



**Sunday Creek -** High-grade Gold-Antimony Discovery in Clonbinane, Victoria

Kenneth Bush, Exploration Manager



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### Important Notice and Disclaimer

#### **Competent Persons Statement**

Information in this presentation that relates to new exploration results contained in this report is based on information compiled by Michael Hudson, a Fellow of the Australasian Institute of Mining and Metallurgy. He is MD for Southern Cross Gold Ltd. He has sufficient experience which is relevant to the style of mineralisation and types of deposits under consideration and to the activity being undertaking 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 JORC Code). Michael Hudson has consented to the inclusion in this report of the matters based on this information in the form and context in which it appears.

Certain information in this announcement that relates to prior exploration results is extracted from the Independent Geologist's Report dated 16 March 2022 which was issued with the consent of the Competent Person, Mr Terry C. Lees. The report is included the Company's prospectus dated 17 March 2022 which was released as an announcement to ASX on 12 May 2022 and is available at www2.asx.com.au under code "SXG". The Company confirms that it is not aware of any new information or data that materially affects the information related to exploration results included in the original market announcement. The Company confirms that the form and context of the Competent Persons' findings in relation to the report have not been materially modified from the original market announcement.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original document/announcement and the Company confirms that the form and context in which the Competent Person's findings are presented have not materially modified from the original market announcement.

Certain information in this announcement also relates to prior exploration results, are extracted from the following announcements, which are available to view on <a href="www.southerncrossgold.com.au">www.southerncrossgold.com.au</a>:

21 November, 2022 SDDSC050, 14 December, 2022 SDDSC050, 28 February, 2023 SDDSC053, 1 May, 2023 SDDSC059, 16 May, 2023 SDDSC064,1 June, 2023 SDDSC066, 23 August, 2023 SDDSC078, 5 September, 2023 SDDSC077B, 12 October, 2023 SDDSC094A, 100 & 104, 27 February, 2024 SDDSC108A, 5 March, 2024 SDDSC107, 27 May, 2024 SDDSC115A & 117.



### 3D Vrify Presentation

This presentation is a static 2D simplification of the presentation made on the day.

The 3D Vrify presentation made on the day can be found here:

https://vrify.com/decks/16016

## Acknowledgements

I wish to thank all current and past workers who have progressively contributed to the rediscovery of Sunday Creek Goldfield.

It takes a team to raise a discovery!

Most recently in particular we would like to thank Michael Hudson, Lisa Gibbons, Angela Lorrigan, Terry Lees, Zac Turschwell, Claudia Bowman, Andrew Gordon, Angus McKay, Thomas Fromhold, Lisa Andersson, Marcus Tomkinson, Roland Hill, Cael Gniel, Craig Brown, Matthew Coad, David Henstridge, Tom Eadie, Georgina Carnegie and Henry Rech.



# Aim to Create the Highest Margin Gold Business Globally



#### **Exceptional Hit Rate**

Sunday Creek compares favorably with global leading hit rates for this stage of the project's development

38/48 individual intersections >100/>50 AuEq g/t m("AuEq g/t x width in m")

119 drill holes for 51,189m reported to date

47 vein sets wireframed within main drill area



### 3 Clear Objectives

Drilling plan has three clear objectives that will have the largest emphasis over the next six months

- Demonstrate Grade
- Demonstrate Volume
- Demonstrate Scale



# 4 diamond drill rigs operating at site

Aim to increase capacity with additional rig per quarter



#### **News flow continuous**



#### **Funded with permits**

\$13.5 m
Fully funded and permitted

**133.3 ha** of freehold land, three properties





### Team Structure



### Locally based staff

Living in the communities in which we work



### Geology Team

Small, but experienced team
Diverse range of Victorian deposits including, Fosterville,
Costerfield, Ballarat & Stawell Mines







# **Exploration and Mining History**



#### History

- 1850s Alluvial mining
- 1860s Surface mining to 30m
- 1880s Shaft mining to 100m, 1890s to 180m
- Early 1900s cyanide
- WW1 Open by Imperial munitions act antimony
- 1960s Eastern Prospectors few drill holes
- 1980s CRA/BHP
- 1986 mid 1990's, Ausminde 29 RC drill holes totalling 960 metres;
- 2008 Beadell Resources 30 RC holes with 7 diamond drill tails – oxide focus

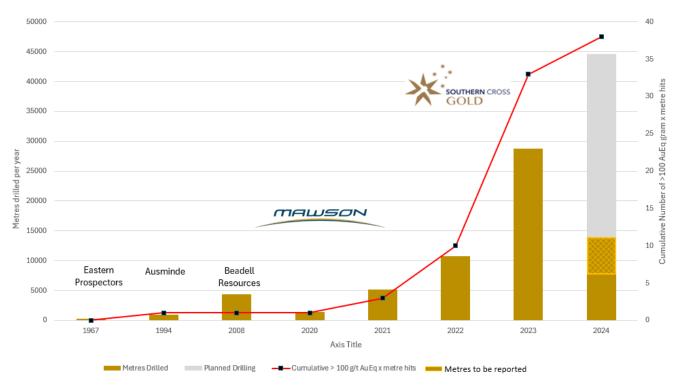


### Exploration

- Exploration has accelerated year-on-year
- 2021 was the first year with an individual +100 g/t Au assay interval
- 2023 included 28 individual Au assays +100 g/t Au and 6 individual Au assays +1,000 g/t Au.
- 2024 to date has 11 individual Au assays +100 g/t Au from 8 drillholes started in 2024 with an additional 11 drillholes being processed or currently drilling – 60 km drilling planned over next year



The Golden Dyke Mine





# Database Analysis: Grade vs Width



# All of the 5 best intersections on the project have been drilled recently

### **Top 10 intersections at Sunday Creek:**

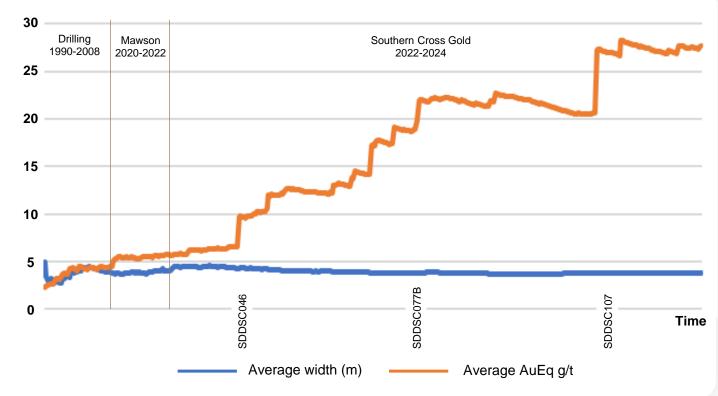
Rank	Date	Hole-ID	From (m)	To (m)	Length (m)	Au g/t	Sb%	AuEq g/t	AuEq gtm
1	5-Mar-24	SDDSC107	684.3	685.4	1.0	2,318.4	0.3	2,318.8	2,389
2	5-Sep-23	SDDSC077B	737.1	740.7	3.6	391.9	8.0	393.2	1424
3	9-Nov-23	SDDSC091	430.0	450.0	20.0	62.7	0.5	63.6	1274
4	14-Dec-23	SDDSC092	681.6	684.9	3.3	267.8	1.8	270.6	889
5	23-Oct-23	SDDSC082	417.4	419.0	1.6	500.3	0.1	500.5	801
6	23-Oct-23	SDDSC082	413.6	415.4	1.7	230.6	9.9	246.2	429
7	5-Mar-24	SDDSC107	566.9	576.0	9.1	39.1	0.6	40.0	368
8	4-Oct-22	SDDSC046	187.5	201.8	14.3	20.5	2.6	24.6	363
9	23-Oct-23	SDDSC082	588.0	592.3	4.3	71.5	0.4	72.2	307
10	1-Jun-23	SDDSC066	543.5	545.2	1.7	147.1	13.7	168.7	290



SDDSC107 from 684.7 m (within assayed interval 1.0 m @ 2319 g/t AuEq (2318.4 g/t Au, 0.3 % Sb) from 684.32 m to 685.35 m) showing cut core, with stibnite and quartz-carbonate veining with fine, disseminated frequent visible gold.

