>	<b>3.38</b>	<b>3.37</b>	<b>3.51</b>	<b>3.52</b>	<b>2.44</b>	<b>2.42</b>		<b>3.60</b>	<b>3.61</b>	<b>3.55</b>	<b>3.49</b>	<b>3.56</b>	<b>3.58</b>	
			<b>Silver (g/t)</b>	<b>77</b>	<b>78</b>	<b>67</b>	<b>67</b>	<b>69</b>	<b>69</b>	<b>48</b>	<b>48</b>		<b>69</b>	<b>66</b>	<b>63</b>	<b>62</b>	<b>64</b>	<b>63</b>	
<b>MICO</b>	100%																		
Mount Isa Open Pit		OC	Ore (Mt)	12.9	12.9	80	80	93	93	10	10	DC	-	-	-	-	-	-	
			Copper (%)	1.84	1.84	1.42	1.42	1.48	1.48	1.42	1.42		-	-	-	-	-	-	
X41 Mine 500, 650, 1100 & 1900 Orebodies		UG	Ore (Mt)	25.8	26.2	21.1	25.5	47	52	1	2	DC	1.5	1.9	10.0	12.7	11.5	14.6	JM
			Copper (%)	1.88	1.87	1.71	1.79	1.80	1.85	1.55	1.58		1.69	1.80	1.68	1.70	1.68	1.71	
Enterprise Mine 3000 & 3500 Orebodies		UG	Ore (Mt)	12.3	16.6	3.5	2.2	15.8	18.8	-	-	DC	2.4	4.0	2.4	3.4	4.8	7.4	JM
			Copper (%)	2.40	2.45	2.26	2.30	2.37	2.48	-	-		2.32	2.50	2.06	2.20	2.19	2.36	
Black Rock Cave		UG	Ore (Mt)	-	-	1.5	1.9	1.50	1.90	-	-	DC	-	-	0.9	1.1	0.9	1.1	JM
			Copper (%)	-	-	5.39	5.52	5.39	5.52	-	-		-	-	3.01	4.80	3.01	4.80	
<b>Total Mount Isa - Copper bearing</b>			<b>Ore (Mt)</b>	<b>51</b>	<b>56</b>	<b>106</b>	<b>110</b>	<b>157</b>	<b>166</b>	<b>11</b>	<b>12</b>		<b>3.9</b>	<b>5.9</b>	<b>13.3</b>	<b>17.2</b>	<b>17.2</b>	<b>23.1</b>	
			<b>Copper (%)</b>	<b>2.00</b>	<b>2.04</b>	<b>1.56</b>	<b>1.59</b>	<b>1.70</b>	<b>1.76</b>	<b>1.52</b>	<b>1.45</b>		<b>2.08</b>	<b>2.27</b>	<b>1.84</b>	<b>2.00</b>	<b>1.84</b>	<b>2.06</b>	

# Zinc

## Australia (Mount Isa, McArthur River) (continued)

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources			Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves		
				2022	2021	2022	2021	2022	2021	2022	2021	CP	2022	2021	2022	2021	2022	2021	CP
<b>McArthur River</b>	100%																		
Open Cut		OC	Ore (Mt)	102	103	36.0	40.8	138	144	-	-	CH/	67	71	14.0	20.0	81	91	DH
			Zinc (%)	9.67	9.70	9.48	9.70	9.62	9.70	-	-	LR	9.28	9.10	7.59	7.80	8.99	8.80	
			Lead (%)	4.23	4.20	4.77	4.90	4.37	4.40	-	-		4.26	4.10	3.80	4.00	4.18	4.10	
			Silver (g/t)	42	42	52	52	45	45	-	-		43	41	40	42	42	41	
Woyzbun South Zone		UG	Ore (Mt)	-	-	8.3	8.3	8.3	8.3	-	-	CH/	-	-	-	-	-	-	
			Zinc (%)	-	-	14.19	14.20	14.19	14.20	-	-	LR	-	-	-	-	-	-	
			Lead (%)	-	-	5.55	5.60	5.55	5.60	-	-		-	-	-	-	-	-	
			Silver (g/t)	-	-	58	58	58	58	-	-		-	-	-	-	-	-	
<b>Total McArthur River</b>			<b>Ore (Mt)</b>	<b>102</b>	<b>103</b>	<b>44.3</b>	<b>49.1</b>	<b>146</b>	<b>152</b>	<b>-</b>	<b>-</b>		<b>67</b>	<b>71</b>	<b>14.0</b>	<b>20.0</b>	<b>81</b>	<b>91</b>	
			<b>Zinc (%)</b>	<b>9.67</b>	<b>9.70</b>	<b>10.36</b>	<b>10.46</b>	<b>9.88</b>	<b>9.95</b>	<b>-</b>	<b>-</b>		<b>9.28</b>	<b>9.10</b>	<b>7.59</b>	<b>7.80</b>	<b>8.99</b>	<b>8.80</b>	
			<b>Lead (%)</b>	<b>4.23</b>	<b>4.20</b>	<b>4.92</b>	<b>5.02</b>	<b>4.44</b>	<b>4.47</b>	<b>-</b>	<b>-</b>		<b>4.26</b>	<b>4.10</b>	<b>3.80</b>	<b>4.00</b>	<b>4.18</b>	<b>4.10</b>	
			<b>Silver (g/t)</b>	<b>42</b>	<b>42</b>	<b>53</b>	<b>53</b>	<b>46</b>	<b>46</b>	<b>-</b>	<b>-</b>		<b>43</b>	<b>41</b>	<b>40</b>	<b>42</b>	<b>42</b>	<b>41</b>	
<b>Total Zinc Australia</b>			<b>Ore (Mt)</b>	<b>183</b>	<b>186</b>	<b>354</b>	<b>359</b>	<b>537</b>	<b>545</b>	<b>290</b>	<b>290</b>		<b>89</b>	<b>93</b>	<b>60</b>	<b>67</b>	<b>148</b>	<b>159</b>	
			<b>Zinc (%)</b>	<b>9.41</b>	<b>9.44</b>	<b>6.84</b>	<b>6.90</b>	<b>7.71</b>	<b>7.77</b>	<b>5.22</b>	<b>5.25</b>		<b>8.84</b>	<b>8.83</b>	<b>6.97</b>	<b>7.31</b>	<b>8.09</b>	<b>8.22</b>	
			<b>Lead (%)</b>	<b>4.13</b>	<b>4.13</b>	<b>3.57</b>	<b>3.60</b>	<b>3.76</b>	<b>3.78</b>	<b>2.44</b>	<b>2.42</b>		<b>4.10</b>	<b>3.99</b>	<b>3.61</b>	<b>3.64</b>	<b>3.90</b>	<b>3.88</b>	
			<b>Silver (g/t)</b>	<b>58</b>	<b>58</b>	<b>66</b>	<b>65</b>	<b>63</b>	<b>63</b>	<b>48</b>	<b>48</b>		<b>49</b>	<b>47</b>	<b>58</b>	<b>56</b>	<b>52</b>	<b>50</b>	
<b>Mount Margaret</b>	100%																		
E1		OC	Ore (Mt)	4.6	4.6	5.5	5.5	10.1	10.1	-	-	DC	-	-	-	-	-	-	
			Copper (%)	0.70	0.70	0.75	0.75	0.73	0.73	-	-		-	-	-	-	-	-	
			Gold (g/t)	0.20	0.20	0.23	0.23	0.22	0.22	-	-		-	-	-	-	-	-	
Monakoff		OC	Ore (Mt)	-	-	2.4	2.4	2.4	2.4	-	-	DC	-	-	-	-	-	-	
			Copper (%)	-	-	0.95	0.95	0.95	0.95	-	-		-	-	-	-	-	-	
			Gold (g/t)	-	-	0.30	0.30	0.30	0.30	-	-		-	-	-	-	-	-	
<b>Total Mount Margaret</b>			<b>Ore (Mt)</b>	<b>4.6</b>	<b>4.6</b>	<b>7.9</b>	<b>7.9</b>	<b>12.5</b>	<b>12.5</b>	<b>-</b>	<b>-</b>		<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	
			<b>Copper (%)</b>	<b>0.70</b>	<b>0.70</b>	<b>0.81</b>	<b>0.81</b>	<b>0.78</b>	<b>0.78</b>	<b>-</b>	<b>-</b>		<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	
			<b>Gold (g/t)</b>	<b>0.20</b>	<b>0.20</b>	<b>0.25</b>	<b>0.25</b>	<b>0.23</b>	<b>0.23</b>	<b>-</b>	<b>-</b>		<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	

# Zinc

## **Mount Isa Open Pit ("MIOP")**

Lead-zinc-silver mineralisation occurs in galena and sphalerite-rich bedding parallel horizons in dolomitic and variably carbonaceous pyritic shales and siltstones.

Approximately 85% of the lead-zinc-silver Mineral Resource is primary sulphide; the remainder being considered as transitional mineralisation (mixed sulphide and secondary oxide/carbonate). The copper resource in MIOP has not been included here; it is reported separately as part of MICO, and is constrained by the same pit shell.

MIOP, PBUG and RG are all located on Mining Lease ML8058 which expires on 30 November 2036.

## **Pb Underground ("PBUG")**

PBUG is the continuation of the same lead-zinc-silver mineralisation in Black Star Open Cut (included above), which occurs in galena and sphalerite-rich bedding parallel horizons in dolomitic and variably carbonaceous pyritic shales and siltstones.

## **Rio Grande ("RG")**

RG is a southern continuation of PBUG where lead-zinc-silver mineralisation occurs in galena and sphalerite-rich bedding parallel horizons in dolomitic and variably carbonaceous pyritic shales and siltstones. This mineralisation occurs close to Cu mine operations around 4800N.

## **Mount Isa Copper ("MICO")**

Ore Reserves were depleted by a combined 3.1 Mt from X41 and Enterprise Mines and 0.4 Mt from the Black Rock Cave in 2022, with additional supporting production from outside of the reserve. The underground life of mine estimate for the X41 mine is 2027, with Enterprise and the Black Rock Cave closing in 2025.

The tenements are due to expire on 30 November 2036.

## **Mount Isa Copper Open Pit**

The mineralisation occurs generally as breccia-hosted massive to disseminated copper minerals in "silica-dolomite" altered pyritic dolomitic siltstone. The Mineral Resources consist primarily of chalcocite, the remainder being oxidised or partially oxidised.

## **X41 & Enterprise**

Mineralisation occurs generally as breccia-hosted massive to disseminated chalcocite in "silica-dolomite" altered pyritic dolomitic siltstone.

## **Black Rock Cave**

Copper mineralisation occurs generally within a chalcocite zone that lies above the Leached Primary material. The zone is interpreted to lie outside of the silica-dolomite alteration.

## **George Fisher Mine**

### **North (L72) & South (P49) Orebodies**

Orebodies: Lead-zinc-silver mineralisation occurs in galena and sphalerite-rich bedding parallel horizons in dolomitic and variably carbonaceous pyritic shales and siltstones. Orebody and structural interpretation, modelling and classification of the mineral resource was completed on the basis of additional geological information and improved systems. The current extraction method at George Fisher is sublevel open stoping. Mine production for 2022 totaled 2.9 Mt at 6.6% Zn, 3.6% Pb and 65 g/t Ag. The mine is located on Mining Lease ML8058 and the lease expires on 30 November 2036.

The expected mine life for George Fisher Mine is approximately 18 years based on Ore Reserves and the life of mine schedule.

### **Handlebar Hill Open Cut**

Lead-zinc-silver mineralisation occurs in galena and sphalerite-rich bedding parallel horizons in dolomitic and variably carbonaceous pyritic shales and siltstones. The Handlebar Hill Open Cut resource is up dip of and additional to the George Fisher South Mineral Resource. Material from the oxidised portion of the mineralisation is reported as a Mineral Resource.

No depletion has occurred through mining during 2022.

The Handlebar Hill Open Cut is located on Mining Lease ML8058 which expires on 30 November 2036. The mine was placed in care and maintenance in July 2014.

### **Lady Loretta**

Lead-zinc-silver mineralisation occurs in a galena and sphalerite rich massive sulphide lens located in carbonaceous pyritic shales and siltstones. The deposit occurs in a tight syncline dislocated by a number major faults. The deeper and high-grade portion of the deposit reaches 500 m below the surface.

Resources changes are mainly associated with mining activity, drilling and improvements in overall modelling and estimation techniques.

Mine production at Lady Loretta in 2022 totaled 1.5 Mt at grades of 10.36% Zn, 3.88% Pb and 65 g/t Ag. The Mining Lease, ML5568, is current until January 31st, 2026. The expected mine life for Lady Loretta Mine is 3 years based on Ore Reserves and the life of mine schedule.

### **McArthur River Mine**

Zinc-lead-silver mineralisation occurs predominantly as ultrafine bedded parallel sphalerite and galena rich bands hosted by dolomitic and carbonaceous pyritic siltstones, graded beds and chaotic debris flow breccias.

The Mineral Resources were depleted by 4.2Mt during 2022 and decreased by 1.6Mt due to changes in the resource model. The Ore Reserves have been depleted during 2022 by a total of 4.3 Mt at 8.9% Zn and 3.8% Pb and also reduced by 5.2Mt due to changes in the block model and key assumptions.

Open cut mining is planned to be completed in 2040. Mineral Resources and Ore Reserves are located within leases that are valid to 2043.

### **Mount Margaret**

Economic mineralisation at E1 occurs as breccia-hosted mineralisation within the footwall volcanics at E1 North, and as strata-bound, replacement style mineralisation within the mineralised sedimentary units at E1 North, Central, South, and East. Mine lease tenements expire in December 2032.

Economic mineralisation at Monakoff and Monakoff East occurs in very fine to medium grained steeply dipping metasediment units. Mine lease tenements expire in October 2032.

# Zinc

## North America (Kidd Creek, Matagami, PD1, Errington, Vermilion, Hackett River, Bell, Granisle)

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources			Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves			
				2022	2021	2022	2021	2022	2021	2022	2021	CP	2022	2021	2022	2021	2022	2021	CP	
<b>Kidd Creek</b>	100%	UG	Ore (Mt)	4.5	5.2	0.5	0.7	5.0	6.0	-	-	BD	1.6	1.9	0.9	1.2	2.5	3.1	KS	
			Zinc (%)	3.51	3.75	4.39	4.17	3.61	3.80	-	-	-	-	3.11	2.85	4.06	4.96	3.45	3.65	-
			Copper (%)	1.62	1.77	1.56	1.85	1.61	1.78	-	-	-	-	1.75	1.90	1.33	1.80	1.60	1.86	-
			Silver (g/t)	44	46	37	49	43	46	-	-	-	-	44	45	26	44	38	45	-
<b>Mine 5</b>	100%	UG	Ore (Mt)	6.0	4.9	12.0	8.4	18.0	13.3	2	6	MM	-	-	0.4	0.3	0.4	0.3	KS	
			Zinc (%)	4.25	3.89	3.77	3.76	3.93	3.81	6.17	4.00	-	-	2.43	2.50	2.43	2.50	-		
			Copper (%)	1.54	1.56	1.70	1.55	1.64	1.56	1.73	1.61	-	-	1.23	1.20	1.23	1.20	-		
			Silver (g/t)	43	44	31	33	35	37	35	29	-	-	39	40	39	40	-		
<b>Matagami Caber</b>	100%	UG	Ore (Mt)	0.8	0.8	0.7	0.7	1.5	1.5	-	-	AL	-	-	-	-	-	-	-	
			Zinc (%)	6.09	6.10	5.42	5.40	5.79	5.77	-	-	-	-	-	-	-	-	-	-	
			Copper (%)	1.11	1.10	1.07	1.10	1.09	1.10	-	-	-	-	-	-	-	-	-	-	
			Silver (g/t)	10	10	9.0	9.0	9.6	9.5	-	-	-	-	-	-	-	-	-	-	
<b>Caber Nord</b>	100%	UG	Ore (Mt)	-	-	-	-	-	-	6	6	AL	-	-	-	-	-	-	-	
			Zinc (%)	-	-	-	-	-	-	2.56	2.60	-	-	-	-	-	-	-		
			Copper (%)	-	-	-	-	-	-	1.20	1.20	-	-	-	-	-	-	-		
			Silver (g/t)	-	-	-	-	-	-	11	11	-	-	-	-	-	-	-		
<b>PD-1</b>	100%	OC/UG	Ore (Mt)	0.6	0.6	1.0	1.0	1.5	1.6	-	-	AL	-	-	-	-	-	-	-	
			Zinc (%)	4.22	4.20	4.96	5.00	4.71	4.70	-	-	-	-	-	-	-	-	-		
			Copper (%)	0.82	0.80	1.35	1.35	1.12	1.19	-	-	-	-	-	-	-	-	-		
			Silver (g/t)	20	20	20	20	20	20	-	-	-	-	-	-	-	-	-		
<b>Errington</b>	100%	UG	Ore (Mt)	6.6	6.6	2.3	2.3	8.9	8.9	-	-	AL	-	-	-	-	-	-		
			Zinc (%)	3.88	3.88	4.36	4.36	4.01	4.01	-	-	-	-	-	-	-	-			
			Lead (%)	1.05	1.05	1.19	1.19	1.09	1.09	-	-	-	-	-	-	-	-			
			Copper (%)	1.14	1.14	1.11	1.11	1.13	1.13	-	-	-	-	-	-	-	-			
			Silver (g/t)	52	52	52	52	52	52	-	-	-	-	-	-	-	-			
<b>Vermilion</b>	100%	UG	Ore (Mt)	2.8	2.8	0.4	0.4	3.2	3.2	-	-	AL	-	-	-	-	-	-		
			Zinc (%)	4.22	4.22	5.32	5.32	4.34	4.34	-	-	-	-	-	-	-	-			
			Lead (%)	1.16	1.16	1.27	1.27	1.21	1.17	-	-	-	-	-	-	-	-			
			Copper (%)	1.34	1.34	1.11	1.11	1.27	1.31	-	-	-	-	-	-	-	-			
			Silver (g/t)	53	53	56	56	53	53	-	-	-	-	-	-	-	-			
<b>Hackett River</b>	100%	OC/UG	Ore (Mt)	-	-	27.0	27.0	27.0	27.0	60	60	AL	-	-	-	-	-	-		
			Zinc (%)	-	-	4.47	4.47	4.50	4.47	3.52	3.52	-	-	-	-	-	-			
			Lead (%)	-	-	0.59	0.59	0.60	0.59	0.51	0.51	-	-	-	-	-	-			
			Copper (%)	-	-	0.45	0.45	0.50	0.45	0.39	0.39	-	-	-	-	-	-			
			Silver (g/t)	-	-	130	130	130	130	120	120	-	-	-	-	-	-			
<b>Total Zinc North America</b>			<b>(Mt)</b>	<b>21.3</b>	<b>20.9</b>	<b>43.9</b>	<b>40.5</b>	<b>65</b>	<b>62</b>	<b>68</b>	<b>72</b>	<b>1.6</b>	<b>1.9</b>	<b>1.3</b>	<b>1.5</b>	<b>2.9</b>	<b>3.4</b>			
			Zinc (%)	4.04	3.99	4.31	4.35	4.23	4.23	3.51	3.48	3.13	2.84	3.54	4.47	3.31	3.56			
			Lead (%)	0.48	0.49	0.44	0.47	0.46	0.48	0.45	0.43	-	-	-	-	-	-			
			Copper (%)	1.37	1.41	0.87	0.78	1.05	1.00	0.50	0.56	1.75	1.89	1.31	1.67	1.55	1.79			
			Silver (g/t)	45	46	93	99	77	81	108	103	44	45	30	43	38	45			
			Gold (g/t)	0.39	0.40	0.25	0.27	0.29	0.31	0.20	0.19	-	-	-	-	-	-			

