# Jervois

Building a leading independent cobalt and nickel company

São Miguel Paulista ("SMP") nickel cobalt refinery

Canaccord Genuity's LatAm Natural Resources Conference

São Paulo, Brazil

27 / 28 September 2023



Compelling and unique opportunity to re-establish nickel and cobalt refining in the Americas

Largest Class I refined nickel (Ni) capacity in Latin America at 25ktpa; 2ktpa refined cobalt (Co) capacity

Proven operating track record over three decades, comprehensive C&M program

Well-maintained operation with modest restart capital requirements

Ability to secure recycled feeds – no competing facilities within Latin America

Restart based on third party feed – cobalt hydroxide and MHP (10ktpa Ni; 2ktpa Co)

Debottlenecking and future investment back up to prior nameplate

Leverages Jervois's refining (Murrin Murrin, Nikkelverk, Kwinana) and Ni/Co trading backgrounds

Strong Brazilian management with extensive knowledge of operation

Refinery restart anticipated on conclusion of partner financing process

### Refinery restart project paused

- Final investment decision ("FID") pending partner financing process
- Due diligence at advanced stage with multiple parties
- Ausenco appointed as EPCM early works activities commenced; activities on hold
- R\$345 million (ca. US\$65 million) project budget competitive, low risk entry to nickel refining
- Operational readiness underway including organisational and systems development

### **Commercial strategy advancing**

- Market conditions for mixed hydroxide precipitate ("MHP") and cobalt hydroxide improving – Indonesian supply continues to rise
- Initial MHP supply contract signed with Gordes, Turkey; other negotiations pending FID
- Significant engagement with downstream users, both in and outside Brazil, underpinning sales strategy development



SMP refinery entrance, São Paulo, Brazil

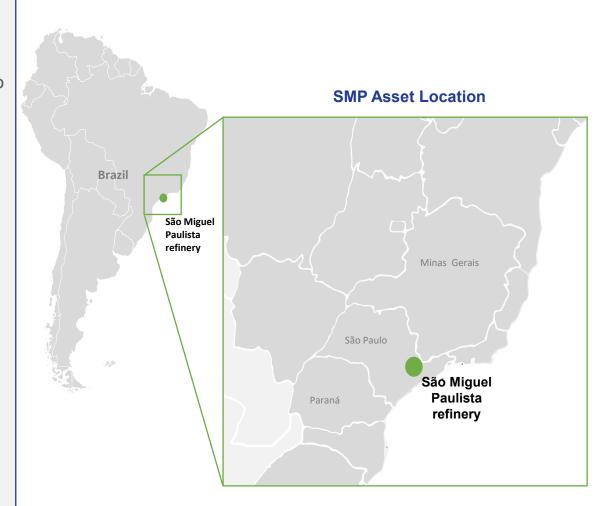
History of successful operation prior to suspension of operations in 2016

### **Background and location**

- Electrolytic nickel-cobalt (Ni-Co) refinery in city of São Paulo
- Excellent logistics: 120km to Santos port; 15km to São Paulo Guarulhos international airport; 1km from motorway
- 25ktpa Ni and 2ktpa Co capacity
- Commissioned in 1981, long and successful operating history
- Placed on care and maintenance in 2016 due to closure of Niquelandia mine feed supply
- In addition to Niquelandia, historically 20-30% feed from third parties: cobalt hydroxide and mixed hydroxide ("MHP")
- High recoveries: 99% Ni, 97% Co
- Established 'Tocantins' Ni and Co brands

### **Competitive position**

 Competitive R\$ denominated cost base, access to low-cost power, industry leading ESG credentials



