Delivering value for a sustainable future
“Gold Fields is a globally diversified gold producer with nine operating mines in Australia, Peru, South Africa and West Africa (including the Asanko JV), as well as one project in Chile. We have a total attributable annual gold-equivalent production of 2.2Moz. Our shares are listed on the Johannesburg Stock Exchange (JSE) and our American depositary shares trade on the New York Stock Exchange (NYSE). The aim of our integrated reporting, which includes this Mineral Resources and Mineral Reserves Supplement, is to enable our stakeholders, including investors, to make a more informed assessment of the value of Gold Fields as well as its long-term prospects and how we seek to unlock value.”
Aim of this report

This report contains the Gold Fields Mineral Resources and Mineral Reserves Statement (the Supplement) as at December 2019. It provides key technical information to supplement the information summarised in the Integrated Annual Report (IAR) and it is available on the Company website at www.goldfields.com. In addition to providing transparent and compliant information in accordance with the South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves, 2016 edition (SAMREC Code), this Supplement highlights key developments and issues viewed as material to the reporting of Mineral Resources and Mineral Reserves per asset. Gold Fields’ commitment to materiality, transparency and competency in its public reporting remains of paramount importance, and continues to be endorsed by the Group’s external audit and assurance protocols.

STRATEGIC FIT

The custodianship and management of the Company’s fundamental asset base, the Mineral Resources and Mineral Reserves, are central to delivering on its strategic goals and key performance targets. These goals fall under four main pillars:
- Financial – To make money sustainably
- Stakeholders – Build and maintain stakeholder support
- Organisational capacity – Ensuring that the Company has the capacity to deliver
- Internal business process – Build the processes required for delivery

Gold Fields’ significant internal focus on investment, spending US$1bn over the last three years, was designed to ensure the portfolio of mines continues to generate cash sustainably into the foreseeable future, driven by lowering our All-in costs (AIC) and extending mine life. Maintaining and growing our Mineral Reserves beyond annual depletion is pivotal to sustaining the business, and targeting the 2.0 to 2.5Moz range is viewed as an optimal annual production level for Gold Fields.

HEADLINE NUMBERS – GROUP OVERVIEW AS AT DECEMBER 2019

This year’s Mineral Resources and Mineral Reserves Statement again reflects the Company strategy in action, specifically the consistent funding of brownfield exploration, reinvestment in the sustainability and growth of the operations, embedded Business Improvement (BI) and modernisation programmes, and the advancement of value accretive projects. The robustness of the Mineral Resources and Mineral Reserves is testimony to the quality of the assets in our portfolio, and is the result of a rigorous annual planning process that enforces a strong linkage between strategic, business and life-of-mine (LoM) planning.

<table>
<thead>
<tr>
<th></th>
<th>Managed</th>
<th>Attributable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Au Mineral Resources</strong></td>
<td>115.3Moz</td>
<td>96.6Moz</td>
</tr>
<tr>
<td><strong>Cu Mineral Resources</strong></td>
<td>10,769Mlb</td>
<td>4,813Mlb</td>
</tr>
<tr>
<td><strong>Au Mineral Reserves</strong></td>
<td>51.9Moz</td>
<td>48.1Moz</td>
</tr>
<tr>
<td><strong>Cu Mineral Reserves</strong></td>
<td>695Mlb</td>
<td>691Mlb</td>
</tr>
</tbody>
</table>

12-months depletion

<table>
<thead>
<tr>
<th></th>
<th>Managed</th>
<th>Attributable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Au production depletion from Mineral Resources</strong></td>
<td>2.4Moz</td>
<td>2.3Moz</td>
</tr>
<tr>
<td><strong>Cu production depletion from Mineral Resources</strong></td>
<td>95Mlb</td>
<td>95Mlb</td>
</tr>
<tr>
<td><strong>Au production depletion from Mineral Reserves</strong></td>
<td>2.4Moz</td>
<td>2.2Moz</td>
</tr>
<tr>
<td><strong>Cu production depletion from Mineral Reserves</strong></td>
<td>89Mlb</td>
<td>89Mlb</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Managed</th>
<th>Attributable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Au Mineral Resources</strong></td>
<td>123.4Moz</td>
<td>104.0Moz</td>
</tr>
<tr>
<td><strong>Cu Mineral Resources</strong></td>
<td>10,807Mlb</td>
<td>4,851Mlb</td>
</tr>
<tr>
<td><strong>Au Mineral Reserves</strong></td>
<td>53.2Moz</td>
<td>49.3Moz</td>
</tr>
<tr>
<td><strong>Cu Mineral Reserves</strong></td>
<td>619Mlb</td>
<td>616Mlb</td>
</tr>
</tbody>
</table>

- Group total figures for 2019 are inclusive of projects and the Asanko joint venture (JV), and are net of production depletion
- The gold and copper prices used for the December 2019 Mineral Resources were US$1,400/oz and US$3.2/lb and for the Mineral Reserves gold, US$1,200/oz and copper short term 2020 US$2.6/lb to long term 2021 onwards US$2.8/lb
- Measured and Indicated Mineral Resources are reported inclusive of those Mineral Resources modified to produce Mineral Reserves

GFI – Managed Mineral Resource reconciliation

<table>
<thead>
<tr>
<th></th>
<th>Managed</th>
<th>Attributable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gold (Moz)</strong></td>
<td>140</td>
<td>120</td>
</tr>
<tr>
<td><strong>Copper (Mlb)</strong></td>
<td>12,000</td>
<td>10,000</td>
</tr>
</tbody>
</table>

GFI – Managed Mineral Reserve reconciliation

<table>
<thead>
<tr>
<th></th>
<th>Managed</th>
<th>Attributable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gold (Moz)</strong></td>
<td>106</td>
<td>86</td>
</tr>
<tr>
<td><strong>Copper (Mlb)</strong></td>
<td>10,000</td>
<td>8,000</td>
</tr>
</tbody>
</table>

INTRODUCTION AND GROUP OVERVIEW
Gold Resources increased by 7% net of depletion

- 123.4 Moz (115.3 Moz) driven primarily by South Deep (+3.98 Moz) resulting from a decrease in cut-off grade and an increase from in-design material
- Asanko included for the first time in 2019 (+1.93 Moz 50% share)
- Mineral Resources increased at all other operations net of depletion except for nominal reductions at Cerro Corona and Damang
- Strong Resources growth delivered at Agnew (23%), St Ives (12%), Tarkwa (9%) and Granny Smith (8%)
- Strengthening of the Resources base and project pipeline in Australia and Ghana is providing the platform for the next generation mining fronts in these regions

Gold Reserves increased by 3% net of depletion

- 53.2 Moz (51.9 Moz) driven primarily by Asanko’s first time reporting (1.2 Moz 50% share)
- A net increase of Reserves of 1.35 Moz with strong contributions from extensions to existing mines and new mining positions at Agnew (38%), St Ives (31%) and Tarkwa (2%)
- Largest Reserves at St Ives since 2011, largest Reserves at Agnew since 2014, and the first time Tarkwa fully replaced Reserves depletion in 15 years
- Increased proportion of Mineral Reserves outside of South Africa – South Deep’s portion of the Group’s total attributable gold-equivalent Mineral Reserves has reduced from 59% to 57% year-on-year, including Asanko’s 50%
The charts above depict the Group’s comparative 2019 versus 2018 managed and owned gold Mineral Resources and Mineral Reserves ounces split by region and growth projects. The project resources only reflect the Far Southeast (FSE) asset. Mineral Resources (excluding FSE) comprise 18% Australia, 18% West Africa, 6% Americas and 58% South Deep. Mineral Resources comprise 13% Australia, 16% West Africa, 9% Americas and 62% South Deep.

**Variance**

<table>
<thead>
<tr>
<th></th>
<th>Dec 2018</th>
<th>Dec 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Americas region</td>
<td>-0.5</td>
<td>5.2</td>
</tr>
<tr>
<td>Australia region</td>
<td>0.5</td>
<td>-0.9</td>
</tr>
<tr>
<td>South Africa region</td>
<td>0.9</td>
<td>2.4</td>
</tr>
</tbody>
</table>

**INTRODUCTION AND GROUP OVERVIEW**

The Gold Fields Mineral Resources and Mineral Reserves Supplement to the IAR 2019

**The Gold Fields**

**6**

**4**

**3**

**2**

**1**

important elements considered and

The following list of notices are

South Deep.

16% West Africa, 9% Americas and 62%

Mineral Reserves comprise 13% Australia, 

Africa, 6% Americas and 58% South Deep.

FSE) comprise 18% Australia, 18% West 

(Assets) asset. Mineral Resources (excluding 

Resources only reflect the Far Southeast 

lores only reflect the Far Southeast 

(Southeast (FSE)) region + SN

The Group’s Mineral Resources and 

Mineral Reserves numbers were 

subject to internal review and 

scrutiny by the relevant regional 

technical and financial disciplines, and 

peer reviewed for technical assurance 

and compliance in reporting by the 

Corporate Technical Services (CTS), 

Sustainable Development and 

Corporate Technical Services (CTS), 

and Operations Finance teams 

3 All Mineral Resources and Mineral 

Reserves figures reported are 100% 

managed or owned by Gold Fields 

unless otherwise stated.

4 The Gruyere JV project is reported as 

50% of the ‘managed JV’. Gruyere is 

reported by Gold Fields as part of the 

Gruyere JV with Gold Road Resources 

Mineral Resources are reported 

inclusive of Mineral Reserves, and 

Mineral Resources include stability 

pillars when appropriate.

6 Mineral Resources tonnages and 

granes are estimated in situ over a 

minimum mining width, and may 

include mineralisation below the 

selected cut-off grade to ensure that the 

Mineral Resources comprise 

practical mining blocks of adequate 

size and continuity.

7 Mineral Resources categories are 

assigned with consideration given to 

geological complexity, grade variance, 

drill hole intersection spacing and 

proximity of mining development 

8 Mineral Resources are estimates, being 
dependent on interpretation of limited 

information about the location, shape, 

and continuity of the occurrence and 
available sampling results. As the 

understanding of the ore body improves 

and the methods and 

modifying factors that determine its 

extraction criteria gain increased 

resolution, the estimates may also 

change and the Mineral Resources and 

Mineral Reserves data modified 

accordingly.

9 A Mineral Reserve is that portion of the 

Mineral Resource which, as technical 

and economic studies have 

demonstrated, can justify extraction at 

the time of disclosure (to a minimum of 
a pre-feasibility study (PFS) level). 

Estimates of tonnages and grades 

quoted as Mineral Reserves include 

allowances for all mining dilution, all 

other mining factors (modifying factors) 

and are consequently reported as net 
tonnages and grades delivered to the mill 

Measured and Indicated Mineral 

Resources are reported inclusive of 
those Mineral Resources modified to 
produce Mineral Reserves.

10 The Mineral Resources and 

Mineral Reserves are estimated at a point in 
time and can be affected by changes in the 
gold price, US Dollar currency 

exchange rates, permitting, legislation, 

costs and operating parameters.

11 The Group’s underground Mineral 

Reserves are classified as being above 

existing infrastructure. This is in line 

with international practice, where 

Reserves are continually accessed via 
ramps for which the 

planned expenditure has been provided in the 

LOM.

12 Open pit Mineral Resources are 

confined to pit shells that are defined by 

the price, costs and relevant 

modifying factors used for 

their estimates. These pit shells are used to 

constrain the mineralisation to that 

which is economically and practically 

extractable under assumed economic 

conditions.

13 Underground Mineral Resources are 
typically confined using Mineable 

Shape Optimiser (MSO) software 

which assists with generating 

optimised stope designs to maximise 

the volume of recovered ore within the 
given ore body and design constraints, 

including minimum mining widths and 

mining cut-off grades.

14 All regions and operations have 
documented the assumptions, inputs 

and modifying factors that underpin the 

LoM plans, which are supported by 

mine designs and schedules.

15 Although all permitting may not be 

finalised, there is no reason to expect 

that these will not be granted based on 

existing processes and protocols. 

However, the duration taken for final 

approval may impact the production 

schedules.

16 Caution should be exercised when 

interpreting the grade tonnage curves 

provided within this report. The ability to 

high-grade (selectively mine) the 

deposits may be precluded by the 

deposit geometry, mining method and 

the need for practical development of 

the ore body.

17 Operations are entitled to mine 

declared material located within their 

respective mineral rights and/or mining 

rights, and all necessary statutory 

mining authorisations and permits are 
in place or have reasonable 

expectation of being granted.

18 All references to tonnes (t) are metric 

units.

19 The 31 December 2019 Mineral 

Resources and Mineral Reserves 

figures are net of 2019 production 

depletion.

20 Locations on maps are indicative only.

21 All metals (gold, silver and copper) are 

reported individually and not as metal 
equivalents, except where alternatively 
specified as described in the SAMREC 

Code.

22 The limited metal from Inferred Mineral 

Resources material considered in the 

LOM plans is not converted to 

Mineral Reserves and is omitted from all 

economic studies.

23 Where metal equivalents are quoted, it 

should be noted that the selling cost, 

including refining and royalties, plus 

metallurgical recovery rate, are 

excluded from the calculation. 

However, in the Competent Persons’ 

(CP) opinion, all metals so converted 

demonstrate a reasonable potential to be 

recovered and sold. As Gold Fields is 

primarily a gold producer, all metal 
equivalents have been converted to 
gold.

24 Rounding-off of figures in this report 

may result in minor computational 
discrepancies.

25 The Gold Fields Mineral Resources and 

Mineral Reserves reporting for fiscal 

2021 (June 2022 annual reporting) will 

comply with the new SEC modernisation 
rules for 20-F disclosure. These amendments 

will rescind Industry Guide 7 and 

consolidate the disclosure 

requirements for registrants in a new 

subpart of Regulation S-K.

26
# GOLD FIELDS MINERAL RESOURCES AND MINERAL RESERVES ESTIMATES

## Mineral Resources headline numbers¹

<table>
<thead>
<tr>
<th>Gold (Au) only</th>
<th>Managed Mineral Resources</th>
<th>Attributable ounces</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>December 2019</td>
<td>December 2018</td>
</tr>
<tr>
<td></td>
<td>Tonnes (Mt)</td>
<td>Grade (g/t)</td>
</tr>
<tr>
<td>Total regions²</td>
<td>1,097.8</td>
<td>2.93</td>
</tr>
<tr>
<td>Total projects³</td>
<td>891.7</td>
<td>0.69</td>
</tr>
<tr>
<td>Total operating mines and projects</td>
<td>1,989.4</td>
<td>1.93</td>
</tr>
</tbody>
</table>

## Copper (Cu) and Silver (Ag) as Au equiv (Moz)

Cerro Corona Cu as Au equiv⁵

<table>
<thead>
<tr>
<th></th>
<th>December 2019</th>
<th>December 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tonnes (Mt)</td>
<td>Grade (% Cu)</td>
</tr>
<tr>
<td>Cerro Corona – Peru</td>
<td>114.6</td>
<td>0.60</td>
</tr>
<tr>
<td>Total America region</td>
<td>140.1</td>
<td>1.36</td>
</tr>
</tbody>
</table>

## Copper (Cu) and Silver (Ag) as Au equiv (Moz)

FSE Cu as Au equiv⁶

<table>
<thead>
<tr>
<th></th>
<th>December 2019</th>
<th>December 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tonnes (Mt)</td>
<td>Grade (% Cu)</td>
</tr>
<tr>
<td>Salares Norte Ag as Au equiv⁷</td>
<td>25.6</td>
<td>53.14</td>
</tr>
</tbody>
</table>

## Grand total as Au equivalents

<table>
<thead>
<tr>
<th></th>
<th>December 2019</th>
<th>December 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tonnes (Mt)</td>
<td>Grade</td>
</tr>
<tr>
<td>Grand total as Au equivalents</td>
<td>148.7</td>
<td>1.93</td>
</tr>
</tbody>
</table>

## Operational summary¹

<table>
<thead>
<tr>
<th></th>
<th>Managed Mineral Resources</th>
<th>Attributable ounces</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>December 2019</td>
<td>December 2018</td>
</tr>
<tr>
<td>Au Australia region</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agnew</td>
<td>14.0</td>
<td>5.60</td>
</tr>
<tr>
<td>Granny Smith</td>
<td>49.4</td>
<td>5.23</td>
</tr>
<tr>
<td>St Ives</td>
<td>34.5</td>
<td>3.97</td>
</tr>
<tr>
<td>Gruyere²</td>
<td>76.8</td>
<td>1.34</td>
</tr>
<tr>
<td>Total Australia region</td>
<td>174.7</td>
<td>3.30</td>
</tr>
<tr>
<td>South Africa region</td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Deep</td>
<td>355.1</td>
<td>5.27</td>
</tr>
<tr>
<td>Total South Africa region</td>
<td>355.1</td>
<td>5.27</td>
</tr>
<tr>
<td>Americas region</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cerro Corona – Peru</td>
<td>114.6</td>
<td>0.60</td>
</tr>
<tr>
<td>Salares Norte – Chile</td>
<td>25.6</td>
<td>4.76</td>
</tr>
<tr>
<td>Total Americas region</td>
<td>140.1</td>
<td>1.36</td>
</tr>
<tr>
<td>Ghanaian region</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asanko¹⁰</td>
<td>35.5</td>
<td>1.69</td>
</tr>
<tr>
<td>Damang</td>
<td>84.4</td>
<td>2.18</td>
</tr>
<tr>
<td>Tarkwa – Open pits</td>
<td>233.1</td>
<td>1.30</td>
</tr>
<tr>
<td>Tarkwa – Stockpiles</td>
<td>74.8</td>
<td>0.47</td>
</tr>
<tr>
<td>Tarkwa – Total</td>
<td>307.9</td>
<td>1.10</td>
</tr>
<tr>
<td>Total West Africa region</td>
<td>427.8</td>
<td>1.36</td>
</tr>
<tr>
<td>Gold Fields operations – total Au</td>
<td>1,097.8</td>
<td>2.93</td>
</tr>
</tbody>
</table>

## Copper (Cu) and Silver (Ag) as Au equiv (Moz)

<table>
<thead>
<tr>
<th></th>
<th>December 2019</th>
<th>December 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tonnes (Mt)</td>
<td>Grade (g/t)</td>
</tr>
<tr>
<td>Salares Norte (Ag) only</td>
<td>25.6</td>
<td>53.14</td>
</tr>
</tbody>
</table>

## Notes:

¹ Mineral Resources and Reserves Statement 2019.

² Refer to Table 8 for a detailed breakdown of mineral resources.

³ Refer to Table 6 for a detailed breakdown of mineral resources.

⁴ Refer to Table 7 for a detailed breakdown of mineral resources.

⁵ Refer to Table 8 for a detailed breakdown of mineral resources.

⁶ Refer to Table 6 for a detailed breakdown of mineral resources.

⁷ Refer to Table 7 for a detailed breakdown of mineral resources.

⁸ Refer to Table 8 for a detailed breakdown of mineral resources.

⁹ Refer to Table 6 for a detailed breakdown of mineral resources.

¹⁰ Refer to Table 7 for a detailed breakdown of mineral resources.

¹¹ Refer to Table 8 for a detailed breakdown of mineral resources.

¹² Refer to Table 6 for a detailed breakdown of mineral resources.

¹³ Refer to Table 7 for a detailed breakdown of mineral resources.

¹⁴ Refer to Table 8 for a detailed breakdown of mineral resources.

¹⁵ Refer to Table 6 for a detailed breakdown of mineral resources.

¹⁶ Refer to Table 7 for a detailed breakdown of mineral resources.

¹⁷ Refer to Table 8 for a detailed breakdown of mineral resources.

¹⁸ Refer to Table 6 for a detailed breakdown of mineral resources.

¹⁹ Refer to Table 7 for a detailed breakdown of mineral resources.

²⁰ Refer to Table 8 for a detailed breakdown of mineral resources.

²¹ Refer to Table 6 for a detailed breakdown of mineral resources.

²² Refer to Table 7 for a detailed breakdown of mineral resources.

²³ Refer to Table 8 for a detailed breakdown of mineral resources.

²⁴ Refer to Table 6 for a detailed breakdown of mineral resources.

²⁵ Refer to Table 7 for a detailed breakdown of mineral resources.

²⁶ Refer to Table 8 for a detailed breakdown of mineral resources.

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²⁹ Refer to Table 8 for a detailed breakdown of mineral resources.

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³¹ Refer to Table 7 for a detailed breakdown of mineral resources.

³² Refer to Table 8 for a detailed breakdown of mineral resources.

³³ Refer to Table 6 for a detailed breakdown of mineral resources.

³⁴ Refer to Table 7 for a detailed breakdown of mineral resources.

³⁵ Refer to Table 8 for a detailed breakdown of mineral resources.

³⁶ Refer to Table 6 for a detailed breakdown of mineral resources.

³⁷ Refer to Table 7 for a detailed breakdown of mineral resources.

³⁸ Refer to Table 8 for a detailed breakdown of mineral resources.

³⁹ Refer to Table 6 for a detailed breakdown of mineral resources.

⁰ Refer to Table 7 for a detailed breakdown of mineral resources.

⁴¹ Refer to Table 8 for a detailed breakdown of mineral resources.
Mineral Reserves headline numbers¹

<table>
<thead>
<tr>
<th></th>
<th>Managed Mineral Reserves</th>
<th>Attributable ounces</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>December 2019</td>
<td>December 2018</td>
</tr>
<tr>
<td>Au only</td>
<td>Tonnnes (Mt)</td>
<td>Grade (g/t)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total operating mines and</td>
<td>609.5</td>
<td>2.72</td>
</tr>
<tr>
<td>projects²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cu and Ag as Au equiv</td>
<td>Individual metals detailed in table below</td>
<td></td>
</tr>
<tr>
<td>Cerro Corona Cu as Au equiv³</td>
<td>1.4</td>
<td>1.6</td>
</tr>
<tr>
<td>Salares Norte Ag as Au equiv³</td>
<td>0.8</td>
<td>0.6</td>
</tr>
<tr>
<td>Grand total as Au equivalents</td>
<td>55.2</td>
<td>54.0</td>
</tr>
</tbody>
</table>

Operational summary¹

<table>
<thead>
<tr>
<th></th>
<th>Managed Mineral Reserves</th>
<th>Attributable ounces</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>December 2019</td>
<td>December 2018</td>
</tr>
<tr>
<td>Au</td>
<td>Tonnnes (Mt)</td>
<td>Grade (g/t)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia region</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agnew</td>
<td>4.6</td>
<td>5.17</td>
</tr>
<tr>
<td>Granny Smith</td>
<td>12.5</td>
<td>5.18</td>
</tr>
<tr>
<td>St Ives</td>
<td>20.9</td>
<td>3.40</td>
</tr>
<tr>
<td>Gruyere³</td>
<td>45.2</td>
<td>1.24</td>
</tr>
<tr>
<td>Total Australia region</td>
<td>83.2</td>
<td>2.59</td>
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<tr>
<td>South Africa region</td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Deep⁴</td>
<td>183.3</td>
<td>5.57</td>
</tr>
<tr>
<td>Total South Africa region</td>
<td>183.3</td>
<td>5.57</td>
</tr>
<tr>
<td>Americas region</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cerro Corona</td>
<td>73.5</td>
<td>0.66</td>
</tr>
<tr>
<td>Salares Norte</td>
<td>21.1</td>
<td>5.13</td>
</tr>
<tr>
<td>Total Americas region</td>
<td>94.6</td>
<td>1.65</td>
</tr>
<tr>
<td>Ghanian region</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asanko⁵</td>
<td>26.7</td>
<td>1.38</td>
</tr>
<tr>
<td>Damang</td>
<td>25.0</td>
<td>1.68</td>
</tr>
<tr>
<td>Tarkwa – Open pits</td>
<td>121.8</td>
<td>1.21</td>
</tr>
<tr>
<td>Tarkwa – Stockpiles</td>
<td>74.8</td>
<td>0.47</td>
</tr>
<tr>
<td>Tarkwa – Total</td>
<td>196.7</td>
<td>0.93</td>
</tr>
<tr>
<td>Total West Africa region</td>
<td>248.4</td>
<td>1.06</td>
</tr>
<tr>
<td>Gold Fields operations – total Au §</td>
<td>609.5</td>
<td>2.72</td>
</tr>
</tbody>
</table>

Managed Mineral Reserves

<table>
<thead>
<tr>
<th>(Peru) – Cerro Corona§</th>
<th>Cu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tonnnes (Mt)</td>
<td>Grade (% Cu)</td>
</tr>
<tr>
<td>Cu (Mlb)</td>
<td></td>
</tr>
<tr>
<td>Dec 2019</td>
<td>Dec 2018</td>
</tr>
<tr>
<td>73.5</td>
<td>0.38</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(Chile) – Salares Norte§</th>
<th>Ag</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tonnnes (Mt)</td>
<td>Grade (g/t)</td>
</tr>
<tr>
<td>Ag (k oz)</td>
<td></td>
</tr>
<tr>
<td>Dec 2019</td>
<td>Dec 2018</td>
</tr>
<tr>
<td>21.1</td>
<td>57.94</td>
</tr>
</tbody>
</table>

Footnotes:
¹ Managed unless otherwise stated. Gruyere only reports the 50% share attributable to Gold Fields; Measured and Indicated Mineral Resources are reported inclusive of those Mineral Resources modified to produce Mineral Reserves.
² Salares Norte and FSE are included in the Americas and Australia regions, respectively.
³ Projects – FSE Inferred Resources only.
⁴ Individual metals detailed in table below.
⁵ Managed unless otherwise stated; Gruyere only reports the 50% share attributable to Gold Fields; Measured and Indicated Mineral Resources are reported inclusive of those Mineral Resources modified to produce Mineral Reserves.
⁶ ASX: 50% Gold Fields share – 45% attributable to Gold Fields Mineral Resources and Mineral Resources not managed.
The year-on-year changes for managed gold Mineral Resources and Mineral Reserves are shown in the charts below, ranked from lowest to highest for December 2019.

**Managed Mineral Resources**

**Managed Mineral Reserves**

**Global presence**
Brownfield (on-lease) exploration

The Group’s strategy of focusing on brownfields (on-lease or near-mine) exploration to extend mine life continued during the year. The multi-year investment in exploration has delivered one of the best Reserves replacement years for Gold Fields’ mines. The strategy that near-mine or on-lease exploration offers the best route to low-cost, low-risk Resources and Reserves growth in well-understood environments remains key. The exploration is configured to deliver a balanced project pipeline that includes identifying early-stage targets (Milestones 1 – 2) with project lead times of typically four to five years, combined with progressing more advanced projects that can potentially deliver new mining opportunities within the next two to three years.

**2019 EXPLORATION FOCUS**

Summarised Group exploration spend demonstrates that US$86.4m was spent in 2019 (US$102.5m in 2018), with the bulk of the Group’s brownfield (on-lease) exploration activity taking place in the Australia (68%), South America (17%) and West Africa (15%) regions, where the assets have strong growth and/or discovery potential.

**AMERICAS REGION**

During 2019, a drilling campaign at Cerro Corona, producing 11,665m of diamond drill (DD) core, was completed to evaluate the Resources between the Reserve and Resources and Reserves replacement for each operation on an annual basis to maintain and support extension of the LoM profiles. This is achieved by collecting and interpreting foundational datasets and systematically testing the highest probability targets. Foundational datasets include all broad spaced drilling for geochemistry and geology, high-resolution geophysical surveys, plus detailed interpretation of all datasets. Future site strategy and production requirements are considered as part of the annual and longer-term exploration budgets distribution, further ensuring timeous Resources and Reserves replacement and ongoing LoM plan optimisation.

**SOUTH AFRICA REGION**

The current resource definition programme at South Deep is aimed at increasing resolution of the Upper Elsburg ore body to improve resource block model resolution and mine design accuracy. The approach employs a staged sequence of activities based on long-inclined borehole (LIB) drilling, mine definition drilling and fit-for-purpose geological, geotechnical and cover drilling. The objective of the broader spaced LIB drilling is to improve resolution ahead of the mining corridors for optimum corridor infrastructure and cut positioning and the closer spaced mine definition drilling aims to optimise stope design for maximum mining extraction.

A record performance was achieved by the contractor in 2019, with a 38% improvement in drilling productivity compared with 2018, including an increase of 105% in LIB drilling output. This provided accelerated Resources definition coverage and a resultant increase in the resolution for the mine plan. The enhanced confidence derived from the mine definition drillin culminated in a significant upgrade to the Measured Resources category.

**WEST AFRICA REGION**

Brownfield exploration activity reflected 87% of funds allocated to Resources infill and extensional drilling on known ore bodies at Damang and Tarkwa. Gold Fields’ 50% ownership of the Asanko JV focused on infill drilling and Resources extension work at the Esaase and Nkran open pits. Several early stage target delineation programmes were completed across the Asanko JV tenement package. Ground orientation geophysics was completed along the Esaase Main deposit and extended to the southern part of the mineralised trend.

The actual exploration expenditure for the 2019 and 2018 periods is shown in the table below:

<table>
<thead>
<tr>
<th>Region</th>
<th>December 2019</th>
<th>December 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Metres</td>
<td>Cost (US$m)</td>
</tr>
<tr>
<td>Australia²</td>
<td>367,447</td>
<td>58.3</td>
</tr>
<tr>
<td>West Africa²</td>
<td>46,168</td>
<td>12.8</td>
</tr>
<tr>
<td>South Africa²</td>
<td>3,700</td>
<td>0.4</td>
</tr>
<tr>
<td>Americas²</td>
<td>27,191</td>
<td>14.9</td>
</tr>
<tr>
<td>Total³</td>
<td>444,506</td>
<td>86.4</td>
</tr>
</tbody>
</table>

Notes:
- Costs in US$ (2019 Fx – ZAR14.46/US$; A$ = 0.6955/US$)
- Expenditure includes non-drilling items (e.g. geophysics)
- The actual year-on-year reduction in total metres drilled in the Australian region (~12%) is due to the increased portion from diamond drilling (DD). As exploration targets deeper underground deposits, the main drilling method is DD which has a higher cost per metre rate
- The 56% reduction in metres drilled in the West Africa region is due to a shift in strategy at Damang and Tarkwa from the 2018 extensive tenement-wide programmes towards deeper target-specific programmes in 2019
- The increase in drilled metres at South Deep is partly due to a lower base in 2018 resulting from disrupted production related to industrial action, while contributing to the increase in 2019 is the greater drill rig productivity arising from a range of improvement initiatives
- December 2019 includes drilling at Salares Norte. The 51% decrease in the drilled metres in the Americas region is the result of a reduction in the amount of early stage broad-scale shallow drilling at Salares Norte
2020 EXPLORATION OUTLOOK

The 2020 Group brownfield exploration programme continues to support the organic growth strategy with a budget of US$81m. The emphasis remains on replacing production depletion, growing Reserves and adding mine life with ounces capable of sustaining and improving the All-in costs (AIC)/oz. The key 2020 focus areas for each of the regions are summarised below:

AUSTRALIA

St Ives
- Completion of foundational data collection on the Lefroy JV and fully owned western tenements
- Further extensional and Resources definition within the Invincible complex to support future mine design and growth
- Initial concept drilling and validation of a number of near-mine and regional exploration priority targets at Kambalda West and the southern tenure
- Continued interpretation and drill testing of the 3D seismic cube targets

Granny Smith
- Continued in-mine Resource Optimisation Drilling (ROP) at Wallaby
- Extensional and infill drilling of Zone 135 to define ore body extent as support for future mine design and full FS studies
- Consolidation and advanced targeting of all regional exploration base data sets completed over the past few years

Agnew
- Extensional exploration and growth of the Redeemer Zone 2 North and Barren Lands underground ore bodies
- Resources and Reserves extension of the new high-grade Kath Lower ore body at Waroonga North
- Continued extensional and growth drilling on the Sheba South project, New Holland
- Initial concept drilling and validation of a number of near-mine and regional exploration priority targets

Gruyere JV
- Minor exploration will be undertaken at the JV – which may include targeted satellite pit infill drilling on the Golden Highway and possibly further near-mine open pit extensions

WEST AFRICA

Tarkwa
- Focus is on infill drilling at Akontansi Underlap North Extension, conversion drilling at Pepe North and Pepe West as well as initial drilling over the Pepe East trend
- Scout drilling to take place along the northern extension of the Underlap target (outside of the current pit shell)
- Generative work is to continue, looking for new search space and opportunities

Damang
- Continue infill drilling on the Amoanda North extension under Tomento East
- Testing of the ground between the Rex and Amoanda ore bodies
- Infill drilling at Amoanda South to test potential mineralised extensions
- The 2020 drilling (depending on availability of funds), is aimed at providing more flexibility to the Damang Plant and to assess the potential for additional Resources to complement the LoM plan

Asanko
- A three-pronged exploration strategy is directed at:
  - Short term – Discovery of new oxide Resources within a 5km radius of the processing plant
  - Medium term – Evaluation of the Obotan – Eisaase Belt Corridor
  - Long term – search for ore replacement along the South Camp area with credible potential for large scale discovery as a replacement for the Nkran open pit

AMERICAS

Cerro Corona
- Exploration will focus on further assessment of the economic viability of the eastern pit wall outside the current pit design. This work will form part of the LoM beyond 2030 study to be completed in 2020

Salares Norte
- District-scale exploration will continue drilling and testing the main targets over the Horizonte Project, as well as targets close to the Salares Norte Pit (Agua Armarga North and Brecha West)
- Additional targets Aster 3 and Pan Pacific Gold Fields Option Agreement (PPC/GF OA) within Gold Fields’ tenements are also being evaluated for future exploration campaigns

SOUTH AFRICA

South Deep
- Maintain traction on the Resources and mine definition drilling strategy. Post-2020, it is expected that all the North of Wrench (NoW) corridors will be sufficiently defined for optimal mine design and layouts
- Reprocessing current seismic data in 2020 to enhance resolution of 3D cube
- South of Wrench (SoW) Phase 1 LIB drilling to improve Resources definition SoW fault from current platforms to commence in 2021 and run for three years. The objective is to improve definition on the wrench fault zone and proximal areas; commence with SoW exploration drive 2023
- SoW Phase 2 LIB drilling to improve Resources definition SoW fault from exploration drive to commence in 2028 and run for three years

Brownfield (on-lease) exploration continued
The annual mine planning cycle

STRATEGIC CONTEXT AND PLANNING

The intent of the strategic planning process is to provide a mechanism for operating sites to assess planning options at varying levels of technical, operational and financial risk, with reference to the Company’s strategic goals. Strategic key performance indicators (KPIs) for each asset are pivotal around quality, life, licence to operate, cash-generation and scale, based on either annual metal produced or cash-flow. Our strategic planning aims to provide insight to a range of outcomes rather than refine and optimise a single option.

- Group strategy and portfolio management
- Strategic planning per operation at the asset level
- Group Strategic Plan (SP)
- Configure Portfolio
- Business Plan aligned with SP
- 12-month Operational Plan
- Resource modelling and LoM planning (SAMREC compliant)
- Mineral Resources and Mineral Reserves

Optionality is assessed against strategic scenarios that profile (1) low metal price, (2) sustaining the business, (3) upside potential and (4) blue sky opportunity, and they provide essential guidance for operating strategies, required investment, and risk and reward management. By necessity, the strategic plans include an assessment of factored Inferred Mineral Resources and a view on property endowment potential for the blue sky, in addition to the Proved and Probable Mineral Reserves that define the LoM plan.

In 2019, all sites presented internal growth options as part of Gold Fields’ strategic planning process. This process allows Gold Fields’ management to rank projects and allocate capital to projects consistent with the Gold Fields strategic goals and provide guidance as to which projects have the capacity to improve the portfolio.

Business planning

Each year, the business plan represents a refinement of the preferred strategic plan option and the process allows each site to develop a 12-month operational plan. This is done in the context of the long-term potential of the asset and allows the business to deploy essential resources to maximise the use of capital across the Group portfolio. The business plan includes factored Inferred Mineral Resources that provide essential information on the realistic Mineral Resources to Mineral Reserves conversion in the medium to long term.

LoM planning

In accordance with the SAMREC Code, the compliant Mineral Resources and Mineral Reserves that define the LoM plan and cash-flow model for each asset, is restricted to Proved and Probable Reserves. Importantly, the LoM plan and resultant Mineral Reserves demonstrate a strong linkage to the strategic and business plans that profile the Company’s medium to longer-term approach to realising full site potential and delivering value from the portfolio.

Operational planning

The operational plan is the 12-month budget plan and aligns to year one of both the business and LoM plans. It details the key safety, production and cost metrics and deliverables that constitute the annual plan for each operating asset.