# Zinc

## North America (Kidd Creek, Matagami, PD1, Errington, Vermilion, Hackett River, Bell, Granisle) (continued)

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources		CP	Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves	
				2022	2021	2022	2021	2022	2021	2022	2021		2022	2021	2022	2021	2022	2021
<b>Bell</b>	100%	OC	Ore (Mt)	57	57	200	200	257	257	100	100	BD	-	-	-	-	-	-
			Copper (%)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	-	-	-	-	-	-
			Gold (g/t)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	-	-	-	-	-	-
<b>Granisle</b>	100%	OC	Ore (Mt)	18.0	18.0	55	55	73	73	20	20	BD	-	-	-	-	-	
			Copper (%)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-	-	-	-	-	-
			Gold (g/t)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	-	-	-	-	-	-
<b>Total Copper North America</b>			<b>Ore (Mt)</b>	<b>75</b>	<b>75</b>	<b>255</b>	<b>255</b>	<b>330</b>	<b>330</b>	<b>120</b>	<b>120</b>		-	-	-	-	-	
			<b>Copper (%)</b>	<b>0.38</b>	<b>0.38</b>	<b>0.38</b>	<b>0.38</b>	<b>0.38</b>	<b>0.38</b>	<b>0.38</b>	<b>0.38</b>		-	-	-	-	-	
			<b>Gold (g/t)</b>	<b>0.18</b>	<b>0.18</b>	<b>0.18</b>	<b>0.18</b>	<b>0.18</b>	<b>0.18</b>	<b>0.18</b>	<b>0.18</b>		-	-	-	-	-	

### Kidd Creek

#### Kidd

Kidd Mine is a VMS Cu-Zn-Ag deposit. Mineralisation occurs within a rhyolitic volcanic/volcaniclastic sequence as massive sulphide lenses of dominantly pyrite-pyrrhotite-sphalerite-galena-rich ores that are underlain by copper in chalcocopyrite stringer zones. Ore Reserves are based on the approved mining plan to 2,940 m (9,600 ft) depth.

Mineral Resources and Ore Reserves changes are primarily the result of mining drawdown, with some adjustments due to update mine design, cost reductions, and commodity pricing changes. The current extraction method at Kidd Mine is sublevel open stoping.

2022 production totalled 1.25 Mt at 3.61% Zn, 2.16% Cu and 47 g/t Ag. Ore reserves in the Probable category mainly reflect geotechnical and economic uncertainty, rather than geological uncertainty. Mine life is anticipated to be 2 years, end-2024. All land tenures covering the existing Mineral Resources and Ore Reserves are patented and never expire.

#### Mine 5

Mine 5 is the down dip extension of the Kidd Mine deposit which is a VMS Cu-Zn-Ag deposit. Ore Reserves are based on the portion of the approved mining plan from 2,940 m to 3,020 m (Level 9800 and Level 9900) that lies within the remaining Kidd Mine life. Mineral Resources are reported from 2,940 m to 3,430 m (9800 ft to 11,200 ft) depth. Additional mineralisation continuity is identified to 3,840 m (12,600 ft) depth.

Potential mine life extension is under review at the FS level. The resource model was updated with the latest diamond drilling information completed as part of the study. The data comprises Pre Ore-Definition drilling results (POD) for the extent of Mine 5, along delineation drilling for the first three levels. All land tenures covering the existing Mineral Resources and Ore Reserves are patented and never expire.

### Matagami

#### PD-1, Caber / Caber Nord

The PD-1, Caber / Caber Nord deposits are part of the Matagami camp and are located on mining claims owned by Glencore.

### Errington

The Errington deposit is a polymetallic massive sulphide located in the Sudbury Basin, Ontario. The 5 lenses that make up this deposit are hosted by sedimentary rocks of the Vermilion Formation at the contact of the Onaping and Onwatin formations.

### Vermilion

The Vermilion deposit is a polymetallic massive sulphide body located in the Sudbury Basin, Ontario. The 17 lenses that make up the deposit are hosted by sedimentary rocks of the Vermilion Formation at the contact of the Onaping and Onwatin Formations. The Mineral Resource was confirmed in 2013 with a 10,000 m drill program. Mineral Resources were interpolated by ID2.

### Hackett River Project

The Hackett River project is located in Nunavut, Canada, approximately 480 km northeast of Yellowknife and 105 km south-southwest of the community of Bathurst Inlet, which is located on the Arctic Ocean.

The Hackett River deposits are situated within the Slave Structural Province, a predominantly Archaean granite greenstone-sedimentary terrane that lies between Great Slave Lake and Coronation Gulf.

Four principal sulphide deposits were defined as economically viable Mineral Resources, following boundaries of open cut vs underground mining, through a Preliminary Economic Assessment prior to Glencore's acquisition in 2010. Following the exploration drilling campaign of 2013, which added 114 drillholes totalling 39,000 m, reinterpretation was carried out outlining an in situ resource using Zn equivalent grades. The Mineral Resource grades are interpolated using ID2 estimation.

### Bell/Granisle

Bell and Granisle are porphyry copper-gold deposits located at Babine Lake. The Babine deposits are associated with calc-alkaline magmatic rocks. They were formed in the roots of Eocene volcanoes built upon continental crust.

The latest Mineral Resource estimate does not include the additional 25 holes (12,260 m) drilled in 2012. A resource update is in progress for completion in 2023.

There are no known land tenure issues and the mining leases are renewed yearly.

# Zinc

## Volcan

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources			Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves		
				2022	2021	2022	2021	2022	2021	2022	2021	CP	2022	2021	2022	2021	2022	2021	CP
Yauli	23.3%		Ore (Mt)	3.3	2.9	4.6	5.3	7.9	8.3	4	5		1.5	1.4	2.3	3.0	3.8	4.4	
Andaychagua		UG	Zinc (%)	8.77	8.60	4.74	5.43	6.42	6.56	4.02	4.50	AA	8.61	8.85	4.41	5.55	6.06	6.62	BF
			Lead (%)	1.77	1.60	0.84	1.03	1.23	1.24	0.75	0.80		1.78	1.41	0.64	0.93	1.09	1.09	
			Silver (g/t)	85	91	110	110	100	100	120	110		65	63	82	83	75	77	
Zoraida			Ore (Mt)	-	-	3.1	2.8	3.1	2.8	2.0	1.6	AA	-	-	-	-	-	-	
			Zinc (%)	-	-	4.44	4.55	4.44	4.55	4.36	4.04		-	-	-	-	-	-	
			Lead (%)	-	-	3.12	3.13	3.12	3.13	3.37	2.84		-	-	-	-	-	-	
Carahuacra		UG	Ore (Mt)	1.8	2.6	3.2	3.8	5.0	6.4	4	4	AA	0.4	0.3	1.1	1.0	1.5	1.3	BF
			Zinc (%)	5.45	5.31	5.88	6.16	5.72	5.81	5.84	6.18		4.98	5.86	4.40	4.92	4.56	5.16	
			Lead (%)	0.57	0.62	0.93	1.08	0.80	0.89	1.03	1.07		0.67	0.89	0.91	1.22	0.84	1.10	
San Cristobal		UG	Ore (Mt)	6.2	7.1	11.7	12.7	17.9	19.8	14	15	AA	3.3	2.9	6.8	7.2	10.1	10.1	BF
			Zinc (%)	6.71	7.00	5.81	6.14	6.12	6.45	4.79	5.31		5.00	5.83	4.29	4.48	4.52	4.87	
			Lead (%)	0.93	0.99	1.02	1.13	0.99	1.08	0.81	0.92		0.70	0.86	0.76	0.82	0.74	0.83	
Ticlio		UG	Ore (Mt)	1.8	2.1	3.2	3.3	4.9	5.4	5	6	AA	0.3	0.4	0.4	0.4	0.7	0.8	BF
			Zinc (%)	5.37	5.73	4.03	3.85	4.51	4.58	4.73	3.61		5.76	5.40	4.39	5.00	4.97	5.19	
			Lead (%)	1.09	1.30	0.86	0.87	0.94	1.04	1.25	1.17		0.72	0.90	0.65	0.80	0.68	0.85	
Chungar Islay	23.3%	UG	Ore (Mt)	1.2	1.0	1.8	1.8	2.9	2.8	3	3		0.1	0.1	0.2	0.3	0.3	0.4	
			Zinc (%)	2.20	1.83	1.57	1.78	1.82	1.79	1.51	1.71	AA	4.06	2.45	2.70	3.18	3.24	2.95	BF
			Lead (%)	0.98	0.88	0.75	0.77	0.84	0.81	0.73	0.81		1.65	1.20	1.20	1.07	1.38	1.11	
Animon		UG	Ore (Mt)	1.7	1.9	7.6	7.8	9.4	9.7	13	13	AA	0.7	0.7	3.1	2.5	3.8	3.2	BF
			Zinc (%)	9.60	9.52	7.17	7.23	7.62	7.67	5.43	5.51		5.05	4.76	4.66	4.47	4.73	4.53	
			Lead (%)	2.87	2.74	2.30	2.29	2.41	2.38	1.75	1.82		1.92	1.69	1.72	1.63	1.76	1.64	
Esperanza		UG	Ore (Mt)	-	-	-	-	-	-	27	-	AA	-	-	-	-	-	-	
			Zinc (%)	-	-	-	-	-	-	5.15	-		-	-	-	-	-	-	
			Copper (%)	-	-	-	-	-	-	0.80	-		-	-	-	-	-	-	
Alpamarca	23.3%	OC	Ore (Mt)	1.4	1.4	0.5	0.6	2.0	2.0	2	-	AA	0.6	0.4	0.1	0.2	0.7	0.6	BF
			Zinc (%)	1.07	1.00	1.01	1.11	1.05	1.03	0.97	-		0.96	0.89	1.03	1.21	0.97	0.97	
			Lead (%)	0.85	0.81	0.99	0.88	0.89	0.83	0.48	-		0.76	0.81	1.02	0.89	0.80	0.83	
Palma	23.3%	UG	Ore (Mt)	-	-	13.3	12.5	13.3	12.5	11	10	AA	-	-	-	-	-	-	
			Zinc (%)	-	-	4.42	4.50	4.42	4.50	4.07	4.20		-	-	-	-	-	-	
			Lead (%)	-	-	0.86	0.90	0.86	0.90	0.75	0.80		-	-	-	-	-	-	
Romina II Puagjanca	23.3%	UG/ OC	Ore (Mt)	4.8	5.8	4.4	4.7	9.3	10.5	3	4	AA	-	-	-	-	-	-	
			Zinc (%)	4.94	4.30	5.77	5.30	5.34	4.75	4.47	4.20		-	-	-	-	-	-	
			Lead (%)	2.73	2.30	3.16	3.00	2.94	2.61	2.47	2.50		-	-	-	-	-	-	
Andrea	23.3%	UG	Ore (Mt)	40	35	46	43	43	39	33	35		-	-	-	-	-	-	
			Zinc (%)	-	-	-	-	-	-	5	5	AA	-	-	-	-	-	-	
				-	-	-	-	-	-	3.90	4.00		-	-	-	-	-	-	
La Tapada	23.3%	UG	Ore (Mt)	-	-	3.7	3.6	3.7	3.6	7	7	AA	-	-	-	-	-	-	
			Zinc (%)	-	-	3.55	3.60	3.55	3.60	3.33	3.40		-	-	-	-	-	-	
			Lead (%)	-	-	1.53	1.50	1.53	1.50	1.29	1.30		-	-	-	-	-	-	
			Silver (g/t)	-	-	45	46	45	46	40	40		-	-	-	-	-		

# Zinc

## Volcan (continued)

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources			CP	Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves		
				2022	2021	2022	2021	2022	2021	2022	2021	2022		2021	2022	2021	2022	2021	2022	2021
<b>Cerro de Pasco</b>	23.3%																			
Raul Rojas block - Oxides		OC	Ore (Mt)	0.3	-	1.8	2.8	2.1	2.8	1	-	AA	-	-	0.5	0.4	0.50	0.4	BF	
			Zinc (%)	0.02	-	0.06	0.04	0.06	0.04	0.05	-	-	-	-	-	-	-	-		
			Lead (%)	0.06	-	0.20	0.11	0.18	0.11	0.21	-	-	-	-	-	-	-	-		
			Silver (g/t)	100	-	150	140	140	140	160	-	-	-	-	200	190	200	190		
			Gold (g/t)	1.9	-	1.4	1.9	1.5	1.9	0.98	-	-	-	-	0.93	1.2	0.93	1.2		
Raul Rojas pit - sulphides		UG	Ore (Mt)	-	-	-	-	-	-	15	15	AA	-	-	-	-	-	-		
			Zinc (%)	-	-	-	-	-	-	0.32	0.32	-	-	-	-	-	-	-		
			Lead (%)	-	-	-	-	-	-	0.25	0.25	-	-	-	-	-	-	-		
			Copper (%)	-	-	-	-	-	-	0.39	0.39	-	-	-	-	-	-	-		
			Silver (g/t)	-	-	-	-	-	-	110	110	-	-	-	-	-	-	-		
			Gold (g/t)	-	-	-	-	-	-	0.5	0.54	-	-	-	-	-	-	-		
Raul Rojas pit - polymetallic		UG	Ore (Mt)	-	-	-	-	-	-	45	45	AA	-	-	-	-	-	-		
			Zinc (%)	-	-	-	-	-	-	6.52	6.52	-	-	-	-	-	-	-		
			Lead (%)	-	-	-	-	-	-	2.38	2.38	-	-	-	-	-	-	-		
			Copper (%)	-	-	-	-	-	-	0.15	0.15	-	-	-	-	-	-	-		
			Silver (g/t)	-	-	-	-	-	-	110	100	-	-	-	-	-	-	-		
			Gold (g/t)	-	-	-	-	-	-	0.12	0.12	-	-	-	-	-	-	-		
Stockpiles - oxides		OC	Ore (Mt)	-	-	0.4	-	0.4	-	0.3	0.2	AA	-	-	-	-	-	-		
			Zinc (%)	-	-	1.0	-	1.0	-	1.0	0.5	-	-	-	-	-	-	-		
			Lead (%)	-	-	1.3	-	1.3	-	1.2	2.3	-	-	-	-	-	-	-		
			Silver (g/t)	-	-	156	-	156	-	165	220	-	-	-	-	-	-	-		
			Gold (g/t)	-	-	0.10	-	0.10	-	0.10	0.10	-	-	-	-	-	-	-		
Stockpiles - sulphides		OC	Ore (Mt)	-	-	3.5	4.4	3.5	4.4	1	2	AA	-	-	-	-	-	-		
			Silver (g/t)	-	-	215	210	220	210	220	190	-	-	-	-	-	-	-		
			Gold (g/t)	-	-	0.26	0.18	0.26	0.18	0.22	0.20	-	-	-	-	-	-	-		
Stockpiles - Polymetallic		OC	Ore (Mt)	-	-	11.3	8.4	11.3	8.4	10	9	AA	-	-	4.1	2.4	4.1	2.4	BF	
			Zinc (%)	-	-	1.77	1.82	1.77	1.82	2.08	2.14	-	-	2.27	1.50	2.27	1.50			
			Lead (%)	-	-	0.70	0.67	0.70	0.67	0.72	0.68	-	-	0.62	0.60	0.62	0.60			
			Silver (g/t)	-	-	54	52	54	52	47	43	-	-	33	47	33	47			
<b>Volcan copper-bearing ores</b>			<b>Ore (Mt)</b>	-	-	-	-	-	-	<b>87</b>	<b>60</b>	-	-	-	-	-	-	-		
			<b>Copper (%)</b>	-	-	-	-	-	-	<b>0.39</b>	<b>0.20</b>	-	-	-	-	-	-	-		
<b>Volcan gold-bearing ores</b>			<b>Ore (Mt)</b>	-	-	<b>5.7</b>	<b>7.2</b>	<b>6.0</b>	<b>7.2</b>	<b>62</b>	<b>62</b>	-	-	<b>0.5</b>	<b>0.4</b>	<b>0.5</b>	<b>0.4</b>			
			<b>Gold (g/t)</b>	<b>2</b>	-	<b>0.6</b>	<b>0.85</b>	<b>0.7</b>	<b>0.85</b>	<b>0.2</b>	<b>0.22</b>	-	-	<b>0.9</b>	<b>1.3</b>	<b>0.9</b>	<b>1.3</b>			
<b>Total Pb-Zn-Ag-Cu Zinc</b>			<b>Ore (Mt)</b>	<b>22.5</b>	<b>24.8</b>	<b>74</b>	<b>75</b>	<b>97</b>	<b>99</b>	<b>172</b>	<b>145</b>	-	-	<b>6.9</b>	<b>6.2</b>	<b>18.6</b>	<b>17.4</b>	<b>25.5</b>	<b>23.6</b>	
			<b>Zinc (%)</b>	<b>5.96</b>	<b>5.92</b>	<b>4.20</b>	<b>4.37</b>	<b>4.61</b>	<b>4.76</b>	<b>4.50</b>	<b>4.50</b>	-	-	<b>5.46</b>	<b>5.98</b>	<b>3.78</b>	<b>4.13</b>	<b>4.23</b>	<b>4.62</b>	
			<b>Lead (%)</b>	<b>1.56</b>	<b>1.48</b>	<b>1.22</b>	<b>1.23</b>	<b>1.30</b>	<b>1.30</b>	<b>1.16</b>	<b>1.41</b>	-	-	<b>1.07</b>	<b>1.08</b>	<b>0.87</b>	<b>0.93</b>	<b>0.93</b>	<b>0.97</b>	
			<b>Silver (g/t)</b>	<b>87</b>	<b>86</b>	<b>82</b>	<b>86</b>	<b>84</b>	<b>88</b>	<b>75</b>	<b>84</b>	-	-	<b>77</b>	<b>80</b>	<b>72</b>	<b>81</b>	<b>73</b>	<b>81</b>	

