

14 November 2022

MHP study demonstrates high quality product and value uplift for West Musgrave

- West Musgrave Mixed Hydroxide Precipitate (MHP) Study demonstrates:
 - A successful pilot plant confirming the flowsheet using conventional technologies
 - Premium product with high nickel content and ultra-low impurities
- Strong market interest being shown in West Musgrave MHP due to:
 - Potential supply of high-quality product over long mine life from a low-risk jurisdiction
 - Strong sustainability credentials with low carbon footprint and product traceability
- Potential to be significantly value accretive; Net Present Value ~\$250 – \$460 million on capital of ~\$310 million and IRR ~20% to 27%
- Progression to Feasibility Study to be considered in parallel with potential strategic partner process (minority interest) - strong interest to date:
 - Process generating potential value accretive opportunities beyond West Musgrave

OZ Minerals (ASX: OZL) today released a West Musgrave Mixed Hydroxide Precipitate (MHP) Project Study Update. The MHP Study considers the opportunity of further processing nickel concentrate from the West Musgrave copper-nickel Project in Western Australia into a high-grade nickel product via a Pressure Oxidation (POX) and precipitation process.

The study confirms the technical and commercial opportunity of producing a high quality and high grade MHP product and the potential for significant value uplift to the West Musgrave Project (WMP).

The value uplift includes improving road safety, reducing transport movements, costs and carbon emissions due to a ~65% mass reduction of the non-valuable component of the concentrates transported to customers, a potential for improved payability for the contained metal, and its attractiveness to the battery value chain given its traceability.

A decision whether to proceed to Feasibility Study phase will be made in parallel with the current West Musgrave potential strategic partner review. The MHP process plant would be constructed after the mine begins production. The West Musgrave Project commenced construction this month following final investment approval in September 2022.

OZ Minerals Chief Executive Officer, Andrew Cole, said: "We are encouraged by the outcome of the MHP Study as we continue to look at opportunities to further enhance value in the West Musgrave Province.

"An important technical milestone was achieved during the study with a successful pilot plant, confirming the flowsheet and producing a MHP product that is high in nickel content with very low impurities, making West Musgrave MHP a high-quality product when benchmarked against other MHP products in the market today.

“There has been strong interest from potential customers in the MHP product and we have become increasingly confident that MHP will be one of the preferred feedstocks for battery manufacturers as the world looks to step up its decarbonisation journey in coming years.

“We expect a MHP product from West Musgrave to generate strong demand given its favourable sustainability credentials, with customers placing value on supply from a project that is located in a quality jurisdiction, produced from a project with a low carbon footprint and with the ability to transparently trace nickel from mine site right through the supply chain to final product and end-consumer.

“The work done to date is to a level that allows us to commence a Feasibility Study when ready. A decision on project next steps will be considered in parallel with the current strategic partnership (minority interest) process for the West Musgrave Project. Strong interest has been received with high quality responses received to date to enhance the value of the project. The process is also generating further value accretive opportunities for OZ Minerals outside of the West Musgrave Project which we are currently exploring.”

This announcement is authorised for market release by OZ Minerals’ Managing Director and CEO, Andrew Cole.

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West Musgrave Mixed Hydroxide Precipitate (MHP) Project **Study Update**

November 2022

EXECUTIVE SUMMARY

Cautionary Statement

OZ Minerals has delivered this study update under a risk based agile methodology. Following the successful completion of the pilot plant program (as outlined in this Executive Summary), the MHP flowsheet development is at a level suitable to support the commencement of a Feasibility Study. The engineering capital cost estimates contained in this Executive Summary have been completed to a AACE Class 5 (+/- 30%) which are typically associated with a scoping study.

The Production Target and forecast financial information derived from the Production Target referred to in this ASX release is based on 86% Probable Ore Reserve, 3% Indicated Mineral Resource and 11% Inferred Mineral Resource. The modifying factors used in the estimation of the Ore Reserve were also applied to the Indicated Resource and Inferred Resource. There is a low level of geological confidence associated with Inferred Mineral Resource and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resource or that the Production Target itself will be realised.