Restart project overview and update

Mixed hydroxide Cobalt precipitate hydroxide

Leaching

▼
Neutralisation

▼
Solvent extraction

▼
Electrowinning







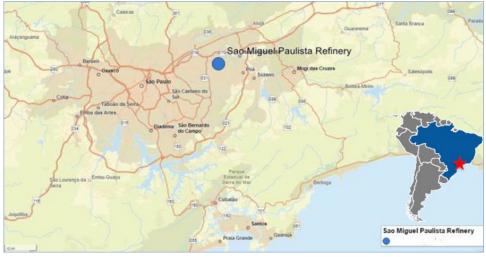
Refined cobalt cathode

- Proven operating record over three decades; comprehensive care and maintenance programme
- Within São Paulo city limits with ready access to labour and services; 120km from largest container port in Brazil (Santos)
- · Low risk, capital efficient restart
- Ausenco and Jervois Brasil management commenced detailed engineering in 2022, advanced procurement and execution planning – currently paused
- Construction plan developed based on three phases:
  - Site establishment
  - New equipment
  - Refurbishment
- Initial engagement with vendors on key packages
- Bids are in-line with BFS restart capital estimate
- Experienced leadership appointed to drive project delivery for Jervois:
  - President and EGM Jervois Brasil, Carlos Braga
  - SMP Project Steering Committee Chair (incl. operational readiness), Valdecir Botassini

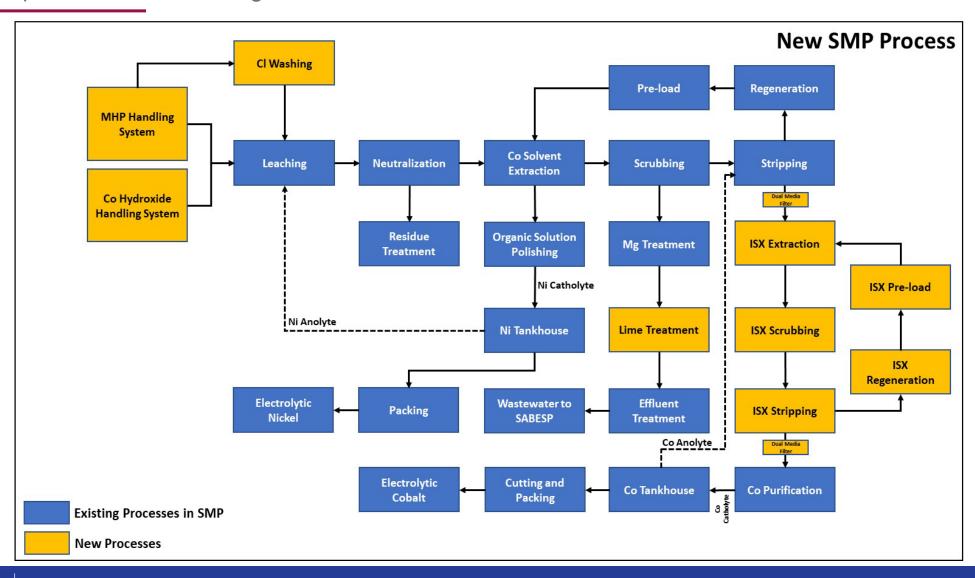
#### SMP site overview (São Paulo, Brazil)



#### SMP location within São Paulo, Brazil



Restart Simplified Block Flow Diagram



### SMP refinery restart project is execution ready post FID

SMP nickel-cobalt refinery restart plan

### Restart and first production timeline

**Production and** operational capacity

**Cost estimates** 

**Growth optionality** 

- Restart pathway further defined since BFS via detailed engineering and execution planning
- Initial restart capital expended prior to project pause
- First production expected 12 months following full restart mobilisation
- Initial refined production 10,000 mtpa nickel cathode and 2,000 mtpa cobalt cathode
- Operating risk reduced though selection of flowsheet closely aligned to historical process at SMP
- R\$345 million capital expenditure project focused on replacement and refurbishment of plant and equipment
- Near-term outlook for key raw materials pricing in-line with, or favourable to, BFS. Estimated SMP unit costs per April 2022 BFS remain reasonable
- Initial restart electrowinning capacity to be refurbished of 14,000 mtpa Ni – 10,000 mtpa forecast production based on feed characteristics - potential to exceed
- Future options to produce nickel sulphate
- be targeted via debottlenecking and further investment