# Zinc

## Volcan (continued)

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources		CP	Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves		
				2022	2021	2022	2021	2022	2021	2022	2021		2022	2021	2022	2021	2022	2021	2022
<b>Santa Barbara</b>	23.3%	OC	Ore (Mt)	-	-	-	-	-	-	140	140	AA	-	-	-	-	-	-	
			Cu (%)	-	-	-	-	-	-	-	0.38	0.40	-	-	-	-	-	-	-
			Gold (g/t)	-	-	-	-	-	-	-	0.20	0.20	-	-	-	-	-	-	-
<b>Rondoni</b>	23.3%	OC	Ore (Mt)	18.4	18.4	34.3	34.3	53	53	8	8	AA	-	-	-	-	-	-	
			Cu (%)	0.48	0.50	0.49	0.50	0.49	0.50	0.46	0.50	-	-	-	-	-	-	-	-
<b>Total Cu</b>			<b>Ore (Mt)</b>	<b>18.4</b>	<b>18.4</b>	<b>34.3</b>	<b>34.3</b>	<b>53</b>	<b>53</b>	<b>148</b>	<b>148</b>		-	-	-	-	-	-	
			<b>Gold (g/t)</b>	-	-	-	-	-	-	-	<b>0.19</b>	<b>0.19</b>		-	-	-	-	-	-
			<b>Cu (%)</b>	<b>0.48</b>	<b>0.50</b>	<b>0.49</b>	<b>0.50</b>	<b>0.49</b>	<b>0.50</b>	<b>0.38</b>	<b>0.41</b>		-	-	-	-	-	-	-

Glencore holds 55.0% of the total class A common shares (63.0% of the class A common shares excluding treasury shares) and has an economic interest in Volcan of 23.3% (including the class B common shares and excluding treasury shares)

### Yauli

The Yauli dome is located in the Andes Cordillera at 4,500 meters above sea level, about 100 km East of Lima, Peru. The southern portion of the Yauli dome is the host of several vein-type and replacement mantles and bodies; including polymetallic deposits such as where Andaychagua, Carahuacra, San Cristobal and Ticlio are. Changes to the 2022 resources are as a result of mineralisation interpretation updates from new drill data and production data. The main mining methods used are Sub-level Stopping and Over Cut and Fill, while the Under Cut and Fill and SARC methods are also applied in some areas. In 2022, Yauli complex production was split between the four operations:

Andaychagua production was 778 kt grading 6.7% Zn, 1.4% Pb, and 68 g/t Ag.

Carahuacra production was 441 kt grading 4.5 % Zn, 0.9% Pb and 89 g/t Ag.

Ticlio production was 380 kt grading 5.0% Zn, 0.8% Pb and 72 g/t Ag.

San Cristobal production was 1.31 Mt grading 5.4% Zn, 0.7% Pb and 93 g/t Ag. A total of 2.4Mt was sterilised in San Cristobal and Carahuacra following geotechnical review of mined areas.

The expected mine lives of the Yauli complex operations are:

- Andaychagua: 4 years based on Ore Reserves and 4 years based on the life of mine schedule which is inclusive of all available economic Mineral Resources categories;
- Carahuacra: 3 years based on Ore Reserves and 9 years based on the life of mine schedule which is inclusive of all available economic Mineral Resources categories;
- Ticlio: 2 years based on Ore Reserves and 3 years based on the life of mine schedule which is inclusive of all available economic Mineral Resources categories;
- San Cristobal: 8 years based on Ore Reserves and 9 years based on the life of mine schedule which is inclusive of all available economic Mineral Resources categories.

### Zoraida

Zoraida is an exploration project that belongs to the Yauli Operating Unit. The polymetallic mineralisation is hosted in the sedimentary rock complex known as the Yauli Dome; which is confirmed by folded layers, as well as structures and intrusive rocks related to veins and replacement bodies containing zinc, lead and minor silver. It is located 7 km south of the Andaychagua mine, in the district of Sutucancha, province of Yauli, department of Junin in Peru.

### Chungar

Located in the Huaron mining district, Chungar encompasses the Islay and Animon mines, and the Esperanza maiden resource. The polymetallic mineralisation at Islay mainly consists of silver-rich, subordinated lead and zinc, breccia-type fissure fill. The Animon deposit, is a hydrothermal polymetallic deposit. Esperanza consists of Zn and Cu-rich replacement mantos, a Cordilleran polymetallic deposit. The main mining method at Animon is cut and fill, sub-level stopping production is subordinate. The mining method at Islay is sub-level stopping in vein-hosted mineralisation, and room and pillar for sub-horizontal mineralised bodies. Resource models were revised for Animon and Islay following integration of new drillhole data and update to the interpretation of the mineralisation wireframes. A maiden resource was estimated for Esperanza based on 18 km of new drilling and resulting update to the geological model and mineralisation wireframes.

Production during 2022 was as follows:

- Animon production was 1.07 Mt at 4.4% Zn, 1.8% Pb and 50 g/t Ag.
- Islay production was 156 kt at 2.2% Zn, 1.0% Pb and 135 g/t Ag..

The expected life of mine is:

- Animon: 3-4 years based on Ore Reserves and 6 years based on the life of mine schedule which is inclusive of all economic Mineral Resources categories.
- Islay: 2 years based on Ore Reserves and 3 years based on the life of mine schedule which is inclusive of all economic Mineral Resources categories.

### Alpamarca

The Alpamarca deposit is a structurally-controlled vein-type deposit located in the Pacaros district of the province of Huari. Resources are reported within an optimised pit shell. In 2022, Inferred Resources have been added from the South Pit and from historical stockpiles and tailings.

Alpamarca is mined by open cut and in 2022, the mine produced 206 kt at 0.9% Zn, 0.8% Pb and 36 g/t Ag. The expected mine life of Alpamarca is less than one year based on Ore Reserves.

### Palma

Palma is an advanced exploration project with polymetallic mineralisation of zinc, lead, and silver. The deposit is a volcanogenic massive sulphide (VMS). The mineralisation is located in volcano-sedimentary rocks of the Casma group. It is located in the Province of Huarochiri.

### Romina II

The Puagjanca and Andrea deposits are in an advanced exploration project stage, with polymetallic mineralisation of zinc, lead, and silver. The mineralisation is in the form of lead and zinc-rich replacement bodies and mantles. It is located 15 km west of the Alpamarca mine in the Pacaraos district, Huaral province. In 2022 a drilling campaign refined the deposit extents, resulting in a reduction of 2.5Mt and a gain in mineral resource grades.

### La Tapada

La Tapada Project is a polymetallic deposit whose mineralisation is observed in veins, breccia bodies and replacement mantles. The intrusion outcrops are located at the contact with sedimentary limestones. It is located 20 km east of the Alpamarca mine in the Santa Bárbara de Carhuacayán district, Yauli Province.

### Cerro de Pasco

The Cerro de Pasco mine hosts polymetallic deposits associated with dacitic pyroclastic volcanism, structural deformation and carbonate replacement. Work continued in 2022 to validate historical drill data and mining voids, resulting in a reduction in the Mineral Resource. The insitu material, hosted in the Raul Rojas block, is segregated by mineralisation type and to reflect different metallurgical/processing methods. The Cerro de Pasco stockpile models were drilled, analysed, and reclassified which led to new inferred resources in the deeper areas of the stockpiles. Exploration programs in Hanancocha and Rumiallana stockpiles added 4Mt of sulphide Resources in 2022.

Mineral Resources are reported for polymetallic Pb-Zn, sulphides, and in situ oxides of the Raul Rojas block, as well as stockpiles having demonstrated reasonable prospects for eventual economic extraction. Ore Reserves are declared for areas within existing permit boundaries and expiries; these will potentially be extended depending on a regulatory procedure.

Production in 2022 from sulphide and oxide stockpiles, and the expected mine lives are:

- Sulphide Stockpiles: Production of 2.9 Mt of stockpile material, grading 1.9% Zn, 0.7% Pb and 45 g/t Ag. The remaining inventory is forecasted for 3 years based on Ore Reserves and 6 years based on the life of mine schedule which is inclusive of all economic Mineral Resources categories.
- Cerro de Pasco Oxides: Production of 958 kt grading 223 g/t Ag and 0.7 g/t Au. The remaining inventory is forecasted for 1 year based on Ore Reserves and 3 years based on the life of mine schedule which is inclusive of all economic Mineral Resources categories.

### Santa Bárbara and Rondoni

The geological setting of the Santa Barbara and Rondoni projects are characteristic of Andean Cu-porphyry deposits, with mineralisation dominantly occurring in chalcopyrite-bearing veinlets with intermediate argillic and potassic alteration.



# Zinc

## Other Zinc Mineral Resources (Pallas Green)

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources		CP	Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves		
				2022	2021	2022	2021	2022	2021	2022	2021		2022	2021	2022	2021	2022	2021	CP
<b>Pallas Green</b>	100%		Ore (Mt)	-	-	-	-	-	-	45	45	AH	-	-	-	-	-	-	-
Tobermalug Zone			Zinc (%)	-	-	-	-	-	-	7.21	7.20		-	-	-	-	-	-	-
			Lead (%)	-	-	-	-	-	-	1.22	1.20		-	-	-	-	-	-	-
			<b>(Mt)</b>	-	-	-	-	-	-	<b>45</b>	<b>45</b>		-	-	-	-	-	-	-
			<b>Zinc (%)</b>	-	-	-	-	-	-	<b>7.21</b>	<b>7.20</b>		-	-	-	-	-	-	-
			<b>Lead (%)</b>	-	-	-	-	-	-	<b>1.22</b>	<b>1.20</b>		-	-	-	-	-	-	-

Los Quenuales, Illapa and Sinchi Wayra assets are no longer being reported as these assets were divested during 2022.

### Pallas Green

The Pallas Green project is situated near Limerick in Southwestern Ireland. The Tobermalug zone consists of multiple, subhorizontal, stratiform lenses of Irishtype, breccia-hosted, sphalerite-galena-pyrite within a Carboniferous limestone. The lenses occur over an area 4,000 m by 4,000 m, and from 300 m to 1,300 m below surface.

The Inferred Mineral Resource is based on 413,600 m of diamond drilling in 806 drill holes completed between 2002 and the end of 2018. Drill spacing is nominally 100 m, but 178 infill drill holes at 50 m spacing have been completed. Mineralisation wireframes were built, taking into account a cut-off of 4% Zn+Pb and a minimum 3.0 m true thickness. There were no changes to the Resource in 2022. The Pallas Green deposit is held under Prospecting Licenses 636 and 2529, which remain valid and in good standing with bi-annual expenditures and reporting.

# Nickel

## Integrated Nickel Operations (INO) (Raglan, Sudbury)

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources		CP	Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves		CP
				2022	2021	2022	2021	2022	2021	2022	2021		2022	2021	2022	2021	2022	2021	
<b>Raglan</b>	100%	UG	Ore (Mt)	7.2	5.2	16.7	18.9	23.9	24.1	13	10	PSA	5.2	4.4	4.4	4.9	9.6	9.3	RC
			Nickel (%)	3.32	3.14	3.03	3.08	3.12	3.09	3.30	3.30		2.66	2.56	2.64	2.76	2.65	2.66	
			Copper (%)	0.92	0.85	0.91	0.91	0.91	0.90	0.93	0.90		0.76	0.72	0.72	0.76	0.74	0.74	
			Cobalt (%)	0.07	0.07	0.08	0.07	0.08	0.07	0.07	0.07		0.06	0.06	0.06	0.06	0.06	0.06	
			Platinum (g/t)	0.98	0.93	1.1	0.91	1.0	0.91	0.95	0.90		0.78	0.77	0.75	0.81	0.77	0.79	
			Palladium (g/t)	2.3	2.3	2.7	2.3	2.6	2.3	2.3	2.3		1.9	1.9	1.7	2.0	1.8	1.9	
<b>Sudbury</b>	100%	UG	Ore (Mt)	2.8	3.9	21.4	23.9	24.2	27.8	41	37	JK	3.0	3.2	16.2	16.3	19.2	19.5	JK
			Nickel (%)	1.50	1.49	1.99	2.05	1.93	1.97	1.02	0.90		1.14	1.27	1.69	1.86	1.61	1.77	
			Copper (%)	0.74	0.76	2.67	2.48	2.45	2.23	2.02	2.20		0.58	0.64	0.89	0.94	0.84	0.89	
			Cobalt (%)	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.02		0.03	0.04	0.04	0.04	0.04	0.04	
			Platinum (g/t)	0.46	0.45	1.0	0.95	0.96	0.88	0.71	0.80		0.37	0.40	0.47	0.38	0.46	0.39	
			Palladium (g/t)	0.40	0.40	1.2	1.1	1.1	0.99	0.86	1.0		0.31	0.35	0.48	0.43	0.45	0.41	
<b>Total INO</b>			<b>Ore (Mt)</b>	<b>10.0</b>	<b>9.1</b>	<b>38.1</b>	<b>42.8</b>	<b>48.1</b>	<b>52</b>	<b>54</b>	<b>47</b>		<b>8.2</b>	<b>7.6</b>	<b>20.6</b>	<b>21.2</b>	<b>28.8</b>	<b>28.8</b>	
			<b>Nickel (%)</b>	<b>2.81</b>	<b>2.43</b>	<b>2.45</b>	<b>2.50</b>	<b>2.52</b>	<b>2.49</b>	<b>1.57</b>	<b>1.41</b>		<b>2.11</b>	<b>2.01</b>	<b>1.89</b>	<b>2.07</b>	<b>1.96</b>	<b>2.06</b>	
			<b>Copper (%)</b>	<b>0.87</b>	<b>0.81</b>	<b>1.90</b>	<b>1.79</b>	<b>1.68</b>	<b>1.61</b>	<b>1.76</b>	<b>1.92</b>		<b>0.70</b>	<b>0.68</b>	<b>0.85</b>	<b>0.90</b>	<b>0.81</b>	<b>0.84</b>	
			<b>Cobalt (%)</b>	<b>0.06</b>	<b>0.05</b>	<b>0.06</b>	<b>0.05</b>	<b>0.06</b>	<b>0.05</b>	<b>0.03</b>	<b>0.03</b>		<b>0.05</b>	<b>0.05</b>	<b>0.04</b>	<b>0.04</b>	<b>0.05</b>	<b>0.05</b>	
			<b>Platinum (g/t)</b>	<b>0.83</b>	<b>0.73</b>	<b>1.0</b>	<b>0.93</b>	<b>0.98</b>	<b>0.89</b>	<b>0.77</b>	<b>0.82</b>		<b>0.63</b>	<b>0.62</b>	<b>0.53</b>	<b>0.48</b>	<b>0.56</b>	<b>0.52</b>	
			<b>Palladium (g/t)</b>	<b>1.8</b>	<b>1.5</b>	<b>1.9</b>	<b>1.6</b>	<b>1.8</b>	<b>1.6</b>	<b>1.2</b>	<b>1.3</b>		<b>1.3</b>	<b>1.3</b>	<b>0.74</b>	<b>0.79</b>	<b>0.90</b>	<b>0.89</b>	

For the purposes of this statement, the term 'Ore Reserves' as defined by the JORC Code 2012 has the same meaning as 'Mineral Reserves' as defined in the CIM Standards 2014. The resource totals have been restated in compliance with the JORC Code.

