ɔuth32 Limited
ncorporated in Australia under the *Corporations Act 2001* (Cth))
ACN 093 732 597)
SX / LSE / JSE Share Code: S32 ADR: SOUHY
IN: AU000000S320
ɔuth32.net

21 July 2021

HERMOSA PROJECT – MINERAL RESOURCE ESTIMATE UPDATE

South32 Limited (ASX, LSE, JSE: S32; ADR: SOUHY) (South32) is pleased to report an update to the Mineral Resource estimate for Taylor Deposit which forms part of our 100% owned Hermosa project located in Arizona, USA. The updated Mineral Resource (Table A) is reported in accordance with the JORC Code (2012)[note 1] at 138 million tonnes, averaging 3.82% zinc, 4.25% lead and 81 g/t silver with a contained 5.3 million tonnes of zinc, 5.9 million tonnes of lead and 360 million ounces of silver.

The updated estimate reflects the continuation of work in support of the pre-feasibility study (PFS) for the Taylor Deposit. The PFS was scheduled for completion prior to the end of the June 2021 quarter but has been delayed given the impact of ongoing COVID-19 related workforce restrictions. Study work to date has confirmed a preference to pursue a dual shaft development that prioritises early access to higher grade mineralisation, identified through our improved understanding of the updated Taylor Mineral Resource estimate.

When compared to the prior estimate[note 2] (Table B) the updated overall Mineral Resource estimate reflects higher grades for zinc (by 14%), lead (by 11%) and silver (by 14%), with zinc equivalent grade increasing from 7.62% to 8.61%, partially offsetting a 17% reduction in total tonnage. The updated Mineral Resource reflects the enhanced confidence obtained from additional drilling and refinements to structural interpretation. In addition, improvements to anticipated project economics have been reflected in a reduction to the net smelter return (NSR) cut-off grade of US$80/dmt (from US$90/dmt used in previous estimates). This results in an increase of 8Mt in the Measured category, with 83% of the total resource now contained in the Measured and Indicated categories. The Mineral Resource remains open at depth and laterally, with infill and extensional opportunities identified for the next phase of drilling to support study work beyond the current PFS.

The updated Mineral Resource also reflects our improved understanding of the boundary between the Taylor sulphide and Clark oxide (oxidised zinc-manganese-silver deposit which sits above Taylor), improving our ability to better plan the future potential development of either or both deposits. We expect to report scoping study outcomes and future work plans for the Clark Deposit in H1 FY22.

The Hermosa project is a polymetallic development option located in Santa Cruz county, Arizona which is 100% owned by South32 (Appendix 1 – Figure 1). It comprises the Taylor Deposit, the Clark Deposit and an extensive, highly prospective land package with potential for discovery of polymetallic and copper mineralisation (Appendix 1 – Figure 2). The mineralisation envelope has the potential to extend beyond current drilling into the surrounding unpatented claims which are untested, presenting significant upside potential.

Full details of this update are contained in the attached report.

Appendices prepared in connection with this report have been submitted to UK Listing Authority (UKLA) national storage mechanism and are available for inspection at https://data.fca.org.uk/#/nsm/nationalstoragemechanism or are otherwise available on South32's website at http://www.south32.net.

Notes:
1. Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2012 edition.
2. Mineral Resource estimate as at 30 June 2020 was published as part of the South32's annual resource and reserve declaration in the FY20 Annual Report (www.south32.net) issued on 4 September 2020.

South32 is a globally diversified mining and metals company. Our purpose is to make a difference by developing natural resources, improving people's lives now and for generations to come. We are trusted by our owners and partners to realise the potential of their resources. We produce bauxite, alumina, aluminium, metallurgical coal, manganese, nickel, silver, lead and zinc at our operations in Australia, Southern Africa and South America. With a focus on growing our base metals exposure, we also have two development options in North America and several partnerships with junior explorers around the world.

Investor Relations

Alex Volante
T +61 8 9324 9029
M +61 403 328 408
E Alex.Volante@south32.net

Tom Gallop
T +61 8 9324 9030
M +61 439 353 948
E Tom.Gallop@south32.net

Media Relations

Miles Godfrey
M +61 415 325 906
E Miles.Godfrey@south32.net

Jenny White
T +44 20 7798 1773
M +44 7900 046 758
E Jenny.White@south32.net

Further information on South32 can be found at www.south32.net.

