

# IVANHOE MINES

NEW HORIZONS



# Forward-looking statements & Qualified Person

Certain statements in presentation constitute “forward-looking statements” or “forward-looking information” within the meaning of applicable securities laws, including, without limitation, the timing and results of: (i) statements regarding the ongoing development and exploration work at the Kamoa-Kakula Project, including drilling, decline development, and feasibility, pre-feasibility and preliminary economic assessment (PEA) studies; (ii) statements regarding the ongoing development work, including shaft sinking, and the feasibility study at the Platreef Project; and (iii) statements regarding ongoing upgrading and development work and the pre-feasibility study at the Kipushi Project. As well, the results of the prefeasibility study and PEA of the Kamoa-Kakula Project, the prefeasibility study of the Platreef Project and the PEA of the Kipushi Project constitute forward-looking information, and include future estimates of internal rates of return, net present value, future production, estimates of cash cost, proposed mining plans and methods, mine life estimates, cash flow forecasts, metal recoveries, and estimates of capital and operating costs.

Such statements involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements of Ivanhoe, its mineral projects, or industry results, to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements or information. Such statements can be identified by the use of words such as “may”, “would”, “could”, “will”, “intend”, “expect”, “believe”, “plan”, “anticipate”, “estimate”, “scheduled”, “forecast”, “predict” and other similar terminology, or state that certain actions, events or results “may”, “could”, “would”, “might” or “will” be taken, occur or be achieved. These statements reflect Ivanhoe’s current expectations regarding future events, performance and results and speak only as of the date of this presentation.

In making such statements, Ivanhoe has made assumptions regarding, among other things: the accuracy of the estimation of mineral resources; that exploration activities and studies will provide results that support anticipated development and extraction activities; that studies of estimated mine life and production rates at the Kamoa-Kakula, Kipushi and Platreef projects will provide results that support anticipated development and extraction activities; that Ivanhoe will be able to obtain additional financing on satisfactory terms; that infrastructure anticipated to be developed or operated by third parties, including electrical generation and transmission capacity, will be developed and/or operated as currently anticipated; that laws, rules and regulations are fairly and impartially observed and enforced; that the market prices for relevant commodities remain at levels that justify development and/or operation; that Ivanhoe will be able to successfully negotiate land access with holders of surface rights; and that war, civil strife and/or insurrection do not impact Ivanhoe’s exploration activities or development plans.

Although the forward-looking statements or information contained in this presentation are based upon what management of Ivanhoe believes are reasonable assumptions, Ivanhoe cannot assure investors that actual results will be consistent with these forward-looking statements. They should not be read as guarantees of future performance or results. A number of factors could cause actual results to differ materially from the results discussed in the forward-looking statements, including, but not limited to, the factors discussed under “Risk Factors” in Ivanhoe’s most recent Annual Information Form.

These forward-looking statements are made as of the date of this presentation and are expressly qualified in their entirety by this cautionary statement. Subject to applicable securities laws, Ivanhoe does not assume any obligation to update or revise the forward-looking statements contained herein to reflect events or circumstances occurring after the date of this presentation. Ivanhoe’s actual results could differ materially from those anticipated in these forward-looking statements.

This presentation also contains references to estimates of Mineral Resources. The estimation of Mineral Resources is inherently uncertain and involves subjective judgments about many relevant factors. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. The accuracy of any such estimates is a function of the quantity and quality of available data, and of the assumptions made and judgments used in engineering and geological interpretation (including estimated future production from the company’s projects, the anticipated tonnages and grades that will be mined and the estimated level of recovery that will be realized), which may prove to be unreliable and depend, to a certain extent, upon the analysis of drilling results and statistical inferences that ultimately may prove to be inaccurate. Mineral Resource estimates may have to be re-estimated based on: (i) fluctuations in copper, nickel, platinum-group elements (PGE), gold or other mineral prices; (ii) results of drilling, (iii) metallurgical testing and other studies; (iv) proposed mining operations, including dilution; (v) the evaluation of mine plans subsequent to the date of any estimates; and (vi) the possible failure to receive required permits, approvals and licences.

Disclosures of a scientific or technical nature in this presentation have been reviewed and approved by Stephen Torr, who is considered, by virtue of his education, experience and professional association, a Qualified Person under the terms of NI 43-101. Ivanhoe has prepared a NI 43-101 compliant technical report for each of the Kamoa-Kakula Project, the Platreef Project and the Kipushi Project, which are available under the company’s SEDAR profile at [www.sedar.com](http://www.sedar.com). These technical reports include relevant information regarding the effective date and the assumptions, parameters and methods of the mineral resource estimates on the Kamoa-Kakula Project, Kipushi Project and Platreef Project cited in this presentation, as well as information regarding data verification, exploration procedures and other matters relevant to the scientific and technical disclosure contained in this presentation in respect of the Kamoa-Kakula Project, Platreef Project and Kipushi Project.



Building futures for our stakeholders, *today, and writing new stories of epic discoveries* in Southern Africa's legendary mineral fields

---

### KAMOA-KAKULA

Copper discoveries  
& mine development

Democratic Republic  
of Congo's Central  
African Copperbelt

### PLATREEF

Platinum-group elements,  
gold, nickel & copper  
discovery & mine development

South Africa's  
Bushveld Complex

### KIPUSHI

Zinc, copper, silver  
& germanium  
at upgraded, historic,  
high-grade mine

D.R. Congo's  
Copperbelt

**IVANHOE MINES**  
NEW HORIZONS

# Kamoa Mine Development & Kakula Discovery

Democratic Republic of Congo

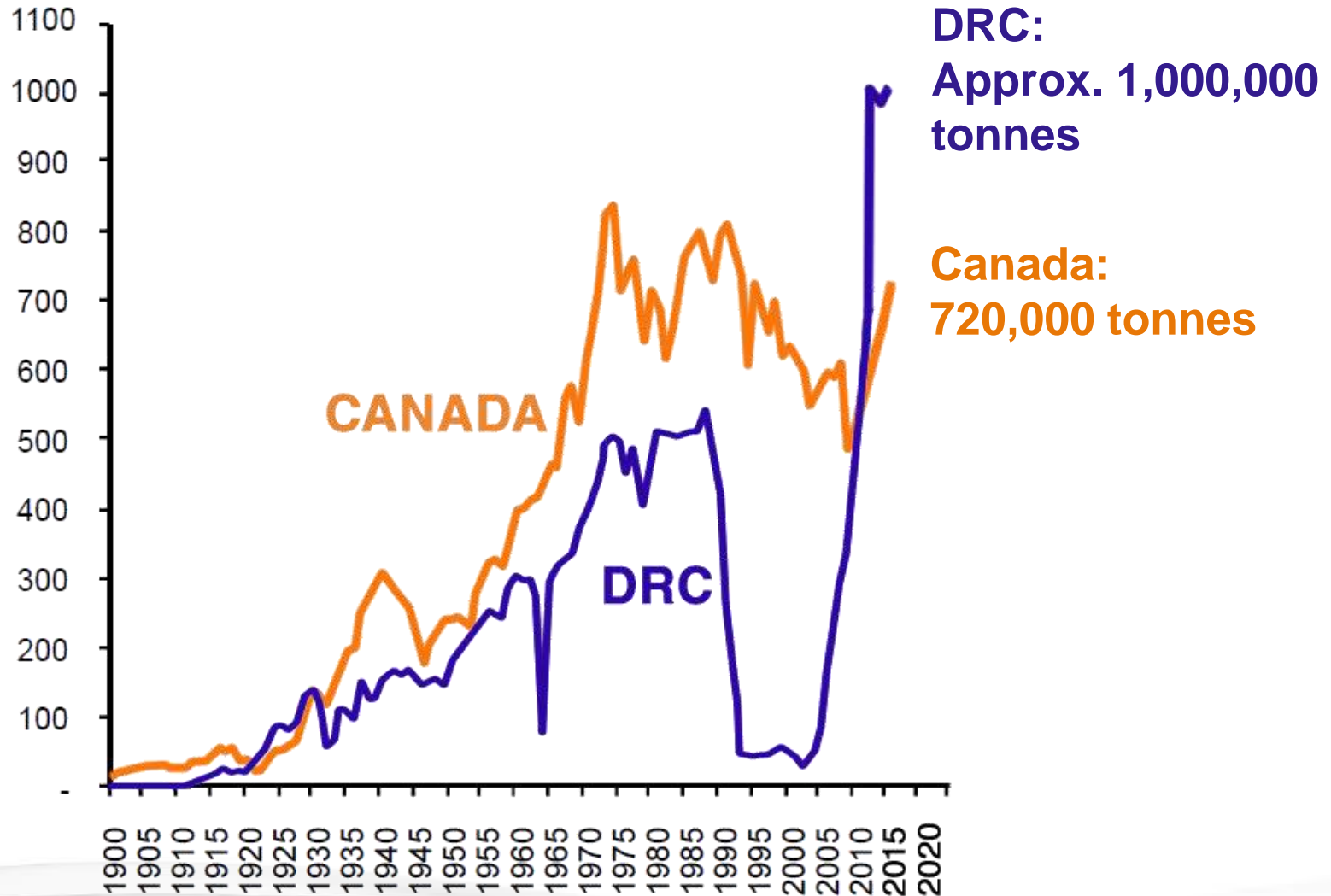




# Congo produces more copper than Canada!

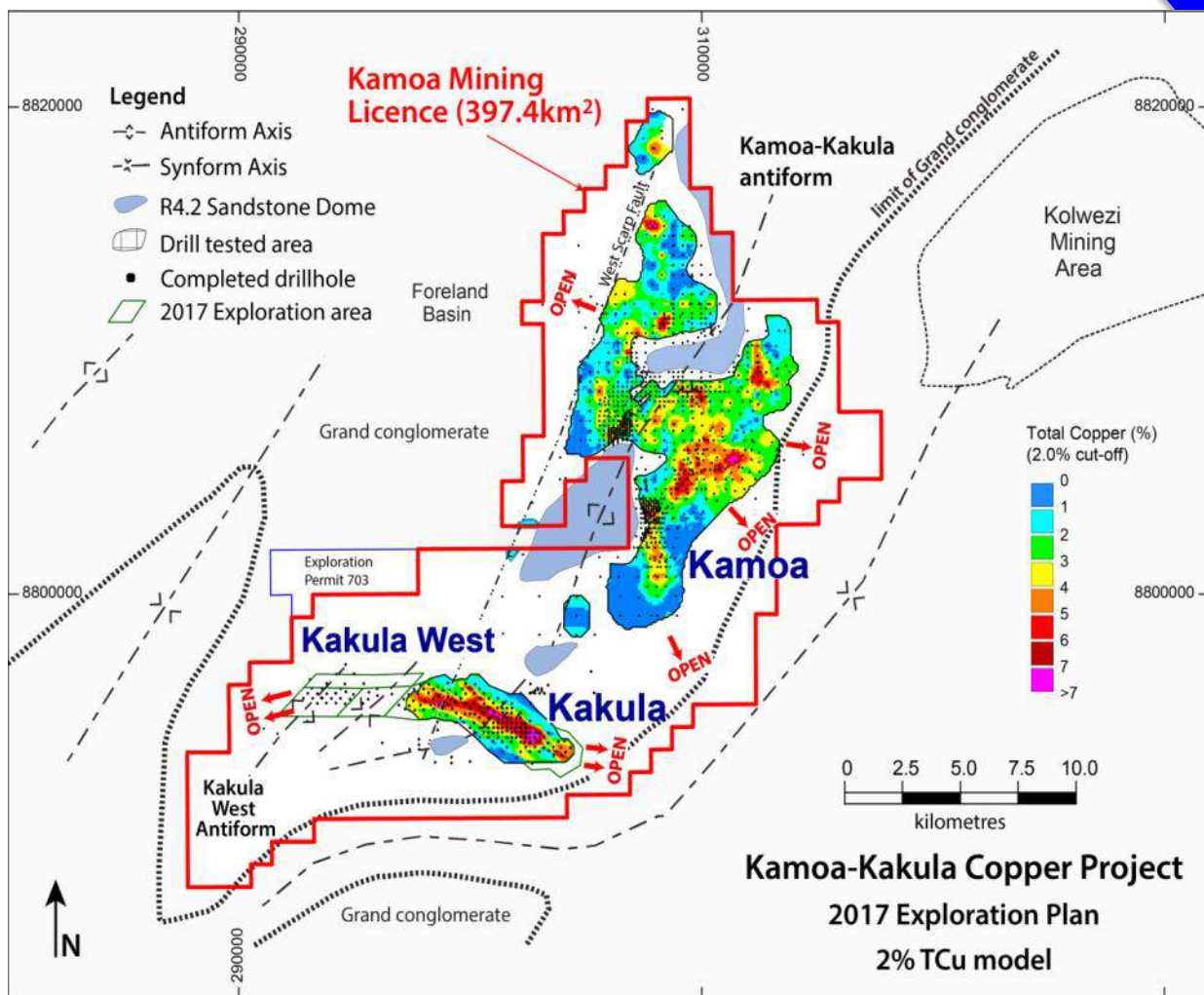
KAMOA-KAKULA

Mined copper output (kilotons)



# Kakula & Kakula West – re-writing the Kamoa Story

- **Kakula** is substantially richer, thicker and more consistent than other mineralization found elsewhere on the Kamoa Project.
- **Kakula West** is a new high-grade extension of Kakula.
- **Looking for another Kakula.**





**January 2018:** Ivanhoe is working to prepare a new, comprehensive Mineral Resource estimate for the Kakula Copper Discovery based on drilling completed at the project between mid April and December 31, 2017.

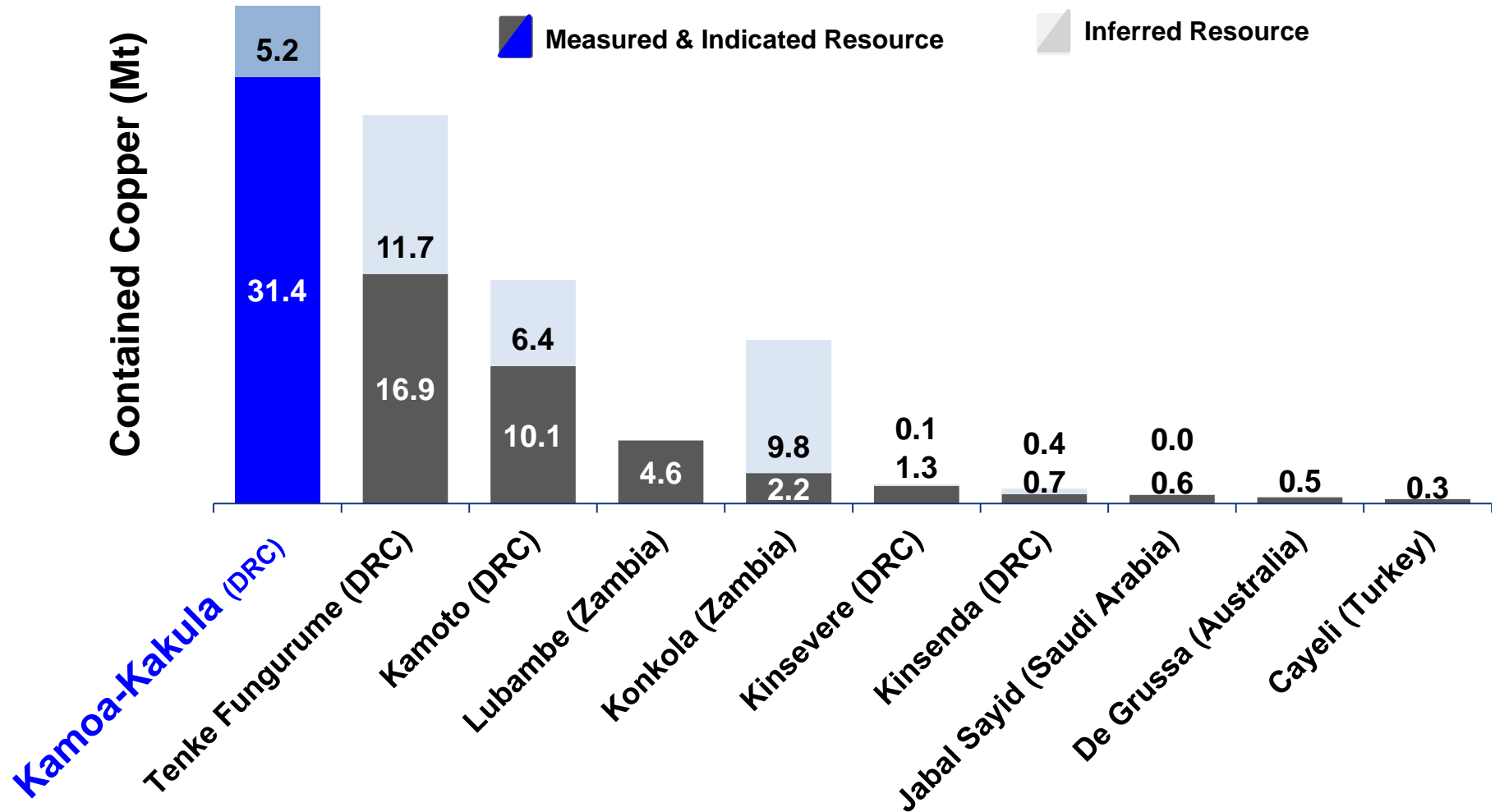
---

KAMOA-  
KAKULA



# Kamoa-Kakula is the largest high-grade copper deposit in the world

KAMOA-KAKULA



Source: Wood Mackenzie

\*Note: Contained copper in high-grade deposits (Measured & Indicated Mineral Resources, inclusive of Mineral Reserves, and Inferred Mineral Resources) with grades above 2.5% copper (2017)

