



PAN AMERICAN  
— SILVER —

# Jacobina (JMC) Mine Tour

January 9, 2024

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# CAUTIONARY NOTE

## Non-GAAP Measures

This presentation of Pan American Silver Corp. and its subsidiaries (collectively, "Pan American", "Pan American Silver", the "Company", "we" or "our") refers to non-GAAP measures, such as all-in sustaining costs ("AISC"). These measures do not have a standardized meaning prescribed by International Financial Reporting Standards as an indicator of performance, and may differ from methods used by other companies. Silver segment AISC is calculated net of credits for realized revenues from all metals other than silver, and are calculated per ounce of silver sold. Gold segment AISC are calculated net of credits for realized silver revenues, and are calculated per ounce of gold sold. AISC are based on total silver ounces sold and are net of by-product credits from all metals other than silver. Readers should refer to the "Alternative Performance (Non-GAAP) Measures" section of the Company's Management's Discussion and Analysis ("MD&A") for the period ended September 30, 2023, available at [www.sedarplus.ca](http://www.sedarplus.ca).

## Cautionary Note Regarding Forward Looking Statements and Information

Certain of the statements and information in this presentation constitute "forward-looking statements" within the meaning of the United States Private Securities Litigation Reform Act of 1995 and "forward-looking information" within the meaning of applicable Canadian provincial securities laws. All statements, other than statements of historical fact, are forward-looking statements or information. Forward-looking statements or information in this presentation relate to, among other things: among other things: exploration potential and plans for Jacobina, including target location; and mine development plans for Jacobina; expectations regarding new mineral resources; expectations regarding the mining industry in Brazil; opportunities for life-of-mine optimization at Jacobina, in addition to future projects and the anticipated benefits therefrom; and our ability to comply with environmental, health and safety laws.

These forward-looking statements and information reflect current views of Pan American with respect to future events and are necessarily based upon a number of assumptions that, while considered reasonable by Pan American Silver, are inherently subject to significant operational, business, economic and regulatory uncertainties and contingencies. These assumptions include: prices for silver, gold and base metals remaining as estimated; our mineral reserve

and mineral resource estimates and the assumptions upon which they are based; prices for energy inputs, labour, materials, supplies and services (including transportation); no labour-related disruptions at any of our operations; no unplanned delays or interruptions in scheduled production; all necessary permits, licenses and regulatory approvals for our operations are received in a timely manner; our ability to secure and maintain title and ownership to properties and the surface rights necessary for our operations. The foregoing list of assumptions is not exhaustive.

Pan American Silver cautions the reader that forward-looking statements and information involve known and unknown risks, uncertainties and other factors that may cause actual results and developments to differ materially from those expressed or implied by such forward-looking statements or information contained in this presentation and Pan American Silver has made assumptions and estimates based on or related to many of these factors. Such factors include, without limitation: fluctuations in silver, gold and base metal prices; fluctuations in prices for energy inputs, labour, materials, supplies and services (including transportation); fluctuations in currency markets; operational risks and hazards inherent with the business of mining (including environmental accidents and hazards, industrial accidents, equipment breakdown, unusual or unexpected geological or structural formations, cave-ins, flooding and severe weather); risks relating to the credit worthiness or financial condition of suppliers, refiners and other parties with whom Pan American Silver does business; inadequate insurance, or inability to obtain insurance, to cover these risks and hazards; employee relations; relationships with, and claims by, local communities and indigenous populations; our ability to obtain all necessary permits, licenses and regulatory approvals in a timely manner; changes in laws, regulations and government practices in the jurisdictions where we operate, including environmental, export and import laws and regulations; changes in national and local government, legislation, taxation, controls or regulations and political, legal or economic developments, including legal restrictions relating to mining and risks relating to expropriation; diminishing quantities or grades of mineral reserves as properties are mined; increased competition in the mining industry for equipment and qualified personnel; the duration and effects any pandemics on our operations and workforce; those factors identified under the caption "Risks Related to Pan American's Business" in Pan American Silver's most recent form 40-F and Annual Information Form and those factors identified under the caption "Risks of the Business" in Yamana Gold Inc.'s most recent form 40-F and Annual Information Form filed with the Securities and Exchange Commission ("SEC") and Canadian provincial securities regulatory authorities, respectively; and those factors identified under the caption "Risks and Uncertainties" in Pan American Silver's form 6-K and Management's Discussion and Analysis filed on November 7, 2023 with the SEC and Canadian provincial securities regulatory authorities, respectively. Although Pan American has attempted to identify important factors that could

cause actual results to differ materially, there may be other factors that cause results not to be as anticipated, estimated, described or intended. Investors are cautioned against undue reliance on forward-looking statements or information. Forward-looking statements and information are designed to help readers understand management's current views of our near and longer term prospects and may not be appropriate for other purposes. Pan American Silver does not intend, nor does it assume any obligation to update or revise forward-looking statements or information, whether as a result of new information, changes in assumptions, future events or otherwise, except to the extent required by applicable law.

## NOT AN OFFER OR A SOLICITATION

THIS PRESENTATION DOES NOT CONSTITUTE (AND MAY NOT BE CONSTRUED TO BE) A SOLICITATION OR OFFER BY PAN AMERICAN SILVER OR ANY OF OUR RESPECTIVE DIRECTORS, OFFICERS, EMPLOYEES, REPRESENTATIVES OR AGENTS TO BUY OR SELL ANY SECURITIES OF ANY PERSON IN ANY JURISDICTION, OR A SOLICITATION OF A PROXY OF ANY SECURITYHOLDER OF ANY PERSON IN ANY JURISDICTION, IN EACH CASE, WITHIN THE MEANING OF APPLICABLE LAWS.

## General Notes with Respect to Technical Information

Grades are shown as contained metal before mill recoveries are applied. The Company has undertaken a verification process with respect to the data disclosed in this presentation.

The mineral resource and mineral reserve database compiling drilling and, in some cases, sampling, have been accumulated by the qualified staff.

Samples are analyzed at a variety of laboratories, including by in-house staff at the mine and commercial laboratories off-site. All the assay data reported in this presentation has been subjected to the industry standard quality assurance and quality control ("QA/QC") program including the submission of certified standards, blanks, and duplicate samples. The results are reviewed on a monthly and quarterly basis by management. In general, the assay analytical technique for silver, lead, zinc and copper is acid digestion with either ICP or atomic absorption finish. The analytical technique for gold uses fire assay and atomic absorption spectrometry (AAS) finish. A gravimetric finish would be used if the gold assay exceeds > 10 g/t. The results of the QA/QC samples submitted for the resource databases demonstrate acceptable accuracy and precision. The offsite commercial laboratories are independent from Pan American and certified by ISO 17025:2017.





## C O N T I N U E D

The Qualified Person is of the opinion that the sample preparation, analytical, and security procedures followed for the samples are sufficient and reliable for the purpose of this news release and for the purpose of any future mineral resource and mineral reserve estimates. Pan American is not aware of any drilling, sampling, recovery or other factors that could materially affect the accuracy or reliability of the data reported herein.

Mineral resources and mineral reserves are as defined by the Canadian Institute of Mining, Metallurgy and Petroleum.

Scientific and technical information contained in this presentation has been reviewed and approved by Christopher Emerson, FAusIMM., Vice President of Exploration and Geology, who is a Qualified Person for the purposes of National Instrument 43-101 - Standards of Disclosure for Mineral Projects ("NI 43-101"). Pan American Silver Corp is authorized by The Association of Professional Engineers and Geoscientists of the Province of British Columbia to engage in Reserved Practice under Permit to Practice number 1001470.

For additional information regarding Pan American Silver's material mineral properties prior to the completion of the acquisition of Yamana Gold Inc. (the "Yamana Transaction"), please refer to Pan American Silver's Annual Information Form dated February 22, 2023, filed at [www.sedarplus.ca](http://www.sedarplus.ca), or Pan American Silver's most recent Form 40-F filed with the SEC. For further information about the material mineral projects acquired pursuant to the Yamana Transaction, including Jacobina, please refer to Yamana's Annual Information Form dated March 29, 2023, filed at [www.sedarplus.ca](http://www.sedarplus.ca) or Yamana's most recent Form 40-F filed with the SEC. These documents include detailed information concerning associated QA/QC and data verification matters, the key assumptions, parameters and methods used to estimate mineral reserves and mineral resources, and a detailed description of known legal, political, environmental, and other risks that could materially affect the Company's business and the potential development of the Company's mineral reserves and mineral resources.

These documents include detailed information concerning associated QA/QC and data verification matters, the key assumptions, parameters and methods used to estimate mineral reserves and mineral resources, and a detailed description of known legal, political, environmental, and other risks that could materially affect the Company's business and the potential development of the Company's mineral reserves and mineral resources.

### Cautionary Note to U.S. Investors

This presentation has been prepared in accordance with the requirements of Canadian NI 43-101 and the CIM, which differ from the requirements of U.S. securities laws. NI 43-101 is a rule developed by the Canadian Securities Administrators that establishes standards for all public disclosure an issuer

makes of scientific and technical information concerning mineral projects.

Canadian public disclosure standards, including NI 43-101, differ significantly from the requirements of the SEC, and information concerning mineralization, deposits, mineral reserve and mineral resource information contained or referred to herein may not be comparable to similar information disclosed by U.S. companies. In particular, and without limiting the generality of the foregoing, this presentation uses the terms "indicated mineral resources", and "inferred mineral resources". U.S. investors are advised that, while such terms are recognized and required by Canadian securities laws, the SEC does not recognize them. The requirements of NI 43-101 for identification of "reserves" are not the same as those of the SEC and may not qualify as "reserves" under SEC standards. Under U.S. standards, mineralization may not be classified as a "reserve" unless the determination has been made that the mineralization could be economically and legally produced or extracted at the time the reserve determination is made. U.S. investors are cautioned not to assume that any part of an "indicated mineral resource" will ever be converted into a "reserve". U.S. investors should also understand that "inferred mineral resources" have a great amount of uncertainty as to their existence and great uncertainty as to their economic and legal feasibility. It cannot be assumed that all or any part of "inferred mineral resources" exist, are economically or legally mineable or will ever be upgraded to a higher category. Under Canadian securities laws, estimated "inferred mineral resources" may not form the basis of feasibility or pre-feasibility studies except in rare cases.



# JACOBINA VISIT AGENDA (SÃO PAULO)

- ✓ HISTORY
- ✓ BRAZIL ECONOMY
- ✓ ESG
- ✓ OPTIMIZATION PLANS
- ✓ OPERATIONAL EXCELLENCE
- ✓ OPERATIONS (PRODUCTION & COST)
- ✓ EXPLORATION
- ✓ QUESTIONS AND ANSWERS







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# EXECUTIVE SUMMARY SITE HISTORY

Jacobina Mine

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# JACOBINA EXECUTIVE SUMMARY

**// Top tier, long-life gold mine that has more than doubled production since 2014, with opportunities for further growth.**

The Jacobina mining complex is located in Bahia state in northeastern Brazil. It consists of 7 underground gold mines: Canavieiras (North, Central and South), João Belo, Morro do Cuscuz, Morro do Vento (Central and South). Gold at Jacobina is hosted within a Proterozoic continental rift basin preserved in a 155-kilometre long north-south belt. Jacobina controls the entire belt with 71,000 hectares of exploration concessions and 5,000 hectares of exploration permits.

**Ownership**

100%

**Tonnes per calendar day**

8,400 tpcd

**Proven & Probable Reserves<sup>(1)</sup>**

3.1 MOz of gold

**Measured & Indicated Resources<sup>(1)</sup>**

4.7 MOz of gold

**Primary Metal**

Gold

**Development**

19.000 m/y

**2022 Production**

195,427 Ozs of gold

3rd largest in gold production in Brazil and 1st in Bahia



**Type of Mining**

Underground

**LOM**

20y+

**Women in Mining**

13% own

11% contractors



(1) As of June 30, 2023; see presentation Appendix for more detailed information on the Company's reserves and resources and the metal price assumptions used for these estimates.