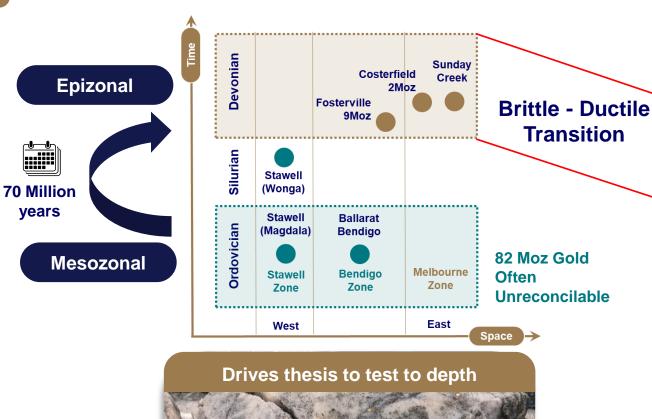
#### AuEq g/t & Width (m) (2 m @ 1.0 g/t Au Lower Cut) vs time



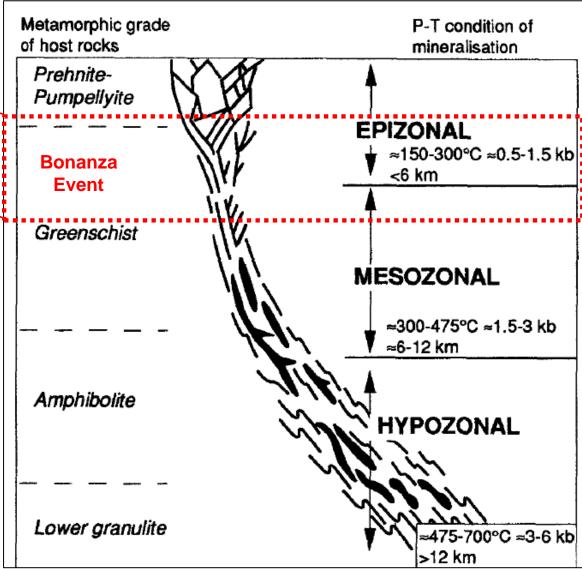




## Victoria a Gift That Keeps on Giving







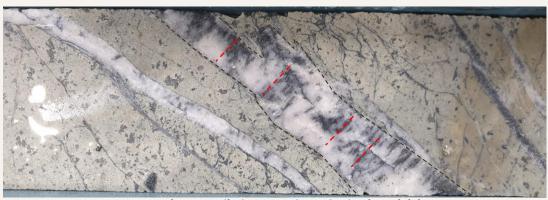
Gebre-Mariam et al., 1995



### Brittle to Ductile Transition



### **Brittle Features**



Quartz-carbonate-stibnite extension veins in altered dyke

#### **Ductile Features**

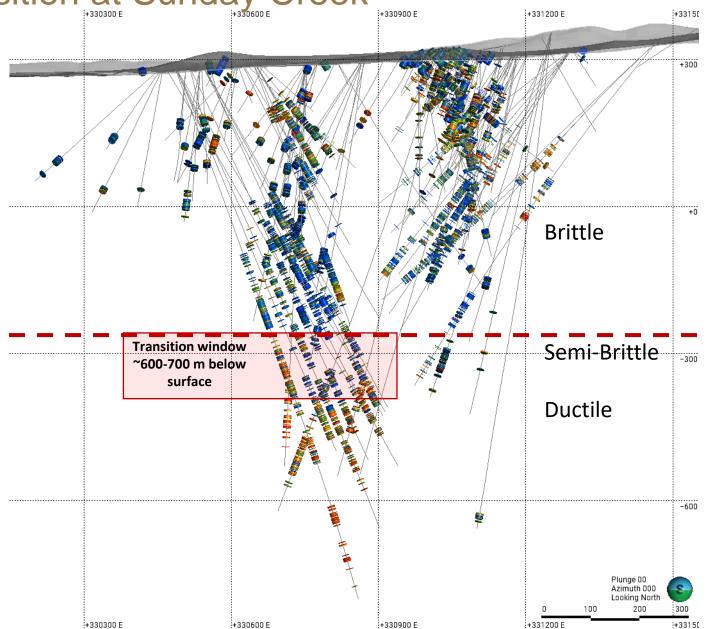




Brittle to Ductile Transition at Sunday Creek

Dominant brittle features

Decreasing Sb Increased observation of Fibrous Sulphosalts



As\_over\_Sb 🛛

25

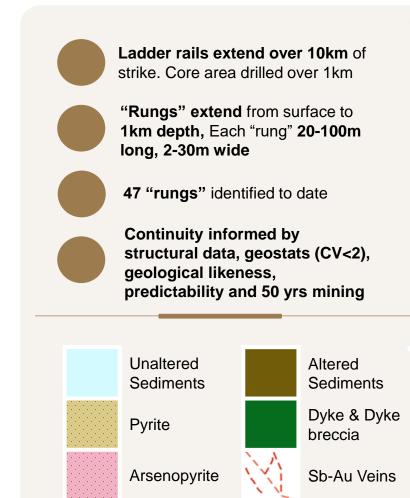
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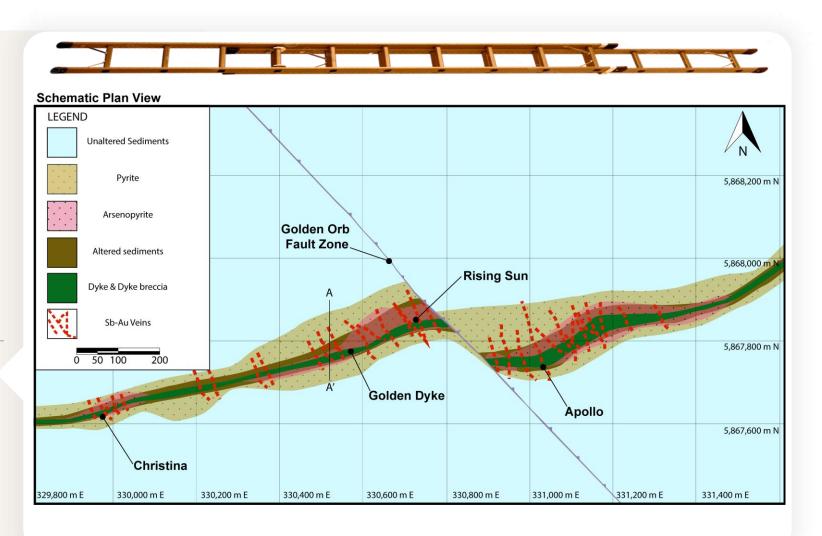
15