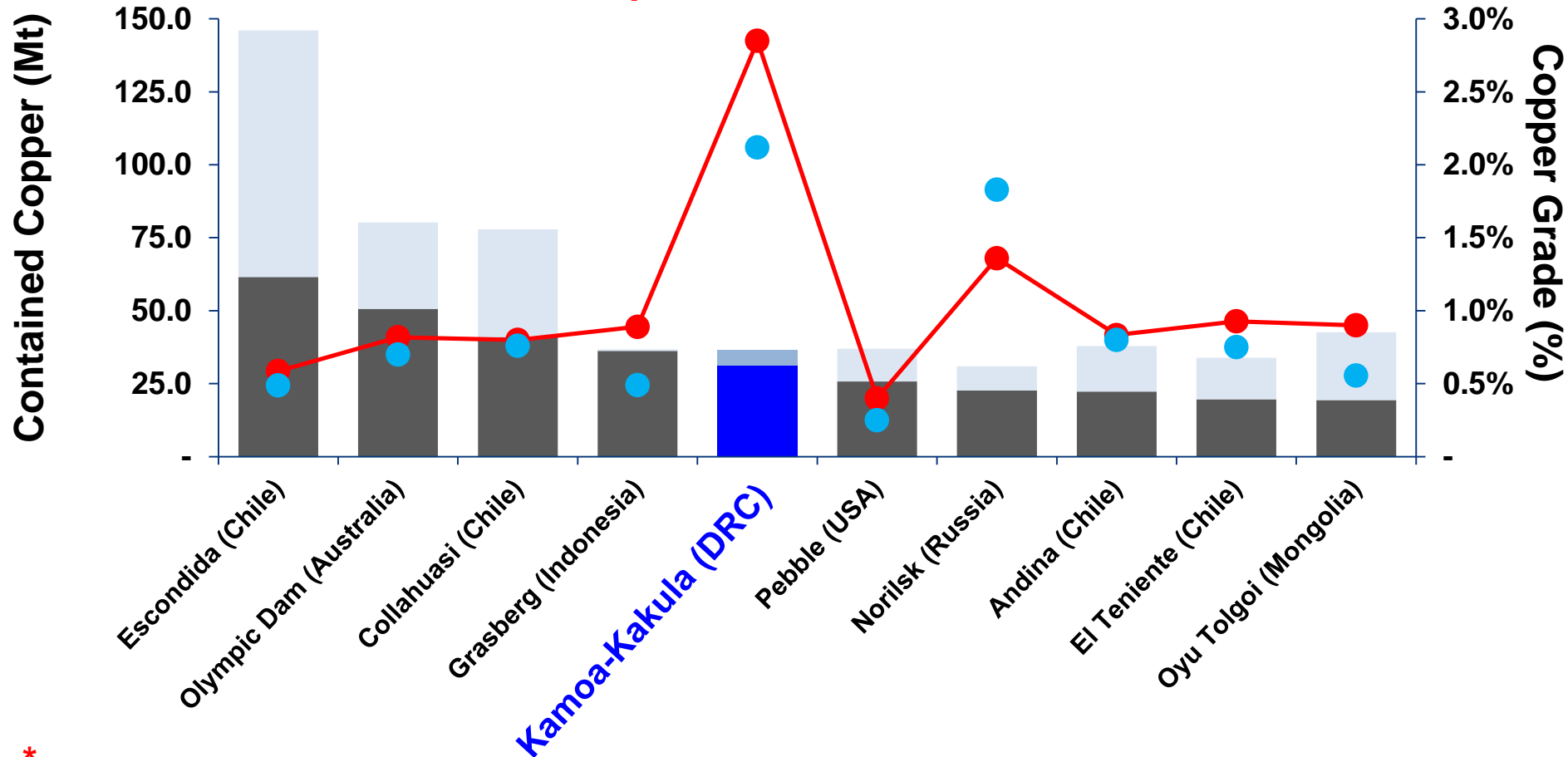


# Among the world's largest copper deposits, Kamoa-Kakula also has the highest copper grades

KAMOA-KAKULA

Measured & Indicated Resource and Grade Inferred Resource and Grade

Kamoa-Kakula now ranks among the five largest copper deposits in the world\*

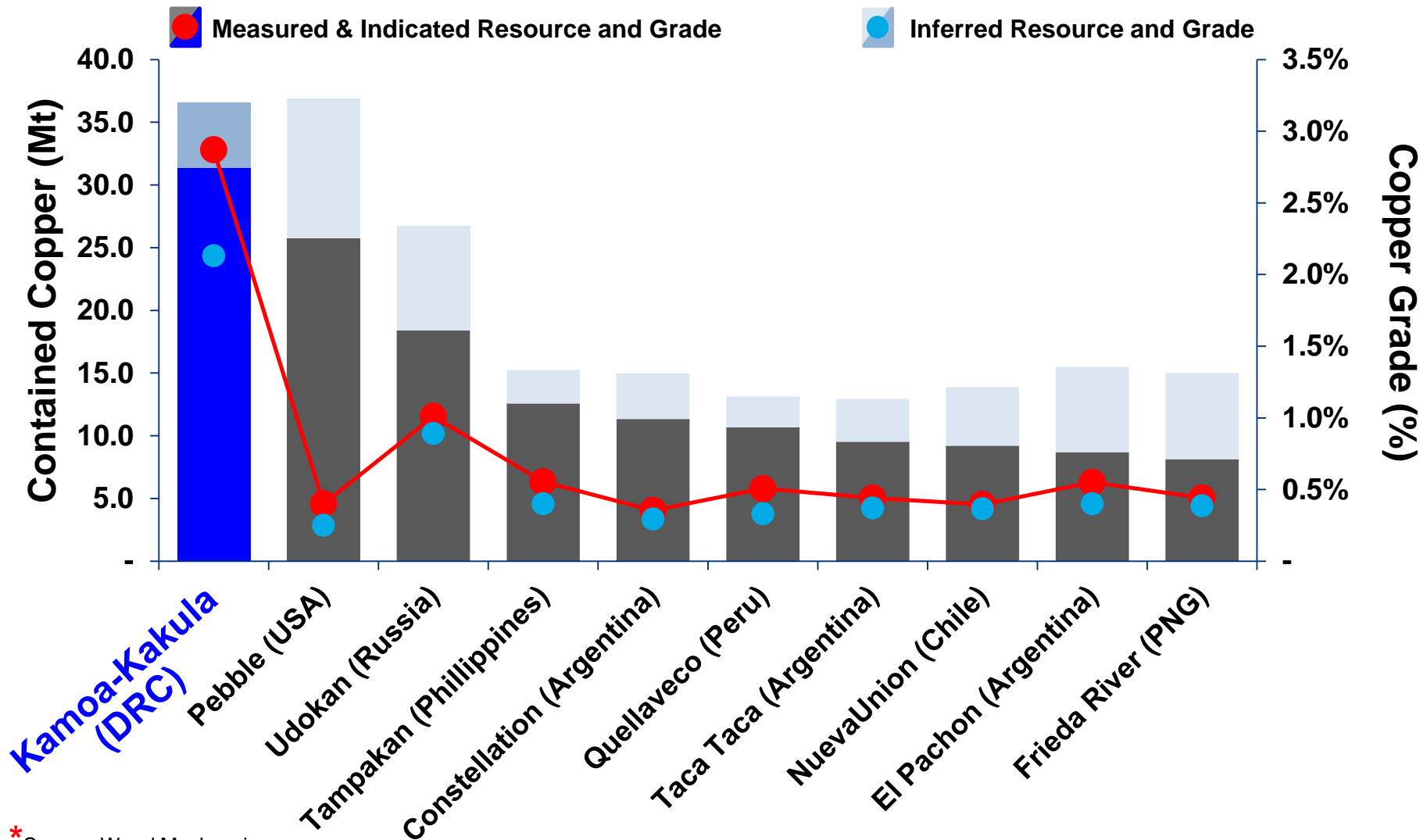


\* Source: Wood Mackenzie

Note: Selected based on contained copper (Measured & Indicated Mineral Resources, inclusive of Mineral Reserves, and Inferred Mineral Resources), ranked on contained copper in Measured and Indicated resources (2017)

# Kamoa-Kakula is the largest undeveloped copper deposit in the world

KAMOA-KAKULA



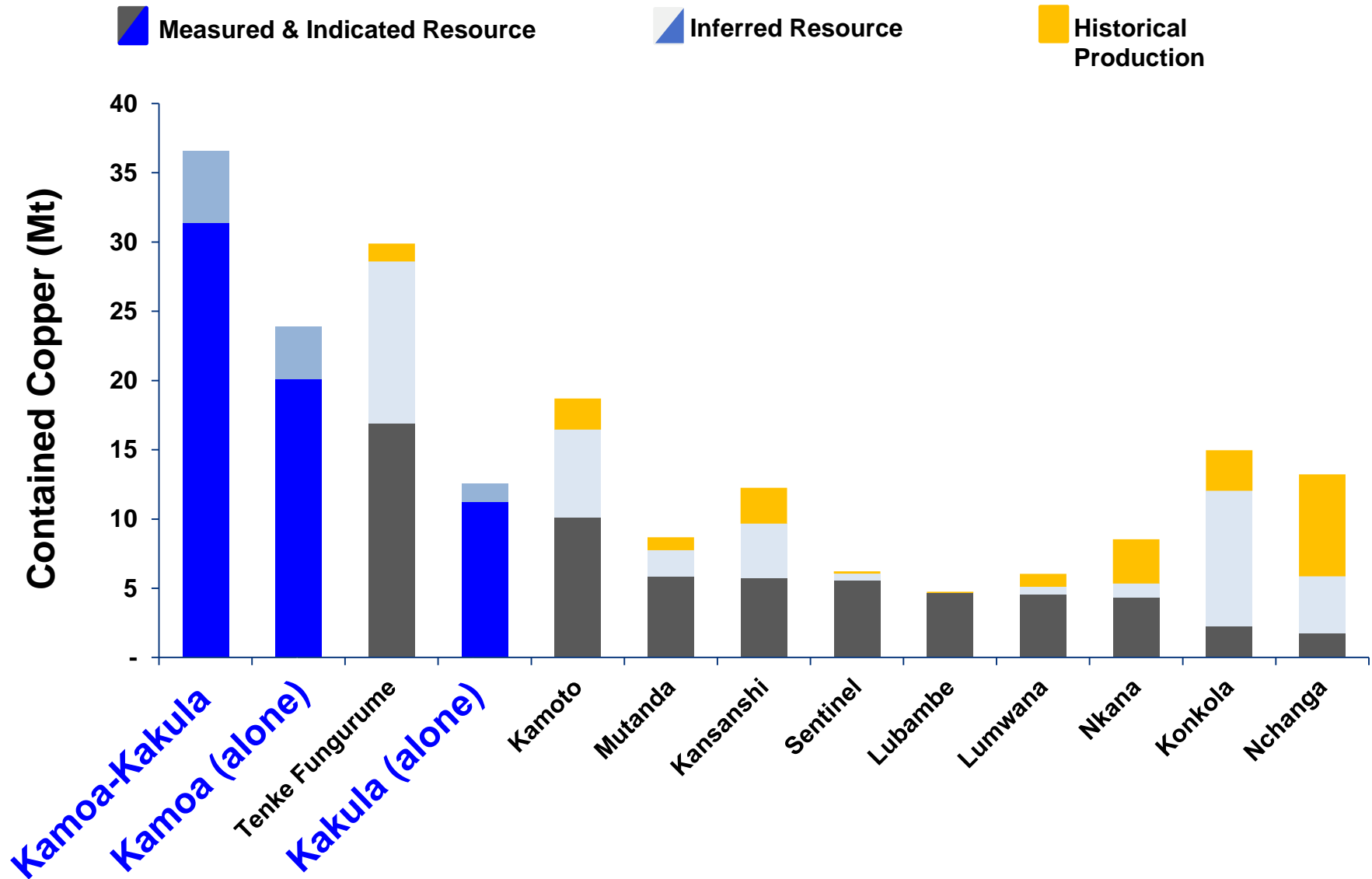
\* Source: Wood Mackenzie

Note: Contained copper in undeveloped deposits (Measured and Indicated Resources, inclusive of Mineral Reserves, and Inferred Resources) ranked by contained copper in Measured and Indicated Resources (2017).

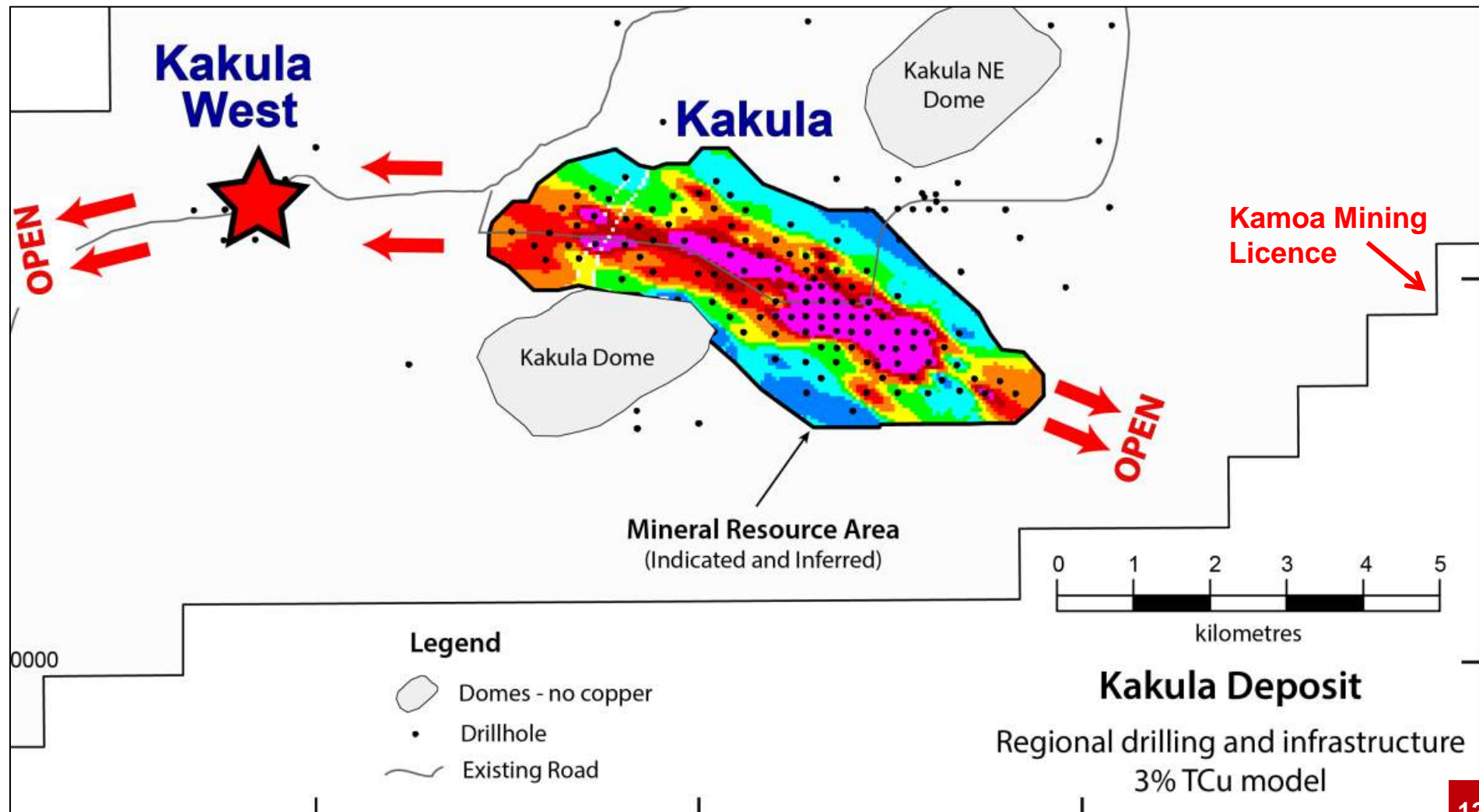


# Kamoa-Kakula is the largest copper discovery ever made on the African continent

KAMOA-KAKULA



The Kakula mineralized system  
is more than 12 kilometres long  
 and is still open in both directions

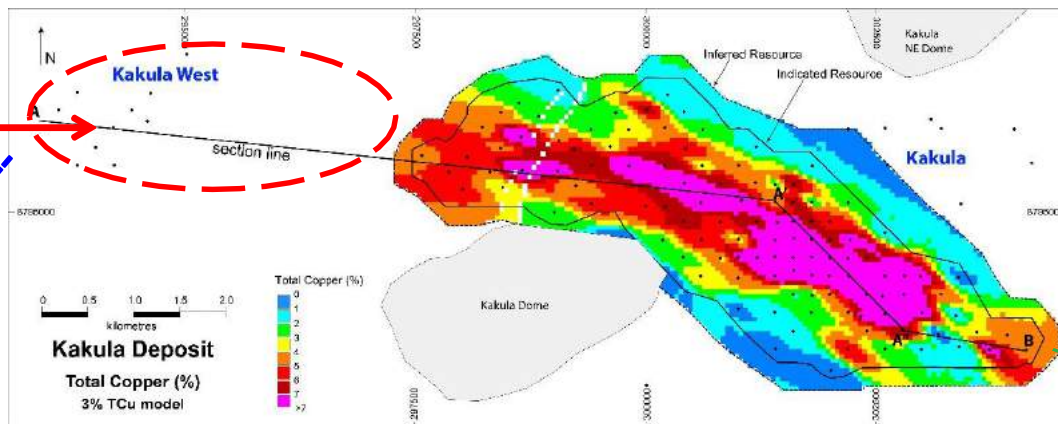




# Extent of Kakula / Kakula West Discovery

KAMOA-KAKULA

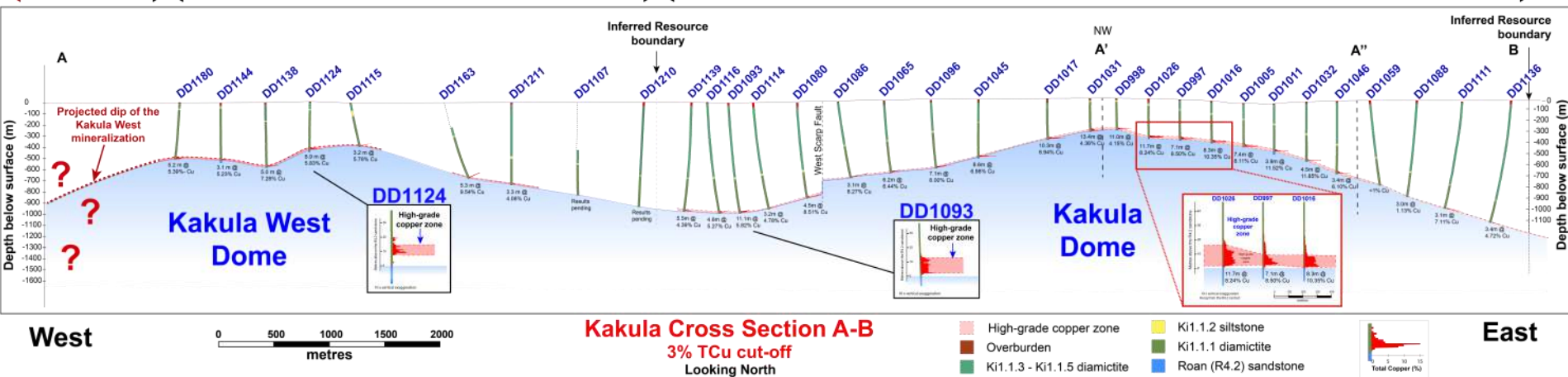
2017 drilling at Kakula West and saddle area



Untested area  
(to edge of licence)  
3.3 km

Kakula West Drilling  
4.4 km

Kakula Mineral Resource Area  
7.7 km



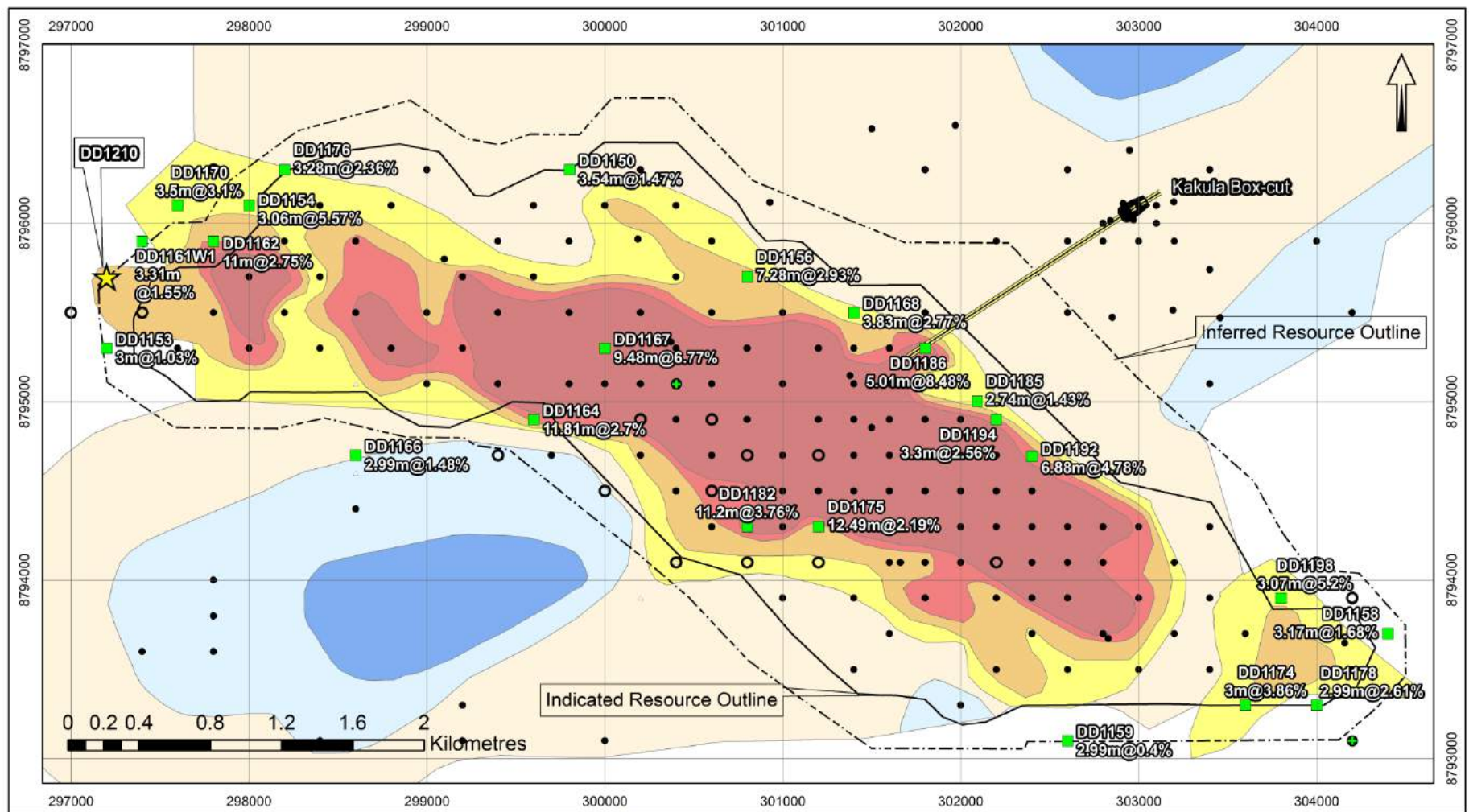
Kakula West discovery extends known mineralization to more than 12 km, and **remains open**.

