QUEENSLAND PACIFIC METALS

Benchmark Nickel Conference

Re-energising battery metals production

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ASX:QPM
www.qpmetals.com.au

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Company

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Townsville Energy Chemicals Hub – "TECH Project"

Value Add Business

Ore Supply – High Grade Nickel-Cobalt Laterite source from New Caledonia (1.2 – 1.5Mtpa)

Laterite ore (1.6% nickel)

Shipping from New Caledonia to Townsville

Sulfate Refinery

- Cobalt sulfate — 1.2 - 1.5k tpa Co
- Nickel sulfate — 12 - 16k tpa Ni

Ni-Co Mixed Hydroxide Precipitate

Processing Plant (Direct Nickel™ process)

- Hematite
- Magnesia

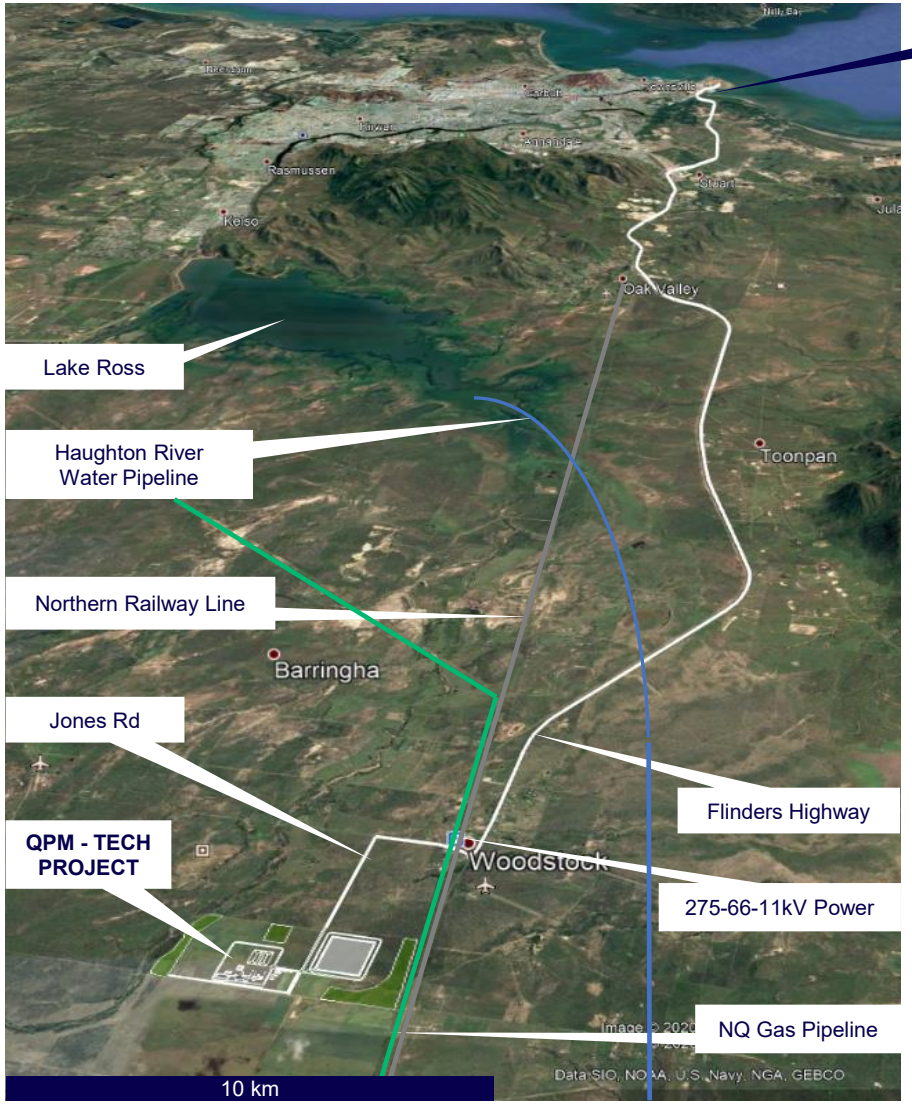
Aluminium hydroxide

High purity alumina (HPA) Refinery

- 99.99% HPA — 4k tpa HPA

- High grade ore supply from established mines
- Safe jurisdiction
- Clean technology
- Recycled leach agent
- Off the shelf equipment
- Fast to production (no mine)
- High purity - Value add
- Commercial refining processes
- Products for high growth EV sector