There are no known environmental, permitting, legal, taxation, political or other relevant issues that would materially affect the estimates of the Mineral Reserves.

Depending on when production is scheduled, Mineral Reserves and Resources are calculated using a blend of short, medium, or long term metal price assumptions and exchange rates.

### Raglan

Ni-Cu-Co-PGE mineralisation is located at or near the base of subvolcanic mafic-ultramafic intrusive complexes referred to as the "Raglan Formation". Resources are generally determined at a 1.5% Ni cut-off and are composed of disseminated, net-textured, and massive pyrrhotite-pentlandite-chalcocopyrite rich sulphides contained within 116 individual sulphide lenses, extending from surface to more than 900m vertical depth. The size of these high-grade sulphide lenses varies significantly from 0.01Mt to 6.1Mt, averaging 0.2Mt. Mineral Reserves are sufficient to support a 6 year mine life. Significant undeveloped Mineral Resources provide an opportunity to extend mine life by more than 10 years.

Expiry date of relevant mining leases and exploration licenses: depending on the mine/project, range from 2 May 2024 to 25 June 2038.

### Sudbury

Sulphide deposits sit on broadly defined trends of mineralisation along basal brecciated rocks of the Sudbury Igneous Complex as pentlandite-pyrrhotite-chalcocopyrite rich concentrations as well as within the underlying footwall in fractured pathways as chalcocopyrite dominated polymetallic (Cu, Ni, Au, Ag, Pt, Pd) vein-style sulphides. The Ore Reserve tonnage and grade changes are due to due to mining depletions, definition drilling results and associated updates to the resource models, mine design along with lower cut-off grades. Inferred Resources increased due to the continued growth of the Moose Lake Zone. Cut-off grades are calculated for each individual mine site or resource based on a metal equivalent or net smelter return value taking into account all recoverable metals. The expected reserve-based mine life is 16 years.

All land holdings in Sudbury covering existing Ore Reserves are patented and 100% owned by Glencore, with the exception of one site where a portion of reserves are covered by two licences of occupation which are held in perpetuity. Mineral Resources are also patented with the exception of areas covered by several mining leases which expire in 2033 and 2036 and one License of Occupation which is held in perpetuity.

# Nickel

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources		CP	Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves		CP	
				2022	2021	2022	2021	2022	2021	2022	2021		2022	2021	2022	2021	2022	2021		2022
<b>Murrin Murrin</b>	100%	OC	Ore (Mt)	164	140	52	52	215	192	9	9	SK	83	60	7.4	9.0	90	69	ES/	
			Nickel (%)	1.01	1.02	0.98	0.98	1.00	1.01	0.95	0.95					1.03	1.07	1.03	1.09	CW
			Cobalt (%)	0.08	0.09	0.07	0.07	0.08	0.08	0.06	0.06					0.09	0.09	0.09	0.11	
<b>Koniambo</b>	49%	OC	Ore (Mt)	9.5	11.0	43.8	43.8	53	55	85	85	RM	9.5	11.0	26.0	26.0	35.5	37.0	RM	
			Nickel (%)	2.47	2.47	2.41	2.41	2.42	2.42	2.50	2.50					2.22	2.22	2.19	2.19	2.20

## Murrin Murrin

Nickel and cobalt mineralisation at Murrin is hosted within a laterite formed from the weathering of ultramafic rocks. The resources are hosted in multiple deposits over four main project areas (North, South, East and Irwin Hills). Mineral Resource and Ore Reserve figures as at 31 December 2022 are generated by depletion of the resource models by using end-of-period surface surveys as at 30 September 2022, with adjustments applied for October to December forecast production. Resources are determined at a 0.8% Ni cut-off.

The Murrin 2022 Ore Reserve estimate is based on the optimised Base Case pit shells for Measured and Indicated Mineral Resources, and includes scats and stockpiles. Updates to process modelling, scheduled shutdown costs and operating costs have been included. The Ore Reserve tonnage has increased materially from 2021 due to a combination of mining depletion, increased operating cost assumptions and an increase in Ni price leading to an increase in the tonnage of low-grade stockpile material re-introduced to the Ore Reserve.

Ore Reserve grades have been subject to the application of grade modifying factors. These have been derived from analysis of the latest applicable two years mine-to-mill grade performance and result in grade modifying factors of 95.2% and 91.7% for nickel and cobalt respectively.

Remaining mine life: the most recent Life of Mine schedule indicates the remaining mine life is 24 years or until 2046. Expiry dates for relevant tenements differ for each tenement and range from 2023 to 2046.

## Koniambo

Nickel rich laterite deposits are developed on variably serpentinised ultramafic rocks. Mineral Resources and Ore Reserves include inventories as of 3 November 2022 with adjustments applied for November to December forecast production.

Mineral Resources are calculated through Conditional Simulations within the LOM area. In areas outside the LOM footprint, Mineral Resources were estimated by the plan polygonal method. Mineral Resources and Ore Reserves are reported at a cut-off grade of 2.0% Ni. The differences this year are due to depletion.

In converting Mineral Resources to Ore Reserves, a mining recovery of 90% and a mining dilution of 15% (0.5% Ni) were assumed. The modifying factors are based on production reconciliation.

The designed yearly production rate is 2.5 Mtpa with an expected mine life of 15 years. The expiry date of relevant mining property licences is 31 December 2048. Ore Reserves stated include a stockpile estimated at 250kt at 2.04% Ni between the mine and process plant.

# Ferroalloys

## Chrome

### Bushveld Complex – Western Limb

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources			Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves		
				2022	2021	2022	2021	2022	2021	2022	2021	CP	2022	2021	2022	2021	2022	2021	CP
<b>Western Chrome Mines – LG6 Chromitite Package and MG1 Chromitite Layer</b>																			
<b>Waterval Mine</b>	79.5%	UG	Ore (Mt)	16.2	16.2	1.0	1.0	17.3	17.3	1	1	MM/	-	-	-	-	-	-	-
			Cr <sub>2</sub> O <sub>3</sub> (%)	41.31	41.31	42.59	42.60	41.39	41.40	43.00	43.00	DR	-	-	-	-	-	-	-
<b>Marikana West</b>	79.5%	UG	Ore (Mt)	3.0	3.0	1.7	1.7	4.7	4.7	-	-	MM/	-	-	-	-	-	-	-
			Cr <sub>2</sub> O <sub>3</sub> (%)	42.43	42.43	42.60	42.60	42.49	42.53	-	-	DR	-	-	-	-	-	-	-
<b>Kroondal Mine</b>	79.5%	UG/OC	Ore (Mt)	9.1	9.3	0.7	0.6	9.8	9.9	-	-	MM/	2.1	2.3	0.6	0.5	2.7	2.8	MM/
			Cr <sub>2</sub> O <sub>3</sub> (%)	42.72	42.79	41.54	41.50	42.64	42.70	-	-	DR	29.19	29.11	28.18	28.19	28.96	28.95	DR
<b>Kroondal Gemini</b>	79.5%	UG/OC	Ore (Mt)	12.5	13.8	0.8	0.9	13.3	14.6	-	-	MM/	6.6	8.0	0.7	0.7	7.3	8.7	MM/
			Cr <sub>2</sub> O <sub>3</sub> (%)	42.09	42.30	41.18	41.30	42.03	42.25	-	-	DR	30.52	30.78	29.92	30.31	30.47	30.75	DR
<b>Marikana East</b>	79.5%	UG	Ore (Mt)	4.6	4.5	0.5	0.5	5.1	5.0	-	-	MM/	-	-	-	-	-	-	-
			Cr <sub>2</sub> O <sub>3</sub> (%)	42.24	42.23	41.85	41.90	42.20	42.19	-	-	DR	-	-	-	-	-	-	-
<b>Klipfontein/Waterval</b>	79.5%	UG	Ore (Mt)	13.1	13.2	29.9	29.7	43.0	42.9	95	90	MM/	0.08	0.03	0.1	0.2	0.2	0.2	MM/
			Cr <sub>2</sub> O <sub>3</sub> (%)	42.01	42.01	41.96	42.00	41.98	42.00	42.00	42.00	DR	28.21	28.49	28.00	28.37	28.09	27.82	DR
<b>Boshhoek</b>	79.5%	UG/OC	Ore (Mt)	-	-	17.1	17.1	17.1	17.1	-	-	MM/	-	-	0.6	0.6	0.6	0.6	MM/
			Cr <sub>2</sub> O <sub>3</sub> (%)	-	-	40.53	40.50	40.53	40.50	-	-	DR	-	-	26.14	26.14	26.14	26.14	DR
<b>Townlands</b>	79.5%	UG	Ore (Mt)	-	-	12.9	12.9	12.9	12.9	-	-	MM/	-	-	-	-	-	-	-
			Cr <sub>2</sub> O <sub>3</sub> (%)	-	-	41.39	41.40	41.39	41.40	-	-	DR	-	-	-	-	-	-	-
<b>Extension 9</b>			Ore (Mt)	59	60	65	64	123	124	96	91		8.8	10.3	2.0	2.0	10.8	12.3	
			Cr <sub>2</sub> O <sub>3</sub> (%)	41.98	42.05	41.48	41.49	41.72	41.76	42.01	42.01		30.18	30.40	28.17	28.34	29.81	30.07	
<b>Western Chrome Mines – Tailings</b>																			
<b>Tailings</b>	79.5%		Ore (Mt)	-	-	-	-	-	-	2.5	3.1	MM/DR	-	-	-	-	-	-	-
			Cr <sub>2</sub> O <sub>3</sub> (%)	-	-	-	-	-	-	16.65	18.00		-	-	-	-	-	-	-

Tonnages are quoted as dry million metric tonnes. Grades are quoted as %Cr<sub>2</sub>O<sub>3</sub>. The Measured and Indicated Mineral Resources are inclusive of those Mineral Resources modified to produce Ore Reserves.

The chromitite assets include those owned by Glencore and Merafe in different ownership percentages, the attributable interest in such assets remain as reflected.

All Glencore Ferroalloys' chrome operations mine the chromitite deposits developed within the world-renowned Bushveld Complex of South Africa. The 2060 Ma year-old Bushveld Complex is the largest known deposit of chrome, vanadium and platinum group elements (PGEs) in the world. The Bushveld Complex stretches 350km east-west and 450km north-south. The chrome ore is mined from shallow dipping (8° – 14°) tabular orebodies.

Although there are numerous chromitite layers developed in the Bushveld Complex, the chromitite layers targeted for economic exploitation are the LG6/LG6A Chromitite Layer package, the MG1 and the MG2 Chromitite Layers. Alternative layers are being investigated on a continuous basis.

No cut-off grades are applied to the chromitite layers being mined. The chromitite layers are mined from upper to lower contact and no selective mining cuts are applied. The chromitite layer grades show exceptional regional grade consistency and continuity. The chromitite layers are currently all mined underground using trackless mechanised mining methods on a bord-and-pillar mine layout.

The Mineral Resources are estimated as chromitite tonnages and grades to reflect the grades of the various individual chromitite layers and have been presented by separate layers for clarity in this report. To this end the Mineral Resources for the Eastern Limb properties have been split between the MG1 and MG2 Chromitite Layers. Both the LG6 and MG1 Chromitite Layers which Glencore currently mine are discrete solid chromitite layers with sharp contacts.

Changes in the year on year Mineral Resource tonnage and grade estimates are mainly due to mining depletion, changes due to additional geological information gained through exploration and mining and prospecting right boundary changes. These changes reflect in the tonnage and grade reports from the grade block models.

The tonnages and grades for all the tailings facilities that can be economically exploited have been estimated and declared.

The tonnage and grade estimations for the chromitite layers are initiated by the geostatistical analysis of the exploration drill hole data. The outcomes of this analysis are used in the construction of block models for each and every mine and project area. The geostatistical analysis of the chromitite data indicates a high degree of continuity both in grade and thickness of the chromitite layers. The block model estimates are verified using geostatistical parameters such as Kriging Efficiency to test the stability of the variograms used and the suitability of the selected cell sizes and Kriging parameters. Post-estimate validations are done using swath plots and quantile-quantile plots. Tonnages and grades are reported from these block models for each mine and project. There is a high degree of confidence in the tonnage and grade estimations derived from the block models. This is confirmed by the monthly and yearly reconciliations between the block model estimates, the monthly survey measurements and the actual mine production for each operating mine. The tailings facility estimates are based on current and historical daily production sampling and dam volumes, surveyed by a certified surveyor.

The LOM for the operating chrome mines varies between 2.5 and 5 years based on the declared Ore Reserves. The LOM periods for the various operating mines, based on all the Mineral Resources converted to Ore Reserves vary between 13 and 43 years. The Mining Right expiry dates vary from 2037 to 2039 for the operating chrome mines. All the chrome mining rights were granted for an initial period of 30 years.

The production rates for the various chrome mines vary from 110kt ROM per month to 146kt ROM per month.

#### Western Chrome Mines

The Western Chrome Mines mining complex consist of the operating mine of Kroondal and the resource areas of Waterval, Klipfontein/Waterval and Boshhoek. The Mineral Resources had a net increase of 0.926 Mt after mining depletion. The Ore Reserves had a net increase of 0.167 Mt after mining depletion.

No material changes were recorded compared with the 2021 resource and reserve estimation.

# Ferroalloys

## Bushveld Complex – Eastern Limb

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources		CP	Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves		
				2022	2021	2022	2021	2022	2021	2022	2021		2022	2021	2022	2021	2022	2021	CP
<b>Eastern Chrome Mines –MG1 Chromitite Layer</b>																			
<b>Thorncliffe</b>	79.5%	UG/OC	Ore (Mt)	39.3	44.0	3.6	3.5	42.9	47.5	-	-	LUN/	17.6	20.2	2.5	2.5	20.1	22.7	LUN/
			Cr <sub>2</sub> O <sub>3</sub> (%)	40.39	40.03	40.66	40.80	40.41	40.08	-	-	DR	34.71	34.78	33.18	32.90	34.52	34.60	DR
<b>Helena</b>	79.5%	UG/OC	Ore (Mt)	21.3	21.5	11.4	13.3	32.7	34.8	8	10	LUN/	1.5	1.7	-	-	1.5	1.7	LUN/
			Cr <sub>2</sub> O <sub>3</sub> (%)	39.88	39.81	38.51	38.50	39.40	39.31	38.26	38.00	DR	32.46	29.43	-	-	32.46	29.40	DR
<b>De Grooteboom</b>	79.5%	UG/OC	Ore (Mt)	1.0	1.0	0.5	0.5	1.5	1.5	-	-	LUN/	-	-	-	-	-	-	LUN/
			Cr <sub>2</sub> O <sub>3</sub> (%)	40.22	40.22	40.28	40.30	40.24	40.17	-	-	DR	-	-	-	-	-	-	DR
<b>Richmond</b>	79.5%	UG	Ore (Mt)	7.5	1.6	17.3	22.3	24.7	23.8	27	26	LUN/	3.7	1.3	1.5	2.6	5.2	3.8	LUN/
			Cr <sub>2</sub> O <sub>3</sub> (%)	40.53	41.10	40.82	41.00	40.74	41.00	40.51	41.00	DR	35.40	34.69	33.51	32.60	34.87	33.30	DR
<b>St George</b>	79.5%	UG	Ore (Mt)	0.7	0.7	4.7	4.5	5.4	5.2	13	19	LUN/	-	-	-	-	-	-	LUN/
			Cr <sub>2</sub> O <sub>3</sub> (%)	40.41	40.41	39.36	39.40	39.50	39.51	39.19	39.00	DR	-	-	-	-	-	-	DR
<b>Total MG1</b>			(Mt)	<b>70</b>	<b>69</b>	<b>37.5</b>	<b>44.1</b>	<b>107</b>	<b>113</b>	<b>48</b>	<b>55</b>		<b>22.8</b>	<b>23.2</b>	<b>4.0</b>	<b>5.1</b>	<b>26.8</b>	<b>28.2</b>	
			Cr <sub>2</sub> O <sub>3</sub> (%)	<b>40.25</b>	<b>39.99</b>	<b>39.91</b>	<b>40.06</b>	<b>40.13</b>	<b>40.01</b>	<b>39.78</b>	<b>39.76</b>		<b>34.67</b>	<b>34.38</b>	<b>33.30</b>	<b>32.75</b>	<b>34.47</b>	<b>34.11</b>	
<b>Eastern Chrome Mines – MG2 Chromitite Layer</b>																			
<b>Thorncliffe Mine</b>	79.5%	UG/OC	Ore (Mt)	-	-	17.6	-	17.6	-	33	42	LUN/	-	-	3.6	-	3.6	-	LUN/
			Cr <sub>2</sub> O <sub>3</sub> (%)	-	-	35.10	-	35.10	-	35.54	38.00	DR	-	-	26.90	-	26.9	-	DR
<b>Helena Mine</b>	79.5%	UG/OC	Ore (Mt)	-	-	-	-	-	-	49	85	LUN/	-	-	-	-	-	-	-
			Cr <sub>2</sub> O <sub>3</sub> (%)	-	-	-	-	-	-	40.09	38.00	DR	-	-	-	-	-	-	-
<b>Richmond</b>	79.5%	UG/OC	Ore (Mt)	-	-	-	-	-	-	31	-	LUN/	-	-	-	-	-	-	-
			Cr <sub>2</sub> O <sub>3</sub> (%)	-	-	-	-	-	-	35.71	-	DR	-	-	-	-	-	-	-
<b>St George</b>	79.5%	UG/OC	Ore (Mt)	-	-	-	-	-	-	18	-	LUN/	-	-	-	-	-	-	-
			Cr <sub>2</sub> O <sub>3</sub> (%)	-	-	-	-	-	-	38.51	-	DR	-	-	-	-	-	-	-
<b>Total MG2</b>			Ore (Mt)	-	-	<b>17.6</b>	-	<b>17.6</b>	-	<b>131</b>	<b>127</b>	LUN/	-	-	<b>3.6</b>	-	<b>3.6</b>	-	LUN/
			Cr <sub>2</sub> O <sub>3</sub> (%)	-	-	<b>35.10</b>	-	<b>35.10</b>	-	<b>37.69</b>	<b>38.00</b>	DR	-	-	<b>26.90</b>	-	<b>26.90</b>	-	DR
<b>Total MG1 and MG2</b>			Ore (Mt)	<b>70</b>	<b>69</b>	<b>55</b>	<b>44.1</b>	<b>125</b>	<b>113</b>	<b>179</b>	<b>182</b>		<b>22.8</b>	<b>23.2</b>	<b>7.6</b>	<b>5.1</b>	<b>30.4</b>	<b>28.2</b>	
			Cr <sub>2</sub> O <sub>3</sub> (%)	<b>40.25</b>	<b>39.99</b>	<b>38.38</b>	<b>40.06</b>	<b>39.42</b>	<b>40.01</b>	<b>38.25</b>	<b>38.53</b>		<b>34.67</b>	<b>34.38</b>	<b>30.27</b>	<b>32.75</b>	<b>33.58</b>	<b>34.11</b>	
<b>Eastern Chrome Mines – Tailings</b>																			
<b>Tailings</b>	79.5%		Ore (Mt)	-	-	-	-	-	-	5	5	LUN/	-	-	-	-	-	-	-
			Cr <sub>2</sub> O <sub>3</sub> (%)	-	-	-	-	-	-	18.82	20.00	SYV	-	-	-	-	-	-	-