# SITE EXECUTIVE SUMMARY

## // Site Turnaround Strategies



From April 2017, as part of the strategic planning, the KEY POINT was to understand and redesign the Jacobina business model

- ❖ **Organizational Structure:** people development, lean structure; quick decision-making; efficient and functional organization chart; compliance and governance in all processes
- ❖ **Strong Cost Management:** daily cost controls; cost discipline with business partner program; contract management (savings); centralization of requisitions; optimized investment; development of operational excellence projects in all areas
- ❖ **Production Strategies:** planning based on “improved cash flow”; cut-off grade review / opportunity cost; mine flexibility; prioritization of higher grades; sustainable development level
- ❖ **Risk Management:** environmental issues; tailing facility storage; MHM – Major Hazard Management & security issues; water management; emergency response strategies
- ❖ **Technical advances / Improvement Works:** mill throughput increase; efficient mining method; narrow veins study; geo-metallurgy; PMO – Project Management Office; improvement in dilution/mining recovery; automation
- ❖ **Employee & Community Relations:** Code of Conduct; good relationship with stakeholders; union strategies; social programs; great place to work; communication strategies
- ❖ **ESG:** maintenance of certifications (ESG, cyanide code, TSM, ISOs, global pact); human rights; voluntary principles

# JACOBINA

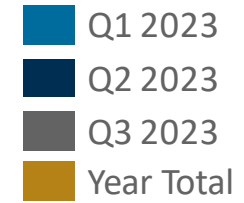
// Site History (based on public information)

|              |   |
|--------------|---|
| Century XVII | Discovery of gold in the Jacobina region                          |
| 1880         | Minas Company - Jacobina  |
| 1947         | Jacobina Gold Mining Company Limited                              |
| 1950         | Mining Nothfield Limited  |
| 1973         | Modern Jacobina history with Anglo American                       |
| 1980         | Implementation of the Ore Process Plant                           |
| 1996         | Acquisition of the company by Willian Resources                   |
| 1998         | Gold Mining Prices – Operations stopped                           |
| 2004         | Return of operations by Desert Sun Mining                         |
| 2006         | Acquisition of the mine complex by YAMANA GOLD                    |
| 2017 - 2022  | Production growth with process optimization in the mine and plant |
| 2023         | Acquisition of the mine complex by PAN AMERICAN SILVER            |

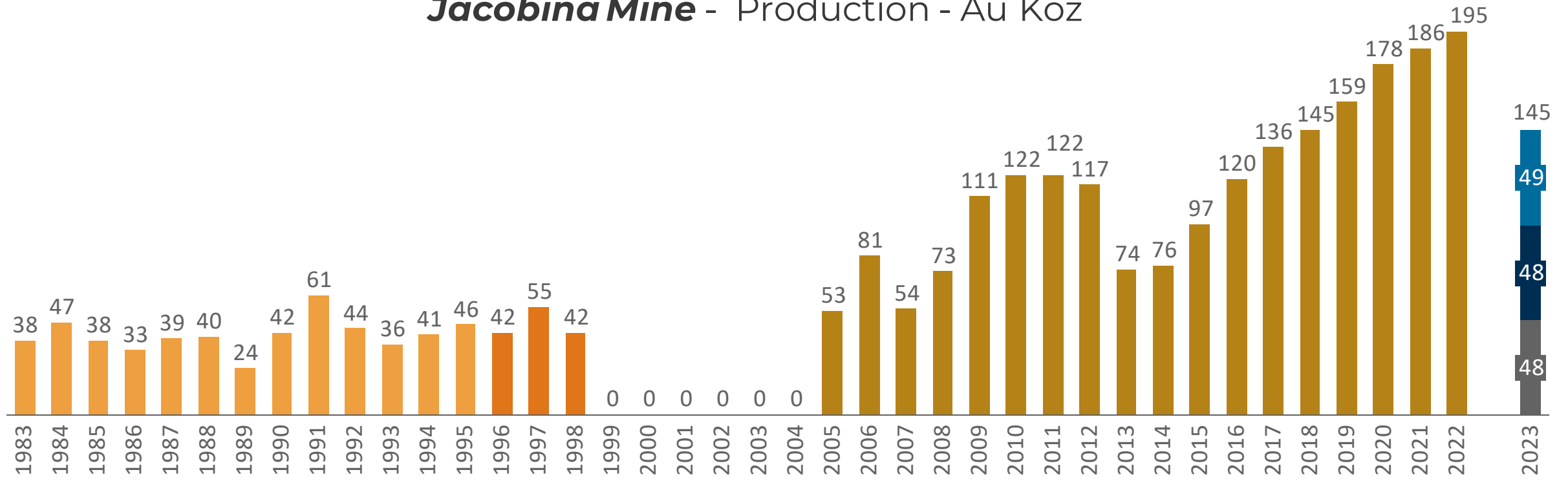




## // Production History (based on public information)



### Jacobina Mine - Production - Au Koz





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# BRAZIL ECONOMY, POLITICAL & REGULATORY

Jacobina Mine





## // Brazil Mining Environment

- Top 5 mineral producers in the world – producing more than 90 mineral commodities (R\$ 250 billion of revenue in 2022)
- 5th largest country in the world (7th most populated)
- Less than 50% of the territory is geologically mapped
- Investment in infrastructure expected to grow in the near future
- 85% of its total electricity generated from renewable sources
- One of the largest democracies in the world
- Tax environment should improve with the 2023 tax reform approval
- Friendly jurisdiction for mining
- In 2023, Brazil ranked 25<sup>th</sup> on the ‘Investment Attractiveness Index’ among the 62 relevant jurisdictions in the Fraser Institute’s Survey of Mining Companies, ranked 29<sup>th</sup> on Policy Perception and 27<sup>th</sup> in Best Practices Mineral Potential
- Brazil has a well established mining regulatory environment considering three main institutions: Ministry of Mines, the National Mining Agency and the Geological Services of Brazil
- The mining sector in Brazil is committed to a deep transformation in its relationships with people and nature, with an ESG agenda focusing on 12 main themes, such as mitigation of environmental impacts, diversity and inclusion, dams and structures and innovation.

## // Brazil 2023/2024 – Perspectives

### OPPORTUNITIES

- Fiscal framework and consumption tax reform
- Preservation of structural reforms: social security, labor, Central Bank autonomy, the sanitation framework and the privatization of Eletrobrás
- Expected GDP of 2.8% in 2023
- Declining inflation and unemployment rates
- Monetary easing cycle
- 9<sup>th</sup> Largest Economy in the World (USD 2.13 trillion)

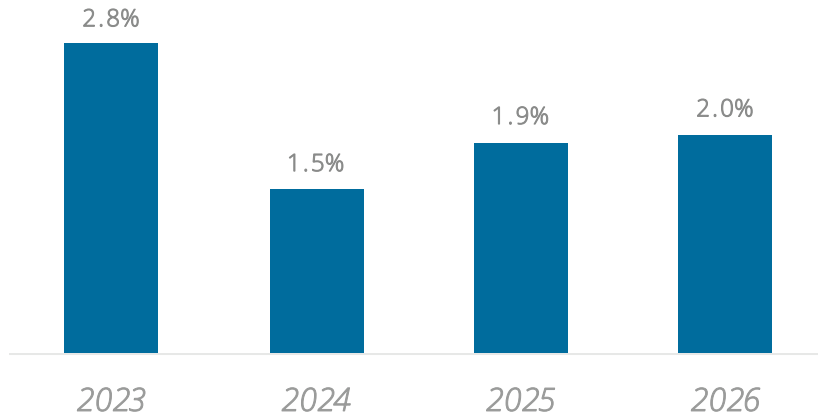
### CHALLENGES

- Fiscal scenario: increasing revenue without cutting expenses
- Tax reform
- Growth trend in public debt in relation to GDP, making the country more fragile
- Improving the population's quality of life (health, education and infrastructure)
- ESG agenda

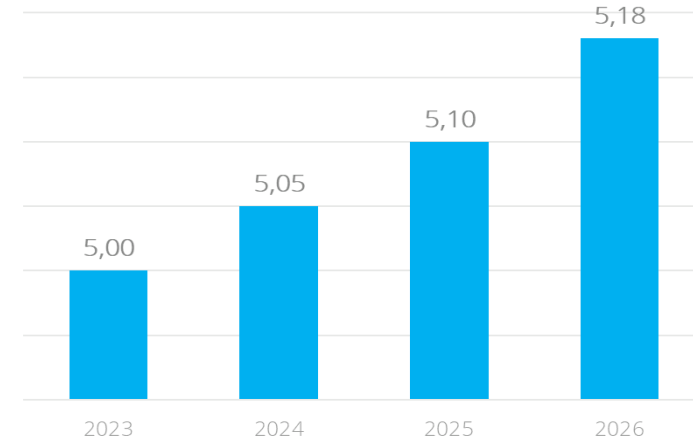


## // Brazil 2023 (Actual) /2024-2026 (Projections) – Main Indexes

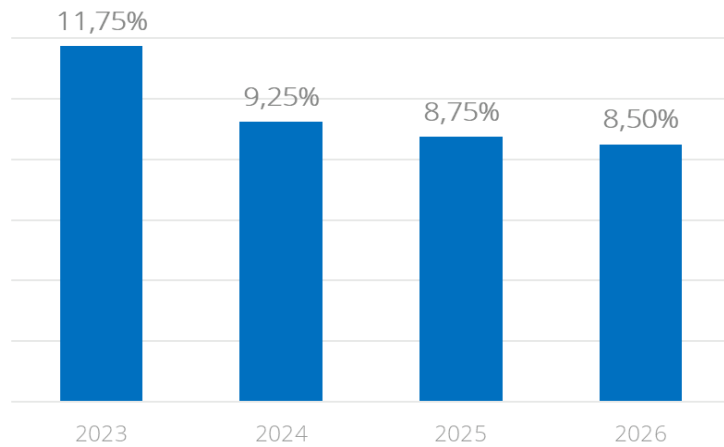
### GDP – Annual



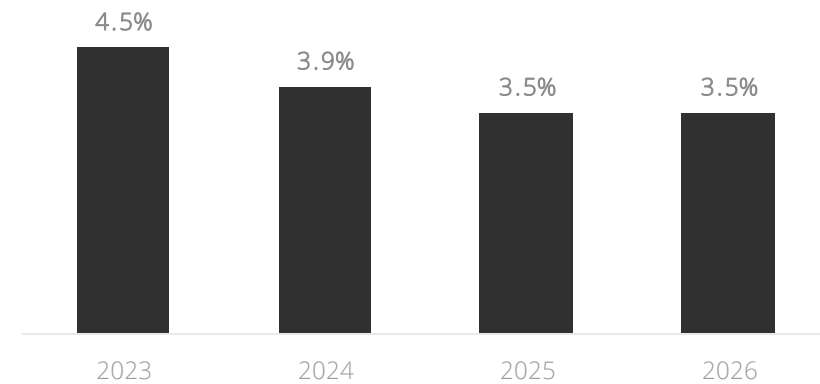
### FX – USD/BRL — End of Period



### Selic – Interest Rate — Annual



### IPCA – Inflation — Annual



\*Sources: UBS, Bradesco, Bloomberg, FMI, BTG Pactual, CBS.





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ESG

Jacobina Mine





External & Internal Audit  
(0 non-conformities in  
the last 4 years)

International Cyanide  
Management Institute



4th consecutive year

# Awards & Certifications Jacobina Mineração



Since 2018



# JACOBINA (JMC) ESG Project

// Recommended Practice - Brazilian Association of Technical Standards (BP 2030) <sup>(1)</sup>



The ESG score is made up of 5 maturity stages: Elementary; Not integrated; Management; Strategic and Transformative.

**Environmental:** 14 criteria related to the company's Environmental Management were evaluated.



**Social:** 15 criteria related to JMC's Social Responsibility were evaluated.

**Governance:** 13 criteria related to JMC's Risk Management and corporate responsibility were evaluated.

- Of the 5 ESG stages, JMC advanced from stage 4 (Strategic) to stage 5 (Transformative), reaching 23 points out of a maximum score of 42 in the evaluation criteria.