10

0.000881

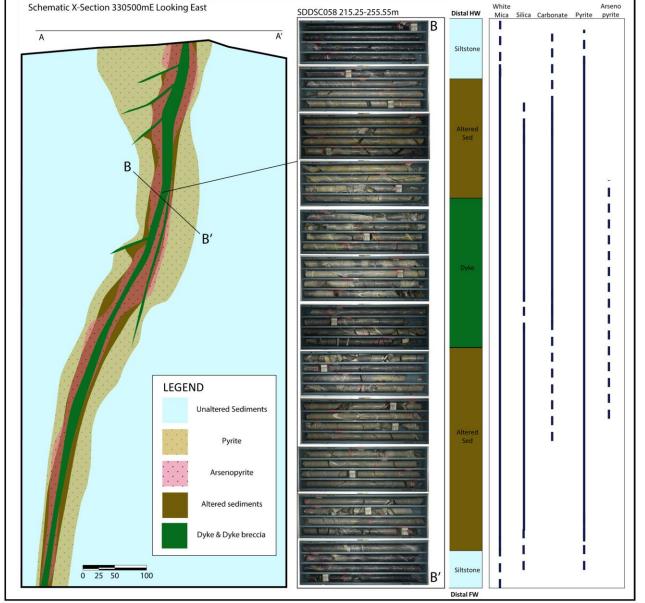
### Schematic Plan View Main Drill Area – The Golden Ladder







