



14 January 2019

Corporate Details

Ordinary Shares:
794,390,876

Market Capitalisation:
~\$150 million

Cash, bullion and available financing facilities at 31 December 2018:
\$18.2 million

Debt at 31 December 2018:
\$5 million

ASX Code: MOY

Board of Directors

Greg Bittar
Non-Executive Chairman

Bruno Lorenzon
Non-Executive Director

Tim Kennedy
Non-Executive Director

Peter Lester
Non-Executive Director

Management

Peter Cash
Chief Executive Officer

Dean Will
Chief Operating Officer

Ray Parry
Chief Financial Officer and
Company Secretary

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December 2018 Quarterly Activities Report

Strong quarter sees Millennium at top end of CY18 guidance; Exceptional testwork results as sulphide expansion gathers momentum

Key Points

- **Gold production for December quarter of 24,514oz at an AISC of A\$1,216/oz – production and costs in line with guidance.**
- **Nullagine Gold Project now consistently operating at an average annualised run rate of ~100,000ozpa.**
- **CY2018 production of 79,891oz – at the top end of forecast production guidance of 75-80,000oz. Annualised AISC of A\$1,463/oz reflects the significant investment made throughout 2018 to set the Company up to deliver a sustained 100kozpa production rate.**
- **Nullagine processing plant expansion proceeding well, with the gravity concentration spirals now on site and the mills scheduled to arrive in March.**
- **Stockpiling of sulphide concentrates will commence late this Quarter ahead of full commissioning of the sulphide circuit in early April.**
- **Exceptional results from ongoing metallurgical testwork on sulphide ores from the Golden Eagle deposit, with gold recoveries of 79% achieved from in-mill oxidation.**
- **Significant potential exists for further improvements with metallurgical testwork underway using a new, patented Stage 2 pressure oxidation (PINOX) process.**
- **Initial results from the PINOX test program indicate strong potential to further increase sulphide recoveries from both Pyrite and Arsenopyrite ores. Results from this program are expected in late January.**
- **Extensional drilling program completed at Bartons Underground to expand the Mineral Resources and Ore Reserves 100m below the current workings.**
- **This drilling and ongoing underground development has also extended the Bartons deposit along strike by approximately 150m.**
- **New high-grade drilling results expand open pit and underground potential at Golden Gate, with results of up to 13m @ 7.13g/t Au.**
- **Annual Resource and Reserve Statement as at 31 December 2018 scheduled for release in mid-February 2019, together with CY19 production guidance.**

Millennium Chief Executive Peter Cash said the December Quarter marked another positive and productive period for the Company, with a strong quarterly production performance seeing the Company come in at the top end of its production guidance range for CY2018.



“The positive momentum we’ve generated at Nullagine over the past 12 months continued into the December Quarter, with gold production of 24,514 ounces increasing our total production for the year to 79,891 ounces – a very pleasing result,” he said.

“Since September, Millennium has maintained an average annualised throughput rate of 100kozpa, which we expect to continue throughout 2019.

“At the same time, we have continued to invest heavily in our future growth, with significant progress achieved with the sulphide plant expansion project and a significant ongoing investment in exploration.

“Metallurgical testwork undertaken during the Quarter also provided a significant boost to our sulphide expansion project, with in-mill oxidation delivering a marked improvement in gold recoveries – increasing recoveries to 79% in the latest phase of testing.

“These programs are continuing, with testing currently underway on an additional ‘pressure oxidation’ phase, which shows early signs of delivering a further boost to sulphide recoveries.

“Construction of the expanded sulphide processing circuit is also proceeding well, with the gravity concentration spirals delivered to site before Christmas and the mills scheduled to arrive in March. This should position us to start commissioning of the upgraded circuit in mid-April – a couple of weeks behind schedule, but broadly in line with our targeted timeline.

“Once the current phase of metallurgical testwork has been completed, we will provide a more detailed update on the sulphide expansion project later this month.

“We have also seen some very pleasing results from our exploration programs, with drilling extending the Bartons Underground orebody along strike, as well as delivering a string of high-grade intercepts from the Golden Gate mining centre.

