WALFORD CREEK PRE-FEASIBILITY STUDY UPDATE AND NEXT STEPS

Highlights

- An independent review of the key metallurgical elements of the Walford Creek PFS, initiated by interim CEO and MD Fred Hess, has been completed.
- The Aeon Board has decided to suspend completion of the current PFS process workstream and heap leaching pyrite concentrate testwork program, and to reset the PFS direction towards a flowsheet delivering higher quality and higher value end products.
- Revised PFS scope to focus on production of a bulk sulphide flotation concentrate followed by leaching via pressure oxidation.
- New approach is expected to deliver increased quantities of higher value copper, cobalt, zinc, silver and nickel metal products.
- Prior PFS metallurgical design work had resulted in a complicated process flowsheet which falls short of targeted economic thresholds.
- All other key PFS workstreams (including resource, mining, infrastructure and environment) returned initial outcomes in-line with expectations.
- A further drilling program is planned to target expansion and classification upgrade of Walford Creek mineral resources, plus sourcing of requisite drill core for new testwork.
- Requirement to source additional Walford Creek core to commence new metallurgical testwork drives the revised PFS completion target of H1 2022.
- Indicative, non-binding funding commitments have been obtained from Aeon lender and major shareholder, OCP Asia, that are expected to enable completion of the revised PFS.

Aeon Metals Limited (ASX: AML) (**Aeon** or the **Company**) provides the following update on the Pre-Feasibility Study (**PFS**) activities for its 100%-owned Walford Creek Copper-Cobalt Project in north-west Queensland (**Walford Creek**).

Interim Managing Director and CEO, Dr Fred Hess, commented:

"Following this review, I believe Aeon has now identified a robust pathway to deliver a viable Walford Creek development proposition. While the substantial body of testwork completed to date provides us with the initial confidence with respect to the revised PFS flowsheet direction, additional work is needed to complete the revised PFS scope of work. I look forward to keeping Aeon shareholders and the broader market regularly informed about our progress moving forward."

Current PFS processing workstream

The existing Walford Creek flowsheet design produces:

- Saleable base metal concentrates (copper, lead and zinc containing payable silver by-product credits); and
- A pyrite concentrate that is then subjected to leaching to produce cobalt (and nickel, and potentially captures any residual base and precious metal values).

Base metal concentrates production (Cu, Zn, Pb)

The primary concentrator flowsheet identified in the Walford Creek Scoping Study (2019) has remained largely intact in the current PFS. However, key alterations proposed within the current PFS workstream included:

- The separate ROM stockpiling of copper-rich, lead-rich and zinc-rich ore types.
- Campaign treatment of ore types.
- An ore sorting step following primary crushing that redirects any mis-stockpiled ore to ensure cross contamination issues are minimised (eg copper-rich ore containing above a threshold lead level is redirected to the lead-rich ore stockpile).
- Elimination of the lead flotation circuit with the original copper flotation circuit being switched between copper and lead concentration duties according to the ore type being campaigned.
- Further optimisation of flotation reagent regimes.

Forecast life-of-mine copper, zinc, lead and silver recoveries under this PFS flowsheet configuration with respect to each campaign feed ore type are presented in Table 1.

Table 1: Forecast life of mine recovery with respect to campaign feed ore types

Concentrator Campaign	Recovery with respect to campaign feed (%)			
	Cu	Zn	Pb	Ag
Copper-rich ore	78.9	1.5	4.8	5.0
Lead-rich ore	3.1	1.4	61.0	6.7
Zinc-rich ore	0.1	53.1	<0.1	5.3

This primary concentrator flowsheet requires five stages of sequential flotation to yield five primary concentrate product streams (pyrite pre-float (to remove carbonaceous material and highly activated pyrite), copper, lead, zinc and pyrite). The two pyrite concentrates, which have similar metal compositions, are subsequently recombined for further processing. To achieve acceptable concentrate recoveries and grades (ie mineral liberation), it is necessary to primary grind the ore to greater than 80% passing 60µm.