Project Location: Lansdown



Ideal site (290 Ha) allocated to QPM in the Lansdown Eco-Industrial Precinct

- Zoned heavy industrial
- Water pipeline
- Gas pipeline (35 PJ/y capacity – we need ~10 PJ/y)
- Electric transmission lines (275kV, 66kV and 11kV)
- Fibre optic communications
- Existing Ross River (140 MW) and Edify (400MW) solar arrays
- Road train access to Townsville Port (Flinders Highway)
- Rail line
- Environment - gently undulating grazing land, sparsely wooded

Sources of Nickel

Nickel Sulfides

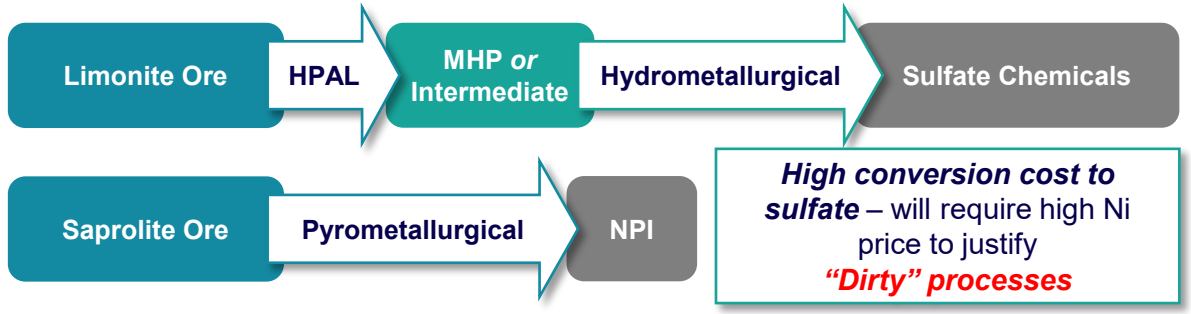
- Reserves depleting (and only < 30% of world nickel reserves)
- Sulfide ore usually processed through to concentrate
- Next processing steps are usually big, complex and long lead-time
  - Concentrate typically smelted to nickel sulfide matte
  - Matte then refined to nickel metal or sulfate
- New exploration finds slow to market vs QPM TECH Project

- Other processes to convert concentrate direct to sulfate chemicals are in the early stages of development (high risk)

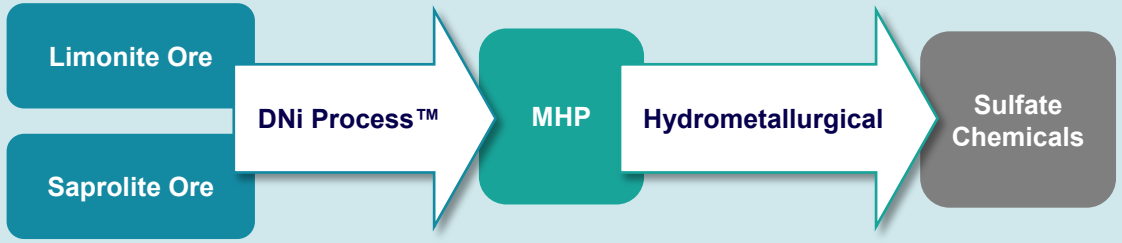
Nickel Laterites

- Limonite ore (high iron)
  - Typically processed through to MHP, which can then go straight to sulfate chemicals
- Saprolite ore (low iron, high magnesium)
  - Typically processed into nickel pig iron or ferronickel for stainless steel

Traditional



QPM



Where will the nickel sulfate come from – the cupboard is nearly empty?

Nickel pig iron	• Conversion to nickel sulfate is chemically possible but not economically attractive • Needs high nickel price • Very “ugly” environmental footprint
Ferronickel	• Ditto
Nickel sulfides or MSP	• Sustainability – tailings, acid mine drainage, etc • Going from a sulfide concentrate to nickel sulfate is usually complex, difficult and expensive • Going directly from sulfide direct to nickel sulfate is mostly at lab/pilot scale or challenging • … anyway, there’s not enough sulfide resource to meet global demand
Nickel metal	• Common practice - temporarily filling the gap (at an incentive cost of ~US$0.50 – 1.00/lb) • But the world still needs some Class I nickel metal for stainless steel and alloys – so is this only a stop-gap measure? • Class I metal deficit by 2024 – 2026?
High pressure acid Leach (HPAL)	• 10 – 11 of 12 existing HPAL operations have failed to meet investor objectives • In most geographies, sustainability challenges – ocean effluent, 1.2 – 1.4t tailings/t ore - dams or filtration (e.g. Goro - high capital) • Indonesia? Barriers include sustainability (tailings, effluent), coal electricity, destined for China and jurisdiction • High capital intensity US$60 - $120k/annual tonne nickel-equiv (including ESG capital) • Low availability (averages << 80%) • Long ramp up (averages >5 years) • Slow development (minimum 5 yrs, typically >10 yrs) • Complex technology (can be done but you have to be “good” to develop, build and operate)
MHP refinery	• But where will the MHP come from – HPAL (see above !) • Brownfields refinery (with HPAL) is attractive but adds to capital