Key criteria embedded in the life-of-mine plans

The table on page 10 provides an important summary of the key principles and considerations entrenched in all the Company’s LoM plans. The various key criteria applicable to the Mineral Resources and Mineral Reserves estimates for all reported assets are consolidated here to avoid repetition throughout this Supplement. Accordingly, this table should be read and referenced in conjunction with all the assets reported on in this report for the South Africa, Australia, Americas and West Africa regions.
The annual mine planning cycle continued

KEY PRINCIPLES AND CRITERIA ENTRAINED IN THE LOM PLANS

Mineral Resources
- All Resources are declared using a cut-off grade calculated for the individual deposit
- Resources are further tested through the application of realistic modifying factors to ensure there is reasonable prospect for eventual economic extraction
- Resources are quoted at an approximate in situ economic cut-off grade with tonnages and grades based on the latest available Resource block models and include estimates of any material below the cut-off grade required to be mined to extract the complete pay portion of the Resources
- Open pit Resources comprise the material above the nominated cut-off grade within a diluted optimised pit shell and are constrained to an optimised minimum mining width shape
- Underground Resources comprise the material above the nominated cut-off grade and are constrained to a practical mining shape and a minimum mining width

Mine planning and Mineral Reserves
- All Reserves are based on appropriately detailed and engineered LoM plans and are supported by relevant studies completed to a minimum PFS study level or appropriate LoM plan
- All design and scheduling is completed by experienced engineers using appropriate mine planning software and incorporates relevant modifying factors, the use of cut-off grades and results from other techno-economic investigations
- Mining rates, fleet productivities, operational and plant capacities and constraints are accounted for in the plan
- All geotechnical protocols and constraints are accounted for in the plan, including the provision for suitable mining geometries, mining losses in pillars, mining recovery and dilution
- The provision of sufficient waste storage and tailings management requirements and plans is in place to meet the LoM requirements
- Reserves are quoted in terms of run-of-mine (RoM) grades and tonnages as delivered to the metallurgical processing facility and are therefore fully diluted

Modernisation
- The Group-wide innovation and technology (I&T) strategy is incorporated into the LoM plans. It is underpinned by a five-year implementation plan to support the Company's strategy, which is aimed at enhancing safety, production volumes and cost metrics through a staged process of modernisation, integration, optimisation and automation
- This will be achieved by following the I&T road map, which is based on achievement of the three I&T Horizons focusing on the delivery of five strategic pillars which constitute the new operating platform environment

Tailings management
- All Gold Fields’ managed operations have tailings management plans in place that promote risk minimisation to operators and stakeholders over the life cycle of each tailings storage facility (TSF)
- All Gold Fields’ TSFs are operated and managed in accordance with the Gold Fields’ Group TSF Management Guidelines
- The Group’s TSF Management Guidelines are aligned to the ICMM’s Position Statement on preventing catastrophic failure of TSFs (December 2016), and require that all operations are compliant with the ANCOld guidelines on tailings dams, as well as any other local jurisdictional design requirements
- The Brumadinho tragedy (January 2019) prompted the Church of England Pensions Board, along with other investors, to submit a request to a vast number of mining companies for the disclosure of technical information on all owned TSFs. Gold Fields’ submission of TSF information in support of this request can be found on our website at www.goldfields.com
- All Gold Fields’ active TSFs are subject to an independent, external audit every three years, or more frequently as and when required by local circumstances or regulations, as well as regular inspections and formal dam safety reviews by formally appointed Engineers of Record (EoR). The last external review was completed in 2017 and concluded that Gold Fields complied with the intent of the Group TSF Management Guidelines, and that its TSFs were well managed and designed. The next round of external audits is scheduled to be completed during 2020
- Further improvements to TSF design, management and governance are expected through the release of a new independently developed Global Tailings Standard (GTS) in 2020. The GTS provides a framework for safe tailings facility management and is being facilitated by the ICMM. A draft version of this new standard was released for public comment at the end of 2019

Integrated mine closure planning
- Our integrated mine closure planning processes ensure that our mine closure plans are regularly updated in line with good practice and Gold Fields’ requirements for our operations. Our mine closure plans comply with in-country legal requirements and are approved by the regulator
- Integrated mine closure plans provide appropriate cost parameters for operational and LoM planning as well as end of life mine closure commitments
- The internal controls over financial reporting (SOX controls) relating to the life-of-mine models have been assessed as effective

Energy and water security
- All operations are developing and implementing strategies and plans to ensure security of energy and water supply at competitive costs while also focusing on improving energy efficiency, reducing energy costs, carbon footprint and freshwater use, while increasing recycling and reuse of water, and developing and implementing plans to adapt to the changing climate
- A greater use of renewable energy generation over the LoMs is a key commitment

Social and regulatory licence to operate
- The implementation of sustainable development policies, including proactive stakeholder engagement strategies, continue to be key in reporting sustainable Mineral Reserves
- Responsible environmental stewardship in the context of certified environmental management systems remains central to the Group’s regulatory and social licence to operate
- Tenure over land, Shared Value with communities, mining, prospecting and environmental permits are in good standing. Our Shared Value approach includes giving focused attention to maximising the proportion of our workforce that we draw from host communities and the goods and services we procure from these communities

Financial models
- LoM plans are net present value (NPV) positive with FCF margins broadly aligned to the Company strategy
- Capital scheduling is incorporated in the cash-flow model to ensure appropriately funded and sustainable operations over the LoM
- Power and utility cost escalation and fuel prices have been factored into all financial models
- Estimated closure plan and rehabilitation costs have been included in all financial models
- All financial models are based on existing tax laws as at 31 December 2019
Corporate governance

REPORTING CODE AND CODE OF PRACTICE


Reporting is also in accordance with Section 12 of the Johannesburg Stock Exchange (JSE) Listings Requirements and takes cognisance of other relevant international codes where geographically applicable. The definitions contained in the SAMREC Code are either identical to, or not materially different from, international codes.

The relationships between Mineral Resources and Mineral Reserves are depicted in the SAMREC classification diagram. Technical and operating procedures are designed to be compliant with the Sarbanes-Oxley Act framework as adopted by Gold Fields for Mineral Resources and Mineral Reserves estimation, auditing and reporting.

The SEC permits mining companies, in their filings with the commission, to disclose only those Mineral Reserves that a company can economically and legally extract or produce. In accordance with the SEC guidelines, companies are not permitted to report Mineral Resources in their Form 20-F submissions. However, certain terms referring to Mineral Resources are used in this Supplement, such as ‘Measured, Indicated and Inferred Mineral Resources’. Consequently, US investors are urged to consider closely the disclosure in our Form 20-F.

COMPETENT PERSONS

The CPs designated in terms of SAMREC, who take responsibility for the reporting of Gold Fields’ Mineral Resources and Mineral Reserves, are the respective operation-based Geologists, Resource Estimators, Geotechnical Engineers, Mine Planning Engineers, Processing Engineers, Technical Managers and relevant Project Managers and Financial Managers, as listed in the supplementary information section of this Supplement. The CPs have sufficient experience relative to the type and style of mineral deposit under consideration and, unless otherwise stated, are full-time employees of Gold Fields. Corporate governance on the overall regulatory compliance of these figures has been overseen and consolidated by the Gold Fields CP, Tim Rowland, who is a member of the CTS team. CP consent is hereby given to the disclosure of this Mineral Resources and Mineral Reserves estimate. The CTS team providing technical assurance and coverage for the full Mineral Resources and Mineral Reserves value chain are listed in the CP table on page 12.
Corporate governance on the overall compliance of these figures and responsibility for the generation of the consolidated statement has been overseen by the respective corporate CPs and discipline experts listed below:

<table>
<thead>
<tr>
<th>Competent Person</th>
<th>Title</th>
<th>Qualifications</th>
<th>Years’ experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tim Rowland(^1,(^5,(^6)), SACNASP 400122/00</td>
<td>Vice President: Group Geology, Resources Estimation and Mine Planning</td>
<td>BSc (Hons) Geology; MSc Mineral Exploration; GDE Mining Engineering; Pr Sci Nat, FSAIMM (702881); FGSSA, GAS</td>
<td>33</td>
</tr>
<tr>
<td>Richard Butcher(^2), CEng reg. number – 438305 AusIMM 211182</td>
<td>Executive Vice President and Head of Group Technical Services</td>
<td>MSc Mining Engineering, CEng, FAusIMM (CP), MIMMM, MSAIMM</td>
<td>39</td>
</tr>
<tr>
<td>Wintfred Assibey-Bonsu(^1,(^5), SACNASP 400112/00</td>
<td>Group Geostatistician and Evaluator</td>
<td>BSc (Mining); PhD (Eng); EDP Wits Business School; Pr Sci Nat; FSAIMM (700632)</td>
<td>33</td>
</tr>
<tr>
<td>Malcolm Thomas(^2), AusIMM 204703</td>
<td>Group Geologist</td>
<td>BSc (Hons) Geology; MSc Geology; BCom (Hons); MAusIMM</td>
<td>32</td>
</tr>
<tr>
<td>Andre Badenhorst(^2), AusIMM 309882</td>
<td>Group Manager: Survey and Planning</td>
<td>NHD (Mine Survey); MAusIMM</td>
<td>39</td>
</tr>
<tr>
<td>Peter Andrews(^2), AusIMM (CP) 302255</td>
<td>Vice President: Group Head of Geotechnical</td>
<td>BSc (Hons) Geology and Geophysics; MEngSci (Geomechanics); MAusIMM</td>
<td>23</td>
</tr>
<tr>
<td>Kate Sommerville(^2), AusIMM 110684</td>
<td>Vice President: Mining</td>
<td>BEng (Geological); GradDip (Mining); MBA; FAusIMM (CP); GAICD</td>
<td>27</td>
</tr>
<tr>
<td>Danny Hillier(^2), AusIMM No. 227106</td>
<td>Vice President and Group Head of Metallurgy</td>
<td>BSc (Chemical) FAusIMM CP (Metallurgy)</td>
<td>29</td>
</tr>
<tr>
<td>Matthew Hochen(^5)</td>
<td>Vice President: Capital Projects</td>
<td>BEng (Elec)</td>
<td>22</td>
</tr>
<tr>
<td>Pieter Coetzee(^5)</td>
<td>Vice President and Head of Finance: Operations</td>
<td>BCom Internal Auditing Mining Taxation</td>
<td>25</td>
</tr>
</tbody>
</table>

\(^1\) Registered SACNASP members  
\(^2\) Registered AusIMM members  
\(^3\) Registered SAIMM members  
\(^4\) Registered IMSSA member  
\(^5\) Not registered with SAMREC recognised professional organisation, however are contributors to this report  
\(^6\) Tim Rowland assumes responsibility for the Company’s Mineral Resources and Mineral Reserves process and is satisfied that the CPs in all regions have fulfilled their responsibilities  

Tim Rowland Gold Fields lead CP – the address of the body recognised by SAMREC

SACNASP (South African Council for Natural Scientific Professions)  
Physical address: Management Enterprise Building, Mark Shuttleworth Street Innovation Hub Pretoria 0087, Gauteng Province South Africa  
Postal address: Private Bag X540, Silverton, 0127  
Contact number: Tel: +27 (012) 748-6500
ASSESSMENT AND REPORTING CRITERIA
The assessment and reporting criteria as outlined in the SAMREC Code have been used in the preparation of an internal CP Report (CPR) or PFS document for each operating asset and significant growth project, from which the numbers stated in this Supplement were drawn. The CPR principally comprises a technical review of the Mineral Resources and Mineral Reserves, together with a techno-economic appraisal of the relevant mining, processing assets, security of water/power, operating and capital costs and the status of permitting/licensing to support the LoM plan. Each item under Table 1 of the Code has been considered using the ‘if not, why not’ principle and any material year-on-year variance is explained in this document. This Supplement is in effect a summary of all the individual CPRs as submitted from the portfolio assets and kept on record.

This Supplement contains information as at 31 December 2019 (the effective date of this report). The statements and information set out in this report pertain only to the effective date of this report. Shareholders and affected parties are therefore urged to review all public disclosures made by Gold Fields after the effective date of this report, as some of the information contained in the report may have changed or been updated.

Metal prices and exchange rates
The table below summarises the metal price deck approved by Gold Fields for the December 2019 Mineral Resources and Reserves estimate and which is in accordance with the SEC’s three-year trailing average gold price to December 2019. The copper price is flexed – US$2.6/lb for 2020 and US$2.8/lb from 2021 onward. The strategic positioning of the operations to be cash-generative at gold prices periodically trading lower, is central to the phasing of the LoM plans. The December Mineral Resources prices have a premium of approximately 15% over the Mineral Reserves prices.

<table>
<thead>
<tr>
<th>Commodity</th>
<th>December 2019 Reserves</th>
<th>December 2019 Resources</th>
<th>December 2018 Reserves</th>
<th>December 2018 Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Au</td>
<td>US$/oz</td>
<td>1,200</td>
<td>1,400</td>
<td>1,200</td>
</tr>
<tr>
<td></td>
<td>A$/oz</td>
<td>1,600</td>
<td>1,850</td>
<td>1,600</td>
</tr>
<tr>
<td></td>
<td>ZAR/kg</td>
<td>550,000</td>
<td>625,000</td>
<td>525,000</td>
</tr>
<tr>
<td>Cu</td>
<td>US$/t</td>
<td>5,510 to 6,170</td>
<td>7,050</td>
<td>5,510 to 6,170</td>
</tr>
<tr>
<td></td>
<td>US$/lb</td>
<td>2.6 to 2.8</td>
<td>3.2</td>
<td>2.5 to 2.8</td>
</tr>
<tr>
<td>Ag</td>
<td>US$/oz</td>
<td>17.5</td>
<td>20</td>
<td>17.5</td>
</tr>
</tbody>
</table>

The following exchange rates were used for planning purposes, with the comparative historic rates:

<table>
<thead>
<tr>
<th>Items</th>
<th>Unit</th>
<th>Dec 2018 (actual)</th>
<th>Dec 2019 (actual)</th>
<th>Dec 2019 (plan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZAR/A$</td>
<td>10.29</td>
<td>10.29</td>
<td>10.20</td>
<td></td>
</tr>
<tr>
<td>US$/A$</td>
<td>0.70</td>
<td>0.69</td>
<td>0.75</td>
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</table>

Risks to the metal price assumptions used include, but are not limited to, adverse legislation or poor policies implemented by governments in operating regions, slow global growth, exchange rate volatility, international policies and global health threats such as the coronavirus (COVID-19) outbreak.

Quality assurance and quality control
In accordance with the SAMREC Code, a comprehensive quality assurance and quality control (QA/QC) protocol is in place at all the Gold Fields operations and projects. It draws on industry leading practice for data acquisition and utilizes national standards authority accredited laboratories (e.g. South African National Accreditation System (SANAS) in South Africa), which are regularly reviewed both internally and externally. Analytical QA/QC is maintained and monitored through the submission of blanks, certified reference material and duplicates, plus umpire laboratory checks.
AUDITING AND RISK

This December 2019 declaration aims to report on information that is rated as important for disclosure on Mineral Resources and Mineral Reserves and it reflects a level of detail required for completeness, transparency and materiality in reporting. Gold Fields’ Mineral Resources and Mineral Reserves estimates are reviewed on an ongoing basis by an internal CP team administered by CTS and cyclically by external and independent experts.

Gold Fields follows an embedded process of third-party reviews to provide expert independent assurance regarding the Mineral Resources and Mineral Reserves estimates and compliance to the appropriate reporting codes.

In line with Gold Fields’ policy that each operation or material project will be reviewed by an independent third party on average no more than once every three years, or when triggered by a material new Mineral Resources and/or Mineral Reserves declaration, the following operations were subject to external review during 2019:

- Asanko JV – Gold Fields maiden Mineral Resources reviewed by Optiro (Australia), while the Mineral Reserves and supporting PFS were reviewed by AMC (Australia)
- Cerrro Corona – Mineral Resources reviewed by Optiro (Australia), while the Mineral Reserves supporting the 2030 life extension FS were reviewed by RPA (Canada)

Certificates of compliance have been received from all companies that conducted the external reviews, which state that the Mineral Resources and Mineral Reserves have been stated in accordance with the SAMREC Code and there are no material issues identified in the estimation processes and LoM plans. Importantly, third-party audits are also configured to assist with continuous improvement regarding Resources and Reserves estimation and reporting.
External auditor’s certificates of compliance

Asanko Gold Mine – Compliance Statement

Dear Tim,

AMC Consultants Pty Ltd has completed a review of the Asanko Gold Mine Mineral Reserves and life-of-mine planning and finds that:

- The work reviewed was compliant to the SAMREC Code 2016 and JSE Section 12.
- The work was completed to an appropriate technical standard.
- No material technical/non-compliance issues were identified.

Yours sincerely,

David Lee
Principal Mining Engineer

Optiro has carried out an independent audit of the Mineral Resources at the Asanko Gold Mine in Ghana, in which Gold Fields has a 45% interest. The project is managed by Asanko Gold, a Canadian-listed entity, with participation from Gold Fields via a Management Committee.

Optiro has reviewed and audited the Mineral Resources underlying the principal sources of production in the current life-of-mine schedule as declared by Asanko Gold in its market release of February 20, 2020. The Mineral Resources are effective December 31, 2019. Optiro has validated the Mineral Resources and declares that they have been reviewed and classified in accordance with the SAMREC Code (2016) and with Section 12 of the JSE Listing Rules. Asanko has declared the resources in accordance with the OPM Guidelines, in accordance with its TSX listing, and Optiro believes that the resources can be declared under the SAMREC Code without alteration.

The Mineral Resource audit was carried out by Ian Glacken, FAusIMM(CP), FAIG, CEng, Director of Geology at Optiro, who declares that the resources have been generated to the appropriate technical standard, with no material area of non-compliance.

Yours sincerely,

Optiro

Ian M Glacken FAusIMM (CP), FAIG, CEng
Director of Geology

Optiro has carried out an independent audit of the Mineral Resources at the Asanko Gold Mine in Ghana, in which Gold Fields has a 45% interest. The project is managed by Asanko Gold, a Canadian-listed entity, with participation from Gold Fields via a Management Committee.

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Yours sincerely,

Optiro

Ian M Glacken FAusIMM (CP), FAIG, CEng
Director of Geology
Americas region

Mineral Reserves
5.0 Moz gold, 39.3 Moz silver and 619Mlb copper

MINE:
Cerro Corona – Peru
(99.53% attributable to Gold Fields)

PROJECT:
Salares Norte – Chile
(100% attributable to Gold Fields)

Mineral Resources
6.1 Moz gold, 43.7 Moz silver and 886Mlb copper

salient points
Cerro Corona mine – Peru (99.53% attributable to Gold Fields)

Cerro Corona’s life extension to 2030, first reported last year, is now supported by an FS which has driven improved Resource to Reserve conversion through solutions to key technical challenges related to accelerated mining, stockpile management, hydrogeology, waste rock storage and in-pit TSF hydraulic containment. A study to assess the viability of a further two-year life extension to 2032 will be conducted in 2020.

PROJECT:
Salares Norte – Chile

An updated FS was presented to the Board in February 2020 and the Final notice to proceed (FNTP) to construct the mine was subsequently provided. The EIA approval was obtained from Chilean authorities in December 2019. The Mineral Reserves estimate is 3.5Moz gold and 39Moz silver, equating to gold equivalent Reserves of 4.1Moz. The project has a current 10-year life-of-mine profiled (11.5 years inclusive of Inferred Resources), with construction scheduled to commence in Q4 2020 with first production in Q1 2023. Step-out drilling proximal to the Salares Norte pit is testing for potential extensions and district exploration continues to return encouraging results warranting more detailed follow up.
Regional overview

Exploration drilling and expenditure

The Mineral Resource for Cerro Corona mine is defined by approximately 97km of exploration drilling. Towards the end of 2018, Gold Fields La Cima (GFLC) completed a campaign that included 4,642m of infill drilling focused on increasing resolution on key lithological contacts to refine the long-term grade model and completion of additional hydrogeological boreholes.

During 2019, a drilling campaign of 11,665m of DD was carried out to assess the economic potential of Resources between the Reserve pit and the Resource pit. During the course of the drilling programme, it became evident that better potential may exist in the mineralisation adjacent to the eastern wall. Priority was given to focus on the drilling in this area. A study to assess the viability of a further two-year life extension to 2032 will be conducted in 2020, focusing on a potential east wall reserve pit cut-back supported by infill drilling and enhanced geological domaining undertaken in 2019.

At Salares Norte, step-out drilling at Agua Amarga North tested areas in excess of 100m outside the current Resource pit shell with encouraging results. Drilling to further assess ore body continuity at Agua Amarga North will continue in Q1 2020. District exploration was primarily focused over the Horizonte Project (formerly known as Pircas), where 14,459m of DD were completed over multiple targets returning encouraging results during the year. The Brecha West target was defined using geological mapping, geophysical surveys and geochemistry, and exploration drilling is to continue on this target in 2020 after limited DD drilling was completed (1,067m) in 2019.

The table below indicates drilling completed in the Americas region during 2019.

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<thead>
<tr>
<th></th>
<th>December 2019</th>
<th>December 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Metres</td>
<td>Cost (US$m)</td>
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<tr>
<td>Cerro Corona</td>
<td>11,665</td>
<td>2.6</td>
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<tr>
<td>Salares Norte and Chile regional</td>
<td>15,526</td>
<td>12.3</td>
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<td>Americas region</td>
<td>27,191</td>
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MINERAL RESOURCES AND MINERAL RESERVES

Americas region summary of the Mineral Resource and Mineral Reserve estimate

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<thead>
<tr>
<th></th>
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<tr>
<td></td>
<td>Measured, Indicated and Inferred</td>
<td>Proved and Probable</td>
</tr>
<tr>
<td></td>
<td>Tonnes (Mt)</td>
<td>Grade (g/t)</td>
</tr>
<tr>
<td>Cerro Corona Au</td>
<td>114.6</td>
<td>0.60</td>
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<tr>
<td>Salares Norte Au</td>
<td>25.6</td>
<td>4.76</td>
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<tr>
<td>Total Au</td>
<td>140.1</td>
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<td>Salares Norte Ag²</td>
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<td>53.14</td>
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<tr>
<td>Cerro Corona Cu²</td>
<td>112.5</td>
<td>0.36</td>
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<td></td>
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1 Managed, unless otherwise stated
² Reported tonnes containing gold are consistent for all metals
– All tonnes (t) relate to metric units and rounding-off of figures may result in minor computational discrepancies; where this happens, it is not deemed significant
Cerro Corona mine

Cerro Corona’s life extension to 2030, first reported last year, is now supported by an FS completed in 2019, which is based on optimisation of the current TSF to 3,803m amsl, increased density for the settled tailings and development of an in-pit tailing facility. Accelerated mining, waste storage solutions and stockpiling of ore are integral to the extended LoM.

A study to assess the viability of a further two-year life extension to 2032 will be conducted in 2020, focusing on a potential east wall pit cut-back supported by infill drilling and enhanced geological domaining undertaken in 2019, along with associated waste storage optimisation.

ASSET FUNDAMENTALS

General location
The Cerro Corona deposit, centred at longitude 78°37’W and latitude 6°45’S, is at elevations ranging from approximately 3,600m to 4,000m amsl. It is located 1.5km west northwest of the Hualgayoc village, some 80km by road north of the departmental capital of Cajamarca and approximately 600km north northwest of Lima, Peru’s capital city.

Licence status and holdings
The mining concessions owned by Cerro Corona cover an area of 6,096ha, while the surface rights cover 1,291ha. Cerro Corona is owned by GFLC, which holds 99.53% of the economic interest.

Mining method
Contract mining is deployed in the open pit applying conventional drill, blast, load and haul methods. Accelerated mining based on nine separate pit stages exceeds processing rates allowing tailings generated in the future to be placed back in the pit. An increase in truck size is being implemented on site to manage fleet logistics and derisk the potential for fleet congestion at peak mining rates. Ore is stockpiled during the accelerated mining phase at Cerro Corona and is typically managed at net smelter return (NSR) cut-off values of between US$14.45/t and US$28/t.

Operational infrastructure
Cerro Corona mine operates one open pit and one copper-gold plant. The mining administration and maintenance facilities are located at the mine.

Mineral processing and TSFs
The final concentrate is thickened and filtered before being stockpiled for road transport (380km) to the Salaverry port, for shipment to copper smelters in Japan and Germany. The thickened rougher flotation tails and the tails from the cleaner-scavenger flotation are sent by gravity to the TSF.

As part of its mining and metallurgical operational process, tailings are retained in a TSF with an embankment (dam), located downstream from the process plant over the Las Gordas and Las Águilas gorges. The TSF embankments (Las Gordas, Las Águilas and La Hierba) are being constructed in stages with borrow materials obtained from limestone quarries. The embankments each contain a clay core constructed from material obtained from the pit (oxide material). The TSF has a remaining LoM storage capacity of ~37.8 Mt (up to RL 3,803m).

Climate
There are no extreme climate conditions that could affect mining operations.

Local geology, deposit type and mineralisation style
The Cerro Corona copper-gold deposit consists of an intrusive diorite to quartz-diorite, dated at Mid-Miocene age (14.4 ± 0.1Ma). The intrusive is primarily emplaced along sub-vertical faults. Limestone alteration varies from siliceous in the south of the deposit to marbling in the west. The ore body is typical of porphyry-style mineralisation comprising stock works of quartz-pyrite-marcasite-chalcopyrite ± bornite ± hematite ± magnetite veining, hosted by intensely altered intrusive rocks of diorite and dacitic composition.

LoM: Proved and Probable Reserves
Based on the latest FS, current Mineral Reserves will be depleted in 2030 (10 years).

Sustainable development
Cerro Corona mine continued

KEY DEVELOPMENTS AND MATERIAL ISSUES

- Cerro Corona’s life extension has facilitated an improved Resources to Reserves conversion through innovative solutions to key technical challenges related to accelerated mining, stockpile management, hydrogeology, waste rock storage and TSF hydraulic containment.
- From 2025 onwards, when the stockpile balance peaks, the LoM plan is based on ore processed from stockpiles with in-pit tailings disposal.
- The geological and resource estimation model underpinning the LoM included an additional ~10,000m drilling.
- A scoping study to assess a possible additional LoM extension was undertaken in 2019 and will be advanced in 2020 as part of the 2032 PFS, focused on a further east-wall cut-back in the pit.
- Further assessment of TSF and WSF capacities will form part of the LoM extension study for additional Resource conversion.
- Geophysical surveys conducted in 2018/19 identified potential targets below the existing Resources pit shell, which assisted with configuring a drilling campaign to test for potential economic viability at depth; however, despite the drilling confirming the presence of mineralisation the metal grades returned were sub-economic and do not warrant follow up.
- High-quality grade control and mining practices continue to deliver very good reconciliation results for overbreak, mining recovery and as-mined versus mine design underpinning a Mine Call Factor (MCF) of between 99% and 101% for gold and copper averaged for the last three years.
- Processing recovery improvements based on targeting fine gold focused on capturing free gold particles in the range 20 to 30 micron using a gravimetric circuit are being assessed.
- Processing throughput improvements based on optimised blending are being assessed that could allow for in excess of 800t per hour milled.
- Stockpiled oxide gold ore totalling 2.1Mt containing approximately 143koz of gold were sold during 2019.
- The December 2019 Cerro Corona Mineral Resources and Mineral Reserves, as well as the FS, were subject to external and independent audit. The SAMREC compliance certificates issued by both mining consultancies are included in the Introduction section of this Supplement on p15.
- Risks to the execution of the LoM plan include:
  - Anticipated higher concentrations of arsenic located in certain sections of the pit’s southeast wall will be mined in 2020/21 and managed through blending to control content in the ore concentrate and consequently minimise the potential financial impact on concentrate sales.
  - To date the concentrate blend has been saleable.
  - The 2020/21 period will see peak vertical rates of advance in the pit and record tonnages mined (28Mt). However, this is not seen as a risk to metal production due to the optimised sequencing and equipment selection for the accelerated mining programme and the flexibility to process stockpiles at different rates if required.
  - EIA 9 is required before March 2026 when the first tailings material will be deposited into the pit and is supported by a comprehensive permit application process to the regulator scheduled for 2021 submission.
EXPLORATION AND RESOURCE DEFINITION DRILLING

During 2018/2019 a geophysical survey was undertaken across the Cerro Corona operation to support the generation of drill targets below the pit. The study comprised 3D Induced Polarisation (IP) combined with Magnetotelluric techniques (MT). This survey produced eight targets which were subsequently drill tested during 2019 through a programme of 11,665 m of DD. The drilling confirmed the presence of mineralisation; however, the grades below the pit are sub-economic and no further follow-up is warranted. During the course of the programme it became evident that better potential may exist in the mineralisation adjacent to the eastern wall. A study to assess the viability of a further two-year life extension to 2032 will be conducted in 2020 focusing on a potential east wall pit cut-back supported by infill drilling and enhanced geological domaining undertaken in 2019, along with associated waste storage optimisation.

PROJECT AND STUDY PIPELINE

A number of capital and LoM projects are scheduled in direct support of the prevailing LoM plan, and include the 2032 additional life extension study, the water treatment plant project and the enhanced mine closure plan, all to be undertaken in 2020. Additional LoM enabling features include continued depressurisation of the pit’s east wall, starting the Arpon WSF in Q3 2020 and completing the fleet change (30t trucks to 45t trucks) in 2021.

The significant opportunity to convert more Resources to Reserves at Cerro Corona remains a strategic focus. The Reserve and Resource gold and copper grades are similar due to the nature of the porphyry ore body. Innovative solutions to the prevailing constraints on TSF and WSF real estate would facilitate more conversion and life extension. Technical studies will continue to assess the potential Reserve pit east wall cut-back (included in the Resource this year), which will require land acquisition. The assessment of upside hydrogeological containment and stability of any expanded in-pit tailings and the engineering and design work for increased WSF capacity will be addressed as part of a PFS targeted for completion by the end of 2020.

OPERATING STATISTICS

<table>
<thead>
<tr>
<th>Units</th>
<th>Dec 2019</th>
<th>Dec 2018</th>
<th>Dec 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Open pit mining</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total mined</td>
<td>kt</td>
<td>22,341</td>
<td>21,776</td>
</tr>
<tr>
<td>− Waste mined</td>
<td>kt</td>
<td>14,317</td>
<td>14,922</td>
</tr>
<tr>
<td>− Sulphide tonnes mined</td>
<td>kt</td>
<td>8,024</td>
<td>6,854</td>
</tr>
<tr>
<td>Strip ratio (waste:ore tonnes)</td>
<td>ratio</td>
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<tr>
<td>Au mined grade</td>
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<td>Cu mined grade</td>
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<td>g/t</td>
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<tr>
<td>Cu head grade</td>
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<td><strong>Produced</strong></td>
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<tr>
<td>Cu sold</td>
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<td>Plant recovery factor (Cu)</td>
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<td><strong>Financials</strong></td>
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<td>US$/oz</td>
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<td>Average Cu price received</td>
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<td>Capital expenditure (capex)</td>
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<td></td>
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1 AIC calculated according to World Gold Council (WGC) standard, with copper revenue treated as a by-product.
## MINERAL RESOURCES AND MINERAL RESERVES

### Mineral Resources classification

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<th></th>
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<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
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<td>52,623</td>
<td>59,760</td>
<td>0.61</td>
<td>0.73</td>
<td>0.75</td>
<td>1,609</td>
<td>1,229</td>
<td>1,442</td>
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<td>0.49</td>
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<td>Oxides Measured</td>
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<td><strong>Grand total</strong></td>
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<td>107,658</td>
<td>114,986</td>
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<td>0.69</td>
<td>2,213</td>
<td>2,263</td>
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### Cu

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<tbody>
<tr>
<td><strong>Open pit</strong></td>
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<td></td>
<td></td>
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<tr>
<td>Measured</td>
<td>81,777</td>
<td>52,623</td>
<td>59,760</td>
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<td>42,856</td>
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<td>0.36</td>
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<td>338</td>
<td>328</td>
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<tr>
<td>Inferred</td>
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<td>3,199</td>
<td>3,290</td>
<td>0.31</td>
<td>0.33</td>
<td>0.36</td>
<td>13</td>
<td>23</td>
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<tr>
<td><strong>Total open pit</strong></td>
<td>107,218</td>
<td>98,597</td>
<td>104,050</td>
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<td>892</td>
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<td><strong>Surface</strong></td>
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<td></td>
</tr>
<tr>
<td>Stockpile Measured</td>
<td>5,288</td>
<td>4,064</td>
<td>3,823</td>
<td>0.30</td>
<td>0.30</td>
<td>0.30</td>
<td>35</td>
<td>27</td>
<td>25</td>
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<tr>
<td><strong>Grand total</strong></td>
<td>112,506</td>
<td>102,661</td>
<td>107,873</td>
<td>0.36</td>
<td>0.37</td>
<td>0.39</td>
<td>886</td>
<td>848</td>
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**Metal prices used for equiv oz**: US$1,400/oz Au and US$3.2/lb Cu. The metallurgical recovery rates (Au = 69% and Cu = 87%) and selling costs have not been applied to the conversion. Calculation: CuMlbs*Cu Price = 2.0 Au equivalent (eq.) Moz

### Modifying factors

#### Units

<table>
<thead>
<tr>
<th></th>
<th>December 2019</th>
<th>December 2018</th>
<th>December 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minerals</td>
<td>1,400</td>
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<td>Minerals Cu</td>
<td>3.2</td>
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<td>NSR for mill feed 1</td>
<td>14.45</td>
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</tr>
<tr>
<td>Au cut-off for oxide ore</td>
<td>0.4</td>
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<td>Minerals</td>
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<td>NSR for mill feed 2</td>
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<td>Strip ratio (wastecore)</td>
<td>0.94</td>
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<td>Dilution open pit</td>
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<td>Mining recovery factor (open pit)</td>
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<td>98</td>
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<tr>
<td>NSR</td>
<td>14.45</td>
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<td>14.75</td>
</tr>
<tr>
<td>Plant recovery (Au) – Hypogene 3, 4</td>
<td>68</td>
<td>68</td>
<td>69.5</td>
</tr>
<tr>
<td>Plant recovery (Cu) – Hypogene 3, 4</td>
<td>88</td>
<td>88</td>
<td>86.5</td>
</tr>
</tbody>
</table>

1 At December 2019, approximately 99% of remaining in-pit ore consisted of hypogene material
2 NSR is defined as the return from sales of concentrates, expressed in US$/t, i.e.: NSR = (Au price – Au selling cost) x Au grade x Au recovery + (Cu price – Cu selling cost) x Cu grade x Cu recovery. Since 2014, a variable NSR was applied to the LoM plan to optimise the NPV and FCF
3 For revenue estimation, a forward Cu price of US$2.6/lb for 2020, thereafter US$2.8/lb, was utilised
4 Average recovery provided; forecast recoveries are calculated using derived and regularly updated recovery models
Grade tonnage curve
The gold and copper grade tonnage curves for the Surface Mineral Resources are presented opposite. Stockpiles are excluded from the grade tonnage curves.

Grade tonnage curve sulphides – open pit

Mineral Reserves classification

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>Au</td>
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<tr>
<td>Proved</td>
<td>57,888</td>
<td>45,864</td>
<td>52,365</td>
<td>0.67</td>
<td>0.77</td>
<td>0.79</td>
<td>1,253</td>
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<td>29,961</td>
<td>30,004</td>
<td>0.54</td>
<td>0.51</td>
<td>0.52</td>
<td>178</td>
<td>490</td>
<td>500</td>
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<tr>
<td><strong>Total open pit</strong></td>
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<td>75,825</td>
<td>82,369</td>
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<td>0.67</td>
<td>0.69</td>
<td>1,431</td>
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<tr>
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<td>3,823</td>
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<td>0.70</td>
<td>1,553</td>
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<td>1,937</td>
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<td>Cu</td>
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<tr>
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<tr>
<td><strong>Total open pit</strong></td>
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<td>82,369</td>
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<td></td>
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<tr>
<td>Sulphide Proved</td>
<td>5,288</td>
<td>4,064</td>
<td>3,823</td>
<td>0.30</td>
<td>0.30</td>
<td>0.30</td>
<td>35</td>
<td>27</td>
<td>25</td>
</tr>
<tr>
<td>Grand total</td>
<td>73,523</td>
<td>79,889</td>
<td>86,191</td>
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<td>0.39</td>
<td>0.40</td>
<td>619</td>
<td>695</td>
<td>767</td>
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</table>

Metal prices used for eq. oz: US$1,200/oz Au and US$2.8/lb Cu. The selling cost, including refining and royalties, plus metallurgical recovery rate (Au = 69% and Cu = 87%), has not been applied to the conversion. Calculation: CuMlbs * Cu price (619 * 2.8) / Au price (1,200) = 1.4 Au eq. Moz

Mineral Resources and Mineral Reserves reconciliation year-on-year

<table>
<thead>
<tr>
<th>Factors that affected Mineral Resources reconciliation year-on-year</th>
<th>Factors that affected Mineral Reserves reconciliation year-on-year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining depletion (-281koz gold and -95Mlb copper)</td>
<td>Mining depletion (-270koz gold and -89Mlb copper)</td>
</tr>
<tr>
<td>Geological and resource model updates (+327koz gold and +132Mlb copper)</td>
<td>Geological and resource modelling (+34koz gold and +5Mlb copper)</td>
</tr>
<tr>
<td>Oxide stockpile sale of 2.1Mt (-143koz)</td>
<td>Updated pit design (+39koz gold and +2Mlb copper)</td>
</tr>
</tbody>
</table>
Mineral Reserves sensitivity (gold – koz; copper – Mlb)
The Mineral Reserves are constrained predominantly by the TSFs and WSFs, and are therefore reasonably insensitive to changes in the metal price. Sensitivities are not based on detailed rerun depletion schedules and should be considered on a relative and indicative basis only.
Salares Norte project – 100% attributable to Gold Fields

High-grade, open pit, gold-silver project in Chile discovered by Gold Fields in 2011, obtains construction approval from Gold Fields’ Board

The Environmental Impact Assessment (EIA) for the Salares Norte project was approved on 18 December 2019, earlier than estimated in the project schedule. As a result, the updated FS was presented to the Board in February 2020, and the FNTP was provided by the Board.

Gold Fields completed a definitive FS (DFS) in 2018 based on developing Salares Norte as an open pit mine with crushing, milling, leaching and metal extraction using both Merrill-Crowe and Carbon in Pulp (CIP) circuits at an average 2Mtpa plant throughput.