(1) Best ESG practices created by the Brazilian association of technical standards



# ESG PROJECTS

// Positioning of criteria – Environmental Axis



| Item    | Theme   | Criteria   | Current Positioning |    |    |    |    |
|---------|---|--|---------------------|----|----|----|----|
|         |   |  | E1                  | E2 | E3 | E4 | E5 |
| 7.1.1.1 | Climate Change                                    | Mitigation of GHG Emissions (Greenhouse gases)       |                     |    |    |    |    |
| 7.1.1.2 |   | Adaptations to climate change                        |                     |    |    |    |    |
| 7.1.1.3 |   | Energy Efficiency                                    |                     |    |    |    |    |
| 7.1.2.1 | Water resources                                   | Water use  |                     |    |    |    |    |
| 7.1.2.2 |   | Effluent management                                  |                     |    |    |    |    |
| 7.1.3.1 | Biodiversity and Ecosystem Services               | Conservation and sustainable use of biodiversity     |                     |    |    |    |    |
| 7.1.3.2 |   | Sustainable land use                                 |                     |    |    |    |    |
| 7.1.4.1 | Circular Economy and Waste Management             | Circular economy                                     |                     |    |    |    |    |
| 7.1.4.2 |   | Waste Management                                     |                     |    |    |    |    |
| 7.1.5.1 | Environmental Management and Pollution Prevention | Environmental management                             |                     |    |    |    |    |
| 7.1.5.2 |   | Prevention of noise pollution (Noise and vibrations) |                     |    |    |    |    |
| 7.1.5.3 |   | Air quality (pollutant emissions)                    |                     |    |    |    |    |
| 7.1.5.4 |   | Contaminated area management                         |                     |    |    |    |    |
| 7.1.5.5 |   | Dangerous products                                   |                     |    |    |    |    |



# ESG PROJECTS

## // Positioning of criteria – Social Axis

| Item    | Theme   | Criteria                                    | Current Positioning |    |    |    |    |
|---------|---|---|---------------------|----|----|----|----|
|         |   |   | E1                  | E2 | E3 | E4 | E5 |
| 7.2.1.1 | Social dialogue and territorial development           | Private social investment                   |                     |    |    |    |    |
| 7.2.1.2 |   | Dialogue and social engagement              |                     |    |    |    |    |
| 7.2.1.3 |   | Social impact                               |                     |    |    |    |    |
| 7.2.2.1 | Human rights  | Respect for human rights                    |                     |    |    |    |    |
| 7.2.2.2 |   | Combating forced or compulsory labor        |                     |    |    |    |    |
| 7.2.2.3 |   | Combating child labor                       |                     |    |    |    |    |
| 7.2.3.1 | Diversity, equity and inclusion                       | Diversity and equity policies and practices |                     |    |    |    |    |
| 7.2.3.2 |   | Culture and promotion of inclusion          |                     |    |    |    |    |
| 7.2.4.1 | Work relationships and practices                      | Professional development                    |                     |    |    |    |    |
| 7.2.4.2 |   | Occupational health and safety              |                     |    |    |    |    |
| 7.2.4.3 |   | Life quality                                |                     |    |    |    |    |
| 7.2.4.4 |   | Freedom of association                      |                     |    |    |    |    |
| 7.2.4.5 |   | Remuneration and benefits policies          |                     |    |    |    |    |
| 7.2.5.1 | Promotion of social responsibility in the value chain | Relations with consumers and clients        |                     |    |    |    |    |
| 7.2.5.2 |   | Relationship with suppliers                 |                     |    |    |    |    |





# ESG PROJECTS



## // Positioning of criteria – Governance Axis



| Item    | Theme                            | Criteria  | Current Positioning |    |    |    |    |
|---------|----------------------------------|---|---------------------|----|----|----|----|
|         |                                  |   | E1                  | E2 | E3 | E4 | E5 |
| 7.3.1.1 | Corporate governance             | Governance structure and composition                        |                     |    |    |    |    |
| 7.3.1.2 |                                  | Purpose and strategy regarding sustainability               |                     |    |    |    |    |
| 7.3.2.1 | Business conduct                 | Compliance, integrity program and anti-corruption practices |                     |    |    |    |    |
| 7.3.2.2 |                                  | Practices to combat unfair competition                      |                     |    |    |    |    |
| 7.3.2.3 |                                  | Engagement with stakeholders                                |                     |    |    |    |    |
| 7.3.3.1 | Control and management practices | Business risk management                                    |                     |    |    |    |    |
| 7.3.3.2 |                                  | Internal controls   |                     |    |    |    |    |
| 7.3.3.3 |                                  | Internal and external audits                                |                     |    |    |    |    |
| 7.3.3.4 |                                  | Legal and regulatory environment                            |                     |    |    |    |    |
| 7.3.3.5 |                                  | Information security management                             |                     |    |    |    |    |
| 7.3.3.6 |                                  | Personal data privacy                                       |                     |    |    |    |    |
| 7.3.4.1 | Management Transparency          | Accountability  |                     |    |    |    |    |
| 7.3.4.2 |                                  | ESG Sustainability Reports                                  |                     |    |    |    |    |





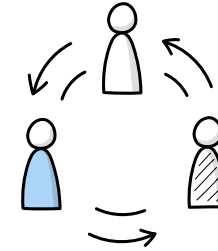
### **Composting Plant Cooperativa Recicla Jacobina**

More than 400 tons of waste processed, and 40 families benefited.



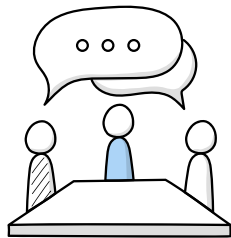
### **COVID 19 Emergency Fund**

Support to community health and access to healthcare services and COVID-19 prevention measures.



### **Community Skills Development**

Professional and technical training in mining and electromechanics for more than 100 people from surrounding communities.



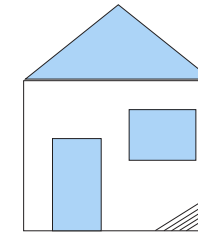
### **Preserving Cultural Traditions**

The project "Era uma vez... Brazil" aims to rescue the history of Brazil and has already involved more than 300 students and 40 history teachers in Jacobina.



### **Sport for a Better World**

Football and volleyball classes for 150 children from the Itapicuru, Jaboticaba, Pontilhão and Lagoa Dourada communities.



### **Contributions to Community Infrastructure**

Renovation and reconstruction of more than 30 houses in Itapicuru and Jaboticaba communities.







### US\$ 4 M

In community investment from 2019 to 2022, benefiting more than 90,000 people with community or social initiatives



### +700 new jobs

From 2017 to 2021



### US\$ 1.12 M

Investment in the Integrar Program<sup>1</sup>, annual community event from 2019 to 2021



### 150 Families

Have benefited from digital inclusion with the installation of fibre optic internet in nearby communities



### 41,358

People participated in Integrar Days events from 2019 to 2021



### US\$ 50 k

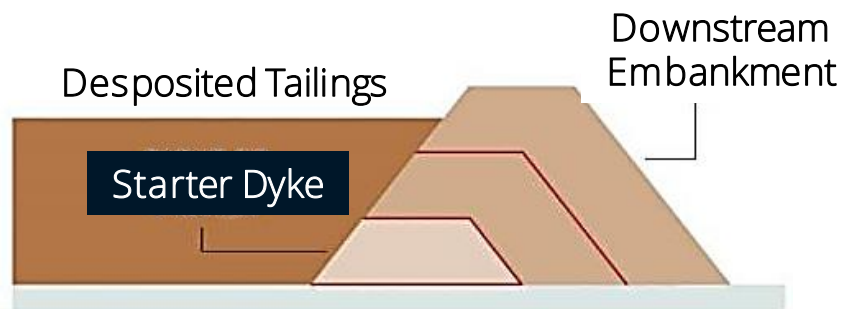
In donations to municipalities to support flooding relief efforts in Bahia

1. The Integrar Program helps communities with education, infrastructure, and capacity gaps. It aims to improve the quality of life by supporting health, environment, family, and community involvement.



# JACOBINA (JMC)

## // Tailings Management System



- Tailings Management JMC prioritizes safe tailings management
  - JMC meets all regulatory requirements set by the Mining Agency in Brazil (National Mining Agency)
  - The TSF designer reports a declaration of stability through ANM Integrated Mining Dam Management systems twice a year
  - JMC is also fully committed towards maintaining alignment with best practices proposed by the Mining Association of Canada (MAC) and the Canadian Dam Association (CDA) Dam Safety Guidelines
- Other important aspects and design components of the TSF are:
  - B2 dam follows a downstream construction method - it is fully lined, placed materials for construction of the dam are compacted and a strict QA/QC program is followed.
  - Seismic stability is evaluated annually.
  - B2 dam is compacted to Proctor Standard; as such the liquefaction potential of the dam is unlikely. Regardless, and recognizing changing industry practices, confirmatory drilling and lab testing are currently underway to confirm conditions.
  - Emergency response plans (ERP) include up-to-date dam breach and inundation models for the ultimate dam condition. Sirens have been installed downstream of the dam and ERP simulation with participation of the whole community and civil defense are performed every 2 years.



# JACOBINA (JMC)

## // Tailings Management System



Continuous Monitoring: video and remote monitoring 24 hours a day, 7 days a week



External Audits with Statement of Condition and Stability – completed biannually including:

- Regular Safety Inspection Report (RISR) - Every 6 months
- EoR (Engineer of record)/DoR (Designer of record) inspections - every 6 months



Annual participation of Independent Tailings Review Board (ITRB) formed by recognized International experts



Periodic Dam Safety Review (RPSB and/or DSR) - every 2 to 3 years



Biweekly Inspection Routine submitted to the National Mining Agency



Manual and automated instrumentation linked to the Geotechnical Monitoring Center



Manual and automated emergency system including several sirens that are regularly tested



# JACOBINA ESG Project

## // Operational Excellence Projects



### ESG

#### Environment and Safety

- Use statistical analysis **to anticipate personal and material incidents**, and direct accident prevention campaigns
- Water Management - Project focused on improving water balance and operational risks reduction
- 100% automation of secondary ventilation for surface control to power reduction
- Technical project to use **frequency inverters** in 100% of fans (Primary and secondary) and **based on the production plan**, reduce frequency in areas with low extraction
- Conduct site assessment to map energy reduction opportunities in all areas. Advances will be conducted by the internal energy conservation committee

Reduction of frequency rate and environmental risks

#### Social

- Projects focused on community relations and actions to reduce risks

Stakeholder Management

#### Governance

- **Operational Excellence culture** to maintain continuous improvement process, and employing tools to execute ESG projects
- Improve the **risk management process** with matrix review

