chalice

ASX Announcement

7 November 2023

Gonneville Project Metallurgy Update

New hydrometallurgical and bulk flotation testwork demonstrates potential upside to Scoping Study metrics

Highlights

- Excellent results received from new metallurgical work completed on the **100%-owned Gonneville Nickel-Copper-Platinum Group Element (PGE) Project in WA**.
- Recent bench scale hydrometallurgical testwork has confirmed that **Gonneville intermediate products are highly suitable for hydrometallurgical 'midstream' processing**:
  - 97-99% dissolution of all six payable metals (Ni, Cu, Co, Pd, Pt, Au), highlighting potential for a **2-3% improvement in hydrometallurgical recoveries** relative to recent Scoping Study assumptions.
  - Midstream processing and the opportunity to deliver **IRA[1]-compliant, value-added critical mineral products** aligns with Western Government policies and Chalice is investigating strategic funding alternatives and partnership models for this part of the processing plant.
- **Flowsheet development work continues to evolve** following the initial Scoping Study and several flowsheet staging options are being considered to reduce capital cost and project risk.
- A bulk flotation flowsheet configuration has the potential to **further improve overall metallurgical recoveries and payabilities** compared with the sequential flotation configuration assumed in the recent Scoping Study – bulk flotation approaches are commonplace for PGE-dominant magmatic sulphide operations in Southern Africa and Canada.
- Variability in flotation recovery to be assessed through the geo-metallurgical evaluation programme which is currently underway:
  - This is expected to **improve overall metallurgical recoveries and concentrate quality** by refining the mine plan and scheduling (targeting higher grade, higher recovery domains of the Resource in the early years).
- Nickel, cobalt and palladium flotation recoveries are sensitive to grade and, as such, modelling of staged, high-grade open-pit starter cases is underway, adopting a **higher cut-off grade with resultant higher metallurgical recoveries.**

Overview

Chalice Mining Limited ("Chalice" or "the Company", ASX: CHN) is pleased to provide an update on ongoing metallurgical testwork and process flowsheet development at the 100%-owned Gonneville Ni-Cu-PGE Project, ~70km north-east of Perth in WA ("Gonneville", the "Project").

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[1] United States Inflation Reduction Act

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Chalice has commenced the Pre-Feasibility Study (PFS) for the Project, targeted for completion in mid-2025. The PFS will assess several development cases, including additional staged, high-grade starter cases beyond those scoped in the recent Scoping Study. The PFS will involve include trade-off studies and engineering optimisations, with the aim of determining the preferred case to progress to a Feasibility Study ("FS") and final design. The initial stage of the PFS will focus on defining the cases to be evaluated and de-risked in detail.

Given the large scale of the Resource and unique metals mix, flowsheet design and optimisation will continue through the PFS phase in an iterative manner, with additional flowsheet steps and capital investment to be assessed according to the value added (as measured by increased recovery, decreased cost or improved marketing terms) and operational risk.

The Gonneville Resource includes a mix of free-dig oxide mineralisation as well as transitional/hypogene sulphide mineralisation, which are processed using two different processing flowsheets (Figure 1). The initial focus of the PFS is to optimise the sulphide flowsheet, which currently includes crushing and grinding followed by flotation to produce two concentrates:

« A **copper-palladium-platinum-gold concentrate** ("Cu-PGE-Au concentrate") for sale to a copper smelter; and,

« A **nickel-iron-cobalt-palladium-platinum intermediate concentrate** ("Ni-Fe-Co-PGE concentrate") for further enrichment and product separation using a hydrometallurgical 'midstream' process.

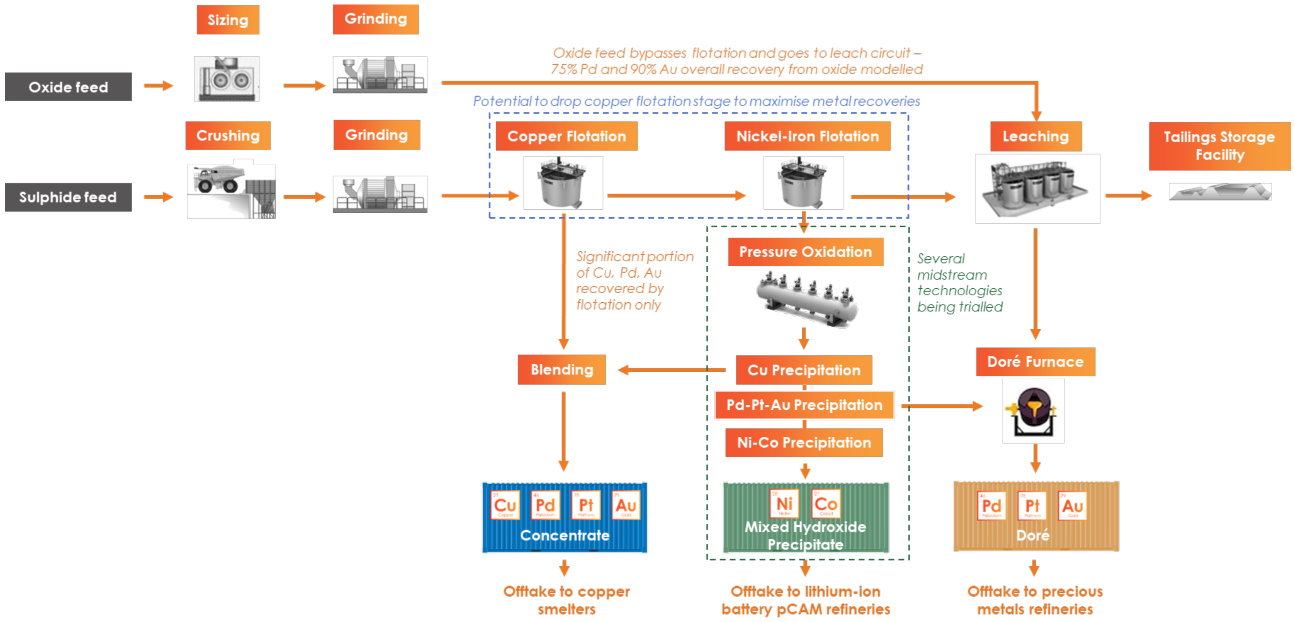

Figure 1. Gonneville Scoping Study Processing Flowsheet (simplified).