# Schematic Cross Section Through Host Looking East

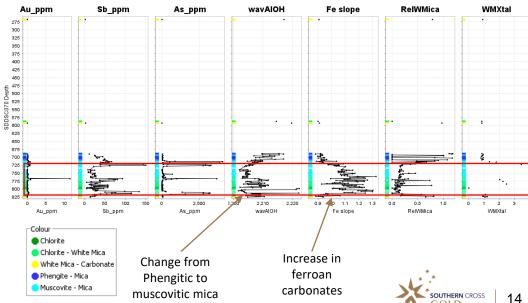


### A 200m thick host to mineralisation. Visually identifiable.

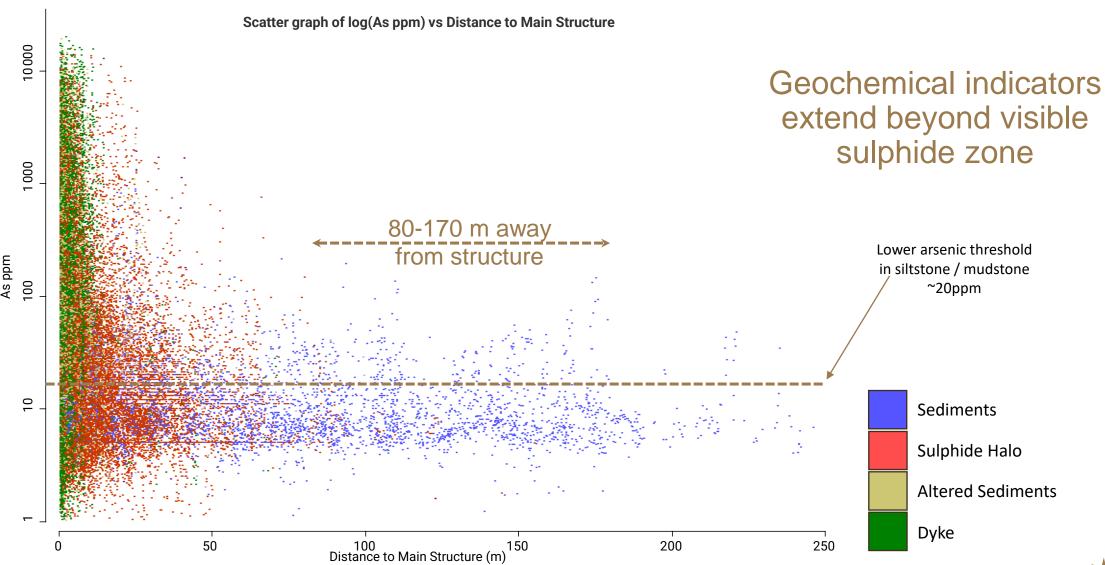


#### Broader invisible halo

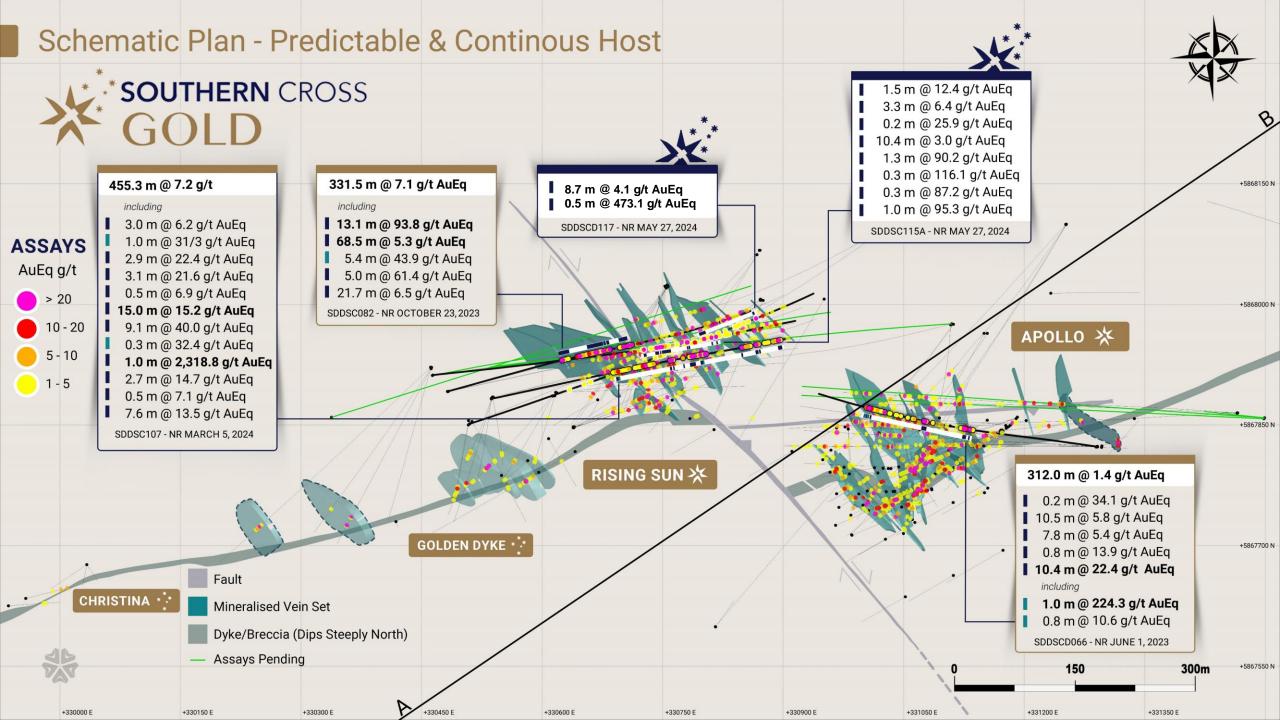
#### SDDSC070



### Arsenic Halo 80-170 m around mineralised host

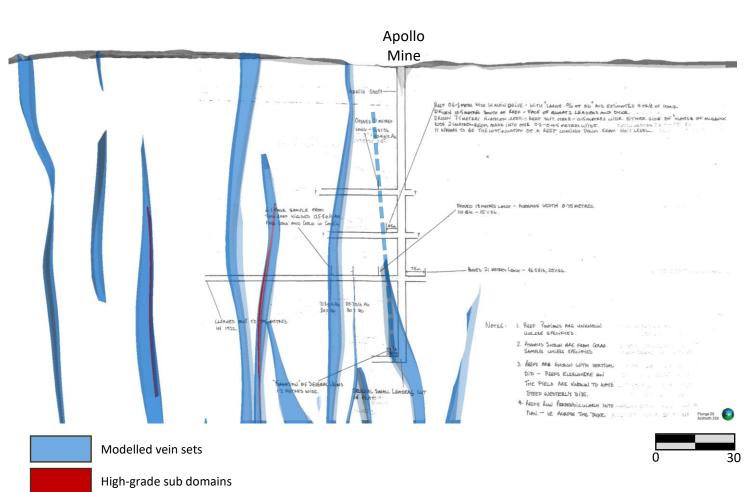


#### Sunday Creek - Longitudinal Section APOLLO 🔆 APOLLO EAST 🎌 RISING SUN ※ GOLDEN DYKE \*\*\* CHRISTINA 💠 **SOUTHERN** CROSS Historic Workings 1.5 m @ 12.4 g/t AuEq 3.3 m @ 6.4 g/t AuEq 312.0 m @ 1.4 g/t AuEq 0.2 m @ 25.9 g/t AuEq 10.4 m @ 3.0 g/t AuEq 0.2 m @ 34.1 g/t AuEq 10.5 m @ 5.8 g/t AuEq 1.3 m @ 90.2 g/t AuEq 7.8 m @ 5.4 g/t AuEq 0.3 m @ 116.1 g/t AuEq 0.8 m @ 13.9 g/t AuEq 0.3 m @ 87.2 g/t AuEq 10.4 m @ 22.4 g/t AuEq 1.0 m @ 95.3 g/t AuEq including SDDSC115A - NR MAY 27, 2024 1.0 m @ 224.3 g/t AuEq 0.8 m @ 10.6 g/t AuEq SDDSCD066 - NR JUNE 1, 2023 455.3 m @ 7.2 g/t 331.5 m @ 7.1 g/t AuEq Mineralised Vein Set **ASSAYS** APOLLO DEEPS 💠 including including Fault AuEq g/t 3.0 m @ 6.2 g/t AuEg 13.1 m @ 93.8 g/t AuEq 1.0 m @ 31/3 g/t AuEq 68.5 m @ 5.3 g/t AuEq **Assays Pending** > 20 2.9 m @ 22.4 g/t AuEg 5.4 m @ 43.9 g/t AuEq 3.1 m @ 21.6 g/t AuEq 5.0 m @ 61.4 g/t AuEq 10 - 20 1 21.7 m @ 6.5 g/t AuEq 0.5 m @ 6.9 g/t AuEg 5 - 10 15.0 m @ 15.2 g/t AuEq SDDSC082 - NR OCTOBER 23, 2023 9.1 m @ 40.0 g/t AuEq 8.7 m @ 4.1 g/t AuEq 1-5 0.3 m @ 32.4 g/t AuEq 0.5 m @ 473.1 g/t AuEq 1.0 m @ 2,318.8 g/t AuEq SDDSCD117 - NR MAY 27, 2024 2.7 m @ 14.7 g/t AuEq 0.5 m @ 7.1 g/t AuEq 7.6 m @ 13.5 g/t AuEq 400m SDDSC107 - NR MARCH 5, 2024



## How to model and predict this style?

- Continuity of vein sets and grades are described in three dimensions across multiple datasets including:
  - ✓ Fifty years of historic mining records and drilled continuity below mined areas
  - ✓ Geological likeness
  - Structural oriented drill core data, quality control data and structural controls on mineralization trends
  - Geostatistics that demonstrate a low coefficient of variation





# Vein Morphology: Geological Likeness Informs Continuity

**Vein array / vein set:** 0.5 – 10m wide, Average grade 1.8-12.5 g/t Au & 0.1-5.2 % Sb **High-grade core:** 0.1 – 1.5m Wide, Average Grade +20 - >1,000 g/t Au & +5 % Sb Schematic View – Looking north-west \*Estimated true widths quoted ► Increasing pyrite intensity Increasing pyrite intensity -

ASX:SXG -



Shear vein – high-grade core



Vein arrays – extension veins



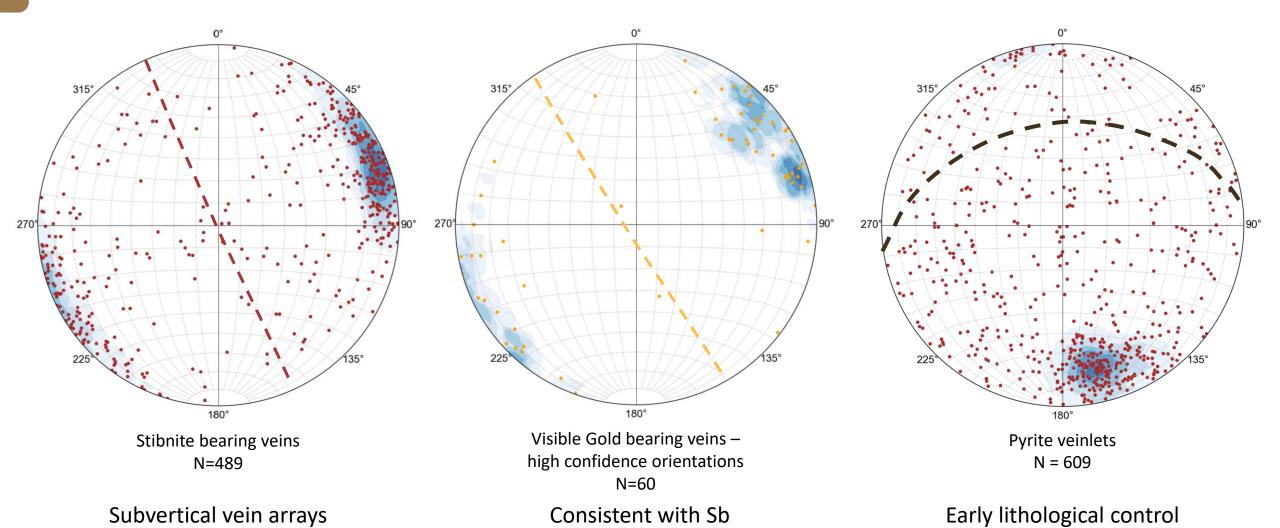
Disseminated pyrite



9.0 m @ 16.5 g/t AuEq (14.6 g/t Au, 1.0% Sb) from 565.8m (SDDSC082)