The feed to the flotation circuit consists of over 60% pyrite and this must be largely rejected from the base metal concentrates to yield acceptable (ie saleable) metal grades. In rejecting the pyrite (where the Fe-to-metal grade is typically of the order of 20:1 to 40:1), a not insignificant proportion of the valuable metal is also rejected (though it can still report to the pyrite concentrate). In addition, the polymetallic nature of the mineralisation also results in cross-contamination (and loss of payable metal) to the other metal concentrates (eg 3% of feed copper is lost to the lead concentrate and 1% to zinc concentrate).

In order to mitigate some of these losses, the decision was made to stockpile ROM ore according to its primary metal composition to yield copper-rich, lead-rich and zinc-rich ore types. An ore sorting step was introduced to ensure that cross contamination issues were minimised. However, as presented in Table 1 above, overall, only 79% of the copper reports to the copper concentrate, 61% of the lead is recovered to the lead concentrate, and 53% of the zinc to the zinc concentrate.

Pyrite heap leaching (Co, Ni)

Testwork for the heap leaching option for pyrite concentrate is still incomplete. Given the more extensive requirements of this testwork program than originally anticipated, completion of the program now requires a further drilling campaign to source more core for outstanding testwork.

The preliminary results from this testwork, while promising, indicate that there is a significant risk of the agglomerated fines suffering early physical degradation in the heap due to the highly acidic leaching conditions required to achieve valuable metal recoveries.

A chemical binder, consisting of a cement and resin mixture, is required to agglomerate the fine pyrite concentrate to facilitate percolation of leaching solution through the stacked heap. Without binding, the fines behave more like a fluid and spread out when stacked and irrigated. If mobilised, the fines block solution pathways and contaminate downstream collection ponds. While not insurmountable, the challenges of finding a binder that might withstand three to six months of continuous heap leach operation remain to be resolved.

The heap leaching route has the attraction of lower capital and operating costs. Unfortunately, it comes at a cost of lower overall metal recoveries and extended residence times to achieve metal recovery. The resulting pregnant leach solution metal tenors are very low and this requires substantial reagent additions to progressively modify pH in order to precipitate valuable metals. The actual metal precipitate produced depends on the reagent used for pH modification such that hydroxide, carbonate and sulphide metal products are all options as end products. The higher revenue end products typically require more expensive reagents which tends to negate the higher revenues achieved.

Implications of current PFS flowsheet design

In reviewing the results of the PFS testwork completed to date, it has become increasingly apparent that the designed flowsheet would be challenging to manage due to its complexity in campaign milling, multi-stage flotation circuits and eventual product streams. Additionally, even though primary concentration flowsheet has been optimised, it delivers lower than anticipated metal recoveries and grades to final concentrate.

Further, following preparation of the preliminary capital and operating cost estimates for the proposed processing flowsheet, and application of appropriate NSR values to each saleable metal end product, the Walford Creek Project in its current configuration falls short of expectations and targeted economic thresholds.

The key conclusions are that a viable project is more likely to be achieved if both capital and operating costs can be reduced and/or metal recoveries and/or metal payable terms can be increased. In conjunction with this, an increase in process plant feed inventory that could support an increase in project life and/or scale would yield improved fixed capital and operating efficiencies.

The implications for further study work are therefore unavoidable and it is clear that a viable solution demands step, rather than incremental, changes to the processing flowsheet.

Revised PFS direction: Bulk sulphide concentrate and POX

Following this independent review of the current Walford Creek PFS processing workstream, initiated by Aeon's recently appointed Interim Managing Director and CEO, Dr Fred Hess, the Board has accepted the recommendation to suspend completion of the current PFS process workstream and the heap leaching pyrite concentrate testwork program.

The decision has also been taken to revise the PFS scope of work to focus on a flowsheet design targeting production of a bulk sulphide concentrate (containing copper, lead, zinc, silver, cobalt and nickel valuable metals) that would then be subjected to pressure oxidation leaching to yield saleable end products of both higher quality and quantity.