A leaching circuit is being considered to be used to process the sulphide flotation tails (as well as the oxide Resource) to produce a PGE-Au doré. This circuit is a potential add-on option to the base case processing plant – a decision that will be driven largely by palladium prices prevailing at the time.

Additional staging options for the flowsheet to reduce capital cost and risk are also being investigated. These options include the stockpiling of oxide material to prioritise start-up on sulphide only, and the production of a smelter grade nickel-cobalt-PGE concentrate as a preliminary approach whilst demonstrating and ramping up the hydrometallurgical process.

Ongoing hydrometallurgical testwork has shown the potential for some improvement in metallurgical recoveries compared with the assumptions in the recent Scoping Study. These results are discussed in more detail below. As the PFS and testwork progresses, it is expected that further improvements in recoveries may be realised.

Midstream processing and production of United States Inflation Reduction Act (IRA) compliant, value-added products aligns with Western Government policies. The Australian Government has demonstrated targeted support of critical minerals projects in this area recently and, as such, Chalice is investigating strategic funding alternatives and partnership models for this part of the processing plant.

A key priority of the PFS is continued evaluation and improved understanding of the fundamental geo-metallurgical characteristics of the various domains within the Gonneville Deposit. Improved domaining of the deposit (spatially, mineralogically and metallurgically) to exploit variability in recoveries could potentially lead to an improved mine plan and scheduling, resulting in increased metallurgical recoveries and concentrate quality.

It is expected that there could be between three and eight geo-met domains within the Gonneville Resource, based on ltiho-geochemical and mineralogical characterisation to date (Figure 2). Importantly, all of these domains are present at the top of fresh rock, due to the dip of the host intrusion, and therefore open-pit mining can prioritise certain domains over others.

This geo-metallurgical characterisation and domaining is especially important for large polymetallic deposits. Ultimately, determining which domains of the Resource have more favourable recoveries is a significant value lever for the Project, allowing the mine plan to utilise the information and prioritise the processing of these more favourable areas, while directing less favourable blocks to either waste or low-grade stockpiles. In line with this early phase of project evaluation, the recent Scoping Study had very limited geo-metallurgical data and did not utilise any domaining as an input into the mine plans.

To facilitate this geo-metallurgical evaluation, 17 new metallurgical drill holes have recently been completed and PFS testwork is now underway on the resulting 76 fresh rock variability samples. The aim of this drill program was to ensure representivity of samples across sufficient spatial and geological domains.

Once the evaluation and optimisation testwork is completed, additional samples will be sourced for sufficient Ni-Fe-PGE intermediate concentrate to be produced at pilot scale for the next phase of hydrometallurgical testwork, likely to commence in mid-2024.

Given the scale of the Resource, even minor improvements in the overall metallurgical recoveries have the potential to materially improve Project financial metrics. Nickel, cobalt and palladium recoveries are sensitive to grade and, as such, modelling of staged, high-grade open-pit starter cases is underway, adopting a higher cut-off grade with resultant higher metallurgical recoveries.