Risk Management







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# PORTFOLIO PROJECTS

PROJECTS // JANUARY 2024

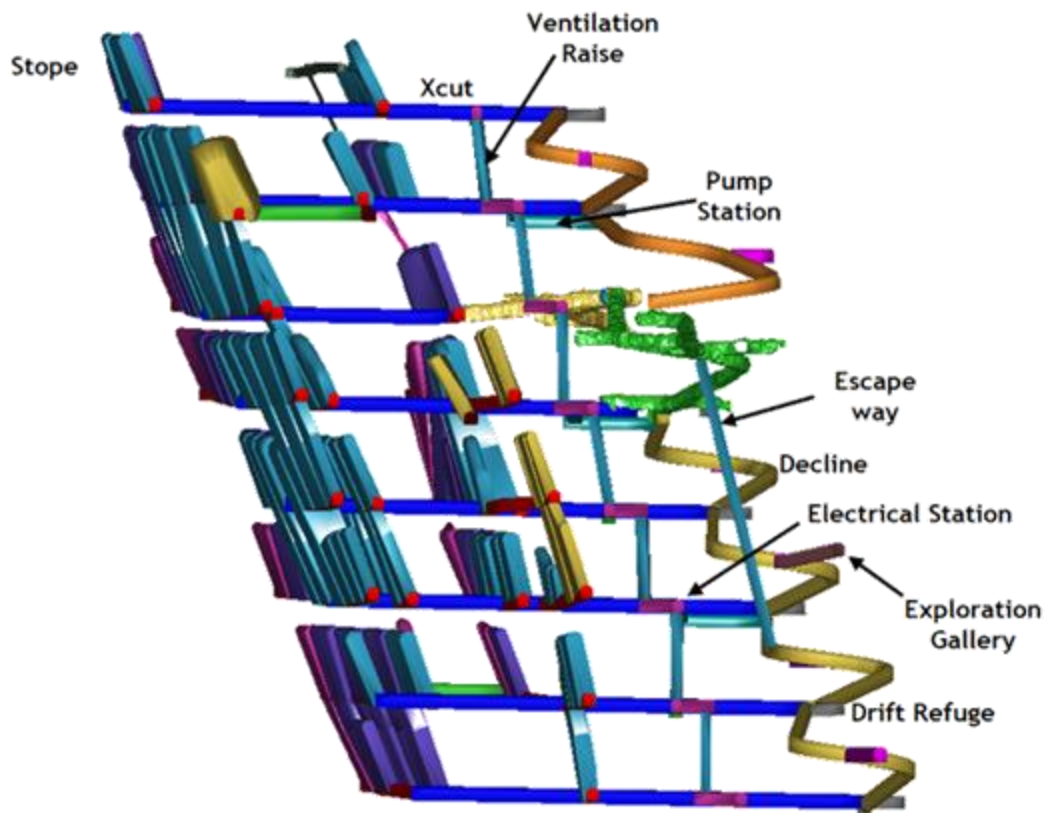
NYSE: PAAS  
TSX: PAAS



# PORTFOLIO PROJECTS

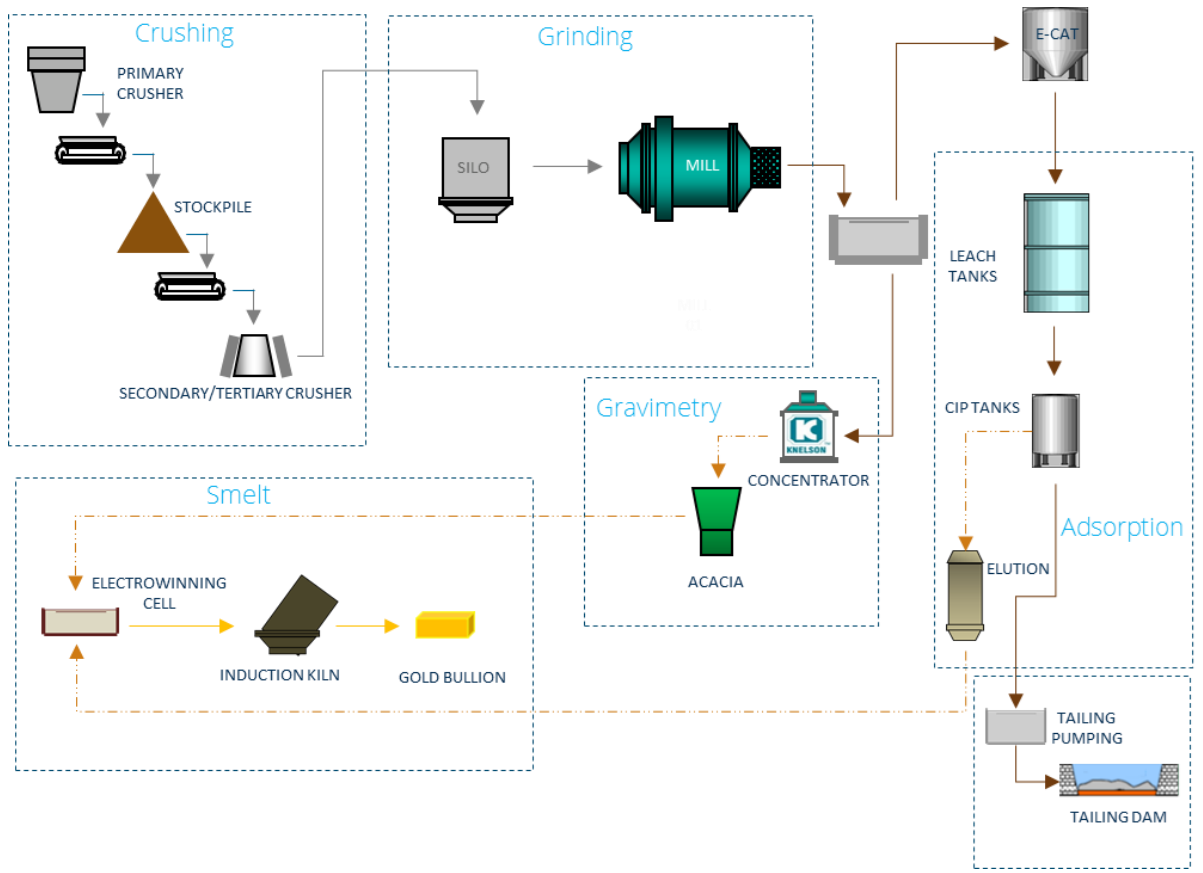
## JMC - MINING METHODS AND PLANT PROCESSING

MINE



SUBLEVEL OPEN STOPE

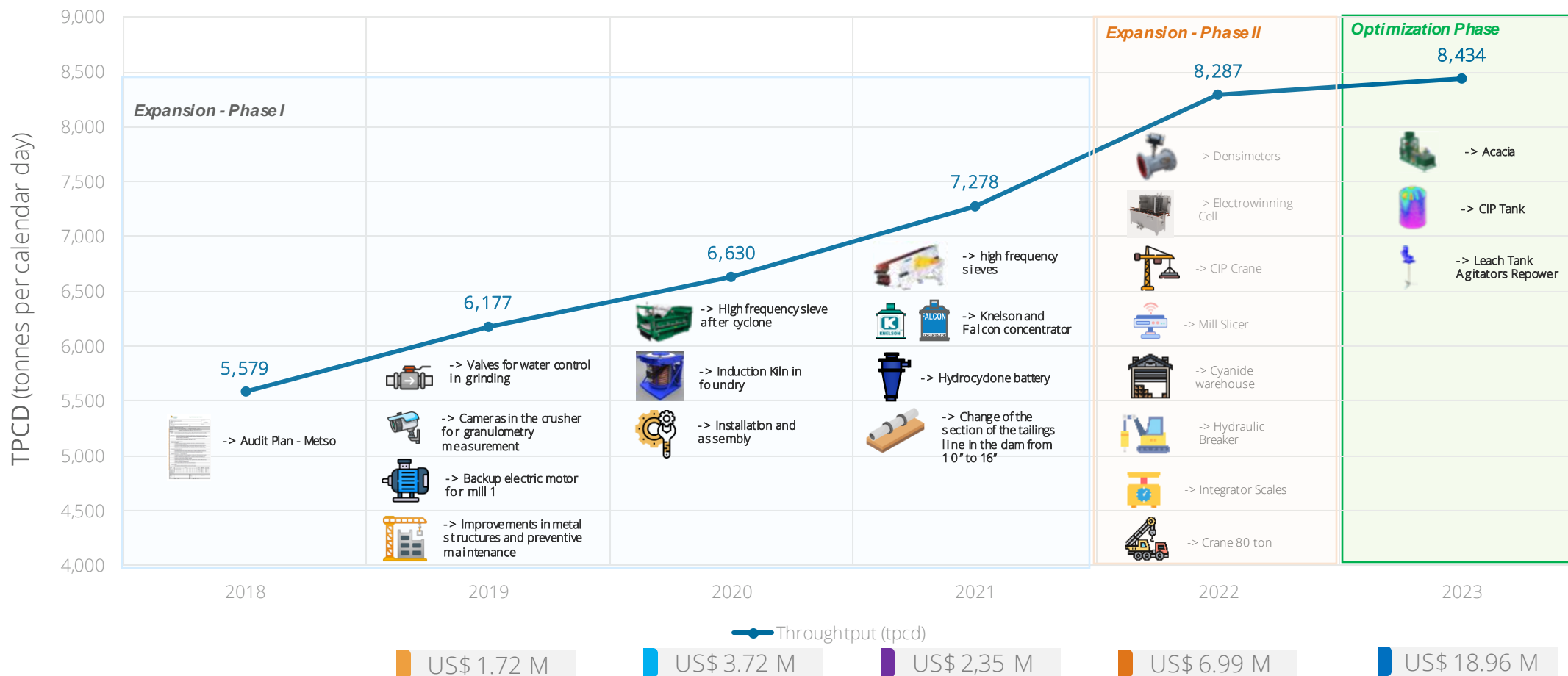
PLANT



METALLURGICAL PLANT

# PORTFOLIO PROJECTS

## EXPANSION & OPTIMIZATION



This graph shows the investments in the metallurgical plant, which enabled the increase in throughput over the years. This expansion process was initially divided into 3 phases: 1 - 7,500 tpcd, 2 - 8,400 tpcd and the third is in progress to study the maximum production capacity. The current optimization phase is aimed at stabilizing the plant at ~8,400 tpcd while sustaining gold recovery of ~96%.



# PROJECT PORTFOLIO

## LIFE OF MINE OPTIMIZATION



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SILVER



# PROJECT PORTFOLIO

## EXPANSION & OPTIMIZATION

# 2024

# Optimization

OBJECTIVE



Sustainable/reliable 8,400 tpd throughput



Gold Recovery ~96 %

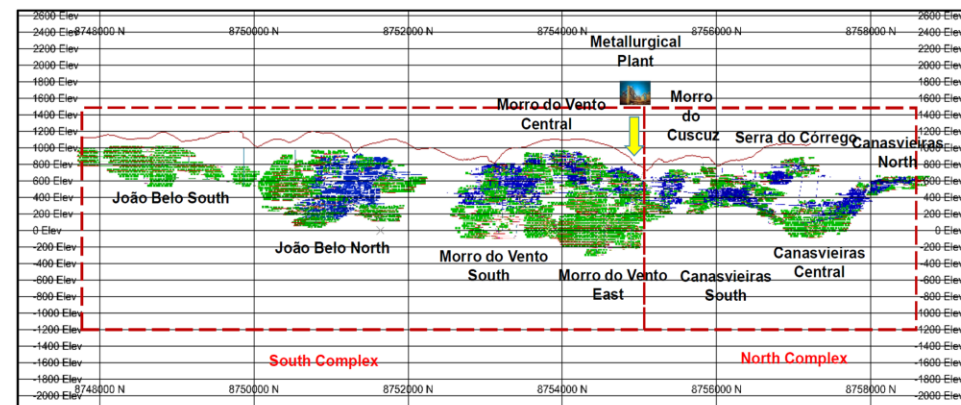
PROJECTS



# PROJECT PORTFOLIO

## PFS MINE

Pre-feasibility study of the mine optimization to identify sustainable long-term production rates according to the current reserves and reserve replacement expectations.