The material assumptions used in the estimation of the Production Target and associated forecast financial information are set out in the West Musgrave Project Nebo-Babel Deposits 2022 Mineral Resource and Ore Reserve Statement and Explanatory Notes as at 23 September 2022 in Table 1.

The Mineral Resource and Ore Reserve estimates underpinning the Production Target were prepared by Competent Persons in accordance with the JORC Code 2012.

The forecast financial information derived from the production target set out in this release are based on the material assumptions outlined in the Executive Summary below. While OZ Minerals considers all the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the studies will be achieved.

Given the uncertainties involved, investors should not make any investment decisions based solely on the results of these studies.

Forward Looking Statements

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Some statements in this material are forward-looking statements. Such statements include, but are not limited to, statements with regard to capacity, future production and grades, projections for sales growth, estimated revenues and reserves, targets for cost savings, the construction cost of new projects, projected capital expenditures, the timing of new projects, future cash flow and debt levels, the outlook for minerals and metals prices, the outlook for economic recovery and trends in the trading environment and may be (but are not necessarily) identified by the use of phrases such as “will”, “would”, “could”, “expect”, “anticipate”, “believe” and “envisage”. By their nature, forward-looking statements involve risk and uncertainty because they relate to events and depend on circumstances that will occur in the future and may be outside OZ Minerals’ control. Actual results and developments may differ materially from those expressed or implied in such statements because of a number of factors, including levels of demand and market prices, the ability to produce and transport products profitably, the impact of foreign currency exchange rates on market prices and operating costs, operational problems, political uncertainty and economic conditions in relevant areas of the world, the actions of competitors, activities by governmental authorities such as changes in taxation or regulation.

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Certain statistical and other information included in this material is sourced from publicly available third-party sources and has not been independently verified.

All figures are expressed in Australian dollars unless stated otherwise.

West Musgrave MHP Study Update

Introduction

The West Musgrave Project (WMP) is a significant greenfield copper and nickel project located in the remote, highly prospective West Musgrave Mineral Province of central Western Australia. OZ Minerals announced final investment approval to develop the West Musgrave copper-nickel Project in September 2022, with first concentrate targeted for H2 2025¹. The WMP will produce separate copper and nickel concentrates.

Given the global trend towards decarbonisation and electrification, and the subsequent demand for critical minerals, OZ Minerals has investigated the potential to unlock further value for the West Musgrave Province through participation in a downstream nickel product.

The West Musgrave Mixed Hydroxide Precipitate (MHP) Project consists of two parallel workstreams; technical and commercial, investigating the potential to maximise value of the West Musgrave Province through further processing of WMP nickel sulphide concentrate.

MHP is an intermediate nickel product suitable for feed into the battery market, whereby MHP is typically processed into nickel sulphate (NiSO₄) before incorporation into Li-ion batteries with nickel cathode chemistries. The MHP Project provides OZ Minerals and downstream partners the ability to produce a traceable, clean and low emission product that is aligned with the global decarbonisation and electrification thematic. Production of MHP is also expected to reduce site transport movements by an estimated 40% relative to the base case nickel sulphide concentrate movements.

The MHP Project commenced technical work in 2019, with a desktop study and exploratory bench test work. Further bench test work in 2021 successfully produced high quality MHP product from WMP nickel concentrate. In 2022, further testing via a pilot plant was conducted to increase confidence in the hydrometallurgical flowsheet, demonstrate performance under continuous conditions and support generation of a Process Design Criteria (PDC) to inform a capital and operating cost update. The technical work program associated with the pilot plant has now been completed and the results are included in this Executive Summary. The MHP flowsheet is comprised of conventional unit operations all of which have industry precedents and is not considered a new or novel flowsheet.

The commercial workstream commenced in 2021 and has consisted of business development activities as well as independent market analysis, with the objective to better understand the market for MHP and associated partnership opportunities within the battery value chain.