Key SMP restart parameters (BFS)	
Parameter	BFS input <sup>1</sup>
Assumed operating life	20 years
Restart capital cost	~US\$65M <sup>1</sup>
Nickel price <sup>2</sup>	US\$8.00/lb
Cobalt price <sup>3</sup>	US\$25.00/lb
MHP payability	75% CIF Santos
Cobalt hydroxide payability	75% CIF Santos
Brazilian real: US dollar	5.30
Parameter	BFS results <sup>1</sup>
NPV pre-tax (at 8% real discount rate)	US\$264M
NPV post-tax (at 8% real discount rate)	US\$158M
IRR pre-tax (nominal)	36%
IRR post-tax (nominal)	26%
EBITDA <sup>4,5</sup> (average annual in real \$)	US\$40M p.a.

**EBITDA** margin

Payback (post-tax)

Production rate – nickel metal

Production rate – cobalt metal

13%

3.5 years

10,000 mtpa

2,000 mtpa

### First production expected 12 months following full restart mobilisation

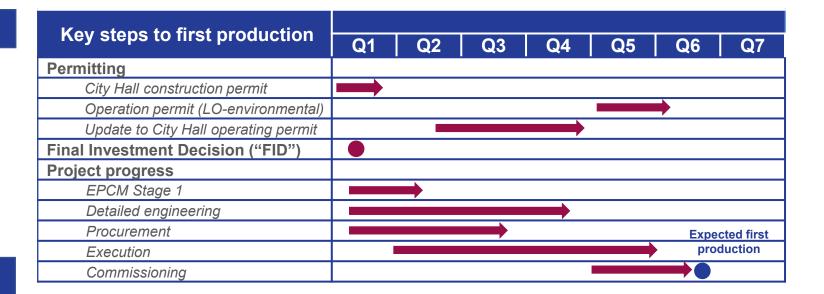
Timeline, workstreams and restart capital costs

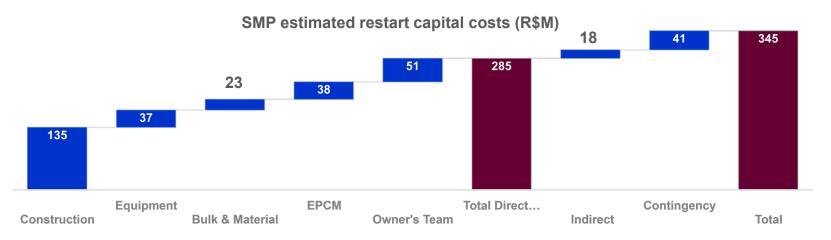
### **Key milestones achieved since BFS**

- ✓ City Hall operating permit obtained and acquisition subsequently closed in July 2022
- State environmental approval for construction obtained
- Key management team in place and restart execution plan established
- Raw materials procurement strategy established

### **Activities post FID**

- Construction planning and readiness activities (led by Ausenco)
- Negotiation on supply of MHP and cobalt hydroxide raw materials advancing, decision to pause to reflect link to revised FID
- Operational readiness workstream established
- Detailed planning for remaining low risk permitting requirements linked to construction and operation