MINE MAP



## OPTIMIZATION TARGETS



MINE



PASTEFILL PLANT



METALLURGICAL PLANT



FILTRATION PLANT



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— SILVER —

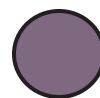
# OPERATIONAL EXCELLENCE

Jacobina Mine



## OPERATIONAL EXCELLENCE AND STRATEGIC PLANNING

// Jacobina's operational excellence teams focus on identifying bottlenecks and, based on continuous improvement tools, execute projects with the operational and engineering teams to efficiently increase production and reduce costs



### Levers to improve

Clear definition of main metrics for productivity increase

Project design involving the operational base (Operators), engineering, and support areas



### Improvements Execution

Strong routine for continuous improvement projects (Close contact with execution team)

Effectiveness verification and savings collection

Teams' recognition



### Full Asset Potential

The goal of the continuous improvement programs is to achieve the full asset potential, by improving resource utilization and proactively identifying problems

Jacobina





Use of statistical analysis to reduce variability and increase efficiency



Study and change process flow



Bottleneck resolution (Kaizen BLITZ)



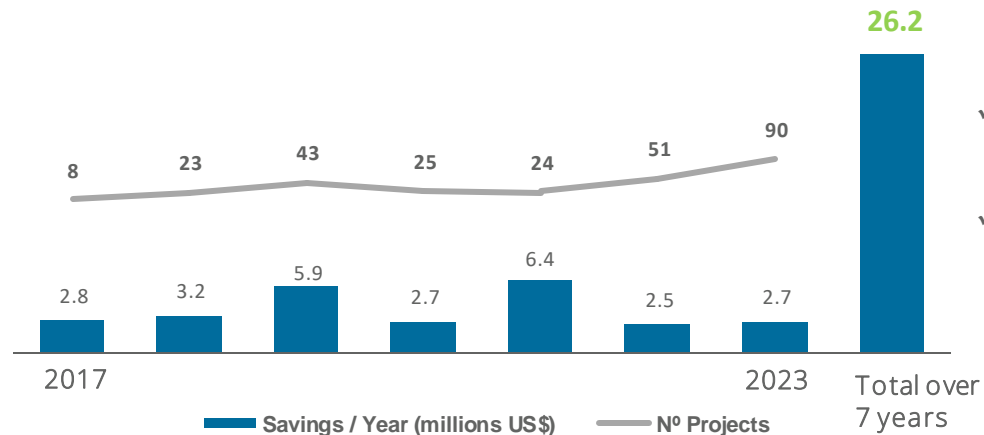
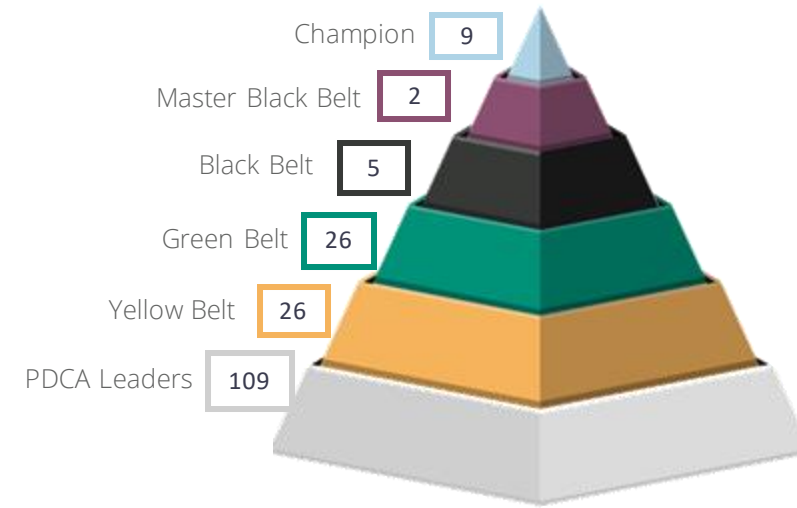
Your idea is worth gold - Program to quick wins identification



Process automation and technology projects



- ✓ Around 180 employees trained in continuous improvement tools, able to develop new projects to increase productivity and reduce costs
- ✓ Around 500 employees involved in the operational excellence projects per year
- ✓ 12% of the workforce trained in continuous improvement tools



- ✓ 264 projects completed in the past 7 years
- ✓ US\$26 M of savings, through improved production and reduced costs



Six Sigma methodology - Specialist in problem solving with statistical analysis. The belt is determined by the project complexity and statistical tools used

| Strategic Planning         | Foundation   | Process Optimization  | Cultural Change (Routine)   | Technology and Innovation  | Operational Excellence   | World Class  |
|----------------------------|--|---|---|--|--|--|
| Operational Excellence JMC | <ul style="list-style-type: none"> <li>2017 - Launched the operational excellence team</li> <li>Formed 45 Lean Six Sigma green belts</li> <li>Trained 87 supervisors in LEAN / PDCA</li> <li>Over 300 employees involved in projects</li> <li>Savings of US\$ 12M in the first 3 years</li> <li>Kaizen involving multi areas, suppliers and other mines in the region</li> </ul> | <ul style="list-style-type: none"> <li>Leadership engagement</li> <li>Creation of the excellence tree for integrating site data</li> <li>Training of 13 more green belts</li> <li>Full automation of underground ventilation (safety and power reduction)</li> <li>Underground people tracking (safety and productivity)</li> <li>Plant optimization</li> </ul> | <ul style="list-style-type: none"> <li>Automation of underground equipment (autonomous / semi autonomous operation)</li> <li>Creation of the technology road map for the next 5 years</li> <li>Expansion of OE in supporting areas</li> <li>Refresh training to supervisors in the quality tools</li> <li>Insertion of the Kaizen methodology in the operations routine</li> <li>Emphasize cross site sharing sessions</li> </ul> | <ul style="list-style-type: none"> <li>Consolidate the Lean culture in the production process</li> <li>Solidification of OE in supporting areas</li> <li>Automation of equipment and processes</li> <li>Insert the operational excellence culture in employee's routine</li> <li>High speed and flexibility</li> <li>Continue with innovation mindset</li> </ul> | <ul style="list-style-type: none"> <li>Review and retain the improvements</li> <li>Creation of high-performance teams (operators and mechanics)</li> <li>High speed and flexibility</li> <li>Mapping of new technologies and innovation projects</li> <li>Insert the operational excellence culture in employee's routine</li> <li>Continue in process automation</li> </ul> | <ul style="list-style-type: none"> <li><b>Full Asset Potential</b></li> <li>Top tier services</li> <li>Low unity costs</li> <li>Right people, right place, right time with proper skill</li> <li>Environmental, social and governance</li> <li>Continuing the journey to innovation</li> <li>Process Automation with machine's tele remote</li> <li>Stockpile Management optimization</li> </ul> |
|                            | 2017 to 2019   | 2020  | 2021  | 2022   | 2023   | LOM  |

# JACOBINA

// Operational Excellence – Projects with strong impact on production and costs  
STATUS – COMPLETED PROJECT

TECHNOLOGY

OE & I

## Description

### Project description

- **Dispatch system (Specific to UG mine)** - Implementation of the dispatch system for an underground mine, strengthening the control room and acquiring technology to control the main variables (*logistics, infrastructure and equipment performance*)

### Benefits

- Use of tablets for main fleets to improve information quality and FTE optimization
- **33% increase** in the Blasting trucks fleet utilization
- **3% increase** in the drilling equipment availability, due to the reduction in maintenance time (Improvement in mine logistics) – **From 71% to 73%**
- Increase of global productivity of the vertical drilling fleet (**From 20.71 to 23.69m/h**) + **12%**
- Increase in effective hours worked of the scaler fleet (Mining scaling) – **From 11k hours to 12.5k hours per year** + **8%**

## Illustrative examples





## // Operational Excellence – Projects with strong impact on production and costs

### STATUS – COMPLETED PROJECT

TECHNOLOGY

O E & I

### Project description

### Description

- **People Tracking** - Full visibility of all employees inside the mines with the use of cap lamps as a main device capable to send alert of man down and receive mine-wide evacuation notification from central room.

### Benefits

- Compliance with Brazilian legal requirement
- Monitoring of miners
- Information on quantities of people inside the mines
- Time spent inside the mines (Productivity)
- Man down alert
- Distress Alert

### Illustrative examples

| position   | from                   | to                     | duration |
|--|------------------------|------------------------|----------|
| VEST_0165_LV1_SUL_CAC (75cv)<br>Ventilador insufla para o nível 02_LV1_SUL_CAC | 2021-10-14 12:01:32-03 | 2021-10-14 12:03:46-03 | 2m 14s   |
| out of range   | 2021-10-14 11:57:55-03 | 2021-10-14 12:01:32-03 | 3m 37s   |
| N0CW_N255_CAC  | 2021-10-14 11:57:14-03 | 2021-10-14 11:57:55-03 | 41s      |
| GS_R255_CAC<br>CAC   | 2021-10-14 11:56:40-03 | 2021-10-14 11:57:14-03 | 34s      |
| N0CW_N255_CAC  | 2021-10-14 11:55:05-03 | 2021-10-14 11:56:40-03 | 34s      |
| out of range   | 2021-10-14 11:45:07-03 | 2021-10-14 11:55:05-03 | 10m 58s  |
| N0CW_R517/084_CAN<br>CAC   | 2021-10-14 11:42:53-03 | 2021-10-14 11:45:07-03 | 2m 14s   |
| GS_ENTRADA_CAN<br>CAC  | 2021-10-14 11:40:48-03 | 2021-10-14 11:42:53-03 | 2m 5s    |

underground tag board (personnel: 75)

|           |           |           |           |           |           |           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 3818 BCHE | 3818 BCHE | 3818 BCHE | 3818 BCHE | 3818 BCHE | 3818 BCHE | 3818 BCHE | 3818 BCHE | 3818 BCHE | 3818 BCHE | 3818 BCHE |
| N/A       | N/A       | N/A       | N/A       | N/A       | N/A       | N/A       | N/A       | N/A       | N/A       | N/A       |
| N/A       | N/A       | N/A       | N/A       | N/A       | N/A       | N/A       | N/A       | N/A       | N/A       | N/A       |

## // Operational Excellence – Projects with strong impact on production and costs

**STATUS – COMPLETED PROJECT**

TECHNOLOGY

OE & I

### Description

#### Project description

- **Plant Consumables (Mill Balls – Kg/t)** - Statistical process analysis to reach the **optimal ball dosing point** without impacting the grinding quality and consequently plant recovery. The plant's engineering team performed tests over the years and optimized ball **consumption by 26%**

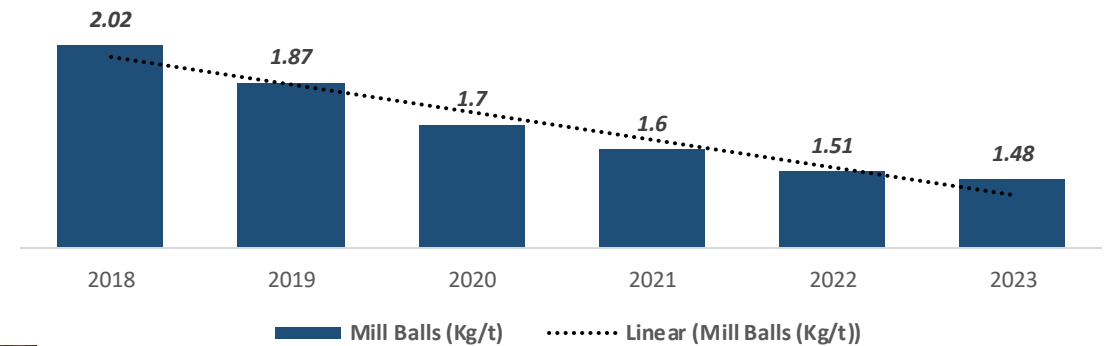
#### Benefits

- Specific consumption reduction **from 2.02 to 1.48 kg/t**
- Average annual reduction of **\$1.1m in mill ball consumption**



### Illustrative examples

#### Plant Consumables (Mill Balls) Annual Operational Excellence Project





# JACOBINA

// Operational Excellence – Projects with strong impact on production and costs  
**STATUS – COMPLETED PROJECT**

OPERATION

O E &amp; I

## Description

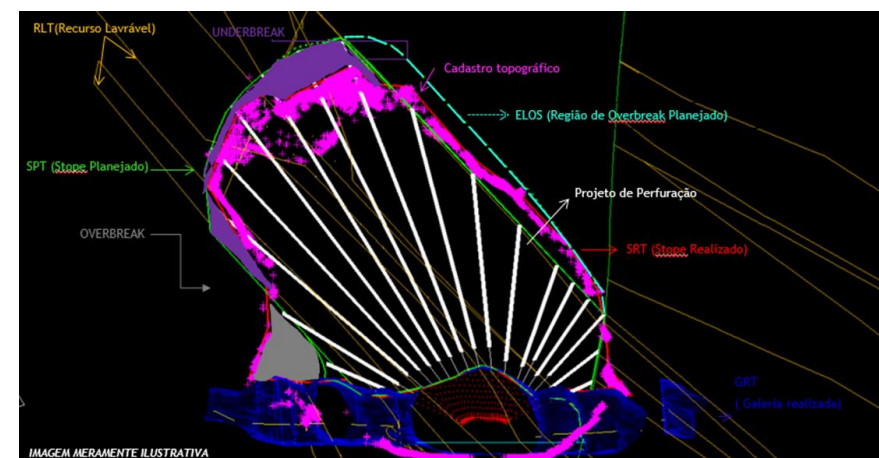
### Project description

- **Mine Dilution optimization:** Project focused on the underground mine, with the objective of operational dilution reduction (Mining Overbreak) to increase the excavation quality and operational cost reduction. Technical initiative, with the involvement of the mining engineering and technical services areas to improve drilling and blasting activities using the SIX SIGMA methodology