Project Overview

The WMP is a significant greenfield copper and nickel project located in the remote Ngaanyatjarra Aboriginal Lands of central Western Australia. The project represents the first major mining project in the Ngaanyatjarra Lands and within the highly prospective West Musgrave Mineral Province. The WMP is located in the West

¹ Refer to "Green light for West Musgrave Project" released 23 September 2022

Musgrave Ranges of Western Australia, approximately 1,300 km North-East of Perth and 1,400 km North-West of Adelaide, near the intersection of the borders of Western Australia, South Australia and Northern Territory. The nearest towns include the Indigenous Communities of Jameson (Mantamaru) 26 km north, Blackstone (Papulankutja) 50 km east, and Warburton (Milyirtjarra) 110 km west of the project.

WMP will be a long-life, low-cost asset producing in-demand minerals in a Tier 1 jurisdiction. The open pit mining operation will produce nickel and copper sulphide concentrates via a typical crush, grind, and flotation flowsheet. Under the WMP Base Case assumptions, both nickel and copper concentrates are transported to a diverse domestic and international customer base. Due to the remote location of the WMP, MHP presents a significant opportunity to reduce transport movements and costs through further concentration of product. The MHP Project has investigated the potential of developing a hydrometallurgical processing facility, adjacent to the currently planned WMP Mineral Processing Plant (MPP), to process the nickel concentrate (10 – 13% Ni) into a high grade MHP product via a Pressure Oxidation (POX) and precipitation process.

MHP Process Description

The nickel concentrate contains a high proportion of nickel hosting pentlandite, which is also accompanied by other sulphides: pyrite, chalcopyrite and pyrrhotite. Near complete extraction of the nickel, cobalt along with copper is attained by pressure oxidation.

Pressure oxidation is a process whereby oxygen is injected into an autoclave (pressure vessel) along with the concentrate to produce an autogenous reaction that heats the material and liberates the valuable metals into solution. A liquor rich in dissolved metals is produced that contains the target elements (nickel, copper, and cobalt), other metals (iron, aluminium) and sulphuric acid. The reaction also produces solids, in the form of an iron rich sand like material (hematite) and elemental sulphur.

The products of the pressure oxidation reaction are cooled by controlled depressurisation of the solid-liquid solution, releasing steam. The solids are separated from the cooled solution, washed, and deposited into a tailing facility, while the metal rich liquid is forwarded through several treatment stages. Initially, the liquor is neutralised to remove most of the iron and aluminium and free acid from solution by the addition of a locally sourced base reagent. Solids containing the iron and aluminium are separated, washed from solution and disposed. The liquor leachate containing nickel, cobalt and copper is then treated with a reducing agent to precipitate the copper from solution. The copper sulphide concentrate (CuS) is filtered and washed to produce a saleable product.

Nickel and cobalt remain in solution which is forwarded to a further stage where these metals are precipitated from solution by a base reagent to produce a Mixed Hydroxide Precipitate (MHP). The MHP is separated from the now barren liquor, washed, and dewatered to produce a saleable product. A portion of the barren liquor is reused for reagent preparation and the remainder is evaporated.

The MHP Process for treating West Musgrave nickel sulphide concentrate was developed by Dr. David Dreisinger and Mr. Ken Baxter of Dreisinger Consulting Inc. on behalf of OZ Minerals. OZ Minerals would like to thank Dr. Dreisinger and Mr. Baxter for their significant contributions.



Figure 1: WMP Flowsheet including additional MHP process

MHP Pilot Plant

A 12-day pilot plant program was successfully completed at Hazen Research Inc., Colorado, USA, on typical nickel sulphide concentrate produced from ore body representative drill core from the West Musgrave Nebo-Babel deposit. Operation of the pilot plant demonstrated the process flowsheet on a continuous basis, with no fatal flaws identified. The pilot plant successfully precipitated a high quality MHP product containing nickel and cobalt, along with a copper sulphide concentrate. External benchmarking indicated the MHP product compares favourably against other MHP products currently in the market, with very low Zn & Mn (key impurities). Based on the operations of the pilot plant, 48% Ni and 1.2% Co (effective dry basis) MHP product grades at 97.5% and 95.6% total recovery respectively, along with a 60% CuS product grade at 83.9% total recovery, were selected by the Engineer to develop a process design criteria (PDC) for a capital and operating cost estimate update.