### SMP expected to deliver robust operating margins through the cycle

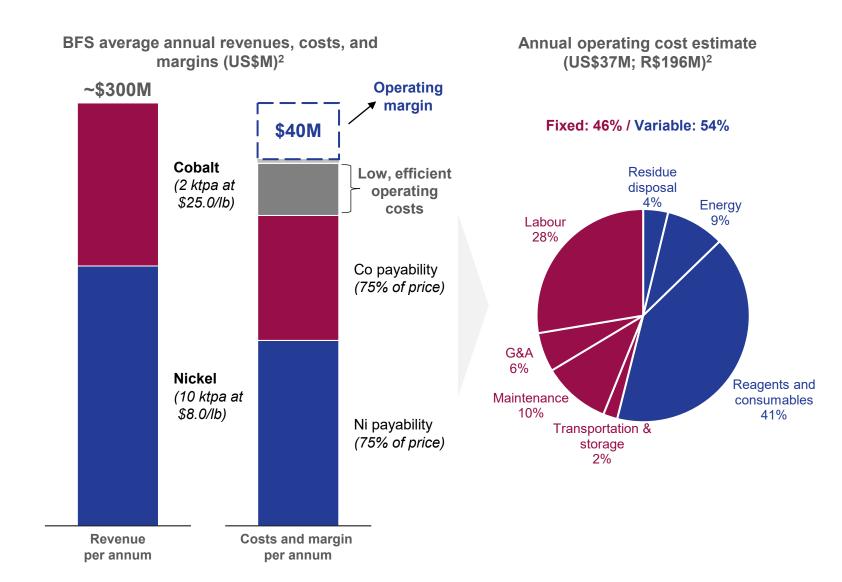
### Operating cost structure

#### Globally competitive operating cost structure

- Key raw materials costs based on pricing linked to final product – e.g., % payable x LME nickel price
- Price risk managed through commercial model including Quotational Periods
- Annual average operating cost of US\$37M (R\$196M), based on BFS¹
- Long-term cost competitiveness underpinned by skilled workforce, competitive energy (hydropower) and local currency (R\$)
- Economics also supported by historical and forecast recoveries of 99% nickel, 97% cobalt

### Sustainable EBITDA margin expected through the cycle

- Annual average EBITDA ~US\$40M and EBITDA margin ~13% under BFS assumptions<sup>1</sup>
- Margins expected to be resilient through the cycle raw materials costs linked to metal prices
- Near-term upside potential should current market conditions persist (e.g., premiums, payables)



### São Miguel Paulista (SMP) Plant Historical Information

**Product Specifications and Marketing** 

#### **SUMMARY**

- SMP used to produce electrolytic nickel with 99.9% purity
- Product was registered with the London Metal Exchange ("LME") Tocantins
- Nickel and cobalt in dimensions to meet the specific customer needs / end-use applications
- Nickel can be finished with thickness of 8 12 mm and in dimensions ranging from 1" x 1" up to 30 cm x 90 cm
- Cobalt can be finished with a thickness of 2 3 mm
- Finishing line at SMP includes cutting system capable of cutting cobalt to ca. 1" x 1" squares

### **PRODUCTS**





LME grade nickel metal

Cobalt

#### **KEY PRODUCT APPLICATIONS**

#### Nickel

- Battery manufacturing
- Stainless steel
- Electroplating
- Steel alloys
- Casting
- Chemical products (pigments, insecticide, ceramic materials)

#### Cobalt

- Battery manufacturing
- Agribusiness (fertilizers and animal food)
- Super alloys
- Chemical products (salts, pigments)
- Diamond tooling
- Magnets