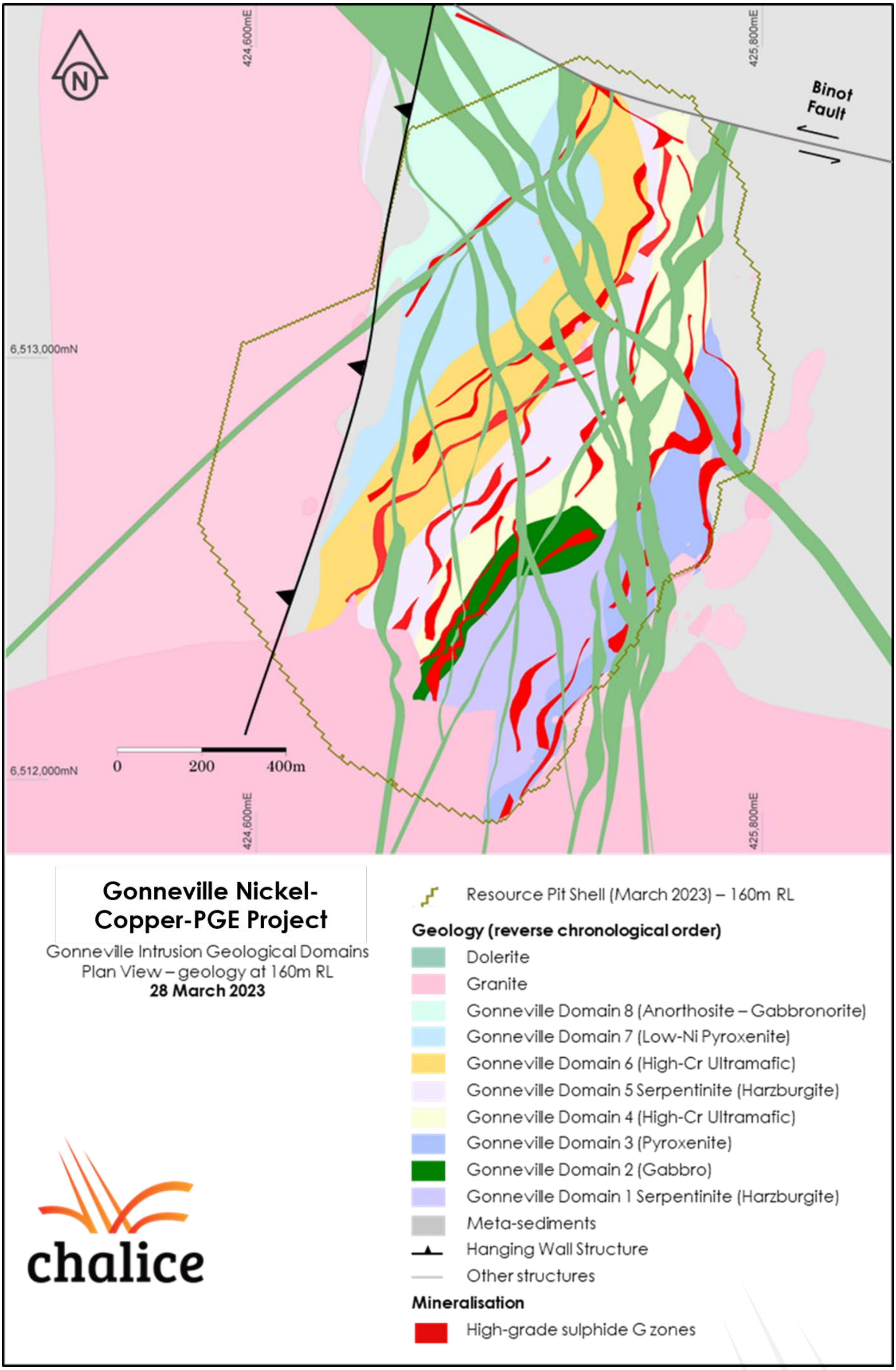

Figure 2. Gonneville Deposit Plan View – geological domains and high-grade zones at a depth of ~80m.

Metallurgical testwork results

Recent metallurgical work has focused on:

- Bench scale testwork of hydrometallurgical 'midstream processing' technologies;
- Batch testwork on a bulk flotation flowsheet to compare against sequential flotation (dropping the copper flotation stage and processing a single bulk concentrate stream through the hydrometallurgical process); and,
- Further sequential flotation testing to refine the grade-recovery algorithms.

Hydrometallurgical testwork

Several concentrate enrichment technologies have been developed for Ni-Cu-PGE development projects globally and full-scale commercial plants are planned in the coming years. The main differences in technologies are the intensity of the oxidation step operating conditions and the different options for recovery of dissolved metals from this step. These recovery options include a range of potential products from intermediate products such as sulphide and/or mixed hydroxide precipitates through to LME grade metals.

Chalice continues to engage with leading technology providers to evaluate the amenability of the Gonneville intermediate Ni-Fe-Co-PGE concentrate to the hydrometallurgical process, with a view to ultimately de-risking the flowsheet design and improving metal payability.

Two technology providers have completed amenability testwork to date on three Gonneville concentrate samples (see Appendix C). The results provide an early indication that the Project is very well suited to hydrometallurgical processing. The test results demonstrated that high base metal and PGE process dissolutions are achievable from suitable blends of concentrate samples at >99% for nickel, copper and cobalt, and >97% for palladium and platinum.

Work is now progressing to precipitation tests to determine overall hydrometallurgical recoveries. Based on the extraction results achieved to date and precipitation results from other pilot plant tests globally, it is expected that overall hydrometallurgical recoveries will be in the 95-97% range. This compares favourably with the Scoping Study, which assumed lower hydrometallurgical recoveries (Table 1).

Table 1. Hydrometallurgical recovery assumptions.

Metal	Scoping Study hydrometallurgical recovery assumption %	New hydrometallurgical recovery assumption %	Difference %
Palladium	93	95	+2
Platinum	93	95	+2
Gold	93	95	+2
Nickel	92	95	+3
Copper	97	97	-
Cobalt	92	95	+3

An additional advantage of hydrometallurgical processing on site is that it potentially results in more benign waste streams from processing and lower carbon intensity of final products (relative to pyrometallurgical processes).

Bulk flotation testwork

All locked cycle flotation testwork to date has assumed a sequential Cu-Ni flotation configuration, which is standard for base metal dominant sulphide processing operations globally (Australia, Canada, Scandinavia and Russia). As more PGE dominant resources have been defined over time through drilling at Gonneville, investigation of a bulk or 'whole of ore' flotation configuration has commenced, which is standard for PGE dominant processing operations globally (primarily in Southern Africa, but also in Canada).

Three batch flotation tests were completed on three existing composite samples to assess the potential to enhance recoveries and payabilities by producing a bulk Ni-Cu-Co-PGE intermediate concentrate for enrichment with a hydrometallurgical process (dropping the copper flotation stage).

While the initial batch tests were not definitive in determining whether there is any recovery improvement relative to sequential flotation tests, it is expected that there may be some minor improvement in flotation recoveries through further testing. Locked cycle tests are planned in the PFS.

The bulk flotation flowsheet design also aims to:

- Reduce misreporting of nickel and cobalt to the copper concentrate (where Ni and Co payability is negligible) – in locked cycle sequential flotation tests to date, typically ~0.5% of nickel and cobalt by mass misreported to copper concentrate, but in some tests up to 3% misreported; and,
- Reduce the potential for nickel sulphide depressants used in the copper flotation stage to reduce the effectiveness of the nickel flotation stage (testing is inconclusive in this regard to date);
- Eliminate copper smelter payability losses on PGEs and gold (3-8% of total value in concentrate) through production and sale of PGE-Au doré instead (100% payability with a refining charge only); and,
- Remove constraints around copper smelter grade specification limits (Scoping Study assumed smelter grade copper concentrate only achieved at head grades >0.05% Cu – there would be no such constraint on the bulk flotation configuration and as such, a larger portion of the Resource can be processed).

As such, there is expected to be a material value driver in utilising a bulk flotation approach, which requires further analysis in the PFS.

Flotation grade-recovery algorithms

To date, over 25 sulphide composites from the Resource have been tested, with 17 of these used in locked-cycle flotation tests to determine the metallurgical performance of a sequential Cu-Ni flotation process (see Appendix B). Flotation performance is the most important determining factor to predict overall metallurgical recovery from the proposed process flowsheet.

From this work, initial grade-recovery algorithms (recovery vs head grade formula for each metal) have been developed and were utilised to determine flotation recovery on a block-by-block basis for the fresh sulphide material in the mine plans for the recent Scoping Study (Figure 3). The algorithms were derived by applying a line of best fit to the data points from locked-cycle tests. Transitional blocks in the Resource were assumed to have 50% of the flotation recovery of fresh sulphide blocks.