### Eastern Chrome Mines

The Eastern Mines Complex had a net decrease in Mineral Resources of 6.089 Mt after mining depletion on the MG1 horizon. The decrease was mainly due to re-interpretation and re-estimation. The Ore Reserves of the Eastern Mines had a net increase of 2.305 Mt after mining depletion. The increase was mainly due to reserve generation on Richmond Farm.

On the MG2 horizon there is a net increase in Mineral Resources of 20.884 Mt after mining depletion. The increase was mainly due to the targeted reef being changed and Richmond and St George's farms resources added. The Ore Reserves had an increase on the MG2 horizon of 3.854 Mt. The increase was mainly due to reserve generation on Thorncliffe Farm.

# Ferroalloys

## Vanadium

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources			Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves		
				2022	2021	2022	2021	2022	2021	2022	2021	CP	2022	2021	2022	2021	2022	2021	CP
<b>Rhovan</b>	74.0%	OC	Ore (Mt)	50	52	38.3	33.5	88	85	110	90	SM/	18.1	20.0	8.2	8.2	26.3	28.2	SM/
			V <sub>2</sub> O <sub>5</sub> (%)	0.47	0.47	0.45	0.50	0.46	0.48	0.49	0.50	DR	0.46	0.46	0.43	0.43	0.45	0.45	DR

Tonnages are quoted as dry million metric tonnes. Grades are quoted as %V2O5.

The Measured and Indicated Mineral Resources are inclusive of those Mineral Resources modified to produce Ore Reserves.

The vanadium mining operations mine the vanadiferous magnetite deposits developed within the Bushveld Complex, South Africa. The mineral lease area is situated on gabbroic rock formations contained in the lower group of the layered magnetite seams at the base of the upper zone of the Bushveld Igneous Complex. The lower groups of the magnetite seams of the Bushveld Ingenious Complex host the world's largest known reserves of the vanadium pentoxide with titanium dioxide in magnetite. The 2060 Ma year-old Bushveld Complex is the largest known deposit of chrome, vanadium and platinum group elements (PGE's) in the world.

The magnetite ore is mined from shallow dipping (6° – 25°) stratified magnetite orebodies developed in the Upper Zone of the Bushveld Complex. Various ore zones with varying grades can be identified within the orebody. The ore zones are defined based on their magnetite and vanadium content.

The magnetite ore is mined using open cast mining methods.

### Rhovan

There was a net increase of 27.061 Mt in the Mineral Resource estimate after mining depletions have been discounted. The change is mainly due to re-interpretation, re-estimation of the Mineral Resources and the addition of a Block 9 Resource.

The Ore Reserves had a net increase of 0.844 Mt after mining depletions have been discounted. The change is mainly due to re-interpretation and re-estimation of the Mineral Resources before the conversion to Ore Reserves.

Obsidian Consulting Services updated the estimate of the Mineral Resources for all production areas including, Leeupen, Pit 1, Pit 2, Pit 3, the new Block 9 area well as Pit4-6W and Pit7. This update made use of data from 22 new exploration holes and 1,145 blastholes providing some 6,713 new assay results.

The tonnage and grade estimations were done using ordinary kriging utilising spherical semi-variograms models derived from the exploration drill hole and blast hole data. The block model estimates were assessed using geostatistical parameters such as Kriging Efficiency and Slope of Regression to test the stability of the variogram models used and the suitability of the selected cell sizes. A final geospatial validation was done by visual inspections and the compilation of swath and QQ plots. Other validations included a comparison of distributions of the source data versus ordinary kriging and nearest neighbour estimates. Tonnages and grades are reported from the block models for each pit. For the estimation, cut-off grades of 15% Magnetite and 1.8% V2O5 were applied for Pits 1, 2, 3, Leeupen and Block9 while 15% Magnetite and 1.875 % V2O5 was used for the Pit 4, 6 West and 7. The degree of confidence in the tonnage and grade estimations derived from the block models is reflected in the classified Mineral Resource classes

The Rhovan LOM based on the declared Ore Reserves is 10 years. The LOM based on all the Mineral Resources converted to Ore Reserves is over 30 years. Rhovan is mining from various open cast pits at an actual mining rate averaging 224kt of ROM per month (2022). The stripping ratio averaged 1.54 (t:t) for the same period.

The Mining Right expires in 2027.

# Ferroalloys

## Manganese

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources			Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves		
				2022	2021	2022	2021	2022	2021	2022	2021	CP	2022	2021	2022	2021	2022	2021	CP
<b>Mokala</b>	49.0%	OC	Ore (Mt)	27.2	26.2	19.0	19.6	46.3	45.8	3	3	JC/	18.6	20.5	2.9	5.7	21.5	26.2	JC/
			Mn (%)	37.21	37.56	36.38	36.40	36.87	37.06	36.49	36.00	DR	36.36	36.27	35.79	35.90	36.28	36.19	DR

### Mokala

Tonnages are quoted as dry million metric tonnes. Grades are quoted as %Mn.

The Measured and Indicated Mineral Resources are inclusive of those Mineral Resources modified to produce Ore Reserves.

The manganese mining operation mines the manganese deposits developed within the Kalahari Manganese Field, South Africa. The Kalahari Manganese Field is the largest known deposit of manganese in the world.

The manganese ores in the Kalahari Manganese Field are mined from both underground and opencast operations. The manganese orebodies, occur as three stratiform beds, the Upper, Middle and Lower Ore Bodies, developed within the Hotazel Formation. The Hotazel Iron Formation consists of banded iron formations with interbedded manganese ores. In the Mokala area, the Hotazel Formation sub-crop below the Kalahari Formation, the Moodraai Dolomites and the Dwyka Tillite.

There was a net increase of 1.231 Mt in the Mineral Resource estimate after mining depletions have been discounted. The change is mainly due to re-interpretation and re-estimation of the Mineral Resources.

The Ore Reserves had a net decrease of 3.813 Mt after mining depletions have been discounted. The change is mainly due to updated information from pit optimisation and mine design in 2022, the main contributor being the impact of new geotechnical slope parameters.

Mokala is situated on the farm Gloria, 4 kms west of the town of Hotazel, Northern Cape, South Africa. Stripping of waste commenced in May 2020 and Ore production began in March 2021.

The target mineralisation is the Lower Manganese orebody which vary in thickness from a few meters to >20m. The orebody is shallow dipping towards the west at 5° – 12°.

The mining cut has been defined by a minimum composite cut-off grade of 36% Mn, and a minimum sample cut-off grade of 28% Mn.

Obsidian Consulting Services was contracted to estimate the Mineral Resources for the Mokala pit.

The tonnage and grade estimations were done using geo-statistical analysis of the exploration drill holes. From this analysis, the most appropriate parameters for the construction of a block model for the pit was derived. The block model estimates are verified using geostatistical parameters such as Kriging Inverse Distance squared and Slope of Regression to test the stability of the variograms used and the suitability of the selected cell sizes. A final geospatial validation is done by means of swath and QQ plots. Other validations included a comparison of distributions of the source data versus estimated results. Tonnages and grades are reported from the block model for an optimised pit. For the estimation, a composite cut-off grade of 36% Mn was used and a sample cut-off grade of 28% Mn. The degree of confidence in the tonnage and grade estimations derived from the block model is reflected in the classified Mineral Resource classes. Known non-mineralised and restricted areas are excluded from the Mineral Resources.

The Mokala Ore Reserves is based on a pit optimisation exercise conducted during 2022. The main input parameters for the optimisation were the forward-looking Mn prices at the time of the exercise, US\$ 4.80 per dtmu for lump and US\$ 4.30 per dtmu for fines, minimum 36% Mn.

The Mineral Resources to Ore Reserves conversion was based on a mining extraction rate of 98% and 2.5 % skin dilution along the upper and lower contacts of the mining cut.

The Mokala LOM of the declared Ore Reserves is 14 years, based on a mining rate of 130kt per month. The average stripping ratio for the LOM is 4.98 (m<sup>3</sup>:t).

The Mining Right expires in 2037.

# Aluminium/Alumina

## Aurukun Mineral Resources

Name of operation	Attributable interest	Mining method	Commodity	Measured Mineral Resources		Indicated Mineral Resources		Measured and Indicated Resources		Inferred Mineral Resources		CP	Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves		
				2022	2021	2022	2021	2022	2021	2022	2021		2022	2021	2022	2021	2022	2021	CP
Aurukun	70%	OC	Ore (Mt)	96	96	331	331	427	427	3	3	JB	-	-	-	-	-	-	
			Al <sub>2</sub> O <sub>3</sub> (%)	53.50	53.50	49.90	49.90	50.70	50.70	49.40	49.40		-	-	-	-	-	-	

### Aurukun

The Aurukun Bauxite deposits are located on the western side of the Cape York Peninsula in far north Queensland, Australia. Glencore currently holds tenure to the deposits via a mineral development licence or "MDL" granted in late 2017, which allows feasibility studies to be performed. Currently there is no production from the MDL. In 2004 and 2005, the Queensland State government funded the Aurukun Geoscientific Investigation Programme. The programme involved drilling approximately 8,500 drill holes and produced approximately 200,000 samples at 0.25m intervals. Most samples were assayed. All samples sent to the lab were beneficiated at 1.2 mm screen size and the +1.2 mm fraction analysed.

The samples from the 2004/05 programme were used to produce the November 2018 bauxite resource model. The tonnes and grade estimates for this 2022 Mineral Resource statement are based on the November 2018 resource model.

Measured and indicated Mineral Resources remain the same from 2021 to 2022 as no new drilling has been undertaken and all the economic parameters and the forward looking exchange rate have not changed.



# Coal

## New South Wales

Name of operation	Attributable interest	Mining method	Commodity	Measured Coal Resources		Indicated Coal Resources		Inferred Coal Resources		CP	Coal Reserves		Marketable Coal Reserves		Total Marketable Coal Reserves			
				2022	2021	2022	2021	2022	2021		Proved	Probable	Proved	Probable	2022	2021	CP	
<b>Oakbridge Group</b>			Thermal Coal (Mt)	<b>969</b>	<b>979</b>	<b>640</b>	<b>640</b>	<b>1,450</b>	<b>1,450</b>									
Bulga Complex	85.9%	OC/UG	Thermal Coal (Mt)	950	960	580	580	1,300	1,300	HXJ	140	19	90	12	100	140		
			CV (kcal/kg)	6,000	6,000	5,850	5,850	5,900	5,900									
Bulga OC	85.9%	OC	Thermal Coal (Mt)								140	19	90	12	100	110	JGR	
			CV (kcal/kg)								-	-	6,250	6,300	6,250	6,250		
Bulga UG	85.9%	UG	Thermal Coal (Mt)								-	-	-	-	-	30	POG	
			CV (kcal/kg)								-	-	-	-	-	-		
Running Stream	85.9%	OC	Thermal Coal (Mt)	19	19	60	60	150	150	MJL	-	-	-	-	-	-	-	
			CV (kcal/kg)	5,050	5,050	5,050	5,050	5,150	5,150		-	-	-	-	-	-		
<b>Mount Owen Complex</b>			Thermal Coal (Mt)	<b>290</b>	<b>290</b>	<b>265</b>	<b>265</b>	<b>441</b>	<b>441</b>		<b>67</b>	<b>9</b>	<b>36</b>	<b>5</b>	<b>41</b>	<b>50</b>		
Mount Owen	100%	OC	Thermal Coal (Mt)	180	180	190	190	350	350	DSU	65	9	35	5	40	45	BOB	
			CV (kcal/kg)	6,050	6,050	6,100	6,100	6,100	6,100		-	-	6,150	6,250	6,150	6,100		
Ravensworth East		OC	Thermal Coal (Mt)	60	60	25	25	1	1	DSU	2	-	1	-	1	3	BOB	
			CV (kcal/kg)	5,750	5,700	5,650	5,650	5,750	5,750		-	-	5,400	-	5,400	5,900		
Glendell		OC	Thermal Coal (Mt)	50	50	50	50	90	90	DSU	-	-	-	-	-	2	BOB	
			CV (kcal/kg)	5,850	5,900	5,850	5,850	5,800	5,800		-	-	-	-	-	6,600		
<b>Liddell</b>	67.5%	OC	Thermal Coal (Mt)	<b>200</b>	<b>210</b>	<b>240</b>	<b>240</b>	<b>400</b>	<b>400</b>	JET/	<b>2</b>	<b>-</b>	<b>1</b>	<b>0.1</b>	<b>2</b>	<b>4</b>	APC	
			CV (kcal/kg)	6,250	6,250	6,200	6,200	6,150	6,150	DSU	-	-	6,700	-	6,700	6,700		
<b>Integra</b>	100%	UG	Thermal/Coking Coal (Mt)	<b>17</b>	<b>17</b>	<b>45</b>	<b>55</b>	<b>30</b>	<b>30</b>	MAS	<b>3</b>	<b>-</b>	<b>2</b>	<b>-</b>	<b>2</b>	<b>3</b>	AWF	
			CV (kcal/kg)	5,950	5,950	5,900	5,900	5,800	5,800		-	-	-	-	-	-		
			Ash (%)								-	-	8	-	8	8		
<b>United - Wambo</b>	47.5%	OC/UG	Thermal Coal (Mt)	<b>510</b>	<b>290</b>	<b>290</b>	<b>340</b>	<b>500</b>	<b>500</b>	DSU	<b>75</b>	<b>4</b>	<b>55</b>	<b>3</b>	<b>55</b>	<b>55</b>	PTP	
			CV (kcal/kg)	5,800	5,950	5,750	5,700	5,850	5,600		-	-	6,450	6,500	6,450	6,550		
<b>Ulan Complex</b>	100%		Thermal Coal (Mt)	<b>205</b>	<b>215</b>	<b>233</b>	<b>253</b>	<b>420</b>	<b>420</b>		<b>111</b>	<b>1</b>	<b>109</b>	<b>1</b>	<b>109</b>	<b>119</b>		
Ulan OC			Thermal Coal (Mt)	45	45	13	13	20	20	MJL	6	0.4	4	0.2	4	4	LRO	
			CV (kcal/kg)	4,950	4,950	5,200	5,200	4,900	4,900		-	-	5,000	5,000	5,000	5,000		
Ulan UG			Thermal Coal (Mt)	160	170	220	240	400	400	MJL								
			CV (kcal/kg)	6,350	6,350	4,750	4,750	5,000	5,000									
Ulan #3 UG			Thermal Coal (Mt)								40	-	40	-	40	45	EAM	
			CV (kcal/kg)								-	-	6,200	-	6,200	6,150		
Ulan West UG			Thermal Coal (Mt)								65	0.6	65	0.6	65	70	ADM	
			CV (kcal/kg)								-	-	6,100	6,150	6,100	6,100		
<b>Ravensworth Group</b>			Thermal Coal (Mt)	<b>364</b>	<b>374</b>	<b>240</b>	<b>240</b>	<b>100</b>	<b>100</b>		<b>150</b>	<b>12</b>	<b>100</b>	<b>8</b>	<b>110</b>	<b>120</b>		
Narama	100%	OC	Thermal Coal (Mt)	24	24	-	-	-	-	MAS	-	-	-	-	-	-		
			CV (kcal/kg)	5,600	5,600	-	-	-	-		-	-	-	-	-	-		
Ravensworth North	100%	OC	Thermal Coal (Mt)	340	350	240	240	100	100	MAS	150	12	100	8	110	120	MJE	
			CV (kcal/kg)	6,000	6,000	6,050	6,050	5,650	5,650		-	-	6,400	6,400	6,400	6,300		
<b>Mangoola</b>	100%	OC/UG	Thermal Coal (Mt)	<b>90</b>	<b>95</b>	<b>100</b>	<b>100</b>	<b>1,500</b>	<b>1,500</b>	MAS	<b>40</b>	<b>30</b>	<b>35</b>	<b>24</b>	<b>55</b>	<b>65</b>	MRW	
			CV (kcal/kg)	5,200	5,250	4,750	4,750	4,250	4,250		-	-	5,450	5,400	5,400	5,450		
<b>Ravensworth UG</b>	100%	UG	Thermal Coal (Mt)	<b>250</b>	<b>320</b>	<b>210</b>	<b>220</b>	<b>250</b>	<b>250</b>	PAH	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>28</b>	KJB	
			CV (kcal/kg)	5,850	5,800	5,400	5,400	5,350	5,350		-	-	-	-	-	6,950		
<b>Hunter Valley Operations</b>	49%	OC	Thermal Coal (Mt)	<b>770</b>	<b>780</b>	<b>1,300</b>	<b>1,300</b>	<b>2,400</b>	<b>2,400</b>	LMP	<b>390</b>	<b>460</b>	<b>280</b>	<b>330</b>	<b>620</b>	<b>630</b>	PJO	
			CV (kcal/kg)	6,500	6,500	6,450	6,450	6,200	6,200		-	-	6,350	6,350	6,350	6,350		
<b>Total New South Wales</b>		<b>Coking/Thermal Coal (Mt)</b>		<b>3,665</b>	<b>3,570</b>	<b>3,563</b>	<b>3,653</b>	<b>7,491</b>	<b>7,491</b>		<b>978</b>	<b>535</b>	<b>708</b>	<b>383</b>	<b>1,094</b>	<b>1,214</b>		