IVANHOE

**KAMOAKAKULA**



# Kakula resource area drill-hole location plan superimposed on 2% composite grade thickness contours



**Kakula Drilling Results Status**

○ Waiting for Results    ⊕ In Progress    ● Completed    ■ Assay Received

**Grade x Thickness (m%) - SMZ20**

■ >40m%    ■ 30-40m%    ■ 20-30m%    ■ 10-20m%    ■ 1-10m%    ■ 0-1m%    ■ R4.2 Sandstone Domes



# 2017 Kakula PEA – alternate development scenarios

KAMOA-KAKULA

Mine	Kakula	Kakula + Kansoko
Annual mining rate	6 million tonnes	6 + 6 million tonnes <sup>(1)</sup>
Average head grade; first 10 years	6.4% copper	5.7% copper
Annual copper production first 10 years	284,000 tonnes	370,000 tonnes
Mine-site cash cost first 10 years	\$0.51/lb copper	\$0.63/lb copper
Initial capex	\$1.2 billion	\$1.2 billion
NPV <sub>8</sub> @ \$3.00/lb Copper	\$4.2 billion <sup>(2)</sup>	\$7.2 billion <sup>(2)</sup>
Internal rate of return @ \$3.00/lb copper	36% <sup>(3)</sup>	33% <sup>(3)</sup>
Payback period @ \$3.00/lb copper	3.1 years <sup>(3)</sup>	4.7 years <sup>(3)</sup>

All in US dollars, unless otherwise indicated.

The Kakula 2017 PEA is preliminary in nature and includes an economic analysis that is based, in part, on Inferred Mineral Resources. Inferred Mineral Resources are considered too speculative geologically to have the economic considerations applied to them that would allow them to be categorized as Mineral Reserves, and there is no certainty that the results will be realized. Mineral Resources do not have demonstrated economic viability and are not Mineral Reserves.

1. Two-stage development of both Kakula and Kansoko deposits.

2. After-tax NPV, discounted at 8%, assuming a long-term copper price of US\$3.00/lb.

3. After tax.

# Development options: *Up to three* **six-million-tonne-per-year mines!** **That's 18 million tonnes per year!**

KAMOA-  
KAKULA

- Kakula Mine – being fast tracked to production with capacity of **6 Mtpa**.
- Kansoko Mine – development ready, also with capacity of **6 Mtpa**.
- Kakula West and Kamoa North – potential additional mining areas.





# **November 2017:** Development work underway on twin declines to access the high-grade copper resources at the Kakula Discovery

---

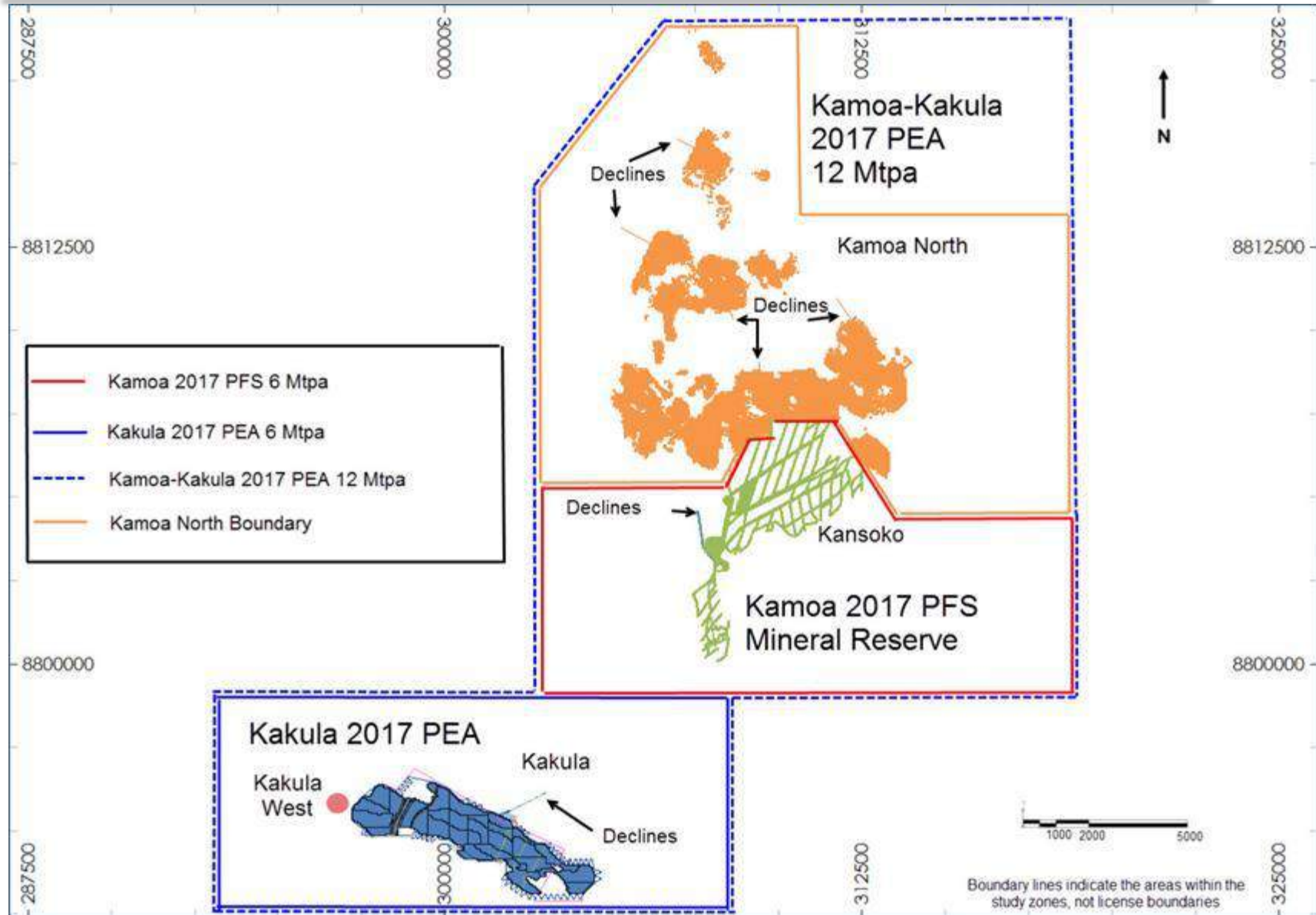
KAMOA-KAKULA



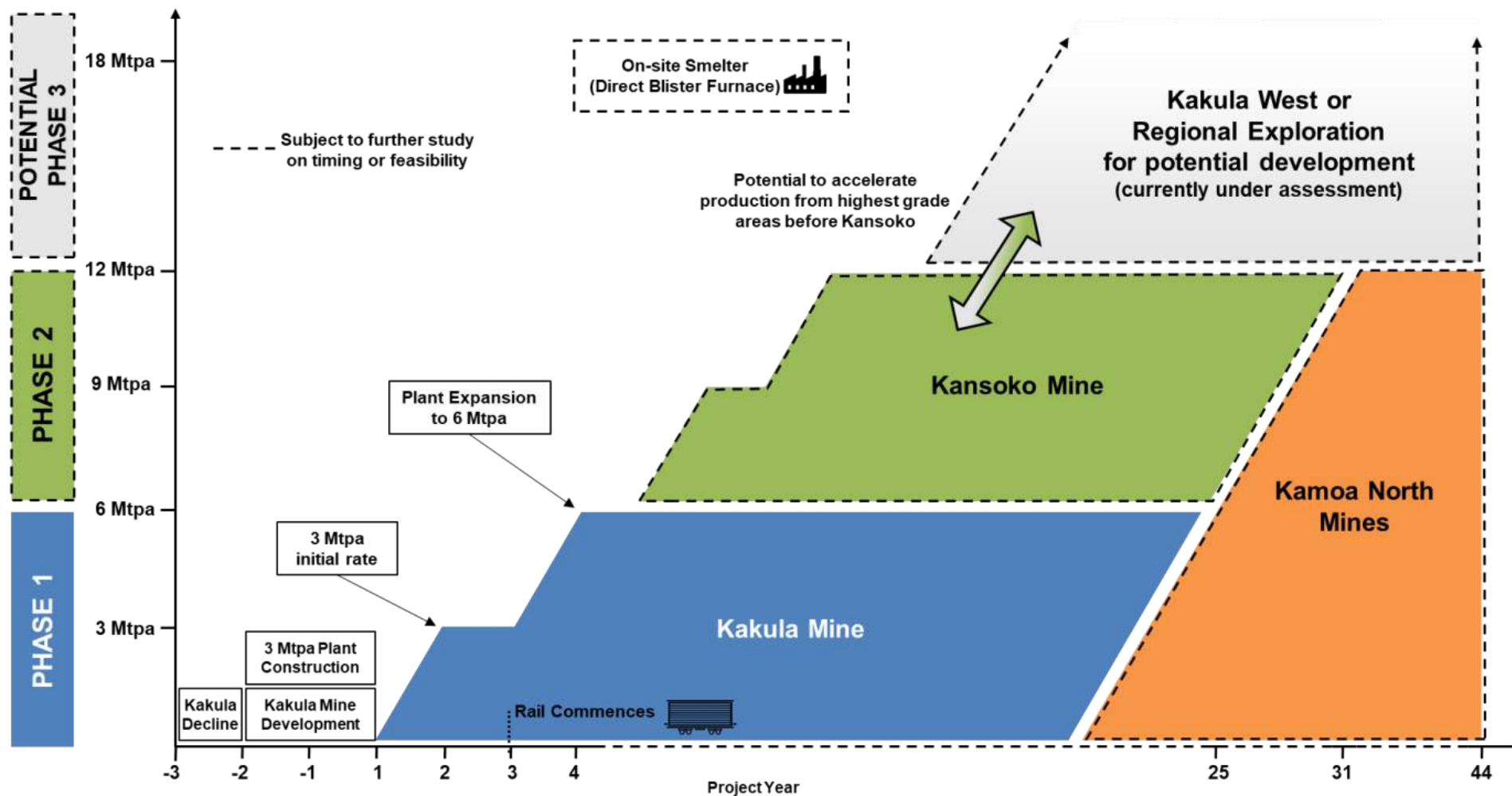


# Deposits included within Kakula 2017 PEA (six Mtpa and 12 Mtpa case) and Kamoa 2017 PFS (six Mtpa)

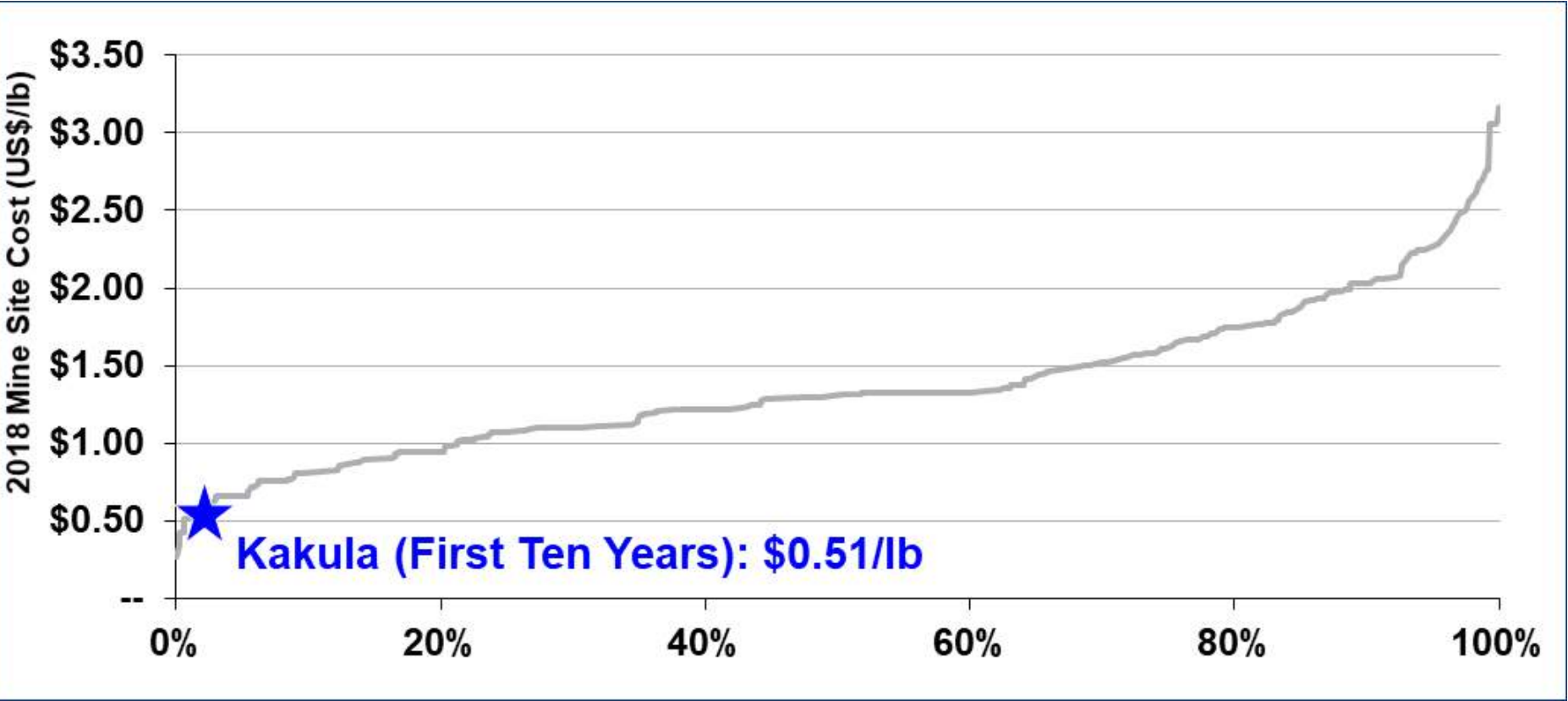
KAMOA-KAKULA



# Kamoa-Kakula PEA long-term development plan



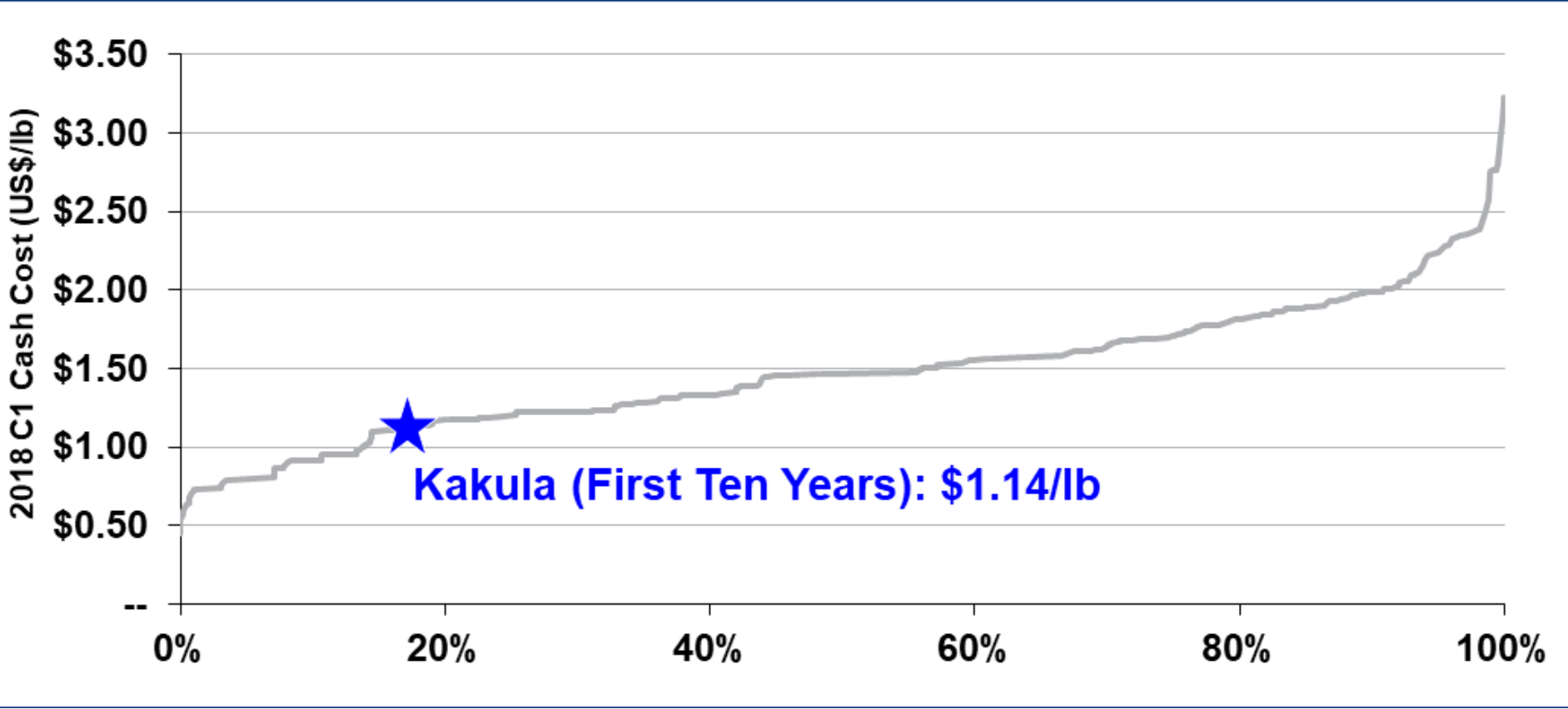
# 2018 Mine-site cash costs (includes all operational cash costs at mine site)



Note: Represents mine-site cash costs that reflect the direct cash costs of producing paid concentrate or cathode incorporating mining, processing and mine-site G&A costs. Kakula is based on the average mine-site cash cost during the first 10 years as detailed in the Kakula 2017 PEA. Source: Wood Mackenzie (based on public disclosure, the Kakula 2017 PEA has not been reviewed by Wood Mackenzie).