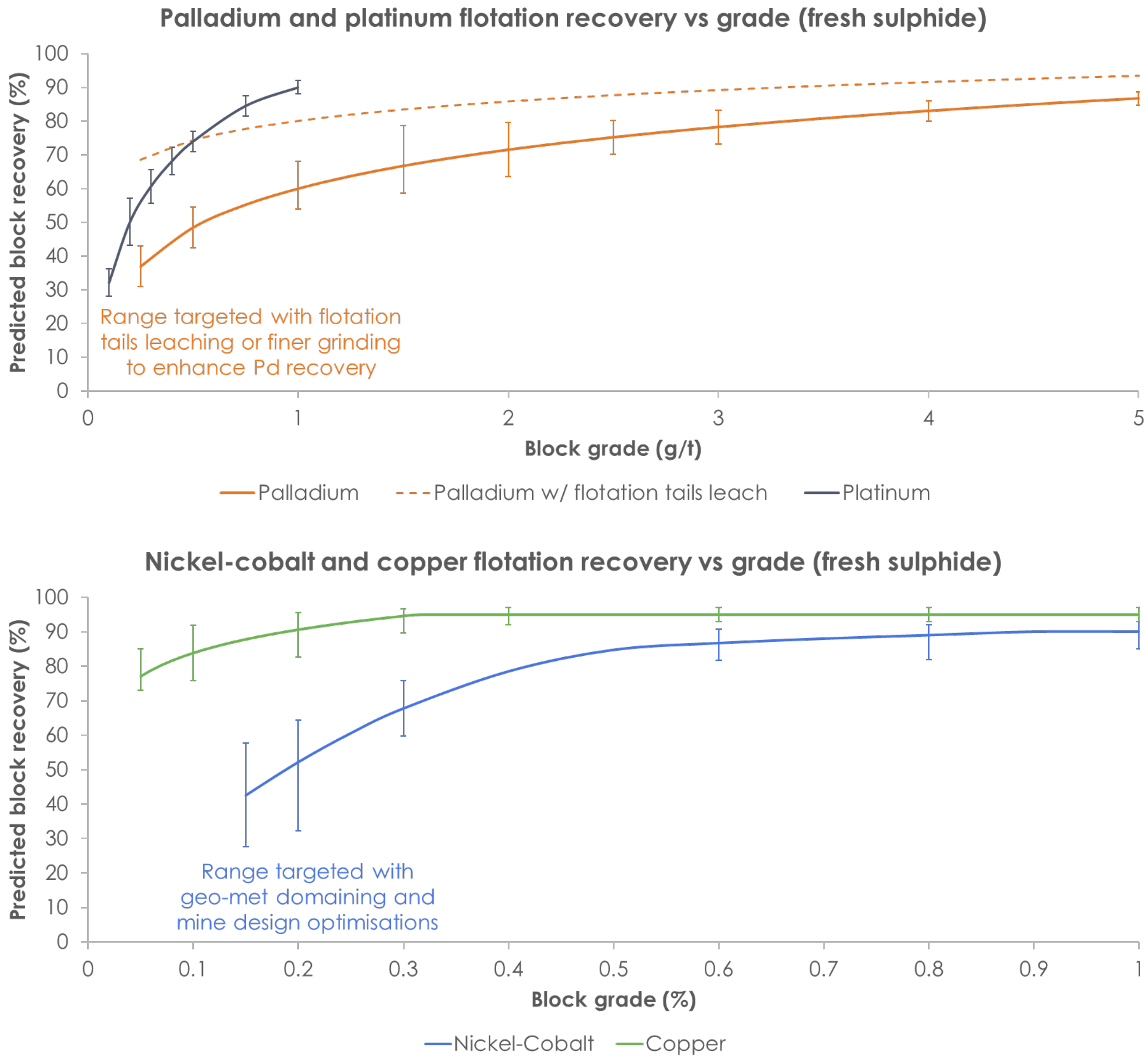

Figure 3. Flotation recovery vs grade algorithms and ranges.

The Scoping Study algorithms assume a homogeneous mineralogy across the fresh sulphide blocks of the Resource (all blocks at the same grade have the same metallurgical recovery with flotation, i.e., no variability). During the PFS, this will be significantly refined to determine an algorithm for each individual domain of the deposit.

These relationships highlight that nickel, cobalt and palladium flotation recoveries are particularly sensitive to grade. Therefore, even minor increases to feed grade to the process plant can result in a significant increase in overall metallurgical recovery, according to the grade-tonnage curve of the Deposit. This 'high-grading' is planned to be refined further in the PFS through selective mining unit (SMU) and mine plan optimisation, the addition of high-grade underground feed and/or through application of ore-sorting technologies.

At lower grades, there is a higher degree of variability between recovery results (represented by vertical error bars on the charts), which has not yet been explained through mineralogical investigations to date. This requires further geo-metallurgical investigation and testing, to determine whether the variability can be attributed to different domains / sections of the Resource or whether the variability can be attributed to testing / assaying / sample size error. At higher grades, variability in results is lower.

The planned PFS metallurgical test work programme will incorporate over 80 additional samples (including transition and oxide ore samples) to ensure representivity of the samples and composites across the Resource defined to date. The programme has a particular focus on metallurgical variability of the low-grade samples and composites, and also aims to improve understanding of metallurgical domains within the Resource.

Process flowsheet staging options

There is potential for staging of the processing flowsheet over time as mining of the Resource progresses, given the ability to target higher grade material in the initial years of operations. Staging options being investigated include:

- Stripping and stockpiling oxide mineralisation and deferring construction of the leaching circuit (bring forward mining and/or processing of sulphide feed);
- Producing Ni-Co-PGE concentrate for sale directly to nickel smelters for a period while demonstrating and ramping up the hydrometallurgical process on site (de-risk the initial phase of the Project but with reduced recoveries and payabilities expected for Ni-Co-PGEs);
- Dropping the copper flotation stage and using a single flotation stage to produce a bulk flotation concentrate which is all processed through the hydrometallurgical circuit (for the reasons discussed above).