### Benefits

- 3% reduction in operational dilution (Over excavation)
  - **Note:** Without impact in the mining recovery
- Reduction of Hauling and Loading costs
- Increase the average extraction grade (Gold – g/t)
- Savings: \$ 752k/year

## Illustrative examples



### MAIN PILLARS

#### JMC 2024 (Strategic Planning) – PERFORMANCE TARGETS

##### UG Mine

- Reach **18km of mine development**, with operational excellence projects focused on the effective fleet utilization (**Trucks / Jumbos**) and reducing operational costs (USD/m) – From 2,627 to 2,530
- Improve the main declines rate in the **4 main ramps**, to increase flexibility and optimize the mine sequence (**From 35m/m to 45m/m**) – Kaizen Blitz
- Technical works focused on mining recovery increase (**From 91.5% to 92.5%**) and operational dilution reduction (**From 15% to 13%**)
- **Operational model review** with an assessment of the workforce efficiency and improvement of the strategic indicators (ton/employees - meters/employees....etc)

~US\$ 4.5M year (Potential)

##### Plant

- Use of **statistical analysis** to map bottlenecks and provide **process changes without investment** in the metallurgical plant
- Keep **processing rate of 8,400 TPD** with operational excellence projects focused on OEE crushing optimization, to stabilize silo levels and eliminate impacts on grinding
- Reduce losses of tailing soluble and solid from **0.10 to 0.08g/ton** (Recovery from **94% to 95%**) with focus in the regeneration process and 2 new CIP tanks
- Keep the high grinding and crushing availability with maintenance cost reduction

~US\$ 1.1M year (Potential)

##### Operational Costs

- Achieve site cash cost with operational excellence projects acting on the main operational levers
- Initiatives focused on reduction of the main site specific consumptions
  - **Mine:** Diesel, Explosives, Drilling materials and reinforcement materials
  - **Plant:** Mill balls, Cyanide and Flocculant
  - **Geology:** Core drilling and maintenance costs
- **Contract Management:** Operational excellence project focused on the efficiency measure of the site current contracts, for scope review, SLA application and synergy between sectors

~US\$ 1.3M year (Potential)

#### EXCELLENCE

##### Culture

- For support projects and mapping new initiatives, we will use specific tools
  - **Quick wins initiatives:** Your idea is worth gold. Operational base ideas to increase productivity and reduce costs
  - **PDCA:** Methodology used by supervision to identify causes and conduct short-term projects
  - **Lean Six Sigma:** Methodology focused on statistical analysis and process change. Used for medium-term projects with high potential for savings

Note: **JMC has ~12%** of its employees trained in continuous improvement tools. This workforce will lead the projects in 2024



# OPERATIONAL EXCELLENCE

// Brazil Certification – Team recognition







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# PRODUCTION & COSTS

Jacobina Mine





# JACOBINA

## // Cost & Compliance

- Internal Control awareness
- Cost culture implemented at all employee levels
- Cost control and margin growth
- Risk management
- Innovation and technology



2023

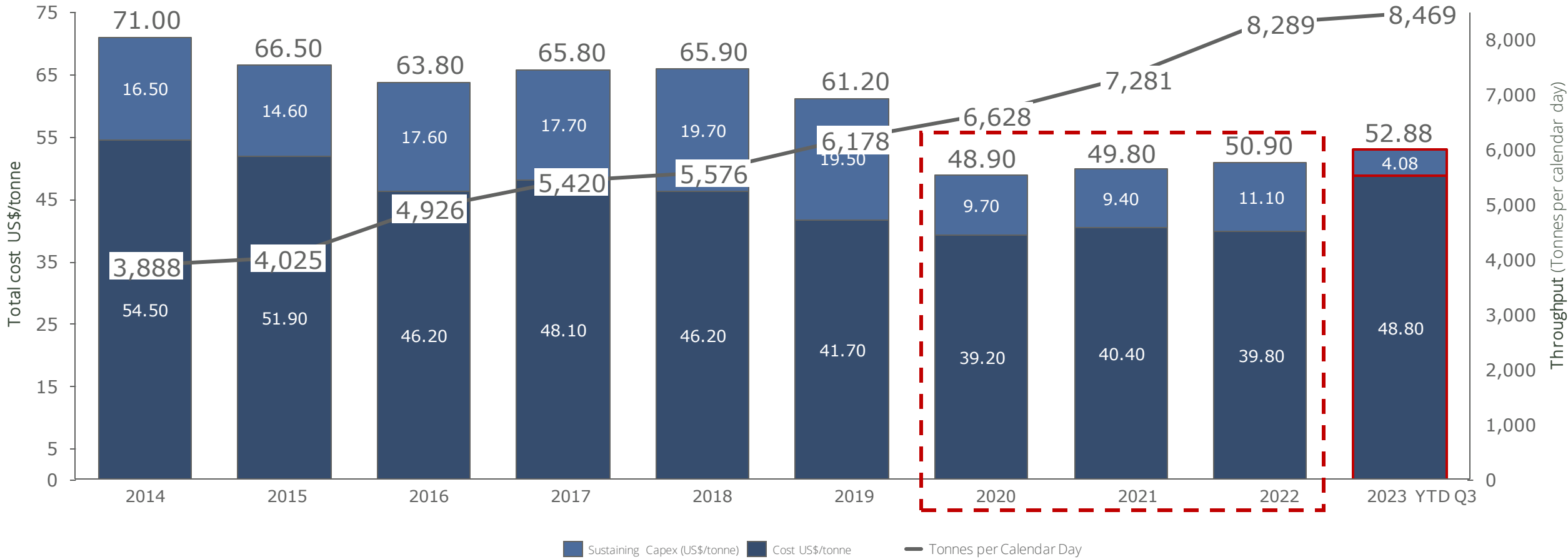


2017

- Continuously pursuing improvement in internal controls and cost reduction
- Cost Control -Centralized requisition approval route (Controller and GM)
- Zero significant deficiencies of internal controls since 2017
- Fast closing 4<sup>th</sup> working day – JDE Global
- Contract Management
- Inventory management (receiving process, RPA for invoices etc.)
- Control for specific consumption of consumables
- Tax Recovery planning
- People development – local workforce (develop cost culture accountability)

# UNIT COSTS

// Cost per tonne x Tonnes per calendar day (TPCD)

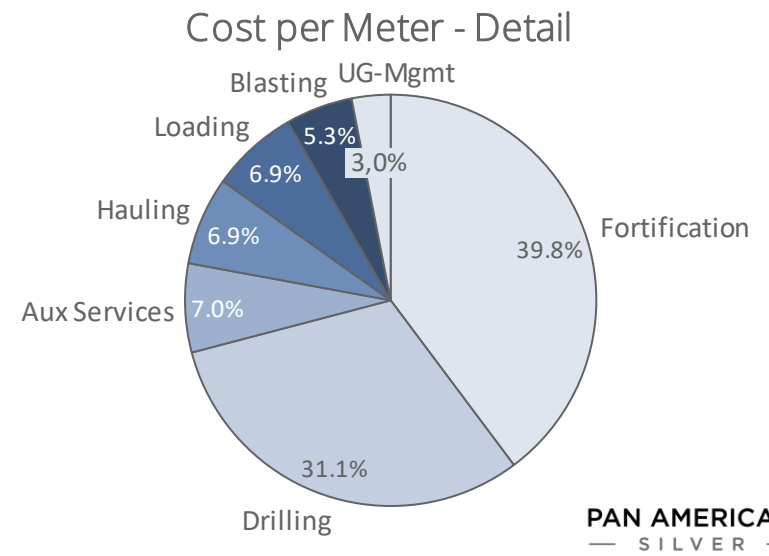
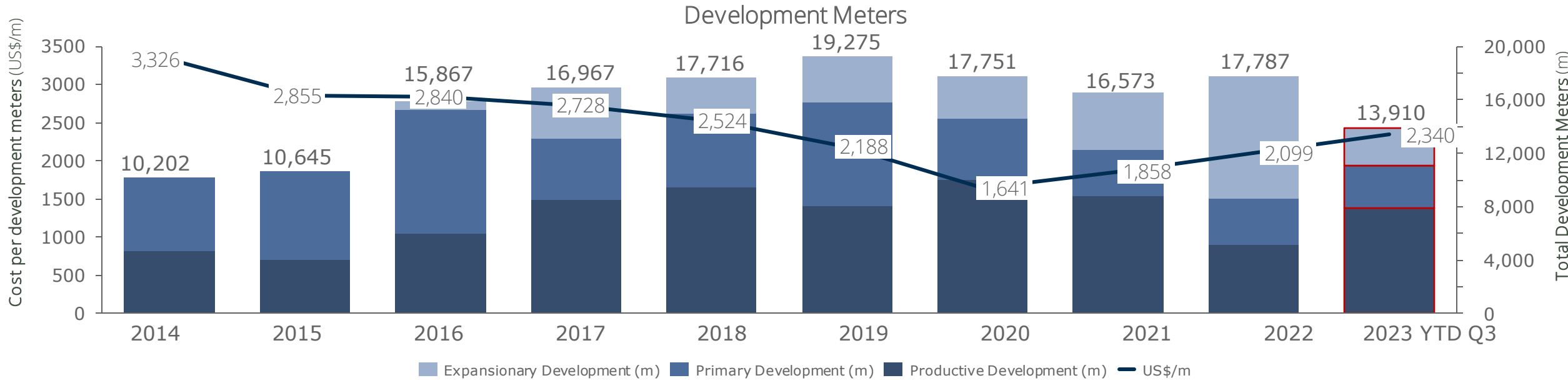