# Coal

## New South Wales

The New South Wales Coal Resources and Reserves are contained within the Sydney Basin.

Changes and issues material to the estimation of Coal Resources and Reserves are noted below for specific projects. Reference to production changes between 31 December 2021 and 31 December 2022 are detailed for each producing mine site.

Unless otherwise stated, tenement expiries will be eligible for a standard renewal as per the relevant Government policy.

Tonnages are quoted as million metric tonnes. Values expressed in the text have not been rounded and therefore do not correlate directly with the tables.

### Oakbridge Group

Bulga open cut: Coal Resource and Reserve depletion due to mining (-10.0Mt).

Coal Reserves for Bulga Open Cut operations are sufficient to support a mine life of approximately 17 years.

**Bulga underground:** Updated project economics have resulted in the write down of all previously declared reserves at Bulga underground (-40.7Mt ROM and -30.3Mt Marketable).

Tenements for the Bulga Complex expire between December 2023 and June 2040. Some tenements are undergoing a routine renewal process with the NSW Government.

**Running Stream** is an undeveloped thermal coal project. Coal Resources were not re-estimated in 2022.

Assessment Lease expired in May 2020, and a renewal application was lodged (on time) in March 2020. The renewal remains under assessment by NSW government.

### Mt Owen Complex

Mount Owen: Coal Reserve depletion due to mining (-7.3Mt).

Tenements for Mt Owen expire between January 2026 and March 2041. Some tenements are undergoing a routine renewal process with the NSW Government.

Coal Reserves for Mt Owen Operations are sufficient to support a mine life of 14 years.

**Ravensworth East:** Coal Reserve depletion due to mining (-2.9Mt).

Tenements for Ravensworth East expire between November 2024 and November 2042. Some tenements are undergoing a routine renewal process with the NSW Government.

Coal Reserves for Ravensworth East operations are sufficient to support the planned mine life of 1 year.

**Glendell:** Coal Reserve depletion due to mining (-2.5Mt).

Tenements for Glendell expire between November 2024 and November 2033. Some tenements are undergoing a routine renewal process with the NSW Government.

Glendell reached the end of its planned life in December 2022.

### Liddell Open Cut

Coal Resources include both the current Liddell Open Cut Operations and the project area known as Liddell South. Each area has been assessed by a different Competent Person; Liddell Open Cut by John Terrill and Liddell South by Duane Uren.

Coal Resource and Reserve depletion due to mining at Liddell Open Cut (-4.3Mt).

Tenements for Liddell Operations expire between October 2023 and November 2028. Coal Reserves for Liddell Operations are sufficient to support the planned mine life of 1 year.

Tenements for the Liddell South Project expire between December 2023 and July 2025.

### Integra

Coal Resource and Reserve depletion due to mining (-2.6Mt). Measured and Indicated resource decrease (-3.8Mt) due to revised mine plan.

Tenements for the area expire between November 2023 and October 2034. Some tenements are undergoing a routine renewal process with the NSW Government. Coal Reserves for Integra operations are sufficient to support the planned mine life of 1 year.

## United - Wambo

Coal Resource and Reserve depletion due to Mining (-6.8Mt).

New Drilling, new geological model and the associated reclassification of resources resulted in an increase to Measured and Indicated resources (203.1Mt) and a decrease of Inferred resources (-51.3Mt) across the United-Wambo resource area. This net increase is offset by a decrease to Measured and Indicated resource (-32.1Mt) due to assessing remnant coal pillars in the sealed previous underground workings as being sterilised.

Tenements for the JV area expire between March 2026 and November 2043. Coal reserves of the United-Wambo JV are sufficient to support a planned mine life of 12 years.

### Ulan Complex

Measured and Indicated Coal Resources decreased as a direct result of mining (-11.5Mt) and due to sterilisation of the upper part of the mining section as mining occurs in the lower part (-23.0Mt). Reduction of Inferred resources (-26.5Mt) owing to sterilisation of upper seams (above mined out longwall workings) based on "no reasonable prospect of mining" (Clause 20, JORC2012).

Tenements for Ulan expire between April 2023 and May 2042. Some tenements are undergoing a routine renewal process with the NSW Government.

**Ulan Open Cut:** No mining during reporting period therefore no change to Coal Reserves estimations since 31 December 2021.

**Ulan West Underground:** Coal Reserve depletion due to mining (-6.3Mt).

Coal Reserves for Ulan West underground operations are sufficient to support the planned mine life of 10 years.

**Ulan #3 Underground:** Coal Reserve depletion due to mining (-5.3Mt).

Coal Reserves for Ulan #3 underground operations are sufficient to support the planned mine life of 8 years.

### Ravensworth Group

**Narama:** No change to Coal Resources since 31 December 2021.

Tenements for Narama expire between December 2023 and August 2036.

**Ravensworth North:** Coal Resource and Reserve depletion due to mining (-13.7Mt).

Tenements for Ravensworth North expire between January 2023 and September 2035. Some tenements are undergoing a routine renewal process with the NSW Government. Coal Reserves for Ravensworth North operations are sufficient to support the planned mine life of 14 years.

### Ravensworth Underground

Measured and Indicated resources decreased by (-67.6Mt) due to the disposal of a portion of the lease area, and an additional decrease (-6.0Mt) of Measured and Indicated and (-4.0Mt) Inferred resources due to the reclassification of the remnant resource. Tenements for Ravensworth Underground expire between March 2023 and December 2044. Some tenements are undergoing a routine renewal process with the NSW Government.

Ravensworth Underground has completed mine closure activities and therefore all previously declared reserves at Ravensworth underground have been written down to nil (-40.4Mt ROM and -27.9Mt Marketable).

### Mangoola

Coal Resource and Reserve depletion due to mining (-7.9Mt).

Tenements for Mangoola expire between November 2025 and October 2042. Some tenements are undergoing a routine renewal process with the NSW Government. Coal Reserves for Mangoola operations are sufficient to support the planned mine life of 9 years.

### Hunter Valley Operations

Coal Resource and Reserve depletion due to mining at Hunter Valley Operations (-15.2Mt).

Tenements for Hunter Valley Operations expire between April 2023 and November 2043. Some tenements are undergoing a routine renewal process with the NSW Government. Coal Reserves at Hunter Valley Operation are sufficient to support the planned mine life to 2050 with potential for further extensions.

# Coal

## Queensland

Name of operation	Attributable interest	Mining method	Commodity	Measured Coal Resources		Indicated Coal Resources		Inferred Coal Resources		CP	Coal Reserves		Marketable Coal Reserves		Total Marketable Coal Reserves		
				2022	2021	2022	2021	2022	2021		Proved	Probable	Proved	Probable	2022	2021	CP
<b>Oaky Creek</b>	55%		Coking/Thermal Coal (Mt)	<b>220</b>	<b>230</b>	<b>345</b>	<b>355</b>	<b>90</b>	<b>80</b>		<b>24</b>	<b>14</b>	<b>15</b>	<b>9</b>	<b>24</b>	<b>28</b>	
Oaky North		UG	Coking Coal (Mt)	220	230	300	310	70	60	RJH	24	14	15	9	24	28	POG
Fairhill Oaky Creek		OC	Thermal Coal (Mt)	-	-	45	45	20	20	RJH	-	-	-	-	10	9	
			Ash (%)														
			CV (kcal/kg)														
<b>Red Rock</b>	75%	OC/UG	Coking/Thermal Coal (Mt)	<b>1</b>	<b>1</b>	<b>300</b>	<b>300</b>	<b>200</b>	<b>200</b>	RJH	-	-	-	-	-	-	
			CV (kcal/kg)	6,900	6,900	5,100	5,100	5,450	5,450		-	-	-	-	-	-	
<b>NCA</b>	100%		Coking/Thermal Coal (Mt)	<b>448</b>	<b>460</b>	<b>566</b>	<b>569</b>	<b>1,020</b>	<b>1,020</b>		<b>7</b>	<b>30</b>	<b>6</b>	<b>19</b>	<b>25</b>	<b>31</b>	
Newlands, Sutor		OC/UG	Thermal Coal (Mt)	300	310	140	140	400	400	JET							
Eastern (RCM)			CV (kcal/kg)	5,750	5,750	5,200	5,200	5,050	5,050								
Wollombi (MCM)		OC/UG	Coking Coal (Mt)	13	14	74	75	100	100	JET	-	-	-	-	-	-	
			Thermal Coal (Mt)	5	6	24	26	60	60		-	-	-	-	-	-	
			CV (kcal/kg)	5,500	5,500	5,250	5,250	5,150	5,150		-	-	-	-	-	-	
Newlands OC		OC	Coking Coal (Mt)								-	-	-	-	-	2	LEN
			Ash (%)								-	-	-	-	-	8	
		OC	Thermal Coal (Mt)								-	-	-	-	-	2	LEN
			CV (kcal/kg)								-	-	-	-	-	6,100	
Sarum		OC/UG	Coking Coal (Mt)	30	30	8	8	60	60	JET	-	-	-	-	-	-	
			Thermal Coal (Mt)	-	-	70	70	250	250		-	-	-	-	-	-	
			CV (kcal/kg)	-	-	5,400	5,450	4,650	4,650		-	-	-	-	-	-	
Collinsville		OC/UG	Coking Coal (Mt)	65	65	200	200	100	100	MAS							
			Thermal Coal (Mt)	35	35	50	50	50	50								
			CV (kcal/kg)	4,800	4,800	5,000	5,000	4,900	4,900								
Collinsville OC		OC	Coking Coal (Mt)								-	22	-	11	11	12	
			Thermal Coal (Mt)								7	8	6	8	14	15	LEN
			CV (kcal/kg)								-	-	5,750	5,750	5,750	5,750	
<b>Cook</b>	100%	OC/UG	Coking/Thermal Coal (Mt)	-	-	<b>180</b>	<b>180</b>	<b>700</b>	<b>700</b>	JET	-	-	-	-	-	-	
			CV (kcal/kg)	-	-	6,650	6,650	6,500	6,500		-	-	-	-	-	-	
<b>Rolleston</b>	100%		Thermal Coal (Mt)	<b>210</b>	<b>220</b>	<b>370</b>	<b>340</b>	<b>500</b>	<b>500</b>		<b>130</b>	<b>40</b>	<b>130</b>	<b>40</b>	<b>170</b>	<b>180</b>	
Rolleston ML		OC	Thermal Coal (Mt)	210	220	210	190	350	350	NMP	130	40	130	40	170	180	ROM
			CV (kcal/kg)	5,700	5,700	5,550	5,550	5,550	5,500		-	-	5,600	5,400	5,550	5,550	
Rolleston MDL & EPCs		OC	Thermal Coal (Mt)	-	-	160	150	150	150	MJL	-	-	-	-	-	-	
			CV (kcal/kg)	-	-	5,450	5,450	5,550	5,550		-	-	-	-	-	-	
<b>Togara North</b>	70%	OC/UG	Thermal Coal (Mt)	<b>360</b>	<b>360</b>	<b>220</b>	<b>220</b>	<b>800</b>	<b>800</b>	MAS	-	-	-	-	-	-	28
			CV (kcal/kg)	6,200	6,200	6,000	6,000	5,900	5,900		-	-	-	-	-	6,300	
<b>Wandoan</b>	87.5%		Thermal Coal (Mt)	<b>1,650</b>	<b>1,650</b>	<b>3,000</b>	<b>2,250</b>	<b>3,300</b>	<b>4,600</b>	MPL	-	-	-	-	-	-	
			CV (kcal/kg)	5,350	5,300	5,500	5,400	5,450	5,400		-	-	-	-	-	-	
<b>Miray</b>	87.5%	OC/UG	Thermal Coal (Mt)	-	-	<b>170</b>	<b>170</b>	<b>600</b>	<b>600</b>	RJH	-	-	-	-	-	-	
			CV (kcal/kg)	-	-	6,050	6,050	4,950	4,950		-	-	-	-	-	-	
<b>Pentland</b>	87.5%	OC/UG	Thermal Coal (Mt)	<b>100</b>	<b>100</b>	<b>40</b>	<b>40</b>	<b>10</b>	<b>10</b>	RJH	-	-	-	-	-	-	
			CV (kcal/kg)	4,400	4,400	4,050	4,050	4,100	4,100		-	-	-	-	-	-	
<b>Clermont</b>	37%	OC/UG	Thermal Coal (Mt)	<b>55</b>	<b>65</b>	<b>8</b>	<b>8</b>	-	-	JET	<b>55</b>	<b>6</b>	<b>50</b>	<b>6</b>	<b>55</b>	<b>65</b>	WTE
			CV (kcal/kg)	6,150	6,150	6,150	6,100	-	-		-	-	6,050	6,150	6,050	5,900	
<b>Hail Creek</b>	84.67%		Coking/Thermal Coal (Mt)	<b>700</b>	<b>680</b>	<b>430</b>	<b>440</b>	<b>370</b>	<b>370</b>		<b>80</b>	<b>28</b>	<b>65</b>	<b>24</b>	<b>90</b>	<b>120</b>	
Hail Creek		OC/UG	Coking/Thermal Coal (Mt)	700	680	310	320	300	300	RJH	80	28	65	24	90	120	APC
Lake Elphinstone		OC/UG	Coking/Thermal Coal (Mt)	-	-	120	120	40	40	JET	-	-	-	-	-	-	
Mount Robert		OC/UG	Coking/Thermal Coal (Mt)	-	-	-	-	30	30	LMP	-	-	-	-	-	-	
<b>Valeria</b>	71%	OC	Thermal Coal (Mt)	<b>220</b>	<b>220</b>	<b>320</b>	<b>320</b>	<b>250</b>	<b>250</b>	MPL	-	-	-	-	-	-	
<b>Valeria South</b>	100%	OC	Thermal Coal (Mt)	-	-	<b>55</b>	<b>55</b>	<b>90</b>	<b>90</b>	MPL	-	-	-	-	-	-	
<b>Total Queensland</b>			<b>Coking/Thermal Coal (Mt)</b>	<b>3,964</b>	<b>3,986</b>	<b>6,004</b>	<b>5,247</b>	<b>7,930</b>	<b>9,220</b>		<b>296</b>	<b>118</b>	<b>266</b>	<b>98</b>	<b>364</b>	<b>452</b>	

# Coal

## Queensland

The Queensland Coal Resources and Reserves are contained within the Bowen Basin, the Surat Basin and the Galilee Basin.

Changes and issues material to the estimation of Coal Resources and Reserves are noted below for specific projects. Reference to production changes between 31 December 2021 and 31 December 2022 are detailed for each producing mine site.

Unless otherwise stated, tenement expiries will be eligible for a standard renewal as per the relevant Government policy.

Tonnages are quoted as million metric tonnes (Mt). Values expressed in the text have not been rounded and therefore do not correlate directly with the tables.