Bulk sulphide concentrate

The benefits of producing a bulk sulphide concentrate (see Figure 2 for potential flowsheet) over the existing base metal concentrate flowsheet (see Figure 1) are manifold, including:

- Elimination of the requirement for separate ROM stockpiling of the various metal rich ore types from mining.
- Elimination of the ore sorting step ahead of flotation.
- A much coarser primary grind will suffice since only sulphide / non-sulphide gangue liberation is necessary for effective flotation separation resulting in a downsizing of the comminution circuit and a reduction in associated capital and operating costs (eg energy and steel grinding media consumption).
- A simple flotation circuit and the deletion of multiple concentrate thickening, filtering and storage steps resulting in a substantial reduction in flowsheet capital and operating costs.
- Higher valuable metal tenors achievable in the downstream pregnant leach solution and significantly lower final product transport costs (higher grade and potential local markets).
- A significant overall reduction in operational risk.
- A significant reduction in logistics costs.

Figure 1: Current base metal concentrates flowsheet

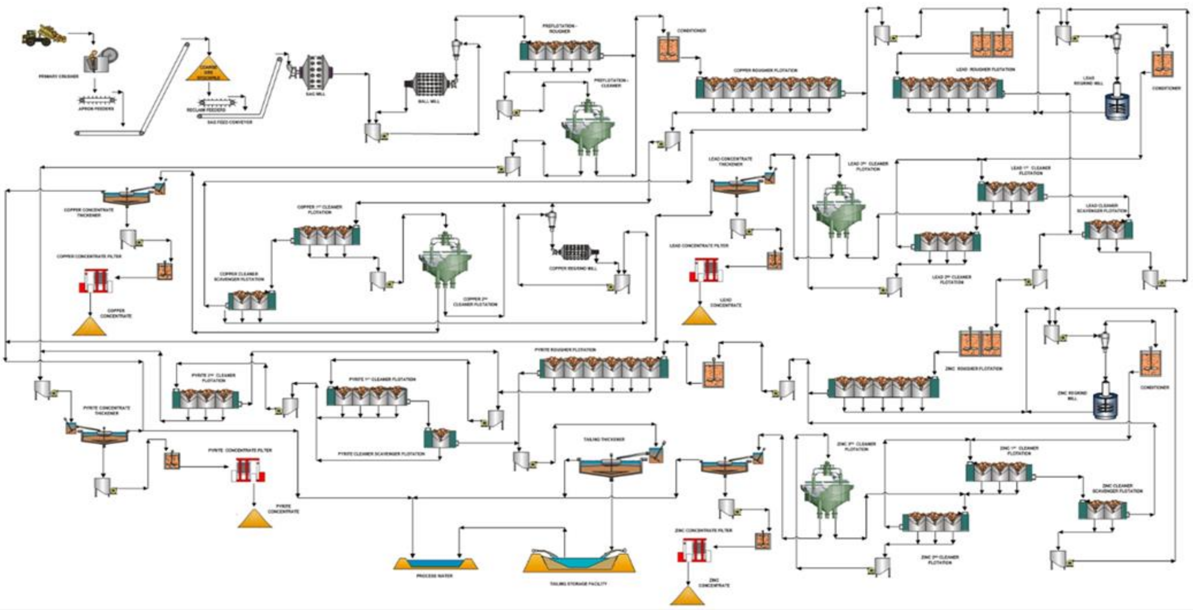
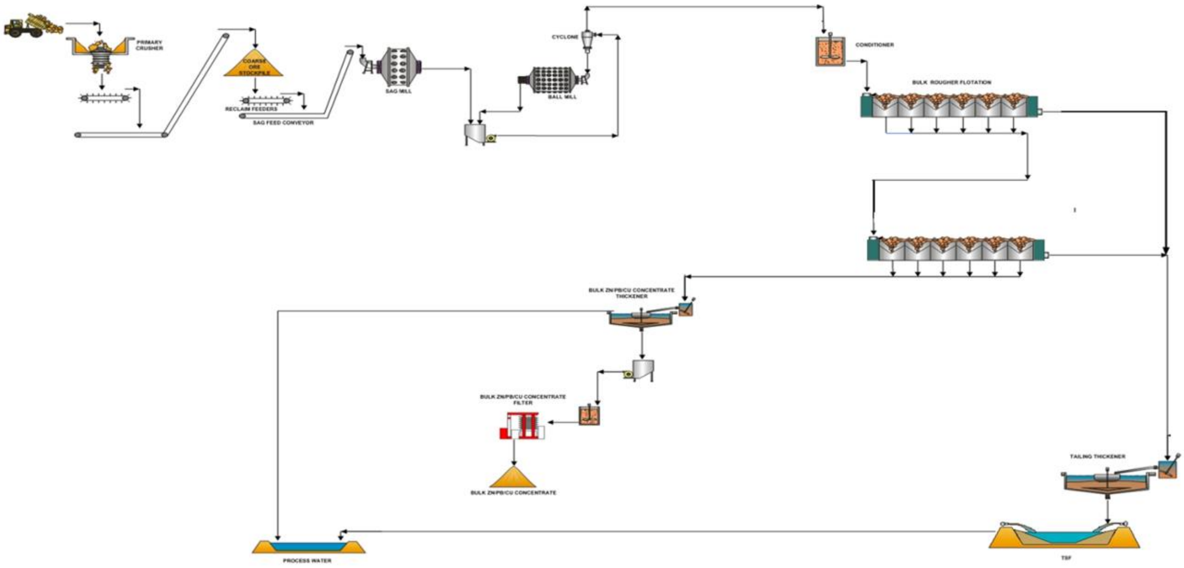