Direct Nickel Process™ - Advantages

Nitric acid leaching: most efficient acid

- Low temperature, atmospheric pressure
- Treats entire orebody
- Simple alloys/construction
- 97% metal extraction
- Licensed from Altilium Group

Recycle/re-use > 98% of the leaching agent

- Reduces operating costs
- Greatly reduced environmental impact

Product options:

- Mixed Hydroxide Product MHP (>40% nickel) or refined, battery-grade products

Co-product revenues: hematite, magnesia, High-Purity Alumina

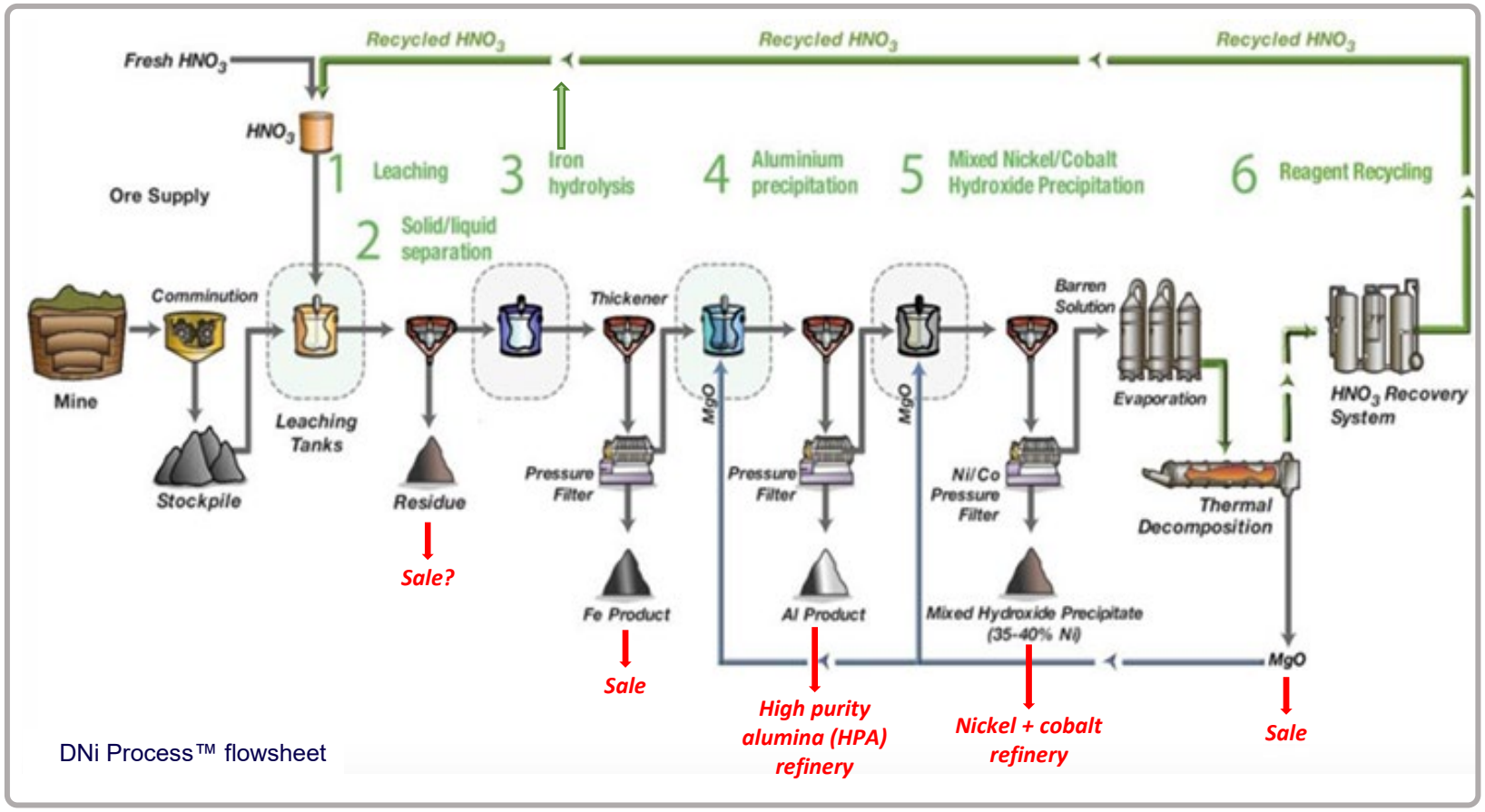
- Little or no residues

Scalable:

- Stirred tanks – just make them bigger

Speed to market:

- Approvals – no mine, no effluent, no tailings
- Construction – simple stainless steel alloys and vessels



DNi Process™ flowsheet

The Right Time for the Direct Nickel Process

First HPAL* 1960 *(Moa Bay)*

** HPAL "High pressure acid leach"*

2nd Generation HPAL
Bulong 1998-2003 (closed)
Murrin Murrin 1999→ (operational, 75% design)
Cawse 1998-2009 (closed)

3rd Generation HPAL
Coral Bay 2005- (successful)

1st Gen Nickel Pig Iron
China plants – 8% Ni (low quality)

3rd Generation HPAL
Ravensthorpe 2008-2009, 2011-2017, 2020 →
Goro 2009→ (operational, 65% design)
Ramu 2012→ (operational, 4.5 year ramp-up)
Ambatovy 2012→ (operational, poor availability)
Taganito 2013→ (operational, poor availability)
Gordes 2014→ (operational, low throughput)

DNi Pilot Plant
Successful demonstration of technology - but the time (product market) wasn't right

2nd Gen Nickel Pig Iron (NPI)
14% Ni (high quality) displacing LME nickel metal for stainless steel.
Most viable process for stainless steel industry

1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020

EV Revolution