# Structural Geology: Stereonets Inform Continuity



bearing veins

\*\*
\*
\*SOUTHERN CROSS
GOLD

- follows dyke trend

and shear veins

# coefficient of variation ("CV")

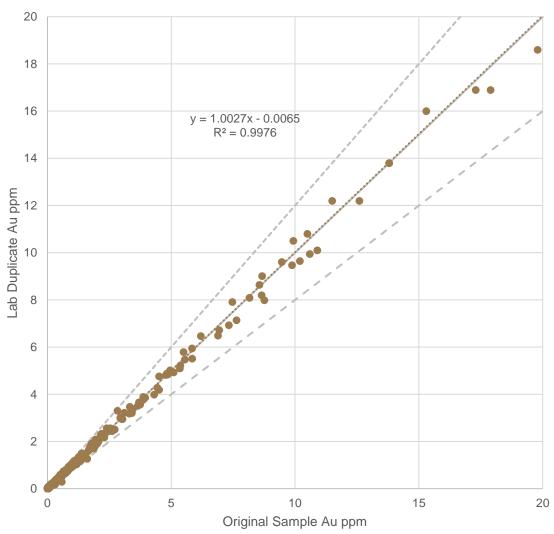
ASX:SXG

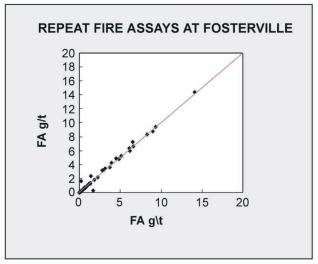
Coefficient of Var	<1	1-2		2-5		>5		
Qualitative	Excellent	Good		High		Extreme		
Name	Count	Mean	Standard deviation	cv	Variance	Minimum	Median	Maximum
A10_VeinSet	84	3.9	5.1	1.3	25.9	0.0	2.0	33.9
A130_VeinSet	11	6.4	5.4	0.8	28.8	0.2	4.5	15.6
A131_VeinSet	4	6.1	7.4	1.2	54.3	1.4	3.0	25.4
A135_VeinSet	17	5.5	9.0	1.6	80.9	0.1	1.3	35.6
A138_VeinSet	20	5.7	13.2	2.3	175.3	0.0	0.6	48.5
A140_VeinSet	26	3.2	3.7	1.1	13.8	0.0	1.5	14.8
A141_VeinSet	22	2.8	2.8	1.0	7.7	0.0	1.8	12.0
A142_VeinSet	19	3.2	3.8	1.2	14.1	0.5	2.0	15.8
A143_VeinSet	11	2.1	1.3	0.6	1.7	0.6	1.8	5.0
A145_VeinSet	38	1.9	2.5	1.3	6.0	0.0	0.7	10.1
A146_VeinSet	10	4.0	3.7	0.9	14.0	0.8	1.7	9.9
A150_VeinSet	21	8.7	17.3	2.0	297.6	0.0	2.4	76.4
A15_VeinSet_L	6	7.1	5.1	0.7	26.0	0.0	7.5	13.8
A20_VeinSet	31	4.6	5.6	1.2	31.6	0.0	1.9	22.3
A30_VeinSet	55	2.5	3.3	1.3	10.7	0.0	1.3	18.6
A40_VeinSet	37	2.7	3.0	1.1	8.7	0.1	1.7	14.5
A50_VeinSet	204	2.8	9.4	3.3	88.6	0.0	0.4	111.3
A60_VeinSet	36	4.0	5.6	1.4	31.1	0.1	2.1	27.3
A65_VeinSet_L	63	2.7	6.2	2.3	38.7	0.0	0.2	33.6
A67_VeinSet_L	32	5.1	9.3	1.8	85.9	0.1	2.5	51.6
A70_VeinSet	131	2.1	3.4	1.6	11.5	0.0	0.9	24.9
A75_VeinSet	12	4.1	5.3	1.3	28.2	0.1	1.8	16.8
A77_VeinSet	12	8.0	11.7	1.4	136.1	0.9	3.6	40.2
A80_VeinSet	45	1.7	3.2	1.8	10.1	0.0	0.8	16.5
A90_VeinSet	19	3.2	2.5	0.8	6.5	0.3	2.2	9.1
HG_A140_1	3	122.8	137.1	1.1	18782.8	0.1	53.9	256.0
HG_A30_1	6	11.3	24.3	2.2	590.2	0.0	3.3	80.0
HG_A60_1	6	22.1	20.0	0.9	401.9	0.1	19.9	52.0
HG_A70_1	7	11.0	9.3	0.8	85.8	0.0	13.6	23.5
HG_A70_2	8	5.5	7.9	1.4	62.3	0.0	4.0	29.0

Modelled vein sets Note: Tenor of Apollo is generally lower than that of Rising Sun, more data in Apollo to generate statistics and sub domain high-grade structures out

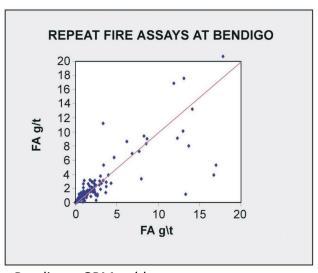
## Lab Duplicates Demonstrate Homogeneity of samples











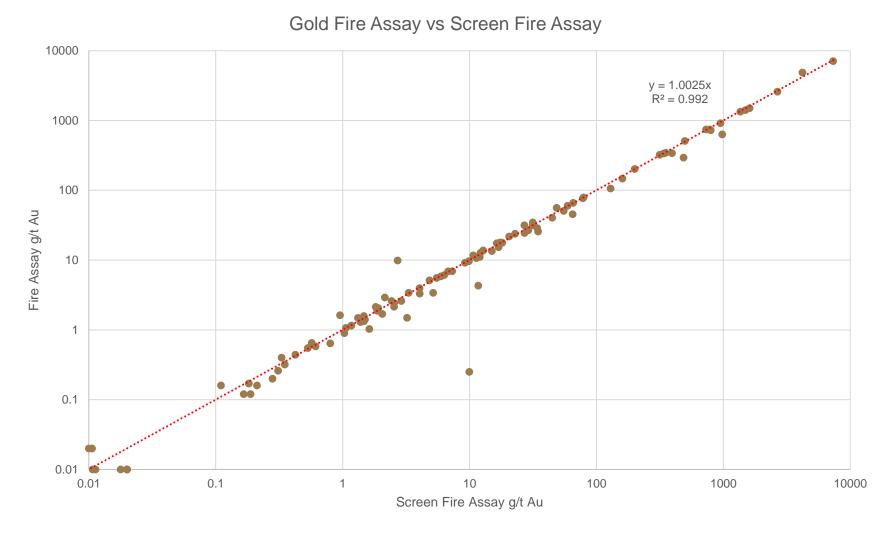
Bendigo – GBM gold

Comparison of repeat fire assay data at Sunday Creek, Bendigo and Fosterville. All samples prepared in an LM5 pulveriser to nominal -75 micron with two samples taken from each pulp

# High grade is not always nuggetty: SFA and FA Duplicates



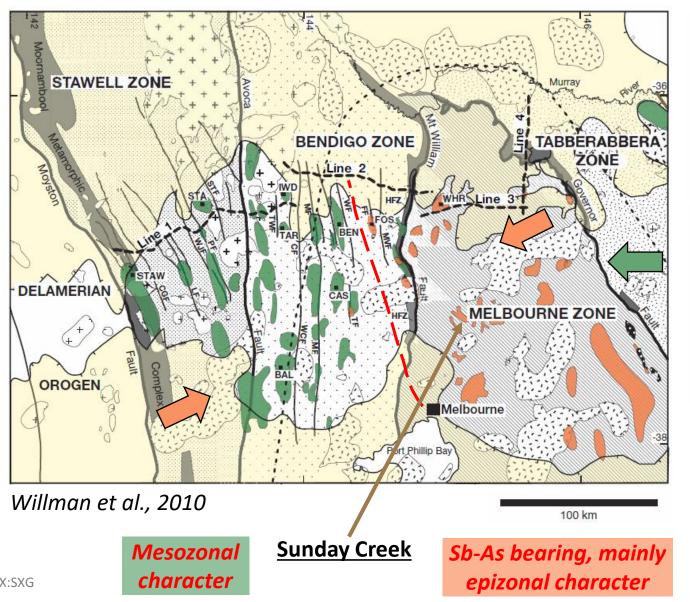
SDDSC117: 0.5 m @ 473.1 g/t AuEq (473.0 g/t Au, 0.0% Sb) from 913.6 m