Other flowsheet optimisations to be investigated in the PFS include the use of different comminution configurations, including staged grinding or mill-float-mill-float strategies. These staged grinding approaches have been successfully used in other PGE operations in South Africa, where base metal sulphides float at coarser grind sizes and optimal PGE recoveries are achieved at much finer grind sizes.

Only limited staged grinding optimisation work has been completed to date, which has been focused on sequential flotation flowsheet options only. As such, further staged grinding of bulk flotation flowsheets in planned.

Flotation tails leaching, alternative flotation suppressants and dispersants as well as novel flotation technologies will be trialled in the PFS in an iterative manner, aiming to improve overall recoveries over time as testwork progresses.

Marketing discussions with potential offtakers are also continuing and more detailed trade-off analysis of copper and nickel concentrate quality vs metallurgical recovery and metal payability will be completed during the PFS. Given the scarcity of nickel sulphide concentrates available to nickel smelters, it is anticipated that offtake terms for Gonneville could also improve over the coming years.

The Scoping Study assumed that only nickel, copper, cobalt, palladium, platinum and gold will be payable in the offtake products. However, the Gonneville Deposit does contain minor amounts of rhodium, iridium and silver and the recovery and potential payability of these metals will also be further investigated as part of the PFS.

Authorised for release by the Board.

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JORC Tables & Competent Persons Statement

JORC Tables

The following information is reported as per Table 1 of the JORC Code (2012) in support of the metallurgical sampling and test work contained in this announcement which has not previously been reported by the Company. There are no new drilling results contained in this announcement.

JORC Table 1 – Section 1: Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (eg. Cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.	« Diamond core was either quarter cored HQ core or half cored NQ2 core with samples taken over selective intervals ranging from 0.2m to 1.2m (typically 1.0m) and then composited to create a sample for metallurgical test work. « Reverse Circulation (RC) drilling samples were collected as 1m samples from a rig mounted cone splitter and composited to create a sample for metallurgical test work.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	« Qualitative care taken when sampling diamond drill core to sample the same half of the drill core. « For RC, two 1m assay samples were collected as a split from the rig cyclone using a cone splitter with the same split consistently sent to the laboratory for analysis.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg. Submarine nodules) may warrant disclosure of detailed information.	« Sample intervals for metallurgical testwork were selected on the basis of assay grades to produce a composite sample with an average grade appropriate for a given test.
Drilling techniques	Drill type (eg. Core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg. Core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	« A mixture of diamond drill core size used including NQ (47.6mm), HQ (63.5mm diameter) or PQ (85mm). Triple tube has been used from surface until competent bedrock and then standard tube thereafter. « Core orientation is by an ACT Reflex (ACT II RD) tool. « RC Drilling uses a face-sampling hammer drill bit with a diameter of 5.5 inches (140mm).
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	« Individual recoveries of diamond drill core samples were assessed quantitively by comparing measured core length with expected core length from drillers

Criteria	JORC Code explanation	Commentary
		mark. Generally, core recovery was excellent in fresh rock and approaching 100%. Core recovery in oxide material is often poor due to sample washing out. Core recovery in the oxide zone averages 60% « Individual recoveries for RC composite samples were recorded on a qualitative basis. Sample weights were observed to be slightly lower through transported cover whereas drilling through bedrock yielded samples with more consistent weights. Two separate studies were completed where all the sample was weighed and compared with the expected weight. These indicated that as with the diamond core, sample recovery in the oxide is moderate and good in the fresh rock
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	« With diamond drilling triple tube coring in the oxide zone is undertaken to improve sample recovery. This results in better recoveries, but recovery is still only moderate to good. « Diamond core samples were consistently taken from the same side of the core
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	« There is no evidence of a sample recovery and grade relationship in unweathered material.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	« All drill holes were logged geologically including, but not limited to; weathering, regolith, lithology, structure, texture, alteration and mineralisation. Logging was at an appropriate quantitative standard for infill drilling and resource estimation.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	« Logging is considered qualitative in nature. « Diamond drill core is photographed wet before cutting.
	The total length and percentage of the relevant intersections logged.	« All holes were geologically logged in full.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	« Diamond core was either quarter cored HQ core or half cored NQ2 core with samples taken over selective intervals ranging from 0.2m to 1.2m (typically 1.0m). « Samples collected for metallurgical test work were either whole core or half HQ core or ¾ PQ core.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	« RC assay samples were collected as two 1m splits from the rig cyclone via a cone splitter. The cone splitter was horizontal to ensure sample representivity. Wet or damp samples were noted in the sample logging sheet. A majority of samples were dry.

Criteria	JORC Code explanation	Commentary
		« For samples used for metallurgical test work, the bulk sample was collected from the cone splitter and sent to the metallurgical laboratory.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	« Sample preparation is industry standard and comprises oven drying, jaw crushing and pulverising to -75 microns (80% pass).
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	« Field duplicates were collected from diamond and RC drilling at an approximate ratio of one in twenty five. « Diamond drill core and RC field duplicates collected as ¼ core. « Samples intervals for metallurgical test work were selected on the basis of the weighted average assay grade for a given interval from samples which had already had QAQC procedures in place. No additional QAQC was completed on the metallurgical samples.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.	« In the majority of cases the entire hole has been sampled and assayed. « Duplicate sample results were compared with the original sample results and there is no bias observed in the data. « Metallurgical sample intervals were selected to provide an average grade appropriate for the test work. Intervals were selected taking into account weathering, lithology, sulphide content, overall metal content and geographical location and hence are considered representative for Scoping Study level test work.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	« Drill sample sizes are considered appropriate for the style of mineralisation sought and the nature of the drilling program. Metallurgical composite sample sizes were based on the requirement to provide sufficient sample for the test work.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	« Diamond drill core underwent sample preparation and geochemical analysis by ALS Perth. Au-Pt-Pd was analysed by 50g fire assay fusion with an ICP-AES finish (ALS Method code PGE-ICP24). A 34-element suite was analysed by ICP-MS following a four-acid digest (ALS method code ME-ICP61 including Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Sc, Sr, Th, Ti, Tl, U, V, W, Zn, Zr. Additional ore-grade analysis was performed as required for elements reporting out of range for Ni, Cr, Cu (ALS method code ME-OG-62) and Pd, Pt (ALS method code PGE-ICP27). « These techniques are considered total digests.