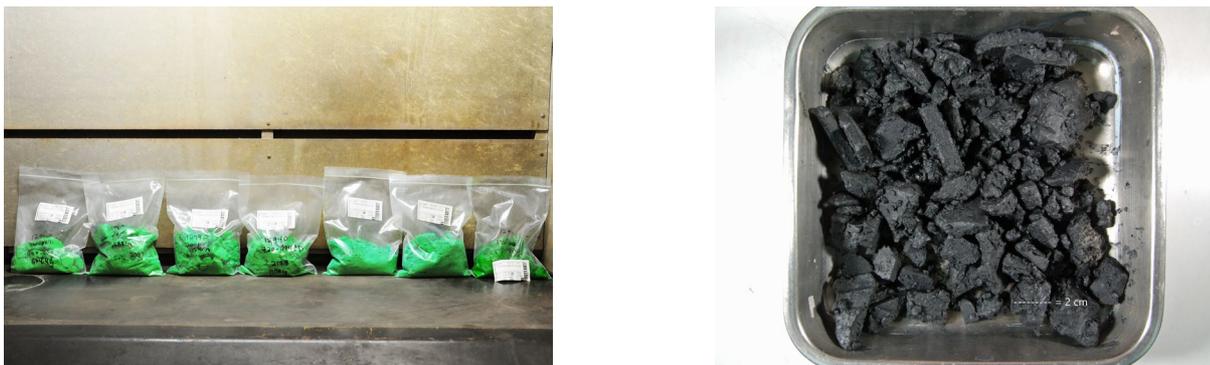
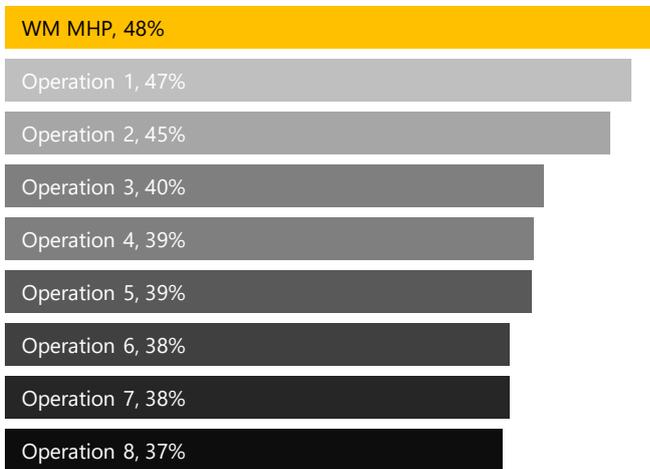


Figure 2: MHP and Copper Sulphide produced from WM MHP Pilot Plant (Source: Hazen)

Nickel grade, % (dry)



Cobalt grade, % (dry)

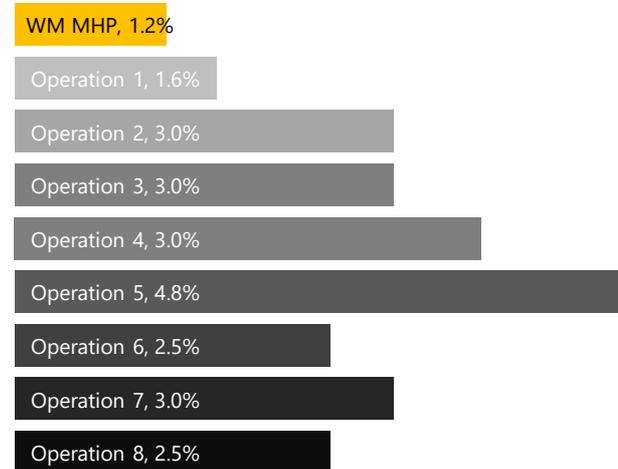


Figure 3: WM MHP (PDC) metal grade benchmarking (Source: CRU)