“Both of these drill programs were completed late December, with an updated global Resource and Reserve estimate for the Nullagine Gold Project expected to be delivered in mid-February,” he continued.

Mine Safety, Environment and Community

Safety

There were no lost-time injuries, no medically treated injuries and no alternative duty injuries recorded for the quarter.

The 12-month moving average for the Lost Time Injury Frequency Rate (LTIFR) is 0.0, highlighting that the site has not had a lost-time injury for over 12 months. The Total Reportable Injury Frequency Rate (TRIFR) is 5.15, the lowest for site since September 2013.

The upgrade of the Mines Rescue Training Centre was completed with underground rescue equipment and underground mines rescue training to support the Bartons Underground Mine.

Environment and Heritage

An audit of the Company’s annual Mine Rehabilitation Fund assessment was completed by the Department of Mines, Industry Regulation and Safety (DMIRS) during the Quarter, with approval received from DMIRS.

Environmental Survey work and preparation of a site-wide Mining Proposal continues, with promising exploration targets and future underground opportunities highlighted for proposed development envelopes.

Employment and engagement of Njamal civil plant equipment commenced during the Quarter to assist with Tailings Storage Facility (TSF) construction works that are scheduled to occur throughout the March Quarter and into the next.



Cultural road-mapping continued across the operation during the Quarter, with the Njama Group actively contributing to the collection of recordings and culturally significant stories from the surrounding area.

Community

Millennium has been working closely with the Nullagine Remote Community School to assist in continued education outside of the local region. Assistance was provided in developing and implementing a work experience program for school students for late 2018 and early 2019.

The Company continued its support for the development of skills for life after school and agreed to provide financial support for a school excursion to Perth and assist the school with organising visits to universities and sporting events in Perth

Operational Activities Summary

The Company produced 24,514oz for the quarter at a C1 cash cost of A\$1,117/oz and an AISC of A\$1,216/oz.

The very positive result, which was in line with guidance, enabled the Company to deliver total production for CY18 of 79,891oz at an AISC of A\$1,463/oz – at the top end of the forecast guidance for the year of 75-80,000oz.

The increase in gold production was mainly driven by a higher average head grade as the new Bartons underground mine and higher-grade Redbeard and Mustang open pit ore sources come on stream.

The mining rate at Nullagine in Q4 was a monthly average of approximately 523,000 Bank Cubic Metres (BCM).

Mill throughput has averaged of 152kt over the quarter

Collectively, these enhancements enabled the Company to almost achieve its long-held target of an annualised production rate of 100,000 ounces per annum during the December quarter.

Table 1 – Quarterly Comparative Results

		Mar-18	Jun-18	Sep-18	Dec-18
Total volume mined	<i>bcm</i>	1,098,931	1,323,820	1,818,484	1,569,118
Ore mined	<i>t</i>	369,927	568,927	529,152	602,871
Ore processed	<i>t</i>	474,420	436,887	523,614	458,174
Head grade	<i>g/t</i>	1.56	1.01	1.53	1.98
Metallurgical recovery	<i>%</i>	85.5	83.8	86.8	83.7
Fine gold production	<i>oz</i>	20,324	12,639	22,414	24,514
Gold sold	<i>oz</i>	21,013	15,129	21,945	22,782
Gold sales revenue	<i>\$M</i>	35.45	26.0	36.5	39.2
Cash Operating Cost	<i>\$/oz</i>	1,194	2,020	1,183	1,156
All-in Sustaining Cost	<i>\$/oz</i>	1,295	2,178	1,324	1,216



Corporate Activities

As at 31 December 2018, the Company held cash and bullion of \$5.7 million.