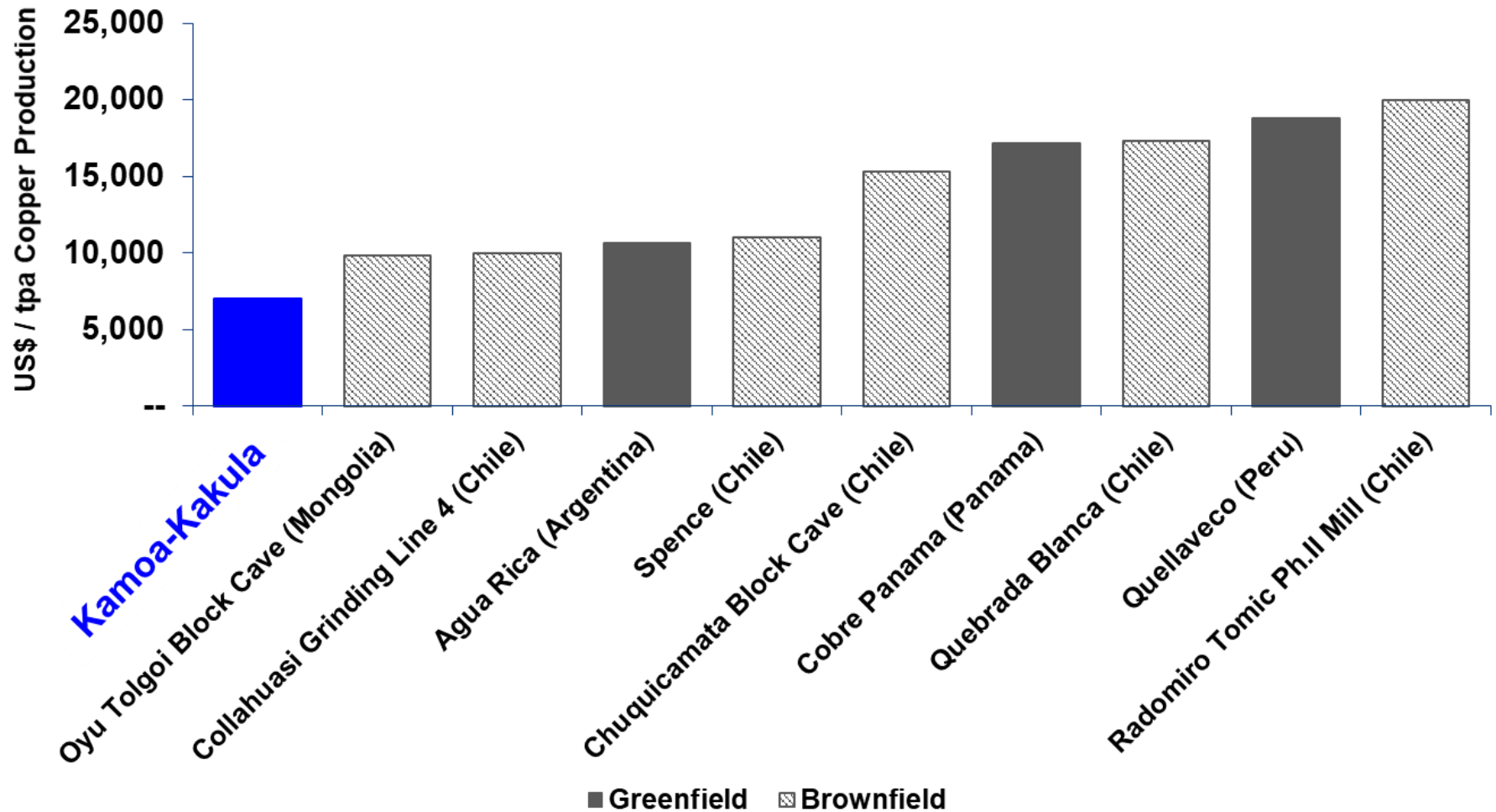


# 2018 C1 copper cash costs (includes mining, processing, transportation and offsite realization costs)



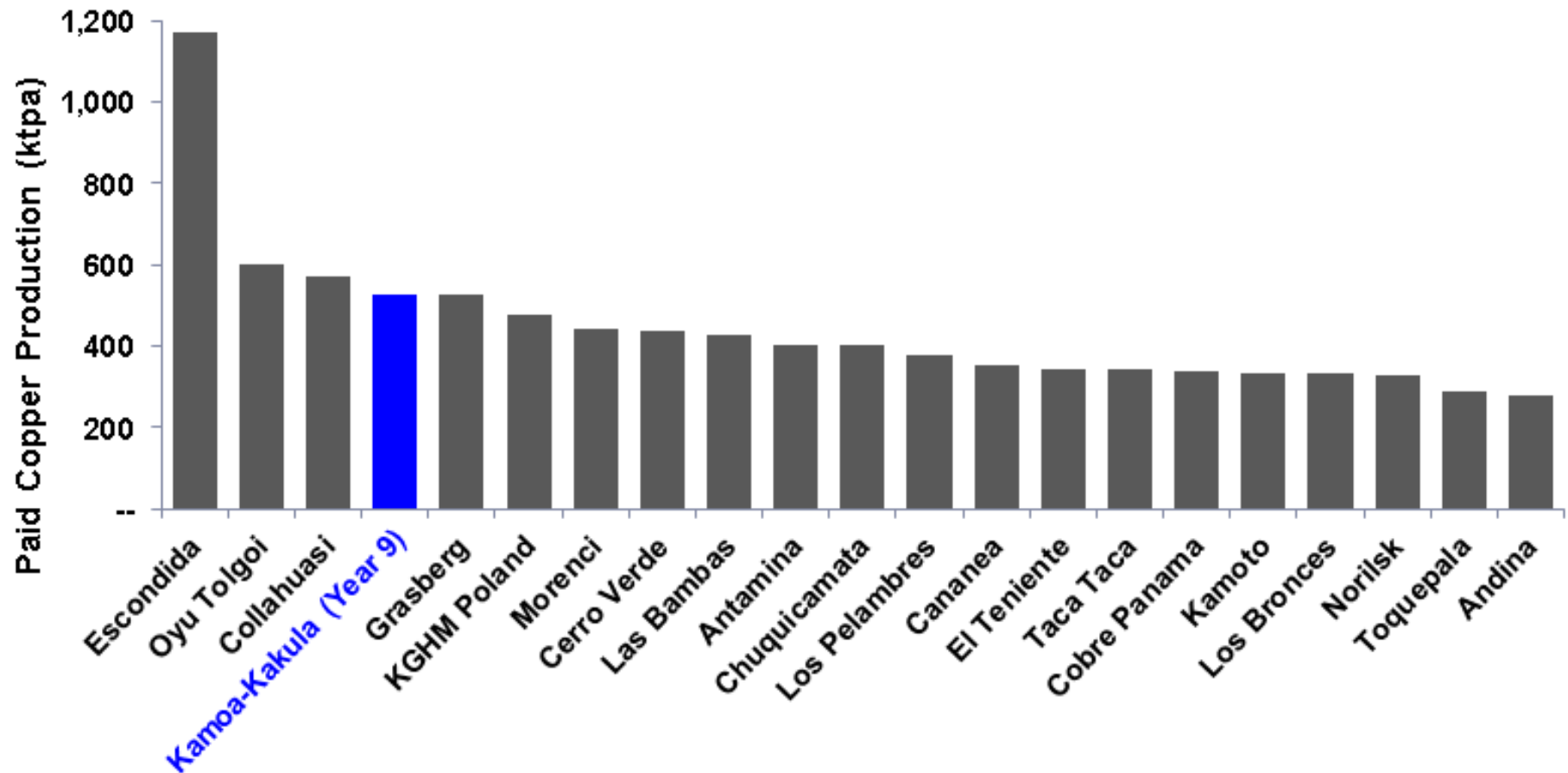
Note: Represents C1 cash costs that reflect the direct cash costs of producing paid metal incorporating mining, processing and offsite realization costs, having made appropriate allowance for the co-product revenue streams. Kakula is based on the average total cash cost during the first 10 years as detailed in the Kakula 2017 PEA. Source: Wood Mackenzie (based on public disclosure, the Kakula 2017 PEA has not been reviewed by Wood Mackenzie).

# Capital intensity for large-scale copper projects



Note: Recently approved, probable and possible projects with nominal copper production capacity in excess of 200 kt/a (based on public disclosure and information gathered in the process of routine research). The Kakula 2017 PEA has not been reviewed by Wood Mackenzie. Source: Wood Mackenzie.

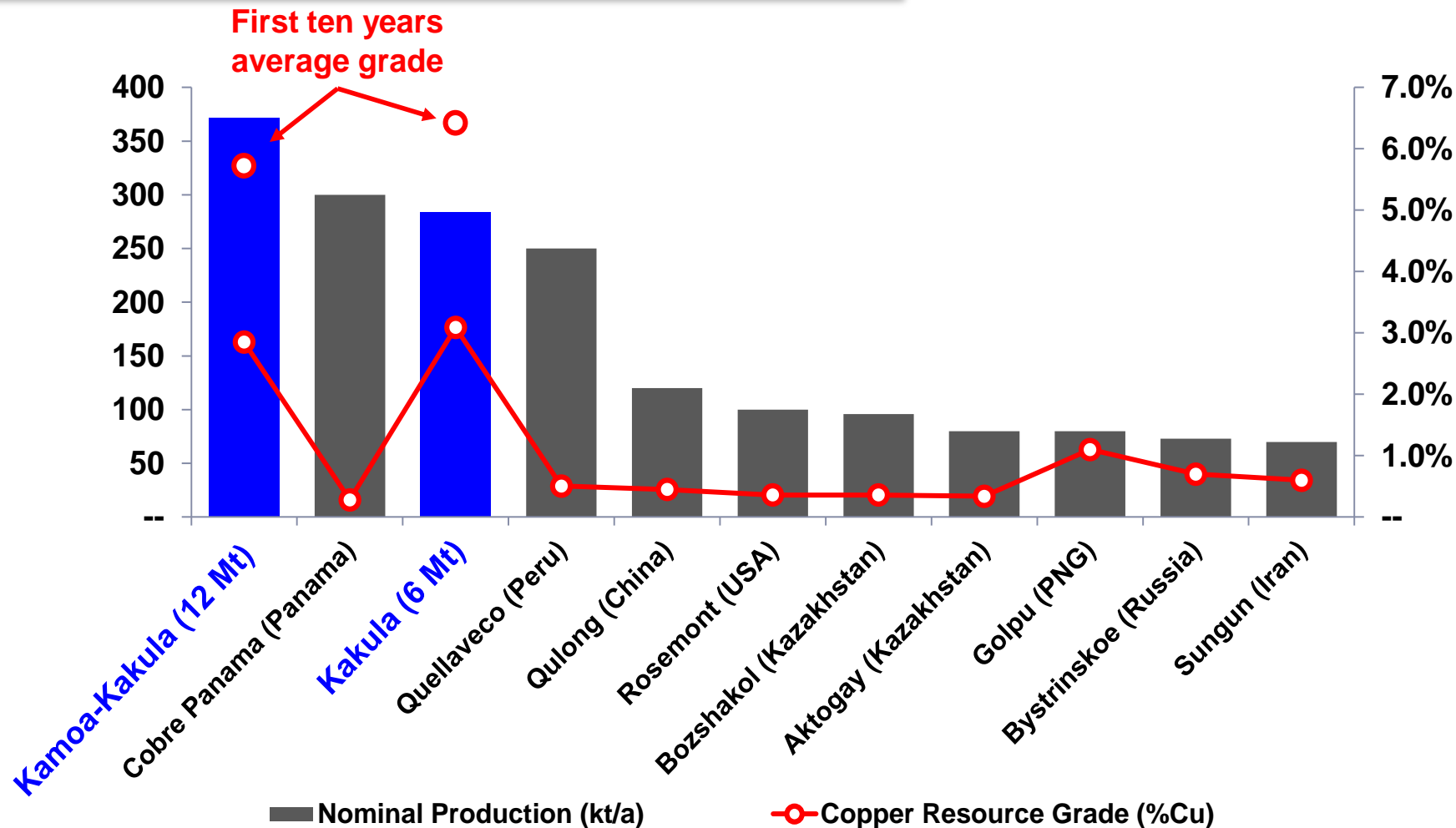
# 2025 Top 20 producing mines by paid copper production



Note: Kamoa-Kakula production based on projected peak copper production (which occurs in year nine) of the 12 Mtpa development plan for the Kamoa-Kakula Project as detailed in the Kakula 2017 PEA. Source: Wood Mackenzie (based on public disclosure, the Kakula 2017 PEA has not been reviewed by Wood Mackenzie).



# Top 10 largest new greenfield projects (Nominal production and head grade)



Note: Top 10 largest new greenfield copper projects defined as the 10 largest greenfield copper projects classified as "base case" or "probable" and ranked by nominal copper production (with Kamoakakula's first ten years' average annual production of copper in concentrate considered to be its nominal copper production). Source: Wood Mackenzie, USGS (based on public disclosure, the Kakula 2017 PEA has not been reviewed by Wood Mackenzie).

# Chalcocite-rich drill core at a depth of 938 metres from DD1210 drilled at the western edge of the Kakula resource area

---

*Chalcocite (copper sulfide,  $\text{Cu}_2\text{S}$ ) is opaque and dark-grey to black and is 80% copper by weight).*



## Chalcocite-rich drill core from DD1236 drilled in the gap between Kakula West and Kakula

---

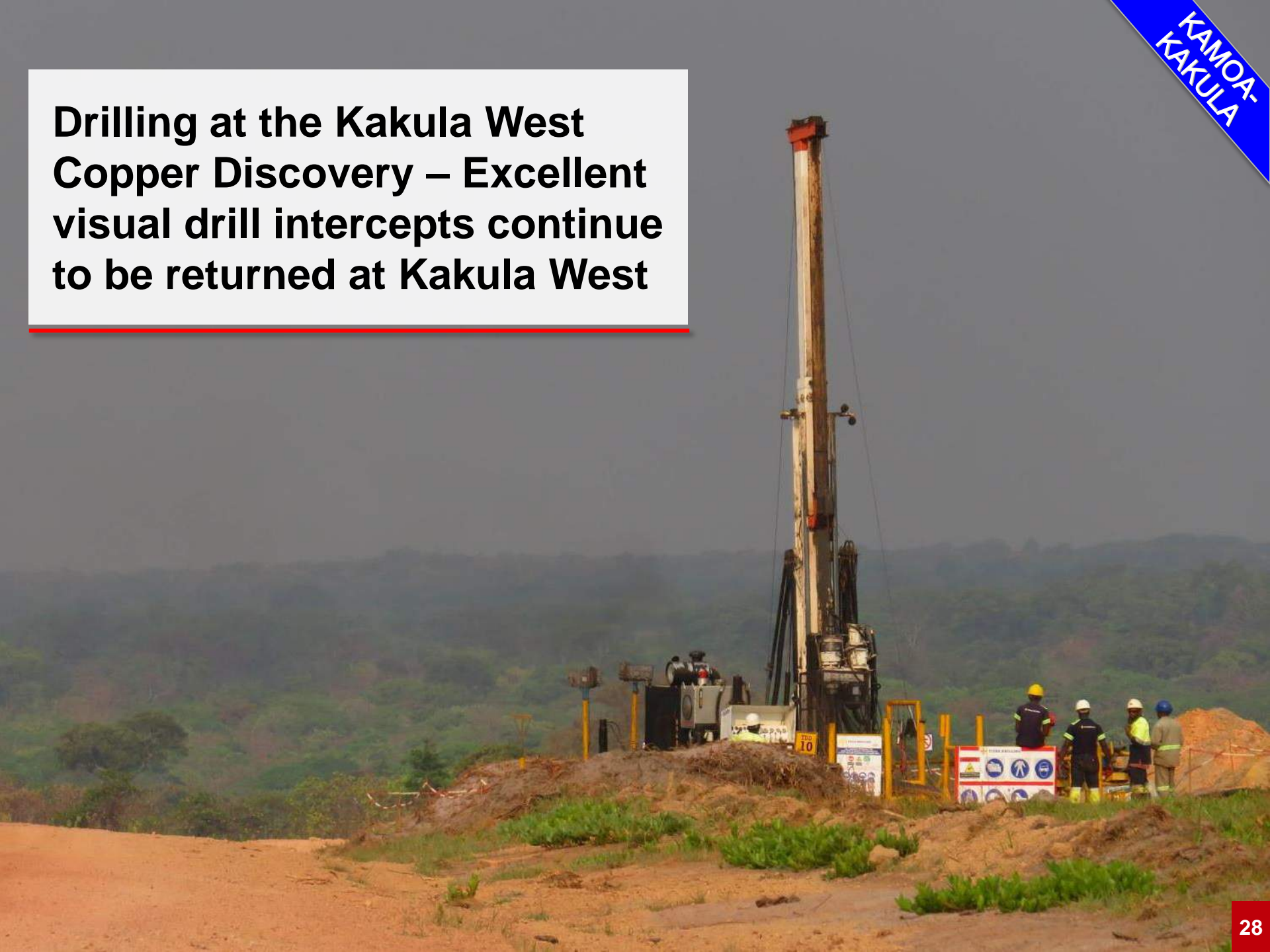


***Chalcocite (copper sulfide,  $\text{Cu}_2\text{S}$ ) is opaque and dark-grey to black and is 80% copper by weight).***



# **Drilling at the Kakula West Copper Discovery – Excellent visual drill intercepts continue to be returned at Kakula West**

**KAMOA-  
KAKULA**





Fine-grained chalcocite mineralization in siltstone intersected in a recent hole **drilled between Kakula and Kakula West.**



Drilling results from Kakula West show a rapidly growing area of shallow copper mineralization characterized by finely disseminated chalcocite in siltstone and maroon diamictite.

**Chalcocite is approximately 80% copper by weight.**



## **Massive chalcocite in a recent drill hole from Kakula West**

---

Results show a rapidly growing area of shallow copper mineralization characterized by finely disseminated chalcocite in siltstone and maroon diamictite. The style and overall geometry of mineralization are typical of the high-grade Kakula trend to the east.





# Bonanza chalcocite (super high-grade copper) mineralization in core from Kakula





Core from Kakula drill hole DD1016, which intersected **8.75 metres** (true width) of **9.84% copper** at a 3.0% copper cut-off, beginning at a downhole depth of 362.0 metres.



# **+12% copper in hole DD1041**

KAMOA-  
KAKULA

**Massive chalcocite**

**Disseminated  
massive  
chalcocite**





# Western Foreland Exploration Licences

KAMOA-KAKULA

Western Foreland →  
Exploration Licences

## Legend

### Structural Interpretation

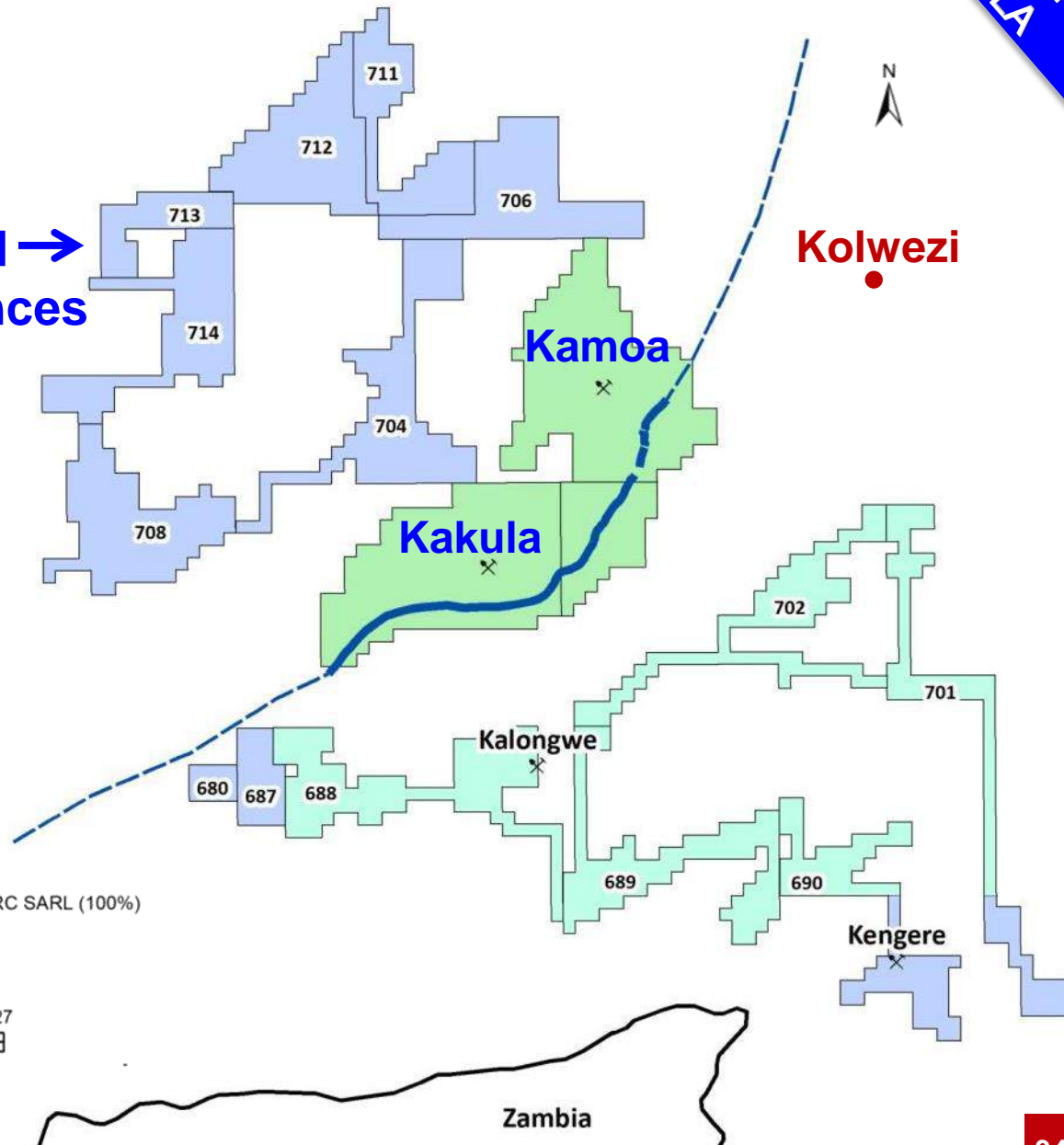
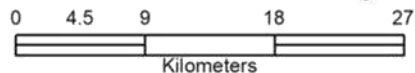
- Detachment
- - - Detachment inferred