Comparison of key contaminants

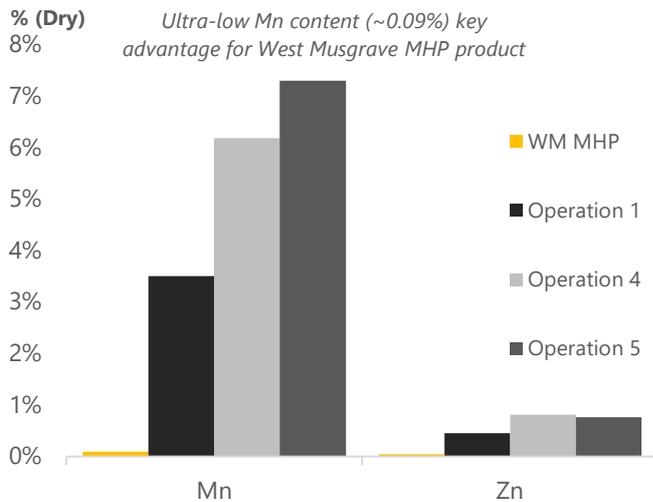


Figure 4: WM MHP (PDC) contaminant benchmarking (Source: CRU)

MHP Capital and Operating Cost Update

The process design criteria formulated from the pilot plant was used as the basis for an AACE Class 5 (Scoping Study) capital and operating cost update performed by Newpro Engineering for a 250 ktpa sulphide nickel concentrate processing facility to be built onsite at West Musgrave. The estimated capital cost being \$A325m²

² Includes A\$17M of pre-development study costs.

+/- 30% and an on-site operating cost of \$A337 +/- 15% per tonne of nickel sulphide concentrate processed. A preliminary estimate for export freight unit costs is A\$280/t – A\$300/t of product.

Market Analysis & Business Development

CRU was commissioned to assess the nickel market, with particular focus on the battery sector and outlook for NiSO₄ and MHP, helping to inform this section of the study³. A key theme from this analysis is that nickel demand growth is expected to be increasingly driven by battery demand, with relatively consistent demand for nickel used in stainless steel and other alloys. Nickel sulphate (NiSO₄) production, the predominant nickel feedstock into battery materials, is expected to increase at a CAGR of ~18% between 2021 and 2030. This growth is expected to be met by a strong increase in the use of MHP and laterite matte as NiSO₄ feedstock, with 2030 forecast market share of 36% and 40% respectively based on CRU forecast.

CRU analysis indicates MHP is a preferred feedstock for NiSO₄ producers due to lower production costs relative to alternate feedstocks under most market conditions, with the long term MHP price, typically quoted as % payable to LME nickel, expected to be a function of the NiSO₄ price. CRU analysis indicates long term NiSO₄ prices (2030) are forecasted to be ~US\$2,800/t Ni above the LME nickel metal price, supported by higher cost of laterite matte conversion, and resulting in a CRU Base Case MHP payable nickel forecast of 85-89% (between 2025-2030), materially above payable terms for nickel concentrate. Similarly, CRU forecast cobalt payables between 87-89% over the same period.

Conversion to MHP is expected to provide a clear and more direct route to the battery segment of the nickel market compared with the concentrate smelting route, potentially providing benefits in terms of traceability. Additionally, West Musgrave MHP is expected to be particularly attractive to participants in the battery value chain given its long life, low carbon footprint, quality and its location in a favourable jurisdiction. While current MHP refining and NiSO₄ production is broadly dominated by China, the trend towards regionalisation of supply chains (e.g. US Inflation Reduction Act) has seen an increasing interest in establishing traceable alternate sources of supply, for which West Musgrave MHP represents a viable and sustainable long-term feedstock.

Business development engagements have focused on exploring long term interest for MHP as well as potential partnership opportunities. Based on strong inbound interest in both the WMP and MHP Project, OZ Minerals has commenced a formal strategic partnering process as previously announced⁴.

³ CRU report "OZ Minerals Nickel Market Strategy" November 2022

⁴ Refer to "Green light for West Musgrave Project" released 23 September 2022

Stakeholder Value Creation

Value has been assessed across OZ Minerals' six stakeholder groups, which has highlighted three (3) key areas of potential value creation. Specifically: 1) Increased participation in battery value chain, traceability of products, and potentially decreased carbon emissions; 2) Opportunity to optimise project economics through improved payabilities and commercials; and 3) Decrease in traffic volumes and logistic costs through a significant reduction in concentrate haulage.