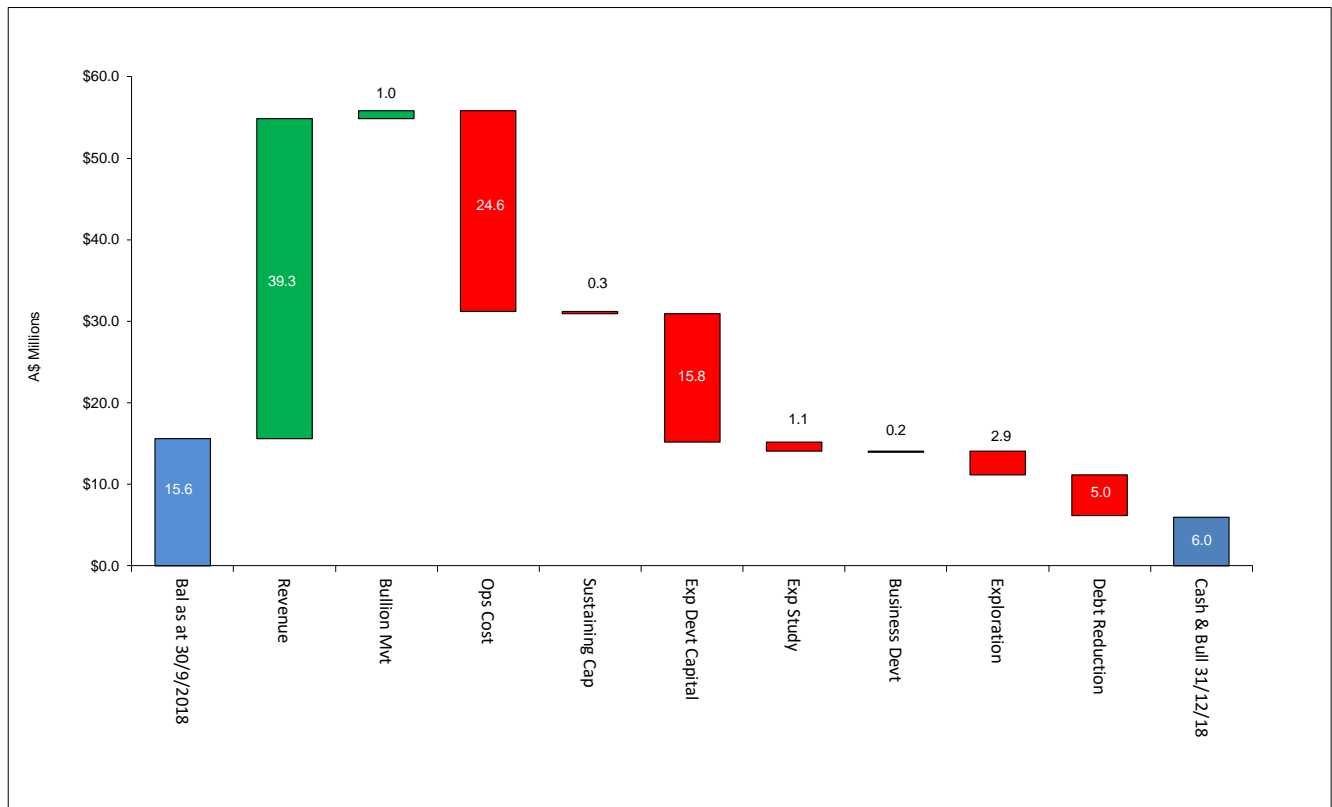
During the Quarter, \$5 million was repaid to the Revolving Loan Facility (RLF) with Investec. Millennium considered it prudent to repay these funds to the RLF, rather than continue holding them as cash, to reduce the Company's interest liability.

At Quarter-end, available funds within the RLF totalled \$12.5 million, bringing the Company's total available cash to \$18.2 million.

Gold sales revenue for the quarter totalled \$39.2 million, which was achieved at an average realised gold price of \$1,749/oz.

At 31 December 2018, the Company's hedge book consisted of 41,500 ounces to be delivered over the period January 2019 – December 2019 at an average forward gold price of \$1,715/oz. December quarter cash and bullion movements are shown in Figure 1 below.

Figure 1: December 2018 quarter cash and bullion movements





Bartons Underground Development

During the Quarter, Resource extension drilling successfully increased the strike extent at Bartons Underground, and the development drive was extended to follow the additional strike. The Bartons Decline has been completed to below the 215 Level and total underground development of 1338.5m was completed for the Quarter.