Criteria	JORC Code explanation	Commentary
	For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	« Not applicable as no data from such tools or instruments are reported.
	Nature of quality control procedures adopted (eg. Standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie. Lack of bias) and precision have been established.	« Certified analytical standards and blanks were inserted at appropriate intervals for diamond core with an insertion rate of >5%. All QAQC samples display results within acceptable levels of accuracy and precision. « Samples intervals for metallurgical testwork were selected on the basis of the weighted average assay grade for a given interval from samples which had already had QAQC procedures in place. No additional QAQC was completed on the metallurgical samples.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	« Not applicable as no drilling results have been reported. However, metallurgical results have been reviewed and checked by the supervising metallurgist.
	The use of twinned holes.	« Not applicable for metallurgical testwork samples.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	« Primary drill data was collected digitally using OCRIS software before being transferred to the master SQL database. « All procedures including data collection, verification, uploading to the database etc are captured in detailed procedures and summarised in a single document.
	Discuss any adjustment to assay data	« No adjustments were made to the lab reported assay data.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	« Drill hole collar locations are initially recorded by Chalice employees using a handheld GPS with a +/- 3m margin of error. « RTK-DGPS collar pick-ups replace handheld GPS collar pick-ups and have +/-20 mm margin of error. « Planned and final hole coordinates are compared after pick up to ensure that the original target has been tested.
	Specification of the grid system used.	« The grid system used for the location of all drill holes is GDA94 – MGA (Zone 50).
	Quality and adequacy of topographic control.	« RLs for reported holes were derived from RTK-DGPS pick-ups.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	« Not applicable. No exploration results reported.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	« Not applicable. No drilling results reported and no Mineral Resource Estimate is being reported. « Samples for metallurgical test work have been selected from holes throughout the deposit.

Criteria	JORC Code explanation	Commentary
	Whether sample compositing has been applied.	« Metallurgical composite sample were selected to provide an average grade appropriate for a given metallurgical test. Intervals were selected taking into account weathering, lithology, sulphide content, overall metal content and geographical location.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	« As the samples were chosen for metallurgical test work, hole orientation is not relevant although where samples from exploration RC and Diamond drill holes were used, the holes were typically oriented within 15° of orthogonal to the interpreted dip and strike of the known zone of mineralisation.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	« Not applicable as samples were selected to provide metallurgical samples.
Sample security	The measures taken to ensure sample security.	« Samples were collected in polyweave bags at the core cutting facility. The polyweave bags have five samples each and are cable tied. « Filled bags were collected into palletised bulk bags at the field office and delivered directly from site to ALS laboratories in Balcatta, Perth by a Chalice contractor several times weekly. « Metallurgical samples were sent directly to the metallurgical laboratory
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	« Not applicable as sample intervals were selected based on appropriate average grade for the metallurgical test work based on assay data which had previously been reviewed

A-1 JORC Table 1 – Section 2: Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	« E70/5119 partially overlaps ML1SA, a State Agreement covering Bauxite mineral rights only however, this does not cover the area under consideration in the Scoping Study. « There are no known encumbrances other than the ones noted above.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	« The Scoping Study only includes mineralisation on Chalice owned private property. There are no known impediments to operating on the tenements where they cover private freehold land. « The tenements are in good standing.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	« There is no previous exploration at Gonneville and only limited exploration has been completed by other exploration

Criteria	JORC Code explanation	Commentary
		parties in the vicinity of the targets identified by Chalice to date. « Chalice has compiled historical records dating back to the early 1960's which indicate only three genuine explorers in the area, all primarily targeting Fe-Ti-V mineralisation. « Over 1971<1972, Garrick Agnew Pty Ltd undertook reconnaissance surface sampling over prominent aeromagnetic anomalies in a search for 'Coates deposit style' vanadium mineralisation. Surface sampling methodology is not described in detail, nor were analytical methods specified, with samples analysed for V2O5, Ni, Cu, Cr, Pb and Zn, results of which are referred to in this announcement. « Three diamond holes were completed by Bestbet Pty Ltd targeting Fe-Ti-V situated approximately 3km NE of JRC001. « Bestbet Pty Ltd undertook 27 stream sediment samples within E70/5119. Elevated levels of palladium were noted in the coarse fraction (<5mm+2mm) are reported in this announcement. Finer fraction samples did not replicate the coarse fraction results. « A local AMAG survey was flown in 1996 by Alcoa using 200m line spacing which has been used by Chalice for targeting purposes. « An Alcoa and CRA JV completed seven diamond holes in the 1970s targeting a magnetic high to the north of E70/5119 and the east of E70/5351testing for vanadium (Boomer Hill).
Geology	Deposit type, geological setting and style of mineralisation.	« The target deposit type is an orthomagmatic Ni-Cu-PGE sulphide deposit, within the Yilgarn Craton. The style of sulphide mineralisation intersected consists of massive, matrix, stringer and disseminated sulphides typical of metamorphosed and structurally overprinted orthomagmatic Ni sulphide deposits.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: Easting and northing of the drill hole collar Elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar Dip and azimuth of the hole Down hole length and interception depth hole length.	« Not applicable. No exploration drilling results reported.