Figure 2: Potential bulk sulphide concentrate flowsheet



These benefits are partially offset by a marginal increase (<10%) in the total concentrate flow being directed into the pressure oxidation leaching circuit.

Importantly, the very early flotation investigative testwork studied the bulk sulphide flotation response of Walford Creek ores such that there already exists a substantial body of results that underpin the selection of this major flowsheet simplification.

Pressure oxidation leaching (POX)

While there is also a suite of pressure oxidation testwork results available on Walford Creek ore that support a high initial level of POX flowsheet confidence (see Appendix for a discussion of this testwork and the rationale for this flowsheet selection), the autoclave operating conditions were not optimised, leaving potential room for further improvements in operational performance.

One further opportunity presented by this new approach is the option to recover silver from the leach residue. Given the level of metal extraction achieved for the other metals, it seems reasonable to infer that the silver that reports overwhelmingly to the leach residue will be amenable to cyanide leaching and recovery as silver doré. No silver leaching testwork has however been completed to date.

Testwork is planned to be conducted to demonstrate each of the various downstream processing steps required to isolate and upgrade each valuable metal. It is expected that this will also involve precipitation of deleterious and unwanted metals from solution that will be directed to tailings. The processing steps envisaged are globally practised already for an extensive range of ores such that the basis for accepting the proposed flowsheet is well-founded (ie copper and zinc solvent extraction and electrowinning to produce LME grade cathode, cobalt and nickel solvent extraction following by purification and recrystallisation to produce saleable cobalt sulphate and nickel sulphate). It is envisaged that any specific issues associated with the new flowsheet can be progressively resolved by the planned testwork program.

At a high level, and by making broad but informed assumptions with respect to key inputs (eg potential metal recoveries, and capital and operating costs), the initial review suggests that a project incorporating a bulk sulphide flotation followed by pressure oxidation leaching flowsheet design has strong potential to meet targeted economic thresholds (utilising consensus long term commodity price expectations rather than the less demanding higher current spot price levels).

Given the considerations discussed above, the Board has accepted the recommendation to reset the PFS scope of work to incorporate the production of a bulk sulphide concentrate followed by pressure oxidation leaching and metals purification. A preliminary desktop evaluation of the extensive suite of existing testwork results and the key risks and opportunities, undertaken in conjunction with hydrometallurgical specialists, Malachite Process Consulting, underpins this decision.

New Walford Creek and regional Basin Edge exploration

In conjunction with the embrace of this new flowsheet, the Aeon Board has also resolved to pursue an exploration program that is targeted at expanding, and upgrading the classification of, the existing Walford Creek mineral resource. The objective of this program is to extend mine life and/or facilitate an increase in project scale.