The Mineral Reserve is defined as the ore reporting from the mining schedule, with Probable material derived from the Indicated Resources. Key features from the updated Salares Norte DFS are:

- Mineral Reserves: 3.5Moz gold and 39Moz silver, equating to gold equivalent Reserves of 4.1Moz
- 10 years LoM excluding Inferred material and 11.5 years LoM including Inferred material
- Construction is scheduled to commence in Q4 2020
- First production is expected in Q1 2023
- Annual ore throughput of 2Mt
- LoM production of 3.6Moz gold-equivalent
- Average annual production of 450koz gold-equivalent for the first seven years, and average annual production of 355koz gold-equivalent for the first 10 years
- AISC over the LoM of US$552 per gold-equivalent ounce
- During 2019, the district exploration yielded encouraging results at the Horizonte project. In addition, more work is being done on the step-out potential at Agua Amarga North and Brecha West targets near the Salares Norte pit

ASSET FUNDAMENTALS

| General location | The Salares Norte project is located in the Atacama region of northern Chile. The nearest town is Diego de Almagro, about 190km by road to the west of the project. The project is at 26°0’42"S, 68°53’35"W, with elevations between 4,200m amsl and 4,900m amsl. |
| Licence status and holdings | Minera Gold Fields Salares Norte SpA (MGFSN), in which Gold Fields indirectly holds a 100% interest, owns the project. MGFSN holds 1,800ha of exploitation concessions (mining rights), with definitive title granted. MGFSN holds 82,030ha of additional exploration and exploitation concessions in the district surrounding the project. Access rights to the property were granted by the government and applications for water rights were approved. |
| Mining method | The Brecha Principal and Agua Amarga deposits will be mined by a contractor using open pit mining methods. Mining will be done in a series of six phases over nine years, including two years of pre-stripping, starting in Brecha Principal and finishing in Agua Amarga. Ultimately, the two pits merge into a single pit due to the backslope. Waste will be placed in either the south or north WSF. All ore will be hauled to either the RoM pad or one of the grade-bin stockpiles, south of the pits. |
| Operational infrastructure | Infrastructure will consist of mine and plant facilities, camp, offices, on-site power generation and potable water plant. Water will be supplied from a well field, 12km from the project. |
| Mineral processing and TSFs | The process plant, designed to process 2Mtpa, will be located southeast of the main pit at around 4,500m amsl. Ore will be crushed, milled and thickened, with thickener underflow pumped to cyanide leaching. Slurry from the leaching stage will feed a counter current washing and solid-liquid separation process through a two-stage CCD circuit. Metals in the solution will be recovered by zinc precipitation in the Merrill-Crowe process. Tailings slurry obtained from the underflow of the second CCD stage will be scavenged by a CIP circuit. The dry stack TSF, located above the south mine WSF, has a total design capacity of 24Mt. It is expected that tailings will come from the filter plant with geotechnical moisture content less than 20%. Filtered tailings will be transported by trucks to the TSF, spread and allowed to dry to specific moisture content before being compacted. |
| Climate | The mine is situated at high altitude, around 4,500m amsl. While inclement weather may occur at these elevations, management plans have been established to mitigate any negative impact on mining operations. |
The Gold Fields change in modifying factors. A detailed update did not result in any material from 27% to 57% during the year. The detailed engineering which progressed during 2019 to reflect the advance in and TSFs). The DFS metrics were updated (mining), and SRK (geotechnical, waste, (processing and infrastructure), NCL consulting groups in Chile, including Fluor engineering and design input from several feasibility study
Highlights of the definitive Mineral Reserves Supplement to the IAR development
Sustainable Probable Reserves LoM: Proved and Indicated category, improved confidence in the estimate has been achieved in 2019 through Agua Amarga infill drilling and grade control-spaced test drilling at Agua Amarga and Brecha Principal; this programme was designed to test local geology and grade domains defining higher grade zones and the results validated the overall resource model. The project database, geological models, resource models and the LoM plan were successfully audited by independent external consultants last year confirming the Mineral Resources and Mineral Reserves, essentially unchanged this year, as SAMREC compliant. See permitting section below for chinchilla relocation programme Limited amounts of mercury are a product of the metallurgical process and will be managed within the regulatory framework administered in country, however, more rigorous solutions for product retirement are being assessed by Gold Fields. The water balance model indicates very minor fluctuations to the Salares water table over the life of the project with negligible anticipated impact to fauna and flora, which will be closely monitored. Risks to the execution of the LoM plan include: Sectorial permitting is currently on schedule with no reason to believe it won’t be granted Silver and gold ratio is a low metallurgical risk with high retention times required for increased silver extraction

**ASSET FUNDAMENTALS continued**

| **Local geology, deposit type and mineralisation style** | The Salares Norte project is located in the northern part of the Maricunga Belt, an area with a predominance of Cenozoic volcanic rocks, comprising eroded strato-volcanos, volcanic domes, and pyroclastic rocks. Mineralisation is contained in a high-sulphidation epithermal system, hosted mainly by a breccia complex along the contact of two volcanic domes of andesitic and dacitic composition. Resources and Reserves have been delineated by drilling in two separate deposits, Brecha Principal and Agua Amarga, which are located about 500m apart. Most of the mineralisation known to date is oxidised. The sulphide mineralisation contains mainly pyrite and is generally lower grade, lower volume, and has lower processing recovery than the oxide material. |
| **LoM: Proved and Probable Reserves** | Based on the DFS, the mine will operate for nine years with processing of the Mineral Reserves over 10 years. District exploration to identify other deposits in the area is ongoing. |
| **Sustainable development** | An environmental impact study was approved by Chilean authorities in 2019. The EIA details all environmental and social impacts identified during the process together with the corresponding commitments to reduce potential impacts. An FS on the inclusion of renewable energy was completed during December 2019. The introduction of renewable energy is currently being planned to coincide with the end of the projected process plant ramp-up period when electrical demand will reach steady state. |

### KEY DEVELOPMENTS AND MATERIAL ISSUES

- The DFS for Brecha Principal and Agua Amarga was approved for development by the Gold Fields Board in February 2020 (following the approval of the EIA and completion of the funding strategy)
- The updated capex estimate is US$880m (in 2020 terms), scheduled over a 33-month period commencing in April 2020
- The detailed engineering for the project has advanced to 57% complete at the end of 2019
- Despite 97% of the Resources base already being in the Indicated category, improved confidence in the estimate has been achieved in 2019 through Agua Amarga infill drilling and grade control-spaced test drilling at Agua Amarga and Brecha Principal; this programme was designed to test local geology and grade domains defining higher grade zones and the results validated the overall resource model
- The project database, geological models, resource models and the LoM plan were successfully audited by independent external consultants last year confirming the Mineral Resources and Mineral Reserves, essentially unchanged this year, as SAMREC compliant
- See permitting section below for chinchilla relocation programme
- Limited amounts of mercury are a product of the metallurgical process and will be managed within the regulatory framework administered in country, however, more rigorous solutions for product retirement are being assessed by Gold Fields
- The water balance model indicates very minor fluctuations to the Salares water table over the life of the project with negligible anticipated impact to fauna and flora, which will be closely monitored
- Risks to the execution of the LoM plan include:
  - Sectorial permitting is currently on schedule with no reason to believe it won’t be granted
  - Silver and gold ratio is a low metallurgical risk with high retention times required for increased silver extraction

### Highlights of the definitive feasibility study
The DFS has been completed with engineering and design input from several consulting groups in Chile, including Fluor (processing and infrastructure), NCL (mining), and SRK (geotechnical, waste, and TSFs). The DFS metrics were updated during 2019 to reflect the advance in detailed engineering which progressed from 27% to 57% during the year. The update did not result in any material change in modifying factors. A detailed project execution plan was also developed during this period. The confidence in the engineering, execution readiness and cost estimation therefore improved materially year-on-year.

### Design concept
Following a two-year period of construction and pre-stripping, processing of the Brecha Principal deposit will commence, followed by the Agua Amarga deposit. Waste will be stored in two WSFs. Ore will be processed at a rate of 2Mt/ya. The process flowsheet includes single stage crushing, semi-autogenous grinding (SAG) and ball milling, leaching in agitated tanks, and hybrid metal extraction employing both Merrill-Crowe and CIP. Tailings from the CIP will be subjected to cyanide (CNwad) detoxification prior to filtration. The filter cake will be trucked to the dry stack tailings facility. Power supply will be from on-site diesel power generators while water will be sourced from groundwater wells located approximately one km from the plant area.
Salares Norte project – 100% attributable to Gold Fields

The following project layout is shown for reference:

Project site infrastructure layout

Reference

Co-ordinate System: WGS 1984 UTM Zone 19S
Projection: Transverse Mercator
The key physical results from the DFS and LoM plan for the potential new mine are summarised below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Key metric</th>
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</thead>
<tbody>
<tr>
<td>Indicated Resources</td>
<td>%</td>
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</tr>
<tr>
<td>Waste mined(^1)</td>
<td>Mt</td>
<td>310</td>
</tr>
<tr>
<td>Pre-strip</td>
<td>Mt</td>
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<tr>
<td>Ore mined</td>
<td>Mt</td>
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<tr>
<td>Plant throughput</td>
<td>Mtpa</td>
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<td>Strip ratio LoM(^1)</td>
<td>W:O</td>
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<td>Au grade</td>
<td>g/t</td>
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<tr>
<td>Ag grade</td>
<td>g/t</td>
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</tr>
<tr>
<td>Plant recovery (Au)</td>
<td>%</td>
<td>92.7</td>
</tr>
<tr>
<td>Plant recovery (Ag)</td>
<td>%</td>
<td>67.5</td>
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<td>LoM production</td>
<td>Moz Au Equiv</td>
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<tr>
<td>AISC over LoM (gold equivalent)</td>
<td>US$/oz</td>
<td>552</td>
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<tr>
<td>LoM</td>
<td>years</td>
<td>10</td>
</tr>
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\(^1\) Pre-strip included in waste mined and LoM strip ratio

**Permitting and development schedule**

The EIA was officially accepted by the Chilean Environmental Evaluation Service, or the Servicio de Evaluación Ambiental (SEA), in July 2018. The only significant impact identified as part of the EIA relates to the alteration and loss of habitat of the chinchilla, a critically endangered species in the area. A chinchilla relocation and protection programme has been developed as part of the EIA to compensate for this alteration and loss in habitat. The proposed relocation area is approximately 4km from the Salares Norte property.

The EIA was considered on the critical path for the project and was approved in December 2019. The EIA approval facilitated a Board decision to proceed with the project allowing for potential first gold production by Q1 2023.

The key project development milestones for the new mine are shown below:

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detailed engineering for plant and infrastructure commenced</td>
<td>Apr 18</td>
</tr>
<tr>
<td>Positive DFS completed</td>
<td>Dec 18</td>
</tr>
<tr>
<td>Maiden Reserves declaration</td>
<td>Dec 18</td>
</tr>
<tr>
<td>Detailed engineering progress at 57%</td>
<td>Dec 19</td>
</tr>
<tr>
<td>EIA approval</td>
<td>Dec 19</td>
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<tr>
<td>Construction approval obtained from Gold Fields' Board</td>
<td>Feb 20</td>
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<tr>
<td>Planned mobilisation date for mine pioneering and construction</td>
<td>Q3 2020</td>
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<tr>
<td>Planned first gold production</td>
<td>Q1 2023</td>
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</tbody>
</table>
Salares Norte project – 100% attributable to Gold Fields

continued

EXPLORATION AND RESOURCES DEFINITION DRILLING

2019/2019 exploration expenditures are presented in the Americas regional section. In 2018, the district exploration programme focused on Aster 3 and Aster 2, as well as the Helada-Mayweather prospects, with the strategic intent of defining additional mineable resources to bolster the overall LoM plan and increase flexibility and further opportunity for the project. In 2019 district exploration campaign continued drilling the most promising surrounding targets, initially at Horizonte (formerly known as Pircas), Aster 2 and Helada-Mayweather. These targets were prioritised as a result of an integration of the recent district airborne magnetics survey, district geological mapping, geochemistry and a Worldview three spectral alteration study.

At Salares Norte, step-out drilling at Agua Amarga North tested areas in excess of 100m outside the current resource pit shell with encouraging results. Drilling to further assess ore body continuity at Agua Amarga North will continue in Q1 2020. In 2019 district exploration was primarily focused over the Horizonte Project where 14,459m of DD were completed over multiple targets returning encouraging results during the year.

Additional targets within the Gold Fields tenement package (Aster 3 and Pan Pacific/Gold Fields Option Agreement) will also be evaluated for future exploration.

MINERAL RESOURCES AND MINERAL RESERVES

Mineral Resources classification

<table>
<thead>
<tr>
<th></th>
<th>Au Tonnes (kt)</th>
<th>Au Grade (g/t)</th>
<th>Au (koz)</th>
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<tbody>
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<td></td>
<td>Dec 2019</td>
<td>Dec 2018</td>
<td>Dec 2017</td>
</tr>
<tr>
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<tr>
<td>Open pit</td>
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<td>4.99</td>
<td>4.99</td>
<td>5.18</td>
</tr>
<tr>
<td>Inferred</td>
<td>1,842</td>
<td>1,860</td>
<td>2,343</td>
</tr>
<tr>
<td></td>
<td>1.84</td>
<td>1.84</td>
<td>2.28</td>
</tr>
<tr>
<td>Total open pit</td>
<td>25,556</td>
<td>25,560</td>
<td>23,298</td>
</tr>
<tr>
<td></td>
<td>4.76</td>
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</tr>
<tr>
<td></td>
<td>3,913</td>
<td>3,910</td>
<td>3,663</td>
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<table>
<thead>
<tr>
<th></th>
<th>Ag Tonnes (kt)</th>
<th>Ag Grade (g/t)</th>
<th>Ag (koz)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dec 2019</td>
<td>Dec 2018</td>
<td>Dec 2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open pit</td>
<td></td>
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</tr>
<tr>
<td>Measured</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indicated</td>
<td>23,714</td>
<td>23,700</td>
<td>20,955</td>
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<tr>
<td></td>
<td>56.29</td>
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<td>72.10</td>
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<tr>
<td>Inferred</td>
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<td>1,860</td>
<td>2,343</td>
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<tr>
<td></td>
<td>12.61</td>
<td>12.62</td>
<td>11.75</td>
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<td>Total open pit</td>
<td>25,556</td>
<td>25,560</td>
<td>23,298</td>
</tr>
<tr>
<td></td>
<td>53.14</td>
<td>53.13</td>
<td>66.03</td>
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<tr>
<td></td>
<td>43,662</td>
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Deposit Class

<table>
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<tr>
<th></th>
<th>Tonnes (kt)</th>
<th>Au (g/t)</th>
<th>Ag (g/t)</th>
<th>Au (koz)</th>
<th>Ag (koz)</th>
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<tbody>
<tr>
<td>Brecha Principal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indicated</td>
<td>15,883</td>
<td>5.27</td>
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<tr>
<td>Inferred</td>
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<td>1.86</td>
<td>17.00</td>
<td>65</td>
<td>591</td>
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<tr>
<td>Sub-total</td>
<td>16,964</td>
<td>5.05</td>
<td>65.35</td>
<td>2,755</td>
<td>35,642</td>
</tr>
<tr>
<td>Agua Amarga</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indicated</td>
<td>7,831</td>
<td>4.43</td>
<td>31.23</td>
<td>1,114</td>
<td>7,864</td>
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<tr>
<td>Inferred</td>
<td>761</td>
<td>1.80</td>
<td>6.38</td>
<td>44</td>
<td>156</td>
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<tr>
<td>Sub-total</td>
<td>8,592</td>
<td>4.19</td>
<td>29.03</td>
<td>1,158</td>
<td>8,020</td>
</tr>
<tr>
<td>Grand total</td>
<td>25,556</td>
<td>4.76</td>
<td>53.14</td>
<td>3,913</td>
<td>43,662</td>
</tr>
</tbody>
</table>

- Mineral Resources are reported according to the SAMREC Code
- Confidence classification assumes annual production-scale and open pit mining
- These Mineral Resources are classified as Indicated and Inferred. The CP has reasonable confidence in the Resources, but future drilling may materially change the Resources evaluation
- Commodity prices used for reporting Resources are US$1,400/oz gold and US$20/oz silver
- Mineral Resources are constrained within a Whittle optimised pit shell, which considered mining, processing and administrative costs, process recovery and sustaining capital
- Mineral Resources are situs for material within a pit shell having positive value after process recovery and costs for processing, refining, royalties, and administrative costs have been applied. A variable cut-off is applied since the process recoveries and cost are dependent on head grade. This resulted in an average revenue cut-off grade of US$43/t processed based on 1% royalty, average process recoveries of 92.4% for gold and 67.2% for silver; refining costs of US$2.78/oz for gold and US$1.21/oz for silver; average ore and tailings handling cost of US$85.10/t processed; average processing cost of US$28.61/t processed; sustaining capital costs of US$1.60/t processed; administrative costs of US$19.5M per year; and average mining costs of US$2.94/t mined
- Mineral Resources are reported without mining dilution and loss. Mining dilution and loss were accounted for in pit shell generation
- These Mineral Resources are reported inclusive of Mineral Reserves
- Figures are rounded to reflect confidence. Some figures may not sum or average exactly due to rounding. The CP deems these small discrepancies to be immaterial

Dec 2019
### Modifying factors

<table>
<thead>
<tr>
<th></th>
<th>December</th>
<th>Units</th>
<th>2019</th>
<th>2018</th>
<th>2017</th>
</tr>
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<tbody>
<tr>
<td><strong>Mineral Resources parameters</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mineral Resources Au price</td>
<td>US$/oz</td>
<td>1,400</td>
<td>1,400</td>
<td>1,400</td>
<td></td>
</tr>
<tr>
<td>Mineral Resources Ag price</td>
<td>US$/oz</td>
<td>20.0</td>
<td>20.0</td>
<td>20.0</td>
<td></td>
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<tr>
<td>NSR(^1) for mill feed</td>
<td>US$/t</td>
<td>43.00</td>
<td>43.00</td>
<td>43.00</td>
<td></td>
</tr>
<tr>
<td><strong>Mineral Reserves parameters</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mineral Reserves Au price</td>
<td>US$/oz</td>
<td>1,200</td>
<td>1,200</td>
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<td>—</td>
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<tr>
<td>Mineral Reserves Ag price</td>
<td>US$/oz</td>
<td>17.5</td>
<td>17.5</td>
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<td>—</td>
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<tr>
<td>NSR for mill feed</td>
<td>US$/t</td>
<td>43.16</td>
<td>43.16</td>
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<td>—</td>
</tr>
<tr>
<td>Strip ratio (waste:ore)</td>
<td>ratio</td>
<td>14.7</td>
<td>14.7</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Dilution open pit</td>
<td>%</td>
<td>3.12</td>
<td>3.12</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>MCF</td>
<td>%</td>
<td>100</td>
<td>100</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Mining recovery factor (open pit)</td>
<td>%</td>
<td>100</td>
<td>100</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Plant recovery (Au)(^2)</td>
<td>%</td>
<td>92.7</td>
<td>92.7</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Plant recovery (Ag)(^2)</td>
<td>%</td>
<td>67.5</td>
<td>67.5</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Processing capacity</td>
<td>Mtpa</td>
<td>2.0</td>
<td>2.0</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

\(^1\) NSR is defined as the return from sales of concentrates, expressed in US$/t, i.e., NSR = (Au price – Au selling cost) x Au grade x Au recovery + (Ag price – Ag selling cost) x Ag grade x Ag recovery. A variable NSR is applied to the LoM plan to optimise the NPV and FCF.

\(^2\) Average recovery provided; forecast recoveries are calculated using derived and applied recovery models.

---

Longitudinal section looking NE (Showing boreholes and main ore zones)
Salares Norte project – 100% attributable to Gold Fields

Grade tonnage curves

The gold and silver grade tonnage curves for the surface Mineral Resources are presented. Surface stockpiles are excluded from the grade tonnage curves.

Grade tonnage curve – open pit

Mineral Reserves classification

<table>
<thead>
<tr>
<th></th>
<th><strong>Au</strong></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Tonnes (kt)</strong></td>
<td><strong>Grade (g/t)</strong></td>
<td><strong>Au (koz)</strong></td>
</tr>
<tr>
<td><strong>Classification</strong></td>
<td><strong>Dec 2019</strong></td>
<td><strong>Dec 2018</strong></td>
<td><strong>Dec 2017</strong></td>
</tr>
<tr>
<td><strong>Open pit</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Proved</strong></td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Probable</strong></td>
<td>21,079</td>
<td>21,079</td>
<td>—</td>
</tr>
<tr>
<td><strong>Total open pit</strong></td>
<td>21,079</td>
<td>21,079</td>
<td>—</td>
</tr>
<tr>
<td><strong>Ag</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Classification</strong></td>
<td><strong>Dec 2019</strong></td>
<td><strong>Dec 2018</strong></td>
<td><strong>Dec 2017</strong></td>
</tr>
<tr>
<td><strong>Open pit</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Proved</strong></td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Probable</strong></td>
<td>21,079</td>
<td>21,079</td>
<td>—</td>
</tr>
<tr>
<td><strong>Total open pit</strong></td>
<td>21,079</td>
<td>21,079</td>
<td>—</td>
</tr>
</tbody>
</table>
Mineral Reserves by deposit

<table>
<thead>
<tr>
<th>Deposit</th>
<th>Class</th>
<th>Tonnes (kt)</th>
<th>Au (g/t)</th>
<th>Ag (g/t)</th>
<th>Au (koz)</th>
<th>Ag (koz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brecha Principal</td>
<td>Probable</td>
<td>15,373</td>
<td>5.23</td>
<td>69.2</td>
<td>2,587</td>
<td>34,205</td>
</tr>
<tr>
<td>Agua Amarga</td>
<td>Probable</td>
<td>5,706</td>
<td>4.84</td>
<td>27.6</td>
<td>899</td>
<td>5,058</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>Probable</td>
<td>21,079</td>
<td>5.13</td>
<td>57.9</td>
<td>3,476</td>
<td>39,263</td>
</tr>
</tbody>
</table>

- Mineral Reserves are reported according to the SAMREC Code.
- Confidence classification assumes annual production-scale and open pit mining.
- Mineral Reserves are classified as Probable and are based on Indicated Mineral Resources. The CP has reasonable confidence in the Reserves, but future drilling may materially change the Reserve evaluation.
- Commodity prices used for reporting Reserves are US$1,200/oz gold and US$17.50/oz silver.
- Mineral Reserves are based on the 2019 DFS production schedule which was constrained by a designed open pit. Modifying factors including mining, processing, and administrative costs, process recovery and sustaining capital cost are at an FS level.
- Mineral Reserves are reported using RoM tonnes and grades as delivered to the mill and are therefore fully diluted.
- A variable revenue cut-off was applied in the estimation of Mineral Reserves because the process recoveries and cost are dependent on the head grade. This resulted in an average revenue cut-off grade of US$43.16/t processed based on 1% royalty, average process recoveries of 92.7% for gold and 67.5% for silver, refining costs of US$2.53/oz for gold and US$1.21/oz for silver, average process costs of US$35.47/t processed, and administrative costs of US$19.5M per year. Average mining costs were US$2.39/t mined.
- Mineral Reserves include marginal ore valued at an average revenue cut-off of US$34.16/t processed, considering a reduction on costs during the re-handling period at the end of life of the processing facility.
- Figures are rounded to reflect confidence. Some figures may not sum or average exactly due to rounding. The CP deems these small discrepancies to be immaterial.

Mineral Resources and Mineral Reserves reconciliation year-on-year

<table>
<thead>
<tr>
<th>Factors that affected Mineral Resources reconciliation year-on-year</th>
<th>Factors that affected Mineral Reserves reconciliation year-on-year</th>
</tr>
</thead>
<tbody>
<tr>
<td>No significant changes to the December 2018 declaration</td>
<td>No changes to the December 2018 declaration</td>
</tr>
</tbody>
</table>

Change in gold Mineral Resources

- Mineral Reserves are included in the Mineral Resources estimate.

Mineral Resource reconciliation

<table>
<thead>
<tr>
<th>Contained gold (koz)</th>
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</thead>
<tbody>
<tr>
<td>Dec 2015 Infill/PFS</td>
<td>2,363</td>
</tr>
<tr>
<td>Dec 2016 Infill/IFS</td>
<td>3,121</td>
</tr>
<tr>
<td>Dec 2017 Infill/DFS</td>
<td>3,665</td>
</tr>
<tr>
<td>Dec 2018 Infill/FS</td>
<td>3,913</td>
</tr>
<tr>
<td>Dec 2019</td>
<td>1,036</td>
</tr>
</tbody>
</table>

- There is no Mineral Reserve reconciliation provided as this is a maiden declaration for Gold Fields.

Mineral Reserve sensitivity (gold – Moz; silver – Moz)

To illustrate the impact of fluctuations in gold price and exchange rates on the current declaration, Salares Norte has generated sensitivities with respect to Mineral Reserves. The following graph indicates the Managed Mineral Reserves sensitivity at -15%, -10%, -5%, base, +5%, +10% and +15% base – US$1,200/oz gold and US$17.50/oz silver reserve price. These sensitivities (other than for the base case) are not supported by detailed plans and depletion schedules. They should only be considered on an indicative basis, specifically as such sensitivities assume 100% selectivity, without any operating cost increases.
Australia region

salient points

Mineral Resources
18.5 Moz*  
>> Mineral Resources for the region grew by 8% net of depletion

Mineral Reserves
6.9 Moz*  
>> Mineral Reserves for the region grew by 8% net of depletion

* 100% attributable to Gold Fields
St Ives, Agnew, Granny Smith and Gruyere JV gold mines located in Western Australia

The Australian mines continue to deliver growth through ongoing exploration discovery from consistent annual investment in extensional and brownfield exploration (US$58.3m in 2019), with Agnew, Granny Smith and St Ives all increasing Resources and St Ives and Agnew increasing Reserves net of depletion. Substantial Reserves growth at Agnew (38%) and St Ives (31%) reflects excellent progress made on extensions to existing mines and the development of new mining fronts for the future. This year marks the largest Reserve estimated at St Ives since 2011, and at Agnew since 2014, reinforcing the trend for ongoing life extension at the Western Australia orogenic style operations given the right investment and exploration strategy.

The Gruyere JV mine produced first gold in Q2 2019 as planned with mine production and plant ramp-up continuing to deliver commercial production status in H2 2019.
Regional overview

Exploration drilling and expenditure
On-lease exploration metres drilled and expenditure for the year ended 31 December 2019 are summarised below (exclusive of grade control drilling). Higher exploration costs per metre drilled reflect the increasing ratio of DD as exploration progresses from near surface to deeper targets and increasing near-mine extensional drilling in support of underground Reserve replacement projects at St Ives, Agnew and Granny Smith.

<table>
<thead>
<tr>
<th>Operations</th>
<th>December 2019</th>
<th>December 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Metres drilled</td>
<td>A$m</td>
</tr>
<tr>
<td>Agnew</td>
<td>74,914</td>
<td>25.58</td>
</tr>
<tr>
<td>Granny Smith</td>
<td>142,891</td>
<td>20.22</td>
</tr>
<tr>
<td>St Ives</td>
<td>138,333</td>
<td>36.04</td>
</tr>
<tr>
<td>Gruyere (100% of metres and 50% of costs)</td>
<td>11,309</td>
<td>2.01</td>
</tr>
<tr>
<td>Total</td>
<td>367,447</td>
<td>83.86</td>
</tr>
</tbody>
</table>

1 The year-on-year reduction in total metres drilled is due to the increased ratio of DD, which is slower and higher cost, in support of the key underground projects at Agnew, St Ives and Granny Smith versus a lower ratio on aircore and RC drilling activity on brownfield exploration.
– Average 2019 exchange rate: A$1 = US$0.6955
– Drilling unit costs are affected by the length, type (DD, reverse circulation (RC), aircore or sonic), ground conditions, rig and site availability, as well as whether drilling is from surface or underground.

MINERAL RESOURCES AND MINERAL RESERVES

Australia region: Summary Mineral Resource and Mineral Reserve estimate for operational mines

<table>
<thead>
<tr>
<th>Operation</th>
<th>December 2019</th>
<th>Dec 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tonnes (Mt)</td>
<td>Grade (g/t)</td>
</tr>
<tr>
<td>Agnew</td>
<td>14.0</td>
<td>5.60</td>
</tr>
<tr>
<td>Granny Smith</td>
<td>49.4</td>
<td>5.23</td>
</tr>
<tr>
<td>St Ives</td>
<td>34.5</td>
<td>3.97</td>
</tr>
<tr>
<td>Gruyere</td>
<td>76.8</td>
<td>1.34</td>
</tr>
<tr>
<td>Total</td>
<td>174.7</td>
<td>3.30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operation</th>
<th>December 2019</th>
<th>Dec 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tonnes (Mt)</td>
<td>Grade (g/t)</td>
</tr>
<tr>
<td>Agnew</td>
<td>4.6</td>
<td>5.17</td>
</tr>
<tr>
<td>Granny Smith</td>
<td>12.5</td>
<td>5.18</td>
</tr>
<tr>
<td>St Ives</td>
<td>20.9</td>
<td>3.40</td>
</tr>
<tr>
<td>Gruyere</td>
<td>45.2</td>
<td>1.24</td>
</tr>
<tr>
<td>Total</td>
<td>83.2</td>
<td>2.59</td>
</tr>
</tbody>
</table>

1 Managed, unless otherwise stated (Gruyere: only the Gold Fields attributable figures are reported)
– Mineral Resources are inclusive of Mineral Reserves
– All tonnes (t) relate to metric units and rounding-off of figures may result in minor computational discrepancies; where this happens, it is not deemed significant
Both the Waroonga and New Holland underground mines continued to deliver positive results from Gold Fields’ ongoing investment in exploration and resource definition drilling to delineate and extend known ore sources. These areas include the Waroonga North extensions, Kath Lower, FBH South, Himitsu and Sheba areas. Mining at Waroonga is now focused on Waroonga North, FBH and the Main ore lodes. In 2020, our priority is on access development to the Waroonga North and Kath Lower areas, so as to advance these new mining fronts.

Near-mine exploration and resource conversion programmes carried out during 2019 increased the potential of the Agnew mine, with both near mine and regional areas discovering new targets with economic potential. The discovery of an extension to Zone 2 North from definition drilling near the historic Redeemer mine – along with the discovery of Barren Lands, a small pit approximately a kilometre to the north with underground extensional potential – are noteworthy successes from 2019. We prioritised brownfield exploration programmes to test targeted areas across the broader tenement package which were identified from the foundational datasets acquired over the past few years. The Agnew Resources increased by 23% and the Reserves by 38% year-on-year post depletion, justifying the ongoing investment in the camp and mine infrastructure and a testament to the long-term potential of the operation.

### ASSET FUNDAMENTALS

| General location | Agnew is situated at latitude 27°55'S and longitude 120°42'E in the Norseman-Wiluna Greenstone Belt. It is located 23km west of the town of Leinster in Western Australia, which is 375km north of Kalgoorlie and approximately 870km northeast of Perth. Well-established power, access roads and supporting infrastructure are in place. |
| Licence status and holdings | The Agnew Gold Mining Company Proprietary Limited (AGMC), ACN 098-385-883, was incorporated in Australia in 2001 as the legal entity holding and conducting mining activity on the Agnew mineral leases. Gold Fields holds 100% of the issued shares of AGMC through its 100% holding in the issued shares of Orogen Holding (BVI) Limited. Agnew controls exploration and mineral rights over a total area of 82,959.7ha (total of granted, inclusive of miscellaneous and non-managed tenements), and has security of tenure for all current exploration and mining leases (MLs) that contribute to future Mineral Reserves. |
| Mining method | The primary mining method at Waroonga is long-hole sub-level stoping with paste fill. The New Holland mining method depends on the geometry of the ore structure, with the primary method being long-hole open-stopping. |
| Operational infrastructure | Agnew currently operates two underground mines, Waroonga and New Holland. At Waroonga, ore is sourced from the Waroonga North, FBH and Main and Kim lodes that are accessed via declines. New Holland mining occurs in four primary areas: Genesis, New Holland, Cinderella and Sheba. These are accessed via declines. A renewable power plant was commissioned in 2019, which will continue into 2020, and includes solar, wind turbine, gas generator, battery power storage and diesel back-up power solutions. |
| Mineral processing and TSFs | The Agnew processing plant consists of a tertiary crushing circuit, followed by two-stage ball milling circuit with gravity and a conventional CIP gold recovery circuit (1.3Mtpa capacity). Agnew’s TSFs 1 and 2, an adjoined above-ground paddock storage facility, are decommissioned. TSF 3 is an in-pit facility located at the Redeemer Pit, operational since it was commissioned in 2004. TSF 3 is being topped up on an irregular basis since the commissioning of TSF 4. TSF 4 is an in-pit facility located at the Songvang Pit and has a remaining LoM storage capacity of ~6.5Mt. All the Lawlers TSFs are closed and rehabilitated. |
| Climate | The climate is semi-arid and temperatures vary from an average minimum of 4° C in June to an average maximum of 36° C in January. No extreme climate conditions are experienced that materially affect mining operations. |
Agnew gold mine

ASSET FUNDAMENTALS

Local geology, deposit type and mineralisation style

Agnew is situated in the northern portion of the Norseman-Wiluna Greenstone Belt of the Yilgarn Craton, Western Australia. Locally, the Belt comprises a sequence of mafic to ultramafic volcanics and associated interflow sediments, which have been folded to form the Lawlers Anticline.

The mafic and ultramafic volcanics of the Lawlers Anticline are unconformably overlain by a sequence of clastic sediments comprising the Scotty Creek Formation. The sedimentary rocks have been metamorphosed to lower greenschist facies and comprise conglomerates, and very fine to very coarse-grained pebbly sandstones and siltstines.

The Agnew deposits are broadly hosted by the intersections between various structures and the relative stratigraphy. Gold mineralisation largely occurs in quartz veins within the sedimentary units of the Scotty Creek Formation.

Orogenic greenstone gold deposits (hydrothermal) are hosted in a number of different styles of lodes. Although all of the Agnew deposits broadly occur at the intersections between structures and stratigraphy, there are subtle differences in alteration and mineralisation, which are controlled in part by the local host rock chemistry. Mineralisation zones are discontinuous with short range predictability.

LoM: Proved and Probable Reserves

Extensional and brownfields exploration continues, which could extend the LoM given the modelled endowment potential and under explored sections of the tenements. It is estimated that the current Mineral Resources will be depleted in 2024 (five years).

Sustainable development

Agnew retained its certifications in terms of ISO 45001 and ISO 14001. During 2014, the New Holland operations were amalgamated under these certifications. The mine was recertified to comply with the International Cyanide Management Code (ICMC) in September 2019. During the year, Agnew also achieved ISO 27001 certification.

KEY DEVELOPMENTS AND MATERIAL ISSUES

- Replacement of and growth in Reserves during 2019, and exploration success:
  - Kath Lower and Sheba South growth
  - Redeemer Zone 2 and Barren Lands maiden Reserves
  - Redeemer Zone 2 represents an initial Reserve position in an area that shows strong geological potential to grow into a significant underground complex with ongoing exploration and extensional drilling and portal access planned from the Barren Lands open pit
- LoM infrastructure investments, improvement in culture, and securing a sustainable future:
  - Completion of the Agnew accommodation facility
  - Completion of the solar farm and gas electricity facility
  - Commenced the construction of the wind farm
  - Upgrades to the underground infrastructure of existing mines
- Completion of mining studies to support growth opportunities
- LoM extension remains a priority for Agnew in 2020, with key focus on the following areas:
  - Extensional and resource definition drilling at Waroonga North, North, FBH and Sheba
  - Resource extension drilling at both Redeemer Zone 2 North and Barren Lands
  - Further early-stage exploration across the broader tenement package on selected advanced prospects
- New Holland continues to convert Resource ounces to the Indicated category in specific areas, facilitating conversion to Reserves that are typically mined within the reporting cycle and therefore are not reflected in the year-on-year reconciliation but do contribute to annual gold production
- Drill platforms were established for the Waroonga North Lower and Kath Lower lodes in 2019. New Holland has extracted remnant lodes in the New Holland and Genesis ore bodies to supplement production from the Sheba lode. Emphasis will be placed on extending the Mineral Resources from the Sheba South area in 2020
- PFS level studies were completed for the Barren Lands open pits, Redeemer Zone 2 and Kath Lower undergrounds in support of the Reserves
- 2020 will see a continued focus by a dedicated team to assess opportunities to potentially re-configure the mine to better monopolise on Agnew’s full site potential and LoM extension, including low-risk incremental opportunities
- Risks to the execution of the LoM plan include:
  - The lead time on converting exploration success into viable projects to support the strategic plan
  - Project start-up costs for new generation mining fronts
  - Geotechnical ground conditions at depth at Kim and FBH and also at Kath and Sheba are being managed using geotechnical modelling and closure monitoring programmes
OPERATING STATISTICS

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EXPLORATION AND RESOURCES DEFINITION DRILLING

2018/2019 exploration expenditures are presented in the Australia regional section. Exploration in 2019 focused on extending both the Waroonga and New Holland mineralised systems. Underground exploration was carried out at Waroonga North and Kath Lower, with discovery of a significant high-grade extension to the Kath Lower lodes. Further infill drilling of FBH Lower, targeting the Fitzroy, Midreef and Bengal lodes down plunge, was completed. Extensional and infill drilling was also carried out on the Triton lodes. Down-dip extensional drilling of the Kim lode returned positive results. In 2020, we will complete step-out and infill drilling programmes in the Waroonga North, Kath Lower, Main South and FBH South areas.

The New Holland extensional and exploration drilling was conducted on three main areas: Sheba South and North, as well as Himitsu, while limited drilling was conducted in the New Holland and greater Genesis areas. Focused drilling on the Sheba South and North targets and the Himitsu target is planned for 2020, as well as the area further south under the historic Hidden Secret pit.

Detailed close-spaced drilling at Barren Lands in late 2018, together with the discovery through two target holes drilled in 2018 at Redeemer Zone 2 North, have resulted in maiden Reserves declarations for both projects. Barren Lands, a small high-grade pit, and Redeemer Zone 2 North (which will be an underground mine) will be tested in 2020 for Resource extensions both north and south of current drilling. There is also depth extensional drilling planned at Barren Lands with significant economic intercepts already received from drilling in late 2019.

Surface exploration has drill tested 10 targets across the entire tenure using RC and DD. These projects included discovery programmes on data collected during the previous year’s full field-wide spaced programmes to define mineralisation styles over known areas of significance. Follow-up work is scheduled for 2020.

PROJECT AND STUDY PIPELINE

A broad range of projects are scheduled, ranging from strategic option analysis, desktop and scoping studies, to PFS and FS, to underpin the LoM plan and life extension. The 2020 projects include the strategic assessment of scoping studies for Barren Lands underground and Redeemer North, PFS for the Waroonga-New Holland ‘One Mine’ concept and FS for Kath Lower, Barren Lands open pit and Redeemer Zone 2. The timing of the various projects is calibrated to support Agnew’s strategic and LoM plans, and consequently takes account of project lead times, required funding and resources, as well as the Company capital investment process.

