

# **Cowal operation**

Life of mine to 2040, moving to +320 koz pa



www.evolutionmining.com.au

**Location:** 350km west of Sydney, 40km north-east of West Wyalong **Site management:** Joe Mammen - General Manager **Situated on the traditional lands of the Wiradjuri People** 

Producing: Gold

Management: Owner operator Contact number: +61 2 9696 2900

## Key facts

- FY24 production guidance¹: 320,000oz +/-5%
- **FY24 AISC guidance**<sup>1</sup>: A\$1,250/oz +/-5%
- **FY23** production: 276,314oz
- **FY23 AISC:** A\$1,138/oz
- *TRIF*<sup>2</sup>: 5.7 (12mma June 2023)
- *Mineral Resources:* 273.3Mt at 1.01g/t Au for 8.8Moz³
- Ore Reserves: 129.5Mt at 1.04g/t Au for 4.3Moz³
- Tenement package: 1,358km²
- Permitted mine life: 2040
- *Mining method:* open pit and underground
- Ownership: 100%

- *Plant throughpout:* ~9.0Mtpa (permit to 9.8Mtpa)
- **Process method:** crushing, two stage grinding, sulphide flotation, regrind and CIL recovery
- Recovery: ~83%
- *Grid power:* through 132kV transmission line
- *Mineralisation type:* structurally hosted sheeted veins and shear hosted lodes (epithermal to mesothermal)
- 500+ local jobs (>70%) ~230 future UG jobs
- *Mining commenced:* 2005
- Processing commenced: 2006

#### Moving to 320,000 ounces per annum of safe, reliable, low-cost production

- Organic growth of 5.4Moz in Mineral Resources and 2.8Moz in Ore Reserves under Evolution ownership
- Continued growth is expected from high-grade underground orebodies which remain open
- Large open pit Ore Reserves provide long-term base load production
- Development of a new underground mine is a key step to moving to 320,000 of low-cost ounces with 475kt of underground ore mined in FY23
- Supportive stakeholders, community and government
- 1. Production and cost guidance as at 20 July 2023. AISC is based on Gold price of A\$2,650/oz (royalties) and Copper price of A\$12,500/t (By-product credits)
- 2. TRIF: The frequency of total recordable injuries per million hours worked. Results above are based on a 12 month moving average as at June 2023 3. For further details refer to ASX release "Mineral Resources and Ore Reserves Statement" released to ASX on 16 February 2023
- CGO OPEN PIT CONTINUATION PROJECT

  WE ARE
  HERE

  PUBLIC
  CONSULTATION
   ONGOING
  THROUGHOUT
  PROJECT

  SCOPING
  STUDIES AND
  SCOPING REPORT
  PREPARED

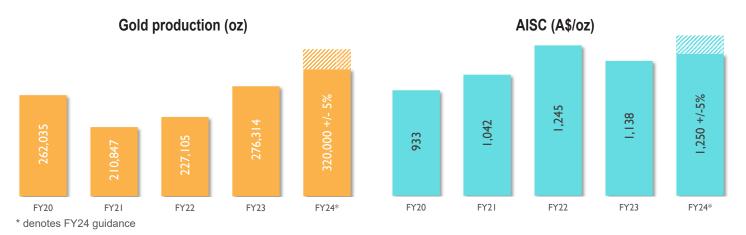
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  WE ARE
  HERE

  RESPONSE TO
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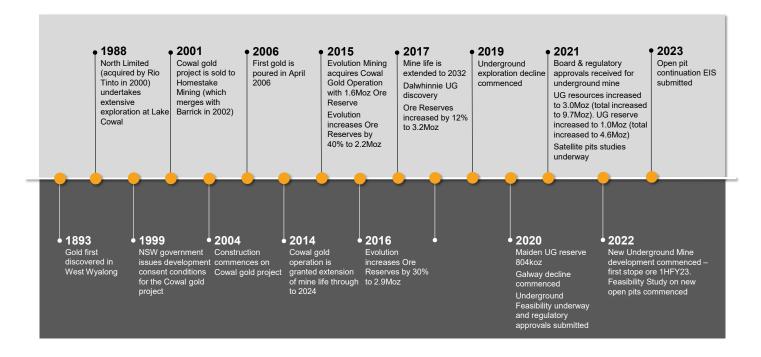
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  ASSESSMENT
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## **Snapshot**



Historic performance data can be accessed at our <u>Interactive Analyst Centre</u>™

## **History - Cowal Evolution**



## **Organic Growth**



## **Discovery**

We are committed to organic growth by the discovery of new gold deposits at our existing operations and across our portfolio of greenfield exploration projects.

We have achieved organic growth at Cowal of 5.4 million ounces in Mineral Resources and 2.8 million ounces in Ore Reserves since acquisition by Evolution in 2015 (net of mining depletion). Further growth opportunities include GRE46 underground extensions, E42 below Stage H, E41 and E46 open pit extensions.