Repeatable results between Fire Assay and Screen Fire Assay



## Regional geology



Cenozoic cover rocks

Late Devonian granite

Early Devonian granite

Ordovician to Devonian sedimentary rocks (Melbourne Zone)

Ordovician to Silurian sedimentary rocks (Tabberabbera Zone)

Ordovician turbidites (Bendigo Zone)

Cambrian turbidites (Stawell Zone)

Cambrian mafic volcanic rocks

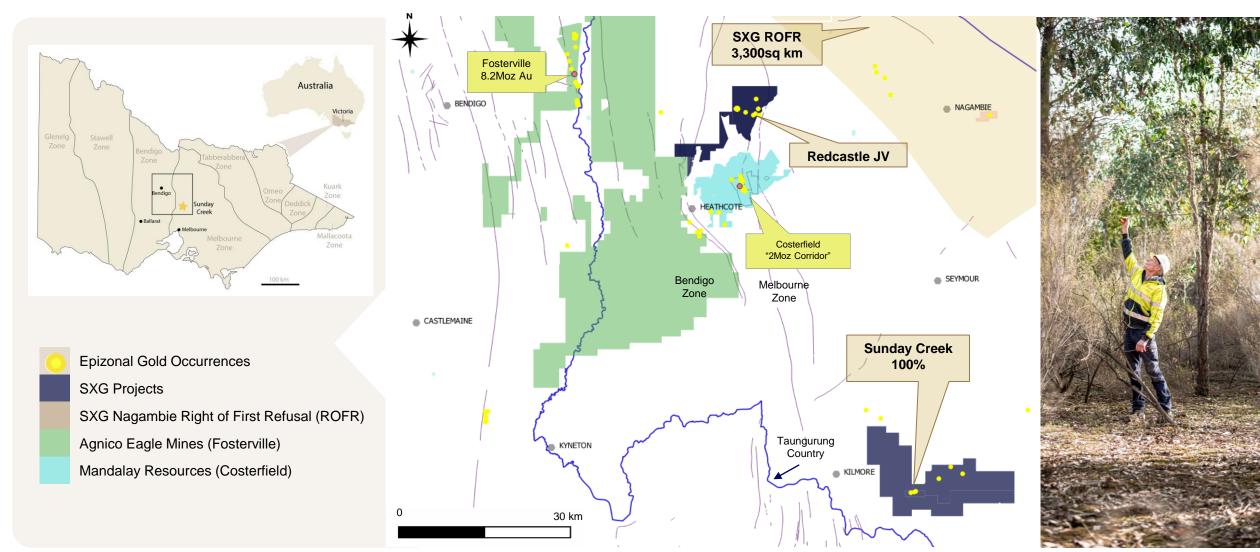
Cambrian calc-alkaline volcanic rocks (upper layer of Selwyn Block)

