



# OPERATIONAL PROFILE 2018

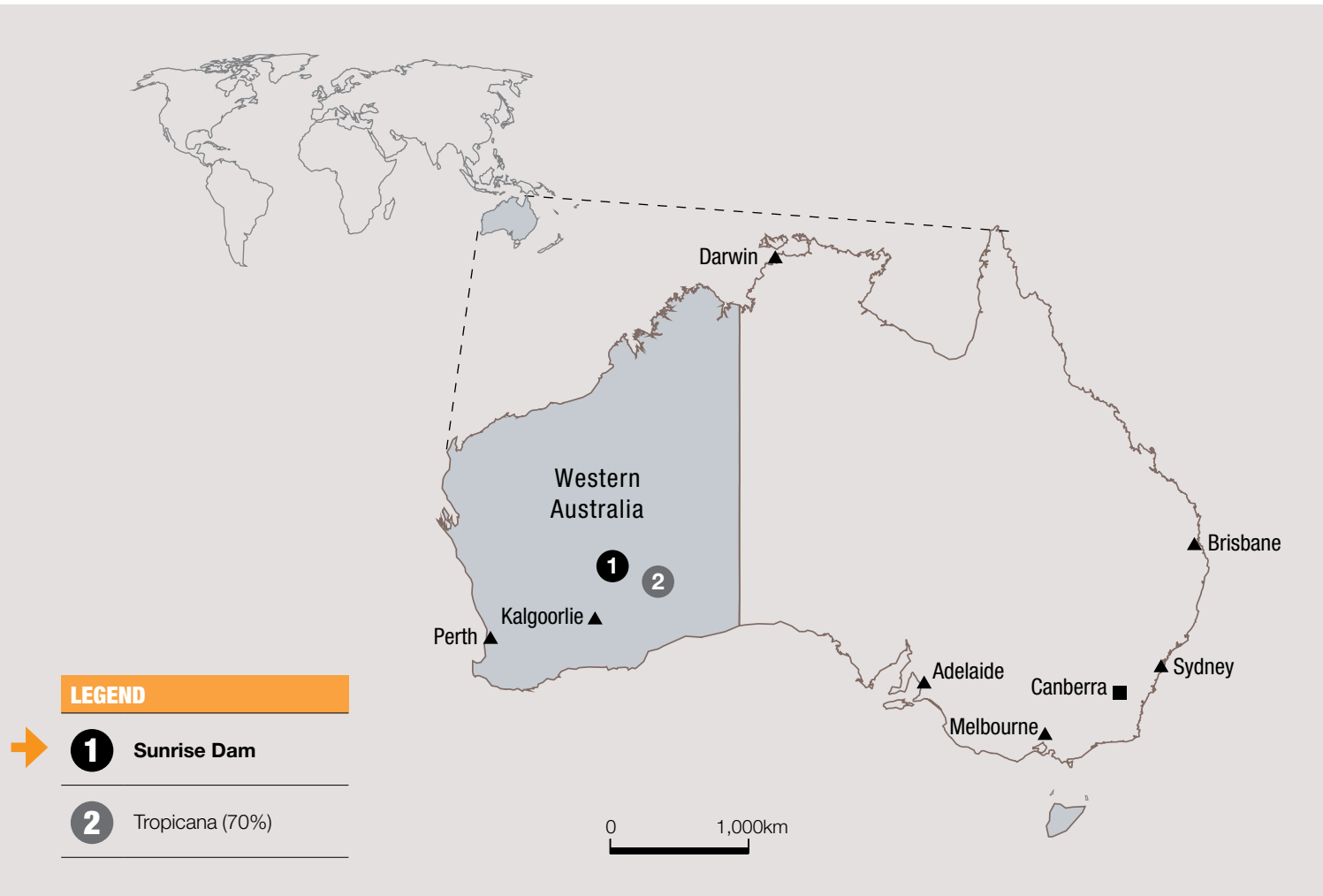
**SUNRISE DAM**

AUSTRALIA



ANGLO**Gold**ASHANTI

# SUNRISE DAM



Sunrise Dam, wholly-owned by AngloGold Ashanti, is located 220km north-east of Kalgoorlie and 55km south of Laverton. Gold production started 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 cessation of mining in the open pit in 2014. The owner-managed processing plant comprises conventional gravity and carbon-in-leach (CIL) circuits, with a flotation and fine grind circuit commissioned in mid-2018 to improve metallurgical recovery.

Sunrise Dam is one of two AngloGold Ashanti operations in Australia.