Class 1 nickel (after refining) for batteries – NPI not suitable for batteries.
Not enough sulfide resources to meet demand – laterites must be developed.

- **HPAL issues** (capital, environment, failures)
- **DNi Process™ - the right time**

The Need for "Green"
End-users are more socially and environmentally conscious.

- HPAL/NPI - sovereign risk, tailings
- NPI - very high GHG intensity

TECH Project – delivering Ni/Co from a safe jurisdiction with an attractive environmental footprint

MOUs for Offtake – LG Chem and Samsung

QPM and LG Chem agree to negotiate a binding offtake agreement for:

- 3-5 year term
- 10,000tpa contained nickel
- 1,000tpa contained cobalt
- Consideration of prepayment by LG Chem

Refer to ASX Announcement 15 October 2020

QPM and Samsung SDI agree to negotiate a binding offtake agreement for:

- 3-5 year term
- 6,000tpa contained nickel

Refer to ASX Announcement 26 November 2020

Implications for the TECH Project

- Attracting the attention of world class, bankable offtake partners
- QPM is being recognised as a potential supplier to address the growing concerns in the industry with respect to nickel supply
- Provides confidence that demand is there for larger scale TECH Project
- Competitive tension for offtake negotiations
- Vote of confidence from two world-class battery manufacturers

Sustainable Nickel Production

Global leader in lowest CO_2 emissions for nickel sulfate production

- Industry average (Nickel Institute) is 24.2kg CO_2/kg nickel *(NB: excludes China)*
- QPM TECH is one third lower than industry average
  - 15.4kg CO_2 per kg nickel-equivalent (in nickel sulfate)
- Emissions can be further reduced by using vented/flared gas from existing coal mines (CO_2 credit received)