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## Agnew gold mine continued

### MINERAL RESOURCES AND MINERAL RESERVES

#### Mineral Resources classification

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<thead>
<tr>
<th></th>
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<td>Au (koz)</td>
<td>Tonnes (kt)</td>
<td>Grade (g/t)</td>
<td>Au (koz)</td>
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<td>Grade (g/t)</td>
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#### Mineral Resources classification per source area

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<td>Kath</td>
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## Modifying factors

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<tr>
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### Mineral Resources parameters

- **Mineral Resources Au price**
  - US$/oz: 1,400
  - US$/A$: 0.76
  - A$/oz: 1,850
- **Cut-off for underground**
  - g/t: 2.5 – 3.8
- **Cut-off for open pit**
  - g/t: 0.83 – 0.95

### Mineral Reserves parameters

- **Mineral Reserves Au price**
  - US$/oz: 1,200
  - US$/A$: 0.75
  - A$/oz: 1,600
- **Cut-off for fresh ore**
  - g/t: 2.85 – 4.4
- **Cut-off for oxide**
  - g/t: 0.96 – 1.13
- **Mining recovery factor (underground)**
  - %: 80 – 95
- **MCF**
  - %: 100
- **Dilution underground**
  - %: 24
- **Plant recovery**
  - %: 93.3
- **Processing capacity**
  - Mtpa: 1.3

### Grade tonnage curves

The grade tonnage curves for the surface and underground Mineral Resources are presented. Stockpiles are excluded from the grade tonnage curves.

#### Grade tonnage curve – underground

- **Cut-off grade (g/t):** 2.5
- **Average grade above cut-off (g/t):** 6
- **Tonnes above cut-off (millions):** 53

#### Grade tonnage curve – open pit

- **Cut-off grade (g/t):** 0.9
- **Average grade above cut-off (g/t):** 3
- **Tonnes above cut-off (millions):** 4,336

### Mineral Reserves classification

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Agnew gold mine continued

Mineral Reserves classification per mining area

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<tr>
<td>Kath</td>
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The current LoM plan reflects mining at the Waroonga, New Holland and Redeemer complexes, along with the previously declared open pits supported by mining at Barren Lands.

Mineral Resources and Mineral Reserves reconciliation year-on-year

Factors that affected Mineral Resources reconciliation year-on-year

- Mining depletion (-235koz)
- Infill and extensional drilling resulted in additions at Kath Lower, Sheba, Main, FBH, Waroonga North, Cinderella, Leviathan North and Himitsu
- Increases due to extensional discovery at both mines, Zone 2 North and Barren Lands

Factors that affected Mineral Reserves reconciliation year-on-year

- Mining depletion (-235koz)
- Extensions to Waroonga North, Kath Lower FBH South and Sheba South
- Infill drilling and resource model updates increased ounces at FBH, Waroonga North, Kath Lower, Main, Sheba and Himitsu

Mineral Resource and Mineral Reserve reconciliation

Gold (koz)

Dec 2018        Dec 2019

Mineral Depletion: 2,049 (-235)
Economic Factors: 600 101 26
Discovery: 2,521
Resource modelling: 0 26 26
Inclusions/exclusions: 0 0 0
Closing: 2,049 (-235)
Schematic NS cross-section through the New Holland/Genesis ore bodies and mine workings

Mineral Reserves sensitivity
To illustrate the impact of fluctuations in gold price and exchange rates on the current declaration, Agnew has generated sensitivities with respect to Mineral Reserves. The following graph indicates the Managed Mineral Reserves sensitivity at -15%, -10%, -5%, base, +5%, +10% and +15% to the base (A$1,600/oz) reserve gold price.

These sensitivities (other than for the base case) are not supported by detailed plans and depletion schedules. They should only be considered on an indicative basis, specifically as such sensitivities assume 100% selectivity, without any operating cost increases.

Mineral Reserve sensitivity
Gold (koz)

1,000
800
600
400
200
0
(15%) (10%) (5%) Base +5% +10% +15%

Gold price (A$/oz)
628 646 701 772 813 832 852

Schematic NS long-section through the Waroonga ore bodies
The Redeemer Complex comprises the Redeemer Zone 2 North and Redeemer Zone 2 South ore bodies adjacent to previously operated Redeemer mine workings.
References
Granny Smith’s multi-year track record for replacing Resources at the Wallaby underground operation continued in 2019, with a 6% increase to 8.3Moz year-on-year post depletion. In 2019, Granny Smith returned Reserves of 2.1Moz post depletion, equal to a decrease of 7.5% year-on-year, as the exploration drilling to define the full footprints for Zones 100 and 110/120 in Wallaby reach completion.

However, extensional exploration from underground drill platforms continues to expand the Resources and mining potential of the Wallaby lodes, both laterally and at depth, specifically for Zone 135. The discovery and definition of the vertical lodes above Zone 135 has provided additional opportunity to expand our mining operations in this area. Emphasis will be placed on improving the Resources to Reserves conversion in 2020, with focus on the significant Inferred Resources at Wallaby. The Government Exploration Incentive Scheme Funding supported drilling two holes below Zone 135, which confirmed extensions to Zones 150 and 160 down to approximately 2.2km below the surface. Regional exploration programmes are focused on collecting additional foundational datasets on Lake Carey, in combination with early stage target definition on both land and lake-based projects.

**ASSET FUNDAMENTALS**

**General location**
Granny Smith is situated within the Yilgarn Craton at an elevation of 400m amsl, and located at latitude 28°51’09”S and longitude 122°18’35”E, approximately 400km northeast of the town of Kalgoorlie in the eastern Goldfields of Western Australia in the Laverton district.

**Licence status and holdings**
Granny Smith is owned by GSM Mining Company (Pty) Ltd, a wholly owned subsidiary of Gold Fields. This entity came into being on 1 October 2013, following Gold Fields’ acquisition of the asset from Barrick Corporation. Granny Smith controls exploration and mineral rights over a total area of 97,887ha, including miscellaneous and non-managed tenements (a total of 98 tenements) and has security of tenure for all current exploration and MLs that contribute to future Mineral Reserves.

**Mining method**
Wallaby underground is accessed via a decline, mining methods employed include room and pillar, bulk stopes and long-hole open stoping. The Z135 bulk stopes currently reflect the deepest mining at Wallaby at approximately 1,450m below surface. Ground support, pillars and paste fill are designed to manage seismic activity. Operations utilise owner mining. Road haulage carts ore to the processing plant from the decline portal.

**Operational infrastructure**
Granny Smith has one underground mine contributing to the Mineral Reserves and Mineral Resources. Mineral Reserves does not include any open pits, and one open pit contributes to the Mineral Resources. The mine has one ore stockpile in the LoM plan, centralised administrative offices and engineering workshops.

**Mineral processing and TSFs**
Ore is processed at the two-stage crushing, milling, gravity and CIP processing plant under a campaign treatment scenario. The plant is located 15km northeast of the Wallaby underground mine.

Granny Smith operates a single TSF that comprises three connected compartments, known as Cells 1, 2, and 3. Cell 1 was raised to its final permitted crest elevation of 448mRL in late 2016 and has a remaining LoM storage capacity of ~0.96Mt. This cell is currently inactive. Cell 2 was raised to its final permitted crest elevation of 448.5mRL in 2012. This cell is filled to its capacity and is currently being harvested for paste fill. Cell 3 was raised to an elevation of 432.2mRL in November 2018 (final permitted elevation of 437mRL) and has a remaining LoM storage capacity of ~4.1Mt. The detailed design of a future Cell 4 is currently in progress.

**Climate**
The climate is semi-arid and temperatures vary from an average minimum of 4° C in June to an average maximum of 36° C in January. The average annual rainfall total is 220mm. No extreme climate conditions are experienced that materially affect mining operations.
With mining moving below 1,000m, disciplined mining extraction sequencing and spatial compliance to plan are paramount in optimising ore body extraction and mitigating seismic activity.

Ongoing exploration drilling has expanded the Mineral Resources footprint of the Zone 135 lodes and has framed significant mineralised zones down to Zone 150 at Wallaby.

An updated Zone 135 PFS was completed in H2 2019 to encompass the expanded Reserves profiled in 2019.

The Resources development strategy continues to focus on identifying the potential of the Wallaby system down to the Zone 150 level, including geotechnical and seismicity modelling and metallurgical response testing.

The Resource Optimisation Project (ROP) again performed well in 2019 with targeted drilling delivering additional Resource ounces from the shallower Wallaby Zone 250/60 (Joey Decline), Zone 80 and Zone 90.

Strategic drilling of air core across Lake Carey to collect foundational data about regolith, anomalism, geology, and multi-element dispersion to build the next generation of high-quality bedrock targets was completed.

Exploration drill programmes targeting bedrock intersections below air core anomalies commenced at several new targets, as well as testing of more advanced historic targets within the Granny Smith area.

Ongoing plant upgrades and refurbishment during 2019 continued to improve metal recovery.

Risks to the execution of the LoM plan include:

- Due to the increased depth of mining, mine induced seismicity is to be expected. To mitigate and minimise the risk to health, safety and production, the following strategies have been implemented:
  - Increase in the size of regional stability pillars to control mine-scale stability
  - Introduction of paste backfill to reduce convergence
  - Incorporation of the most geotechnically favourable extraction sequence into the LoM plan
  - Deeper level mining is associated with increasing costs which will be addressed by a broad range of business improvement projects and improved mining efficiency to maintain the AIC/oz margin
  - Mining efficiency is expected to increase with modernisation, automation and dual decline access

**KEY DEVELOPMENTS AND MATERIAL ISSUES**

- With mining moving below 1,000m, disciplined mining extraction sequencing and spatial compliance to plan are paramount in optimising ore body extraction and mitigating seismic activity.

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    - Mining efficiency is expected to increase with modernisation, automation and dual decline access
Granny Smith gold mine continued

Reserve reduction impacted by increased pillar requirements in Zones 110, 120 and 135

OPERATING STATISTICS

<table>
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<th>Dec 2018</th>
<th>Dec 2017</th>
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<td>US$/oz</td>
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<td></td>
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EXPLORATION AND RESOURCES DEFINITION DRILLING

2018/2019 exploration expenditures are presented in the Australia regional section.

In 2019, exploration focused on:
• Resource conversion drilling and extensions to the Wallaby deposit. Expanding the Mineral Resources footprint of Zone 250/60, Zone 80, Zone 90 and Zone 135 lodes and testing mineralised zones below Zone 150
• Exploration and subsequent fast-tracking of Resources conversion drilling within the Zone 135 vertical lenses
• Assessing potential across the broader tenement package with the aim of discovering a new ore deposit outside of Wallaby. Drill programmes targeting bedrock intersections below air core anomalies at Whiskey Prune and Northern Reaches, as well as bedrock testing of historic anomalies at Stansby-Alberton and Topsides were completed
• Follow-up infill air core drilling was completed on air core anomalies at Mt Lucky, Northern Reaches, Laverton North (creating the Jekyll and Fog targets) and the Florida area (resolving the high-grade Squirrel anomaly)
• DC following up the preliminary bedrock target at Squirrel failed to identify significant bedrock mineralisation despite intersecting similar stratigraphy and structures as the nearby Sunrise Dam deposit

In 2020, exploration will be directed towards:
• Further drilling of the Zone 135 lodes to close out open-ended areas and define the full ore body footprint to support completion of a final FS
• Drilling for potential Resources growth in the Zone 250/60 at Joey
• Continued Resources and Reserves growth at Wallaby through extensions to lodes both laterally and at-depth
• Continued bedrock testing of high-quality surface exploration targets generated by anomalous and refining geological interpretations from first pass air core programmes
• Accelerated bedrock testing of quality anomalous targets with high potential in both size and grade

PROJECT AND STUDY PIPELINE

A broad range of projects are scheduled, ranging from strategic option analysis, desktop and scoping studies to PFS and FS, to underpin the LoM plan and life extension.

To increase the rigour of studies directed at mining below Zone 135, a holistic assessment of materials handling, pillar design, ground support and ventilation options is currently being undertaken. This is needed to optimise the future mining model and offset increasing operating costs linked to increased haulage, the increased requirement for paste fill and other additional ground support requirements as operations move deeper.

The 2020 projects include starting the Zone 135 FS, which will continue into 2021 in parallel with initial development, an FS for the supplementary Joey 250 and Z60 zones, a PFS for Goanna underground and a desktop study on autonomous mining. Strategic studies on Zone 150, including a full assessment of mining method options, will provide the foundation for a scoping study in 2020.

MINERAL RESOURCES AND MINERAL RESERVES

Mineral Resources classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Tonnes (kt)</th>
<th>Grade (g/t)</th>
<th>Au (koz)</th>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measured</td>
<td></td>
<td></td>
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<tr>
<td>Indicated</td>
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<tr>
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<td>589</td>
<td>840</td>
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<td>1,404</td>
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<tr>
<td>Underground</td>
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<tr>
<td>Measured</td>
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<td>4,008</td>
<td>4,071</td>
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<tr>
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<td>27,792</td>
<td>21,606</td>
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<tr>
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<td>13,374</td>
<td>11,440</td>
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<td>43</td>
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<td>49,417</td>
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Mineral Resources classification per mining area

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<th>Inferred</th>
<th>Total Mineral Resources</th>
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<td>Tonnes (kt)</td>
<td>Grade (g/t)</td>
<td>Au (koz)</td>
<td>Tonnes (kt)</td>
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<tr>
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<td>Hillside</td>
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<td>Total open pit</td>
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<td>—</td>
<td>—</td>
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</tr>
<tr>
<td>Underground</td>
<td></td>
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<tr>
<td>Granny Smith</td>
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<td>—</td>
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<td>4,018</td>
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<td>9,149</td>
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<td>Zone 135</td>
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<tr>
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<td>783</td>
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Modifying factors

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<td></td>
<td>2019</td>
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Mineral Resources parameters

- Mineral Resources Au price:
  - US$/A$: 0.76 (2019), 0.76 (2018), 0.76 (2017)
- Cut-off for open pit:
  - g/t: 0.63 (2019), 0.60 – 0.63 (2018), 0.57 – 0.63 (2017)
- Cut-off for underground:
  - g/t: 2.1 – 2.9 (2019), 2.0 – 2.8 (2018), 2.0 – 2.8 (2017)

Mineral Reserves parameters

- Mineral Reserves Au price:
  - US$/A$: 0.75 (2019), 0.75 (2018), 0.75 (2017)
- Cut-off for underground:
- Mining recovery factor (underground):
- MCF:
  - %: 100 (2019), 100 (2018), 100 (2017)
- Dilution underground:
- Plant recovery:
  - %: 92.8 (2019), 92.2 (2018), 92.8 (2017)
- Processing capacity:

1 Average recovery provided; forecast recoveries are calculated using derived and regularly updated recovery models, that are also dependent upon ore source.
Grade tonnage curves
The grade tonnage curves for the surface and underground Mineral Resources are presented. Stockpiles are excluded from the grade tonnage curves.

Mineral Reserves
The Mineral Reserves reduced by 7.5%, post depletion, to 2.1Moz, mainly due to the increased barrier, rib and regional pillar design in Zones 110, 120 and 135 to mitigate the propensity for seismic activity, which partially offset the successful Resources conversion programme and the discovery of the Zone 135 vertical lodes.

Mineral Reserves classification

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<tr>
<th></th>
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<tbody>
<tr>
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<tr>
<td>Proved</td>
<td>839</td>
<td>1,106</td>
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Mineral Reserves classification per mining area

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<th><strong>Surface</strong></th>
<th><strong>Grand total</strong></th>
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<tr>
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<td>11,608</td>
<td>12,447 5.18 2,072</td>
</tr>
<tr>
<td><strong>Surface</strong></td>
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<td><strong>Grand total</strong></td>
<td>882</td>
<td>11,608</td>
<td>12,490 5.18 2,078</td>
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Granny Smith gold mine

Mineral Resources and Mineral Reserves reconciliation year-on-year

Factors that affected Mineral Resources reconciliation year-on-year

- Mining depletion from Zones 250/60, 70, 80, 90, 100 and 110/120 (-307koz)
- Resources growth of 821koz from Resources extension discoveries in Zone 135, including the Zone 135 vertical lodes
- Change in Resources reporting methodology for the Goanna mine area within the Granny Smith deposit, resulting in a 47koz Resources increase

Factors that affected Mineral Reserve reconciliation year-on-year

- Mining depletion from Zones 250/60, 70, 80, 90, 100 and 110/120 (-291koz)
- Increase in Reserves from Zone 135 following conversion of Indicated Resources and completion of updated PFS (634koz)
- Decrease of 210koz in Zones 110, 120 and 135 due to updated geotechnical and mine designs incorporating increased pillar sizes. This was done in response to predicted levels of seismic activity in line with increasing depth

Minor decrease of 86koz in Wallaby underground from interpretation changes following new drilling, primarily in Zone 90 and Zone 110/120

Mineral Resource reconciliation

<table>
<thead>
<tr>
<th>Gold (koz)</th>
<th>Dec 2018</th>
<th>Mined depletion</th>
<th>Economic factors</th>
<th>Discovery</th>
<th>Resources extension</th>
<th>Indecision exclusims</th>
<th>Dec 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7,837</td>
<td>307</td>
<td>-86</td>
<td>821</td>
<td>47</td>
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Mineral Reserve reconciliation

<table>
<thead>
<tr>
<th>Gold (koz)</th>
<th>Dec 2018</th>
<th>Mined depletion</th>
<th>Gold price</th>
<th>Costs</th>
<th>Discovery</th>
<th>Conversion</th>
<th>Indecision exclusims</th>
<th>Dec 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2,246</td>
<td>-291</td>
<td>234</td>
<td>20</td>
<td>79</td>
<td>0</td>
<td>-210</td>
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</table>

Mineral Reserves sensitivity

To illustrate the impact of fluctuations in gold price and exchange rates on the current declaration, Granny Smith has generated sensitivities with respect to Mineral Reserves. The following graph indicates the Managed Mineral Reserves sensitivity at -15%, -10%, -5%, base, +5%, +10% and +15% to the base A$1,600/oz reserve gold price.

These sensitivities (other than for the base case) are not supported by detailed plans and depletion schedules. They should only be considered on an indicative basis, specifically as such sensitivities assume 100% selectivity, without any operating cost increases.
Gold Fields’ 50% ownership is held by Gruyere Mining Co (Pty) Ltd, a wholly owned Australian subsidiary of Gold Fields, and will be reported as attributable, unless otherwise stated. In 2019 the Gruyere project was successfully completed and commissioned with first gold delivered in June 2019. Commercial levels of production were achieved at the end of September 2019 with ramp up to name plate capacity in the December quarter. The Resource and Reserve base remains robust at 6.6Moz and 3.6Moz managed respectively, supporting an 11-year life, low-cost gold operation. The focus for 2020 is on process plant reliability and increasing mining capacity to deliver against the business plan while gathering operational data to support performance and delivery, supporting an 11-year life, low-cost gold operation. The focus for 2020 is on process plant reliability and increasing mining capacity to deliver against the business plan while gathering operational data to support performance and delivery.

### ASSET FUNDAMENTALS

<table>
<thead>
<tr>
<th>General location</th>
<th>The Gruyere deposit, centred at latitude 27°59’S and longitude 123°50’E, within the Yamarna Terrane of the eastern Yilgarn, Western Australia. Gruyere is located 200km east of Laverton and 1,000km NE of Perth.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licence status and holdings</td>
<td>The project, with granted tenements for mining, exploration and miscellaneous of 138,893ha, is located on mining lease M38/1267 granted on 5 May 2016 for a period of 21 years. The mining lease is wholly within the Yamarna Pastoral Lease.</td>
</tr>
<tr>
<td>Mining method</td>
<td>The Gruyere mine utilises mining contractors to mine the open pit using conventional drill, blast, load and haul activities. Gruyere will be reaching fresh rock in 2020 allowing validation and optimisation of the geotechnical parameters. The pit is designed to be mined in stages over the LoM. Material has been excavated from both Stage 1 and Stage 2 during 2019. Mining in 2019 was predominantly on soft weathered and oxide material with future mining of hard rock ore from 2020 requiring drilling and blasting. Crusher feed to the processing plant is provided by a combination of direct tip material from the mine (50% of crusher feed) and rock sourced from the ROM or long-term stockpiles.</td>
</tr>
<tr>
<td>Operational infrastructure</td>
<td>Gruyere has three open pits comprising the Mineral Reserve and seven open pits and one underground mine contributing to the Mineral Resource. Gruyere has one ore stockpile scheduled in the Reserve and Resource, centralised administrative offices and engineering workshops.</td>
</tr>
<tr>
<td>Mineral processing and TSFs</td>
<td>All ore mined is processed in the Gruyere plant, which consists of primary crushing, SAG/Ball milling, gravity and carbon-in-leach (CIL) circuits. The processing plant was designed to process 7.5 Mtpa but subsequent studies have shown that this can be increased to 8.2 Mtpa. The TSF storage area is formed by the construction of a downstream zoned perimeter embankment to enclose a surface area of approximately 203 ha at the Stage 1 (starter) embankment crest at RL 412m and 231ha at the Stage 6 (final) embankment crest at RL 439.2m. The TSF has a remaining LoM storage capacity of ~84Mt.</td>
</tr>
<tr>
<td>Climate</td>
<td>The climate is semi-arid and temperatures vary from an average minimum of 4° C in June to an average maximum of 36° C in January. The average annual rainfall total is 220mm. No extreme climate conditions are experienced that materially affect mining operations.</td>
</tr>
</tbody>
</table>
Local geology, deposit type and mineralisation style

Gruyere is an Archaean orogenic gold deposit. Mineralisation is hosted within the Gruyere Monzonite Porphyry. Gold is associated with varying intensity albite-sericite-chlorite-biotite-calcite alteration of the host rock.

The Gruyere deposit is located on a flexure point within the regional-scale Dorothy Hills Greenstone Belt and shear zone (DH-SZ). Orogenic gold mineralisation is hosted within the steep easterly dipping Gruyere Porphyry, a medium-grained quartz monzonite porphyry that has intruded the country rocks. The host Gruyere Porphyry averages 90 m in horizontal width through the deposit with a maximum width of 190 m in the centre of the deposit and tapering to around five metres to 10 m width at the northern and southern extremities. The entire Gruyere Porphyry is variably altered and gold grade is related to variations in style and intensity of alteration, structure, veining and sulphide species.

Yam14 is located 8km south of the Gruyere deposit and similarly is located on a flexure of the Dorothy Hills Shear Zone. Mineralisation at Yam14 is shear related and hosted within an intermediate sedimentary package at the contact with a rhyolitic tuff. Elevated gold grades are associated with shearing, increased quartz veining and albite-chlorite-pyrite-arsenopyrite alteration.

Gold mineralisation within the Attila – Alaric trend (Attila, Alaric, Montagne, Argos and Orleans projects) comprises steeply dipping shear hosted gold in volcaniclastic sequences, with gold associated with zones of albite ± sericite ± chloride ± pyrite mineralisation.

LoM: Proved and Probable Reserve

Currently the total project indicates a 3.59Moz Mineral Reserve (1.8Moz attributable to Gold Fields), supporting average annual gold production of circa 300,000 (50% attributable to Gold Fields) ounces over an LoM of 11 years.

Sustainable development

In 2018, an external auditor carried out a pre-operational compliance audit of Gruyere and recommended the project for Pre-Occupational Code certification. Gruyere is progressing toward achieving Cyanide Code certification in H1 2020. Gruyere is also aiming to attain ISO certification in 45001 and 14001 during 2020. The company has also developed its first Reflect Reconciliation Action Plan (RAP) which will focus on Indigenous procurement and employment opportunities with the company.

Gruyere is in compliance with all environmental legislation.

KEY DEVELOPMENTS AND MATERIAL ISSUES

- Commercial level of production at Gruyere pit was achieved in September 2019
- The resource estimation model has been enhanced as a result of new drilling and the modelled higher grade south plunging domain at Gruyere
- Conversion and infill Resource drilling was completed during 2019 for the Gruyere Deposit resulting in the significant conversion of material from inferred to indicated Resource categories. The growth and depth extensions of the updated Indicated Resource model and the defined high grade domain will enable further strategic evaluation and mine optimisation studies to be completed with the potential to further optimise the LoM plan
- Grade control drilling was completed in late 2019 to improve ore body knowledge to the base of the Stage 1 pit
- The planned average production of approximately 300,000 ounces per annum continues to be underpinned by ongoing business improvement initiatives
- The satellite open pits which may potentially complement the long-life Gruyere mine plan will continue to be assessed and evaluated through further studies
- The development of Indigenous Business partnerships with our mining contractor Downer resulted in four Yilka business owners signing contracts with Downer for services including cleaning, labour hire, minor plant and equipment, and major plant hire. Gruyere is the first operating mine on Yilka country and a key focus of the Gruyere JV has been to work with the traditional owners, the Yilka people, to provide employment and develop and deliver career pathways for the local community
- On 22 August 2019, Gold Fields Ltd sold its 9.9% shareholding in Gold Road as part of a broader debt reduction strategy and capitalises on significant gains from its original share investments in Gold Road in 2017
- Risks to the execution of the LoM plan include:
  - Ongoing operational performance will continue to inform the LoM plan input assumptions
  - Ore loss, ore dilution and reconciliation metrics will be closely monitored in 2020 and grade control drilling protocols and mining practices further enhanced if warranted
  - Modifying Factors will be monitored and calibrated to enhance future Resource and Reserve declarations as more empirical operating data is generated
  - Gruyere main pit will be reaching fresh rock in 2020 allowing validation and optimisation of the geotechnical parameters, although geotechnical assumptions are deemed appropriate for the Reserve pit design to more than 400m below surface
  - Further study work and data collection planned in 2020/2021 to clarify geotechnical parameters and pit expansion options deeper than 400m below surface
Gruyere gold mine – 50% attributable to Gold Fields continued

**OPERATING STATISTICS**

<table>
<thead>
<tr>
<th>Units</th>
<th>Dec 2019</th>
<th>Dec 2018</th>
<th>Dec 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Underground mining</strong></td>
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</tr>
<tr>
<td>Total mined kt</td>
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<tr>
<td>– Waste mined (opex) kt</td>
<td>187</td>
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</tr>
<tr>
<td>– Waste mined (capex) kt</td>
<td>12,974</td>
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<tr>
<td>– Ore mined kt</td>
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<tr>
<td>Mined grade g/t</td>
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<tr>
<td><strong>Processing</strong></td>
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<tr>
<td>Tonnes treated kt</td>
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<tr>
<td>Head grade g/t</td>
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<tr>
<td>Yield g/t</td>
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<tr>
<td>Plant Recovery %</td>
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<tr>
<td>Total Au production koz</td>
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<tr>
<td>Financials</td>
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<tr>
<td>Average Au price received US$/oz</td>
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<td>A$/oz</td>
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<tr>
<td>Exchange rate (annual average) US$/A$</td>
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</tr>
<tr>
<td>Cost of sales before amortisation and depreciation 50% share A$M</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>GFI 50% share A$/oz</td>
<td>622</td>
<td></td>
<td></td>
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<tr>
<td>Capital expenditure (capex) 50% share A$M</td>
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<tr>
<td>GFI 50% share A$/oz</td>
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<tr>
<td>All-in costs (AIC) US$/oz</td>
<td>4,170</td>
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<td></td>
</tr>
</tbody>
</table>

**EXPLORATION AND RESOURCE DEFINITION DRILLING**

An 11,309m diamond and RC drilling programme designed to extend the Indicated Resource below the 2018 Mineral Reserve pit shell for the Gruyere Deposit was completed in 2019. The drilling confirmed the continuity of the Gruyere mineralisation as observed in the open pit and previous drill programmes. The mineralised widths and grades remain consistent below the current pit design and mineralisation remains open and largely untested below the base of existing Resource shell. Drilling also confirmed the southern extension of a higher-grade plunging shoot initially identified in the northern portion of the Gruyere Deposit.

Grade control drilling was completed in Q4 2019 in order to support a model update and conversion of the remaining Indicated ounces to the Measured category in the stage 1 pit. The final two extensional drill holes in the north of the deposit will also be incorporated into the next resource model update. The increase in Measured and Indicated Resources will form the foundation for a future Mineral Reserve update post completion of the study work.

**PROJECT AND STUDY PIPELINE**

Projects include further studies and data collection planned in 2020/2021 to clarify geotechnical parameters and pit expansion options (>400mbs) to assist in optimising the mine plan on the updated and enhanced 2019 resource model. Various debottlenecking studies will also be undertaken to enhance overall operating efficiencies. During 2020 the Gruyere JV will undertake studies including geotechnical analysis and the review of costs and plant performance based on operational data, in particular the performance of fresh rock ore, which becomes the dominant ore type from mid-2020.

**MINERAL RESOURCES AND MINERAL RESERVES**

The Resource and Reserve for the ancillary Attila and Alaric deposits have been updated by Gold Road with technical review by Gold Fields Australia (GFA). The Mineral Resources for Central Bore, Yam14, Montagne and Orleans have been updated by Gold Road with technical review by GFA.
The Gold Fields 50% share, as held by Gruyere Mining Co (Pty) Ltd, is reported below.

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Open pit and underground</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Measured</td>
<td>5,727</td>
<td>8,365</td>
<td>7,175</td>
<td>1.23</td>
<td>1.18</td>
<td>1.18</td>
<td>226</td>
<td>318</td>
<td>272</td>
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<tr>
<td>Indicated</td>
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<td>49,930</td>
<td>48,856</td>
<td>1.34</td>
<td>1.32</td>
<td>1.29</td>
<td>2,794</td>
<td>2,123</td>
<td>2,030</td>
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<tr>
<td>Inferred</td>
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<td>19,391</td>
<td>19,413</td>
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<td>1.39</td>
<td>1.33</td>
<td>251</td>
<td>864</td>
<td>831</td>
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<td></td>
<td></td>
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<tr>
<td><strong>Total open pit and underground</strong></td>
<td>75,138</td>
<td>77,685</td>
<td>75,444</td>
<td>1.35</td>
<td>1.32</td>
<td>1.29</td>
<td>3,271</td>
<td>3,305</td>
<td>3,134</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

| **Stockpiles**                  |              |              |              |             |              |              |              |             |            |                |                |                |
| Measured stockpiles             | 1,690        | 0.70         | 38           |             |              |              |              |             |            |                |                |                |
| **Grand total**                 | 76,828       | 77,685       | 75,444       | 1.34        | 1.32         | 1.29         | 3,309        | 3,305       | 3,134      |                |                |                |

**Mineral Resource classification per mining area**

The total project, as well as the Gold Fields 50% share, as held by Gruyere Mining Co (Pty) Ltd, is reported below.

<table>
<thead>
<tr>
<th>Area</th>
<th>Measured (kt)</th>
<th>Measured (g/t)</th>
<th>Measured (koz)</th>
<th>Indicated (kt)</th>
<th>Indicated (g/t)</th>
<th>Indicated (koz)</th>
<th>Inferring (kt)</th>
<th>Inferring (g/t)</th>
<th>Inferring (koz)</th>
<th>Total (kt)</th>
<th>Total (g/t)</th>
<th>Total (koz)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Open pits</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Gruyere</td>
<td>11,168</td>
<td>1.21</td>
<td>434</td>
<td>118,191</td>
<td>1.33</td>
<td>5,048</td>
<td>5,210</td>
<td>1.39</td>
<td>232</td>
<td>134,570</td>
<td>1.32</td>
<td>5,715</td>
</tr>
<tr>
<td>Yam14</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>227</td>
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<td>10</td>
<td>626</td>
<td>1.15</td>
<td>23</td>
<td>854</td>
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<tr>
<td>Alaric</td>
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<td>—</td>
<td>1,567</td>
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<td>85</td>
<td>848</td>
<td>1.21</td>
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<td>2,414</td>
<td>1.52</td>
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<td>Montagne</td>
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<td>3,079</td>
<td>1.28</td>
<td>127</td>
<td>69</td>
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<td>3,148</td>
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<td>Argos</td>
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<td>1,183</td>
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<td>48</td>
<td>967</td>
<td>1.13</td>
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<td>Orleans</td>
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<td>53</td>
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<td>53</td>
<td>1,006</td>
<td>1.64</td>
<td>53</td>
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<tr>
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<td>426</td>
<td>1.61</td>
<td>22</td>
<td>5,894</td>
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<tr>
<td><strong>Total open-pits</strong></td>
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<td>1.23</td>
<td>453</td>
<td>129,429</td>
<td>1.34</td>
<td>5,587</td>
<td>9,152</td>
<td>1.36</td>
<td>401</td>
<td>150,035</td>
<td>1.34</td>
<td>6,441</td>
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<tr>
<td><strong>Gold Fields share</strong></td>
<td>5,727</td>
<td>1.23</td>
<td>226</td>
<td>64,714</td>
<td>1.34</td>
<td>2,794</td>
<td>4,576</td>
<td>1.36</td>
<td>201</td>
<td>75,017</td>
<td>1.34</td>
<td>3,220</td>
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<td>13.05</td>
<td>101</td>
<td>242</td>
<td>13.05</td>
<td>101</td>
</tr>
<tr>
<td><strong>Total open pit and underground share</strong></td>
<td>5,727</td>
<td>1.23</td>
<td>26</td>
<td>64,714</td>
<td>1.34</td>
<td>2,794</td>
<td>4,697</td>
<td>1.66</td>
<td>251</td>
<td>75,139</td>
<td>1.35</td>
<td>3,271</td>
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<tr>
<td><strong>Stockpiles</strong></td>
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<td></td>
<td>3,379</td>
<td>0.70</td>
<td>77</td>
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<tr>
<td><strong>Grand total</strong></td>
<td>14,833</td>
<td>1.11</td>
<td>529</td>
<td>129,429</td>
<td>1.34</td>
<td>5,587</td>
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<td>502</td>
<td>153,655</td>
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<tr>
<td><strong>Gold Fields share</strong></td>
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<td>64,714</td>
<td>1.34</td>
<td>2,794</td>
<td>4,697</td>
<td>1.66</td>
<td>251</td>
<td>76,828</td>
<td>1.34</td>
<td>3,309</td>
</tr>
</tbody>
</table>

**Notes:**
- All Mineral Resources are completed in accordance with the SAMREC Code 2016 Edition (Atilia, Alaric, Montagne, Orleans, Central Bore and Yam14)
- All figures are rounded to reflect appropriate levels of confidence. Apparent differences may occur due to rounding
- Mineral Resources are inclusive of Mineral Reserves
- Figures are reported on a 50% attributable basis unless otherwise specified
- The Open Pit Mineral Resources reported at various cut-off grades, 0.30 – 0.53 g/t Au and constrained within A$1,850/oz optimised pit shell derived from mining, processing and geotechnical parameters that could be realistically applied to these deposits during future economic extraction. No allowance for an open pit ramp has been included in the geotechnical parameters used to generate the constraining whittle shells
- The Underground Mineral Resource, Central Bore, is reported within economically optimised shapes, applying a gold price A$1,850/oz, against a cut-off grade of 3.5g/t and minimum mining width of 1.5m
Gruyere gold mine – 50% attributable to Gold Fields

Modifying factors

<table>
<thead>
<tr>
<th>Units</th>
<th>December</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>2018</td>
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<td></td>
<td></td>
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<tr>
<td><strong>Mineral Resource parameters</strong></td>
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<tr>
<td>Mineral Resource Au price</td>
<td>US$/oz</td>
</tr>
<tr>
<td></td>
<td>A$/oz</td>
</tr>
<tr>
<td>Cut-off for open pit g/t</td>
<td>0.37 – 0.53</td>
</tr>
<tr>
<td><strong>Mineral Reserve parameters</strong></td>
<td></td>
</tr>
<tr>
<td>Mineral Reserve Au price</td>
<td>US$/oz</td>
</tr>
<tr>
<td></td>
<td>A$/oz</td>
</tr>
<tr>
<td>Cut-off for mill feed open pit g/t</td>
<td>0.3 – 0.7</td>
</tr>
<tr>
<td>Strip ratio (waste:ore)</td>
<td>ratio</td>
</tr>
<tr>
<td>MCF %</td>
<td></td>
</tr>
<tr>
<td>Dilution open pit %</td>
<td></td>
</tr>
<tr>
<td>Mining recovery %</td>
<td></td>
</tr>
<tr>
<td>Plant recovery1 %</td>
<td></td>
</tr>
<tr>
<td>Processing capacity Mtpa</td>
<td></td>
</tr>
</tbody>
</table>

1 An annualised recovery range is provided; forecast recoveries are calculated using recovery models derived from historical metallurgical test work, that are dependent upon ore type (oxide, transitional and fresh)

Grade tonnage curve – surface

The grade tonnage curves for the surface Mineral Resource are presented. Stockpiles are excluded from the grade tonnage curves.

Mineral Reserve classification

The Gold Fields 50% share, as held by Gruyere Mining Co Pty Ltd, is reported below.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Dec 2019</th>
<th>Dec 2018</th>
<th>Dec 2017</th>
<th>Grade (g/t)</th>
<th>Dec 2019</th>
<th>Dec 2018</th>
<th>Dec 2017</th>
<th>Gold (koz)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Open pit</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proved</td>
<td>5,672</td>
<td>8,581</td>
<td>7,616</td>
<td>1.17</td>
<td>1.13</td>
<td>1.11</td>
<td>213</td>
<td>311</td>
</tr>
<tr>
<td>Probable</td>
<td>37,853</td>
<td>38,541</td>
<td>41,060</td>
<td>1.27</td>
<td>1.28</td>
<td>1.21</td>
<td>1,544</td>
<td>1,584</td>
</tr>
<tr>
<td><strong>Total open pit</strong></td>
<td>43,525</td>
<td>47,122</td>
<td>48,676</td>
<td>1.26</td>
<td>1.25</td>
<td>1.20</td>
<td>1,757</td>
<td>1,894</td>
</tr>
<tr>
<td><strong>Stockpiles</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measured stockpiles</td>
<td>1,690</td>
<td></td>
<td>0.70</td>
<td></td>
<td></td>
<td></td>
<td>38</td>
<td></td>
</tr>
<tr>
<td><strong>Grand total</strong></td>
<td>45,215</td>
<td>47,122</td>
<td>48,676</td>
<td>1.24</td>
<td>1.25</td>
<td>1.20</td>
<td>1,795</td>
<td>1,894</td>
</tr>
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</table>
Mineral Reserves classification per mining area
The total project, as well as the Gold Fields 50% share, as held by Gruyere Mining Co (Pty) Ltd, is reported below.