# PERFORMANCE 2018

## HIGHLIGHTS

**21% increase in production driven by higher mined grades**

**Total cash costs remain steady**

**Focus to remain on high-grade ore bodies**

**First mine to achieve ISO 45001:2018 certification**

**Mineral Resource\* of 5.84Moz (inclusive) (1.25Moz below infrastructure)**

**Ore Reserve\* of 1.20Moz (0.16Moz below infrastructure)**

\* At 31 December 2018

## Operating performance

### Production

Higher mined grades in the first and fourth quarters contributed to a 21% increase in year-on-year production, offsetting delays in metallurgical recovery improvements that were anticipated from the Recovery Enhancement Project (REP).

At Sunrise Dam the focus in 2018 remained on lifting the mined grade while maintaining an underground ore production rate of approximately 3Mtpa. Underground ore is the primary source of mill feed which is blended with low grade stockpiled ore to fill the 3.8Mtpa capacity processing plant. A structured optimisation programme in the processing plant was delivering positive results by year end and, along with a higher proportion of Vogue ore in the feed blend, is expected to increase recovery rates to REP feasibility study levels in 2019.

### Costs and capital expenditure

All-in sustaining costs were 2% higher year-on-year, while total cash costs were virtually unchanged on the year.

Several once-off capital projects were completed in 2018. Capital expenditure at Sunrise Dam included construction of the REP, a multi-year extension of the tailings storage facility and installation and commissioning of two 2MW primary ventilation fans – all of which were completed by year end.

## Growth and improvement

In 2019, Sunrise Dam will remain focused on targeting the higher-grade sections of the underground stopes, while maintaining the underground production rate at approximately 240,000 – 250,000 tonnes a month. The Vogue ore body will become the primary ore source in 2019, expected to account for approximately two thirds of underground ore production. The site is evaluating paste fill options to support production from wider sections of the large Vogue ore body.

The completion of capital projects, including the ventilation upgrades, during 2018 will contribute to improving the effective use of mining equipment and the reliability of the mine. The underground mine management system (UMMS) is expected to be commissioned during 2019, enabling real-time analysis of the mobile fleet to identify specific Operational Excellence projects that improve efficiency by optimising the effective time and performance quality metrics of the mining equipment. The UMMS will also enable remote surface control of services such as ventilation, power and dewatering.

During 2018, AngloGold Ashanti earned a 51% interest in 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 displacing low-grade

stockpiles currently being blended with underground ore.

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

We engage with the government in Australia, with which we have a collaborative working relationship. We are currently planning a deep diamond drilling programme where, one kilometre to the south of Sunrise Dam, targets will be tested with in a programme partially funded by the Western Australian government's Exploration Incentive Scheme.

## Sustainability performance

### Safety and health

Workplace health and safety (WHS) legislation in Western Australia is undergoing significant reform. The WHS Bill in draft at the end of 2018 will be based on the content and structure of the national model WHS Act and is due to be debated in Parliament in 2019. There will be a set of general regulations and mining specific regulations. The act and regulations are currently scheduled for adoption as a total package in early 2020.

## PERFORMANCE 2018 continued

In 2017, Sunrise Dam volunteered and was selected as the research site for the Western Australian regulator and mining industry-funded study on nano-diesel particulates to better understand the potential health impact, as well as the potential impact of deeper underground mining. During 2018, research teams from Curtin University, the University of Western Australia and the ChemCentre undertook analysis and final report preparation. The report is expected to be released in 2019.

Sunrise Dam was the first mine in Australia, and the first AngloGold Ashanti mine, to achieve ISO 45001:2018 certification, the leading certification standard for occupational health and safety (previously known as OHSAS 18001). The new ISO 45001 standard uses a high-level structure consistent with other ISO management system standards such as ISO 9001 and ISO 14001, both of which have undergone updates in the past couple of years.

### Employees and labour relations

The Australasia region's tailored Fairness@AGAA programme, which uses the Company's values as a guide to leadership behaviour, continued to be rolled out for new employees and employees of major contractors. This programme incorporates hands-on exercises and real-life case

studies to help participants understand unlawful discrimination, harassment and workplace bullying. These concepts are explained in terms of current legislation as well as the Australasia region's fairness in employment policy and grievance process. The programme is aligned with best practice in relation to Australian equal employment opportunity legislation.

Complementing this training is the two-day Supervision@AGAA programme for new managers. These programmes form part of a comprehensive framework focused on leadership and accountability.

We continue to support the Women in Mining of Western Australia mentoring programme, with employees participating both as mentors and mentees. Woman account for 19% of the workforce in the region.