An integral part of this exploration initiative is the focus on further, largely infill drilling to yield the quantities of additional sample required for the conduct of the next phase of metallurgical testwork.

While the existing Walford Creek resource has been delineated over a 10km strike length, there remain significant gaps in the drilling, particularly the 6km of the Amy zone. Further, Amy hosts the highest grade drill intercepts encountered to date at Walford Creek including hole 352 with 42m @ 2.55% Cu, 0.29% Co and 41gt Ag from 332m (announced 30th Aug 2018) and hole 378 with 13m @ 3.73% Cu, 0.27% Co and 49gt Ag from 300m (announced 17th Oct 2018).

In November 2019, Aeon announced the addition of a further 130km of potential strike extent to the east of Walford Creek adjacent to the eastern boundary of the Walford Creek tenements. These tenement holdings, known as the Basin Edge Project, lie on the northern basin bounding fault architecture. This structure is interpreted as a continuation of the Fish River Fault that hosts the Walford Creek deposits. The Aeon Board has also resolved to commence greenfields exploration of this substantial tenement package with the objective of finding repetitions of the Walford Creek mineralisation. The first phase of this exploration is planned to involve a combination of tenement-wide surveys that will be used to generate potential anomalies and drill targets.

Revised PFS timing

A preliminary scope of work and timetable for the revised PFS indicates finalisation in H1 2022. This timing is primarily driven by the need to source fresh drill core to provide sufficient representative samples for the extensive new testwork program planned (and the fact that exploration activities in the Walford Creek region are largely confined to the May to November dry season).

Key components of the future work program include:

- Walford Creek exploration program over the dry season (May to November).
- Preparation of a preliminary flowsheet design specification to support a more detailed capital and operating cost assessment and revised financial model.
- Reassessment of proposed cut-off grades and their impact on existing and future mining inventory.
- Grind and flotation optimisation testwork to support a coarser primary grind and the option of a regrind step.
- POX optimisation testwork to confirm autoclave operating conditions of temperature, pressure and oxygen addition.
- Pregnant leach solution testwork to optimise sequential extraction steps for metals and removal of impurities.

Funding

Following preliminary discussions with lender and major shareholder, OCP Asia, the Aeon Board has received an indicative, non-binding term sheet for an increase in the existing OCP loan facility and maturity extension. All other terms of the existing facility are to remain unchanged and the fee for this facility revision is expected to be broadly commensurate with that paid for similar previous revisions of the facility.

This facility increase and extension would be expected to adequately fund Aeon through to targeted completion of the revised PFS in H1 2022.

This ASX release has been authorised for and on behalf of the Aeon Board by:

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ABOUT AEON METALS

Aeon Metals Limited (**Aeon**) is an Australian based mineral exploration and development company listed on the Australian Securities Exchange (ASX: AML). Aeon holds a 100% ownership interest in the Walford Creek Copper-Cobalt Project (**Walford Creek Project**) located in north-west Queensland, approximately 340km to the north north-west of Mount Isa.

A Pre-Feasibility Study on the Walford Creek Project is targeted for completion in H1 2022.

APPENDIX A: Background to rationale for revised PFS

Previous guidance for the completion of the Walford Creek PFS was Q1 2021. Following the release of the Scoping Study results in October 2019, PFS completion guidance was Q2 2020. This guidance was subsequently updated twice – initially to Q3 2020 due to COVID-19 related delays and then again in October 2020 following the decision to abandon the agitated bioleach pathway in favour of heap leaching.

Prior to completion of the Scoping Study, the earlier flowsheet direction had favoured roasting of the pyrite concentrate. That flowsheet option was selected following earlier testwork which had evaluated and discarded alternatives such as atmospheric leaching (with and without fine grinding).

Throughout nearly all of the previous phases of study, the processing flowsheet front-end involving comminution and multi-stage flotation to yield saleable copper, lead and zinc concentrates, and a cobalt/nickel rich pyrite concentrate (containing additional quantities of copper, lead, and zinc), remained largely unchanged. As such, the recurring dynamics underpinning the delays in finalising the PFS can be readily attributed to the challenge of unlocking the substantial metal values in the pyrite concentrate stream.