Early stage exploration continues across the Cowal tenement holding. The area is prospective for the discovery of further epithermal gold deposits (similar to E42) as well as porphyry Copper Gold deposits (similar to Marsden, Cadia (Newcrest) & North Parkes (CMOC)).

The underground potential at Cowal is presented in a 3D animated video available here.

## Geology

Mining at Cowal currently centres on the E42 deposit, with underground development of the GRE46 deposit underway, and studies ongoing for the E41 and E46 Open Pits. The gold deposits occur within the 40km by 15km wide Lake Cowal Volcanic Complex. The Lake Cowal Volcanic Complex is part of a dismembered ancient volcanic island arc, the Macquarie Arc, that formed around 480Ma, similar to modern day arcs in Indonesia and PNG. The deposits occur within a 5km (n-s) by 2km (e-w) trend known as the Gold Corridor.

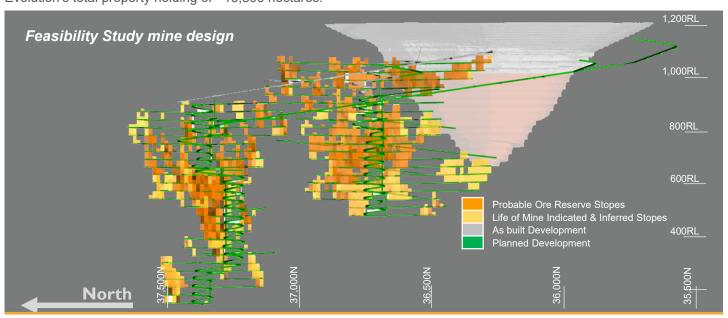
Deposits within the gold corridor are carbonate-base metal epithermal deposits (after Corbett & Leach). The rocks hosting the mineralisation comprise a sequence of sediments (mudstones, sandstones, conglomerates) and lava units that have been intruded by a suite of different intrusive rocks. In the E42 deposit, the main hosts to mineralisation are a trachyandesite lava units, and differentiated parts of the Muddy Lake Diorite. At GRE46, Trachyandesite Lava, the Dalwhinnie Lava and surrounding sedimentary units are the main hosts to mineralisation. At E41, mineralisation is hosted within a Quartz Monzonite, and around the contact between the Muddy Lake Diorite and its enveloping mudstones.

Mineralisation typically occurs in narrow (<2cm wide) quartz-sulphide veins with typical sulphides including pyrite, sphalerite, galena and chalcopyrite. Some telluride minerals are also present. Gold is typically hosted as inclusions within the pyrite although some free gold does occur.

Cowal operation currently has two mining leases, ML1535 and ML 1791, covering approximately 29km<sup>2</sup>. Surrounding the mining leases, Evolution hold exploration tenure over a further 1,555km<sup>2</sup>, which includes the Marsden deposit located approximately 15km south-east of Cowal operation on EL5524.

The main gold deposits at Cowal are the E41, E42, E46, Galway and Regal. These gold deposits occur within the 40km long by 15km wide Ordovician Lake Cowal Volcanic Complex, east of the Gilmore Fault Zone within the eastern portion of the Lachlan Fold Belt. The overall structure of the gold deposits is complex but in general consists of a faulted antiform that plunges shallowly to the north- northeast. The deposits are aligned along a north-south orientated corridor with bounding faults, the Booberoi Fault on the western side and the Reflector Fault on the eastern side (the Gold Corridor).

The Cowal operation on Mining Lease (ML 1535 & ML1791) encompasses an area of 2,886 hectares and lies within Evolution's total property holding of ~13,800 hectares.



## **Sustainability**

The work we do on sustainability reflects our values driven approach to creating measurable value for our stakeholders through safe, reliable, low-cost gold production in an environmentally and socially responsible way. See our <a href="Annual and Sustainability report">Annual and Sustainability report</a> which describes our approach and performance in the areas of health and safety, environmental stewardship, helping our communities thrive, cultural heritage, innovation and the development of our people.

#### **Health and Safety**

Safety is a core value at Evolution Mining and the wellbeing of everyone on site is crucial to our success as a company. At Cowal, we work to ensure everyone leaves the workplace, the same way they arrive. To accomplish this, we have an ever-improving health and safety culture, with an injury-free workplace target. At June 2023, Cowal's total recordable injury frequency (TRIF 12mma) was 5.7. Taking a risk-based approach our focus is on visible safety leadership via safety interactions, hazard identification, actively controlling critical and material risks and increased learnings from incidents through storytelling.

#### **Environment**

We believe in striving beyond legislative compliance to achieve best practice and to build trust and meet the expectations of the communities in which we operate. We are focused on enhancing environmental stewardship in line with our Net Zero Commitment and Sustainability Principles through the implementation of our sustainability performance standards and life of mine environmental management plans across all of the operation.

We are focused on enhancing environmental stewardship through the implementation of our environmental standards and life of mine environmental management plans across all project sites. For further information please visit <a href="https://www.evolutionmining.com.au">www.evolutionmining.com.au</a>.