Approved for release by Graham Kerr, Chief Executive Officer
JSE Sponsor: UBS South Africa (Pty) Ltd
21 July 2021

Table A: Mineral Resources for the Taylor Deposit as at 30 June 2021[note 2]

Ore Type	Measured Mineral Resources					Indicated Mineral Resources				
	Mt [note 2]	% Zn	% Pb	g/t Ag	% ZnEq [note 3]	Mt [note 2]	% Zn	% Pb	g/t Ag	% ZnEq [note 3]
UG Sulphide[note 1]	29	4.10	4.05	57	8.25	82	3.65	4.45	88	8.73
UG Transition[note 1]	-	-	-	-	-	3.7	6.11	4.21	60	10.44
Total	**29**	**4.10**	**4.05**	**57**	**8.25**	**86**	**3.76**	**4.44**	**86**	**8.79**

Ore Type	Inferred Mineral Resources					Total Mineral Resources				
	Mt [note 2]	% Zn	% Pb	g/t Ag	% ZnEq [note 3]	Mt [note 2]	% Zn	% Pb	g/t Ag	% ZnEq [note 3]
UG Sulphide[note 1]	23	3.62	3.82	93	8.34	133	3.74	4.26	82	8.56
UG Transition[note 1]	1.4	5.55	3.91	64	9.74	5.1	5.95	4.13	61	10.24
Total	**24**	**3.73**	**3.82**	**91**	**8.41**	**138**	**3.82**	**4.25**	**81**	**8.61**

Million dry metric tonnes[2], % Zn– percent zinc, % Pb– percent lead, g/t Ag– grams per tonne of silver

Table B: Mineral Resources for the Taylor Deposit as at 30 June 2020[note 2]

Ore Type	Measured Mineral Resources					Indicated Mineral Resources				
	Mt [note 2]	% Zn	% Pb	g/t Ag	% ZnEq [note 3]	Mt [note 2]	% Zn	% Pb	g/t Ag	% ZnEq [note 3]
UG Sulphide[note 1]	21	4.33	3.82	58	8.33	98	3.17	4.02	77	7.71
UG Transition[note 1]	-	-	-	-	-	3.3	4.58	3.48	45	8.07
Total	**21**	**4.33**	**3.82**	**58**	**8.33**	**102**	**3.21**	**4.00**	**76**	**7.71**

Ore Type	Inferred Mineral Resources					Total Mineral Resources				
	Mt [note 2]	% Zn	% Pb	g/t Ag	% ZnEq [note 3]	Mt [note 2]	% Zn	% Pb	g/t Ag	% ZnEq [note 3]
UG Sulphide[note 1]	42	3.14	3.51	69	7.14	162	3.31	3.86	72	7.63
UG Transition[note 1]	1.7	4.36	3.19	42	7.57	5.0	4.50	3.39	44	7.90
Total	**44**	**3.18**	**3.50**	**68**	**7.15**	**167**	**3.34**	**3.84**	**71**	**7.62**

Million dry metric tonnes[2], % Zn– percent zinc, % Pb– percent lead, g/t Ag– grams per tonne of silver

Notes:

1. Cut-off grade: FY21– NSR of US$80/dmt for both UG Sulphide and UG Transition; FY20– NSR of US$90/dmt for both UG Sulphide and UG Transition. Input parameters for the NSR calculation are based on South32's long term forecasts for zinc, lead and silver pricing, haulage, treatment, shipping, handling and refining charges. Metallurgical recovery assumptions differ for geological domains and vary from 87% to 94% for zinc, 94% to 95% for lead, and 87% to 92% for silver.

2. All masses are reported as dry metric tonnes (dmt). All tonnes and grade information have been rounded to reflect relative uncertainty of the estimate, hence small differences may be present in the totals.

3. ZnEq (%) is zinc equivalent which accounts for combined value of zinc, lead and silver. Metals are converted to ZnEq via unit value calculations using long term consensus metal price assumptions and relative metallurgical recovery assumptions. Average metallurgical recovery assumptions are zinc (Zn) 92%, lead (Pb) 95%, and silver (Ag) 89% and metals pricing assumptions are South32's prices for the December 2020 quarter. The formula used for calculation of zinc equivalent is ZnEq (%) = Zn (%) +0.7376 * Pb (%) + 0.0204*Ag (g/t).

Estimate of Mineral Resources for Hermosa

When comparing the total overall estimated Mineral Resource for the Taylor carbonate replacement deposit (CRD) as at 30 June 2021 (Table A), to the previously published 30 June 2020 estimate (Table B), the update features higher zinc, lead and silver grades, with zinc equivalent grade increasing from 7.62% to 8.61%, partially offsetting a 17% reduction in tonnage. The update reflects improvements to the previous geological model based on revised interpretation and new drilling.

The estimates of Mineral Resources are reported in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2012 (JORC Code) and the Australian Securities Exchange Listing Rules. The breakdown of the total estimates of Mineral Resources into the specific JORC Code categories is contained in Table A. This report summarises the information contained in the JORC Code Table 1 which is included in Appendix 1 to this report.

Geology and geological interpretation

The Taylor Deposit within the Hermosa project is a CRD style zinc-lead-silver massive sulphide deposit. It is hosted in Permian carbonates of the Pennsylvanian Naco Group of south-eastern Arizona (Appendix 1 – Figure 3).