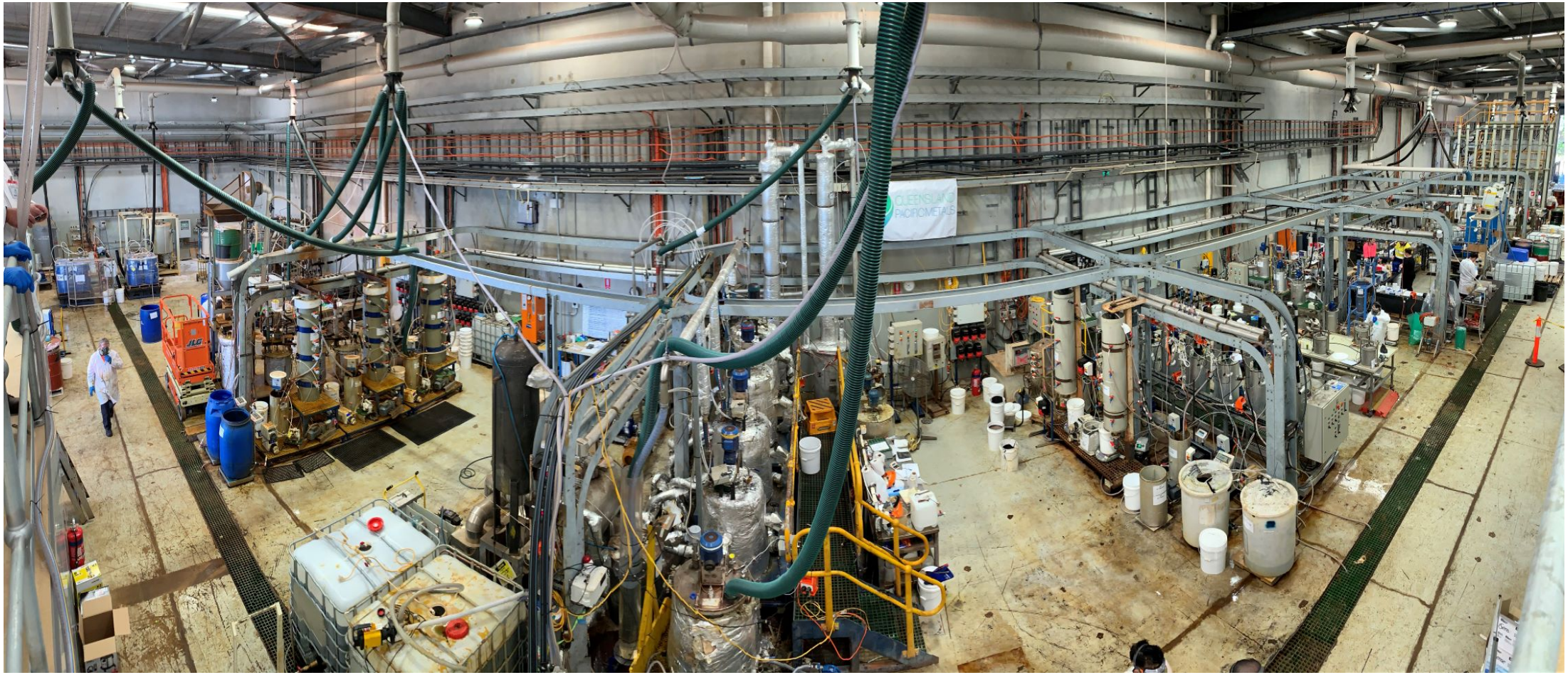
- Nickel matte derived from nickel pig iron or ferronickel, is **not** a clean source of nickel for nickel sulfate
- Refining nickel matte is complex and capital intensive – it only takes place at a few places in the world

	1 kg nickel in			
	Class 1 Ni (>99.8% Ni)	Nickel Pig Iron	Nickel Sulfate (Nickel Institute)	Ni Sulfate (QPM TECH)
$CO_{2\text{-eq}}$ emissions (kg)	13	45	24.2	15.4