The Walford Creek mineral resources are well defined. The open cut and underground mining methods and schedules are well defined. The site layout, waste dump and tailings dam locations, logistics and power generation are all largely resolved to at least a PFS level of confidence. The obvious question therefore is why the pyrite concentrate flowsheet has proven so difficult to pin down.

The polymetallic nature of the Walford Creek orebody is both a blessing and burden – a blessing because it contains a suite of valuable metals that collectively suggest a substantial in-situ value that can be economically mined, and a burden because the commercial value for each metal can only be realised once it has been extracted and separated from all of the others and upgraded to a saleable quality.

The primary considerations for selecting one processing flowsheet over another reflect a trade-off between maximising revenues and minimising expenditures over the longest possible life of mine. While most deposits are ultimately polymetallic, it is much more typical for the potential revenue that can be derived from the total metal suite to be dominated by a single metal. In such circumstances the flowsheet trade-offs are more straightforward, as is the resulting flowsheet.

At Walford Creek, using approximately spot commodity prices, the value proposition for in-situ metals appears in Table 2. No single metal dominates the in-situ revenue proposition. While copper and cobalt comprise approximately 70% of the total, the potential revenue contribution of the remainder demands that their recovery be included (at least initially) in any process flowsheet evaluation. As such, the objective from the outset for the Walford Creek studies has been to maximise the total project revenue by endeavouring to recover saleable end products from as many metals as possible.

Table 2: Indicative in-situ mineral resource value at spot commodity prices

	Cu	Co	Zn	Pb	Ag	Ni
Grade	1.05%	0.14%	0.72%	0.90%	29.1g/t	0.04%
Metal	193kt	25.76kt	132kt	166kt	17.2Moz	7.4kt
Spot price (US$)	$9,000/t	$50,000/t	$2,800/t	$1,900/t	$25/oz	$16,000
In-situ value %	**41%**	**30%**	**9%**	**7%**	**10%**	**3%**

Nickel has not been reported in the previously published JORC mineral resources due to its relatively minor abundance. It is used here for illustrative purposes only in the context of the current discussion.

The production of saleable copper, lead and zinc concentrates is comparatively straightforward and its practice is widespread. While there are challenges in achieving adequate mineral liberation to ensure that higher quality concentrates can be produced, the Walford Creek ores are basically amenable to the production of high grade, saleable, metal concentrates of copper, lead and zinc. The high pyrite content in the feed does cause a flotation separation issue however this can be managed. While silver does report to all three metal concentrates, only the copper and lead concentrates yield payable quantities.

At Walford Creek, the pyrite (FeS_2) mineralisation essentially hosts the cobalt (and nickel) values, and a significant proportion of the silver values. Pyrite accounts for approximately 60% of the mass in the Walford Creek plant feed. Since pyrite floats readily, it is straightforward to recover into a high grade Fe concentrate. Unfortunately, the combination of high mass recovery and relatively low in-situ grades for the individual valuable metals of cobalt (and nickel) demand further processing steps ahead of producing saleable end products. One further complication to be overcome is that the cobalt and nickel (and much of the silver) cannot be liberated by finer grinding from the pyrite host since it is refractory, occurring as either very fine (<10µm) grains within the pyrite lattice or replacing individual Fe atoms at an atomic scale. Under such circumstances, the pyrite crystal lattice needs to be physically broken down to allow chemical leaching of the valuable metals.

Oxidation of pyrite, typically using oxygen, yields complex mixtures of iron oxides (e.g. FeO, Fe_2O_3) and sulphur oxides (SO_2, SO_3) and elemental S. The sulphur oxides can react with water to yield acidic solutions that will react with the newly “liberated” cobalt and nickel metals. Any other metal sulphides present (eg copper and zinc) will also be oxidised under these conditions. These metals dissolve into solution resulting in them being transformed into metal ions (Co^{2+}, Cu^{2+}+, Zn^{2+}, Ni^{2+}). While silver is largely unaffected by the acid environment, it is however also “liberated” from the crystal lattice. The degree of valuable metal extraction achieved is typically strongly positively correlated with the resulting level of overall pyrite oxidation achieved.