<table>
<thead>
<tr>
<th>Area</th>
<th>Proved</th>
<th>Probable</th>
<th>Total Mineral Reserve</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tonnes (kt)</td>
<td>Grade (g/t)</td>
<td>Gold (koz)</td>
</tr>
<tr>
<td>Open pits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gruyere</td>
<td>11,022</td>
<td>1.15</td>
<td>409</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attília</td>
<td>323</td>
<td>1.68</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alaric</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Total open pits</td>
<td>11,345</td>
<td>1.17</td>
<td>426.6</td>
</tr>
<tr>
<td>Stockpiles</td>
<td>3,379</td>
<td>0.70</td>
<td>77</td>
</tr>
<tr>
<td>Grand total</td>
<td>14,724</td>
<td>1.06</td>
<td>504</td>
</tr>
<tr>
<td>Gold Fields share</td>
<td>7,362</td>
<td>1.06</td>
<td>252</td>
</tr>
</tbody>
</table>

Notes:
- The Mineral Reserve is completed in accordance with the SAMREC Code
- Gold Road holds an uncapped 1.5% NSR royalty on Gold Fields Ltd’s share of production from the Gruyere project JV once total gold production exceeds 2 Moz
- The Mineral Reserve for the Gruyere deposit is evaluated using a gold price of A$1,600/oz and is reported above a 0.3 g/t grade. Attília is reported above the following variable cut-off grades – 0.70 g/t Au (fresh), 0.60 g/t Au (transition), 0.55 g/t Au (oxide); Alaric is reported above the following variable cut-off grades – 0.67 g/t Au (fresh), 0.62 g/t Au (transition), 0.57 g/t Au (oxide)
- Ore block tonnage dilution averages and gold loss estimates: Gruyere – 4.9% and 0.4%; Attília – 14% and 3%; Alaric – 20% and 6%
- All figures are rounded to reflect appropriate levels of confidence. Apparent differences may occur due to rounding

Mineral Resource and Mineral Reserve reconciliation year-on-year
Factors that affected Mineral Resource reconciliation year-on-year
- Gruyere – Mining depletion (-185koz)
- Gruyere and Golden Highway – updated cut-off grade (COG) calculations
- Gruyere – Infill drilling and resource model update
- Gruyere – South dipping high-grade domain defined

Factors that affected Mineral Reserve reconciliation year-on-year
- Gruyere – Mining depletion (-178koz)
- Gruyere and Golden Highway – updated cut-off grade (COG) calculations
- Gruyere – Infill drilling and resource model update
- Gruyere – South dipping high-grade domain defined

Mineral Reserve sensitivity
To illustrate the impact of fluctuations in gold price and exchange rates on the current declaration, Gruyere has generated sensitivities with respect to Mineral Reserves. The following graph indicates the Managed Mineral Reserve sensitivity at -15%, -10%, -5%, base, +5%, +10% and +15% to the base A$1,600/oz reserve gold price.

These sensitivities (other than for the base case) are not supported by detailed plans and depletion schedules. They should only be considered on an indicative basis, specifically as such sensitivities assume 100% selectivity, without any operating cost increases.
Gruyere gold mine continued

Reference

Buildings
Deposit
Main/Access Roads
Lease Outline

Gruyere Mining Company Pty Ltd
Gruyere Project Joint Venture Area

PLAN SHOWING PROPOSED INFRASTRUCTURE AS AT DECEMBER 2019

Co-ordinate System: Map Grid of Australia Zone 51
(Geocentric Datum of Australia 1994)
St Ives gold mine

St Ives had a strong 2019, increasing its Resources and Reserves base net of depletion by 12% and 31%, respectively. Maintaining momentum in extensional and near-mine exploration was key to replacing and growing Reserves, centred on the increasingly important and expanding Invincible underground camp, where ore body extensions at Invincible Deeps and Invincible South continue to provide further upside. Growth in Reserves was supported by the new high-grade underground deposit at Hamlet North, while the Neptune open pit continues to contribute to the LoM. Brownfield exploration across the expansive tenement package continues to deliver promising early stage results, and maintain a robust project pipeline.

Development of the access decline to Invincible South was ongoing throughout 2019, with first ore delivered from development in Q2 2019 and, from stoping, in Q4 2019. Access development in Hamlet North made good progress during the year, with first ore delivered from level development in Q4 2019. As drilling continues, additional ore shoots with increasing continuity are being identified at Greater Invincible. New, prospective open pit areas are being targeted in the Lefroy JV (LEX), while the prospective Kambalda West and Western Basin areas will be tested in 2020.

ASSET FUNDAMENTALS

General location
The St Ives mining operations extend from five to 25km south southwest of the town of Kambalda in Western Australia, approximately 630km east of Perth at latitude 31°12’ S and longitude 121°40’ E. The nearest major settlement is the town of Kalgoorlie situated 80km to the north, with well-established power grids, access roads and supporting infrastructure.

Licence status and holdings
St Ives controls prospecting, exploration, mining and miscellaneous tenements over a total area of 184,723ha (inclusive of 45 non-managed leases totalling 6,263ha, and 13 JV tenements totalling 37,213ha, where St Ives is currently earning an interest).

Mining method
St Ives currently operates three underground mines and one open pit. The underground is accessed via a decline. Mining contractors deploy long-hole stoping and paste/rock fill. Current underground mines are relatively shallow and are configured to mitigate geotechnical seismic risk through mine design, scheduling and defined ground support regimes.

Open pits are mined using conventional drill and blast with truck and shovel. Surface mining operations are carried out using contract mining.

Ore from both open pit and underground operations is transported with road trains from individual mining operations to the central St Ives processing RoM pad.

Operational infrastructure
St Ives has four underground mines and 11 open pits contributing to Mineral Reserves. There are nine underground mines and 18 open pits contributing to Mineral Resources. St Ives has 21 ore stockpiles in Reserves and Resources, a centralised administrative office and engineering workshops.

Mineral processing and TSFs
St Ives operates a 4.7Mtpa processing plant that consists of primary crushing, SAG/Ball milling, gravity and CIP circuits.

TSF 1 has been decommissioned and is being used for tailings reclamation for underground paste backfill material, using excavators, loaders and trucks. TSF 2 has been filled to the final design height and decommissioned. TSF 3 was decommissioned in 2016. TSF 4 is a paddock-type facility with a current maximum embankment height of approximately 14.5m and is currently inactive. The North Orchin in-pit TSF has been filled to its storage capacity and was decommissioned in 2015. The Leviathan in-pit TSF was commissioned early 2017 and is currently active. The current remaining LoM storage capacity is ~38Mt.

Climate
St Ives is situated in an area of arid bush land. While occasional storm activity may cause minor delays to open pit mining operations, the climatic conditions do not materially impact on the normal operations of the site.
St Ives gold mine continued

**ASSET FUNDAMENTALS**

**Local geology and deposit type and mineralisation style**

St Ives lies within the Kambalda domain, a subset of the Norseman-Wiluna Belt. The Kambalda domain is bound by the north-northwest trending Boulder-Lefroy fault (BLF) and Zuleika shear. The region has undergone four compressional events predated by early extension, and has been metamorphosed to upper greenschist or lower amphibolite facies.

The main structural feature of the St Ives area is the gently south-plunging Kambalda anticline, which extends 35km from the south end of the Kambalda dome to the Junction mine. The majority of known gold deposits are proximal to the trace of the anticlinal axis. A major second order structure known as the Playa shear splays off the BLF shear zone and can be traced through the St Ives field for a distance in excess of 10km.

There are several styles of gold mineralisation at St Ives. Individual deposits may contain more than one of these styles:
- **Lode mineralisation**: Archaean lode mineralisation typically consisting of 0.5m to 20m wide mesothermal vein complexes that may also have hydraulic breccias and/or mylonites. Mineralisation is typically discontinuous with short range predictability
- **Supergene mineralisation**: Broad zones of flat-lying gold mineralisation in weathered Archaean and overlying tertiary sediments
- **Palaeoplacer mineralisation**: Placer deposits hosted by palaeochannels in the unconsolidated tertiary sediments that overlie the Archaean basement

**LoM: Proved and Probable Reserves**

Extensional and brownfields exploration continues and could increase the LoM given the prevailing Inferred Resources and strengthening exploration pipeline. It is estimated that the current known Mineral Reserves will be depleted in 2029 (nine years).

**Sustainable development**

The mine maintained its OHSAS 18001 and ISO 14001 certifications. St Ives was certified as fully compliant with the ICMC in 2013. However, in late 2016, St Ives was found to be non-compliant with the code, but full certification was regained in April 2017 and retained in 2018. In 2019, St Ives achieved ISO 27001 certification.

**KEY DEVELOPMENTS AND MATERIAL ISSUES**

- In 2020, emphasis will be on the continued expansion of the Invincible Underground operations and establishing full production for the Hamlet North project
- Surface production will be completed at the Invincible open pit, leaving open pit production limited to the Neptune project during 2020
- The proportion of production mined from underground sources will increase over the next two years as Invincible Underground and Hamlet North increase their production rates
- Geotechnical challenges are being experienced at Invincible Underground resulting from the mudstone rock mass behaviour. Various ground support contingencies are being assessed. Paste fill has commenced in the Invincible Underground stoping operations
- Highly prospective targets are being explored along strike of Invincible South in the Greater Invincible area, with additional resources likely to be added in 2020
- The LoM mining mix is transitioning from open pit to underground operations in the medium term, and discovery of new, sizeable open pit opportunities has been prioritised to rebalance the overall mix
- Mill optimisation continues to be implemented to enhance metal recovery from multiple ore sources and lake sediments
- The PFS for the palaeochannel project was completed indicating that the project is uneconomic under prevailing conditions
- A One Mining Proposal was submitted to the DMIRS in Q3 2019 with approval expected in Q2 2020. We will continue to submit standalone mining proposals until the One Mining Proposal is approved
- Risks to the execution of the LoM plan include:
  - The last two years of St Ives’ LoM is based on underground production only, open pits are being targeted to balance production sources
  - The systematic introduction of paste fill to stoping operations will assist with regional stability at depth coupled to geotechnical modelling and the use of seismic monitoring networks
  - Campaign milling is introduced to align to the current LoM profile post 2024 but is anticipated to not be required with ongoing discovery and Reserve replacement
  - New generation mining opportunities have a lead time of three years and beyond from initial discovery to production, so maintaining traction on exploration, discovery and resource conversion remains key to St Ives’ Reserves replacement and LoM extension strategy
### OPERATING STATISTICS

#### Historic performance

<table>
<thead>
<tr>
<th>Units</th>
<th>Dec 2019</th>
<th>Dec 2018</th>
<th>Dec 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total mined</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>kt</td>
<td>15,167</td>
<td>22,044</td>
<td>43,012</td>
</tr>
<tr>
<td>– Waste mined</td>
<td>10,087</td>
<td>17,737</td>
<td>38,547</td>
</tr>
<tr>
<td>– Ore mined</td>
<td>5,080</td>
<td>4,307</td>
<td>4,466</td>
</tr>
<tr>
<td>Mined grade</td>
<td>2.4</td>
<td>3.0</td>
<td>3.1</td>
</tr>
<tr>
<td><strong>Open pit mining</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>kt</td>
<td>12,913</td>
<td>20,757</td>
<td>42,148</td>
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<tr>
<td>– Waste mined</td>
<td>9,161</td>
<td>17,362</td>
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<tr>
<td>– Ore mined</td>
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<td>3,396</td>
<td>3,982</td>
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<td>Mined grade</td>
<td>1.8</td>
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<tr>
<td>Strip ratio (waste/tonne ore)</td>
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<td>5.1</td>
<td>9.6</td>
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<tr>
<td><strong>Underground mining</strong></td>
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</tr>
<tr>
<td>kt</td>
<td>2,254</td>
<td>1,287</td>
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</tr>
<tr>
<td>– Waste mined</td>
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<td>375</td>
<td>381</td>
</tr>
<tr>
<td>– Ore mined</td>
<td>1,328</td>
<td>911</td>
<td>484</td>
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<tr>
<td>Mined grade</td>
<td>4.1</td>
<td>4.1</td>
<td>4.1</td>
</tr>
<tr>
<td><strong>Processing</strong></td>
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<td></td>
</tr>
<tr>
<td>kt</td>
<td>4,466</td>
<td>4,250</td>
<td>4,198</td>
</tr>
<tr>
<td>– CIL tonnes treated (incl toll)</td>
<td>4,466</td>
<td>4,250</td>
<td>4,198</td>
</tr>
<tr>
<td>g/t</td>
<td>2.76</td>
<td>2.88</td>
<td>2.96</td>
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<tr>
<td>– Head grade</td>
<td>2.58</td>
<td>2.69</td>
<td>2.70</td>
</tr>
<tr>
<td>%</td>
<td>92.3</td>
<td>92.5</td>
<td>92.5</td>
</tr>
<tr>
<td>– Plant recovery (excl toll)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>koz</td>
<td>370.6</td>
<td>366.9</td>
<td>363.9</td>
</tr>
<tr>
<td>– Au production ex CIL Plant (incl Gold Fields Toll payment)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>kg/t</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>– Tonnes to heap leach</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>koz</td>
<td>370.6</td>
<td>367.0</td>
<td>363.9</td>
</tr>
<tr>
<td>– Yield ex-heap leach (sold)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>koz</td>
<td>370.6</td>
<td>367.0</td>
<td>363.9</td>
</tr>
<tr>
<td>kg</td>
<td>11,527</td>
<td>11,414</td>
<td>11,319</td>
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<tr>
<td><strong>Financials</strong></td>
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<tr>
<td>US$/oz</td>
<td>1,388</td>
<td>1,266</td>
<td>1,257</td>
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<tr>
<td>A$/oz</td>
<td>1,996</td>
<td>1,695</td>
<td>1,642</td>
</tr>
<tr>
<td>Exchange rate (annual average)</td>
<td>0.70</td>
<td>0.75</td>
<td>0.77</td>
</tr>
<tr>
<td>Cost of sales before amortisation and depreciation</td>
<td>A$M</td>
<td>332</td>
<td>249</td>
</tr>
<tr>
<td>A$/oz</td>
<td>915</td>
<td>678</td>
<td>569</td>
</tr>
<tr>
<td>Capital expenditure (capex)</td>
<td>A$M</td>
<td>141</td>
<td>170</td>
</tr>
<tr>
<td>A$/oz</td>
<td>389</td>
<td>464</td>
<td>561</td>
</tr>
<tr>
<td>All-in costs (AIC)</td>
<td>US$/oz</td>
<td>917</td>
<td>902</td>
</tr>
</tbody>
</table>
St Ives gold mine continued

EXPLORATION AND RESOURCES DEFINITION DRILLING

2018/2019 exploration expenditures are presented in the Australia regional section.

In June 2018, St Ives entered into a Farm-in Agreement with Hogans Resources (Pty) Ltd and Lefroy Exploration Ltd (LEX JV), where St Ives can earn up to 70% equity in the LEX JV tenements through exploration expenditure. This agreement allows St Ives to earn exploration and mineral rights over a total additional area of 37,017ha. The site exploration team is supported by in-house geophysics, regional and corporate technical teams. Rigorous sampling and assaying QA/QC protocols are maintained on all exploration programmes. Industry leading practice is applied for data acquisition using accredited assay laboratories, which are regularly reviewed internally and externally.

In 2019, extensional exploration targeted the Invincible Underground trend, which will continue in 2020. Additional brownfield exploration continues to focus on the LEX JV, Swiftsure, Neptune Stage 7, Invincible Stage 6, Kambalda West and the Speedway trends. Exploration activities use a combination of auger, aircore and RC drilling, supported by geochemistry and geophysics, to generate an integrated prospectivity model that prioritise and direct future investment. The Speedway trend is a 20km plus prospective belt where exploration success was achieved in 2017, extending the Invincible group of deposits. Systematic geochemical testing of the entire trend was completed in 2018 with the southern Speedway Trend now tested for Invincible type targets. Exploration of the northern Speedway area has been pushed back as a result of delays impacting the ‘Beyond 2018’ EPA permitting process. Approval is anticipated in Q1 2020.

Notable activities include foundational data set and auger geochemical sampling at Kambalda West and Southern St Ives, which defined significant targets in 2019. This will be completed in 2020. Initial RC drilling commenced at Kambalda West. Additionally, geophysical and geochemical foundational data sets have been collected on the LEX JV and first pass RC drilling commenced on potential open pit targets.

Schematic NS long-section through the Invincible Complex

The Invincible Complex is located on an extensive mineralisation trend. The Invincible area includes the active underground mining areas of Fenton, Drake and Invincible South. Exploration drilling is being conducted across a range of stages from resource and reserve definition to near-mine exploration targeting.

PROJECT AND STUDY PIPELINE

A broad range of projects are scheduled, ranging from strategic option analysis, desktop and scoping studies to PFS and FS to underpin the LoM plan and life extension. The 2020 projects include advancing the FS on Invincible Deeps underground and the Incredible and Delta Island open pits, as well as PFS for the Greater Invincible underground extensions and Santa Ana open pit.
## MINERAL RESOURCES AND MINERAL RESERVES

### Mineral Resources classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Tonnes (kt)</th>
<th>Grade (g/t)</th>
<th>Au (koz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open pit and underground</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measured</td>
<td>1,574</td>
<td>2,154</td>
<td>1,356</td>
</tr>
<tr>
<td>Indicated</td>
<td>20,958</td>
<td>19,815</td>
<td>22,164</td>
</tr>
<tr>
<td>Inferred</td>
<td>7,696</td>
<td>7,779</td>
<td>7,467</td>
</tr>
<tr>
<td>Total open pit and underground</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measured stockpiles</td>
<td>4,240</td>
<td>3,436</td>
<td>3,457</td>
</tr>
<tr>
<td>Grand total</td>
<td>34,468</td>
<td>33,183</td>
<td>34,445</td>
</tr>
</tbody>
</table>

### Mineral Resources classification per mining area

**Measured**

<table>
<thead>
<tr>
<th>Area</th>
<th>Tonnes (kt)</th>
<th>Grade (g/t)</th>
<th>Au (koz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open pit</td>
<td>597</td>
<td>2.56</td>
<td>49</td>
</tr>
<tr>
<td>Underground</td>
<td>977</td>
<td>4.81</td>
<td>151</td>
</tr>
<tr>
<td>Surface stockpiles</td>
<td>4,240</td>
<td>1.10</td>
<td>149</td>
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<tr>
<td>Grand total</td>
<td>5,814</td>
<td>1.87</td>
<td>350</td>
</tr>
</tbody>
</table>

**Indicated**

<table>
<thead>
<tr>
<th>Area</th>
<th>Tonnes (kt)</th>
<th>Grade (g/t)</th>
<th>Au (koz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open pit</td>
<td>9,104</td>
<td>2.94</td>
<td>860</td>
</tr>
<tr>
<td>Underground</td>
<td>11,854</td>
<td>5.89</td>
<td>2,246</td>
</tr>
<tr>
<td>Surface stockpiles</td>
<td>20,958</td>
<td>4.61</td>
<td>3,106</td>
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<tr>
<td>Grand total</td>
<td>20,958</td>
<td>4.61</td>
<td>3,106</td>
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</table>

**Inferred**

<table>
<thead>
<tr>
<th>Area</th>
<th>Tonnes (kt)</th>
<th>Grade (g/t)</th>
<th>Au (koz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open pit</td>
<td>2,707</td>
<td>2.61</td>
<td>227</td>
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<tr>
<td>Underground</td>
<td>4,989</td>
<td>4.49</td>
<td>721</td>
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<tr>
<td>Surface stockpiles</td>
<td>7,696</td>
<td>3.83</td>
<td>947</td>
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<tr>
<td>Grand total</td>
<td>7,696</td>
<td>3.83</td>
<td>947</td>
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</table>

**Total Mineral Resources**

<table>
<thead>
<tr>
<th>Area</th>
<th>Tonnes (kt)</th>
<th>Grade (g/t)</th>
<th>Au (koz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open pit</td>
<td>12,408</td>
<td>2.85</td>
<td>1,135</td>
</tr>
<tr>
<td>Underground</td>
<td>17,820</td>
<td>5.44</td>
<td>3,118</td>
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<tr>
<td>Surface stockpiles</td>
<td>4,403</td>
<td>3.97</td>
<td>4,403</td>
</tr>
<tr>
<td>Grand total</td>
<td>34,468</td>
<td>3.97</td>
<td>4,403</td>
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Modifying factors

### Mineral Resources parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>2019</th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral Resources Au price</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>US$/oz</td>
<td>1,400</td>
<td>1,400</td>
<td>1,400</td>
</tr>
<tr>
<td>A$/oz</td>
<td>1,850</td>
<td>1,850</td>
<td>1,850</td>
</tr>
<tr>
<td>Cut-off for oxide ore g/t</td>
<td>0.74 – 1.03</td>
<td>0.74 – 1.03</td>
<td>0.74 – 0.93</td>
</tr>
<tr>
<td>Cut-off for fresh ore g/t</td>
<td>0.74 – 3.6</td>
<td>0.74 – 3.3</td>
<td>0.74 – 3.1</td>
</tr>
<tr>
<td>Cut-off for mill feed g/t</td>
<td>0.74 – 1.03</td>
<td>0.74 – 1.03</td>
<td>0.74 – 0.95</td>
</tr>
<tr>
<td>Cut-off for open pit g/t</td>
<td>0.74 – 1.03</td>
<td>0.74 – 1.03</td>
<td>0.74 – 0.95</td>
</tr>
<tr>
<td>Cut-off for underground g/t</td>
<td>2.0 – 3.6</td>
<td>2.0 – 3.3</td>
<td>1.8 – 3.1</td>
</tr>
</tbody>
</table>

### Mineral Reserves parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>2019</th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral Reserves Au price</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US$/oz</td>
<td>1,200</td>
<td>1,200</td>
<td>1,200</td>
</tr>
<tr>
<td>A$/oz</td>
<td>1,600</td>
<td>1,600</td>
<td>1,600</td>
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<tr>
<td>Cut-off for oxide ore g/t</td>
<td>0.30 – 0.40</td>
<td>0.35 – 0.40</td>
<td>0.4</td>
</tr>
<tr>
<td>Cut-off for fresh ore g/t</td>
<td>0.30</td>
<td>0.35 – 2.7</td>
<td>0.4 – 2.9</td>
</tr>
<tr>
<td>Cut-off for mill feed underground</td>
<td>2.0 – 3.0</td>
<td>2.0 – 2.7</td>
<td>2.3 – 2.9</td>
</tr>
<tr>
<td>Cut-off for mill feed open pit</td>
<td>0.30 – 0.40</td>
<td>0.35 – 0.40</td>
<td>0.4</td>
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<tr>
<td>Mining recovery factor (underground)</td>
<td>90 – 97</td>
<td>90 – 97</td>
<td>90 – 97</td>
</tr>
<tr>
<td>Mining recovery factor (open pit)</td>
<td>% 91 – 100</td>
<td>91 – 100</td>
<td>97 – 98</td>
</tr>
<tr>
<td>Strip ratio (waste:ore) ratio</td>
<td>6.8</td>
<td>5.7</td>
<td>6.2</td>
</tr>
<tr>
<td>MCF</td>
<td>% 100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Dilution open pit %</td>
<td>15 – 52</td>
<td>15 – 52</td>
<td>15 – 50</td>
</tr>
<tr>
<td>Dilution underground %</td>
<td>11 – 25</td>
<td>11 – 25</td>
<td>12 – 25</td>
</tr>
<tr>
<td>Plant recovery1</td>
<td>% 61 – 96</td>
<td>69 – 96</td>
<td>69 – 96</td>
</tr>
<tr>
<td>Processing capacity Mtpa</td>
<td>4.7</td>
<td>4.7</td>
<td>4.7</td>
</tr>
</tbody>
</table>

1 The range in recoveries is provided; forecast recoveries are calculated using derived and regularly updated recovery models, that are also dependent upon ore source and type.

### Grade tonnage curves

The grade tonnage curves for the surface and underground Mineral Resources are presented. Stockpiles are excluded from the grade tonnage curves.

**Grade tonnage curve – open pit**

**Grade tonnage curve – underground**
Grade tonnage curves for the underground and open pit Mineral Resources

Mineral Reserves classification

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Open pit and underground</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proved</td>
<td>723</td>
<td>1,648</td>
<td>1,131</td>
<td>3.88</td>
<td>2.21</td>
<td>3.08</td>
<td>90</td>
<td>117</td>
<td>112</td>
<td></td>
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</tr>
<tr>
<td>Probable</td>
<td>15,894</td>
<td>14,006</td>
<td>14,831</td>
<td>4.00</td>
<td>3.26</td>
<td>2.76</td>
<td>2,043</td>
<td>1,467</td>
<td>1,318</td>
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<tr>
<td><strong>Total open pit and underground</strong></td>
<td>16,618</td>
<td>15,654</td>
<td>15,961</td>
<td>3.99</td>
<td>3.15</td>
<td>2.79</td>
<td>2,133</td>
<td>1,584</td>
<td>1,430</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Surface</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proved</td>
<td>4,240</td>
<td>3,436</td>
<td>3,457</td>
<td>1.10</td>
<td>1.42</td>
<td>1.25</td>
<td>149</td>
<td>157</td>
<td>139</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Grand total</strong></td>
<td>20,858</td>
<td>19,090</td>
<td>19,419</td>
<td>3.40</td>
<td>2.84</td>
<td>2.51</td>
<td>2,283</td>
<td>1,741</td>
<td>1,568</td>
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<td></td>
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</tr>
</tbody>
</table>

Mineral Reserves classification per mining area

<table>
<thead>
<tr>
<th>Area</th>
<th>Proved</th>
<th>Probable</th>
<th>Total Mineral Reserves</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Open pit</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incredible</td>
<td>—</td>
<td>—</td>
<td>1,411</td>
</tr>
<tr>
<td>Invincible Pit</td>
<td>—</td>
<td>—</td>
<td>443</td>
</tr>
<tr>
<td>Neptune</td>
<td>163</td>
<td>1.52</td>
<td>1,801</td>
</tr>
<tr>
<td>Pistol Club</td>
<td>—</td>
<td>—</td>
<td>661</td>
</tr>
<tr>
<td>Santa Ana</td>
<td>—</td>
<td>—</td>
<td>1,596</td>
</tr>
<tr>
<td>Swiftsure</td>
<td>—</td>
<td>—</td>
<td>160</td>
</tr>
<tr>
<td>Trinidad</td>
<td>—</td>
<td>—</td>
<td>471</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>1.78</td>
<td>849</td>
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<tr>
<td><strong>Total open-pit</strong></td>
<td>170</td>
<td>1.53</td>
<td>7,392</td>
</tr>
<tr>
<td><strong>Underground</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hamlet North</td>
<td>—</td>
<td>—</td>
<td>906</td>
</tr>
<tr>
<td>Invincible UG</td>
<td>553</td>
<td>4.61</td>
<td>1,065</td>
</tr>
<tr>
<td>Invincible Deeps</td>
<td>—</td>
<td>—</td>
<td>3,116</td>
</tr>
<tr>
<td>Invincible South</td>
<td>—</td>
<td>—</td>
<td>3,416</td>
</tr>
<tr>
<td><strong>Total underground</strong></td>
<td>553</td>
<td>4.61</td>
<td>8,502</td>
</tr>
<tr>
<td><strong>Surface</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface stockpiles</td>
<td>4,240</td>
<td>1.10</td>
<td>149</td>
</tr>
<tr>
<td><strong>Grand total</strong></td>
<td>4,963</td>
<td>1.50</td>
<td>15,894</td>
</tr>
</tbody>
</table>
St Ives gold mine continued

Mineral Resources and Mineral Reserves reconciliation year-on-year

Factors that affected Mineral Resources reconciliation year-on-year

- Mining depletion (-419koz)
- Discovery throughout the Invincible complex, dominated by Invincible South, and at Neptune and Hamlet North
- Higher costs and lower metallurgical recoveries negatively impacted Invincible underground and Deeps

Factors that affected Mineral Reserves reconciliation year-on-year

- Mining depletion (-400koz)
- Discovery and conversion dominated by Invincible South, Invincible Deeps and Invincible underground
- Additions from the inclusion of pillars at Invincible underground and Invincible South aligned with the change to paste-fill mining

Mineral Reserves sensitivity

To illustrate the impact of fluctuations in gold price and exchange rates on the current declaration, St Ives has generated sensitivities with respect to Mineral Reserves. The following graph indicates the Managed Mineral Reserves sensitivity at -15%, -10%, -5%, base, +5%, +10% and +15% to the base A$1,600/oz reserve gold price.

These sensitivities (other than for the base case) are not supported by detailed plans and depletion schedules. They should only be considered on an indicative basis, specifically as such sensitivities assume 100% selectivity, without any operating cost increases.
Gold Fields Limited
St Ives Gold Mine

PLAN SHOWING MINE INFRASTRUCTURE AS AT DECEMBER 2019

Reference
Buildings
UG Mines
Significant Deposit
Main Roads
Lease Outline
Lease Outline - Kambalda West
Lease Outline - LEX JV
Gold Rights Only

Open Pit - Active
Open Pit - Inactive
Open Pit - Inactive (Partially Backfilled)
Open Pit - Proposed
Stockpiles
Tailings Dams
Waste Dump

Kilometers

Co-ordinate System: Map Grid of Australia Zone 51
(Geocentric Datum of Australia 1994)
Far Southeast – 40% attributable to Gold Fields

The Far Southeast (FSE) project is a gold and copper deposit in the Philippines, with Mineral Resources of 19.8 Moz gold and 9,921 Mlb copper.

Deposit geology
The FSE copper-gold porphyry is a deeply concealed deposit associated with a Pleistocene diorite-dacite intrusion complex intruded into Eocene basaltic country rocks. The intrusion complex is cross-cut by several phreatomagmatic breccia pipes which are pre, syn and post-mineralisation. The mineralisation is mostly hosted in the intrusion complex and, to a lesser extent, the basaltic country rocks, and is characterised by disseminated sulphides and multi-phase sulphide-bearing quartz and quartz-antimonite vein sets and stock works.

No exploration or additional conceptual mine design studies were conducted on the FSE project during 2019, and no further updates have been made to the geology and/or Resources model.

Social licence to operate
For Gold Fields to obtain a further 20% interest in the FSE project, a Financial or Technical Assistance Agreement (FTAA) will be required from the Philippine government. This is dependent on obtaining the free, prior and informed consent (FPIC) of the local Kankana-ey Indigenous People. In mid-2013, the Kankana-ey Indigenous People voted in favour of the project and a Memorandum of Agreement was signed with the Council of Elders in February 2015. The agreement, together with supporting documentation, is currently being considered by the National Commission on Indigenous Peoples (NCIP) before issuance of a formal certification precondition, which will complete the FPIC process.

In June 2014, LCMC and FSGRI jointly applied for the renewal of Mineral Production Sharing Agreement 001 (MPSA 001), which is the mineral tenement jointly held by the two companies in which most of the FSE deposit occurs. The initial 25-year term of MPSA 001 was due to expire in March 2015.

In February 2015, LCMC and FSGRI commenced arbitration proceedings against the Philippine government regarding whether FPIC is also required for the renewal of the MPSA. In November 2015, the arbitration panel issued an award that FPIC may not be imposed as a condition of renewal.

Location
The FSE project is located in the well-known mining district of Mankayan in the Cordillera region of Northern Luzon, approximately 250 km north of Manila.

Project ownership and capex
The project is held by Far Southeast Gold Resources Inc. (FSGRI), a JV between Lepanto Consolidated Mining Company (LCMC) and Gold Fields. To date, Gold Fields has acquired 40% of FSGRI for a total of US$230m, and has the option to acquire a further 20% for US$110m, incurring initial development costs totalling US$165m.
The Gold Fields

MINERAL RESOURCES
The historical Inferred Mineral Resource for the FSE deposit, first declared in August 2012, is 891.7Mt at 0.7g/t gold and 0.5% copper for 19.8Moz of gold and 9.921Mlb of copper, has been maintained for the 2019 reporting. The Resource was reported inside a mining constraint, which assumed an eventual non-selective, bulk underground mining method. The classification of Inferred Resources was applied based on drill hole spacing, estimation quality, geological continuity and geological understanding of the deposit in early 2012, supported by a view on reasonable prospects for eventual economic extraction which are viewed as being relevant today. The Inferred Resources have a lower confidence than Indicated Resources and cannot be converted to Mineral Reserves.

<table>
<thead>
<tr>
<th>Resource classification</th>
<th>Tonnes (Mt)</th>
<th>Grade (Au g/t)</th>
<th>Metal (Au Moz)</th>
<th>Grade (Cu %)</th>
<th>Metal (Cu Mlb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inferred</td>
<td>891.7</td>
<td>0.7</td>
<td>19.8</td>
<td>0.5</td>
<td>9,921</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>891.7</strong></td>
<td><strong>0.7</strong></td>
<td><strong>19.8</strong></td>
<td><strong>0.5</strong></td>
<td><strong>9,921</strong></td>
</tr>
</tbody>
</table>

**Notes:**
- These Mineral Resources are not Mineral Reserves as an assessment to a minimum of an PFS is required
- There has been no further technical work or economic assessments in 2019 to update previous input or commodity prices
- The Mineral Resources is reported in accordance with the SAMREC Code
- The Mineral Resources is reported within an optimised underground bulk mining shell that is derived using scoping study mining, processing and cost parameters, and commodity prices of US$1,650/oz gold and US$8,600/t copper. All Inferred Resources material within the shell is reported
- Mineral Resources is reported without dilution and ore loss parameters
- Rounding-off of figures may result in minor computational discrepancies. Where this happens, it is not deemed significant
- LCMC holds a 60% interest, while Gold Fields holds a 40% interest in the FSE. Attributable metal is 11.9Moz gold and 5,953Mlb copper to LCMC and 7.9Moz gold and 3,968Mlb copper to Gold Fields

**TAILINGS**
In support of ongoing improvement studies, a 2019 third party audit of the TSF associated with the FSE project and the existing LCMC mine revealed that the facility is being well managed, with no visible signs of instability and does have adequate freeboard. The decant outlet structure was inspected by LCMC, and reported to be in a good condition. The inlet conditions appeared to be satisfactory, Adequate monitoring protocols are in place and construction records largely meet accepted practice.

The facility is, however, classified as an extreme consequence category facility in terms of the ANCOLD guidelines. The overall integrity of the facility therefore has to be tested against different seismic loading conditions and flood events. Additional work is currently being done as part of the TD5A Improvement Studies to implement additional risk reduction measures to further reduce the overall risk profile of the facility and demonstrate that its operation is being undertaken in line with globally accepted practice.

OUTLOOK
The strategic intent for the FSE project is to position it so that it can be advanced subject to technical and economic constraints once the permitting issues are resolved and once the socio-political environment becomes more conducive to mining licence approvals or new mine development. Thus, the project is assisting its JV partner to obtain renewal of MPSA 001 and is completing the process to obtain the FTAA. Community projects, stakeholder engagement, environmental and social baseline data gathering and studies will continue to support the permitting process.
South Africa region

Mineral Resources
60.1 Moz*  
(+7% net of depletion)

Mineral Reserves
32.8 Moz*  
(flat year-on-year net of depletion)

* 90.694% attributable to Gold Fields
South Deep demonstrated a remarkable improvement in most production metrics during 2019 and generated positive cash flow

Achievement of the overall targets for the new plan resulted from a culmination of initiatives driving organisational culture, systems, processes, technical improvements and foundational work completed in 2018. Gold production at the mine increased by 41% to 6,907kg (222,100oz) in 2019. The increased gold production resulted from an increase in both volume and grade mined. This also led to total AIC decreasing by 31% to R585,482/kg (US$1,259/oz) in 2019 from R854,049/kg (US$2,012/oz) in 2018, together with the temporary postponement of new mine development capital.

The restructuring embedded in 2019 incorporated a reduced workforce and mobile equipment levels aligned to overall mining activity that increased focus on the core productivity process and supported a recalibration of the cost base. The anticipated levels of production have been achieved quarter on quarter.

Going forward, emphasis is on South Deep continuing to show substantive progress on the mine’s core strategic project themes, KPIs and enablers in the short to medium term. Sustaining traction in these areas remains integral to facilitating delivery on the production ramp-up, and is pivotal to maintaining the mine’s trajectory to deliver LoM steady state volumes and projected financial metrics.
## General location
South Deep gold mine is situated in the magisterial districts of Westonaria and Vanderbijlpark (Gauteng province), some 45km southwest of Johannesburg at latitude 26°25'S and longitude 27°40'E. It is accessed via the N12 provincial road between Johannesburg and Potchefstroom.

## Licence status and holdings
South Deep converted its mining right (old order) to new order mining rights in July 2010, as required by the Mineral and Petroleum Resources Development Act 28 of 2002 (MPRDA) (as amended). The new order mining rights have been granted in respect of the mining area totalling 4,268ha – including the area known as Uncle Harry’s.

## Mining method
South Deep is an underground mine, using an owner mining workforce. Operations are accessed through development and a 5.5m high destress cut to manage rock stress and seismic activity. A number of selective mining methods, including drifts and benches, are employed but long-hole stoping with paste fill is the primary bulk mining method. Significant focus has been on frontline coaching to improve compliance to stope design and productivity. Mining method and extraction sequence optimisation is ongoing.

## Mining operational infrastructure
The workings are accessed from the surface through two shaft systems, the Twin Shaft Complex (main and ventilation shafts), of which the main shaft comprises a single-drop to 110A level, a depth of 2,998m, the vent shaft to 110 level (2,947m) and the South Shaft Complex, which is a sub-vertical system (three operating shafts) to 95 level at a depth of 2,786m.

1. Current Mine (CM), characterised by selective mining methods scattered over a large area originally exploited by means of conventional tabular mining. CM is accessed from four active levels (90, 93 and 95) from both the South Shaft and Twin Shaft complexes
2. The NoW area, directly south of CM, comprises six mining corridors separated by regional pillars that extend southwards to the Wrench fault. A bulk non-selective mining method is applied here resulting in a higher Resources to Reserves conversion ratio
3. SoW East and West, situated south of NoW, which will be mined in the same manner as NoW

## Mineral processing and TSFs
The South Deep consists of a conventional SAG/Ball milling circuit, a gravity gold recovery circuit and a conventional leach/CIP circuit. Final product from both the gravity and CIP circuits is smelted into bullion.