### Oaky Creek

Coal Resource depletion due to mining (-5.1Mt). The reassessment and re-correlation of the Pleiades seam (plies 3 and 4) resulted in a decrease in Measured and Indicated resources (-15.2Mt) and an increase in Inferred resources (9.9Mt).

Coal Reserves are sufficient to support the planned mine life for 6 years. Tenements for the Oaky Creek Complex expire between March 2026 and June 2041. Tenements undergo routine renewal process with the QLD Government; an application for a further Additional Surface Area was lodged in July 2022 and is undergoing assessment.

### Red Rock

Red Rock Resources remain unchanged.

Tenements for Red Rock expire between September 2023 and September 2025.

### NCA

**Newlands Open Cut:** Coal Reserve depletion due to mining (-5.2Mt).

Newlands OC is reaching the end of its planned life, having depleted all reserves by 31 December 2022.

**Newlands, Suttor, Eastern (RCM – Rangal Coal Measures):**

Newlands Coal Resource depletion due to mining (-1.0Mt).

Eastern Creek Coal Resource depletion due to mining (-0.9Mt).

Suttor Creek Coal Resource: no material change since 31 December 2019.

Tenements for Newlands Complex expire between March 2026 and February 2042. Some tenements are undergoing a routine renewal process with the QLD Government.

**Wollombi (MCM – Moranbah Coal Measures):** Coal Resource depletion due to mining (-3.3Mt).

**Sarum:** No change in the Coal Resource estimation since 31 December 2012.

The Sarum Project is inclusive of the Sarum and Gattonvale deposits. Tenements at the Project expire between November 2025 and April 2026.

**Collinsville:** Coal Resource and Reserve depletion due to mining (-3.6Mt).

Coal Reserves are sufficient to support the planned mine life of 12 years.

Tenements for Collinsville expire between September 2024 and September 2026.

### Cook (Blackrock)

No Change in the Coal Resource estimation at Cook since 31 December 2020.

The tenement for Cook expires in April 2042.

### Rolleston

Coal Resource and Reserve depletion due to mining (-13.0Mt). New drilling resulted in an increase in Measured and Indicated resources (34.6t) and Inferred resources (12.9Mt).

Tenements for Rolleston expire between May 2026 and May 2043. Some tenements are undergoing a routine renewal process with the QLD Government.

Coal Reserves for Rolleston are sufficient to support the planned mine life of 17 years.

### Togara North

No Change in the Coal Resource estimation at Togara North since 31 December 2021. Tenements for Togara North expire between September 2023 and December 2046.

Updated project economics have resulted in the write down of all previously declared reserves at Togara North, (-28.1Mt) ROM and (-28.1Mt) Marketable reserves.

### Wandoan

New Drilling, new geological model and the associated reclassification of resources resulted in an increase in Measured and Indicated resources (773.3Mt) and a decrease in Inferred resources (1,273.4Mt) across the Wandoan resource area.

Tenements for Wandoan expire between December 2023 and December 2043.

### Milray

No change in the Coal Resource estimation since 31 December 2020.

Tenements for Milray expire between November 2024 to January 2026.

### Pentland

No change in the Coal Resource estimation since 31 December 2020.

Tenements for Pentland expire in September 2026.

### Clermont

Coal Resource depletion due to mining (-8.7Mt).

Tenements for Clermont expire between March 2025 and July 2031. Coal Reserves at Clermont are sufficient to support the planned mine life for 5 years.

### Hail Creek Operations

Coal Resource and Reserve depletion due to mining (-10.3Mt). New drilling and associated revision of geological interpretation and modelling has resulted in an increase in Measured and Indicated resources (19.9Mt) and Inferred resources (6.6Mt).

Decrease in ROM (-39.1Mt) and Marketable (-21.6Mt) reserves associated with updated macro assumptions and subsequent re-design of the reserve pit shells and exclusion of high ash coal.

Tenements for Hail Creek expire in December 2040. Coal Reserves are sufficient to support the planned mine life for 16 years.

### Lake Elphinstone

Resources estimated for extraction via open cut methods. Exploration has commenced but no further assessment work completed since acquisition so previous resource model re-applied for 2022 reporting period. The previous estimate did not include a quality estimation.

Tenements for Lake Elphinstone expire in December 2040.

### Mt Robert

No exploration or analysis work completed since acquisition so previous resource model re-applied for 2022 reporting period. The previous estimate did not include a quality estimation.

Tenements for Mt Robert expire between November 2024 and August 2025. Some tenements are undergoing a routine renewal process with the QLD Government. Project planning has not yet commenced at Mt Robert.

### Valeria

No change in the Coal Resource estimation since 31 December 2021.

Tenements for Valeria expire in September 2026.

### Valeria South

No change in the Coal Resource estimation since 31 December 2021.

Tenements for Valeria South expire in June 2024.

# Coal

## South Africa

Name of operation	Attributable interest	Mining method	Commodity	Measured Coal Resources		Indicated Coal Resources		Inferred Coal Resources		CP	Extractable Coal Reserves		Saleable Coal Reserves		Total Saleable Coal Reserves		
				2022	2021	2022	2021	2022	2021		Proved	Probable	Proved	Probable	2022	2021	CP
<b>Tweefontein</b>	79.8%		Thermal Coal (Mt)	<b>830</b>	<b>840</b>	<b>60</b>	<b>60</b>	<b>38</b>	<b>38</b>	MS	<b>139</b>	<b>5</b>	<b>87</b>	<b>3</b>	<b>90</b>	<b>96</b>	TH
Tweefontein North		OC/UG	Thermal Coal (Mt)	630	640	-	-	8	8		130	5	80	3	83	89	
			CV (kcal/kg)	5,250	5,250	-	-	5,500	5,500		-	-	5,600	5,600	5,600	5,600	
Tweefontein South		OC/UG	Thermal Coal (Mt)	200	200	60	60	30	30		9	-	7	-	7	7	
			CV (kcal/kg)	5,350	5,350	4,350	4,350	4,600	4,600		-	-	5,900	-	5,900	5,900	
<b>Goedgedonden</b>	73.99%		Thermal Coal (Mt)	<b>460</b>	<b>460</b>	<b>10</b>	<b>10</b>	-	-	MS	<b>250</b>	-	<b>160</b>	-	<b>160</b>	<b>168</b>	CT
			CV (kcal/kg)	4,750	4,800	4,500	5,000	-	-		-	-	5,400	-	5,400	5,400	
<b>iMpunzi</b>	79.8%		Thermal Coal (Mt)	<b>340</b>	<b>340</b>	<b>13</b>	<b>13</b>	<b>2</b>	<b>2</b>	MS	<b>78</b>	<b>6</b>	<b>51</b>	<b>2</b>	<b>53</b>	<b>51</b>	TH
iMpunzi North		OC	Thermal Coal (Mt)	220	220	4	4	2	2		11	3	7	1	8	9	
			CV (kcal/kg)	5,150	5,250	5,500	5,500	5,600	5,600		-	-	5,500	5,500	5,500	5,600	
iMpunzi East		OC	Thermal Coal (Mt)	120	120	9	9	-	-		67	3	44	1	45	42	
			CV (kcal/kg)	5,400	5,400	5,300	5,250	-	-		-	-	5,500	5,500	5,500	5,600	
<b>Zonnebloem</b>	100%	OC	Thermal Coal (Mt)	<b>180</b>	<b>180</b>	<b>35</b>	<b>35</b>	-	-	MS	-	<b>160</b>	-	<b>77</b>	<b>77</b>	<b>76</b>	TH
			CV (kcal/kg)	5,150	5,150	4,850	4,850	-	-		-	-	-	5,500	5,500	5,500	
<b>Oogiesfontein</b>	100%	UG	Thermal Coal (Mt)	<b>45</b>	<b>45</b>	<b>18</b>	<b>18</b>	-	-	MS	-	<b>7</b>	-	<b>4</b>	<b>4</b>	<b>4</b>	TH
			CV (kcal/kg)	4,950	4,950	4,950	4,950	-	-		-	-	-	5,600	5,700	5,700	
<b>Nooitgedacht</b>	100%	UG	Thermal Coal (Mt)	<b>21</b>	<b>21</b>	<b>40</b>	<b>40</b>	<b>4</b>	<b>5</b>	MS	-	<b>33</b>	-	<b>21</b>	<b>21</b>	<b>22</b>	TH
			CV (kcal/kg)	4,850	4,850	4,850	4,850	4,850	4,850		-	-	-	5,500	5,500	5,500	
<b>Undeveloped Resources</b>	100%	OC/UG	Thermal Coal (Mt)	-	-	<b>12</b>	<b>12</b>	<b>100</b>	<b>100</b>	MS	-	-	-	-	-	-	
			CV (kcal/kg)	-	-	4,750	4,750	5,400	5,400		-	-	-	-	-	-	
<b>Paardekop</b>	100%	UG	Thermal Coal (Mt)	<b>120</b>	<b>120</b>	<b>570</b>	<b>570</b>	<b>80</b>	<b>80</b>	MS	-	-	-	-	-	-	
			CV (kcal/kg)	5,350	5,350	5,400	5,400	5,350	5,350		-	-	-	-	-	-	
<b>Izimbiwa</b>	48.73%		Thermal Coal (Mt)	<b>79</b>	<b>102</b>	<b>35</b>	<b>35</b>	<b>30</b>	<b>32</b>	MS	-	<b>25</b>	-	<b>22</b>	<b>22</b>	<b>27</b>	TH
MBO		OC	Thermal Coal (Mt)	-	24	-	-	-	2		-	-	-	-	-	5	
			CV (kcal/kg)	-	5,200	-	-	-	5,600		-	-	-	-	-	5,300	
Argent		OC	Thermal Coal (Mt)	29	28	-	-	-	-		-	25	-	22	22	22	
			CV (kcal/kg)	5,050	5,100	-	-	-	-		-	-	-	4,500	4,500	4,500	
Springboklaagte		UG	Thermal Coal (Mt)	50	50	35	35	30	30		-	-	-	-	-	-	
			CV (kcal/kg)	5,100	5,100	5,050	5,050	4,950	4,950		-	-	-	-	-	-	
<b>Umcebo</b>	48.67%		Thermal Coal (Mt)	<b>144</b>	<b>148</b>	<b>42</b>	<b>44</b>	<b>86</b>	<b>86</b>	MS	<b>21</b>	-	<b>15</b>	-	<b>15</b>	<b>19</b>	TH
Wonderfontein		OC	Thermal Coal (Mt)	60	60	4	5	1	1		21	-	15	-	15	19	
			CV (kcal/kg)	5,300	5,350	5,150	5,200	-	-		-	-	4,600	-	4,600	4,700	
Norwesco		OC	Thermal Coal (Mt)	-	1	-	-	-	-		-	-	-	-	-	-	
			CV (kcal/kg)	-	5,000	-	-	-	-		-	-	-	-	-	-	
Klippan		UG	Thermal Coal (Mt)	-	3	-	1	-	-		-	-	-	-	-	-	
			CV (kcal/kg)	-	5,800	-	5,800	-	-		-	-	-	-	-	-	
Hendrina		UG	Thermal Coal (Mt)	24	24	20	20	80	80		-	-	-	-	-	-	
			CV (kcal/kg)	4,400	4,400	4,400	4,400	4,700	4,700		-	-	-	-	-	-	
Belfast		UG	Thermal Coal (Mt)	60	60	18	18	5	5		-	-	-	-	-	-	
			CV (kcal/kg)	5,200	5,200	5,050	5,050	5,150	5,150		-	-	-	-	-	-	
<b>Total South Africa</b>			<b>Thermal Coal (Mt)</b>	<b>2,219</b>	<b>2,256</b>	<b>835</b>	<b>837</b>	<b>340</b>	<b>343</b>		<b>488</b>	<b>236</b>	<b>313</b>	<b>129</b>	<b>442</b>	<b>463</b>	

# Coal

## South Africa

The South African Coal Resources and Coal Reserve estimates have been prepared in accordance with the 2016 edition of the South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (the SAMREC Code) and the South African Guide to the Systematic Evaluation of Coal Resources and Coal Reserves (SANS 10320:2004).

The SAMREC Code and SANS 10320:2004 require that Coal Resources be reported on a Mineable Tonnes In Situ (MTIS) basis. The reported MTIS Coal Resource estimates take into account theoretically mineable seam thicknesses, coal quality cut-off parameters, geological loss factors, depth and/or strip ratio cut-offs and, where applicable, are discounted by coal tonnages which have previously been extracted. Coal Resources are reported inclusive of Coal Reserves.

Coal Resources have been re-estimated in 2022 for inclusion in this summary table except where otherwise stated. Revision of the totals includes changes to classifications of Coal Resource status due to exploration, geological reinterpretation and remodelling, and changes to lease holdings.

The reported Run-of-Mine (ROM) Coal Reserve estimates take into account planned practical mining thicknesses, mine layout losses, mining extraction factors, mining recovery efficiency factors, dilution, and contamination.

Saleable Coal Reserves are derived from the ROM Coal Reserves that are discounted by applying practical product yield factors which, where applicable, reflect historical processing plant efficiencies.

Changes and notes relevant to the estimation of Coal Resources and Coal Reserves are listed below for specific projects. Unless otherwise specified, changes reported are exclusive of production from 31 December 2021 to 31 December 2022. Depletion due to mining is based on the actual depletion from January to September, and a forecast for October to December. This forecast is reconciled each year to the actual production and an adjustment is made accordingly.

Coal Resource and Coal Reserve totals are rounded to appropriate levels of accuracy in accordance with the 2016 SAMREC Code and Glencore's standard procedures. In summary, Measured and Indicated Coal Resources are rounded to one significant figure if less than 10Mt and two significant figures if greater than 10Mt; calorific values are rounded to the nearest 50kcal/kg.

Values expressed in the text have not been rounded and therefore do not correlate directly with the tables.

### **Tweefontein Complex**

**Tweefontein North:** Coal Resource depletion due to mining (-9.6Mt), with a further reduction due to geological interpretation and remodelling of the Makoupan No. 5 Seam (-1.5Mt).

The Tweefontein North development includes all five seams present in the Vryheid Formation, however, only the No.1, No. 2, No. 4 and No. 5 seams form part of the mineable and economic Coal Resources. The Coal Resources have the potential to be extracted via both opencast truck and shovel or dragline, and underground bord and pillar mining methods.

Coal Reserve depletion due to mining (-8.5Mt) as well as changes in Makoupan mine design (-0.7Mt).

The Mining right for Tweefontein North expired on 27 March 2020; an application for renewal was granted in June 2022, however the execution is still pending, and the duration of the renewal will only be known at execution. Coal Reserves for Tweefontein North are sufficient to support a mine life of 13 years (2035).

**Tweefontein South:** Tweefontein South Complex is contained in the iMpunzi new order mining right and in the Klippoortjie old order mining authorisation. A section 102 consent was obtained to incorporate the Klippoortjie MR into iMpunzi. Execution of the deed of amendment to give effect to the consent is pending. The mining area development includes all five seams, however only the No.1, No. 2, No. 4 and No. 5 seams form part of the Coal Resources.

No mining was conducted in 2022 and the No. 5 Seam Addcar Coal Reserves remain available for future extraction.

Mining rights for Tweefontein South expire on 28 March 2029. Coal Reserves for Tweefontein South are sufficient to support a mine life of 10 years.

**Goedgevonden:** Coal Resource depletion due to mining (-9.2Mt).

Opencast dragline mining operations in the area are extracting the No. 2, No. 4 and No. 5 seams. The No. 3 seam is too thin for practical extraction and the No.1 seam is not considered economic.

Coal Reserve depletion due to mining (-9.3Mt).

The consolidated Goedgevonden mining right (including Zaaivater West) will expire on 21 January 2037. Coal Reserves for Goedgevonden are sufficient to support a mine life of 21 years (2043).

### **iMpunzi**

The iMpunzi mining right incorporates the iMpunzi East area and the iMpunzi North area. The mining right for iMpunzi expires on 28 March 2040. Coal Reserves for iMpunzi North and East are sufficient to support a mine life of 9 years (2031).

**iMpunzi North:** Coal Resource depletion due to mining (-4.9Mt).

iMpunzi North consists of the iMpunzi North Opencast (opencast dragline and truck and shovel operations in North and South pit) and iMpunzi Mini-pits (truck and shovel operations in the Phoenix, and Office pits). The Opencast Coal Resources include the No.1, No. 2 and No. 4 seams, whilst the Mini-pit involves only the No. 4 seam.

Coal Reserve depletion due to mining (-5.4Mt), partially offset by changes to design (2.3Mt).

**iMpunzi East:** Coal Resource depletion due to mining (-2.6Mt).

iMpunzi East consists of the iMpunzi East Opencast (opencast dragline and truck and shovel operations in the East pit). A large proportion of No. 2 seam and a small area of No. 4 seam have been previously mined by underground bord and pillar methods. The full seam is extracted through opencast mining methods – the lower zone of each seam was previously partially extracted by underground mining and the upper zone remains intact.

Coal Reserve depletion due to mining (-2.1Mt), offset by the addition of economical blocks due to changes in pricing assumptions (5.9Mt).

### **Zonnebloem**

The No. 1 and No. 2 seams are developed and are amenable to extraction by opencast dragline and truck and shovel operations.

Mining on Phase 1 of Zonnebloem was paused in September 2021, and ramp up back to full production is planned for first half of 2023.