There are a number of hydrometallurgical processing routes available to achieve the extraction of the valuable metals from refractory pyrite concentrates and therefore the final selection is driven by the usual considerations discussed above. Specific considerations include the level of metal extraction and pyrite oxidation to be achieved, the residence time required, the resulting metal tenors achieved in the pregnant leach solution, the level of excess acid formation, iron dissolution, and deleterious element dissolution. The final decision on processing route typically hinges on the complex overlay and balancing of these various physical considerations with the capital and operating costs necessary to achieve them. While the various processing routes are generally well understood, the final choice is very much determined by the specific characteristics of the pyrite concentrate and its suite of metal deportments.

In the case of the Walford Creek deposit, there are at least three distinct types of pyrite mineralisation present, each with varying compositions of cobalt, nickel and silver. In addition, a range of composite (unliberated) particles report to the pyrite concentrate incorporating pyrite associated with one or more of the other valuable metals including copper, lead and zinc. This introduces the added opportunity to recover these metals into a saleable product. Deleterious elements like arsenic and thallium are also in the mix and their removal and safe disposal must be addressed in the final consideration.

The history of the Walford Creek pyrite concentrate testwork essentially reflects a journey with a number of intermediate destinations being visited. Using samples sourced from the exploration program and proceeding within the constraints of funding, the testwork has been conducted in various phases, in line with changes to mineral resource estimation, mine schedules and perhaps most importantly, the progressive improvement in understanding. Not surprisingly in light of the complexities of the various trade-offs involved, this approach has not lent itself to following a straight line path towards a resolution of the final flowsheet.

Over the course of the various study phases, the following processing routes for pyrite concentrate have been explored and either discontinued or remain incomplete:

- Roasting followed by calcine leaching;
- Autoclave leaching (pressure oxidation);
- Atmospheric leaching (with and without fine grinding);
- Biological leaching;
- Heap leaching; and
- Ferric sulphate leaching.

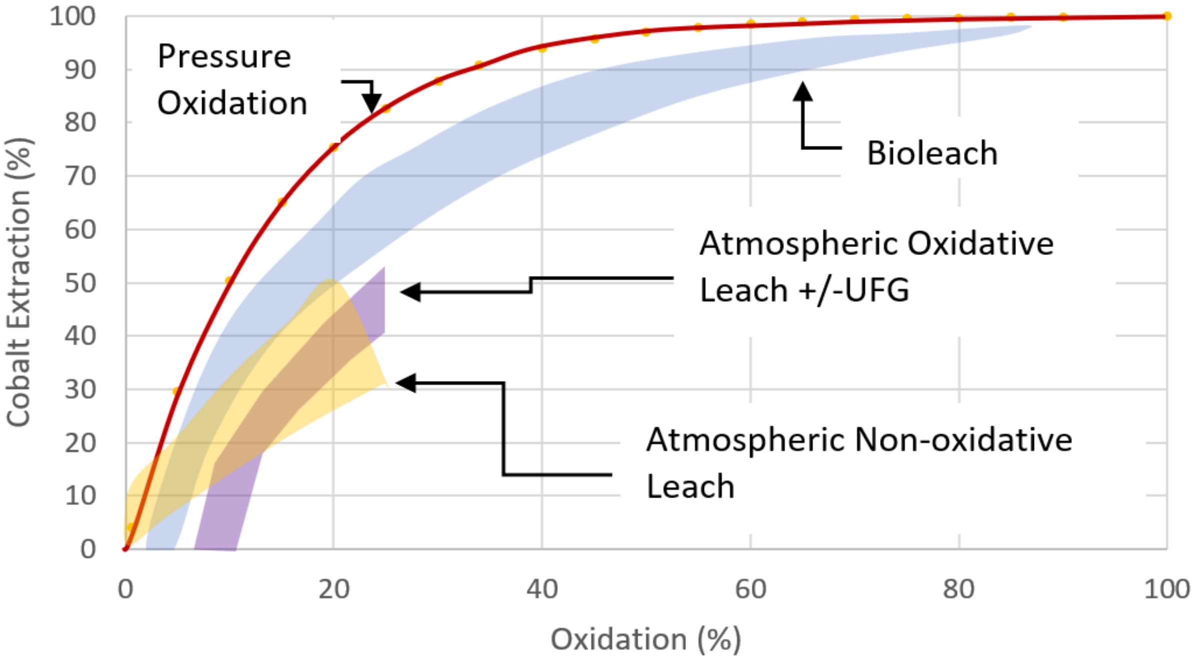
The pyrite concentrate specification used for all testwork conducted to date was derived following primary grinding (P80 ~ 60µm) to achieve base metal (copper, lead and zinc) liberation from pyrite. This is followed by a multi-stage flotation separation that yielded saleable base metal concentrates and, over life of mine, a substantial total of pyrite concentrate. The pyrite concentrate indicatively contains, on average, cobalt (99% recovery at 0.2%), nickel (99% recovery at 0.08%), silver (94% recovery at 40g/t), copper (15% recovery at 0.29%), lead (18% recovery at 0.38%), zinc (25% recovery at 0.44%), arsenic (0.5%) and thallium (0.02%).