Cowal operations is ISO14001 certified ensuring that we maintain an effective environmental management system (EMS). Additional to ISO 14001 certification, Cowal is a signatory to the International cyanide management code for the use of cyanide in the production of gold. This is a voluntary industry program for gold and silver mining companies that focuses on the safe management of cyanide.

### Community

Our Cowal operation sits within the Bland, Lachlan and Forbes Shires on the traditional lands of the Wiradjuri people. We recognise our obligation to create shared value for all our stakeholders, ensuring we leave the community in a better place than when we arrived.

We invest in and partner with our communities to achieve meaningful outcomes and we prioritise local procurement and employment and training opportunities, as well as health and wellbeing initiatives. We work in partnership with schools to raise awareness of the benefits of mining and future career pathways into the industry.

Our strong community support includes:

- A local employment focus
  - ~70% of employees reside across the region
  - ~8% of employees identify as Indigenous
- A local business focus
- We are proud to work alongside
  - Wiradjuri Condobolin Corporation (WCC)
  - Lake Cowal Conservation Foundation (LCF)
  - Bland, Forbes and Lachlan Shire Council

For more than eight years, Evolution Mining has supported projects and initiatives across the Bland, Lachlan and Forbes shires through sponsorship, donations and other contributions, in an effort to foster strong, sustainable communities that will thrive well beyond life of mine. Project and initiatives include the Galari Agricultural Company, Tivoli Theatre and Grazing down the Lachlan.

## **Mining**

The Cowal operation is currently an open pit and underground stope mining operation utilising conventional drill and blast, load and haul methodologies, mining nominally 9m blast benches as 3 x 3m flitches for the open pit and sublevel long hole open stoping underground with past backfill. Open pit mining commenced in 2005 and processing started in 2006 and Underground production commenced in 2023. Mining is carried out with a fleet of company-owned, hired and contract mining equipment. Ore is hauled by truck to either an ore stockpile area or directly fed into the primary crusher.

## Cowal open pit mine

Mining method: Conventional open pit (drill, blast, load and haul)

Ore mined: 12.4 Mt (FY23)
Waste (operating): 6.0 Mt (FY23)

Workforce: Load and Haul: owner-operator; Drilling: SRG Global; Blasting: Maxam Australia P/L

**Loading:** 10 x Cat 789C dump trucks, 5 x Cat 789C dump trucks (hired), 2 x Liebherr 9400 excavators,

1 x Liebherr 9200 excavator, 1 x Hitachi EX1200 excavator, 1 x Cat 994G loader (hired),

2 x Cat 992G loaders

**Dozers:** 5 x CAT D10T tracked dozers

Road maintenace: 1 x Cat 16H grader, 1 x Cat 18M grader, 1 x Liebherr 45T excavator, 2 x Cat 777D water carts,

1 x CASE tractor with grid roller

**Drilling:** 5 x Atlas Copco D6

**Explosives:** AN Suspension/Electronic & Nonel initiation systems

### **Cowal underground mine**

Mining method: Open stoping with pastefill

Access: 6m x 6m decline from portal in pit

Workforce: Contract operation, major contractor is Barminco

Loading: 4 x Sandvik LH621i
Trucking: 6 x Sandvik TH663i

**Drilling:** 3 x Sandvik DD421-60C (development), 1 x Sandvik DL421-15C (production)

Ground support: 1 x Sandvik DS421-C, friction bolts and mesh. Additional (as required): cable bolts, fibrecrete

**Ancillary equipment:** 6 x Volvo integrated toolcarriers, 3 x Normet charge up, Normet spray rig **Explosives:** Emulsion, electronic initiation. Development: emulsion, non-electric initiation

Communications: VHF leaky feeder network. Optic fibre to WIFI

## **Processing**

The Cowal processing plant was commissioned in May 2006 and consists of crushing, two stage grinding, sulphide flotation, regrind and CIL recovery. The plant currently processes around 9.0Mtpa.

At 30 June 2023 over 4.3 million ounces of gold had been produced at Cowal.

- Power supplied by AGL
- Crushing Primary crushing: Metso 54-75 Superior MK-II gyratory crusher
- Grinding FFE 36' x 20.5' SAG mill, FFE 22' x 36.5'
   ball mill. Forged steel 125mm balls (SAG), 80mm balls (ball mill)
- Screening Schenck vibrating screens (SAG discharge), Delkor linear (COF)
- Recycle crusher 2 x Sandvik H6800 hydrocone cone crushers

#### Mineral liberation/recovery -

**Method:** flotation, regrind, CIL of floatation concentrate and tail

**Equipment:** 2 x SK1200 and 10 x OK200TC (flotation), Metso Vertimill (VTM1000WB), 2 x Metso 355kW SMDs, Con Pre-ox - 4,000m³, 2 x 4,000m³ Con Leach, 6 x 1,000m³ Con CIL, 7 x 2,400m³ Tail CIL

Cyanide supply - Orica

**Lime supply** – Graymont (Australia)

- Refining 10t AARL elution circuit, Heat Systems regeneration kiln
- Gravity Circuit Falcon concentrator/Acacia reactor

## **Process flowsheet**