### Mining permit

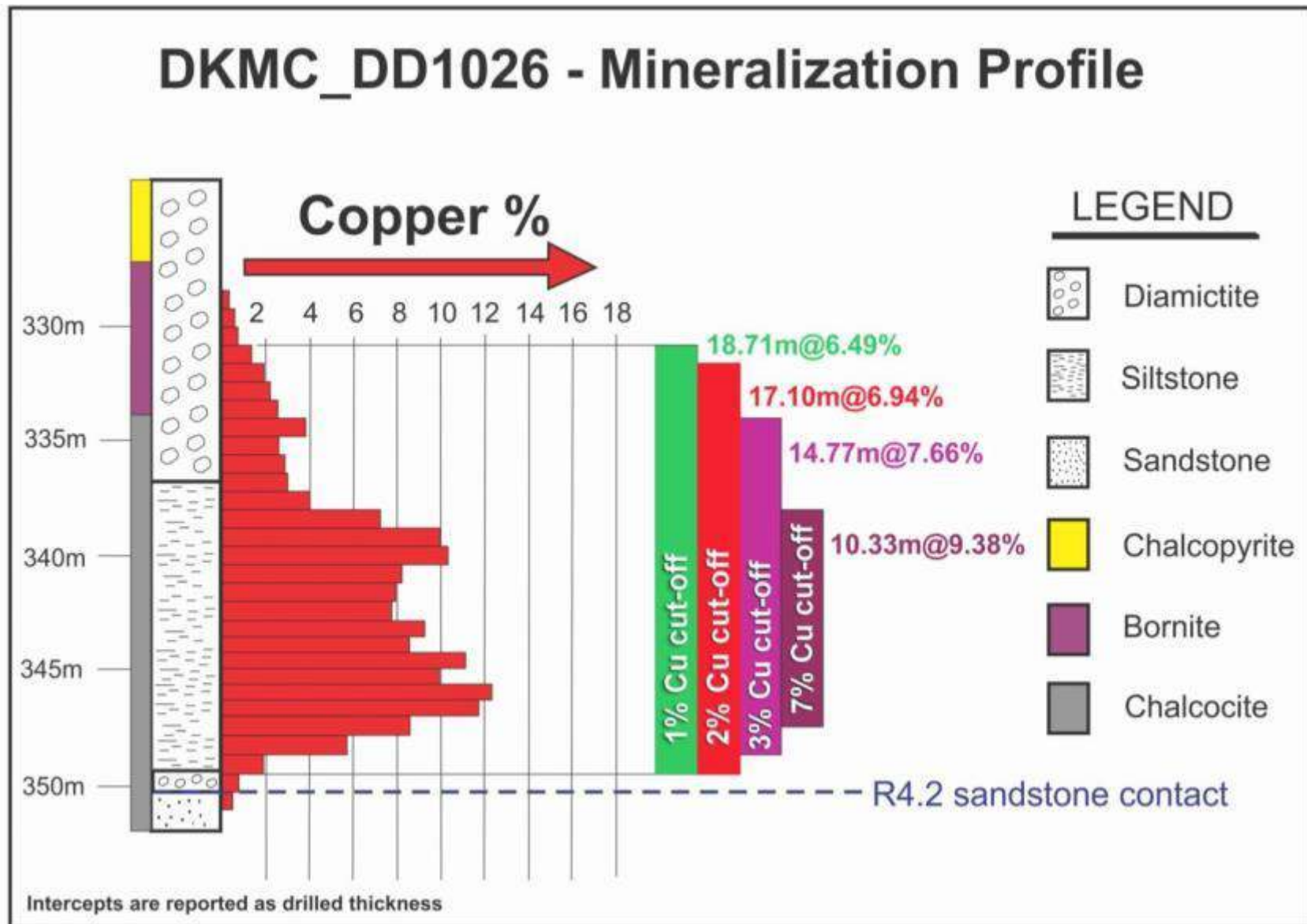
- KAMOA COPPER SA

### Exploration permit

- IVANHOE MINES EXPLORATION DRC SARL (100%)
- IVANHOE MINES - NZURI COPPER JV



# Kakula – bottom-loaded, high-grade copper is consistent at higher cut-offs





# High-grade development ore from the construction of the Kansoko copper mine

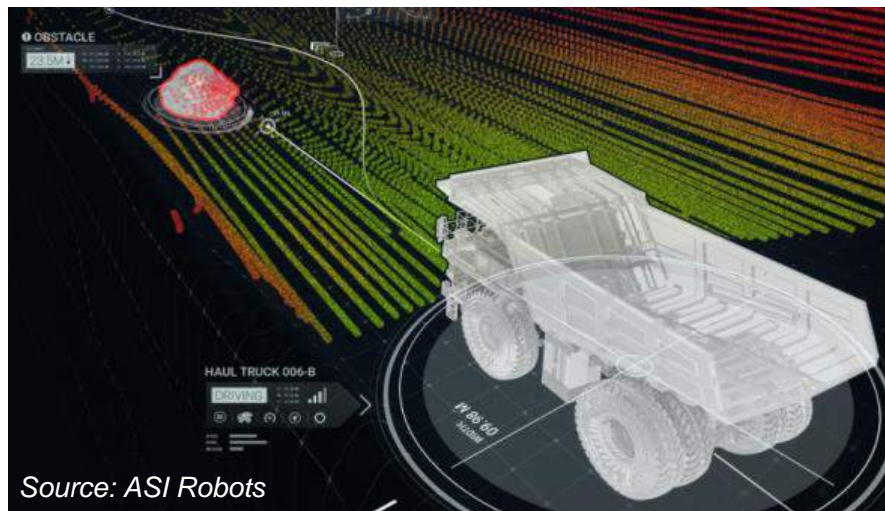
KAMOA-KAKULA





# The future of underground mining is automation

Industry is developing autonomous haulage trucks that receive commands from a control room located remotely and can detect and avoid obstacles.



**Kamoa-Kakula deposits  
are ideally suited  
for autonomous mining.**

# December 8, 2015: Zijin Mining acquired 49.5% stake in Kamoa Project for US\$412 million

KAMOA-KAKULA



- Zijin has committed to use its best efforts to arrange or procure project financing for 65% of the capital required to develop the first phase of the Kamoa Project, to be detailed in the ongoing feasibility study.



**July 21, 2017: The first delivery of copper ore from the Kansoko Mine is stockpiled on surface**

---

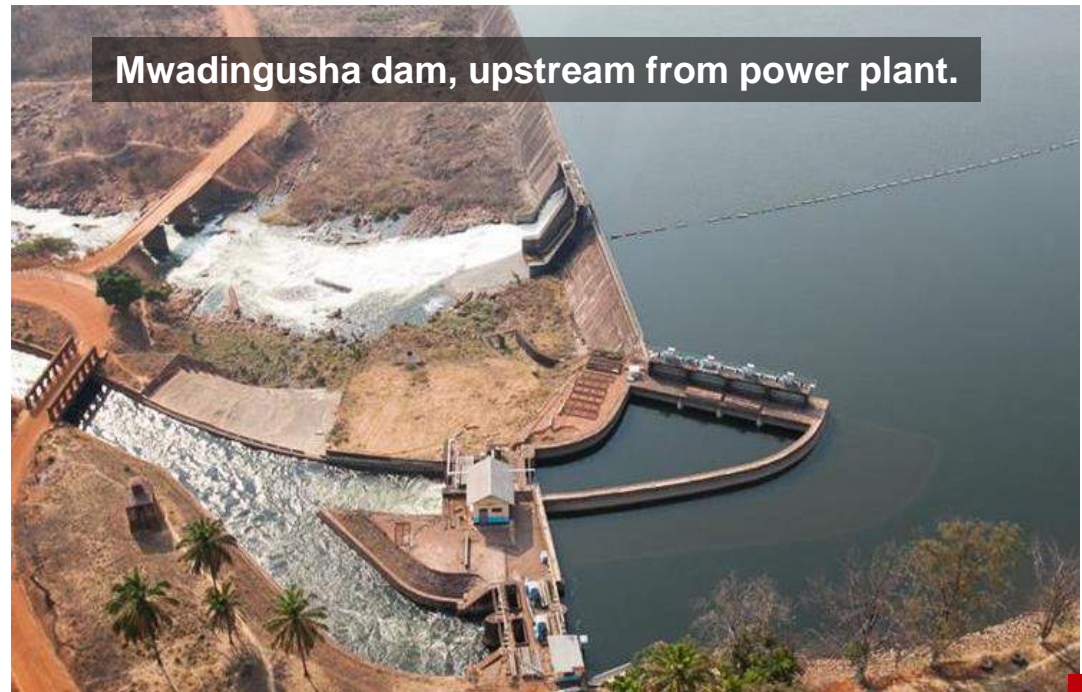
KAMOA-  
KAKULA





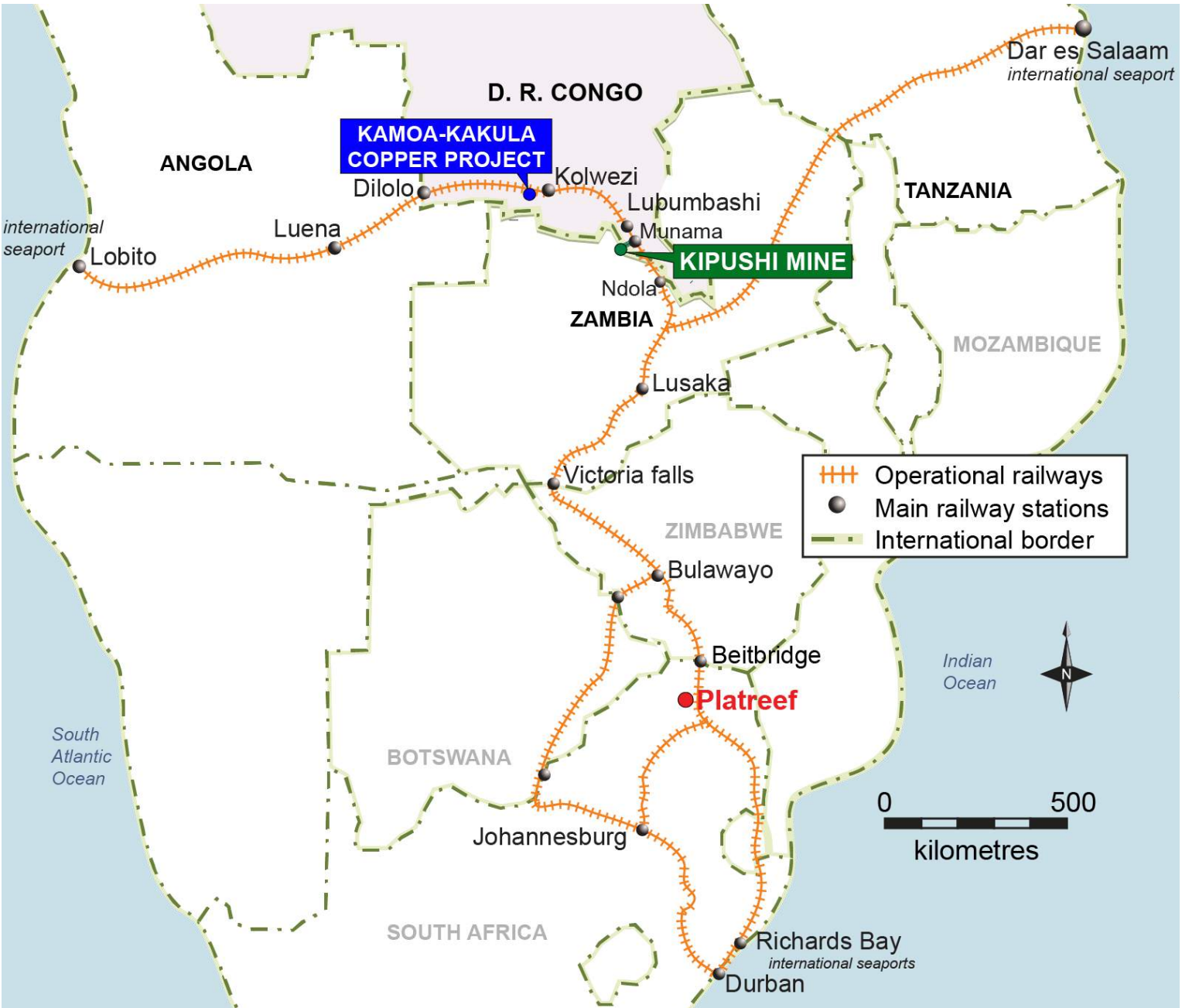
# Mwadingusha hydroelectric power station

- Mwadingusha is the first of three hydroelectric power plants in the DRC that Ivanhoe and Zijin will upgrade to secure a supply of **clean, sustainable electricity for the development of Kamoa-Kakula.**
- Mwadingusha is now supplying 32 megawatts (MW) of electricity to the grid. The plant should be fully operational by the end of 2019 – restoring the plant to its installed capacity of approximately 71 MW.
- The three plants will have installed capacity of approximately **200 MW** of electricity for the national grid, which is expected to be more than sufficient for the Kamoa-Kakula Copper Project.



# National railways linking DRC mines with international seaports

KAMOA-KAKULA







# Kipushi Mine Exploration and Upgrading

Democratic Republic  
of Congo

**IVANHOE MINES**  
NEW HORIZONS



**December 13, 2017:** Ivanhoe announced a pre-feasibility study for the rebirth of the historic Kipushi zinc-copper-silver-germanium mine

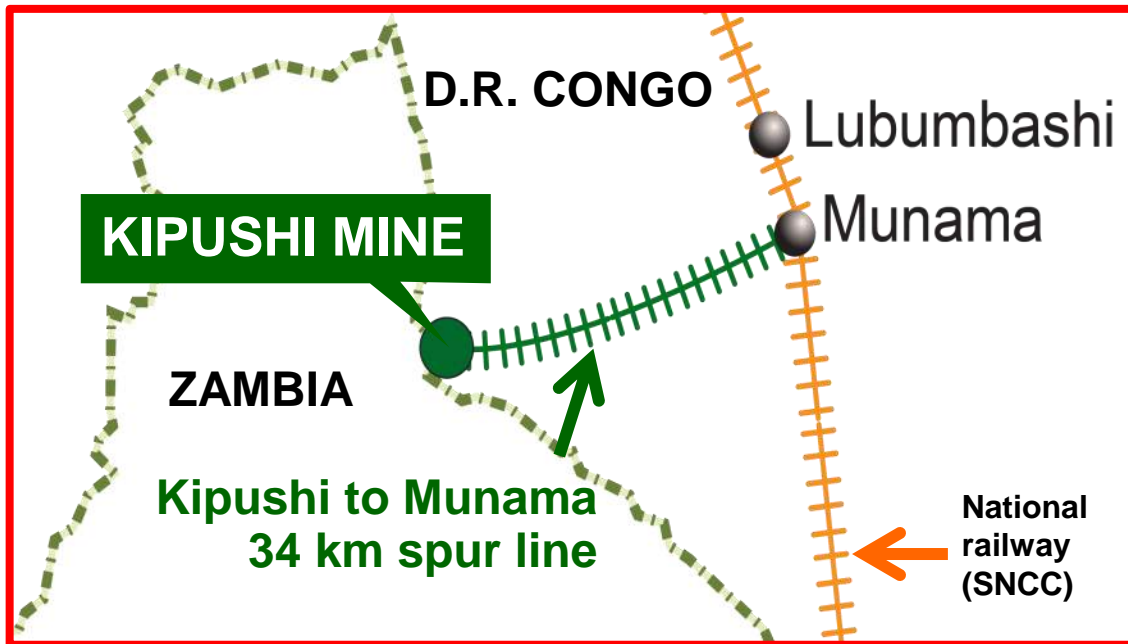
---

The planned return to production would establish Kipushi as the world's highest-grade major zinc mine.

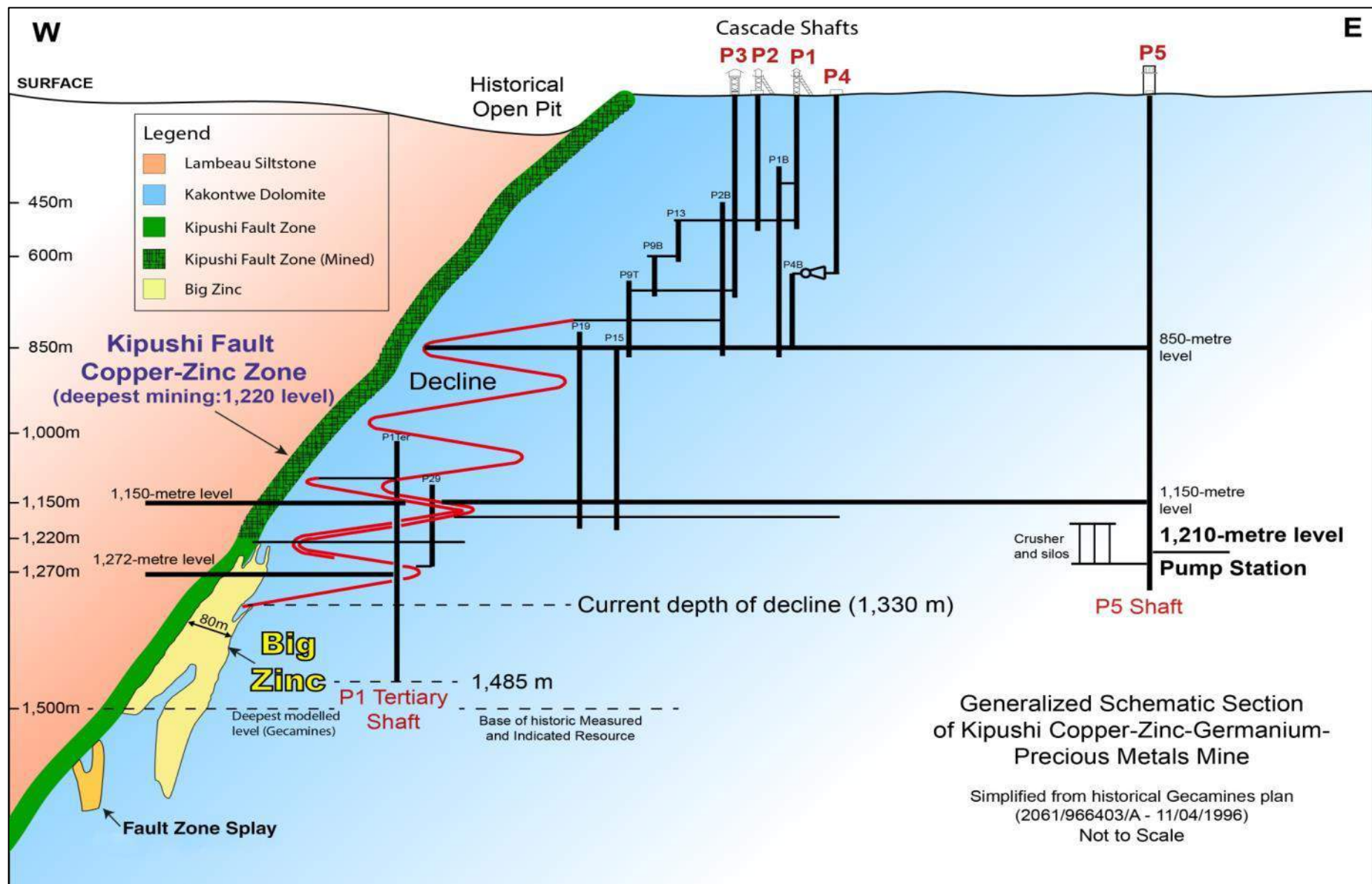


**October 30, 2017:**  
Ivanhoe signed an MOU with DRC's state-owned railway company, Société Nationale des Chemins de Fer du Congo (SNCC) to rebuild the Kipushi-Munama spur line, which has been inactive since 2011.

Representatives of SNCC and Ivanhoe's Kipushi team at Munama railway station.