Table 3: Summary of pyrite concentrate leaching testwork (max. metal extractions achieved)

Leach Type	Cu	Zn	Fe	As	Co	Mg	Ag	Ni
Non-oxidative	19%	72%	4%	11%	17%	94%	0.2%	4%
Roast calcine leach	92%	93%	32%	80%	86%	n.a.	<0.1%	77%
Oxidative	39%	67%	2%	6%	6%	68%	2.4%	2%
Ultrafine grind, oxidative	87%	94%	12%	53%	50%	96%	<0.1%	43%
Pressure oxidation	98%	96%	71%	67%	99%	84%	8%	97%
Agitated bioleach	56%	80%	69%	82%	96	n.a.	26%	95%
Heap bioleach	36%	29%	10%	6%	52%	n.a.	1%	46%
Ferric sulphate leach	63%	33%	1%	4%	4%	99%	<0.1%	3%

The information contained in Table 3 demonstrates that the highest extractions of valuable metals occur using the pressure oxidation and roasting flowsheets. Unfortunately, these flowsheets also incur higher capital costs. The downside of using the roasting flowsheet is that almost all of the sulphides are oxidized yielding substantial quantities of low grade sulphuric acid. The disposal of this product (approximately 1 tonne of high grade and 4 tonnes of lower grade acid is produced for every tonne of pyrite roasted) poses a significant economic hurdle for the process, even though it yields excellent valuable metal recoveries. In contrast, the pressure oxidation flowsheet achieves similar valuable metal extractions but at lower levels of overall pyrite oxidation (see Figure 3 for Co extraction comparative).

Figure 3: Cobalt extraction versus oxidation for various flowsheets



A limited amount of successful testwork was completed on a pressure oxidation flowsheet before it was abandoned in favour of the agitated bioleach option in mid-2019. The agitated bioleach flowsheet was the basis for the Scoping Study (2019). The perception at the time was that the higher capex and opex of the pressure oxidation flowsheet was not justified based on the potential revenue stream available from the pyrite concentrate. The key change today is that feeding the autoclave with a bulk sulphide (versus pyrite) concentrate requires only a modest increase in size while substantially simplifying the overall flowsheet and allowing the production of high grade end products.

In reviewing the alternative flowsheets for pyrite processing, it is difficult not to revisit the pressure oxidation flowsheet and ask, “What do we need to do to make this work?” It yields high pregnant leach solution tenors containing the maximum or near maximum extractions of most of the valuable metals. The higher pregnant leach solution tenors allow consideration of direct SX/EW to produce refined copper and zinc cathodes. Producing refined metal will result in additional payable value and savings in transport charges. It also opens up the pathway for higher quality cobalt and nickel end products (eg as sulphates).

In addition to these potential revenue benefits, the pressure oxidation flowsheet will allow the multiple concentrate production circuits required in the current study flowsheet to be replaced by a simple circuit producing one grade of bulk sulphide concentrate.