For the pre-processing of tailings, the South Deep plant also includes a tailings re-treatment gold recovery section, that consists of a thickener followed by a dedicated CIL circuit.

South Deep operates one active TSF, the Doornpoort TSF, and four dormant TSFs, known as TSF 1, 2, 3 and 4. TSF 2 is undergoing re-mining using hydraulic mining methods (i.e. using a water cannon). The top portion of TSF 1 has also been re-mined to date. TSFs 1 and 2 were commissioned in 1968 and are upstream raised paddock dams as is typical in South African gold mines. These TSFs cover a combined footprint of 69ha and has a maximum height of 47m. TSFs 3 and 4 were commissioned in 1982 and are also upstream raised paddock dams. These TSFs cover a combined footprint of 100ha and has a maximum height of 41m. Deposition on these TSFs ceased in 2011.

The Doornpoort TSF was commissioned in April 2011 and three upstream wall raises have been constructed. The Doornpoort TSF incorporates a gravity decant system with drainage structures placed beneath the tailings itself. This facility has a remaining LoM storage capacity of ~149Mt (Phase 2).

## Climate
The regional climate is classified as Cwb (warm temperature, winter dry, warm summer) under the Köppen-Geiger climate classification.

## Mineralisation characteristics
1. Mineralisation hosted by conglomerates (reefs)
2. Laterally continuous with long-range predictability
3. Clear patterns of predictable mineralisation governed by sedimentary characteristics
4. Ore body definition and resource modelling programmes are ongoing

## Local geology and deposit type
The reef horizons exploited in the South Deep LoM include the Upper Elsburg formation conglomerates. In the western half of the ML area, the VCR occurs as a single reef horizon that overlies footwall lithologies of the Turffontein Subgroup. The Upper Elsburg reefs, sub-cropping below the VCR in a north-northeast trend, comprise multiple stacked reef horizons forming an easterly-divergent clastic wedge as illustrated in the schematic section below.

This wedge attains a thickness of approximately 120m to 130m in the vicinity of the eastern boundary of the mining right area. The Upper Elsburg Reefs constitute 100% of the South Deep Mineral Reserves ounces, VCR has been excluded from Reserves and contributes only to Mineral Resources in the 2019 reporting.

## LoM: Proved and Probable Reserves
It is estimated that the current Mineral Reserves will be depleted in 2093 (75 years).
On-lease metres drilled and expenditure for the 12-month period ended 31 December 2019 are summarised below.

<table>
<thead>
<tr>
<th>Metres</th>
<th>ZARm</th>
<th>US$m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade control drilling</td>
<td>10,442</td>
<td>20.96</td>
</tr>
<tr>
<td>LIB drilling&lt;sup&gt;1&lt;/sup&gt;</td>
<td>3,700</td>
<td>6.40</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14,142</strong></td>
<td><strong>27.36</strong></td>
</tr>
</tbody>
</table>

<sup>1</sup> Only LIB drilling is classed as exploration drilling.

RESOURCE DEFINITION/MINE DEFINITION DRILLING AND EXPENDITURE

The Mineral Resources base is predominantly classified as Measured and indicated, with approximately 10% in the inferred category. Accordingly, with the surface exploration programme completed by Gold Fields in 2013 and subsequently incorporated with the results of the 3D vibroseis seismic survey undertaken earlier, drilling is now focused on Resource and mine definition as opposed to brownfield exploration, which is effectively limited to the LIB drilling. The current drilling strategy and standard operating procedure aims at profiling the necessary Resource confidence level to support and derisk the short, medium and long-term mine design and schedule. Two distinct drilling programmes are employed:

- **Resource definition drilling**: provides Mineral Resources information for medium-term design. This drilling is conducted from footwall infrastructure and is executed in two phases ahead of the advancing destress cut echelon. The first phase is on a 60m to 120m grid, up to 300m ahead of the face. The second phase uses LIBs, attaining a 300m grid, up to 1,000m ahead of the destress echelon. Resources definition drilling provides additional data for structural definition, stratigraphic modelling, facies determination and assaysing for grade estimation.
- **Mine definition drilling**: effectively infill grade control drilling, is the final stage of drilling and data acquisition prior to stoping. Underground channel sampling is not undertaken because of safety, access, logistical constraints and spatial control due to the massive nature of the ore body. The drilling programme is customised to meet the needs of the operation and occurs within the destress cuts and provides the infill drilling to the existing Resources definition drilling to achieve an approximate 30m x 30m grid to support long-hole stoping. The data generated is used for local scale facies determination, structural definition, stratigraphic modelling and assaysing for resource estimation. Cover drilling is conducted simultaneously and is a series of low inclined cover holes (~30°) from within the destress cut to enhance detail on geological structure. Up to four holes are drilled per corridor up to a depth of 100m ahead of the advancing cut, and will facilitate a series of geophysical surveys for increased geological confidence and for geotechnical modelling and domain purposes.

In accordance with the SAMREC Code, South Deep maintains rigorous QA/QC protocols on all its Resource definition programmes. It draws on industry leading practice for data acquisition and utilises accredited laboratories which are regularly reviewed both internally and externally. Analytical QA/QC is maintained and monitored through the submission of blanks, certified reference material and duplicates, plus umpire laboratory checks.

South Deep reports its level of compliance in respect of its Social and Labour Plan (SLP) and Mining Charter commitments, on an annual basis. Furthermore, during Q4 2018, a compliance inspection was conducted by the Department of Mineral Resources and Energy (DMRE) on the title conditions contained in South Deep’s new order mining right. No compliance inspection was conducted in 2019. The third cycle of SLP, being the 2017 to 2020 SLP, was presented to and accepted by the DMRE in 2019. The mine has commenced with implementing commitments as outlined in the new SLP.

In 2019, the Department of Water Affairs and Sanitation approved the integrated water use licence lodged in May 2015. South Deep is currently reviewing its water management plan to align with the new licence.

A consolidated Environmental Management Plan (EMP), current EMPs were approved in 2010 and 2012. A revised EMP was submitted for approval during Q4 2016, this is still under review by the DMRE. During Q1 2018, the mine conducted external compliance audit of the EMP and improved its score from 96% of 2016 to 98% in 2018. This audit takes place every two years. The mine’s Safety and Environmental Management Systems are OHSAS 18001 and ISO 14001: 2015 certified. The mine is certified in compliance with the IOMC.

A new Mining Charter was published by the DMRE in mid-2018, with implementation guidelines issued in December of the same year. The Minerals Council of South Africa has taken some aspects of the new charter under judicial review. The Minerals Council of South Africa won a court case recognising the ‘once empowered, always empowered’ principle, which would guarantee the legislated black economic empowerment (BEE) ownership levels for South Deep until its licence renewal in 2040, and a further term of 30 years after that. However, the ruling has been appealed by the DMRE.
South Deep gold mine continued

KEY DEVELOPMENTS AND MATERIAL ISSUES

2019 highlights

- 2019 was a defining year for the mine, rebuilding the organisation and instilling the new operating model and culture after the restructuring process concluded at the end of 2018. A core objective to the restructuring was reducing the underground operating footprint and rationalising the mining fleet, which has driven improvements in fixed asset management, equipment operation and maintenance and has stabilised the production process and systems reliability.

- Seismicity remains a challenging aspect of bulk mining at depth and improved support design and an enhanced ground control capability is being developed to further mitigate this risk. Backfill placement was significantly improved during 2019 with the mine filling a greater volume than mined, reducing backlog volume and improving regional stability and future stope availability.

- As communicated with the restructuring announcement at the end of 2018, capex was purposefully cut back in 2019 to focus the team on improving short-term metrics. The increase in capex in 2020 compared to 2019 is a result of capital returning to normalised levels.

- The operation’s modernisation programme leveraging the implementation of I&T is realising value in both safety and productivity. The mine commissioned its first central control facility in 2019, together with remote surface operation of both rock breakers and LHDs and live mobile equipment and fixed infrastructure monitoring. The programme will continue with further deployment and improvements in underground data backbone and centralised control systems. Vehicle intervention collision avoidance systems (CAS level 9) will be implemented in 2020 to improve safe operation of the mobile production fleet.

- A structured leadership system was implemented and the business improvement programmes realised value in improving business processes and systems. This resulted in the mine meeting both cost and volume targets, rendering the mine profitable and laying the foundation to build production up to steady state sustainably to build production up to steady state volumes.

Mine design, seismicity and execution

- South Deep is an ultra-deep bulk mechanised mine exploiting the shallow dipping Elsburg clastic wedge, rendering it unique in its pioneering methods. As a result, the mine has transitioned through various mining methods, endeavouring to continually improve on previous sub-optimal conditions.

- Due to its depth, seismicity remains a restraint and key consideration in mine design and execution. The medium and longer-term control programmes are designed to manage this risk and recent enhancements, including face support, pre-conditioning, optimal pillar design, layout rules and mine sequencing, are proving to be functioning as expected and will continue to be closely monitored and supported by further studies and ongoing improvements where warranted. Importantly, the destress rates, which are the primary driver for seismicity, will not increase commensurately with the production build-up and the increase from 2020 levels is sustained in the LoM plan from ~4,000m/y (2020) to ~5,000m/y average for the next 10 years. A recent specialist third-party review by the Geotechnical Review Board (GRB) found the mine’s seismic management practices to be appropriate and ongoing monitoring and assessment suitable to drive continuous improvement.

- South Deep’s ramp-up plan is based on increased stope output from mechanised destressed areas, together with improvements required in equipment productivities. The increased destress rate requirement remains a challenge as a result of seismicity and the dependency on the mine’s footwall infrastructure development for ore handling, ventilation and logistical support. In 2019, the mine demonstrated that the required productivities are achievable, and good progress was made to develop the infrastructure for new destress cuts. In addition, the capital footwall development will be resumed in 2020.

Mine planning and scheduling

- Mining dilution and loss factors applied to Reserves are calibrated in line with actual performance trends.

- Geotechnical considerations and the interdependency between all the mining activity cycles dictate the geometry and sequence underpinning the mine plan. Detailed modelling that profiles realistic mining sequences and equipment...
The Gold Fields Mineral Resources and Mineral Reserves Supplement to the IAR
SOUTH AFRICA REGION

Productivities is incorporated into the development, destress and stoping activities to produce a fully integrated and holistic production schedule.

- Commissioning of capital infrastructure is aligned to enable increased output and includes crushers and conveyors being operational in 2022 and, in 2023, the mining corridors reach planned geometry with significant logistical improvements due to independent ventilation districts, in-cut ore-flow and in-cut fleet maintenance.

- The new strategy implemented in 2018 facilitated by the restructuring and revised operating model is engrained in this LoM plan, which will continue to be updated and recalibrated with time as more empirical operational data is gathered. This will ensure that the annual LoM process incorporates the latest performance trends, production rates and cost parameters.

**Mine plan execution**

Realisation of the planned production and cost performance improvement in the future requires achievement of the planned efficiency improvements to production cycle time, especially in the application of shotcrete and the placement of backfill.

The mine demonstrated a very significant improvement in most production metrics, resulting from a culmination of initiatives driving organisational culture, systems, processes, technical improvements and foundational work conducted in 2018. The improvement process has focused on:

- Enabling Visible Felt Leadership (VFL)
- Reinvigorating our leadership system
- Improving face time and the effectiveness thereof
- Driving enabling logistics
- Implementing I&T

Development decreased by 13% to 4,412m in 2019 from 5,047m in 2018, due to a 96% decrease in new mine capital development to 41m in 2019 from 988m in 2018. The decrease in new mine development metres was partially offset by an increase in on-reef development. The decrease in new mine development was once again communicated as part of South Deep’s turnaround strategy. This development will be restarted in H2 2020 and accelerated to open up new mining areas for the production build-up. Destress square metres mined increased by 42% to 26,606sqm in 2019 from 18,793sqm in 2018. Long-hole stoping volumes mined increased by 36% to 631,281t in 2019 from 463,348t in 2018, as a result of improved stope availability, equipment productivity and extraction quality.

A record volume (426,338m³) of backfill was placed in 2019. Coupled with this achievement, there has been a significant reduction of backfill backlog and an improvement in stopes turnaround time to an average of 4.9 months in 2019 from 7.8 months in 2018.

**Power supply**

Reliable electrical power supply in South Africa remains a significant risk. However, the mine is not shaft or mill constrained and the risk exposure to power interruptions can be managed. When installed, this capability will reduce the risk exposure to power interruptions and will lower the mine’s environmental impact.

**Risks to the execution of the LoM plan include:**

- Seismicity – medium and long-term seismicity mitigation strategy is in place and reviewed routinely by the GRB
- Ability to extract stopes efficiently – the Syaphambili programme (drill and blast) and production engineering department focus on improved metal recovery
- Power supply – pursuing solar power generation
- Operational underperformance/cost inflation – addressed through the productivity intervention and BI themes, together with the implementation of the modernisation strategy
- Wrench Fault and SoW area – LiB drilling programme, re-processing the 3D seismic survey model and SoW mining optimisation study
- The potential for more complex geological faulting and variations in pillar stability in areas beyond current mine definition drilling is accounted for by applying geological and geotechnical loss factors to the plan; these are reviewed and re-calibrated annually where necessary
- Regional hydrology – Ezulwini plan

**Cooke 4 mine partial closure and regional re-watering**

On 31 August 2016, Sibanye-Stillwater Limited (formerly Sibanye Gold Limited) announced that it would be closing its Ezulwini (Cooke 4) shaft. As a part of this process, Sibanye-Stillwater filed an application for closure and the cassation of dewatering from the mine with the DMRE. There have been various iterations of Sibanye-Stillwater’s application since 2017, with the most recent submission for authorisation to the DMRE made in September 2019.

---

**A generalised NS cross-section along the dip of the reef**

The diagram above illustrates how the design is transformed from a selective mining method in Current Mine to a bulk non-selective mining method in the North of Wrench area. This results in a significantly increased conversion ratio of Resources to Reserves during load curtailment. However, this does not fully mitigate the risk and could hamper productive output. To moderate the risk, South Deep is increasing its backup generation capacity and pursuing solar power generation capability, which is dependent on changes in legislation currently being considered. When installed, this capability will reduce the risk exposure to power interruptions and will lower the mine’s environmental impact.
Gold Fields has taken a proactive approach in relation to Sibanye-Stillwater’s application, filing its comments and objections thereon throughout the process. Gold Fields is opposed to the cessation of pumping by Sibanye-Stillwater, and as such continues to engage with Sibanye-Stillwater and other stakeholders to find an appropriate and effective solution to develop an alternative pump and treat solution.

In June 2019, Sibanye-Stillwater brought an application in a South African court against seven respondents, including South Deep, in relation to the cessation of dewatering from Cooke 4. Gold Fields opposed this application and filed a counter application seeking to ensure that Sibanye-Stillwater remain responsible for the pumping and dewatering of Cooke 4 water until the DMRE has issued a closure certificate (or until such longer period as required by statute). The ultimate outcome of this matter, including its impact on South Deep, remains uncertain. However, the cessation of pumping by Sibanye-Stillwater and dewatering of Cooke 4 could have a material adverse effect on South Deep’s business.

The diagram above is a three-dimensional isometric view of the stratigraphy of South Deep including the primary infrastructure. The stratigraphic package hosts the economically significant Upper Elsburg and VCR conglomerate units. The Upper Elsburg (red) form a clastic wedge that attains a thickness of 120m in the east and truncates against the VCR (blue) to the west.
### OPERATING STATISTICS

<table>
<thead>
<tr>
<th>Units</th>
<th>Dec 2019</th>
<th>Dec 2018</th>
<th>Dec 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Development</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total development</td>
<td>m</td>
<td>7,485</td>
<td>5,047</td>
</tr>
<tr>
<td>Waste development</td>
<td>m</td>
<td>1,444</td>
<td>2,572</td>
</tr>
<tr>
<td>Reef development</td>
<td>m</td>
<td>6,041</td>
<td>2,475</td>
</tr>
<tr>
<td><strong>Underground mining (including development)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total destress mined</td>
<td>m²</td>
<td>26,606</td>
<td>18,793</td>
</tr>
<tr>
<td>Total mined</td>
<td>kt</td>
<td>1,138</td>
<td>1,036</td>
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<tr>
<td>Waste mined</td>
<td>kt</td>
<td>77</td>
<td>200</td>
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<tr>
<td>Ore mined</td>
<td>kt</td>
<td>1,060</td>
<td>835</td>
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<tr>
<td>Mined grade (ore only)</td>
<td>g/t</td>
<td>6.2</td>
<td>6.0</td>
</tr>
<tr>
<td>Mined grade (ore and waste)</td>
<td>g/t</td>
<td>5.8</td>
<td>4.9</td>
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<tr>
<td>Au broken</td>
<td>kg</td>
<td>6,545</td>
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<td><strong>Processing</strong></td>
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<tr>
<td>TSF mining</td>
<td>kt</td>
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<td>TSF value</td>
<td>g/t</td>
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<td>0.2</td>
</tr>
<tr>
<td>Waste treated</td>
<td>kt</td>
<td>53</td>
<td>210</td>
</tr>
<tr>
<td>Underground ore treated</td>
<td>kt</td>
<td>1,098</td>
<td>828</td>
</tr>
<tr>
<td>Total tonnes treated</td>
<td>kt</td>
<td>1,666</td>
<td>1,320</td>
</tr>
<tr>
<td>Underground ore yield</td>
<td>g/t</td>
<td>5.9</td>
<td>5.9</td>
</tr>
<tr>
<td>Head grade (combined)¹</td>
<td>g/t</td>
<td>4.4</td>
<td>3.9</td>
</tr>
<tr>
<td>Yield (combined)</td>
<td>g/t</td>
<td>4.2</td>
<td>3.8</td>
</tr>
<tr>
<td>Plant recovery (underground)</td>
<td>%</td>
<td>95.4</td>
<td>96.3</td>
</tr>
<tr>
<td>Plant recovery (surface)</td>
<td>%</td>
<td>57</td>
<td>59</td>
</tr>
<tr>
<td>Total Au production</td>
<td>kg</td>
<td>6,907</td>
<td>5,220</td>
</tr>
<tr>
<td>Au sold</td>
<td>koz</td>
<td>222.0</td>
<td>167.8</td>
</tr>
<tr>
<td><strong>Financials</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Au price received</td>
<td>US$/oz</td>
<td>1,418</td>
<td>1,252</td>
</tr>
<tr>
<td></td>
<td>ZAR/kg</td>
<td>658,111</td>
<td>531,253</td>
</tr>
<tr>
<td>Exchange rate (annual average)</td>
<td>ZAR:US$</td>
<td>14.46</td>
<td>13.20</td>
</tr>
<tr>
<td>Cost of sales before amortisation and depreciation</td>
<td>RM</td>
<td>2,135</td>
<td>2,564</td>
</tr>
<tr>
<td></td>
<td>ZAR/kg</td>
<td>309,107</td>
<td>491,188</td>
</tr>
<tr>
<td>Capital expenditure (capex)</td>
<td>RM</td>
<td>479</td>
<td>770</td>
</tr>
<tr>
<td></td>
<td>ZAR/kg</td>
<td>69,365</td>
<td>147,510</td>
</tr>
<tr>
<td></td>
<td>US$/oz</td>
<td>149</td>
<td>348</td>
</tr>
<tr>
<td>All-in costs (AIC)</td>
<td>ZAR/kg</td>
<td>585,482</td>
<td>854,049</td>
</tr>
<tr>
<td></td>
<td>US$/oz</td>
<td>1,259</td>
<td>2,012</td>
</tr>
</tbody>
</table>

¹ Includes TSF and underground waste development

Rounding off of figures presented in this report may result in minor computational discrepancies. Where this occurs, it is not deemed significant.

### PROJECT AND STUDY PIPELINE

A broad range of projects are scheduled in 2020 to underpin and improve the LoM plan going forward:

- Mine of the Future project
- Alternative mining methods are being assessed during 2020 to 2021 through trial mining programmes and include mining under-fill, retreat stope sequencing and non-destress methods.
- Where the trials produce positive results, further optimisation studies could indicate the adoption of different mining methods to improve safety, mining efficiency and costs
- Modifying factors are deemed conservative with incremental improvements in metal loss and mining recovery anticipated in the future
- Productivity improvement from Horizon 1 and 2 I&T implementation
- SoW access optimisation study in line with the 3D seismic cube re-processing, updated geo-domaining model and LIB drilling programme to increase resolution south of the wrench fault
MINERAL RESOURCES AND MINERAL RESERVES

All Mineral Resources and Mineral Reserves reported are 90.694% attributable to South Deep.

Mineral Resources classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Dec 2019</th>
<th>Dec 2018</th>
<th>Dec 2017</th>
<th>Dec 2019</th>
<th>Dec 2018</th>
<th>Dec 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underground</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measured</td>
<td>29,941</td>
<td>20,201</td>
<td>35,774</td>
<td>6.55</td>
<td>7.04</td>
<td>6.65</td>
</tr>
<tr>
<td>Indicated</td>
<td>239,959</td>
<td>221,840</td>
<td>259,821</td>
<td>6.10</td>
<td>6.31</td>
<td>6.07</td>
</tr>
<tr>
<td>Inferred</td>
<td>22,440</td>
<td>20,966</td>
<td>29,167</td>
<td>8.79</td>
<td>9.13</td>
<td>8.02</td>
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<tr>
<td>Total underground</td>
<td>292,340</td>
<td>263,007</td>
<td>324,782</td>
<td>6.35</td>
<td>6.59</td>
<td>6.31</td>
</tr>
</tbody>
</table>

Surface stockpiles

| TSF (Measured)   | 62,743 | 65,020 | 56,808 | 0.22 | 0.21 | 0.23 |
| Total            | 355,083| 328,027| 318,570| 5.27 | 5.32 | 5.41 |

The Mineral Resources reporting protocol involves reporting the Resources on a minimum mining width with a generic minimum Resources block dimension of 5m x 5m x 5m, which is reflective of the excavation types and mining methods employed in the LoM plan. It provides a practical block model geometry and GTCs better aligned to the current mining method.

The Resources for CM, NoW and SoW all accommodate the latest mine design shapes (inclusive of the in-design material) and include the additional tonnes at a lower average grade that will be sourced from these areas.
Modifying factors
- Regional pillars are excluded from the Mineral Resources
- All reserved excavation designs are generated in full 3D virtual space

<table>
<thead>
<tr>
<th>Units</th>
<th>Dec 2019</th>
<th>Dec 2018</th>
<th>Dec 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral Resources parameters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mineral Resources Au price</td>
<td>US$/oz</td>
<td>1,400</td>
<td>1,400</td>
</tr>
<tr>
<td></td>
<td>ZAR/kg</td>
<td>625,000</td>
<td>600,000</td>
</tr>
<tr>
<td>Cut-off grade</td>
<td>g/t</td>
<td>3.4 – 6.0</td>
<td>3.7 – 4.1</td>
</tr>
<tr>
<td>Mineral Reserves parameters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mineral Reserves Au price</td>
<td>US$/oz</td>
<td>1,200</td>
<td>1,200</td>
</tr>
<tr>
<td></td>
<td>ZAR/kg</td>
<td>550,000</td>
<td>525,000</td>
</tr>
<tr>
<td>Cut-off grade (NoW – SoW)</td>
<td>g/t</td>
<td>4.1 – 4.5</td>
<td>4.1 – 4.5</td>
</tr>
<tr>
<td>MCF</td>
<td>%</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Dilution underground</td>
<td>%</td>
<td>13.5</td>
<td>11.1</td>
</tr>
<tr>
<td>Losses underground</td>
<td>%</td>
<td>14</td>
<td>17</td>
</tr>
<tr>
<td>Plant recovery</td>
<td>%</td>
<td>96</td>
<td>96.5</td>
</tr>
<tr>
<td>Processing capacity</td>
<td>Mtpa</td>
<td>4.0</td>
<td>4.0</td>
</tr>
</tbody>
</table>

1. Elsburg reefs only, VCR COG used is 6.0 g/t

Grade tonnage curves
The grade tonnage curve for the underground Mineral Resources is presented opposite. Stockpiles are excluded from the grade tonnage curves.

Note 1. Reserves material profiled as ‘in-design’ material added to the resource footprint has not been accounted for by the MSO generated stopes and is consequently excluded in the grade tonnage curve.

The broad-based black economic empowerment (B-BBEE) transaction, concluded in December 2010, grants an empowerment consortium ~10% of South Deep’s total Reserves. Based on the relevant sliding scale of the vesting of the economic benefit attached to the 10% and the current LoM profile, the Mineral Reserves portion currently attributable to Gold Fields is 90.694%.

Mineral Reserves classification

<table>
<thead>
<tr>
<th></th>
<th>Tonnes (kt)</th>
<th>Grade (g/t)</th>
<th>Au (koz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underground</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proved</td>
<td>14,407</td>
<td>11,811</td>
<td>13,974</td>
</tr>
<tr>
<td>Probable</td>
<td>168,880</td>
<td>170,446</td>
<td>202,787</td>
</tr>
<tr>
<td>Grand total</td>
<td>183,287</td>
<td>182,258</td>
<td>216,761</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
South Deep gold mine continued

Mineral Reserves classification per mining area

<table>
<thead>
<tr>
<th>Area</th>
<th>Proved</th>
<th>Probable</th>
<th>Total Mineral Reserves</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tonnes (kt)</td>
<td>Grade (g/t)</td>
<td>Au (koz)</td>
</tr>
<tr>
<td>Underground</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM</td>
<td>5,329</td>
<td>5.82</td>
<td>997</td>
</tr>
<tr>
<td>NoW</td>
<td>9,078</td>
<td>5.87</td>
<td>1,714</td>
</tr>
<tr>
<td>SoW – E</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>SoW – W</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Total under</td>
<td>14,407</td>
<td>5.85</td>
<td>2,712</td>
</tr>
</tbody>
</table>

Mineral Reserves at South Deep are reported at mill head grade inclusive of ore and in-section (in-design stope horizon waste from ramps and accesses) development tonnes, which cannot be separated in the ore flow. The capital footwall development waste is excluded due to future separation potential in the ore flow NoW. If included in the ore flow for the LoM, the impact on the Mineral Reserves grade would be a reduction of ~0.2 g/t with the related volume increase.

Mineral Resources and Mineral Reserves reconciliation year-on-year

Factors that affected the Mineral Resources reconciliation

- Production depletion (-230koz)
- Reduction in the cut-off grade for CM and NoW of 3.7g/t to 3.4g/t and for SoW 4.1g/t to 3.8g/t (+3.6Moz)
- Continuous improvements in deriving in-design material (+1.34Moz)
- Updated resources model due to additional 115 boreholes, 73 new and 42 retagged (-0.74Moz)
- The combined effect of gold price, mining cost and capital infrastructure adjustments drove the cut-off reductions
- The Resources accommodate the latest mine design shapes (inclusive of the in-design material) and include the additional tonnes at a lower average grade that will be sourced from these areas

Factors that affected the Mineral Reserves reconciliation

- Production depletion (-219koz)
- No change in Reserves cut-off grade
- Geo-structural loss factor adjustment (+0.5Moz)
- Impact of updated Resources model and mine design updates due to (-0.43Moz)
- 87 O-line excluded due to marginality (-0.05Moz)
- LoM one-year extension to 2094 (+0.16Moz)

Mineral Resource sensitivity

To illustrate the impact of fluctuations in gold price and exchange rates on the current declaration, South Deep has generated sensitivities with respect to Mineral Reserves. The following graph indicates the Managed Mineral Reserves sensitivity at -15%, -10%, -5%, base, +5%, +10% and +15% to the base R550,000/kg (US$1,200/oz) reserve gold price.

These sensitivities (other than for the base case) are not supported by detailed plans and depletion schedules. They should only be considered on an indicative basis, specifically as such sensitivities assume 100% selectivity, without any operating cost increases.
West Africa region

Mineral Resources
16.9Moz*

Mineral Reserves
7.6Moz*

Salient features

* 90% attributable to Gold Fields and 50% of Asanko JV
Tarkwa, Damang and Asanko JV gold mines located in Ghana

At Tarkwa exploration successfully defined a significant extension to the Akontansi Underlap palaeoplacer which delivered an additional 1.3Moz Resource at a discovery cost of US$3.25/oz, with 552koz converted to Reserve. This marks the first time Tarkwa has fully replaced Reserves depletion in 15 years.

The Damang Reinvestment project has progressed according to plan in 2019 with traction on total material moved, and will deliver strong cash-flows as the mining front transitions through the Huni Sandstone unit, with characteristically erratic grades, into the heart of the ore body from mid-2020 onward. Damang has returned production levels to in excess of 200koz gold per annum for the first time in eight years.

The Asanko JV has a revised LoM plan supported by a PFS to underpin this maiden Mineral Resources and Reserves estimate for Gold Fields. Studies to assess additional opportunities and business improvement options to further optimise the LoM plan and the financial metrics will continue in 2020.
Exploration drilling and expenditure

At Damang, the 2019 drilling programme focused on Resource infill drilling at the southern end of the Amoanda – Tomento Corridor and an Advanced Grade Control (AGC) programme in the area under the Amoanda Bridge. The Resource infill drilling programme followed up on a successful scout drilling programme in 2018 and forms part of a series of Resource infill drilling programmes planned to fully establish the economic viability of the Amoanda – Tomento corridor. The AGC programme targeted northern extensions of the scattered mineralisation in the Banket Footwall at the upper portions of Amoanda pits 2 and 3 into the Bridge.

Pending future budget approvals, the team will focus on developing the southern strike extensions of the flex World Bank and Amoanda mineralised trends.

At Tarkwa, the team strategised to explore the on-lease palaeoplacer potential to delineate new Resources and upgrade known Resource areas. A total of 27km of drilling was completed over six targets in initial drilling, Resource definition and Resource conversion programmes. Remarkable success was realised with the addition of 1.2Moz to the Resource portfolio.

In 2020, the team will continue to explore the near-mine palaeoplacer potential at Tarkwa. A total of US$3m has been budgeted to complete 10.2km of drilling over four main target areas. Work planned to explore the entire northern extension of the Underlap trend has been prioritised.

At Asanko there is a strong focus on exploration across the tenement package. In 2020, a budget of US$10m (Gold Fields portion of US$5m) has been allocated to exploration. A three-pronged exploration strategy is directed at:

- Short term – seeking a new oxide Resources within a 5km radius of the processing plant
- Medium term – evaluation of the Obotan – Esaase Belt Corridor
- Long term – search for ore replacement along the South Camp area with credible potential for large-scale discovery as a replacement to the Nkran open pit

<table>
<thead>
<tr>
<th>Operations</th>
<th>December 2019</th>
<th>December 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Metres</td>
<td>US$m</td>
</tr>
<tr>
<td>Damang</td>
<td>13,190</td>
<td>1.81</td>
</tr>
<tr>
<td>Tarkwa</td>
<td>27,007</td>
<td>6.28</td>
</tr>
<tr>
<td>Asanko (100% physicals; 50% costs)</td>
<td>5,971</td>
<td>4.69</td>
</tr>
<tr>
<td><strong>Total West Africa operations</strong></td>
<td><strong>46,168</strong></td>
<td><strong>12.80</strong></td>
</tr>
</tbody>
</table>

Exclusive of grade control drilling

MINERAL RESOURCES AND MINERAL RESERVES

West Africa region summary of the Mineral Resources and Mineral Reserves estimates

<table>
<thead>
<tr>
<th></th>
<th>December 2019</th>
<th>December 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mineral Resources</strong></td>
<td><strong>Dec</strong></td>
<td><strong>Dec</strong></td>
</tr>
<tr>
<td>Measured, Indicated and Inferred</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tonnes (Mt)</td>
<td>Grade (g/t)</td>
<td>Au (Moz)</td>
</tr>
<tr>
<td>Damang</td>
<td>84.4</td>
<td>2.18</td>
</tr>
<tr>
<td>Asanko2 (50%)</td>
<td>35.5</td>
<td>1.69</td>
</tr>
<tr>
<td>Tarkwa – open pits</td>
<td>233.1</td>
<td>1.30</td>
</tr>
<tr>
<td>Tarkwa – surface stocks</td>
<td>74.8</td>
<td>0.47</td>
</tr>
<tr>
<td><strong>Total West Africa</strong></td>
<td><strong>427.8</strong></td>
<td><strong>1.36</strong></td>
</tr>
</tbody>
</table>

Mineral Resources are inclusive of Mineral Reserves. All tonnes (t) relate to metric units. Rounding-off of figures may result in minor computational discrepancies; where this happens it is not deemed significant. In West Africa (Damang and Tarkwa) the Mineral Resources and Mineral Reserves were determined using a gold price of US$1,400/oz and US$1,200/oz, respectively. Asanko Mineral Resources and Mineral Reserves were determined using a gold price of US$1,500/oz and US$1,300/oz, respectively;

1 Managed, unless otherwise stated
2 Asanko has completed a PFS. Note Asanko is reported as 50% owned; however, Asanko is not managed by Gold Fields

The Gold Fields Mineral Resources and Mineral Reserves Supplement to the IAR 2019

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The Damang Reinvestment project, which was initiated at the beginning of 2017 as the best option to secure future cash-flows at the mine up to 2025, continued to deliver positive results in 2019. Mining volumes focused on waste stripping to open up the target higher grade ore zones for mining and is tracking on schedule.

The Damang Reinvestment project will deliver strong cash-flows, provided by improved head grades and enhanced mining and cost efficiencies once the mining front transitions through the Huni Sandstone unit, with characteristically erratic grades, into the heart of the ore body dominated by the Tarkwa Phyllites, Intrusive dolerites and the Banket Hangingwall lithologies. Damang has returned production levels to in excess of 200koz gold per annum for the first time in eight years.

The Amoanda pit was completed during Q3 2019. The Amoanda – Tomento Corridor continues to be assessed to identify potential options, including underground, for accessing extensions to the main mineralised zone trending progressively deeper to the north of the Amoanda pit.

The Damang unconstrained study to evaluate the possibility of increasing the Damang Resources and Reserves base to extend the current LoM would entail a maximum main pit cutback to access the deeper portions of the ore body beyond the constraints of the current Damang Reinvestment project and specifically the ETSF. The project has progressed from scoping study level in 2018 and is now in its PFS phase.

**ASSET FUNDAMENTALS**

**General location**

Damang is located in southwest Ghana, approximately 300km by road west of Accra, the capital, at latitude 5°11’N and longitude 1°57’W. The Damang concession lies to the north of and joins the Tarkwa concession, which is located near the town of Tarkwa. The area is served by access roads with established infrastructure, and a main road connects the mine to the port of Takoradi, some 90km to the southeast.

**Licence status and holdings**

The Damang concession covers a total area of 23,761 ha. All necessary statutory mining authorisations and permits are in place for the Damang ML, and Abosso Goldfields is entitled to mine all material falling within the lease. Abosso Goldfields holds an ML in respect of the Damang mine dated 19 April 1995, as amended by an agreement dated 4 April 1996. This lease expires in 2025, but is renewable under its terms and the provisions of the Minerals and Mining Law, by agreement between Abosso Goldfields and the Ghanaian government. The licence renewal application submitted to the Minerals Commission (MINCOM) for the extension of the Lima South ML was approved by the Minister of Lands and Natural Resources in November 2018. The change to the Damang concession area reported year-on-year (-2,615ha) is a function of re-blocking of the licences based on revisions to the cadastral system adopted by MINCOM as well as the relinquishment of the Wassa Bremen exploration licence (PL 3/383).

AGL has submitted an application to MINCOM seeking permission to relinquish the southern portion of the Damang ML in the Abosso Underground and Abosso tailings area. As part of this process the revised ML boundary will be blocked in compliance with Regulation 279(1) of the Minerals and Mining (Licensing) Regulations, 2012 (L.I.2176). This mandates the mineral rights holder to convert the area subject to the mineral right to blocks consistent with the new cadastral system as prescribed by the Regulations. Provisionally, a total of 1,323ha representing 25% of the Damang ML area has been delineated for relinquishment and will be finalised in 2020.
### Mining method
Open pit, conventional drill and blast with truck and shovel. Mining operations are carried out by contract mining. With completion of the Amaanda pit, mining is now focused on the Damang Complex. Gold mineralisation is mined selectively to cut-off grades and segregated into grade ranges to balance ore production and processing capacities. The east wall of Damang has been re-engineered to mitigate geotechnical challenges.

### Operational infrastructure
Damang has two open pits constituting the Mineral Reserves, 10 open pits comprising the Mineral Resources, one ore stockpile, a centralised administrative office, engineering workshops and residence villages.

### Mineral processing and tailings storage facility
The plant, treating predominantly fresh ore, consists of a three-stage crushing circuit, an SAG/Ball mill, with pebble crushing, gravity gold concentration recovery circuit and a conventional CIL gold recovery circuit. The plant has been optimised to process 4.5Mtpa.

Deposition of tailings is currently to the Far East TSF (FETSF) which was commissioned in January 2018. The second stage of the embankment lift commenced in November 2019.

The South TSF (STSF), located on the south eastern side of Damang, was used for tailings discharge from original plant commissioning until tailings deposition ceased in March 2002. Since closure, a waste dump has been located on top of part of the STSF, and crop plantations have been established on the remainder of the facility basin area.

The ETSF was constructed as a combined TSF/waste dump, using compacted earth fill and dumped fresh waste rock. The main cross-valley embankments are the north and south embankments. The western side of the facility comprises the Damang open pit and Victoria waste dump while the eastern side is formed by the eastern embankment which links a series of low-lying hills. Closure deposition of tailings into the ETSF was embarked upon during early 2017 until early January 2018 when deposition was ended.

The FETSF is located south of the existing ETSF abutting the ETSF’s South Embankment. The FETSF is planned to be constructed through eight stages. The FETSF has been designed and constructed with a compacted clay liner across the facility basin area and upstream slopes. The TSF has a remaining LoM storage capacity of ~33 Mt (stages two to eight).

### Climate
A tropical climate, characterised by two distinct rainy seasons from March to July and September to November. Average annual rainfall in the area is in excess of 2,982mm. Although there may be minor disruptions to operations during the wet season, there is no operating or long-term constraint on production due to the climate.

