AngloGoldAshanti

OPERATIONAL PROFILE 2017

SUNRISE DAM

AUSTRALIA

Sunrise Dam, wholly-owned by AngloGold Ashanti, is situated 220km north-east of Kalgoorlie and 55km south of Laverton. Gold production commenced at Sunrise Dam in 1997. Underground mining, carried out by a contract mining company, is now the primary source of ore for the operation, following the completion of mining the Crown Pillar at the base of the 490m deep pit in 2014. The processing plant, comprising conventional gravity and carbon-in-leach (CIL) circuits, is owner-managed.

CLICK TO VIEW
LOCATION MAP

HIGHLIGHTS

MINE COMPLETED
20 years

PRODUCTION UP
on the year

ORE MILLED STEADY

ALL-IN SUSTAINING COSTS
higher, but total cash costs decline

As at 31 December 2017:

- **MINERAL RESOURCE**
  of 5.98Moz (inclusive)
  (0.82Moz below infrastructure)
- **ORE RESERVE** of 1.19Moz

Operational performance

Production

Sunrise Dam celebrated its 20th anniversary in March 2017. A strategy, to lift the mined grade while maintaining the underground ore production rate at 3Mtpa, was successfully implemented during the year, resulting in a 5% lift in yield to 1.83g/t. The mine's production increased by 4%, compared with 2016. Underground ore is the primary source of mill feed and is blended with intermediate grade (1.26 g/t) stockpiled ore that was accumulated during open-pit mining to meet the processing plant capacity of approximately 3.6Mtpa. The higher-grade Cosmo and Vogue ore bodies were the focus of development in 2017, with Vogue targeted to be the key ore source in 2018.

Costs

Higher all-in sustaining costs at Sunrise Dam were a result of increased sustaining capital expenditure, which included $20m for the Recovery Enhancement Project (REP).

Growth and improvement

In 2018, Sunrise Dam will continue to focus on embedding a more selective mining approach to target higher grade sections in the underground stopes, while maintaining the underground production rate at approximately 250,000t a month. This approach is designed to lift the grade of ore delivered to the mill and reduce cash operating costs. In line with this plan, work is focused on improving the productivity of the underground operation to lift sustainable ore production rates above 3Mtpa. Several capital projects, including ventilation upgrades and installation of an underground workshop, are aimed at improving the effective use of mining equipment and the reliability of the mine.

The Vogue orebody will be the key ore source in 2018 and remains open along strike and at depth. Two diamond drill rigs will continue to focus on drilling the Indicated and Inferred Mineral Resource at Vogue. Drilling of the

deeper areas along the strike of the orebody will be facilitated by the Western Exploration Incline in 2018.

Delineation drilling targeting down dip extensions to Cosmo East and Cosmo has confirmed a down dip extension ore bodies.

The performance of the 4Mtpa processing plant also set the standard globally within AngloGold Ashanti, ranking at number one for overall equipment efficiency, with the potential for further, incremental improvements expected in 2018.

The REP at Sunrise Dam is scheduled for commissioning in the second half of 2018 and is expected to lift the recovery rate by an average of 8%, through the installation of flotation and ultra-fine grinding circuits.

Work will continue in 2018 on the underground mine management system (UMMS), which will enable real-time analysis of the mobile fleet and services such as ventilation, power and dewatering. Over the longer term, overall equipment efficiency will be analysed to identify specific Operational Excellence projects that improve the effective time, mining rate and quality performance metrics of the mining equipment. The UMMS will be a critical tool to enable an improved production rate at the underground mine.

Encouraging results were reported during the year from drilling on the Butcher Well/Lake Carey exploration joint venture tenements where there is potential for the discovery of an additional Ore Reserve for processing at Sunrise Dam, possibly replacing low-grade stockpiles currently being processed.

AngloGold Ashanti Australia has the right to earn up to 70% interest from Saracen Mineral Holdings Ltd in the tenements, which are located approximately 22km from Sunrise Dam, by spending up to A$25m on exploration. These tenements are part of the Butcher Well/Lake Carey exploration joint venture.

Around 20,000m of diamond drilling was undertaken during 2017 within the Butcher Well/Lake Carey exploration joint venture, along with aircore drilling to the north and metallurgical testing. A 30-person camp was established, together with a core processing facility.

Capital expenditure

An EPC (engineering, procurement and construction) contract was awarded to GR Engineering Services to undertake the design and construction of a brownfields upgrade to processing facilities as part of the REP. The project also requires additional power generation capacity. To this end, it is planned that two 4MW gas generator sets will be added to the existing power station to increase capacity to 43MW. Work commenced in 2017 on an expansion to the tailings storage facility at Sunrise Dam, which will add approximately eight years to the life of the facility. This work is expected to be completed by the fourth quarter of 2018.

Sustainability performance

For further information on Sunrise Dam's sustainable development activities, which include safety and health, employee and labour relations, communities, regulatory changes and the environment, refer to:

- *Regional reviews – Australasia* in the <IR>, available at www.aga-reports.com
- <SDR>, also available at www.aga-reports.com

SUNRISE DAM– KEY STATISTICS

	Units	2017	2016	2015
Operational performance				
Cut-off grade [1]	oz/t	**0.079**	0.036	0.032
	g/t	**2.71**	1.23	1.11
Recovered grade	oz/t	**0.059**	0.058	0.057
	g/t	**2.02**	1.98	1.97
Tonnes treated/milled	Mt	**4.0**	4.0	3.9
Gold production	000oz	**238**	228	216
Total cash costs	$/oz	**919**	926	970
All-in sustaining costs	$/oz	**1,203**	1,080	1,110
Capital expenditure	$m	**62**	32	29
Productivity	oz/TEC	**40.58**	44.96	45.09
Safety				
No. of fatalities		**0**	0	0
All injury frequency rate (AIFR)	per million hours worked	**12.10**	8.24	11.59
People				
Total average no. of employees		**489**	422	400
– Permanent		**96**	86	90
– Contractors		**393**	336	310
Environment				
Water usage	ML	**1,115**	1,779	1,771
Water use efficiency	kL/t	**0.28**	0.44	0.46
Energy usage	PJ	**2.18**	2.03	1.97
Energy intensity per tonne treated	GJ/t	**0.54**	0.50	0.51
Greenhouse gas (GHG) emissions (CO_2e)	000t	**122**	113	116
GHG emissions intensity	t CO_2e/t	**30**	28	30
Cyanide usage	t	**1,202**	1,244	1,360
No. of reportable environmental incidents		**0**	0	0
Total rehabilitation liabilities	$m	**42**	30	30

[1] *Based on the Ore Reserve.*