Criteria	JORC Code explanation	Commentary
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	« No material information has been excluded.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg. Cutting of high grades) and cut-off grades are usually Material and should be stated.	« Not applicable. No exploration drilling results reported.
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	« Not applicable. No exploration drilling results reported.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	« Not applicable. No metal equivalent data was used in the conducting of metallurgical testing.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	« Not applicable. No exploration drilling results reported.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg. 'down hole length, true width not known').	« Not applicable. No exploration drilling results reported.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	« Not applicable. No exploration drilling results reported.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	« Not applicable. No exploration drilling results reported.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	« Milling and flotation of material similar to Gonneville is commonly practiced in other operations using similar approaches to those proposed in this announcement where produced concentrates are either sold commercially or treated in smelter-refinery complexes. « A large number (>300) of laboratory flotation tests have been carried out on greater than 25 separate composites. A more detailed PFS geo-metallurgical programme is currently starting to explore

Criteria	JORC Code explanation	Commentary
		metallurgical domaining and to extend the range of feed grades to adequately cover the lower grade components of the Resource. « Hydrometallurgical treatment of flotation concentrates in other projects has been extensively tested at a pilot-scale but not commercially implemented to date, though this is expected to change prior to implementation of this Project. « A pilot scale campaign was undertaken to produce bulk concentrate samples for testing of concentrate processing. Results from flotation testwork. Results of this work gave values which were in reasonable agreement with the expected results from the algorithms. Details of the concentrate grades achieved from the pilot testing are disclosed in Appendix C. Results from hydrometallurgical testing of these concentrate samples are reported in the text of this announcement. « Concentrate analysis to date suggests no significant levels of deleterious elements.
Further work	The nature and scale of planned further work (eg. Tests for lateral Exts or depth Exts or large-scale step-out drilling).	« Further extensive metallurgical test work is planned as part of a PFS. This will include optimisation of conditions using composites and geo-metallurgical assessment using over 80 variability samples. In particular, this will target the lower grade disseminated component of the Resource. « More detailed testing of hydrometallurgical components of the proposed flowsheet is also planned during the PFS.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	« Not applicable.

Competent Person Statement

The information in this announcement that relates to metallurgical test work results in relation to the Gonneville Project is based on, and fairly represents information and supporting documentation compiled by Mr Ian Ritchie, BscEng Phd, of Salarium Pty Ltd, a consultant to the Company. Mr Ritchie is a Competent Person, and a Member of the Australian Institute of Mining and Metallurgy. Mr Ritchie is a qualified metallurgist and has sufficient experience that is relevant to the activity being undertaken to qualify as a Competent Person as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves. Mr Ritchie does not hold securities in Chalice Mining Limited. Mr Ritchie consents to the inclusion in the announcement of the matters based on his information in the form and context in which it appears.

The information in this announcement that relates to previously reported exploration and metallurgical test work results for the Gonneville Nickel-Copper-PGE Project is extracted from the following ASX announcements:

- "Positive Preliminary Metallurgical Results at Julimar", 1 September 2020.
- "More Positive Results from Metallurgical Testwork at Julimar", 16 February 2021.
- "Gonneville High-Grade Zones Extended at Depth", 28 February 2021.
- "Julimar Flowsheet Development and Scoping Study Update", 13 December 2022.
- "Gonneville Nickel-Copper-PGE Project Scoping Study", 29 August 2023.

The above announcements are available to view on the Company's website at www.chalicemining.com. The Company confirms that it is not aware of any new information or data that materially affects the exploration results included in the relevant original market announcements. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the relevant original market announcements.

Forward Looking Statements

This announcement may contain forward-looking statements and forward information, (collectively, forward-looking statements). These forward-looking statements are made as of the date of this Report and Chalice Mining Limited (the Company) does not intend, and does not assume any obligation, to update these forward-looking statements.

Forward-looking statements relate to future events or future performance and reflect Company management's expectations or beliefs regarding future events and include, but are not limited to: the impact of the discovery on the Gonneville Project's capital payback; the Company's planned strategy and corporate objectives; "objectives of the strategic partnering process", the realisation of Mineral Resource Estimates; anticipated production; sustainability initiatives; climate change scenarios; the likelihood of further exploration success; the timing of planned exploration and study activities on the Company's projects; mineral processing strategy; access to sites for planned drilling activities; planned production and operating costs profiles; planned capital requirements; the success of future potential mining operations and the timing of the receipt of exploration results.

In certain cases, forward-looking statements can be identified by the use of words such as, "anticipate", "commence", "considered", "continue", "could", "estimate", "expected", "for", "future", "interpreted", "is", "likely", "may", "opportunity", "plan" or "planned", "potential", "strategy", "target", "will" or variations of such words and phrases or statements that certain actions, events or results may, could, would, might or will be taken, occur or be achieved or the negative of these terms or comparable terminology. By their very nature forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements of the Company to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements.

Such factors may include, among others, risks related to actual results of current or planned exploration activities; whether geophysical and geochemical anomalies are related to economic mineralisation or some other feature; whether visually identified mineralisation is confirmed by laboratory assays; obtaining appropriate approvals to undertake exploration activities; metal grades being realised; metallurgical recovery rates being realised; results of planned metallurgical test work including results from other zones not tested yet, scaling up to commercial operations; changes in project parameters as plans continue to be refined; changes in exploration programs and budgets based upon the results of exploration; successful completion of the strategic partnering process; changes in commodity prices and economic conditions; political and social risks, accidents, labour disputes and other risks of the mining industry; delays or difficulty in obtaining governmental approvals, necessary licences, permits or financing to undertake future mining development activities; changes to the regulatory framework within which Chalice operates or may in the future; movements in the share price of investments and the timing and proceeds realised on future disposals of investments as well as those factors detailed from time to time in the Company's interim and annual financial statements, all of which are filed and available for review on the ASX at asx.com.au.

Although the Company has attempted to identify important factors that could cause actual actions, events or results to differ materially from those described in forward-looking statements, there may be other factors that cause actions, events or results not to be as anticipated, estimated, or intended. There can be no assurance that forward-looking statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue reliance on forward-looking statements.

Appendix B Metallurgical Sample Data

Table 2: Locked Cycle Test composite sample details (updated from ASX release "Gonneville high-grade zones extended at depth", 28 February 2021).