There are no changes in Coal Resources or Coal Reserves for the current reporting period.

The mining right for Zonnebloem expires on 8 September 2039. Phase1 will be depleted in 2036.

### **Oogiesfontein**

The Oogiesfontein mining right is consolidated under the Goedgevonden mining right which expires on 21 January 2037. All environmental licenses and approvals are in place.

There are no changes in Coal Resources or Coal Reserves for the current reporting period.

### **Paardekop**

A new order mining right was granted in 2017 for 30 years. This right has not been executed due to an on-going dispute with Department of Mineral Resources and Energy. Awaiting approval of environmental licensing and permitting.

The Paardekop project area contains the Main seam which represents nearly 95% of the extractable coal. The seam has a mean thickness of 2.5m and is amenable to underground mining. The upper zone of the seam exhibits a relatively low CV whilst the lower zone has an average raw CV >5,300kcal/kg.

There are no changes in Coal Resources or Coal Reserves for the current reporting period.

# Coal

## South Africa

### Nooitgedacht

The No. 2 Seam and No. 4 Seam reserves represent a potential future underground extension to Tweefontein South.

There are no changes in Coal Resources or Coal Reserves for the current reporting period.

### Undeveloped Coal Resources

Applications for mining rights have been submitted for all the undeveloped Coal Resources. The mining right for Amersfoort was granted and will expire on 30 May 2037, while the Boschmanspoort mining right is still pending.

The Amersfoort project is located in the southern sector of the Ermelo Coalfield in Mpumalanga province, southwest of Breyten. The Coal Resource estimate is based on the C seam which averages 2.5m in thickness and occurs at a depth of approximately 200m.

The Boschmanspoort project is located in the Witbank Coalfield in Mpumalanga province, southeast of Middelburg. The Coal Resource estimate is based on the No. 2 seam that dips towards the east, therefore allowing some potential for opencast resources in the west.

### Izimbiwa

During 2022, the Middelburg Complex, consisting of Graspan, Graspan extension, Townlands and Steelcoal was sold to an independent third party, whilst the Argent and Springboklaagte projects remain in Izimbiwa.

**Argent:** The Argent Coal Resource will be exploited through opencast truck and shovel and is awaiting finalisation of the environmental licensing and permitting before mining can commence.

Resources increased after further exploration and re-modelling (2.0Mt).

**Springboklaagte:** The mining right for Springboklaagte has been granted and awaits environmental licensing and permitting. Springboklaagte is held as a Joint Venture between Izimbiwa and Umcebo. 100% of the Coal Reserves and Coal Resources are included under Izimbiwa in the table above. Springboklaagte is the subject of a sales agreement and fulfilment of conditions.

### Umcebo

The remaining mine life of the individual operations range up to 8 years while some brownfield extensions are possible.

**Klippan:** The mining right expired in September 2022. An application for Closure was lodged at the Department of Mineral Resources and Energy. As a result the remaining resources were written down to zero.

**Wonderfontein:** Coal Resource depletion due to mining (-3.1Mt) as well as redefining the Inferred resources after suboutcrop drilling and geological modelling.

Wonderfontein is an opencast truck and shovel operation. The opencast Coal Resources include the No. 1, No. 2, No. 3 and No. 4 seams.

Coal Reserve depletion due to mining (-2.7Mt) as well as exclusion of the uneconomic reserves in Pit C (-1.2Mt) due to increased strip ratio following better defined geology on the pit perimeter.

The Wonderfontein mining right expires on 2 June 2037. The Coal Reserves for Wonderfontein are sufficient to support a mine life of 8 years (2030).

**Hendrina:** The project area is located south of the town of Hendrina in the province of Mpumalanga. The mining right application covers three discrete blocks of ground named Mooivley East, Mooivley West and Bosmanskrans. The area is traversed by the national road N11 which connects Hendrina and Ermelo. The Hendrina Project is envisaged as an underground mine to supply an Eskom-type product. A mining right application was accepted by the Department of Mineral Resources in June 2016. The application remains pending.

**Belfast:** The prospecting right encompasses a number of blocks extending approximately 45km from east of Belfast to west of Wonderfontein. The N4 highway, the Gauteng-Maputo railway and Eskom power lines traverse the area.

A mining right application was lodged in September 2017 and accepted on 11 October 2017. The mining right application outcome is pending.

**Norwesco:** Norwesco is the subject of a sales agreement and the Section 11 Application, to cede the right to the buyer, was granted on 31 October 2022. Execution of the deed of renewal and the deed of cession is pending.

# Coal

## Americas

Name of operation	Attributable interest	Mining method	Commodity	Measured Coal Resources		Indicated Coal Resources		Inferred Coal Resources			Extractable Coal Reserves		Saleable Coal Reserves		Total Saleable Coal Reserves		
				2022	2021	2022	2021	2022	2021	CP	2022	2022	2022	2022	2022	2021	CP
<b>Correjón</b>	100%		<b>Thermal Coal (Mt)</b>	<b>3,200</b>	<b>3,250</b>	<b>1,200</b>	<b>1,250</b>	<b>600</b>	<b>600</b>	GH	<b>170</b>	<b>120</b>	<b>170</b>	<b>120</b>	<b>290</b>	<b>320</b>	JCM
			CV	6,550	6,550	6,550	6,550	6,350	6,350		6,200	6,100	6,300	6,200	6,200	6,200	
<b>Canada</b>																	
Suska	100%		Coking/Thermal Coal (Mt)	-	-	13	13	90	90	KJW	-	-	-	-	-	-	
			CV (kcal/kg)	-	-	6,100	6,100	6,100	6,100		-	-	-	-	-	-	
Sukunka	100%		Coking Coal (Mt)	45	45	100	100	40	40	KJW	-	-	-	-	-	-	
<b>Total Canada</b>			<b>Coking/Thermal Coal (Mt)</b>	<b>45</b>	<b>45</b>	<b>113</b>	<b>113</b>	<b>130</b>	<b>130</b>		-	-	-	-	-	-	

### Colombia

Coal Resources are reported on an in situ moisture basis. Coal Reserves take into account geological losses, mining losses, contamination and as mined moisture adjustments. Reserves are reported on a ROM moisture basis.

Saleable Reserves: As sold basis are Coal Reserves adjusted for yield losses in the preparation plant (if applicable) and converted to a saleable moisture basis. The Coal Resource and Coal Reserve estimates tabulated above are stated on a total mine basis as at 31 December 2022.

Coal Resource qualities are reported on an in situ moisture basis and Coal Reserve qualities are reported on a gross as received basis. Coal Resources are reported inclusive of those Coal Resources modified to produce Coal Reserves. Coal tonnages are quoted as million metric tonnes

Changes and issues material to the estimation of Coal Resources and Reserves are noted below for specific projects. Reference to production changes between 31 December 2021 and 31 December 2022 are detailed for each producing mine site.

Coal Resource and Coal Reserve totals are rounded to appropriate levels of accuracy in accordance with the 2012 JORC Code and the Glencore Coal Assets rounding procedures.

Values expressed in the text have not been rounded and therefore do not correlate directly with the tables

### Correjón:

In 2022, Coal Resources at Correjón totalling approximately 5,000Mt were reported as gross tonnes in situ (GTIS) within a 'geoshell' constrained by the horizontal and vertical distribution of data within the drill hole (data limits) envelope. Resource estimation in 2022 used an updated geological model with additional information from exploratory holes and also including reinterpretation of complex geological structures, which resulted in a decrease in Measured and Indicated resources (-87.8Mt). Approximately 300Mt of the total coal resources are within the current LOM plan. The Coal Resources include that coal for which the continuity, quality and mineability are established but occur outside the LOM plan. Total resources exclude approximately 230Mt of coal within 1 km of major towns. Coal Resources comply with current and foreseen mining and marketing criteria and are considered to have reasonable prospects of eventual economic extraction.

Saleable Coal Reserves have decreased due to mining depletion (-21Mt) and mine design changes (-5Mt).

The current mining rights expire in 2033.

### Canada Coal Resources

Glencore's Canadian coal resources (Sukunka, Suska) occur in the Peace River area of the Province of British Columbia.

Coal Resource tonnage and quality are reported at an in situ moisture basis. Coal Resources are reported in accordance with the JORC Code 2012 edition.

**Suska:** Coal Resources have not been re-estimated since 2016.

**Sukunka:** Coal Resources have not been re-estimated since 2016.



# Oil

## Net Reserves (2P - Proved and Probable)<sup>1</sup>

	Working Interest Basis								Combined mmboe
	Equatorial Guinea		Chad		Cameroon		Total		
	Oil mmbbl	Gas bcf	Oil mmbbl	Gas bcf	Oil mmbbl	Gas bcf	Oil mmbbl	Gas bcf	
31 December 2021	10	164	97	-	3	-	110	164	139
Revisions	1	(6)	-	-	-	-	1	(6)	(1)
Divestment	-	-	(97)	-	-	-	(97)	-	(97)
Production	(2)	(31)	-	-	(1)	-	(3)	(31)	(8)
31 December 2022	<b>9</b>	<b>127</b>	-	-	<b>2</b>	-	<b>11</b>	<b>127</b>	<b>33</b>

## Net Contingent Resources (2C)<sup>1</sup>

	Working Interest Basis								Combined mmboe
	Equatorial Guinea		Chad		Cameroon		Total		
	Oil mmbbl	Gas bcf	Oil mmbbl	Gas bcf	Oil mmbbl	Gas bcf	Oil mmbbl	Gas bcf	
31 December 2021	27	310	-	-	-	-	27	310	80
Revisions	-	-	-	-	-	-	-	-	-
31 December 2022	<b>27</b>	<b>310</b>	-	-	-	-	<b>27</b>	<b>310</b>	<b>80</b>

<sup>1</sup> "Net" Reserves or Resources are equivalent to Glencore's working interest in the asset/property.

### Equatorial Guinea

The Aseng field (Block I, 23.75% WI) came on stream in November 2011. The field is produced from subsea wells tied back to a Floating Production, Storage and Offloading facility ("FPSO"). Average 2022 gross production was ~15,000 barrels per day.

The Alen field (95% Block O, 25% WI and 5% Block I, 23.75% WI) came on stream in May 2013. The field is produced from subsea wells tied back to a production platform where condensate is stripped from the gas stream and transported to the Aseng FPSO via a subsea pipeline. The gas has been commercialised since Q1 2021. Average 2022 gross condensate production was ~8,700 b/d and average 2022 gross gas production was ~340 mmscf/d.

The Aseng and Alen fields have a 25 year exploitation term from approval of a plan of development. Reserves for Equatorial Guinea were independently assessed by McDaniel & Associates (McDaniel), have been prepared in accordance with the Petroleum Resources Management System (PRMS) and have been extracted without material adjustment from the McDaniel report dated 31 December 2022. Contingent Resources are based on Glencore estimates and have been prepared in accordance with PRMS.

### Chad

In June 2022, the sale of Glencore's Chad Upstream business to Perenco was completed and as a result Glencore no longer holds Reserves or Contingent Resources in Chad.

### Cameroon

The Oak field (Bolongo license, 37.5% WI) came on stream in August 2019. The field is currently produced from two platform wells tied back to third party infrastructure. Average 2022 gross production was ~6,700 barrels per day.

Reserves for Cameroon were independently assessed by McDaniel, have been prepared in accordance with PRMS and have been extracted without material adjustment from the McDaniel report dated 31 December 2022.

# Competent Persons

## Copper

### Africa

JE	Jacobus Engelbrecht	AusIMM	Glencore
JP	Julian Poniewierski	AusIMM	Glencore
PO	Paula Ogilvie	SANASP	Glencore
SH	Sam Hatton	AusIMM	Glencore
TR	Timothy Rijsdijk	AusIMM	Glencore

### Collahuasi

RO	Ronald Reycardo Ordezo	AusIMM	Compañía Minera Doña Inés de Collahuasi
RZ	Rodrigo Eduardo Zuñiga Ramirez	AusIMM	Compañía Minera Doña Inés de Collahuasi

### Antamina

LC	Lucio Canchis	AusIMM	Compañía Minera Antamina
FA	Fernando Angeles	EGBC	Compañía Minera Antamina

### Other South America

EC	Edwin Cortes	AusIMM	Glencore
GG	Gustavo Garcia	AusIMM	Glencore
HB	Heller Bernabé	AusIMM	Glencore
MS	Mario Saez	CCRRM (Chile)	Glencore

### Australia

EA	Eliseo Apaza	AusIMM	Glencore
SH	Sam Hatton	AusIMM	Glencore

### Other projects

HW	Herbert Welhener	SME	Independent Mining Consultants Inc.
MM	Manuel Octavio Machuca Valderrama	AusIMM	Glencore
RS	Richard A. Schwering	SME	Hard Rock Consulting LLC
RT	Raul Tarnovski	CCRRM (Chile)	Anglo American

## Zinc

AA	Arthur Almgren	AusIMM	Glencore
AAA	Angel Angelov	SAIMM	Glencore
AH	Allan Huard	PGO	Glencore
AL	Amanda Landriault	OGQ	Glencore
BD	Benoit Drolet	PGO	Glencore
BF	Bastien Fresia	OGQ	Glencore
CF	Callum Fannin	AusIMM	Glencore
CH	Chris Hy	AIG	Glencore
DC	Dhaniel Carvalho	AusIMM	Glencore
DH	Drew Herbert	AusIMM	Consultant for Glencore
JG	Juan Fernandez Garcia	EFG	Asturmire (Consultant)
JM	John McConnell	AusIMM	Glencore
KS	Keiran Swanton	PEO	Glencore
LR	Lauren Raggatt	AusIMM	Glencore
MM	Maxime Menard	OGQ	Glencore

## Nickel

PSA	Pierre St Antoine	OGQ	Glencore
RC	Richard Caumartin	OIQ	Glencore
JK	John Korczak	PGO	Glencore
RM	Roberto Menin	AusIMM	Koniambo Nickel SAS
ES	Edward Sannga	AusIMM	MMO Pty Ltd.
CW	Clifford Webster	AusIMM	MMO Pty Ltd.
SK	Stephen King	AusIMM	MMO Pty Ltd.

## Ferroalloys

SYV	Sulayman Yousuf Vaid	SAGC	Glencore
DR	Dean Richards	SACNASP	Obsidian Consulting Services
MM	Mogomotsi Maputle	SACNASP	Glencore
SM	Sydney Maseti	SACNASP	Glencore
LUN	Lindiwe Unity Nkambule	SACNASP	Glencore
JC	Jan Coetzer	SACNASP	Mokala Manganese

## Aluminium

JB	John Bower	AusIMM	OBK Consulting (Pty) Ltd
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# Competent Persons

## Iron ore

AM	Alan Miller	MAusIMM (CP)	Independent consultant
NS	Nicolas Szwedzka	OIQ	BBA Inc
SvdM	Schalk van der Merwe	SACNASP	Independent consultant

## Coal

### New South Wales

ADM	Adrian Moodie	AusIMM	SCT Operations Pty Ltd
APC	Andrew Connell	AusIMM	Glencore
AWF	Alison Freeman	AusIMM	Glencore
BOB	Brendan O'Brien	AusIMM	Glendell Open Cut
DSU	Duane Uren	AusIMM	Ulan Underground
EAM	Edward McGonigle	AusIMM	Ulan Underground
HXJ	Hugh Jennings	AusIMM	Glencore
JET	John Terrill	AIG	Glencore
JGR	Joel Grant	AusIMM	Glencore
KJB	Konrad Bawelkiewicz	AusIMM	Glencore
LMP	Lyndon Pass	AusIMM	Encompass Mining
LRO	Livia Rodriguez Gonzalas	AusIMM	Glencore
MJE	Matthew Esdaile	AusIMM	Ravensworth Open Cut
MJL	Mark Laycock	AusIMM	Glencore
MAS	Michael Stadler	AusIMM	Glencore
MRW	Mark Williams	AusIMM	Mangoola Open Cut
PAH	Paul Harrison	AusIMM	McElroy Bryan GS
PJO	Paul Jones	AusIMM	Glencore
POG	Paul O'Grady	AusIMM	Glencore
PTP	Phuc Pham	AusIMM	United Colliery

## Coal (cont.)

### Queensland

APC	Andrew Connell	AusIMM	Glencore
JET	John Terrill	AIG	Glencore
LEN	Larry Nielsen	AusIMM	Glencore
LMP	Lyndon Pass	AusIMM	Encompass Mining
MAS	Michael Stadler	AusIMM	Glencore
MJL	Mark Laycock	AusIMM	Glencore
MPL	Murray Little	AIG	Glencore
NMP	Nicole Phillips	AusIMM	Rolleston Coal
POG	Paul O'Grady	AusIMM	Glencore
PJO	Paul Jones	AusIMM	Glencore
RJH	Richard Hingst	AusIMM	Oaky Creek Coal
ROM	Robert Molan	AusIMM	Rolleston Coal
WTE	Whiteboy Tembo	AusIMM	Glencore

### South Africa

CT	Chris Theart	SAIMM (706513)	Glencore
MS	Marius Smith	Pr Sc Nat 400075/03	Glencore
TH	Trevor Howard	SAIMM (701062)	Glencore

### Americas

KJW	Kerry Whitby	AusIMM	McElroy Bryan Geological Services Pty Ltd
GH	German Hernandez	GSSA	Correjon Limited
JCM	Juan Camilo Mejia	AusIMM	Correjon Limited