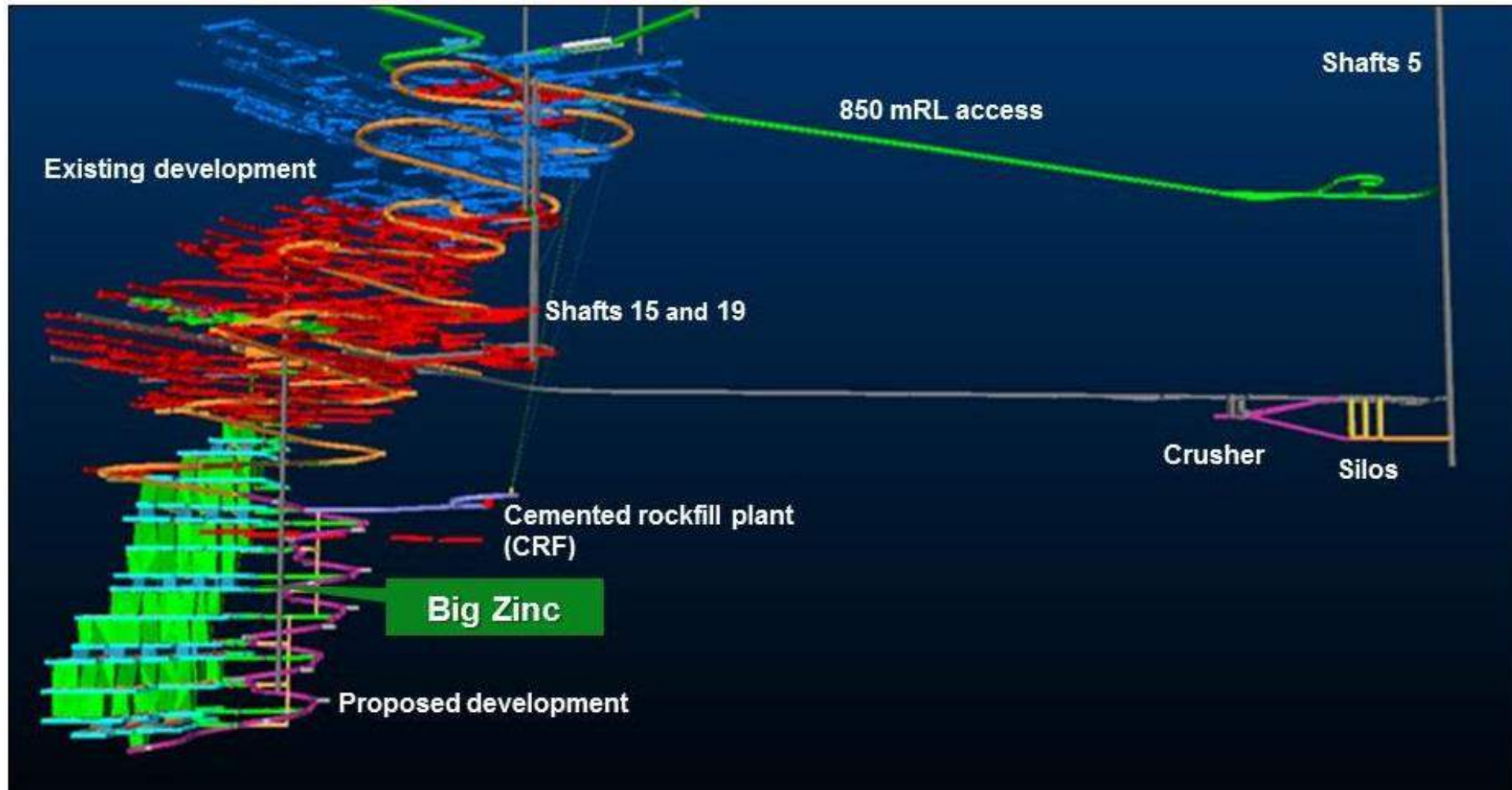




- Kipushi Fault Zone was mined 1924-1993 to approx. 1,150-metre level.
- Big Zinc discovered prior to 1993 closure; never mined.



# Planned and existing development at Kipushi



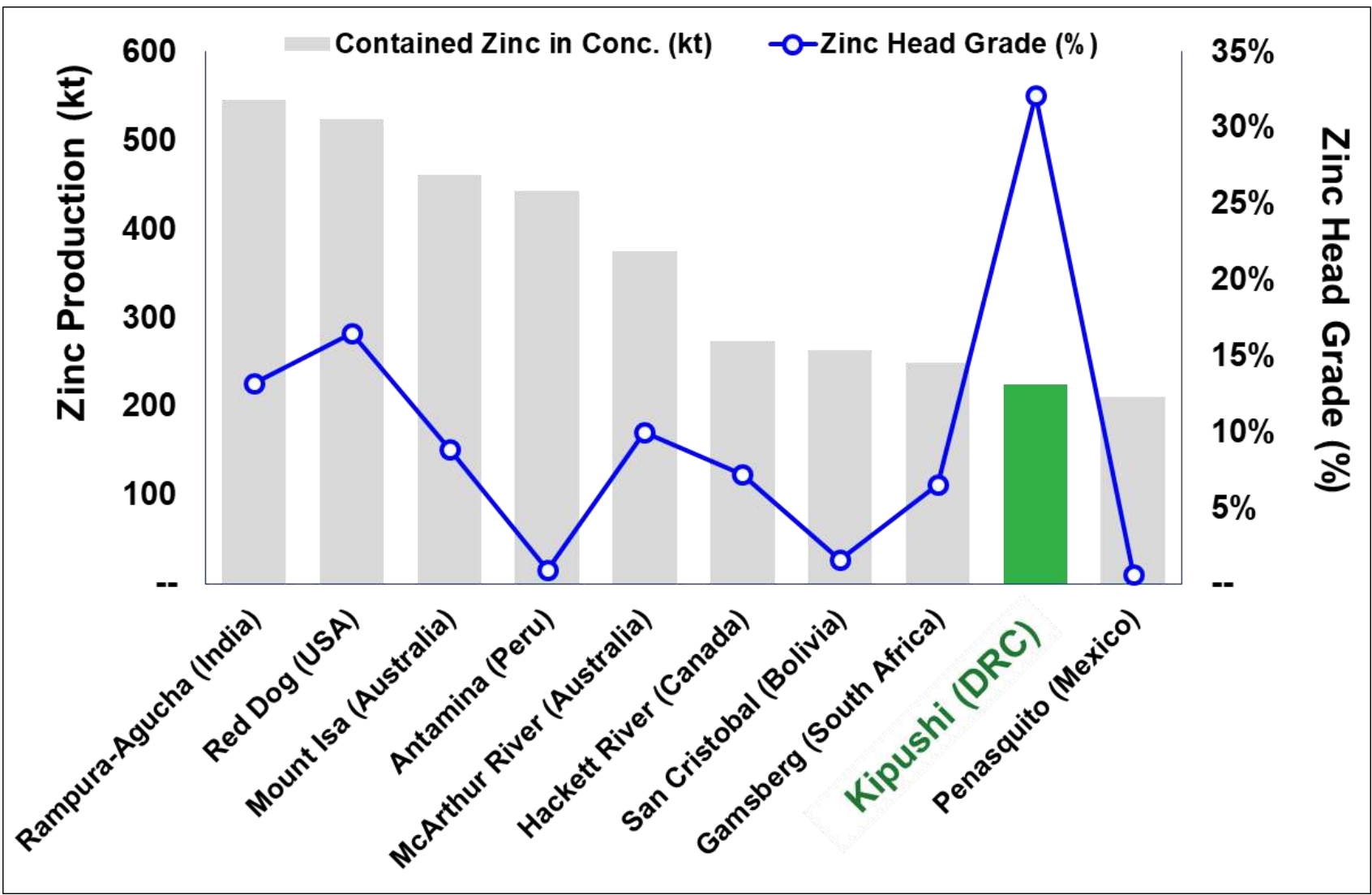
# The birth of a spectacularly high-grade mine

KIPUSHI

In 1924, Kipushi began mining 18% copper from a surface open pit, before transitioning to Africa's richest underground copper, zinc and germanium mine. Mining continued until 1993.



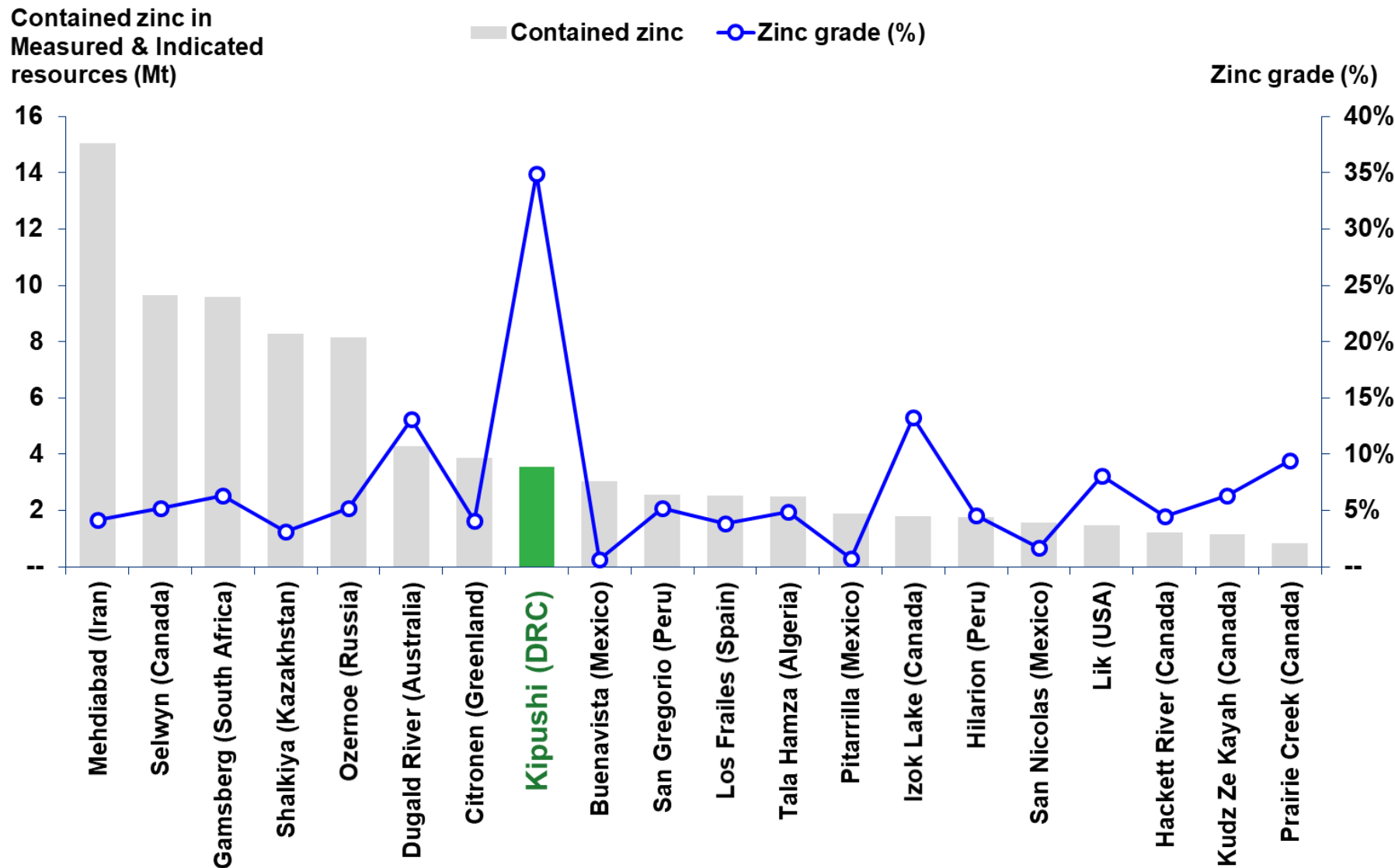
# World's major zinc mines, showing estimated annual zinc production and zinc head grades



Source: Wood Mackenzie. Independent research by Wood Mackenzie concludes that at the forecast production and head grade, the Kipushi Project, once in production, will rank among the world's largest zinc mines. Wood Mackenzie compared the Kipushi Project's life-of-mine average annual zinc production and zinc head grade of 225,000 tonnes and 32%, respectively, against production and zinc head grade forecasts for 2020.



# Top 20 zinc projects by contained zinc



Source: Wood Mackenzie. Note: All tonnes and zinc grades of the above-mentioned projects (except for Kipushi) are based on public disclosure and have been compiled by Wood Mackenzie.

# Upgraded 1,150-metre-level ore conveyor belt at the historic, high-grade Kipushi zinc-copper-lead-germanium mine

---

KIPUSHI





# New lighting installed at 1,200-metre level

KIPUSHI





**A member of the Titan underground drilling team  
at Kipushi's 1,274-metre-level**

**KIPUSHI**





# Control room operator at Kipushi's Shaft 5

KIPUSHI





**Sponsored by Ivanhoe Mines and Zijin Mining, in collaboration with [Fio Corporation](#), of Toronto, and the DRC Ministry of Health, *Know for Sure* has equipped over 250 health facilities with Deki Readers and trained more than 600 healthcare workers to effectively utilize the technology.**

---





# Shaft 5 hoisting winder





## World's best drill hole?

Our geology team holding hands and showing  
**Big Zinc intersection of 44.8% zinc over 340 metres.**



# Platreef Discovery & Mine Development

## South Africa





## January 2018:

Shaft 1 has reached a depth of more than **600 metres below surface**, more than half way to the planned final depth of 980 metres, at Ivanhoe's Platreef platinum, palladium, rhodium, gold, nickel and copper mine.

*Development work focused on initial production by early 2022.*



# July 31, 2017: Definitive feasibility study issued for Platreef Project

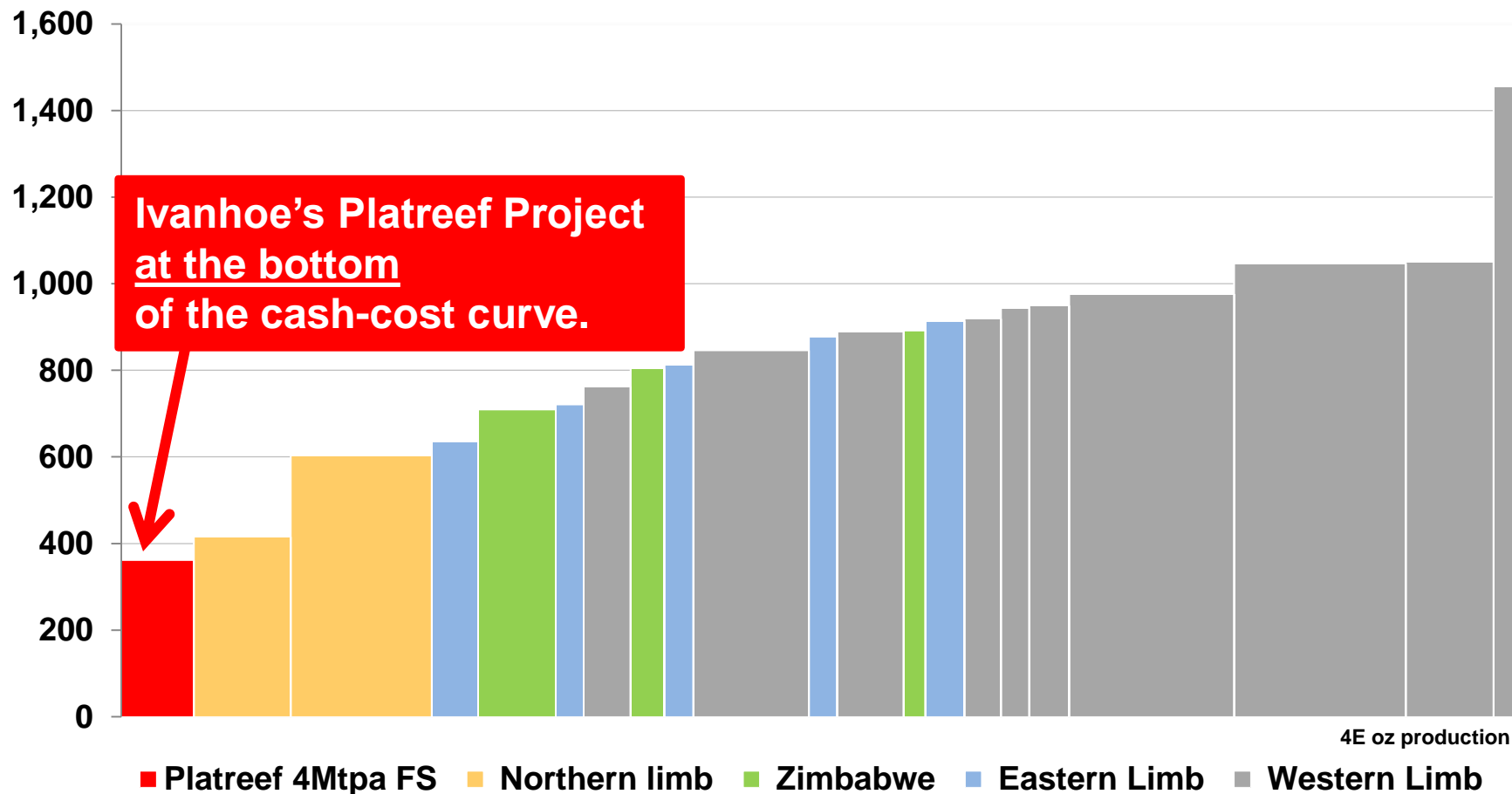
PLATREEF

- First phase envisages annual throughput rate of 4Mtpa, producing **476,000 ounces of platinum, palladium, rhodium and gold, plus 33 million pounds of nickel and copper.**
- Projected to be Africa's lowest-cost producer of PGMs, with a cash cost of **US\$351 per ounce** of 3PE+Au.



# Platreef's potential US\$351 per 3PE+Au ounce (net of base-metal by-products) at the bottom of the world's cash-cost curve

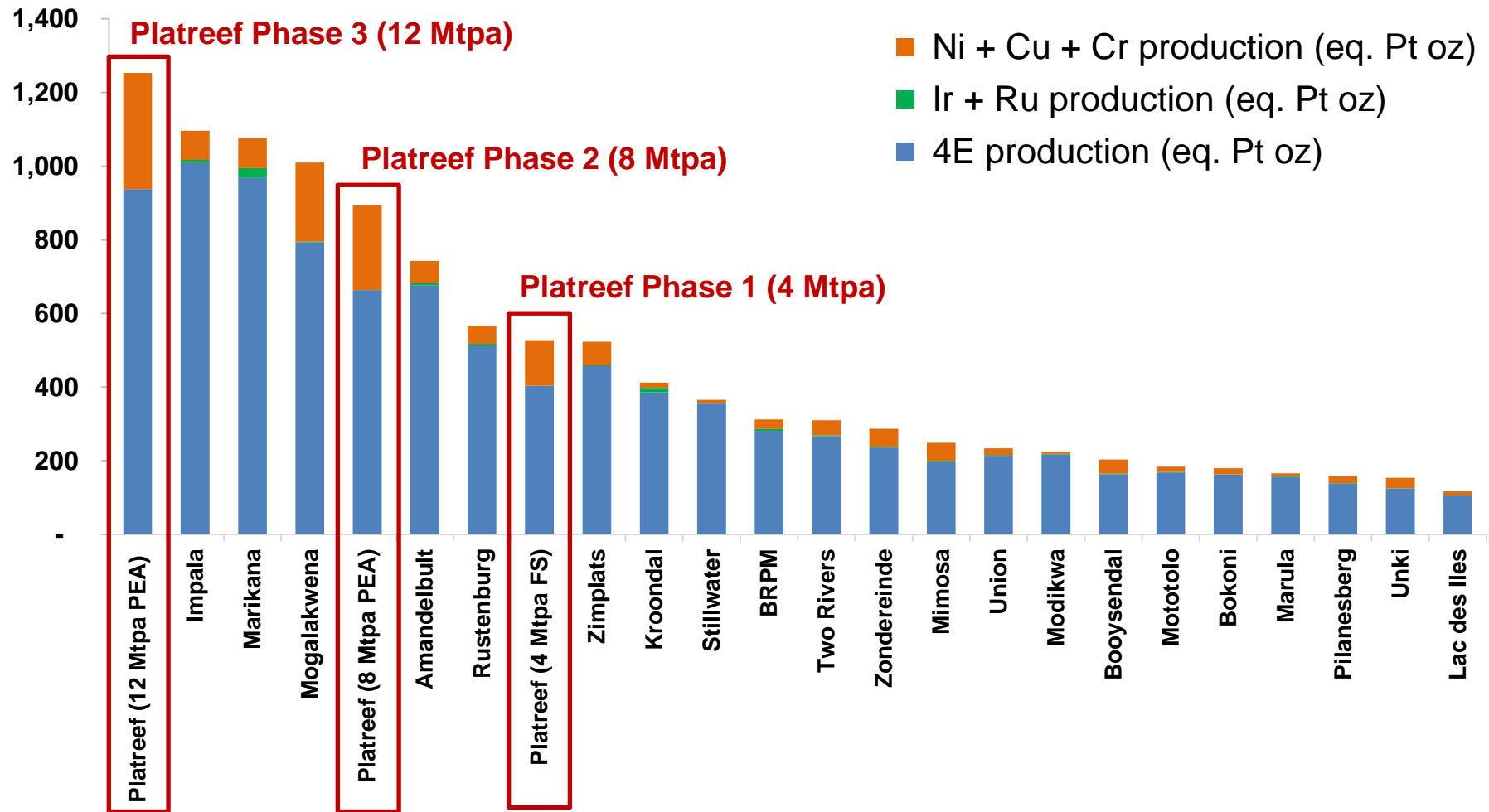
PLATREEF



Source: SFA (Oxford). Data for Platreef Project and Waterberg are based on each project's reported DFS and PFS parameters respectively, and are not representative of SFA's view.