### Local geology, deposit type and mineralisation style
The Damang ore body is hosted by a northeast plunging antiform, developed within Tarkwaian sediments, which reflect an important mineralised stratigraphic component of the Ashanti Belt in southwest Ghana. The main Damang pit is located near to the closure of the antiform, and all other known palaeoplacer mineralisation is located on the east and west limbs of the Damang anticline. The hydrothermal fresh ore is associated with predominantly east-dipping thrust faults and sub-horizontal quartz veins. Damang now exploits hydrothermal style mineralisation but historically has also produced from palaeoplacer deposits.

### LoM: Proved and Probable Reserves
It is estimated that current Mineral Reserves will be depleted in 2025 (six years).

### Sustainable development
Damang retained its OHSAS 18001: 2007. In 2018, Damang was certified to ISO 14001:2015. The mine had a successful surveillance audit in 2019 and is scheduled for another surveillance audit in 2020.

The mine is awaiting issuance of an environmental permit from the Environmental Protection Agency (EPA) for the FETSF, following payment of the fee in 2018. Applications to renew Damang’s water use, mining and explosives permits were submitted to the Water Resources Commission and Minerals Commission in 2018 and the relevant fees were paid. Damang has paid fees for the Environmental Management Plan (2017 – 2020), which was submitted to the EPA in April 2017.
The Damang Reinvestment project progressed according to plan during 2019, with traction on total material moved, and is on track to access the heart of the ore body in H2 2020.

Substantial improvements were made to the crushing and grinding circuit upgrades.

The Mineral Reserves are constrained by the ETSF, which is adjacent to the east of the Damang main pit, while the Mineral Resources are unconstrained by the ETSF, resulting in 2.3Moz of Resources gold not converting to Reserves.

The Huni pit is retained as a component of the LoM plan after a full mining and metallurgical review and optimisation study, confirming its positive cash-flow contribution and incremental improvement to the mine’s NPV.

The LoM plan is based on the contractor mining model rates and costs as embedded at the mine and supported by empirical data generated up to Q4 2019.

Ongoing optimisation and geotechnical studies have led to pit design and stability improvements in the LoM plan, including pit wall steepening and the introduction of wider berms at the DPCB east wall.

The potential for underground mining is being investigated for extensions to the north of Amoanda due to high strip ratios impacting the viability of further open pit mining.

The critical controls put in place after the main pit east wall deformation in September 2017 have been implemented including 70 depressurisation holes drilled on various elevations across the east and west wall slope faces, and five dewatering holes were also drilled. New blasting protocols have been implemented for the east wall. Radar monitoring, presplitting, depressurisation holes and dewatering, together with the defined drill, blast and clean up practices will continue to maintain pit wall stability.

Risks to the execution of the LoM plan include:

- Grades will remain erratic as the mining front moves through the variable Huni Sandstone lithology, but will become more consistent as ore from the heart of the ore body becomes a major contributor in H2 2020.
- Potential ore loss and dilution, which will be managed with tight controls on blasting in the Tarkwa Phyllite and Intrusive dolerite rock types to minimise blast movement.
- The performance of the mining contractor continues to be closely monitored to ensure delivery on the Damang Reinvestment project mining schedule and cost metrics.

### Operating Statistics

<table>
<thead>
<tr>
<th>Units</th>
<th>Historic performance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dec 2019</td>
</tr>
<tr>
<td><strong>Open pit mining</strong></td>
<td></td>
</tr>
<tr>
<td>Total mined</td>
<td>kt</td>
</tr>
<tr>
<td>– Waste mined (opex)</td>
<td>kt</td>
</tr>
<tr>
<td>– Waste mined (capex)</td>
<td>kt</td>
</tr>
<tr>
<td>– Ore mined</td>
<td>kt</td>
</tr>
<tr>
<td>Mined grade</td>
<td>g/t</td>
</tr>
<tr>
<td>Strip ratio (tonnes) waste:ore</td>
<td>waste:ore</td>
</tr>
<tr>
<td><strong>Processing</strong></td>
<td></td>
</tr>
<tr>
<td>Tonnes treated</td>
<td>kt</td>
</tr>
<tr>
<td>Head grade</td>
<td>g/t</td>
</tr>
<tr>
<td>Yield</td>
<td>g/t</td>
</tr>
<tr>
<td>Plant recovery</td>
<td>%</td>
</tr>
<tr>
<td>Total Au production</td>
<td>koz</td>
</tr>
<tr>
<td>kg</td>
<td>6,481</td>
</tr>
<tr>
<td><strong>Financials</strong></td>
<td></td>
</tr>
<tr>
<td>Au price received</td>
<td>US$/oz</td>
</tr>
<tr>
<td>Cost of sales before amortisation and depreciation</td>
<td>US$/M</td>
</tr>
<tr>
<td>Capital expenditure (capex)</td>
<td>US$/oz</td>
</tr>
<tr>
<td>All-in costs (AIC)</td>
<td>US$/oz</td>
</tr>
<tr>
<td>All-in costs (AIC)</td>
<td>US$/oz</td>
</tr>
<tr>
<td>All-in costs (AIC)</td>
<td>US$/oz</td>
</tr>
</tbody>
</table>
Damang gold mine continued

EXPLORATION AND RESOURCE DEFINITION DRILLING
2018/2019 exploration expenditure is presented in the regional West Africa overview section.

Exploration in 2019 focused on Resources infill drilling at the southern end of the Amoanda – Tomento Corridor and an Advanced Grade Control (AGC) programme under the Amoanda Bridge, a key step change between the main geodomains. The Resources infill drilling programme followed up on a successful scout drilling programme in 2018 and forms part of a series of Resources infill drilling programmes planned to fully establish the economic viability of the Amoanda – Tomento Corridor. A total of 22 RC and 27 DD holes were drilled on a 40m x 40m spacing over 160m strike length. Drilling results confirmed the northern extension of the ‘main’ mineralised trend from Amoanda. The AGC programme targeted northern extensions of the scattered mineralisation mined in the Banket Footwall at the upper portions of Amoanda Pits 2 and 3 into the Bridge. The projects were aimed at converting Mineral Resources and growing the Mineral Reserves base of the mine to increase operational flexibility, which is in line with the Company’s brownfield exploration strategy. A total of 13.2km of combined DD and RC drilling was done in 2019.

PROJECT AND STUDY PIPELINE
The 2020 projects include the strategic assessment of the Damang Unconstrained Study (DUS) to evaluate the possibility of increasing the Damang Resources and Reserves base to extend the current LoM beyond 2025. The assessment of potential underground mining at Amoanda will also be advanced.

MINERAL RESOURCES AND MINERAL RESERVES
All Mineral Resources and Mineral Reserves reported are 90% attributable to Damang.

Mineral Resources classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Tonnes (kt)</th>
<th>Grade (g/t)</th>
<th>Au (koz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open pit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measured</td>
<td>9,116</td>
<td>9,829</td>
<td>10,735</td>
</tr>
<tr>
<td>Indicated</td>
<td>54,719</td>
<td>57,681</td>
<td>58,044</td>
</tr>
<tr>
<td>Inferred</td>
<td>17,966</td>
<td>15,250</td>
<td>14,983</td>
</tr>
<tr>
<td>Total open pit</td>
<td>81,802</td>
<td>82,760</td>
<td>83,762</td>
</tr>
<tr>
<td>Stockpiles</td>
<td>2,622</td>
<td>2,385</td>
<td>2,459</td>
</tr>
<tr>
<td>Grand total</td>
<td>84,423</td>
<td>85,145</td>
<td>86,221</td>
</tr>
</tbody>
</table>

Future exploration will target the southern extension of the Rex pit mineralised trend and also infill the area to the immediate south of the Amoanda pit to a 20m x 20m drill spacing.

Mineral Resources classification per mining area

<table>
<thead>
<tr>
<th>Area</th>
<th>Measured</th>
<th>Indicated</th>
<th>Inferred</th>
<th>Total Mineral Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tonnes (kt)</td>
<td>Grade (g/t)</td>
<td>Au (koz)</td>
<td>Tonnes (kt)</td>
</tr>
<tr>
<td>Damang (incl Saddle)</td>
<td>4,684</td>
<td>1.86</td>
<td>281</td>
<td>39,669</td>
</tr>
<tr>
<td></td>
<td>1,214</td>
<td>1.44</td>
<td>56</td>
<td>4,900</td>
</tr>
<tr>
<td></td>
<td>2,267</td>
<td>1.83</td>
<td>133</td>
<td>5,476</td>
</tr>
<tr>
<td></td>
<td>209</td>
<td>1.80</td>
<td>12</td>
<td>1,459</td>
</tr>
<tr>
<td></td>
<td>743</td>
<td>1.35</td>
<td>32</td>
<td>2,029</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>1,186</td>
</tr>
<tr>
<td>Total open pit</td>
<td>9,116</td>
<td>1.75</td>
<td>514</td>
<td>54,719</td>
</tr>
<tr>
<td>Stockpiles</td>
<td>2,622</td>
<td>0.74</td>
<td>63</td>
<td>—</td>
</tr>
<tr>
<td>Grand total</td>
<td>11,738</td>
<td>1.53</td>
<td>577</td>
<td>54,719</td>
</tr>
</tbody>
</table>

90
Modifying factors

<table>
<thead>
<tr>
<th></th>
<th>Units</th>
<th>December</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2019</td>
</tr>
</tbody>
</table>

**Mineral Resources parameters**

- Mineral Resources Au price (US$/oz): 1,400, 1,400, 1,400
- Cut-off for fresh ore (g/t): 0.64 – 0.86, 0.67 – 0.90, 0.69 – 0.90
- Cut-off for oxide ore (g/t): 0.50 – 0.69, 0.52 – 0.71, 0.51 – 0.70

**Mineral Reserves parameters**

- Mineral Reserves Au price (US$/oz): 1,200, 1,200, 1,200
- Cut-off for fresh ore (g/t): 0.69 – 0.77, 0.72 – 0.77, 0.72 – 0.77
- Cut-off for oxide ore (g/t): 0.54 – 0.62, 0.55 – 0.60, 0.56 – 0.59

- Strip ratio (waste:ore): 2.58, 3.2, 4.3
- Dilution (hydrothermal) (%): 17 – 25, 17 – 25, 17 – 25
- Dilution (palaeoplacer) (cm): 50, 50, 50
- Mining recovery factor (%): 95, 95, 95
- MCF (%): 95, 95, 95
- Plant recovery (%): 92, 91, 91
- Processing capacity (Mtpa): 4.5, 4.3, 4.2

1 50cm skin dilution translates to different % for the respective reef widths.

**Grade tonnage curves**

The grade tonnage curves for the surface Mineral Resources are presented. Stockpiles are excluded from the grade tonnage curves.

![Grade tonnage curve – open pit]

**Mineral Reserves classification**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Tonnes (kt)</th>
<th>Grade (g/t)</th>
<th>Au (koz)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dec 2019</td>
<td>Dec 2018</td>
<td>Dec 2017</td>
</tr>
<tr>
<td>Open pit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proved</td>
<td>4,720</td>
<td>5,520</td>
<td>6,314</td>
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<tr>
<td>Probable</td>
<td>17,778</td>
<td>21,629</td>
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<tr>
<td>Total open pit</td>
<td>22,497</td>
<td>27,149</td>
<td>30,476</td>
</tr>
<tr>
<td>Surface stockpiles</td>
<td>2,544</td>
<td>1,729</td>
<td>1,453</td>
</tr>
<tr>
<td>Surface</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grand total</td>
<td>25,042</td>
<td>28,878</td>
<td>31,928</td>
</tr>
</tbody>
</table>

- Average grade above cut-off (g/t): 0.9, 0.6, 1.5, 0.3, 1.2, 1.8, 2.0
- Average grade below cut-off (g/t): 0.0, 4.5, 4.0, 3.5, 3.0, 2.5, 2.0, 1.5, 1.0, 0.5, 0.0
- Grade (g/t): 0.0, 0.3, 0.6, 0.9, 1.2, 1.5, 1.8, 2.0
- Tonnes (millions): 0, 180
- Average grade above cut-off (g/t): 0.9, 0.6, 1.5, 0.3, 1.2, 1.8, 2.0
- Average grade below cut-off (g/t): 0.0, 4.5, 4.0, 3.5, 3.0, 2.5, 2.0, 1.5, 1.0, 0.5, 0.0
- Grade (g/t): 0.0, 0.3, 0.6, 0.9, 1.2, 1.8, 2.0
- Tonnes (millions): 0, 180

The Gold Fields Mineral Resources and Mineral Reserves Supplement to the IAR

WEST AFRICA REGION
Mineral Reserves classification per mining area

<table>
<thead>
<tr>
<th>Mining area</th>
<th>Proved</th>
<th></th>
<th>Probable</th>
<th></th>
<th>Total Mineral Reserves</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tonnes (kt)</td>
<td>Grade (g/t)</td>
<td>Au (koz)</td>
<td>Tonnes (kt)</td>
<td>Grade (g/t)</td>
</tr>
<tr>
<td><strong>Open pit</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Huni</td>
<td>1,153</td>
<td>1.20</td>
<td>44</td>
<td>2,923</td>
<td>1.26</td>
</tr>
<tr>
<td>Damang</td>
<td>3,567</td>
<td>1.49</td>
<td>172</td>
<td>14,854</td>
<td>2.00</td>
</tr>
<tr>
<td><strong>Total open pit</strong></td>
<td>4,720</td>
<td>1.42</td>
<td>216</td>
<td>17,778</td>
<td>1.88</td>
</tr>
<tr>
<td><strong>Surface</strong></td>
<td></td>
<td></td>
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<tr>
<td>Surface stockpiles</td>
<td>2,544</td>
<td>0.71</td>
<td>58</td>
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<td>—</td>
</tr>
<tr>
<td><strong>Grand total</strong></td>
<td>7,264</td>
<td>1.17</td>
<td>274</td>
<td>17,778</td>
<td>1.88</td>
</tr>
</tbody>
</table>

Mineral Resources and Mineral Reserves reconciliation year-on-year

### Factors that affected Mineral Resources reconciliation year-on-year
- Mined depletions (-301koz)
- Decrease at Amoanda due to the resource model update based on new data and modelling
- Larger pit shells at Huni and Juno as a result of revenue factor adjustments to align to group standards
- Decrease in stockpiles year-on-year

### Factors that affected Mineral Reserves reconciliation year-on-year
- Mined depletions (-248koz)
- Pit slope optimisation and redesign
- Decrease due to wider berms introduced at DPCB east wall failure zone and Huni pit redesigned to reduce waste stripping

**Mineral Resource reconciliation**

<table>
<thead>
<tr>
<th>Gold (koz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec 2018</td>
</tr>
<tr>
<td>2018</td>
</tr>
<tr>
<td>2019</td>
</tr>
</tbody>
</table>

**Mineral Reserve reconciliation**

<table>
<thead>
<tr>
<th>Gold (koz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec 2018</td>
</tr>
<tr>
<td>2018</td>
</tr>
<tr>
<td>2019</td>
</tr>
</tbody>
</table>

### Mineral Reserves sensitivity
To illustrate the impact of fluctuations in gold price and exchange rates on the current declaration, Damang has generated sensitivities with respect to Mineral Reserves. The following graph indicates theManaged Mineral Reserves sensitivity at -15%, -10%, -5%, base, +5%, +10% and +15% to the base US$1,200/oz reserve gold price.

These sensitivities (other than for the base case) are not supported by detailed plans and depletion schedules. They should only be considered on an indicative basis, specifically as such sensitivities assume 100% selectivity, without any operating cost increases.
Tarkwa gold mine

Tarkwa continues to operate as a world-class, low-cost surface mine underpinned by 10.9Moz Mineral Resources and 5.9Moz Mineral Reserves, equating to a LoM of 14 years. A notable highlight in 2019 was the growth in the Resources and Reserves base, mainly due to exploration successfully defining the significant Akontansi Underlap palaeoplacer extension. This area delivered an additional 1.3Moz Resources at a discovery cost of US$3.25/oz, with 552koz converted to Reserves. This marks the first time Tarkwa has fully replaced Reserves depletion in 15 years.

On-lease palaeoplacer exploration and Resources infill drilling will continue as more Reserves conversion is envisaged proximal to the Akontansi Underlap zone, as well as other areas targeted down dip of existing pits. The latter may require the possible relocation of infrastructure as an option to expand the Mineral Resources and Reserves footprint to unconstrain currently sterilised ground.

**ASSET FUNDAMENTALS**

| General location | Tarkwa is located in southwest Ghana, approximately 300km by road west of Accra, the capital, at latitude 5°15’N and longitude 2°00’W. The Tarkwa gold mine is located 4km west of the town of Tarkwa with good access roads and an established infrastructure. The mine is served by a main road connecting to the port of Takoradi some 60km to the south on the Atlantic coast. |
| Licence status and holdings | The Tarkwa mine operates under MLs covering a total area of approximately 20,825ha. Five MLs, all dated 18 April 1997, cover the Tarkwa property, while two MLs, dated 2 February 1988 and 18 June 1992 respectively, cover the Teberebie property. The Tarkwa concession MLs expire in 2027, and the Teberebie property MLs in 2036. The Ghanaian government, through MINCOM, is implementing a new lease boundary system called the Cadastral (block) system, in which all leases have to be converted into block sizes of a minimum 5 seconds x 5 seconds. In this new system, Tarkwa’s total area will be 20,292ha excluding the overlap area between Tarkwa and Damang. All necessary statutory mining authorisations and permits are in place for the Tarkwa ML, and Gold Fields Ghana (GFG) is entitled to mine all material falling within the lease. |
| Mining method | Open pit, conventional drill and blast with truck and shovel. Mining operations are carried out using contractor mining. Mining occurs from several pits which haul to the processing facility. Blast restrictions are applied to the Pepe 8, Atuabo and Mantraim pits, which will be complete in 2020. Pit wall steepening has been supported by effective wall monitoring and blasting practices. |
| Operational infrastructure | Four large open pits currently exploit the stacked narrow auriferous conglomerates. Tarkwa has an ore stockpile and ‘spent ore’ on the South Heap Leach pad included in Resources and Reserves. Tarkwa has a centralised administrative office, engineering workshops and residence villages. |
| Mineral processing and TSFs | Ore is processed utilising a plant consisting of primary crushing, SAG/Ball milling, gravity recovery and a conventional CIL circuit. Current plant capacity is 13.5Mtpa. LoM tailings deposition requirements are catered for in the short term by wall raise sequences at the operating TSF 1, 2 and 5 facilities. The TSF 5 starting facility, whose downstream construction commenced in 2016, was completed in 2018. In the longer term, LoM tailings deposition requirements will be catered for by planned extended expansions to TSF 1, 2 and 5 and establishment of a new TSF 5 Annex that is planned to be constructed adjacent to TSF 5. |
| Climate | A tropical climate, characterised by two distinct rainy seasons from March to July and September to November. Average annual rainfall near the site is 2,245mm. Although there may be minor disruptions to operations during the wet season, there is no operating or long-term constraint on production due to climate. |
Local geology, deposit type and mineralisation style

The open pit surface operation currently exploits the tabular auriferous conglomerates similar to those mined in the Witwatersrand Basin of South Africa from four open pits – Pepe-Mantraim, Teberebie, Akontansi and Kottraverchy.

The local geology at Tarkwa is dominated by the Banket series, which can be further subdivided into a footwall and hangingwall barren quartzite, separated by a sequence of mineralised conglomerates and pebbly quartzites.

The stratigraphy of the individual quartzite units is well established, with auriferous reefs interbedded with barren immature quartzites. The units thicken to the west and current sedimentological parameters indicate a flow from the east and northeast. Structurally, the Tarkwaian belt has been subject to moderate folding, and at least five episodes of deformation are recognised.

LoM: Proved and Probable Reserves

The current LoM is based on in-pit mining activities continuing until 2030, the SHL material is then treated fully through the CIL plant until 2033. It is estimated that the current Mineral Reserves will be depleted in 2033 (14 years). Additional exploration and potential extensions to the open pits could further extend the life, as evidenced by Akontansi Underlap in 2019.

Sustainable development

Tarkwa retained its OHSAS 18001: 2007 and ISO 14001: 2015 certifications in 2019. The mine was also recertified to the ICMC, and received the certification from the International Cyanide Management Institute (ICMI) in March 2019.

Tarkwa submitted an updated Environmental Management Plan (2019 – 2021) to the EPA in October 2018 and has also paid the appropriate permit fees awaiting final approval.

KEY DEVELOPMENTS AND MATERIAL ISSUES

- The Akontansi Underlap extension has demonstrated Tarkwa’s ability to discover significant extensions to existing open pits using innovative structural and lithological modelling, with very competitive discovery costs averaging US$3.25/oz.
- 2020 exploration campaign will target additional extensions to existing palaeoplacer ore bodies, with ongoing focus at Underlap extension where more Reserves conversion is envisaged.
- Kobada pit processing recovery decreased (97.2% in 2018 to 89.5%) based on recent metallurgical test work.
- The mine has been restructured to operate at lower total mining volumes (85 to 90Mtpa total mining volume) to drive operational flexibility and underpin targeted head grades to deliver ~500 to 530koz per annum.
- Key focus on mining contractor performance will continue in 2020 to drive further productivity improvements, compliance to plan and cost performance.
- Two additional Knelson gravity circuit concentrators are to be installed in 2020 to improve recovery of gravity gold and increase overall plant recovery.
- Open pit Mineral Reserves grade is 1.21g/t (excluding surface stockpiles and the SHL material mined at the end of life).
- Risks to the execution of the LoM plan include:
  - Management of the mining contractor performance and equipment availability will be a key focus area for 2020 to maintain delivery on planned productivity and cost metrics.
  - Blast restrictions at Pepe/Atuabo/Mantraim require ongoing adherence to defined blasting practices.
  - Maintenance of pit wall stability will require geotechnical monitoring in certain areas.

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Tarkwa gold mine

OPERATING STATISTICS

<table>
<thead>
<tr>
<th>Units</th>
<th>Dec 2019</th>
<th>Dec 2018</th>
<th>Dec 2017</th>
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<tbody>
<tr>
<td><strong>Open pit mining</strong></td>
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<td></td>
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<tr>
<td>Total mined kt</td>
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<td>89,647</td>
<td>103,788</td>
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<tr>
<td>Waste mined (opex) kt</td>
<td>42,163</td>
<td>25,043</td>
<td>35,507</td>
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<td>Waste mined (capex) kt</td>
<td>35,331</td>
<td>50,428</td>
<td>51,578</td>
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<tr>
<td>Ore mined kt</td>
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<td>Mined grade g/t</td>
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<td>1.26</td>
<td>1.34</td>
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<tr>
<td>Strip ratio (tonnes) waste:ore</td>
<td>5.2</td>
<td>5.3</td>
<td>5.2</td>
</tr>
<tr>
<td><strong>Processing</strong></td>
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<td></td>
</tr>
<tr>
<td>Tonnes treated kt</td>
<td>13,749</td>
<td>13,791</td>
<td>13,527</td>
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<tr>
<td>Head grade g/t</td>
<td>1.20</td>
<td>1.22</td>
<td>1.37</td>
</tr>
<tr>
<td>Yield g/t</td>
<td>1.17</td>
<td>1.18</td>
<td>1.30</td>
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<tr>
<td>Plant recovery %</td>
<td>97.3</td>
<td>96.9</td>
<td>96.7</td>
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<tr>
<td>Total Au production koz</td>
<td>519.0</td>
<td>524.9</td>
<td>566.4</td>
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<tr>
<td>Total Au production kg</td>
<td>15,977</td>
<td>16,326</td>
<td>17,605</td>
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<tr>
<td><strong>Financials</strong></td>
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<tr>
<td>Average Au price received US$/oz</td>
<td>1,385</td>
<td>1,271</td>
<td>1,254</td>
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<td>Cost of sales before amortisation and depreciation US$M</td>
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<td>309</td>
<td>306</td>
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<tr>
<td>Capital expenditure (capex) US$M</td>
<td>608</td>
<td>589</td>
<td>541</td>
</tr>
<tr>
<td>All-in costs (AIC) US$/oz</td>
<td>958</td>
<td>951</td>
<td>940</td>
</tr>
</tbody>
</table>

EXPLORATION AND RESOURCE DEFINITION DRILLING

2018/2019 exploration expenditure is presented in the regional West Africa overview section.

The bulk of the Tarkwa open pit palaeplacer Mineral Resource has been drilled and classified into the Measured and Indicated Mineral Resources categories at current costs, and based on a gold price of US$1,400/oz.

Exploration activities have focused on palaeplacer mineralisation at the Underlap North Extension, Pepe (West, North and East), and Akontansi West, with the objective of delineating new ounces as well as increasing the level of confidence of Inferred and Indicated Mineral Resources. In 2019, drilling of the Underlap North Extension and Pepe North was successful in significantly extending the Resources down dip.

Drilling planned for 2020 will focus primarily on Resource definition programmes, assessing down dip extensions of existing ore bodies at Underlap North Extension 2, Underlap Far North and Kottraverchy Ridge. Some early stage target generation work will continue looking for new search space for palaeplacer and hydrothermal opportunities.

PROJECT AND STUDY PIPELINE

2020 projects include the strategic assessment of the underground potential at Teberebie, future TSF expansion options, as well as electricity, diesel and water efficiency initiatives. The installation of two Knelson concentrators in 2020 aims at further gold recovery improvements. Studies to assess and mitigate the infrastructure constraints currently impacting potential Resources and Reserves expansions will also be advanced. The timing of the various projects is calibrated to support Tarkwa’s strategic and LoM plans, and consequently takes account of project lead times, required funding, resources and the Company capital investment process.

MINERAL RESOURCES AND MINERAL RESERVES

Mineral Resources increased by 9% (0.9Moz) and Mineral Reserves by 2% (116 koz) post depletion year-on-year. All Mineral Resources and Mineral Reserves reported are 90% attributable to Tarkwa.

Stockpile tonnage and grade estimates are based on accumulations of estimated tonnage and grades trucked throughout the history of the mine and are therefore considered to be reasonably accurate. However, the grades and tonnages are discounted by 3% for processing purposes, as historical reconciliation has shown that this is realistically achievable when reclaiming a stockpile.
The Akontansi Underlap area has greater structural complexity, due to increased faulting above that normally seen in the Tarkwa palaeoplacer ore bodies. This provides duplication of reefs as is illustrated in the cross-section above.

### Mineral Resources classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Tonnes (kt)</th>
<th>Grade (g/t)</th>
<th>Au (koz)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dec 2019</td>
<td>Dec 2018</td>
<td>Dec 2017</td>
</tr>
<tr>
<td></td>
<td>Dec 2019</td>
<td>Dec 2018</td>
<td>Dec 2017</td>
</tr>
<tr>
<td></td>
<td>Dec 2019</td>
<td>Dec 2018</td>
<td>Dec 2017</td>
</tr>
<tr>
<td>Open pit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measured</td>
<td>55,142</td>
<td>57,952</td>
<td>58,700</td>
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<tr>
<td>Indicated</td>
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<td>138,577</td>
<td>108,342</td>
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<tr>
<td>Inferred</td>
<td>20,331</td>
<td>16,643</td>
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</tr>
<tr>
<td>Total open pit</td>
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<td>213,172</td>
<td>172,538</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface</td>
<td></td>
<td></td>
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<tr>
<td>Measured stockpiles</td>
<td>14,861</td>
<td>13,139</td>
<td>12,245</td>
</tr>
<tr>
<td>South Heap Leach</td>
<td>59,977</td>
<td>59,977</td>
<td>59,977</td>
</tr>
<tr>
<td>(Indicated)</td>
<td></td>
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<tr>
<td>Total surface</td>
<td>74,837</td>
<td>73,116</td>
<td>72,222</td>
</tr>
<tr>
<td>Grand total</td>
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<td>286,288</td>
<td>244,760</td>
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</table>
Tarkwa gold mine continued

Mineral Resources classification per mining area

<table>
<thead>
<tr>
<th>Area</th>
<th>Measured</th>
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<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Tonnes</td>
<td>Grade</td>
<td>Au</td>
<td>Tonnes</td>
<td>Grade</td>
<td>Au</td>
<td>Tonnes</td>
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<td>Grade</td>
</tr>
<tr>
<td></td>
<td>(kt)</td>
<td>(g/t)</td>
<td>(koz)</td>
<td>(kt)</td>
<td>(g/t)</td>
<td>(koz)</td>
<td>(kt)</td>
<td>(g/t)</td>
<td>(koz)</td>
<td>(kt)</td>
<td>(g/t)</td>
</tr>
<tr>
<td>Akontansi</td>
<td>25,229</td>
<td>1.39</td>
<td>1,124</td>
<td>115,046</td>
<td>1.25</td>
<td>4,640</td>
<td>18,171</td>
<td>1.20</td>
<td>720</td>
<td>158,993</td>
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<td>Kottarrevryy</td>
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<td>73</td>
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<td>—</td>
<td>—</td>
<td>—</td>
<td>10,266</td>
<td>1.66</td>
</tr>
<tr>
<td>Pepe/Mantram</td>
<td>8,623</td>
<td>1.31</td>
<td>363</td>
<td>22,948</td>
<td>1.06</td>
<td>783</td>
<td>1,518</td>
<td>1.37</td>
<td>67</td>
<td>33,090</td>
<td>1.14</td>
</tr>
<tr>
<td>Teberebie</td>
<td>10,584</td>
<td>1.56</td>
<td>529</td>
<td>18,661</td>
<td>1.51</td>
<td>906</td>
<td>6</td>
<td>2.18</td>
<td>—</td>
<td>29,250</td>
<td>1.53</td>
</tr>
<tr>
<td>Kobada</td>
<td>513</td>
<td>1.97</td>
<td>33</td>
<td>864</td>
<td>2.11</td>
<td>59</td>
<td>89</td>
<td>1.35</td>
<td>4</td>
<td>1,467</td>
<td>2.02</td>
</tr>
<tr>
<td><strong>Total open pit</strong></td>
<td><strong>55,142</strong></td>
<td><strong>1.46</strong></td>
<td><strong>2,593</strong></td>
<td><strong>157,592</strong></td>
<td><strong>1.26</strong></td>
<td><strong>6,390</strong></td>
<td><strong>20,331</strong></td>
<td><strong>1.21</strong></td>
<td><strong>791</strong></td>
<td><strong>233,065</strong></td>
<td><strong>1.30</strong></td>
</tr>
</tbody>
</table>

**Surface**

|              |          |          |          |          |          |          |          |          |          |          |          |          |
|              | Spent Ore (South Heap Leach) | —        | —        | —        | —        | —        | —        | —        | —        | 14,861   | 0.77     | 367      |
| Surface stockpiles | 14,861 | 0.77     | 367      | —        | —        | —        | —        | —        | —        | 14,861   | 0.77     | 367      |
| **Total surface** | **14,861** | **0.77** | **367** | **59,977** | **0.40** | **771** | —        | —        | —        | **74,837** | **0.47** | **1,138** |
| **Grand total** | **70,003** | **1.32** | **2,960** | **217,569** | **1.02** | **7,161** | **20,331** | **1.21** | **791** | **307,903** | **1.10** | **10,913** |

Modifying factors

<table>
<thead>
<tr>
<th>Units</th>
<th>December</th>
<th>2019</th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral Resources parameters</td>
<td>Mineral Resources Au price</td>
<td>US$/oz</td>
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<td>1,400</td>
</tr>
<tr>
<td></td>
<td>Cut-off for mill feed</td>
<td>g/t</td>
<td>0.32</td>
<td>0.35</td>
</tr>
<tr>
<td>Mineral Reserves parameters</td>
<td>Mineral Reserves Au price</td>
<td>US$/oz</td>
<td>1,200</td>
<td>1,200</td>
</tr>
<tr>
<td></td>
<td>Cut-off for mill feed</td>
<td>g/t</td>
<td>0.38</td>
<td>0.42</td>
</tr>
<tr>
<td></td>
<td>Mining recovery factor (open pit)</td>
<td>%</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Strip ratio (waste:ore)</td>
<td>ratio</td>
<td>5.6</td>
<td>5.1</td>
</tr>
<tr>
<td></td>
<td>MCF</td>
<td>%</td>
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<td>97</td>
</tr>
<tr>
<td></td>
<td>Dilution open pit$^1$</td>
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<td>30/20</td>
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<tr>
<td></td>
<td>Plant recovery</td>
<td>%</td>
<td>97.2</td>
<td>97.2</td>
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<tr>
<td></td>
<td>Plant capacity</td>
<td>Mtpa</td>
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<td>13.7</td>
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</tbody>
</table>

$^1$ Refers to 30cm hangingwall and 20cm footwall dilution respectively

Grade tonnage curves

The grade tonnage curves for the surface Mineral Resources are presented. Stockpiles are excluded from the grade tonnage curves.
### Mineral Reserves classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Dec 2019 (kt)</th>
<th>Grade (g/t)</th>
<th>Au (koz)</th>
<th>Dec 2018 (kt)</th>
<th>Grade (g/t)</th>
<th>Au (koz)</th>
<th>Dec 2017 (kt)</th>
<th>Grade (g/t)</th>
<th>Au (koz)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Open Pit</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Proved</td>
<td>38,355</td>
<td>1.27</td>
<td>1,561</td>
<td>43,534</td>
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<td>1,731</td>
<td>40,464</td>
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<tr>
<td>Probable</td>
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<td>1.19</td>
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<td>2,956</td>
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<td>121,408</td>
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<td>4,687</td>
<td>122,479</td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>Proved stockpiles</td>
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<td>367</td>
<td>13,139</td>
<td>0.76</td>
<td>320</td>
<td>12,245</td>
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<tr>
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<td>771</td>
<td>59,977</td>
<td>0.40</td>
<td>771</td>
<td>59,977</td>
<td>0.40</td>
<td>771</td>
</tr>
<tr>
<td><strong>Total surface</strong></td>
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<td>0.46</td>
<td>1,091</td>
<td>72,222</td>
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<tr>
<td><strong>Grand total</strong></td>
<td>196,683</td>
<td>0.93</td>
<td>5,894</td>
<td>194,525</td>
<td>0.92</td>
<td>5,778</td>
<td>194,701</td>
<td>0.94</td>
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</tbody>
</table>

1. Open pit Mineral Reserves grade = 1.21g/t (excluding surface stockpiles)

### Mineral Reserves classification per mining area

<table>
<thead>
<tr>
<th>Area</th>
<th>Proved (kt)</th>
<th>Grade (g/t)</th>
<th>Au (koz)</th>
<th>Probable (kt)</th>
<th>Grade (g/t)</th>
<th>Au (koz)</th>
<th>Total Mineral Reserves (kt)</th>
<th>Grade (g/t)</th>
<th>Au (koz)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Open pit</strong></td>
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<td></td>
<td></td>
<td></td>
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<td>4,444</td>
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<td>38,355</td>
<td>1.27</td>
<td>1,561</td>
<td>83,491</td>
<td>1.19</td>
<td>3,195</td>
<td>121,846</td>
<td>1.21</td>
<td>4,756</td>
</tr>
<tr>
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<tr>
<td>Spent Ore (SHL)</td>
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<td>59,977</td>
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<td>771</td>
<td>59,977</td>
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<td>771</td>
</tr>
<tr>
<td>Surface stockpiles</td>
<td>14,861</td>
<td>0.77</td>
<td>367</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>14,861</td>
<td>0.77</td>
<td>367</td>
</tr>
<tr>
<td><strong>Total surface stockpiles</strong></td>
<td>14,861</td>
<td>0.77</td>
<td>367</td>
<td>59,977</td>
<td>0.40</td>
<td>771</td>
<td>74,837</td>
<td>0.47</td>
<td>1,138</td>
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<tr>
<td><strong>Grand total</strong></td>
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<td>1,928</td>
<td>143,468</td>
<td>0.86</td>
<td>3,967</td>
<td>196,683</td>
<td>0.93</td>
<td>5,894</td>
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### Factors that affected Mineral Resources and Mineral Reserves reconciliation year-on-year

<table>
<thead>
<tr>
<th>Factors that affected Mineral Resources reconciliation year-on-year</th>
<th>Factors that affected Mineral Reserves reconciliation year-on-year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depletion by mining (-550koz)</td>
<td>Depletion by mining (-534koz)</td>
</tr>
<tr>
<td>Increase from Akontansi Underlap (+1,264koz)</td>
<td>Increase from Akontansi Underlap extension (+552koz)</td>
</tr>
<tr>
<td>Updated cut-off grade (+24koz)</td>
<td>Re-optimisation/re-engineering of pit designs at Teberebie and Akontansi – pit wall steepening in selected areas (+80koz)</td>
</tr>
<tr>
<td>Mineral Resources model updates, predominantly at Akontansi and PAMTA (+193koz)</td>
<td>Kobada resource model update (+24koz)</td>
</tr>
</tbody>
</table>
Tarkwa gold mine continued

Mineral Reserves sensitivity
The Mineral Reserves sensitivity has been derived from the application of the relevant cut-off grades to individual grade tonnage curves of the optimised pit shells for the open pits.

To illustrate the impact of fluctuations in gold price and exchange rates on the current declaration, Tarkwa has generated sensitivities with respect to Mineral Reserves. The following graph indicates the Managed Mineral Reserves sensitivity at -15%, -10%, -5%, base, +5%, +10% and +15% to the base US$1,200/oz reserve gold price.

These sensitivities (other than for the base case) are not supported by detailed plans and depletion schedules. They should only be considered on an indicative basis, specifically as such sensitivities assume 100% selectivity, without any operating cost increases.
PLAN SHOWING MINE INFRASTRUCTURE AS AT DECEMBER 2019

Ghana National Grid Co-ordinate system

Reference

- Roads
- Railroad
- Town
- Prospect
- Mining Leases

Legend:
- Pipeline
- Building
- Open Pit
- Tailings Storage Facility (TSF)
- Waste Storage Facility (WSF)
- Demang overlap area
- Demang has surface to 30m
- Tarkwa has below 30m

Gold Fields Limited
Tarkwa Gold Mine

WEST AFRICA REGION

The Gold Fields Mineral Resources and Mineral Reserves Supplement to the IAR

Gold Fields Limited
Tarkwa Gold Mine

WEST AFRICA REGION

The Gold Fields Mineral Resources and Mineral Reserves Supplement to the IAR

Damang overlap area
Damang has surface to 30m
Tarkwa has below 30m
Asanko JV gold mine

The Asanko gold mine (Asanko) is a large-scale, multi-deposit complex with two main ore bodies, Nkran and Esaase, and nine satellite deposits jointly owned by Asanko Gold and Gold Fields. The JV is a 50:50 partnership, with 45% attributable to Gold Fields. The mine is managed and operated by Asanko Gold and holds a significant land package over 70km in strike length from Esaase in the north, to the Fromenda targets ~20km south of the Nkran pit on the highly prospective and underexplored Asankrangwa Belt in Ghana. A 5.4Mtpa CIL processing plant located at Obotan, adjacent to the Nkran deposit, commenced operations in early 2016 and is estimated to continue operating until 2029.