Financial Analysis

Financial value of the MHP Project is driven by an increase in nickel metal payability, increase in by-product revenues and savings in logistics costs through reduced product haulage.

It is expected that 97.5% of nickel metal and 95.6% of cobalt metal contained in nickel concentrate will be recovered into MHP product. CRU Base Case forecasts indicate that MHP product will receive an increased payability for contained nickel and cobalt metal when compared with nickel concentrate.

There is also a significant product grade uplift via conversion of Nickel concentrate (10 – 13% Ni) to MHP (48% Ni and 1.2% Co), driving a ~65% reduction in mass of product transported to the final customer.

In addition, the MHP process is also expected to produce 4.5 – 8.5 ktpa of copper sulfide by-product at 60% Cu, which may be blended with WMP copper concentrate to increase payable copper production.

Key Project Metrics

Metric	Unit	MHP Study Update
Ni price	US\$/lb, real	7.83 (Consensus ⁵)
Co price	US\$/lb, real	23.00
Cu price	US\$/lb, real	3.43 (Consensus ⁶) – 4.35 (CRU High ⁷)
FX	AUD/USD	0.70
MHP nickel payability (2030) ⁸	%	85 (CRU Base) – 89 (CRU High)
MHP cobalt payability (2030) ⁹	%	87

Metric	Unit	MHP Study Update
Processing rate	ktpa	250
First MHP	Year	2027
Ni / Co recovery (Ni concentrate to MHP)	%	97.5 / 95.6
Cu recovery (Ni concentrate to CuS)	%	83.9
MHP Ni / Co grade (effective dry basis)	%	48 / 1.2
CuS grade	%	60
Average Ni / Cu production ¹⁰	ktpa	~26 / ~40 ¹¹
Average Co production	tpa	~800
Operating cost (incl. WMP base case)	A\$/t ore, real	~37
C1 cost payable Ni (net of by-product credits)	US\$/lb, real	(0.90) – 0.50
C1 cost payable Cu (net of by-product credits)	US\$/lb, real	(1.50) – (1.30)
MHP capital (excl. study)	A\$m, real	~310
Post tax NPV ¹²	A\$m	250 – 460
Post tax IRR ¹²	% (real) % (nominal)	17 – 24 20 – 27
Payback from first production	Years	3 – 4

⁵ Consensus Economics August long term nickel price

⁶ Consensus Economics August long term copper price

⁷ CRU long term High Case copper price as referenced in "Green light for West Musgrave Project" released 23 September 2022

⁸ CRU Base Case and High Case MHP nickel payability range (2030)

⁹ CRU Base Case MHP cobalt payability (2030)

¹⁰ Total West Musgrave metal production

¹¹ Includes the addition of ~5 ktpa copper contained in copper sulfide produced from the MHP process

¹² Range is based on CRU copper price and MHP nickel payability ranges

Key Risks

In addition to market-based risks, there are several items that present threats and opportunities to the MHP Base Case.

Regulatory approvals

The project will require a series of variations to the existing WMP regulatory approvals. Stakeholder engagement and regulatory approvals schedule aligned with the indicative project timeline to minimise the threat of any approval delays have been developed.

WMP project integration

The MHP Project will require integration into WMP infrastructure (i.e. power, water supply, tailings, accommodation, local source of base reagent etc.), this will be further investigated during the next phase of the study.

Next Steps

The MHP Project study has demonstrated both the technical and commercial opportunity of producing an MHP product and is ready to progress to a Feasibility Study. The next phase of the study will also include engagement with the Ngaanyatjarra community and Ngaanyatjarra Council, prior to seeking variations to our existing regulatory approvals.

A decision to commence a Feasibility Study will be considered in parallel with the WMP strategic partnering process currently underway.

Key Contributors

OZ Minerals would like to thank the following organisations for their contribution in the development of the West Musgrave MHP Project:

- Dreisinger Consulting Inc
- NewPro Engineering
- Hazen Research Inc
- CRU Group
- ALS Metallurgy
- EMM Consulting
- GR Engineering Services
- Geowisdom Pty Ltd
- Lathwida Environmental Pty Ltd
- AQ2 Pty Ltd
- Aurecon