\*Covid 19 Period



# UNIT COSTS

## // Development Cost per meters







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# GEOLOGY & EXPLORATION

Jacobina Mine

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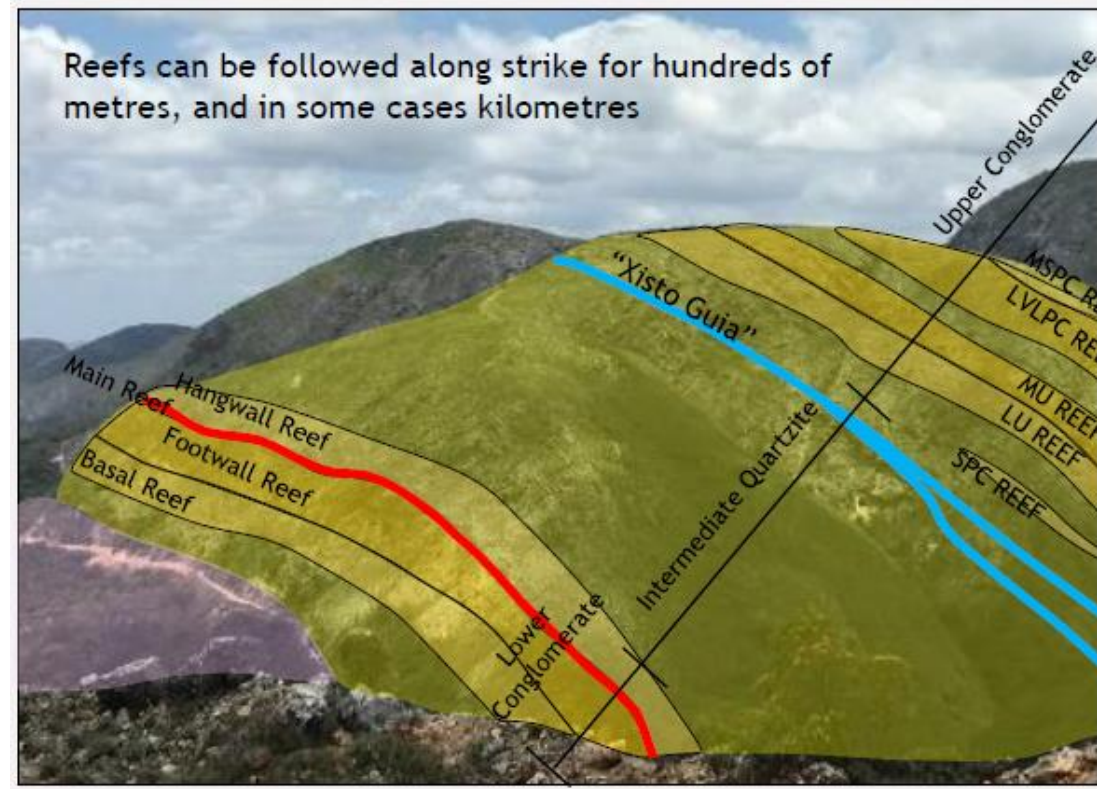
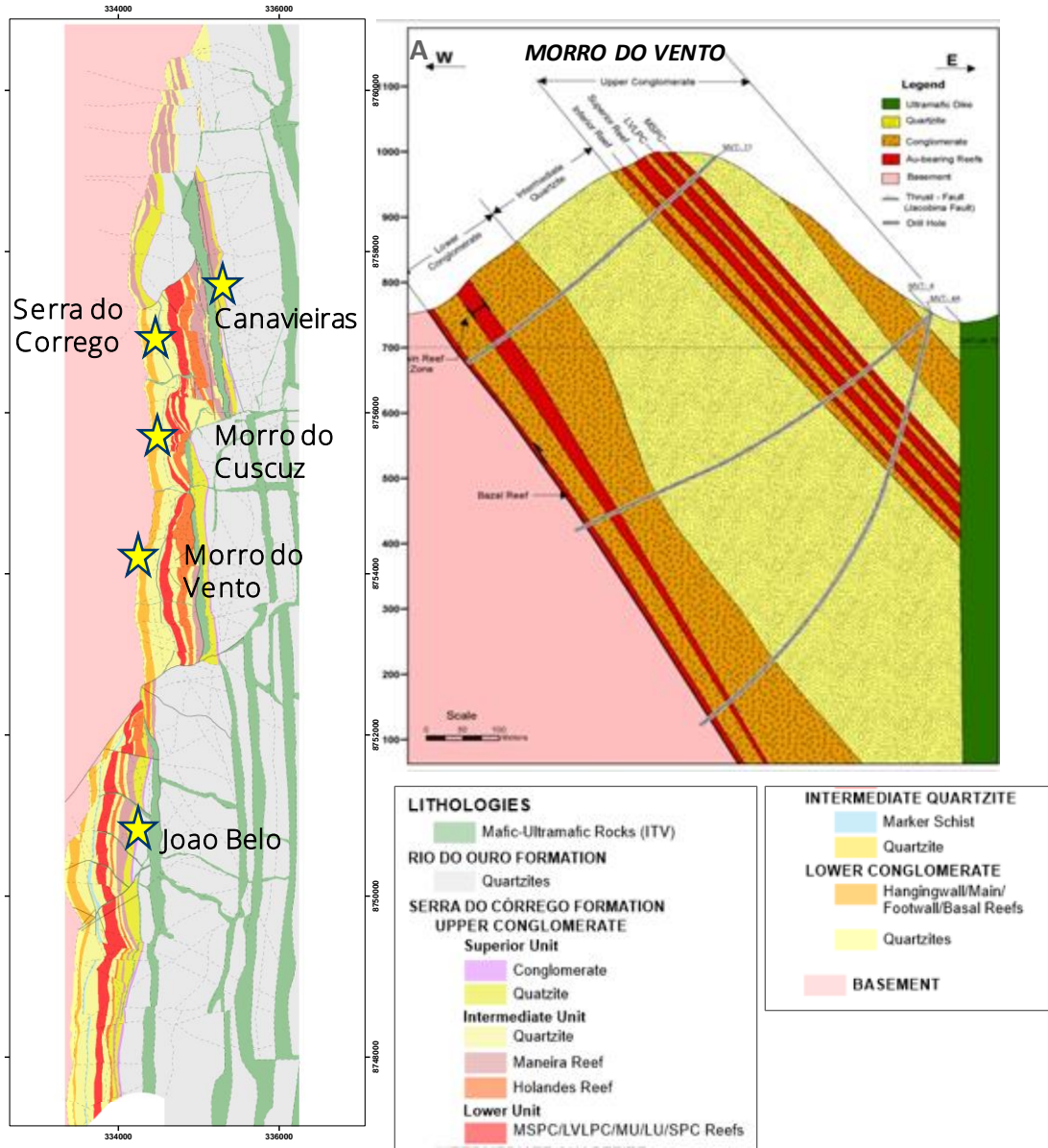




# JACOBINA EXPLORATION

## Local Geology

### Morro do Vento Mine

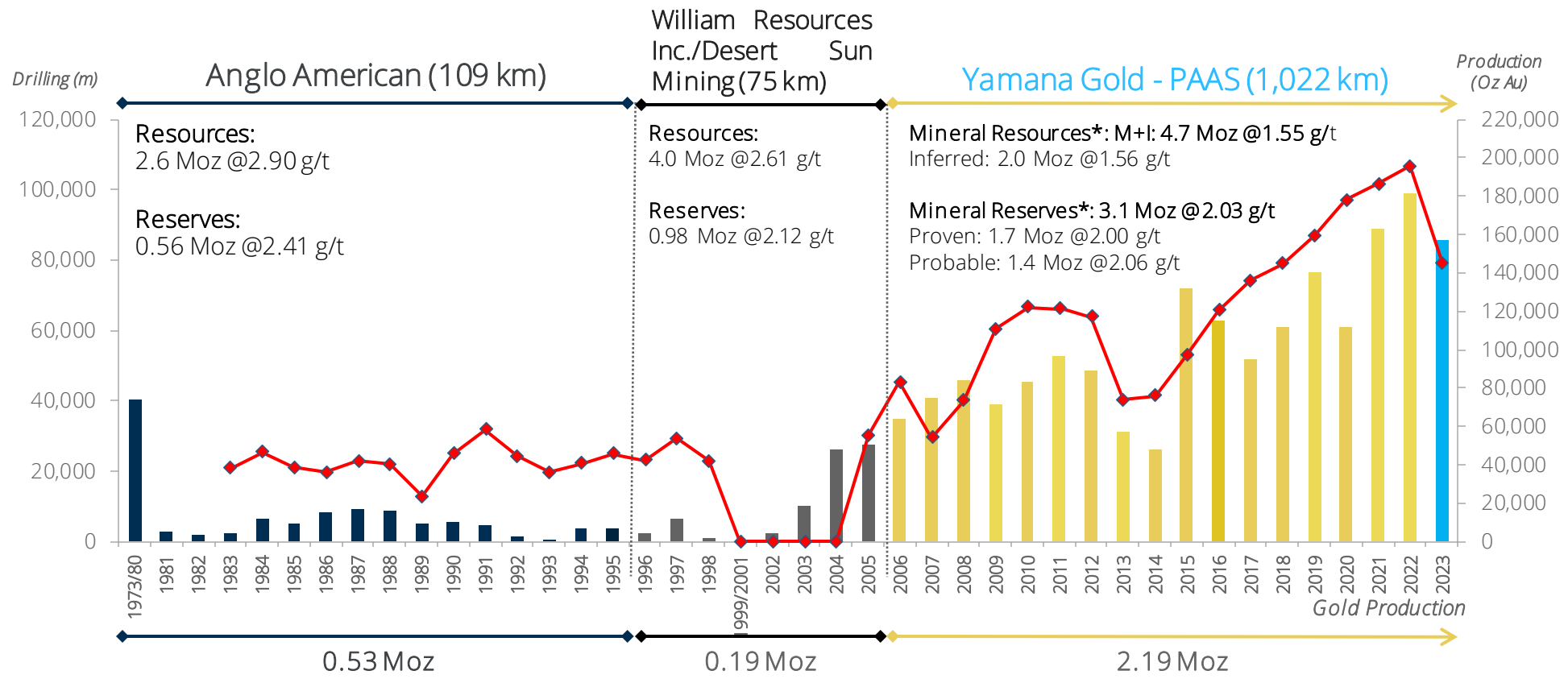


- Metaconglomerates are essentially oligomictic with quartz pebbles and less common chert
- Gold mineralization hosted in quartz pebble conglomerates (Gold Reefs; Mineralized Reefs)
- The Jacobina style of mineralization is very continuous; all deposits are still open along strike and down dip

# JACOBINA EXPLORATION

## Historical gold production and drilling

- Drilling has been key to discoveries, delineation and efficient mining at Jacobina
- After 2015, significant increase in drilling, resulting in new discoveries and an increase in the mineral resources & mineral reserves base, supporting growth in gold production



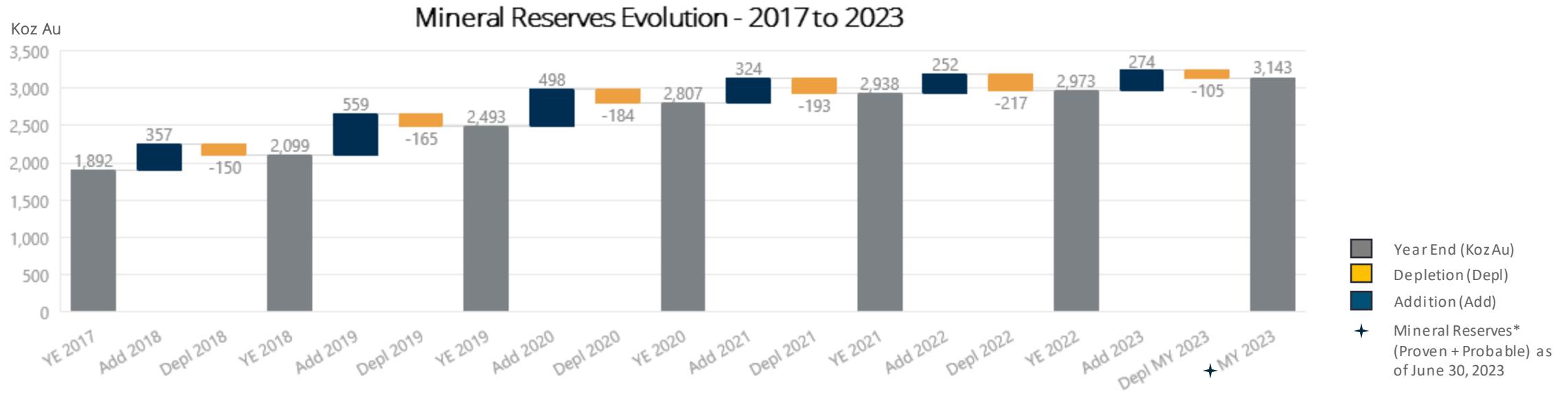
— Gold production (Oz Au)\*\*  
 \*As of June 30, 2023; see presentation Appendix for more detailed information on the Company's reserves and resources and the metal price assumptions used for these estimates.  
 \*\*Drilling and Gold production 2023 as of September 30, 2023.