Composite ID	Zone	Holes selected	Mineralisation style	Head assay grades	Flotation testwork
JSG1	G1-G2 Fresh (Sulphide)	JD001, JD003, JD005 – JD010	Massive-Matrix-Disseminated	3.66g/t Pd, 0.73g/t Pt, 0.15g/t Au, 0.63% Ni, 0.36% Cu, 0.04% Co	Sequential Float
JSG3	G3 Fresh (Sulphide)	JD006	Massive-Matrix-Disseminated	5.84g/t Pd, 1.10g/t Pt, 0.07/t Au, 0.90% Ni, 0.82% Cu, 0.07% Co	Sequential Float
JSG5	G1, G5 Fresh (Sulphide)	JD005, JD009	Massive-Matrix-Disseminated	2.15g/t Pd, 0.78g/t Pt, <0.05g/t Au, 0.19% Ni, 0.17% Cu, 0.02% Co	Sequential Float
JSG6	G3, G5 Fresh (Sulphide)	JD005, JD006, JD009	Massive-Matrix-Disseminated	1.27g/t Pd, 0.30g/t Pt, 0.06g/t Au, 0.15% Ni, 0.09% Cu, 0.02% Co	Sequential Float and Bulk Float
JSDS3	Disseminated Sulphides	JD017, JD018, JD027, JD028, JD031, JD032	Disseminated	0.55g/t Pd, 0.10g/t Pt, 0.02g/t Au, 0.17% Ni, 0.06% Cu, 0.02% Co	Sequential Float and Bulk Float
JSDS4	Disseminated Sulphides	JD013, JD023, JD022, JD063, JD015, JD020	Disseminated	1.22g/t Pd, 0.26g/t Pt, 0.07g/t Au, 0.22% Ni, 0.21% Cu, 0.02% Co	Sequential Float and Bulk Float
JSMC1	G1-G2 Fresh (Sulphide)	Produced from above variability composites	Massive-Matrix-Disseminated	3.86g/t Pd, 0.50g/t Pt, 0.13g/t Au, 0.59% Ni, 0.33% Cu, 0.04% Co	Sequential Float
JSMC2	80% G1-2, 20% G3	Produced from above variability composites	Massive-Matrix-Disseminated	4.25g/t Pd, 0.75g/t Pt, 0.08g/t Au, 0.63% Ni, 0.39% Cu, 0.04% Co	Sequential Float
JSMC3	40% G1-2, 30% G3, 30% G5	Produced from above variability composites	Massive-Matrix-Disseminated	3.31g/t Pd, 0.66g/t Pt, 0.08g/t Au, 0.47% Ni, 0.33% Cu, 0.03% Co	Sequential Float
JSG4-3	G4 Fresh (Sulphide)	JD034, JD035, JD051, JD056	Massive-Matrix-Disseminated	1.58g/t Pd, 0.34g/t Pt, 0.21g/t Au, 0.16% Ni, 0.09% Cu, 0.02% Co	Sequential Float and Bulk Float

Composite ID	Zone	Holes selected	Mineralisation style	Head assay grades	Flotation testwork
JSG8	G8 Fresh (Sulphide)	JD107	Massive-Matrix-Disseminated	0.86g/t Pd, 0.18g/t Pt, 0.05g/t Au, 0.19% Ni, 0.07% Cu, 0.02% Co	Sequential Float and Bulk Float
JSG9	G9 Fresh (Sulphide)	JD076, JD107	Massive-Matrix-Disseminated	1.16g/t Pd, 0.24g/t Pt, 0.03g/t Au, 0.19% Ni, 0.08% Cu, 0.02% Co	Sequential Float
JSG11	G11 Fresh (Sulphide)	JD034, JD035, JD051	Massive-Matrix-Disseminated	1.74g/t Pd, 0.32g/t Pt, 0.22g/t Au, 0.19% Ni, 0.46% Cu, 0.02% Co	Sequential Float
JSLoS4	G4 Fresh (Sulphide)	JD232, JD258	Disseminated	1.90g/t Pd, 0.47g/t Pt, 0.21g/t Au, 0.12% Ni, 0.06% Cu, 0.01% Co	Sequential Float and Bulk Float
JLG8-9	G8 & G9 Fresh(Sulphide)	JD194, JD258, JD312, JRC483, JRC492	Massive-Matrix-Disseminated	0.77g/t Pd, 0.21g/t Pt, 0.04g/t Au, 0.12% Ni, 0.13% Cu, 0.01% Co	Sequential Float
High Mg	Disseminated Sulphides	JD009, JD052, JD071, JD076, JD091	Disseminated	0.81g/t Pd, 0.18g/t Pt, 0.12g/t Au, 0.27% Ni, 0.30% Cu, 0.03% Co	Sequential Float
DC Pilot Blend	Fresh (Sulphide)	37 separate drill holes	Massive-Matrix-Disseminated	1.00g/t Pd, 0.16g/t Pt, 0.11g/t Au, 0.26% Ni, 0.14% Cu, 0.02% Co	Sequential Float and Bulk Float; concentrate production facility

Appendix C Concentrate Sample Analysis

Table 3: Hydrometallurgical Testwork concentrate sample analysis

Description	Pd g/t	Pt g/t	Au g/t	%Ni	%Cu	%Co
Combined Cu/Ni concentrate	17.2	5.4	1.3	6.3	3.8	0.5
Ni-Fe concentrate	4.3	1.0	BDL*	2.0	0.4	0.2
Ni-Fe-Cu concentrate	7.6	1.2	0.0	2.0	1.4	0.2

** Below detection limit.*

The "Combined Cu/Ni concentrate" was derived from two individual flotation composites, JSMC1 and JSDS4 (see Appendix B for details).

The Ni-Fe concentrate and the Ni-Fe-Cu concentrate in the above Table 3 were generated in a continuous operation to prepare concentrate samples for additional testwork; this operation utilised a ~15 tonne sample "DC Pilot Blend" generated using intervals from 37 separate drill holes as described in Appendix B.