A PFS has been completed that supports a new LoM plan and maiden Mineral Resources and Reserves reported by Gold Fields. Studies to assess additional opportunities and business improvement options to further optimise the LoM plan and the financial metrics will continue in 2020. Achieving traction on the fundamental components of the integrated LoM plan in 2020 will be critical to executing the integrated PFS schedule, which underpins the Reserve. The PFS takes account of the impact of the Nkran pit wall failure in Q3 2019 and the utilisation of an overland haulage solution to deliver Esaase ore to the Obotan processing plant. The LoM schedules open pit mining from Nkran, Esaase, four satellite deposits (Akwasiso, Abore, Asudai and Adubiaso) and existing stockpiles. Ore is planned to be mined over a seven to eight-year period (2020 to 2027, inclusive), with processing of stockpiled, lower grade ore continuing through to 2029. The estimated Measured and Indicated gold Resources is 3.5Moz, mainly sourced from Esaase (67%) and Nkran (17%), and the Proved (57koz) and Probable (2.3Moz) Reserves are based on 53.4Mt of ore at an average grade of 1.38g/t (100% managed basis). Esaase (61%) and Nkran (24%) represent the bulk of the estimated Reserves.

During 2018, Gold Fields acquired a 50% stake in Asanko Gold’s 90% interest in Asanko. Gold Fields is reporting Asanko Mineral Reserves and Mineral Resources for the first time and consequently no historic comparisons are presented.

ASSET FUNDAMENTALS

General location

The Asanko concessions are located in the Amansie West District of the Ashanti region of Ghana, approximately 250km northwest of the capital Accra, and about 50km to 80km southwest of the regional capital of Kumasi. There are daily flights from Accra to Kumasi and, in addition, there is an airstrip located adjacent to the Obotan project site, which is used by Asanko to transport staff and service providers to and from Accra.

Licence status and holdings

Asanko holds seven valid MLs, as well as prospecting and reconnaissance licences, which collectively make up Asanko and span 30km strike length of the Asankrangwa Gold Belt. The ML concessions cover an area of approximately 213.2km², between latitudes 6°11’54.985”N and 6°35’33.074”N, and longitudes 2°4’59.195”W and 1°51’25.040”W. The Esaase, Abore, Abirem, Datano, Jenni River, Mirandani and Adubea MLs contain all of the Mineral Resources defined to date. All other concessions held by Asanko Gold in the area reflect exploration potential.

Mining method

The mining method for the four active Asanko ore bodies utilises contract miners and is conventional open pit truck and shovel operations. Vegetation, topsoil and overburden is stripped and stockpiled for future reclamation use. The ore and waste rock is mined with 6m benches, drilled, blasted and loaded into rigid framed haul trucks (94t) with hydraulic excavators (17m³). The primary mining fleet of trucks and excavators is supported by standard open pit drilling and auxiliary equipment. Grade control drilling ahead of mining is standard practice. Mining operations occur around the clock on two 12-hour shifts. A pre-split wall control method is being implemented along all the pit walls in the fresh zones to ensure the stability of the pit walls.
| Operational infrastructure | Two open pits are currently exploiting the auriferous lode deposits at Nkran pit and Esaase pit. Ore is hauled from Esaase via the 27km haul road to the Obotan plant. Asanko operates with a number of stockpiles at Esaase and at the Obotan plant area. Asanko has a centralised administrative office, engineering workshops and residence village. |
| Mineral processing and TSFs | The Asanko processing plant was commissioned during Q1 2016 and is currently operating at a throughput of 5.4Mtpa and achieving recoveries of 93.5% to 94.0%. The plant consists of primary crushing, SAG/Ball milling circuit, gravity recovery circuit, followed by a conventional CIL circuit. Plant tailings are deposited into a single TSF facility that has been constructed with downstream designed embankments and HDPE lined. The TSF is raised periodically and is designed to be able to contain the LoM ore volume. |
| Climate | A tropical climate, characterised by two distinct rainy seasons from March to July and September to November. Average annual rainfall in the area is 1,596mm. Although there may be minor disruptions to operations during the wet season, there is no operating or long-term constraint on production due to climate. |
| Local geology, deposit type and mineralisation style | Although each gold occurrence within Asanko has its own local mineralisation style, geological and geophysical studies have profiled a similar mine scale setting for all the deposits discovered to date. There is an underlying structural relationship between reactivated west-northwest basement structures and the dominant northeast-southwest shears that have juxtaposed the sandstone, siltstone and lesser shale metasedimentary packages, coupled with north-south structures that may control flexures in the steeply dipping sediments. All deposits have intrusive tonalitic-porphyritic granite dykes. Episodic gold mineralisation has occurred at least twice during distinct deformational events. Gold occurs largely as free particles. It is deposited in economic concentrations predominantly around zones of rheological contrast between sandstone (porous) and siltstone facies (non-porous) that are sub-vertical shear zones, as well as in late, shallow dipping conjugate quartz vein arrays that transgress rheologically contrasting metasedimentary units and the later granite intrusives. |
| LoM: Proved and Probable Reserves | Post completion of additional drilling and subsequent extensive resource modelling updates in 2019, the new integrated LoM plan includes the main Esaase and the main Esaase and Nkran deposits and the Akwasiso, Adubiaso, Abore and Asuadi satellite deposits. The Dynamite Hill deposit was exhausted in 2019. The new LoM has a project life of 10 years, with mining over seven to eight years. The final two years will process lower grade ore stockpiles generated throughout the mining phase. The operational strategy aims to maximise cash-flow during the eight-year mining phase at an elevated cut-off grade. The LoM processes 53.4Mt of ore at 1.38g/t on a 100% attributable basis. |
| Sustainable development | Asanko has fully implemented its Fihankra safety system which is based on OHSAS 18001. Asanko is audited annually by the Minerals Commission which is executed against the EPA Akoben safety and environmental performance criteria. The purpose of the audit is to determine the level of implementation of operational safety standards, and environmental performance initiatives as per the Akoben criteria. Asanko is fully permitted to execute its current operational plan. |
KEY DEVELOPMENTS AND MATERIAL ISSUES

- Mineral Resources and Mineral Reserves are reported as maiden figures for Gold Fields as at 31 December 2019. Updated estimates were generated following the completion of a PFS to support the SAMREC compliant Resources and Reserves estimate.
- The Mineral Resources and Mineral Reserves were audited by Optiro and AMC respectively, both of whom are external and independent consultants and have issued SAMREC certificates of compliance.
- The JV has completed a comprehensive review of the geological models and undertaken extensive relogging exercises where required, incorporating new drilling information from the 2017 and 2018 drill programmes and incorporated current grade control information where available. The enhanced geological models were incorporated into the Resource estimation programme initiated in H2 2018, involving all the significant open pits at the mine, which were used to generate an updated set of Resource block models by Q1 2019.
- Metallurgical test work remains ongoing to achieve a full profile of metallurgical parameters at Esaase. Work completed to date has been incorporated into the PFS. Ongoing test work will be utilised in future optimisations for inclusion in further updates subsequent to completion of the PFS.
- The production schedule invokes hauling ore at the rate of 5.0Mt pa from Esaase from 1 January 2022. To execute this, delivery on a mix of environmental and community approval activities, road design and construction events and study/funding approvals is required. Any delays or disruptions to these integrated activities will negatively impact the LoM schedule.
- The Minerals Commission and the Environmental Protection Agency both regulate mine closure and reclamation in Ghana and the mine closure, reclamation activities and cost estimates used in the study are based on the Reclamation and Closure Plan 2019 undertaken by specialist consultants, ABS Africa.
- The current EPA permits require that selected pits are backfilled, or partially backfilled, as part of the reclamation and closure of the mine. The intention is to have the permits amended in due course to reflect the strategic intent of the mine which will be reflected in the next value-engineering phase to be undertaken post the PFS.
- Risks to the execution of the LoM plan include:
  - Process and timing for obtaining regulatory and community consent to execute the LoM is essential and an update of the EISA (and the subsequent Environmental Management Plan) is likely to be a pre-condition to commencing construction of the overland haul road upgrade and is hence a critical path activity.
  - Executing the construction schedule for overland haulage road construction with the necessary permitting is key and will be addressed through the integrated permit/approval, system design, engineering design and funding work streams, which also need to support the necessary pre-construction activities.
  - Lack of alternative sources of ore if there are problems with the LoM schedule.
  - Reconciliation of resource models with mine production will be monitored to optimise dilution and ore loss.
  - Geotechnical stability of Nkran Cut 3 and the Esaase pit as it moves into Transition/Fresh ore will be closely monitored and proactive remedial action taken if required.
  - Pockets of waste rock have the potential for elevated levels of arsenic. To minimise the leaching of arsenic from the WRDs the material will be identified prior to mining and selectively handled in a manner that allows covering by low arsenic waste material and/or typical oxide waste.
  - Lower than expected gold recoveries due to ‘preg robbing’ from mineralised zones containing elevated organic carbon at Esaase. These zones have provisionally been geologically modelled and will be updated as more empirical data is generated.
## OPERATING STATISTICS

### Historic performance

### Open pit mining

<table>
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<tr>
<th>Units</th>
<th>Total mined</th>
<th>Waste mined (opex)</th>
<th>Waste mined (capex)</th>
<th>Ore mined</th>
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<td>30,791</td>
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<td>9,032</td>
<td>5,071</td>
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</table>

**Mined grade (g/t): 1.52**

**Strip ratio (tonnes) waste:ore: 5.07**

### Processing

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<td>7,806</td>
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</tbody>
</table>

### Financials

- **Au price received US$/oz:** 1,376
- **Cost of sales before amortisation and depreciation US$/M:** 194
- **Capex US$/M:** 772
- **US$/oz:** 22
- **US$/oz:** 86
- **All-in costs (AIC) US$/oz:** 1,214

### EXPLORATION AND RESOURCE DEFINITION DRILLING

Exploration activities within Asanko have included extensional and resource conversion projects. Exploration during 2018 and 2019 focused on:

- An extensive relogging programme (43,350m) and infill drilling (5,000m) at the Esaase deposit to improve the definition of the oxidation surfaces down to a 1.5-year pit outline was completed for the start up of operations in 2019 and, secondly, to refine the relationship of litho-structural geological controls (faults and shears) on gold mineralisation
- Infill drilling at the Akwasaso pit (5,200m) and Esaase South prospect (2,260m) to improve geological definition and resource estimation
- Relogging exercises of the Esaase South (6,950m) and Abore (5,450m) drill core to enhance and improve Mineral Resource estimations for these satellite ore bodies
- **Ground reconnaissance of a number of generative regional targets identified from the re-interpretation of geophysical data and the understanding of the role played by basement structures as the key to gold mineralisation on the Asankrangwa belt**

Going forward, Gold Fields is working with Asanko on near-mine and extensional exploration of the Asanko mining and prospecting leases. Exploration is to be carried out on two fronts. The first is to extend existing LoM open pits and near-mine targets in order to add mine plan flexibility. The second objective is to extend the mine life by bringing new projects into the LoM plan through phased field programmes. This is to involve detailed ground geophysics in H1 2020 in known prospective areas to guide scout and framework drilling, followed by resource definition drilling on ranked potential as soon as permitting and site access can be established.

### MINERAL RESOURCES AND MINERAL RESERVES

The Mineral Resources and Mineral Reserves estimates have been generated using the current Asanko JV planning gold prices of US$1,500/oz and US$1,300/oz, respectively, and are reported in accordance with the SAMREC Code. The surface sources include stockpiles that are supported by adequate sampling and are thus classified as Measured Mineral Resources and Proved Mineral Reserves.
Asanko gold mine JV continued

Mineral Resource classification\(^1,2\)

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<th></th>
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<td>Total open pit</td>
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<td>—</td>
<td>1,931</td>
<td>—</td>
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</tr>
</tbody>
</table>

\(^1\) Stated on a 50% JV basis

Mineral Resource classification per mining area\(^1,2\)

<table>
<thead>
<tr>
<th>Area</th>
<th>Measured Tonnes (kt)</th>
<th>Measured Grade (g/t)</th>
<th>Measured Au (koz)</th>
<th>Indicated Tonnes (kt)</th>
<th>Indicated Grade (g/t)</th>
<th>Indicated Au (koz)</th>
<th>Inferred Tonnes (kt)</th>
<th>Inferred Grade (g/t)</th>
<th>Inferred Au (koz)</th>
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<th>Total Grade (g/t)</th>
<th>Total Au (koz)</th>
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<td>179</td>
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</table>

\(^1\) Stated on a 50% JV basis
\(^2\) Notes to the Mineral Resources estimate:

- Mineral Resources are reported at a cut-off grade of 0.5 g/t gold using a gold price of US$1,500/oz and are constrained within whittle pit shells. The Nkran pit design has been used to report the Nkran Mineral Resources due to geotechnical constraints.
- Mining costs, G&A, processing costs and process recoveries are dependent on deposit type and detailed in the respective deposit sections that follow.
- Metallurgical recoveries underpinning the Esaase are dependent on deposit type.
- Mineral Resources are reported without mining dilution and loss. Mining dilution and loss were incorporated in the pit shell generation.
- Prior to Whittle Optimisation the main Resource models were diluted using Datamine Mine Shape Optimiser (MSO). MSO parameters are detailed in the Mining Reserves section.
- Due to rounding-off, figures may result in minor discrepancies; where this happens, it is not deemed significant.
- Mineral Resources are stated as in situ dry metric tonnes.
- The Mineral Resources are reported inclusive of Mineral Reserves.
- The Nkran, Esaase and Akwasiso Mineral Resource estimates have been prepared by CSA Global who are independent of Gold Fields and Asanko Gold.

Grade tonnage curve

The grade tonnage curve for the Esaase open pit Mineral Resources is presented opposite. Stockpiles are excluded from the grade tonnage curve.
## Modifying factors

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<td>Mineral Resources Au price</td>
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<td>Cut-off for mill feed</td>
<td>g/t 0.5</td>
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| **Mineral Reserves parameters** |              |
| Mineral Reserves Au price      | US$/oz 1,300 |
| Cut-off for mill feed          | g/t 0.5–0.71 |
| Dilution open pit (skin)       | cm 50        |
| Mining recovery factor         | % 74.3–96.9  |
| Strip ratio                    | % 6.1        |
| MCF                           | % 100        |
| Plant recovery (Whittle optimisation)† |            |
| Processing capacity            | % 74.7–94.5  |

† Plant metallurgical recoveries based on specific metal recovery models per Whittle pit and ore type

### Mineral Reserves classification\(^1,2\)

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<td><strong>Total open pit</strong></td>
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<td>1,160</td>
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<tr>
<td><strong>Surface</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Proved stockpiles</td>
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<td>28</td>
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\(^1\) Stated on a 50% JV basis
Mineral Reserves classification per mining area\(^1,2\)

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</table>

\(^1\) Stated on a 50% JV basis
\(^2\) Notes to the Mineral Reserves estimate:

- Mineral Reserves are reported assuming a metal price of US$1,300/oz of gold
- Mineral Reserves are defined within pit designs guided by pit shells derived from Whittle Four-X™ software (Whittle)
- Mineral Reserves are reported based on the maximum of: (a) the calculated marginal cut-off grades for each of the pits ranging between (0.38 and 0.48) g/t gold, and (b) 0.50g/t gold
- Mining costs, G&A, processing costs and process recoveries are dependent on deposit type
- Figures are rounded to the appropriate level of precision for the reporting of Mineral Reserves. Due to rounding, some columns or rows may not compute as shown
- The mine plan underpinning the Mineral Reserves has been prepared by Snowden and reviewed and accepted by the CSA Global. Both Snowden and CSA Global are independent of Gold Fields and Asanko

Mineral Reserves sensitivity

To illustrate the impact of fluctuations in gold price and exchange rates on the current declaration, Asanko has generated sensitivities with respect to Mineral Reserves. The following graph indicates the Managed Mineral Reserves sensitivity at -15%, -10%, -5%, base, +5%, +10% and +15% to the base US$1,300/oz reserve gold price.

These sensitivities (other than for the base case) are not supported by detailed plans and depletion schedules. They should only be considered on an indicative basis, specifically as such sensitivities assume 100% selectivity, without any operating cost increases.
Internal technical reviews have been conducted by the CPs as listed, who are full-time employees of Gold Fields Limited and working for the respective operation or region. Corporate technical oversight, assurance and compliance is provided by the Group Technical Services team (see page 12).
Regional and operational Competent Persons

Internal technical reviews have been conducted by the CPs as listed, who are full-time employees of Gold Fields Limited and working for the respective operation or region. Corporate technical oversight, assurance and compliance is provided by the Group Technical Services team (see page 12).

### Americas regions

#### Cerro Corona

**P Gómez:** **Vice-President Technical**  
Geological Engineering, Universidad Nacional San Antonio Abad del Cusco, MBA, Adolfo Ibañez Business School CIP (No 130253), MAusIMM (330373) Diplomate in Geometallurgy Pontificia Universidad Católica del Perú. Certified in applied geostatistics by the University of Alberta.  
**Industry experience:**  
He has over 21 years’ relevant experience and is responsible for the overall accuracy, standard, and compliance of this declaration.

**Gabriel Becerra:** **Technical Services Manager**  
Geological Engineering, Universidad Nacional de Ingeniería (CIP (No 12337)).  
Master in Geomechanics (Oviedo University, Spain).  
**Industry experience:**  
He has over 16 years’ relevant experience with seven years at Cerro Corona and is responsible for the overall accuracy, standard, and compliance of this declaration.

**J Yupa:** **Chief Mine Planning Engineer**  
Mining Engineering; MBA, Universidad Nacional San Agustin.  
**Industry experience:**  
He has 13 years’ relevant experience and is responsible for the compliance of the LoM planning, scheduling and Mineral Reserve statement for Cerro Corona.

**Efrain Ugate:** **General Supervisor of Resource Geology**  
Geological engineer of National University of San Antonio Abad, Master in Mineral Exploration at Colorado School of Mines, Master of Science in Geostatistics at University of Alberta. Member of CIP (No 78098), and AusIMM (No 332913).  
**Industry experience:**  
He has 18 years’ relevant experience and is responsible for resource modelling and estimation at Cerro Corona.

**Edwin Ayala:** **Chief Mine Geologist**  
Geological engineering, Universidad Nacional Mayor de San Marcos, CIP (No 108874), Master in Sustainable Use of Mineral Resources at the UPM, Diplomate in Geometallurgy Pontificia Universidad Católica del Perú.  
**Industry experience:**  
He has nine years’ relevant experience and is responsible for the structural and geological interpretation at Cerro Corona.

**Esteban Hormazabal Zúñiga:** **Corporate Consultant (Rock Mechanics), SRK Consulting (Chile) SpA**  
M.Sc. (Geophysics), Mining Civil Engineer. FAusIMM (No 304419), MSAIMM (No 709016), registered (No 0209) in the CP Public Registry for Resources and Reserves of Chile in the discipline of Mining (Geomechanics).  
**Industry experience:**  
He has 25 years’ experience in mining, geomechanical, and hydrogeology studies and is responsible for geotechnical and hydrogeology studies.

### Americas – Salares Norte

**A Trueman:** **Chief Resource Geologist – Americas region**  
BSc Geology (Hono), PGeo, APEGBC (No 149753), MAusIMM (No 110730).  
**Industry experience:**  
He has 27 years’ experience in mining, exploration, and resource evaluation on worldwide projects, and is responsible for Mineral Resource estimation and reporting.

**Dr Michael I. Brittan:** **President – Brittan Process Consulting, LLC**  
BSc (ChemEng), MSc (ChemEng); MS (ChemEng), MS (ChemEng), PhD (ChemEng), MDP (BusMgmt), MSc (ChemEng), MSAIMM (No 19049).  
**Industry experience:**  
He has over 52 years’ experience in international mining projects and metallurgical extraction operations and is responsible for metallurgical test work and metallurgical processing and recovery evaluation and modelling.

**M Jolly:** **Manager Regional Geology**  
MSc (Geology); EDP (Wits). COM Cert. Rock Eng; MAusIMM (No 304960).  
**Industry experience:**  
He has 39 years of relevant mining experience and has the responsibility for regional oversight of mine and exploration geology. He is the lead CP for the region.

**Carlos Guzmán Pérez:** **Principal Mining Engineer, NCL Ingeniería y Construcción SpA**  
BSc (Eng), Mining Engineering, CMC (0119) registered with the Commission Calificadora de Competencias en Recursos y Reservas Mineras. FAusIMM (No 229036).  
**Industry experience:**  
He has 25 years’ experience reviewing and reporting as a consultant on numerous exploration, mining operations, and projects worldwide for due diligence and regulatory requirements and is responsible for Mineral Reserve estimation and reporting.

**T Strickland:** **Principal Resource Geologist**  
BSc (Hons) in Economic Geology, CODES, University of Tasmania (2005); MAusIMM (No 211953); AIG (No 6761).  
**Industry experience:**  
He has 16 years’ relevant mining industry experience across mining, exploration and resource evaluation and is responsible for Mineral Resource estimation and reporting from a regional perspective.
Regional and operational Competent Persons continued

**F Phillips**: Manager Mine Engineering
B.Eng. Hons (Mining), MAusIMM (No 1125384).

*Industry experience:*
She has 22 years’ of relevant experience in the mining industry and is responsible for the overall accuracy, standard and compliance of mine planning, schedules and Mineral Reserve estimation, LoM compilation and financial evaluation from a regional perspective.

**R Radford**: Regional Metallurgist
BSc in Chemistry and Extractive Metallurgy Murdoch University WA; MAusIMM (No 211859).

*Industry experience:*
He has 21 years’ relevant experience and is responsible for the completion and validation of the metallurgical comminution and extractive test work programmes, gold metal reconciliation and processing plant LoM financial estimation from a regional perspective.

**Australia – Agnew**

**P Burge**: Geology Manager
BSc (Hons); MAusIMM (No 302390); MAIG (No 6471).

*Industry experience:*
He has 27 years’ relevant experience and is responsible for the overall accuracy, standard and compliance of this declaration.

**N Morriss**: Superintendent Mine Planning LoM
BEng (Hons) Mining Engineering, B.Com. (Hons) Finance. MAusIMM (No 208320).

*Industry experience:*
He has 16 years’ relevant experience in mining and is responsible for the overall accuracy, standard and compliance of mine planning, schedules and Mineral Reserve estimation, LoM compilation and financial evaluation.

**S Gotley**: Superintendent Resource Geologist
BSc Hons (Geology), Grad. Cert. Geostatistics. MAusIMM (No 211515); AIG (No 2780)

*Industry experience:*
With 26 years’ relevant experience, she is responsible for Mineral Resource estimation and reporting.

**L Grimbeek**: Geology Manager
BSc Hons (Geology), Pt Sci Nat (No 400086/92); MAusIMM (No 325556)

*Industry experience:*
He has 33 years’ relevant experience, is the lead CP and is responsible for the overall accuracy, standard and compliance of this declaration.

**Australia – Granny Smith**

**M Knedler**: Senior Engineer: Mining
BSc Mining. MAusIMM (No 223141).

*Industry experience:*
He has 12 years’ relevant experience and he is responsible for the overall accuracy, standard and compliance of mine planning, schedules and Mineral Reserve estimation, LoM compilation and financial evaluation.

**R Tully**: Superintendent: Resources Geology
BSc (Hons). MAusIMM (No 992513); AIG (No 2716).

*Industry experience:*
With 17 years’ relevant experience, he is responsible for Mineral Resource estimation and reporting.

**Australia – St Ives**

**G Sparks**: Geology Manager
BAppSc, MSc. MAusIMM (No 108663); GSA (No 5823).

*Industry experience:*
He has 34 years’ relevant experience and he is responsible for the overall accuracy, standard and compliance of this declaration, and is also responsible for all surface exploration and Mineral Resource development drilling with oversight of exploration geology models.

**M Humphreys**: Resources Geology Superintendent
BSc (Hons), MSC Geology, Grad Dip Applied Finance and Investment (SIA), MAusIMM (No 110420).

*Industry experience:*
He has 32 years’ relevant experience and he is the lead CP and is responsible for the overall accuracy, standard and compliance of the declaration.

**M Roux**: Resources Superintendent – QFA
BSc (Hons), Post Grad Cert (Geostatistics); MAusIMM (No 324099), Pr Sci Nat (No 400136/09).

*Industry experience:*
He has 19 years’ relevant experience and he is responsible for the production, review and technical development of all Mineral Resource processes and models for the Gruyere JV.

**R Rakhsha**: Senior Mining Engineer
BSc Mining, MAusIMM (No 990476).

*Industry experience:*
He has 32 years’ relevant experience and he is responsible for determining and reviewing the Mineral Resource, and Ore Reserve open pit mine design estimates.

**S Ellery**: Resource Evaluation Superintendent
BSc (Hons), MSc Geology, Grad Dip Applied Finance and Investment (SIA), MAusIMM (No 109073); MAIG (No 5892).

*Industry experience:*
He has 30 years’ relevant experience and is responsible for compilation of planning assumptions and compilation of reported Mineral Resource and Mineral Reserve estimates.

**H Cierlitza**: Mine Geology Manager – Gruyere JV
BAppSc Geology, MAusIMM (No 109073); MAIG (No 5892).

*Industry experience:*
He has 32 years’ relevant experience and he is the lead CP and is responsible for the overall accuracy, standard and compliance of the declaration.

**H Guthrie**: Mine Planning Superintendent
B Eng (Mining), MAusIMM, (No 210899).

*Industry experience:*
He has 21 years’ relevant experience and is responsible for the overall accuracy, standard and compliance of mine planning, schedules and Mineral Reserve estimation, LoM compilation and financial evaluation.
A Trueman: **Lead CP and Chief Resource Geologist**
BSc (Hons) Geology, PGEO, APEGBC (No 149753); MAusIMM (No 110730).

**Industry experience:**
He has geology and resource estimation experience spanning 27 years and is responsible for the overall accuracy, standard and compliance of this declaration.

J Nyan: **Regional Strategic Mine Planning Manager**
MSc (Mining Engineering), MAusIMM (No 305323).

**Industry experience:**
He has 20 years’ relevant experience and is jointly responsible for the overall correctness, standard and compliance of the LoM planning, scheduling, reserve statement and economic assurance for the West Africa region.

C Dzemeku: **Regional Metallurgy Lead and JV Manager, West Africa region**
BSc Chemical Engineering, MSc Minerals Engineering, MCSM, Ghana Institute of Engineers (No 02518M).

**Industry experience:**
He has 34 years’ experience in the mining industry and is responsible for processing parameters and metallurgy for the West Africa region.

J Searra: **Chief Resource Geologist – Development**
BSc (Hons) (Geology); MSc (Engineering); MAusIMM (No 322689).

**Industry experience:**
He has 34 years’ experience in the mining industry and is responsible for sampling, geology, exploration and resource estimation for Tarkwa.

K Appau: **Unit Manager – Strategic Mine Planning**
MSc (Mining Engineering), MAusIMM (No. 316516).

**Industry experience:**
He has 12 years’ relevant experience and he is responsible for the compilation of this declaration.

G Ghana – Tarkwa

G Avane: **Geology Manager**
MSc (Hons) (Geological Engineering), MAusIMM (No 309400).

**Industry experience:**
He has over 24 years’ relevant experience and is the lead CP, responsible for overall Mineral Resource Management for Tarkwa and the overall correctness, standard and compliance of this declaration.

M Aboagye: **Unit Manager – Resource Evaluation**
BSc (Hons) (Geological Engineering); MSc (Mineral Engineering). MAusIMM (No 322689).

**Industry experience:**
He has 15 years’ experience in the mining industry and is responsible for sampling, geology, exploration and resource estimation for Tarkwa.

P Emphe: **Unit Manager – Strategic Mine Planning**
BSc (Hons) (Mining). MAusIMM (No 226250).

**Industry experience:**
He has 11 years’ experience in the mining industry and he is responsible for the overall accuracy of mine planning, scheduling and Mineral Reserve estimation.
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Abbreviations

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<tr>
<td>AGC</td>
<td>Advance Grade Control</td>
</tr>
<tr>
<td>AGL</td>
<td>Abosso Goldfields Limited</td>
</tr>
<tr>
<td>AIC</td>
<td>All-in cost</td>
</tr>
<tr>
<td>AISC</td>
<td>All-in sustaining cost</td>
</tr>
<tr>
<td>amsl</td>
<td>above mean sea level – and may be used for heights specified in any units.</td>
</tr>
<tr>
<td>APP</td>
<td>Arctic Platinum Project</td>
</tr>
<tr>
<td>AS</td>
<td>Australian dollar</td>
</tr>
<tr>
<td>AS/oz</td>
<td>Australian dollar per ounce</td>
</tr>
<tr>
<td>Au</td>
<td>gold</td>
</tr>
<tr>
<td>BCM</td>
<td>bank cubic metres</td>
</tr>
<tr>
<td>BW</td>
<td>block width</td>
</tr>
<tr>
<td>CIL</td>
<td>Carbon in Leach</td>
</tr>
<tr>
<td>CIP</td>
<td>Carbon in Pulp</td>
</tr>
<tr>
<td>cm</td>
<td>centimetres</td>
</tr>
<tr>
<td>cm.g/t</td>
<td>centimetre grams per ton</td>
</tr>
<tr>
<td>Co</td>
<td>cobalt</td>
</tr>
<tr>
<td>CP</td>
<td>Competent Person</td>
</tr>
<tr>
<td>Cu</td>
<td>copper</td>
</tr>
<tr>
<td>COG</td>
<td>cut-off grade</td>
</tr>
<tr>
<td>CW</td>
<td>channel width</td>
</tr>
<tr>
<td>DD</td>
<td>diamond drill</td>
</tr>
<tr>
<td>3D</td>
<td>three-dimensional</td>
</tr>
<tr>
<td>DMR</td>
<td>Department of Mineral Resources</td>
</tr>
<tr>
<td>EIA</td>
<td>Environmental Impact Assessment</td>
</tr>
<tr>
<td>EMP</td>
<td>Environmental Management Plan</td>
</tr>
<tr>
<td>EPA</td>
<td>Environmental Protection Agency</td>
</tr>
<tr>
<td>FCF</td>
<td>Free cash-flow</td>
</tr>
<tr>
<td>G&amp;A</td>
<td>General and Administrative</td>
</tr>
<tr>
<td>GFA</td>
<td>Gold Fields Australia</td>
</tr>
<tr>
<td>GFG</td>
<td>Gold Fields Ghana</td>
</tr>
<tr>
<td>GFI</td>
<td>Gold Fields Ltd</td>
</tr>
<tr>
<td>g</td>
<td>grams</td>
</tr>
<tr>
<td>g/t</td>
<td>grams per ton</td>
</tr>
<tr>
<td>Ga</td>
<td>billion years</td>
</tr>
<tr>
<td>GC</td>
<td>grade control</td>
</tr>
<tr>
<td>GRB</td>
<td>Geotechnical Review Board</td>
</tr>
<tr>
<td>GTC</td>
<td>Grade Tonnage Curve</td>
</tr>
<tr>
<td>ha</td>
<td>hectare</td>
</tr>
<tr>
<td>HL</td>
<td>Heap Leach</td>
</tr>
<tr>
<td>HME</td>
<td>heavy mining equipment</td>
</tr>
<tr>
<td>HPGR</td>
<td>high pressure grinding roll</td>
</tr>
<tr>
<td>ILR</td>
<td>In-line leach reactor</td>
</tr>
<tr>
<td>JORC</td>
<td>Australian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves</td>
</tr>
<tr>
<td>JSE</td>
<td>Johannesburg Securities Exchange</td>
</tr>
<tr>
<td>KE</td>
<td>kriging efficiency</td>
</tr>
<tr>
<td>kg</td>
<td>kilogram</td>
</tr>
<tr>
<td>kg/t</td>
<td>kilograms per ton</td>
</tr>
<tr>
<td>km</td>
<td>kilometre</td>
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</tbody>
</table>
## Glossary of terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auger drill</td>
<td>An auger drilled hole uses a rotating screw blade acting as a screw conveyor to remove the drilled material out of the hole.</td>
</tr>
<tr>
<td>Block Width</td>
<td>The average width at which it is estimated a block of ore will be mined.</td>
</tr>
<tr>
<td>Clastic</td>
<td>Pertaining to a rock or sediment composed principally of broken fragments that are derived from pre-existing rocks or minerals by the processes of weathering and erosion, and have been transported some distance from their place of origin.</td>
</tr>
<tr>
<td>Cut-off grade</td>
<td>The lowest grade of mineralised rock which determines as to whether it is economic to recover its gold content by further concentration.</td>
</tr>
<tr>
<td>Diamond Drill</td>
<td>Diamond drilling uses a diamond encrusted drill bit to drill through the rock and recovers a solid core, for examination on the surface.</td>
</tr>
<tr>
<td>Dilution</td>
<td>Low or zero grade (waste) material that is mined during the course of mining operations and thereby forms part of the Mineral Reserve.</td>
</tr>
<tr>
<td>Destress</td>
<td>By mining a 2m slice through the package in an optimal position to ensure a destressed window of 50m to 60m above or below the associated stope.</td>
</tr>
<tr>
<td>Gold Equivalent Ounces</td>
<td>A quantity of metal (such as copper) converted to an amount of gold in ounces, based on accepted gold and other metal prices, i.e. the accepted total value of the metal based on its weight and value thereof divided by the accepted value of one troy ounce of gold.</td>
</tr>
<tr>
<td>Indicated Mineral Resource</td>
<td>An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation.</td>
</tr>
<tr>
<td>Inferred Mineral Resource</td>
<td>An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity. An Inferred Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve.</td>
</tr>
<tr>
<td>Intracratonic basin</td>
<td>Refers to a basin on top of a craton, which is part of the earth’s crust that has attained stability and has been little deformed for a prolonged period.</td>
</tr>
<tr>
<td>Kriging Efficiency (KE)</td>
<td>Provides a measure of the reliability of kriged block evaluations.</td>
</tr>
<tr>
<td>Lacustrine</td>
<td>Produced by or formed within a lake or lake environment.</td>
</tr>
<tr>
<td>life-of-mine (LoM)</td>
<td>Number of years that an operation is planning to mine and treat Proved and Probable Reserves, based on the current mining plan. Year one of this plan is referred to as the Operational Plan.</td>
</tr>
<tr>
<td>Littoral</td>
<td>Pertaining to the zone between the highest and lowest levels of spring tides known as the fore-beach.</td>
</tr>
<tr>
<td>Measured Mineral Resource</td>
<td>A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation. A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proved Mineral Resource or to a Probable Mineral Reserve.</td>
</tr>
<tr>
<td>Mine Call Factor</td>
<td>The ratio expressed as a percentage which the specific product accounted for in “recovery plus residue” bears to the corresponding product “called for” by the mine’s measuring and evaluation methods.</td>
</tr>
<tr>
<td>Mineral Reserve</td>
<td>A Mineral Reserve is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at pre-feasibility or feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified. The reference point at which Mineral Reserves are defined, usually the point where the ore is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.</td>
</tr>
</tbody>
</table>
**Definition**

<table>
<thead>
<tr>
<th>Definition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral Resource</td>
<td>A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling.</td>
</tr>
<tr>
<td>Net Smelter Return (NSR)</td>
<td>Is defined as the return from sales of concentrates expressed in US$/tonne, i.e.: NSR = (Au price-Au selling costs) x Au grade x Au recovery + (Cu price-Cu selling price) x Cu grade x Cu recovery.</td>
</tr>
<tr>
<td>Operational Plan</td>
<td>Year one of the LoM plan</td>
</tr>
<tr>
<td>Pay limit</td>
<td>The value at which it is estimated that ore can be mined at break-even.</td>
</tr>
<tr>
<td>Penep lain</td>
<td>A low, nearly featureless, gently undulating land surface of considerable area, which has been produced by the processes of long continued sub-aerial erosion.</td>
</tr>
<tr>
<td>Plant Recovery</td>
<td>The ratio, expressed as a percentage, of the mass of the specific mineral product actually recovered from ore treated at the plant to its total specific mineral content before treatment.</td>
</tr>
<tr>
<td>Probable Mineral Reserve</td>
<td>A Probable Mineral Reserve is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying Factors applying to a Probable Mineral Reserve is lower than that applying to a Proved Mineral Reserve.</td>
</tr>
<tr>
<td>Regolith</td>
<td>Is a layer of loose unconsolidated rock that lies above a layer of bedrock.</td>
</tr>
<tr>
<td>Strategic plan</td>
<td>The strategic plan (SP) for each asset is guided by the strategic planning framework that selects the preferred strategy for each asset based on alignment with the Group Strategic metrics (AIC/oz, NPV, FCF% margin, gold and life) and consideration for capital allocation, innovation and technology and opportunity and risk. The SP provides the framework for the subsequent Business and LoM planning phases undertaken annually.</td>
</tr>
<tr>
<td>tonnage discrepancy</td>
<td>Difference between the tonnage hoisted as ore and that accounted for by the plant measuring methods. Discrepancy is referred to as a shortfall when the calculated tonnage is less than the tonnage accounted for by the plant, or an excess when the opposite occurs.</td>
</tr>
<tr>
<td>Tonne(s)</td>
<td>Metric ton (tonnes) = 1,000 kilograms.</td>
</tr>
<tr>
<td>Uraninite</td>
<td>A strongly radioactive, brownish-black mineral, UO₂, forming the chief ore of uranium (U₃O₈) and containing variable amounts of radium, lead, thorium and other elements as impurities.</td>
</tr>
<tr>
<td>Witwatersrand Basin</td>
<td>A sedimentary basin in South Africa that contains close to a 6,000m thick sequence of principally argillaceous and arenaceous sediments with inter-bedded conglomerates.</td>
</tr>
</tbody>
</table>