# EXPLORATION

## Mineral Reserves Evolution – 2017 to 2023



### 3.1 Moz

Gold mineral reserves\* (Proven + Probable), as of June 30, 2023

### 2.2 Moz

New gold mineral reserves\* (Proven + Probable) added since 2017

### 1.0 Moz

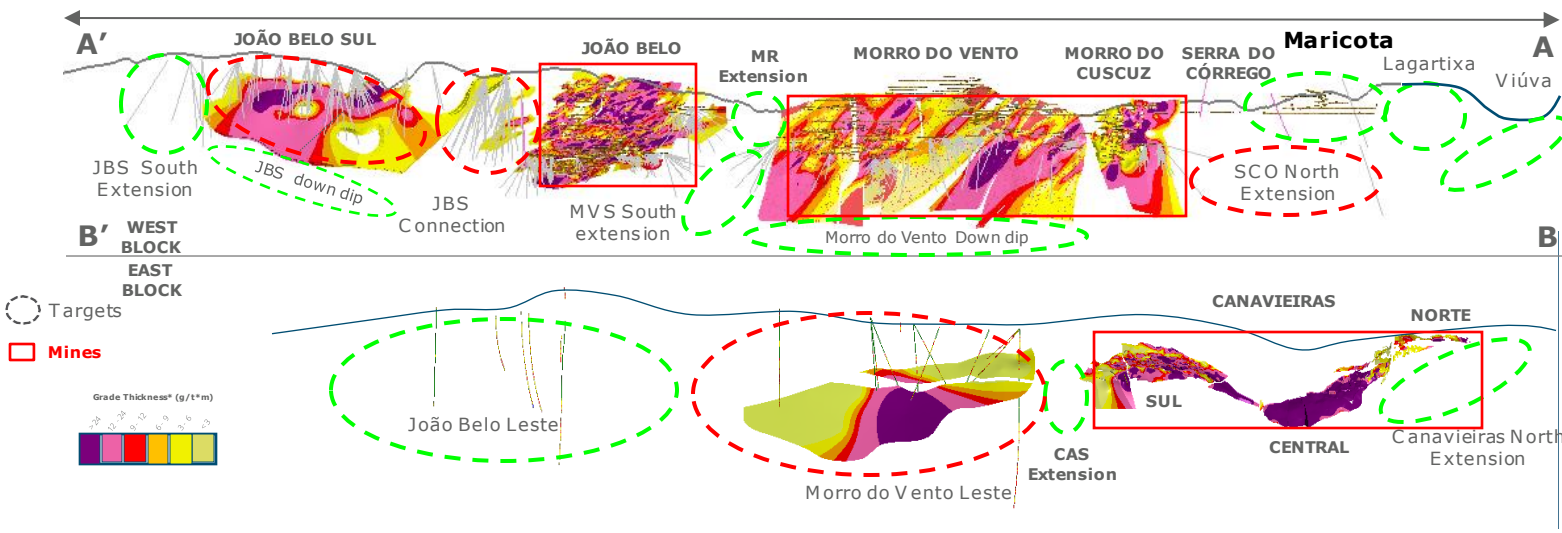
Total gold produced since 2017

\*As of June 30, 2023; see presentation Appendix for more detailed information on the Company's reserves and resources and the metal price assumptions used for these estimates.

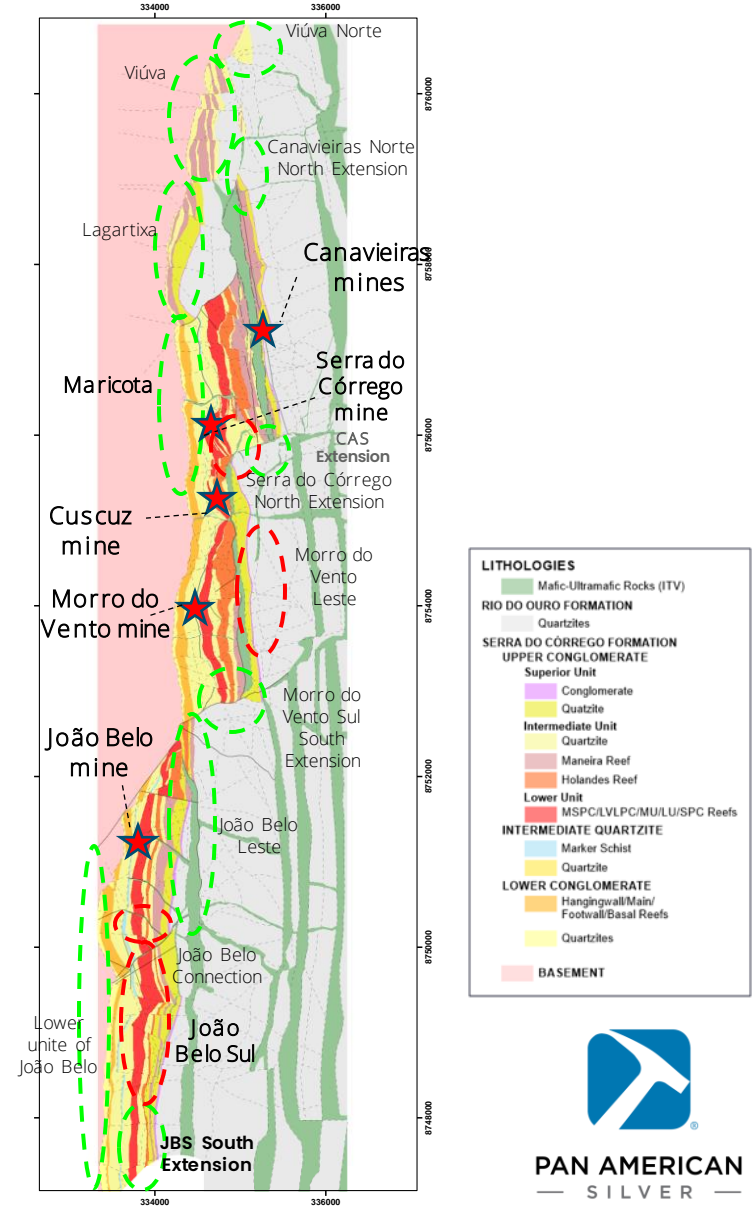


# EXPLORATION – NEW GEOLOGICAL TARGETS

## Opportunities to Continue Growing



- Drilling has been a key to new discoveries, delineation and efficient mining at Jacobina (red contours)
- New areas (Green contours) have been developed to delineate new geological targets, like Maricota, João Belo Leste, João Belo Lower, Viúva, Canavieiras Extension
- Great results have been confirming that Jacobina District is open and with discovery shallow and close to current mine development (Eg. Maricota, Morro do Vento down Dip)







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# QUESTIONS AND ANSWERS



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APPENDIX



# JACOBINA VISIT

## AGENDA (SITE)

- ✓ SAFETY INDUCTION & STRATEGIES
- ✓ FIELD VISIT







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# HSE STRATEGY

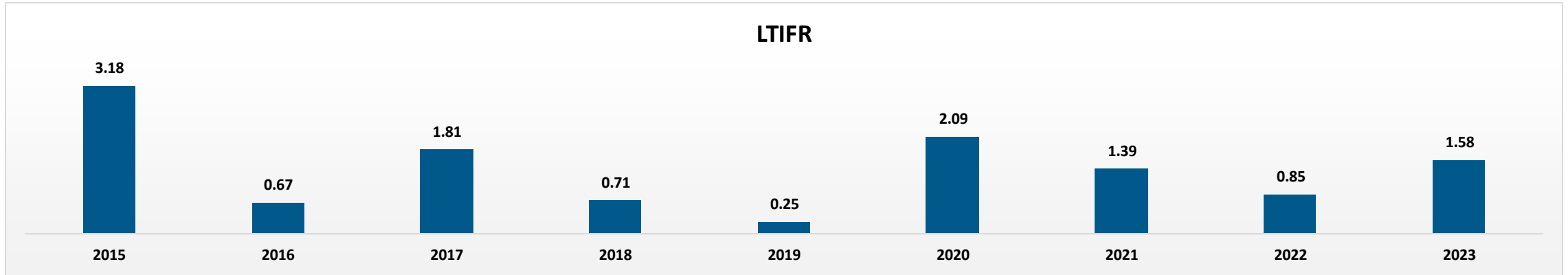
Jacobina Mine







# LTIFR



## LTIFR : Lost Time Injury Frequency Rate.

No. of accidents x 1,000,000 / Hours Worked.



## LTISR: Lost Time Injury Severity Rate – 8-years fatality free

No. lost time injuries x 1,000,000 / Hours Worked.

# HSEC STRATEGY

## // Main Initiatives



### Neuropsychological Aspects:

- Application of **Psychology** in the **Workplace**, with an On-Site Psychologist.



### HSE Leadership:

- Sense of Ownership/  
**Accountability.**



### ESG Management:

- External Audit.

### TSM/ ISO Certifications:

- Self-Assessment.



### Vehicle Driving Management

- **Telemetry** and **monitoring of driver behavior**, using an artificial intelligence system



### Occupational Health Programs

- **Ergonomic** Work Analysis.
- Prevention of **Alcohol and Other Drug Use.**
- **Absenteeism** Due to Health Reasons.

### PAAS Safety Differently Initiative

#### • 5 Principles of Human Performance:

1. People make mistakes
2. Blame fixes nothing
3. Learning & improving is vital
4. Context drives behavior
5. Matters

### Challenges:

- **Third-party company** management
- **Critical Controls** management.
- **Process Risk** management.





# SAFETY INDUCTION & SITE OVERVIEW



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## UNDERGROUND MINE 1

Rock Fall, collapses, gases, explosions, fires, dust and silica, noise, work at height, human-machine interaction, temperature, inundation and electricity.

## 2 METALLURGICAL PLANT

Chemicals, fires, noise, lifting load, work at height, confined spaces, equipment moving parts, temperature, human-machine interaction, structural collapse, dust and electricity.



## DAM 3

Dam failure, chemicals, work at height, exposure to dust, drownings, human-machine interaction, electricity and temperature.

\*JMC has an emergency plan and stability declaration approved by the National Mining Agency



Escape Way



Refuge Chambers



Escape Masks



## // Peace and Pay Attention

### PEACE

Preliminary risk analysis.



1. Think about the task.
2. Study the danger.
3. Analyze the probability/consequence of the risk.
4. Fix the task/consequence.
5. Run safely.

### PPE'S



The Personal Protective Equipment (PPE) will be delivered according to the area they will visit.

The host will indicate which PPE are needed for each area.

### SAFETY SIGN

Pay attention to the meeting points, emergency exits, and safety signs in the areas. PAY ATENTION.



### EMERGENCY



**8220**

1. Call From The Medical Center.

Underground Emergency, use Channel 2.



**8080**

1. Emergency Brigade Call.



Surface Emergency, use Channel 8.

1. Cell phones : +55 (74) 3621-8080.

Pay Attention to emergency alarms.



Continuous touch  
Evacuation of the entire unit

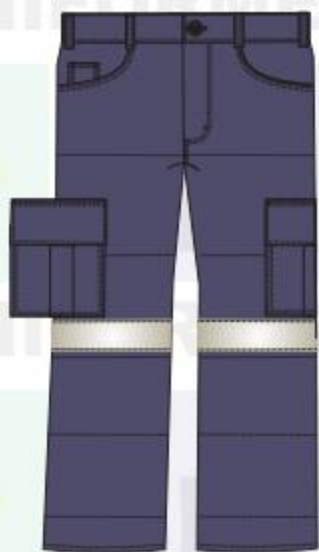
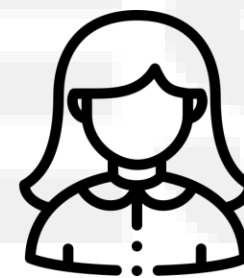
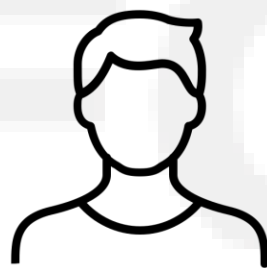


Intermittent Tone  
Emergency Brigade Call



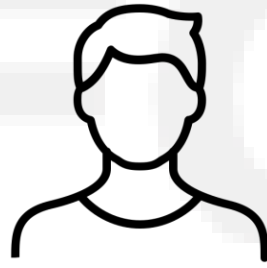
Whistle and/or sirens  
Evacuate Administrative Areas

# Uniform





# Uniform



**Visitors**