Goldfields formed in 380 - 370 Ma event

Goldfields formed in 440 Ma and 420 - 400 Ma events



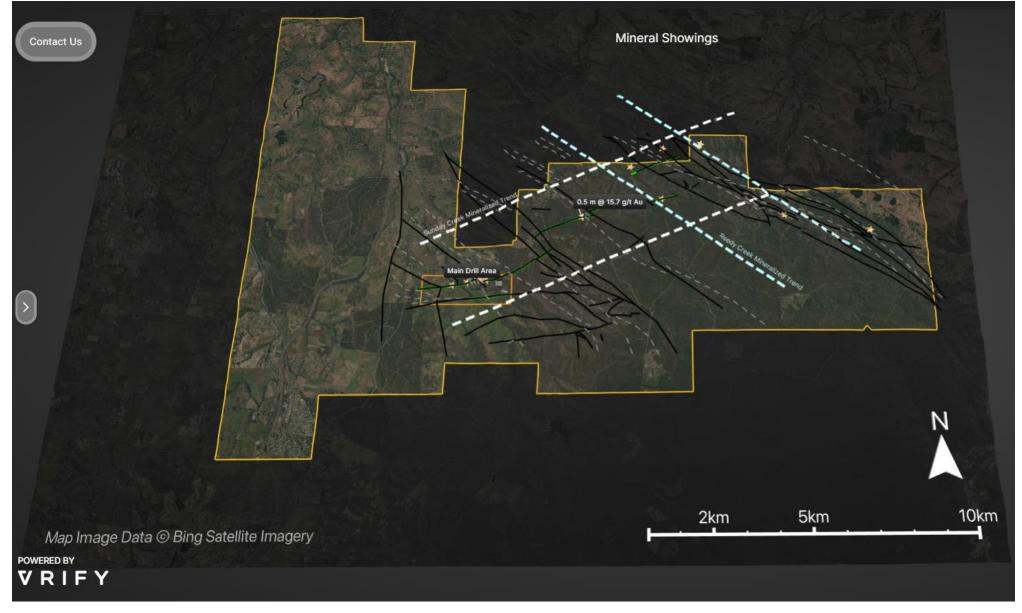
## SXG – Tenure







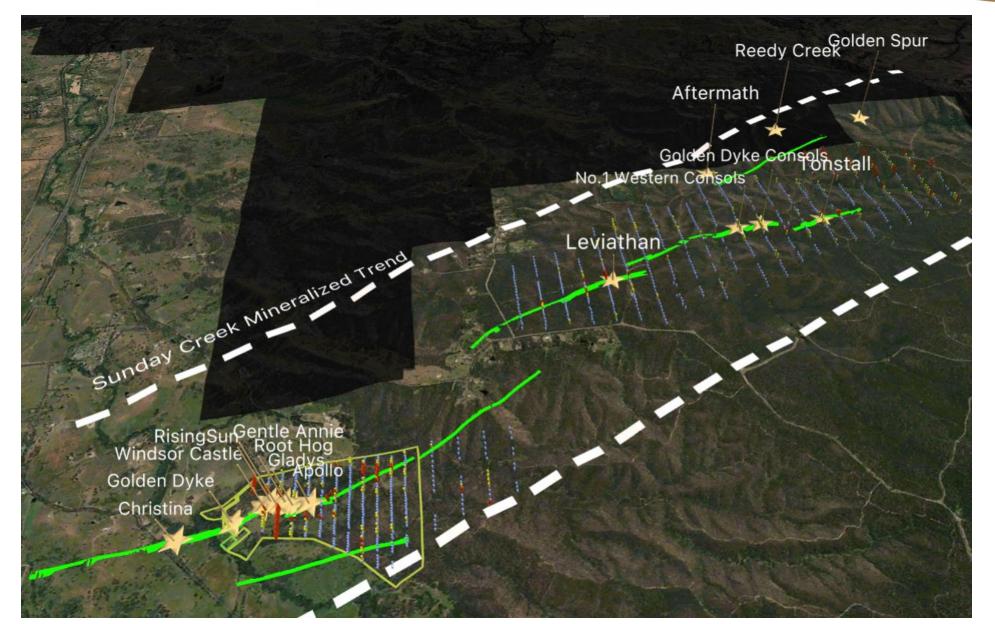
### Tenure and Structural Architecture





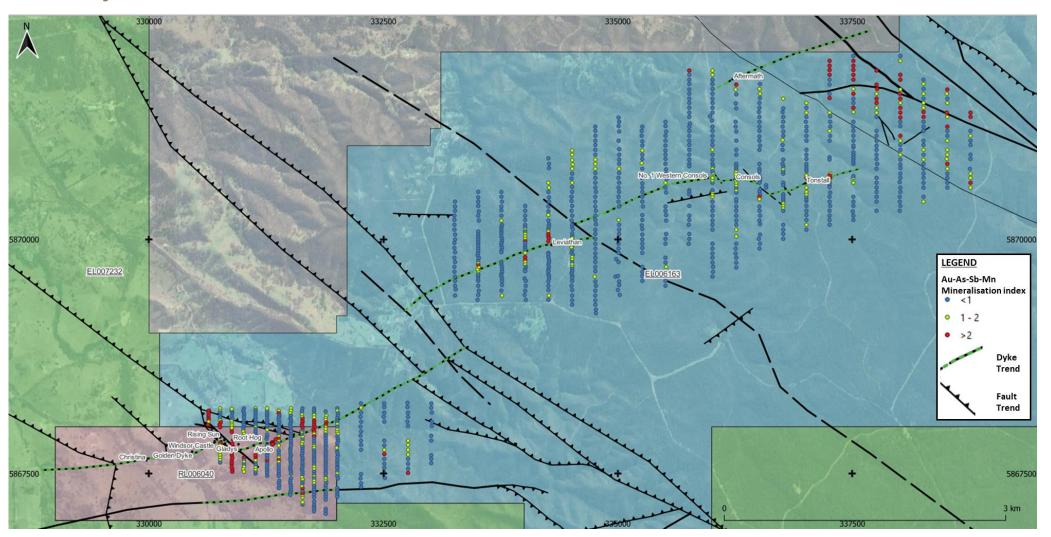


# \*southern Cross 10 km Regional Dyke Trend With Au-As-Sb Soils

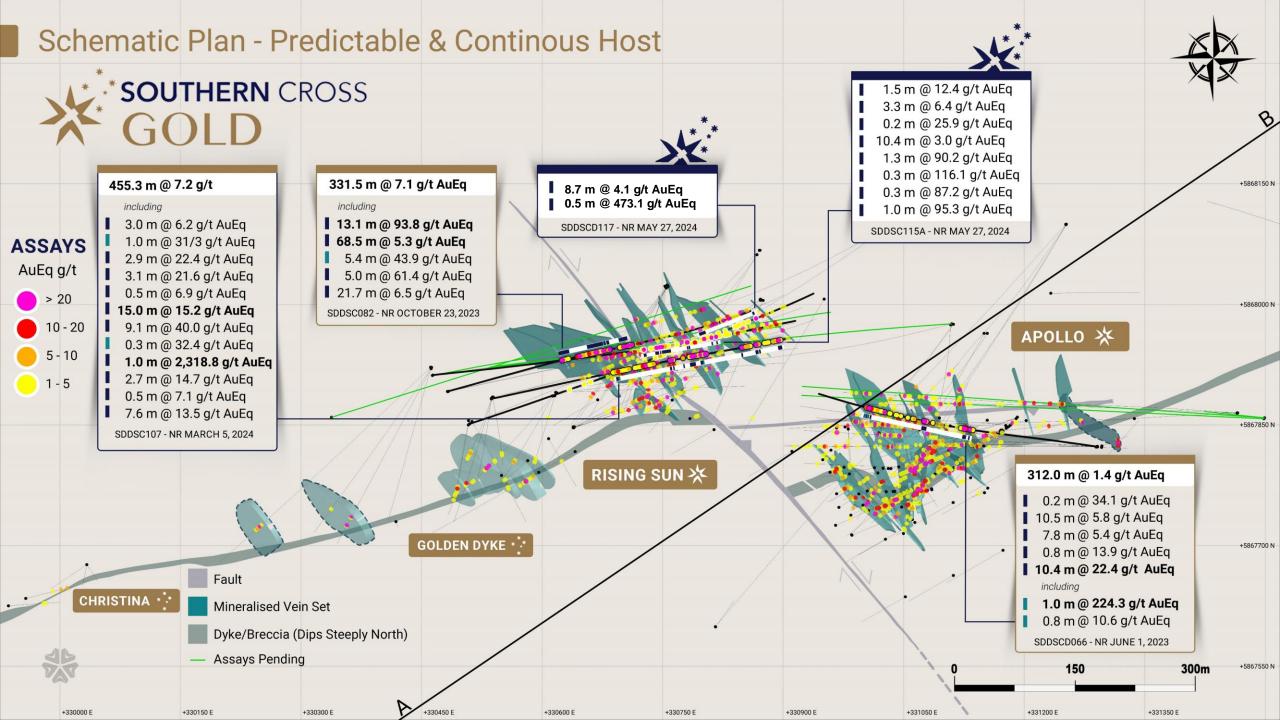


# Soil Geochemistry

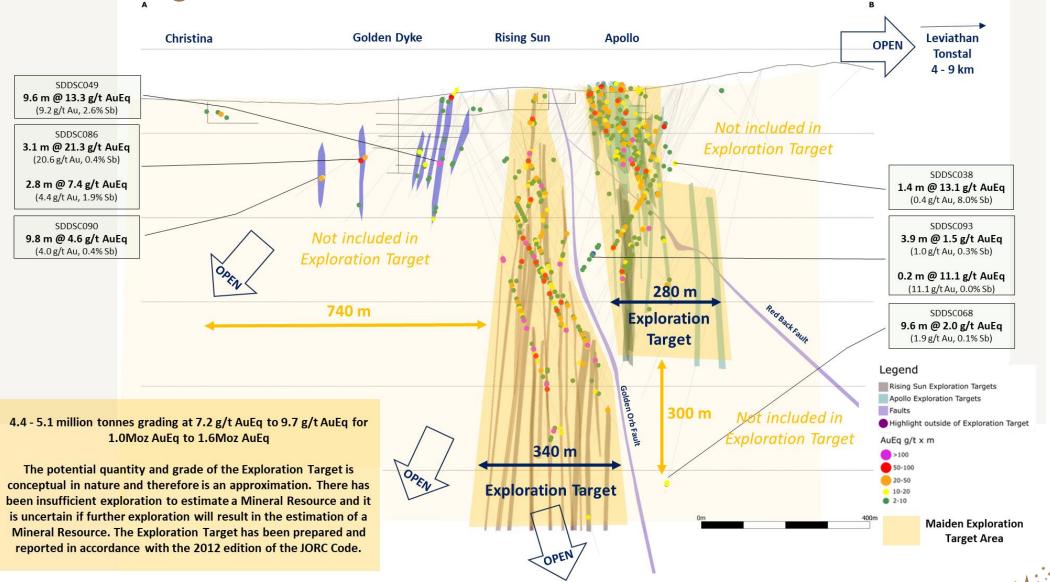
- Clear geochemical anomalies can be identified from a combined trace element additive index using Au, As, Sb and Mn.
- Highlights all known historic occurrences and additional areas on the tenure