### Community development

We are actively involved in communities across the Western Australian goldfields, from Laverton to Kalgoorlie-Boulder and beyond, including remote Aboriginal communities such as Tjuntjuntjara. The Company supports education, youth, community development and health programmes and local training, along with offering employment and business participation opportunities.

Youth education and employment initiatives are delivered through long-term partnerships with indigenous academies such as the Goldfields Clontarf Academy and the Kalgoorlie Girls Academy, as well as Eastern Goldfields College and Kalgoorlie-Boulder Community High School. Along with annual funding support for these organisations, we offer mine site tours, exposure to a wide variety of careers in the mining industry and a transition-to-work programme.

During the year, the company also partnered with local schools to provide pre-university educational support programmes, and reading, writing and numeracy support programmes.

### Environment

#### Environmental management

There were no environmental incidents in 2018. Sunrise Dam achieved environmental certification under the new ISO 14001:2015, following audits conducted by Bureau Veritas in 2018.

Sunrise Dam maintained its certification under the International Cyanide Management Code. The Department of Mines conducted an environmental compliance inspection at Sunrise Dam in 2018 finding that the site was compliant with its environmental commitments.

In 2018, Sunrise Dam made its submission for approval of key environmental amendments to increase operational flexibility.

### Climate change

Sunrise Dam fulfilled the 2018 reporting obligations under the annual National Greenhouse and Energy Reporting scheme (NGER), which forms part of a single national framework for reporting and disseminating company information about greenhouse gas emissions, energy production, energy consumption and other information specified under NGER legislation.

The Commonwealth Government Safeguard Mechanism is established through the National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015 (Safeguard Rule). It applies to facilities whose annual covered emissions are more than 100,000 tonnes carbon dioxide equivalence (t CO<sub>2</sub>-e), which includes Sunrise Dam, and assigns each facility an emissions baseline that must not be exceeded in net terms.

### Water

All groundwater monitoring at Sunrise Dam has been undertaken in accordance with AS/NZS 5667. The groundwater monitoring programme primarily focuses

## PERFORMANCE 2018 continued

on achieving the requirements of the Environmental Protection Act licence and the site's licences to take water. Additional monitoring for site operational requirements and ad-hoc environmental monitoring is also undertaken as required. Results from groundwater monitoring across Sunrise Dam remained within historic ranges.

### Integrated closure planning

The Australian government's Senate inquiry into the Rehabilitation of Mining and Resources Projects in relation to Australia's Commonwealth responsibilities was released on 28 November 2018. The report does not contain anything specific that would directly impact the Australian operations.

Sunrise Dam's closure plan was updated and submitted to the regulator for approval in 2018.

For further information on AngloGold Ashanti and its work and performance, as a group and in the Australasia region, see the <IR> and <SDR> which are available online at [www.aga-reports.com](http://www.aga-reports.com).

## Key statistics

SUNRISE DAM	Units	2018	2017	2016
<b>Operating performance</b>				
Cut-off grade <sup>(1)</sup>	oz/t	0.079	0.079	0.036
	g/t	2.71	2.71	1.23
Average recovered grade	oz/t	0.065	0.059	0.058
	g/t	2.73	2.02	1.98
Tonnes treated/milled	Mt	4.0	4.0	4.0
Gold production	000oz	289	238	228
Total cash costs	\$/oz	920	919	926
All-in sustaining costs	\$/oz	1,223	1,203	1,080
Capital expenditure	\$m	79	62	32
Productivity	oz/TEC	41.83	40.58	44.96
<b>Safety performance</b>				
No. of fatalities		0	0	0
All injury frequency rate (AIFR)	per million hours worked	11.52	12.10	8.24
<b>People</b>				
Total average no. of employees		576	489	422
– Permanent		108	96	86
– Contractors		468	393	336
<b>Environmental performance</b>				
Water use	ML	1,808	1,000	1,779
Water use efficiency	kL/t	0.45	0.28	0.44
Energy consumption	PJ	2.49	2.18	2.03
Energy intensity	GJ/t	0.62	0.54	0.50
Greenhouse gas (GHG) emissions	000t	140	122	113
GHG emissions intensity	t CO <sub>2</sub> e/t	35	30	28
Cyanide use	t	1,500	1,202	1,244
No. of reportable environmental incidents		0	0	0
Total rehabilitation liabilities	\$m	41	42	30
<b>Social performance</b>				
Community investment	\$000	742	684	552
Payments to government <sup>(2)</sup>	\$m	82	74	84

<sup>(1)</sup>Based on the Ore Reserve.

<sup>(2)</sup>Total paid to the Australian government for both Sunrise Dam and Tropicana.