# At 12 million tonnes/year, Platreef will be world's largest platinum-group metals mine



Source: Production estimates for projects other than Ivanhoe's Platreef Project have been prepared by SFA (Oxford). Production data for the Platreef Project (platinum, palladium, rhodium, gold, nickel and copper) is based on reported DFS and PEA data and is not representative of SFA's view. All metals have been converted by SFA (Oxford) to platinum equivalent ounces at price assumptions of US\$1,076/oz platinum, US\$761/oz palladium, US\$1,235/oz gold, US\$821/oz rhodium, US\$5.07/lb nickel and US\$2.42/lb copper. Note: As the figures are platinum-equivalent ounces of production they will not be equal to 3PE+Au production.

**July 2017 – A site visit by German, Swedish and Canadian government institutions appointed to arrange debt financing for Platreef. Expressions of interest received for approximately US\$900 million of a US\$1 billion finance package.**

**PLATREEF**



**IVANHOE**



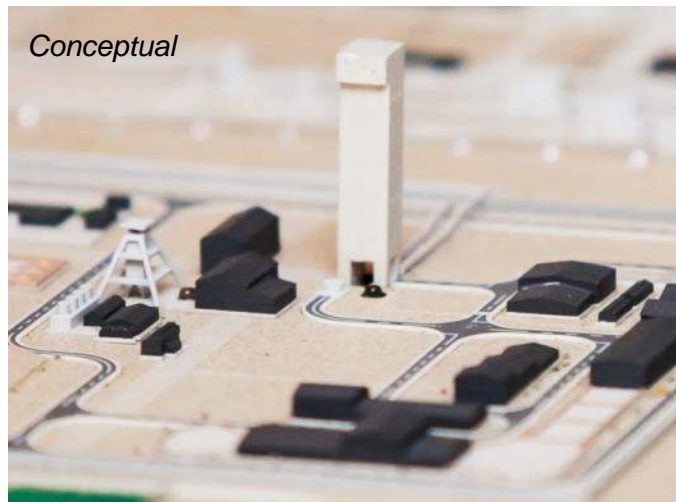
**April 2017:** Ivanhoe announces start of surface construction for Shaft 2, which will be Platreef's main production shaft with a hoisting capacity of six million tonnes a year.

Illustration shows two perspectives of Shaft 2's  
← 103-metre-tall concrete headgear and internal permanent hoisting facilities.

## Ivanhoe's Shaft 2

vs.

## Impala's Shaft 16



Purpose

Production shaft

Production shaft

Location

Northern Limb of Bushveld  
Complex

Western Limb of Bushveld  
Complex

Total depth

Approx. 1,100 metres

1,657 metres

Diameter

10 metres

10 metres

Hoisting capacity

6 million tonnes/year

2.7 million tonnes/year

Start of construction

2017

2004

Operation date

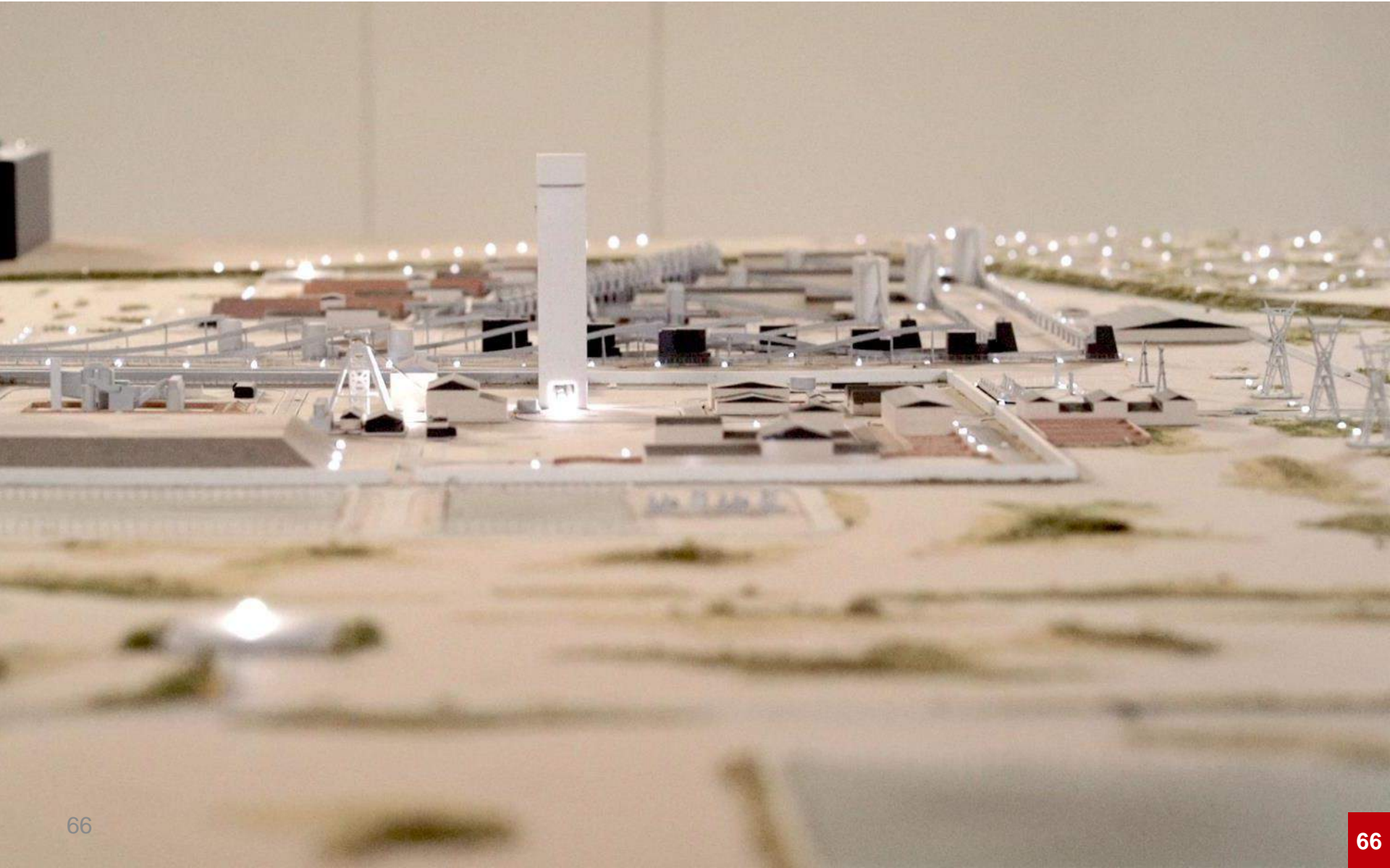
2019 est.

November 2014



# A model of the planned Platreef Mine

PLATREEF



# May 2016: **42 million oz. of PGMs** in Indicated plus **58 million oz. of PGMs** in Inferred Resources

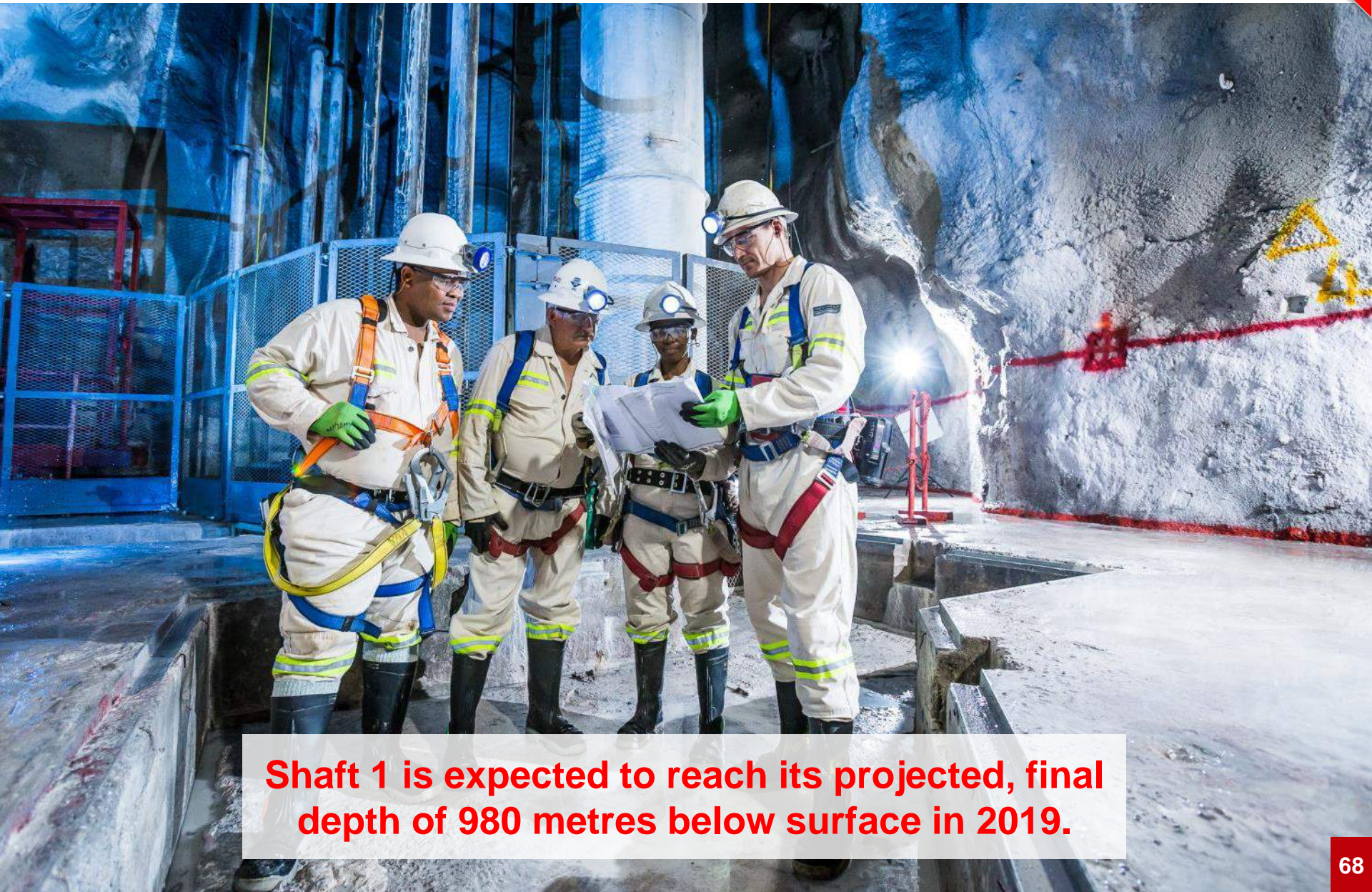
---

- Indicated Mineral Resources contain an estimated **42.0 million oz. of PGMs plus gold – a gain of 45% –** with an extra **52.8 million ounces** in Inferred Resources, at the base case cut-off grade of 2 g/t.
- Indicated Mineral Resources contain an estimated **58.8 million oz. of PGMs plus gold**, plus an estimated additional **94.3 million ounces** in Inferred Resources, at 1 g/t cut-off grade.
- Amec Foster Wheeler has defined four targets for further exploration totalling between **245 – 410** million tonnes in areas that are contiguous with the current Mineral Resource areas.
- In addition, there are approximately **48 km<sup>2</sup>** of unexplored ground beyond these exploration target areas on the property under which the prospective stratigraphy is projected to lie.



# Sinking platform in operation in Shaft 1

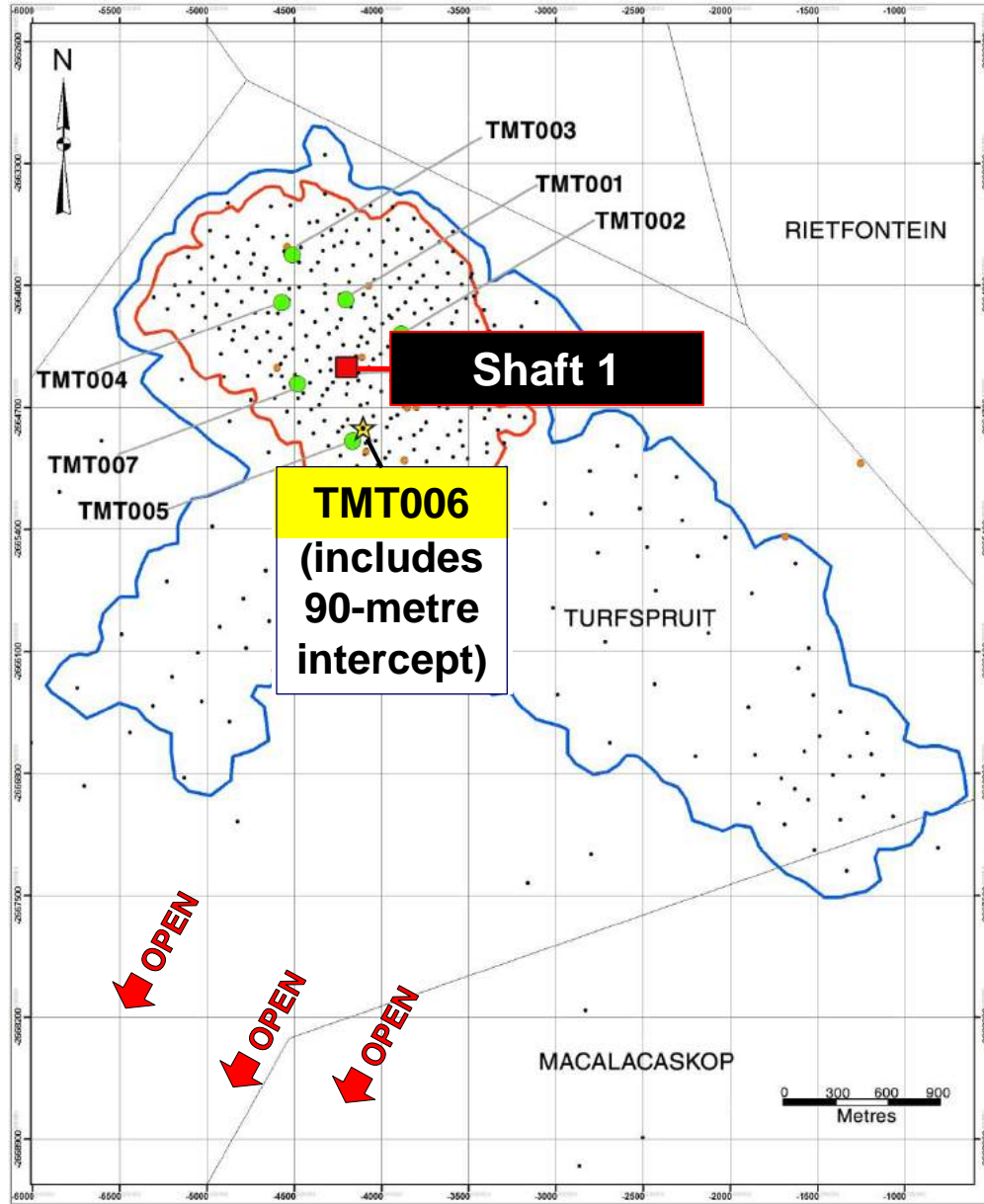
PLATREEF



**Shaft 1 is expected to reach its projected, final depth of 980 metres below surface in 2019.**



# Extraordinary 90-metre intercept reported in October 2013



## LEGEND

- |                                                                                 |                                                                                                                   |
|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| <span style="color: red;">■</span> Indicated Resource outline                   | <span style="color: blue;">—</span> Inferred Resource outline                                                     |
| <span style="color: gold;">★</span> Metallurgical drill hole (special interest) | <span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Licence boundary |
| <span style="color: green;">●</span> Metallurgical drill hole                   |                                                                                                                   |
| <span style="color: orange;">●</span> Geotechnical drill hole                   |                                                                                                                   |
| <span style="color: black;">•</span> UMT collars                                |                                                                                                                   |

- 90-metre intersection includes:
  - 4.51 g/t of platinum, palladium, rhodium and gold (3PE+Au) over 90.64 metres (297 feet) at a 1 g/t 2PE+Au cut-off;
  - 40.79 metres (134 feet) grading 6.88 grams per tonne 3PE+Au at a 3 g/t 2PE+Au cut-off;
  - 0.37% nickel and 0.20% copper, plus a platinum-to-palladium ratio of approximately 1 to 1, over the entire 90-metre intersection.

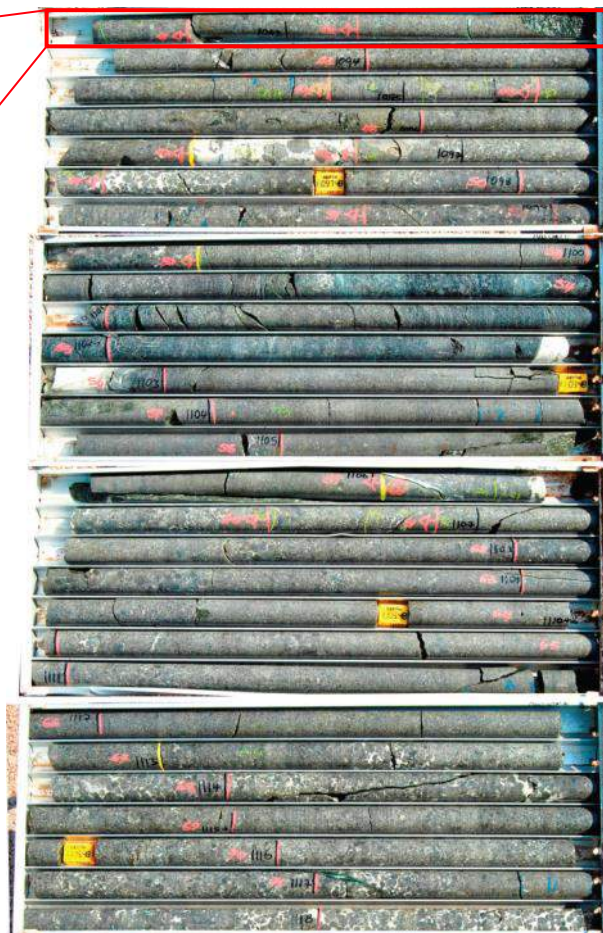


# Flatreef: Merensky Grades at Platreef Widths

## Typical Merensky Reef, Western Limb



## Drill hole UMT378



1091.63m



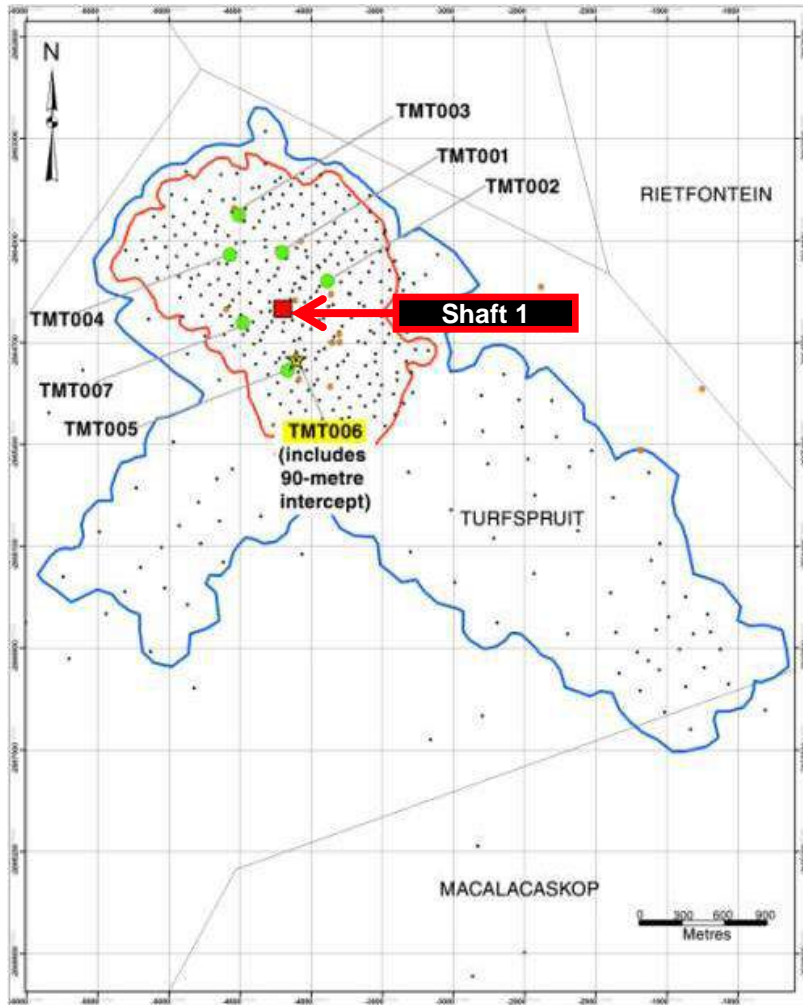
1117.00m

	Merensky Reef	Flatreef <sup>(1)</sup>
Grade	4 - 10 g/t 3PE	3.8 g/t 4PE
True thickness	~ 0.4 – 1.5 m	19 m
Grade - thickness (m-g/t)	< 5 - 15	85.6

**25-metre intercept @ 9.90 g/t 4PE, 0.45% Ni & 0.22% Cu grade thickness 248 m-g/t**

(1) Indicated Mineral Resource, cumulative TCU only, Based on a 2g/t 4PE (Pt + Pd + Rh + Au) cut-off, T2MZ Thickness and TCU grade used. m-g/t calculated from all data.