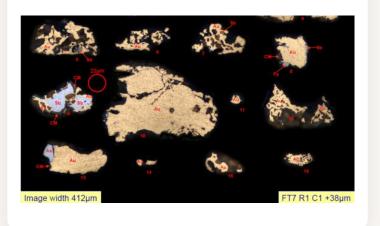


# Exploration Target – Built in One Year



## Metallurgy

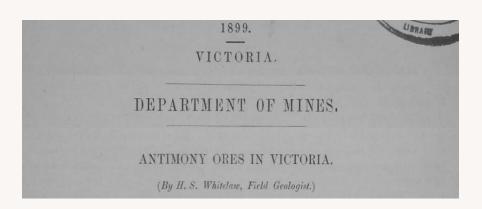
# Preliminary Metallurgical Test Work



### Non-refractory, simple gravity-flotation flow sheet

- Utilised Costerfield flow sheet
- Mineralogical investigations demonstrated a high proportion of non-refractory native gold (82% - 84%).
- Gravity (18-33%) with bulk flotation resulted in 93.3% 97.6% recovery of gold.
- Flotation alone resulted in 88.9% 95.0% recovery of gold in an antimony-gold concentrate:
  - grading 32% 52% Sb (87.1% 93.8% recovery)
  - 81.4 g/t 313.6 g/t Au (40% of feed gold) with low to moderate arsenic contents (0.4% and 2.6%)
  - Opportunities to blend or float sulphide concentrate
  - 96% 98% of the contained gold was native gold
- Next Steps:
  - Optimise for gold into gravity and minimising As into Sb-Au con (blending, sequential flotation)

# Antimony - Yesterday's and Today's Critical Metal





Historically and economically, antimony is the second most important metallic commodity in Victoria after gold.



The Victoria gold mining industry practically closed at the onset of WW1. Except antimony, mandated by the Imperial Government under the Munitions Act, 1915 to ship concentrates to the St. Helens Smelting and Refining Company in the UK

### The Critical Minerals Institute Identifies the 14 Most Elusive Critical Minerals in the World and Launches New Website

- January 18, 2023(https://criticalmineralsinstitute.com/2023/01/18/)
- News Releases (https://criticalmineralsinstitute.com/category/news-releases/)



6. Indium (In)

1. Antimony (sb)

2. Bismuth (Bi)	7. Lithium (Li)	REEs: neodymium, praseodymium, dysprosium, Terbium
3. Cobalt (Co)	8. Magnesium (Mg)	12. Tantalum (Ta)
4. Gallium (Ga)	9. Niobium (Nb)	13. Tungsten (W)

5. Graphite (C) 10. Platinum group of metal 14. Vanadium (V)

11. Rare Earth Elements – of 17

# Aggressive Exploration Program – Staying on the Lassonde Curve

2024 **JAN** FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC Expansion Drilling Sunday Creek - Apollo Rising Sun Golden Dyke Christina **Exploration** Drilling Sunday Creek – Consols Leviathan Aftermath **Drilling Redcastle** Initial Metallurgy **Advanced Metallurgy** 4 Drill Rigs 5 Drill Rigs 6 Drill Rigs **Baseline Environmental Studies** 



Drilling plan has 3 clear objectives that will have the largest emphasis over the next six months

Demonstrate grade, demonstrate volume, demonstrate scale



4 diamond drill rigs operating at site Aim to increase rigs each quarter, 10km per rig p.a., drill cost A\$200/m incl assays



Plan to drill 60 km now to Sept 2025

# Aim to Create the Highest Margin Gold Business Globally



Highest hit rate globally, grade increasing,

- 38 intersections > 100 AuEq g/t x m from 51km drilling
- 455.3 m @ 7.2 g/t Au including 1.0 m @ 2,318 g/t Au
- 331.5 m @ 6.8 g/t Au including 13.1 m @ 91.7 g/t Au





- Tier one Australian jurisdiction, in shadow of headframe of highest-grade global gold mine
- Seasoned discovery team focussed on value creation per share
- Supportive shareholders to underpin value creation lifecycle





### Contact Us



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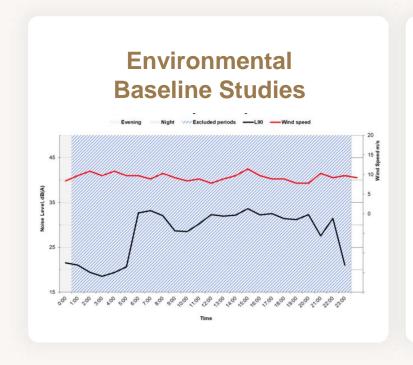




# Positioning for Development

Our primary focus is to target grade, build volume and demonstrate regional scale, however the company is actively derisking the project through pre-development activities to be in an optimal position for design, feasibility studies and permitting

**All ongoing** 





#### Victorian Sustained Mine Permitting and Development 5 Gold Mines Operating Today Costerfield Tarnagulla Costerfield **Fosterville** Bendigo Mining Surface Mining Mining Mining **UG** Mining 2001 - 2006 1990 - today 1994 - 2000 1996 - 2005 2005 - today

**Municipal Permitted** 

**Operating Mine Today** 

Gold

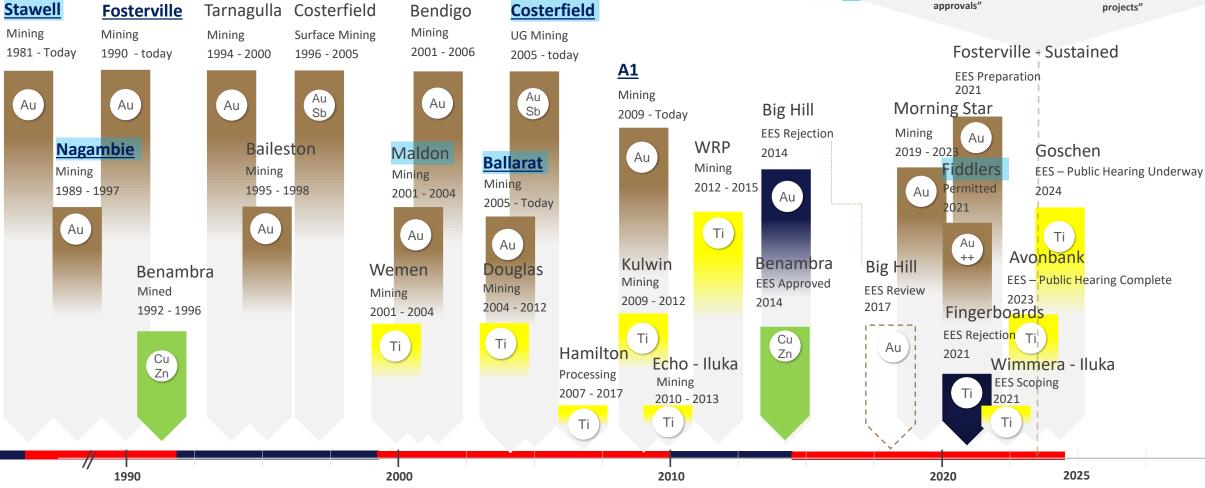
**Mineral Sands** 

**Base Metals** 

Labour

Liberal

ASX:SXG





**GOVERNMENT INITIATIVES** 

**Approvals Coordination** 

"A\$23.3m to drive investment by removing uncertainty around resource

Development

**Facilitation Program** 

"Faster decisions for priority