### SAMPLE MARKETING MATERIALS

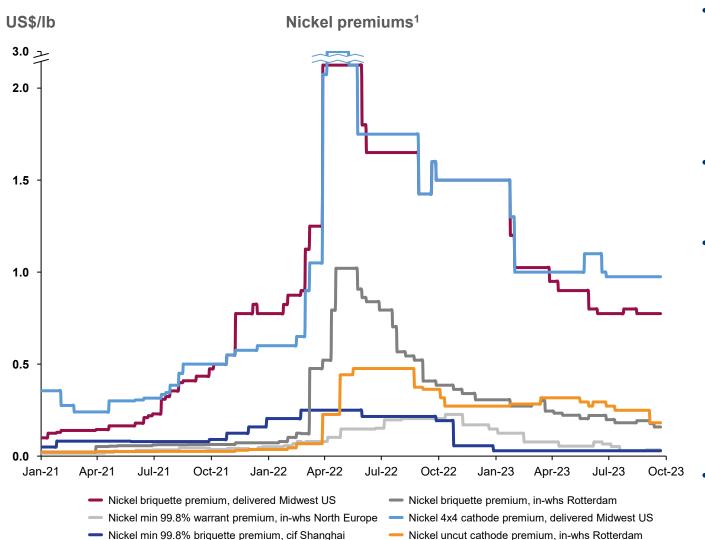


Ni Typical Chemical Analysis		
Ni	> 99,9000%	
Со	< 0,0350%	
Fe	< 0,0070%	
С	< 0,0050%	
S	< 0,0020%	
Cu	< 0,0015%	
Pb	< 0,0015%	
Cd	< 0,0010%	
Pb	< 0,0010%	
Si	< 0,0010%	
Zn	< 0,0005%	
Mn	< 0,0002%	
Mg	< 0,0001%	
O2	< 0,0050%	
N2	< 0,0010%	
H2	< 0,0002%	

Co Typical Chemical Analysis		
Со	> 99,6000%	
Ni	< 0,1000%	
Mn	< 0,0300%	
Fe	< 0,0200%	
S	< 0,0100%	
С	< 0,0100%	
Cu	< 0,0050%	
Cd	< 0,0050%	
Zn	< 0,0050%	
Pb	< 0,0030%	
Mg	< 0,0020%	
Cr	< 0,0020%	
Ca	< 0,0020%	
Al	< 0,0020%	
Si	< 0,0020%	
02	< 0,0050%	
N2	< 0,0010%	
H2	< 0,0002%	

### Market conditions favourable for SMP product sales

Class 1 electrolytic nickel premia trading strongly, especially in the United States – a key export market



- SMP produced electrolytic nickel with 99.9% purity
  - Grade exceeded London Metal Exchange ("LME") delivery specifications
  - Purity for demanding applications such as batteries, electroplating, high grade speciality stainless steels
- SMP electrolytic cobalt (broken cathodes) can be sold into battery manufacturing, super alloys, chemical industry, diamond tooling and magnets
- 'Tocantins' nickel and cobalt brands well established domestically in Brazil and key Western export markets
  - Class 1 nickel with strong ESG credentials and metallurgical characteristics
  - Historically traded at a premia to standard LME electrolytic nickel brands
  - Future premia anticipated to remain supported Russian material trading at discount
- Superalloy and speciality steels strong due to aerospace and defense spending following Russia's invasion of Ukraine

### Jervois Brasil's commitment to positive ESG outcomes

Early-stage focus on embedding ESG at SMP

#### **ESG** overview

- SMP's Scope 1 and 2 green house gas emissions estimates<sup>1</sup>:
  - Absolute: 90.2 kt CO<sub>2</sub>e/a Intensity: 1.4 t CO<sub>2</sub>e/t Co/a
- Aim to establish targets for 100% renewable power.
- Climate Action Strategy in development
- Code of Ethics and Business Conduct
- Human Rights Policy, Supplier Standards
- Leveraging RMIconformance at Jervois Finland
- Enhancing mineral and non-mineral supply chain due diligence

Aiming to minimise CO<sub>2</sub> footprint

Responsible,

ethical supply

chains

Responsible EHS management

relationships

with local

stakeholders

- Moving towards ISO 14001 and 45001 certification
- Robust ESMS and OHSMS in advanced development
- EHS training underway, strong contractor focus
- Ni, Co rehabilitation program in operation
- Stakeholder engagement strategy
  - "Buy Local-Hire Local" Policy
  - Early prioritization of community engagement
  - Diversity and inclusion action plan advancing

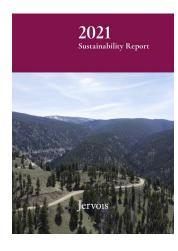
## **Levering our Memberships and Affiliations**







### **Annual Sustainability Report**







**EV** batteries require nickel and cobalt

Nickel and cobalt are critical minerals

Jervois assets are strategically important

Jervois portfolio is diversified

Jervois management is highly experienced

**Balance sheet to underpin 2023 delivery**