No Tailings Dam

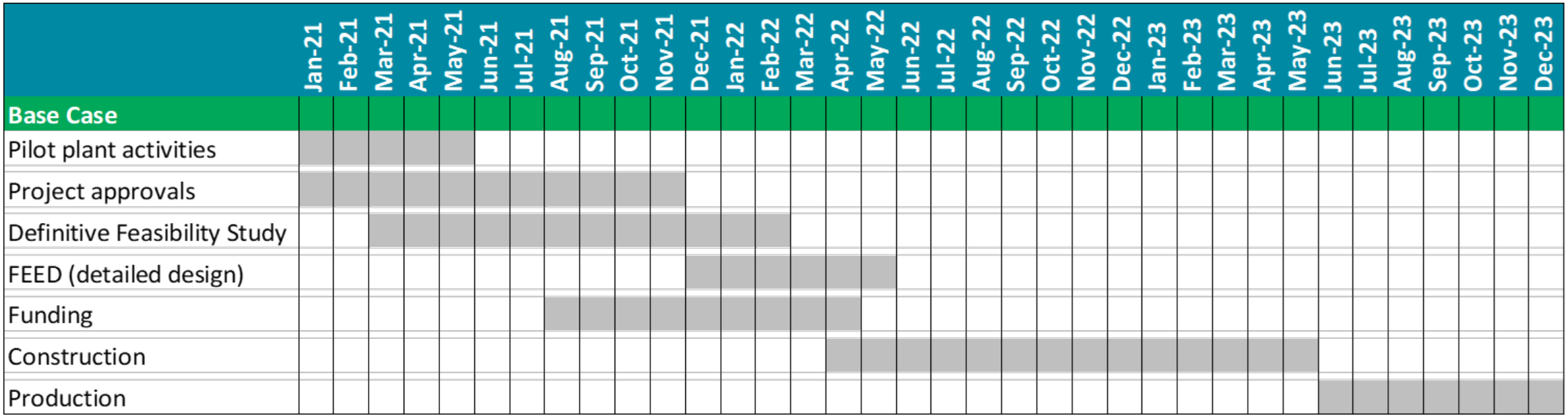
- All metals are leached into solution and nitric acid is recycled
- Residue is an inert silicate (dry stacked or re-purposed)
  - James Cook University investigating use in commercial opportunities such as engineered landfill

Pilot Plant Activities



QPM Pilot Plant located at ALS Global Hydrometallurgy Centre of Excellence, Perth, Western Australia

Project Schedule



Funding Considerations

Project Feasibility Stage (current)

- Piloting
- Feasibility studies
- Regulatory approvals
- Secure project partners/offtake
- Front-end engineering design (FEED) and capital conformation

Funding Options

- Traditional equity investors
- Strategic investment by partner(s)/offtaker(s)
- Government grants including manufacturing grant
- R&D tax incentive

Project Construction – Funding Options

QPM is advancing discussions with a number of parties regarding debt and equity funding for the TECH Project. Achieving success in the project feasibility stage will increase the value of the company and open doors to funding opportunities for project construction.

Debt

- **Project Partners**: Strategic opportunity for a 'Big Brother' to be involved in a project that would be a game changer for the nickel industry
- **NAIF**: TECH Project meets NAIF criteria being in Northern Australia, is a centralised processing plant and will deliver many social benefits to Townsville and surrounding region
- **Export Finance Australia**: EFA is targeting assistance to critical minerals projects, which the TECH Project will produce
- **Offtake Finance**: Offtake is in high demand given the lack of nickel supply – end users understand the need for project participation or funding to secure offtake
- **International Export Credit Agencies**: Potential to obtain international ECA funding, particularly for plant and equipment being sourced from overseas

Equity

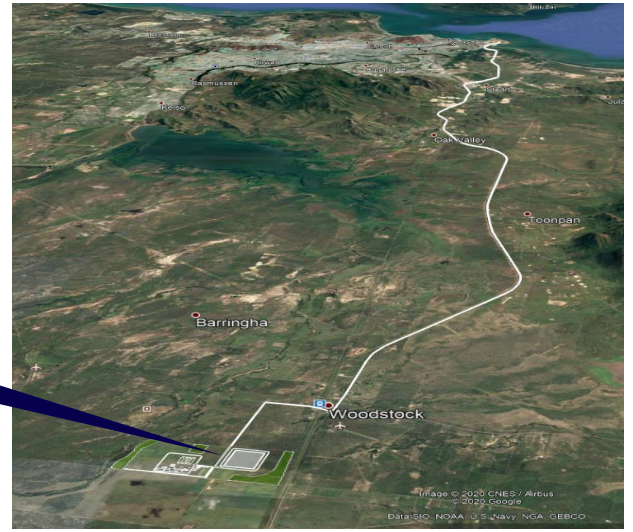
- **Project Partners/Offtakers**: Securing project or offtake participation by way of equity investment
- **Institutional Investors**: Traditional equity investors targeting critical minerals investment
- **Green Funds**: Many funds targeting green investments and the emerging EV sector

Corporate Overview

Capital Structure	
Shares on issue	1.21B
Share Price	8.5c
Market cap	A$103M
Top 20	38%

Board and Key Management	
Eddie King	Non Exec Chair
John Downie	Managing Director
Cameron Mclean	Non Exec Director
Stephen Grocott	CEO

The QPM TECH Project



Pathway for nickel and cobalt production

QPM - TECH PROJECT