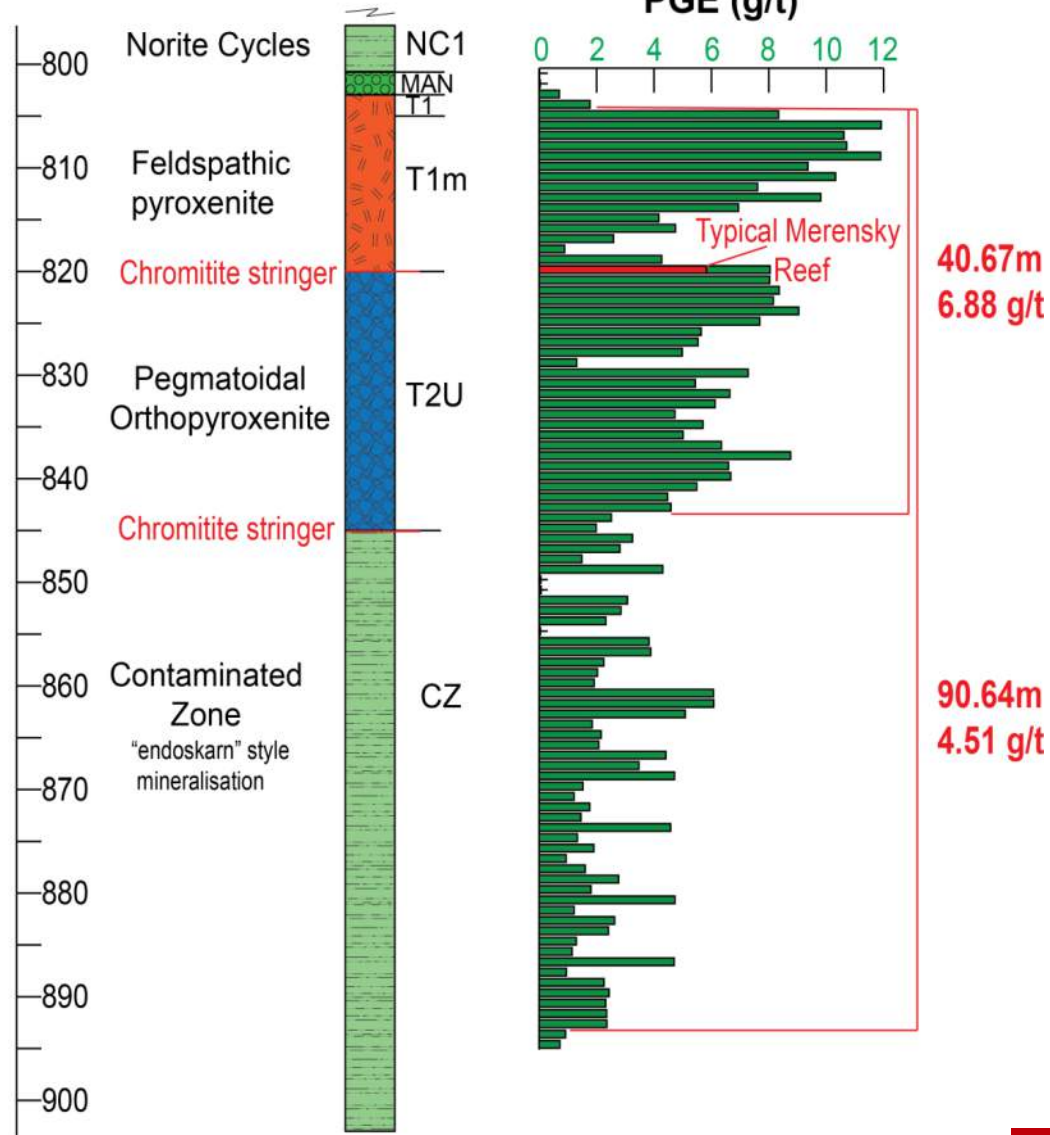
# Drill hole TMT006 – lithology and grade profile



## LEGEND

- Indicated Resource outline
- ★ Metallurgical drill hole (special interest)
- Metallurgical drill hole
- Geotechnical drill hole
- UMT collars
- Inferred Resource outline
- Licence boundary

Metres

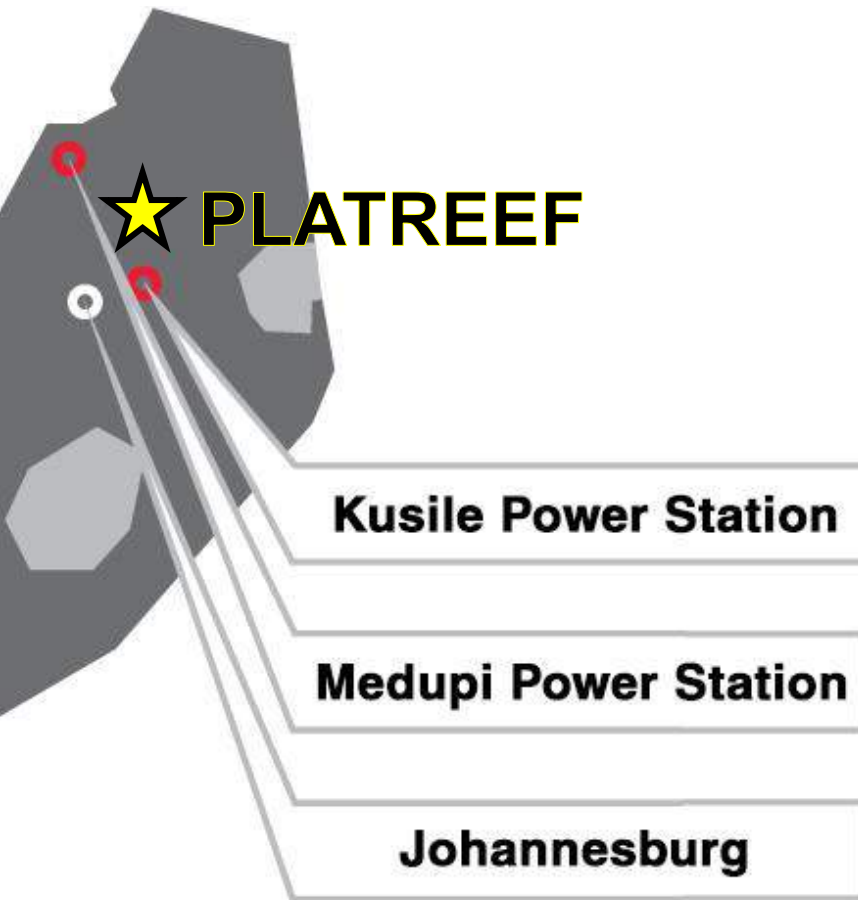




# Bulk power from Eskom, South Africa's state utility

Medupi power station started generating power in March 2015; expected to be fully operational by 2020, providing 4,800 MW of power to national grid.

Kusile started generating power in Dec 2016; expected to provide a total of 4,800 MW of power by 2022.



# Flatreef mining method: long-hole stoping

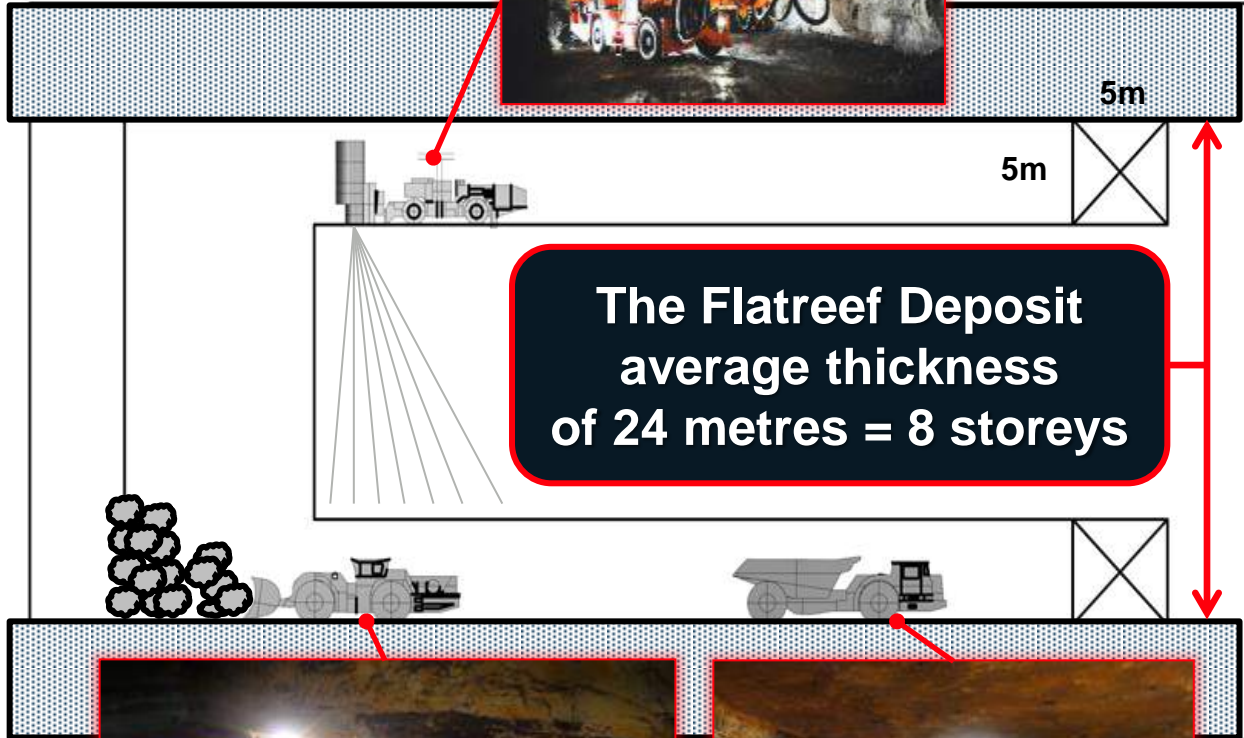
PLATREEF

**Highly mechanized mining**



**Safe working conditions**

Blast-hole drifts



**The Flatreef Deposit  
average thickness  
of 24 metres = 8 storeys**

Mucking drifts



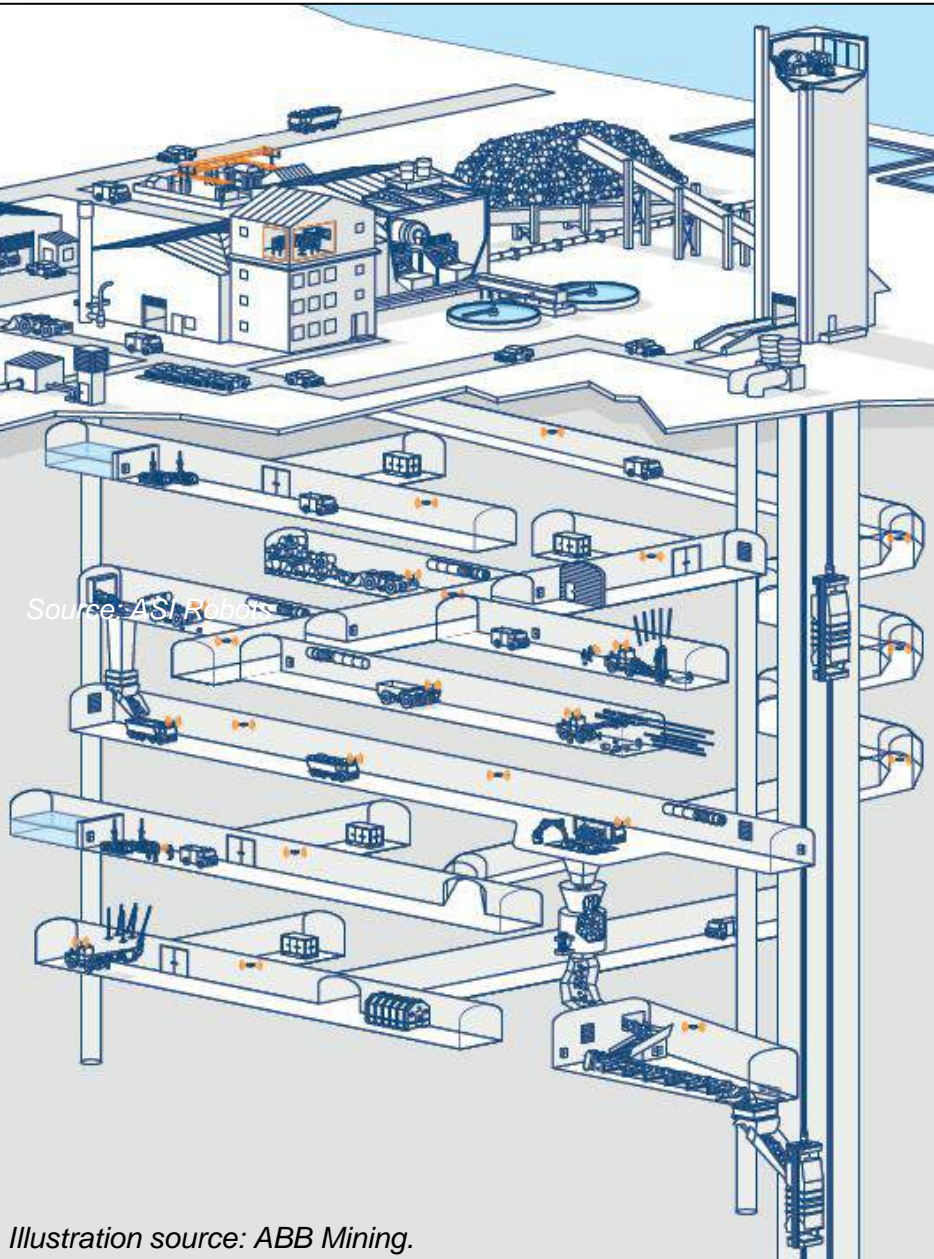
**Highly skilled operators**



# The future of underground mining is automation

PLATREEF

**Ivanhoe's Platreef Platinum Project in South Africa is ideally suited for mechanized, autonomous mining.**



Source: ASI Robots

Illustration source: ABB Mining.

Source: MINEX Forum

# International Miningengineer

November 2015

www.engineerfive.com

## REMOTE CONTROL

All ahead for automation



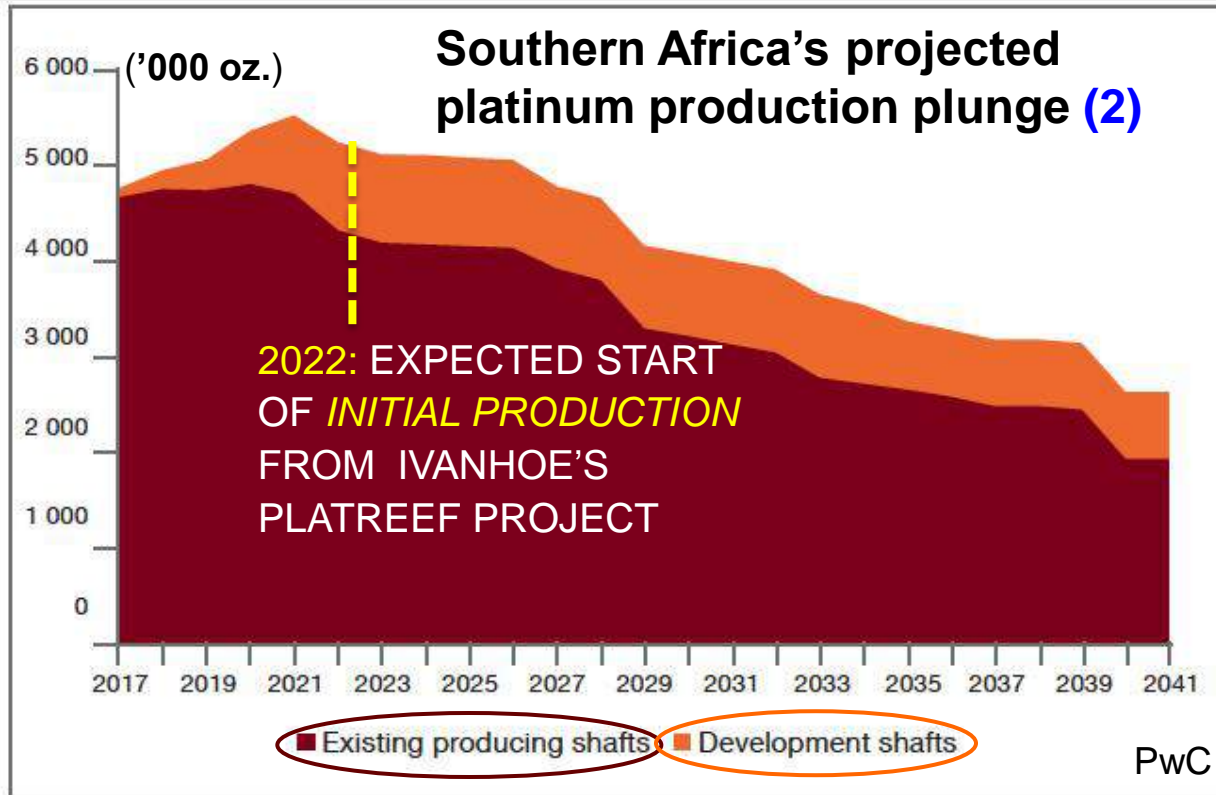
Expert advice on  
**BLASTING**

New era for  
**SOUTH AFRICAN**  
sector

**AUTOMATION**, a central feature of the 'smart mining' trend aiming to deliver new levels of efficiency, safety and value, is part of the operational DNA being designed for Ivanhoe's **Kamoa Copper Project** in the DRC and **Platreef Platinum Project** in South Africa.



# Even new production now under development likely to provide only short-lived lift in platinum output



- Ivanhoe's Platreef is among new projects whose ramp-up outputs will slightly lift regional supply until 2021 – when the decline will resume.
- Projected 2021 peak output of 5.5 million ounces, even plus global supply, still will be below the average demand, net of recycling, of the past 3 years.



Thank you.

**IVANHOE MINES**  
NEW HORIZONS