The Taylor Deposit comprises of the upper Taylor Sulphide and lower Taylor Deeps domains that have a general northerly dip towards 300° and are separated by a low angle thrust fault. Mineralisation within the stacked profile of the thrusted host stratigraphy extends 1,200m from near-surface and is open at depth. Mineralisation is modelled for multiple litho-structural domains for an approximate strike of 2,500m and width of 1,900m (Appendix 1 – Figure 5).

Drilling techniques

The Mineral Resource Estimate is based on data from 580 surface diamond drill holes of HQ (95.6mm) or NQ (75.3mm) diameter (Appendix 1 – Figure 4), as well as reverse circulation drilling in the upper parts of the deposit. Only diamond core drilling from 273 holes in the Taylor Sulphide area has been utilised for Mineral Resource estimation purposes. Vertical drilling was undertaken for 146 of the 273 holes used in this resource estimate. Since August 2018, holes have been drilled between 60° and 75° dip to maximise the angle at which mineralisation is intersected. Oriented drilling was introduced in October 2018 to incorporate structural measurements into geological modelling for stratigraphy and fault interpretation.

Sampling and sub-sampling techniques

289,660m of drilling used for estimation, geometallurgy and geotechnical purposes is diamond core, sampled at predominantly 1.5m (5 feet) intervals on a half-core basis, terminated at litho-structural boundaries. Samples were submitted for preparation at an external ISO-17025 certified laboratory, Australian Laboratory Services (ALS), in Tucson. Preparation involved crushing to 70% passing 2mm mesh, a rotary split to 250g and pulverisation to 85% passing 75µm from which a 0.25g split is taken for digestion and analysis. The mineralised intersections were verified by geologists throughout each drilling program and reviewed independently against core photos by an alternate geologist prior to geological interpretation.

Sample analysis method

Samples of 0.25g taken from a 250g pulp were processed at ALS in Vancouver where they were digested using a four-acid leach method. This was followed by Inductively Coupled Plasma – Atomic Emission Spectroscopy (ICP-AES) determination for 33 elements. A range of certified reference materials (CRMs) was routinely submitted to monitor assay accuracy, with low failure rates within expected ranges for this deposit style, demonstrating reliable laboratory accuracy.

Results of routinely submitted field duplicates to monitor sample representivity, coarse crush and laboratory pulp duplicates to quality control sample preparation homogeneity, and certified blank submissions to detect cross-contamination were all within an acceptable range for resource modelling.

Estimation methodology

Resource estimation was performed by two passes of ordinary kriging and a final outer pass as inverse distance squared interpolation for four elements of economic interest (Zn, Pb, Ag, Cu), two potentially deleterious elements (As, Mn) and four tonnage estimation elements (Fe, Ca, S, Mg). Search estimation criteria are consistent with geostatistical models developed for each estimation domain according to the appropriate geological controls. Validation includes statistical analysis, swath plots and visual inspection.

Specific gravity measurements from drill cores were used as the basis for estimating dry bulk density in tonnage calculations for both mineralised and non-mineralised material.

Mineral Resource classification

Mineral Resource classification criteria are based on the level of data informing both the geological model and grade estimation. Criteria including average distance of the block estimate relative to sampling, number of samples used in the estimate, and a relative indicator of estimation quality. Measured Resources are reported in areas where blocks are interpolated with data an average distance of approximately 50m from the block centroid. Indicated Resources are likewise estimated from average contributing data spacing of approximately 150m. Inferred Resources are constrained by the reporting of estimates to approximately 300m beyond data.

Mining and metallurgical methods and parameters

Reasonable prospects for eventual economic extraction have been determined through assessment of the Mineral Resource at a PFS level. Factors relevant to these prospects have been integrated through the use of a robust NSR calculation and application of this to blocks to assess the likelihood of a block to be economic on the basis of PFS-level cost assumptions on mining, processing, G&A, smelting, etc. Underground mining factors and assumptions for longhole stoping on a sub- or full-level basis with subsequent paste backfill are made based on industry benchmark mining production and project related studies.

Cut-off grade

The Taylor Deposit of the Hermosa project is a polymetallic deposit that uses an equivalent NSR value as a grade descriptor. Input parameters for the NSR calculation are based on South32's long term forecasts for zinc, lead and silver pricing; haulage, treatment, shipping, handling and refining charges. Metallurgical recovery assumptions differ for geological domains and vary from 87% to 94% for zinc, 94% to 95% for lead, and 87% to 92% for silver.

A dollar equivalent cut-off of NSR US$80/dmt forms the basis of assessment for reasonable prospects for eventual economic extraction, supported by scoping level studies.

Competent Person's Statement

The information in this report that relates to the Mineral Resource Estimate for the Taylor Deposit represents an estimate as at 30 June 2021, and is based on information compiled by Matthew Hastings.

Mr. Hastings is a full-time employee of SRK Consulting, Inc. and is a member and Chartered Professional of the Australasian Institute of Mining and Metallurgy. Mr. Hastings has sufficient experience relevant to the style of mineralisation and type of deposit under consideration, and to the activities being undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. The Competent Person consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

Additional information is contained in Appendix 1.