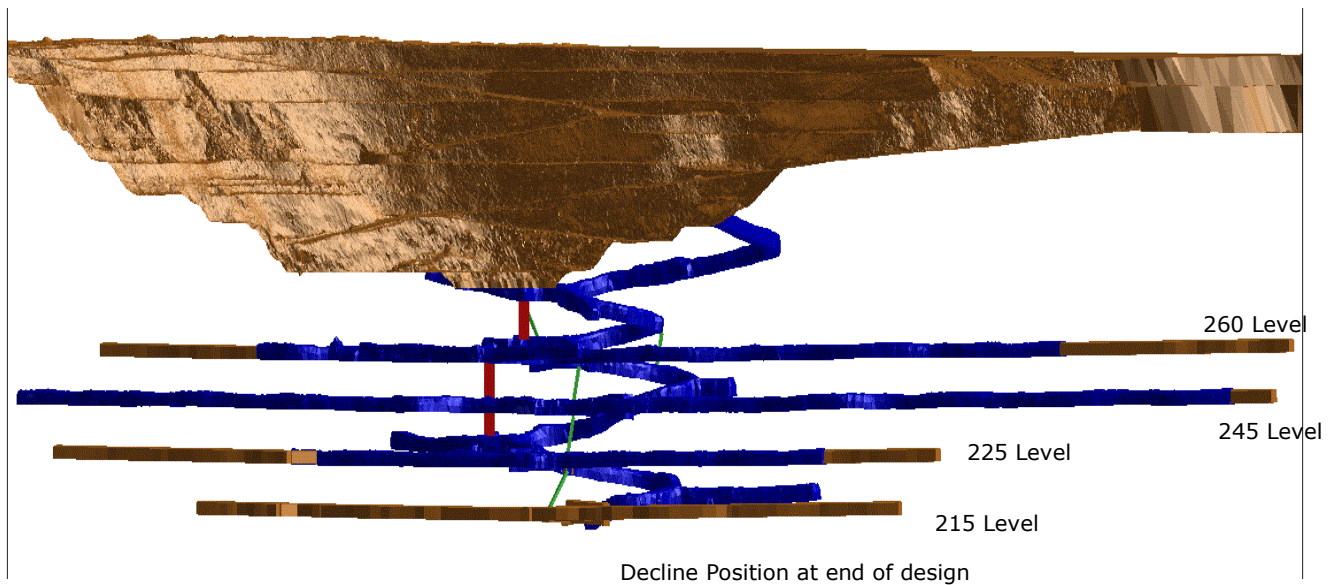


Figure 2: *Bartons Underground Project Long Section showing mine development to date (blue).*

This underground development is accessing high-grade, free-milling mineralisation located directly beneath the existing Bartons open pit.

Underground development has encountered better-than-expected ground conditions, with consideration now being given to employing a revised “top-down” mining approach to access high-grade stope ore ahead of schedule.

As a result of the additional ore drive development on the 260 and 245 levels, stoping at Bartons Underground will commence in Q1 2019.

Sulphide Expansion Project

Further strong progress has been made towards the expansion of the existing 2Mtpa CIL processing plant at Nullagine to facilitate the economic treatment of sulphide ore, with exceptional results achieved from recent metallurgical testwork.

As of the end of December, the Golden Eagle variability in-mill oxidative leach (INOX) tests had been completed and the Company is currently awaiting the final mass balances of the remaining samples.

The testing program was designed to reflect the process stages of CIL leach, gravity concentration of the leach tails, fine grinding and oxidative leach of the gravity concentrate and finally cyanidation of the oxidised concentrate.

Un-optimised overall gold recovery for the variability samples has been increased to ~79% by the application of the INOX process, with potential for further improvements.

Metallurgical test work is also continuing to evaluate the development of a pressure comminution oxidation step (PINOX) to the sulphide processing flowsheet. Initial results from this program have been very encouraging, with further results of the program expected in late January.



Both the INOX and PINOX processes have been patented by Millennium Minerals, with the potential to deliver a future revenue stream.

Major equipment items for the process plant expansion have been ordered, with the gravity concentration spirals delivered to site in December and the ceramic-lined Commett UFG mill scheduled to arrive in March. Orders for other long-lead items will be finalised in January. Construction mobilisation is scheduled for late January 2019.

Stockpiling of sulphide concentrate from commissioning the spirals will commence late in the March Quarter, with commissioning of the expanded sulphide circuit now expected to commence in the second week of April.

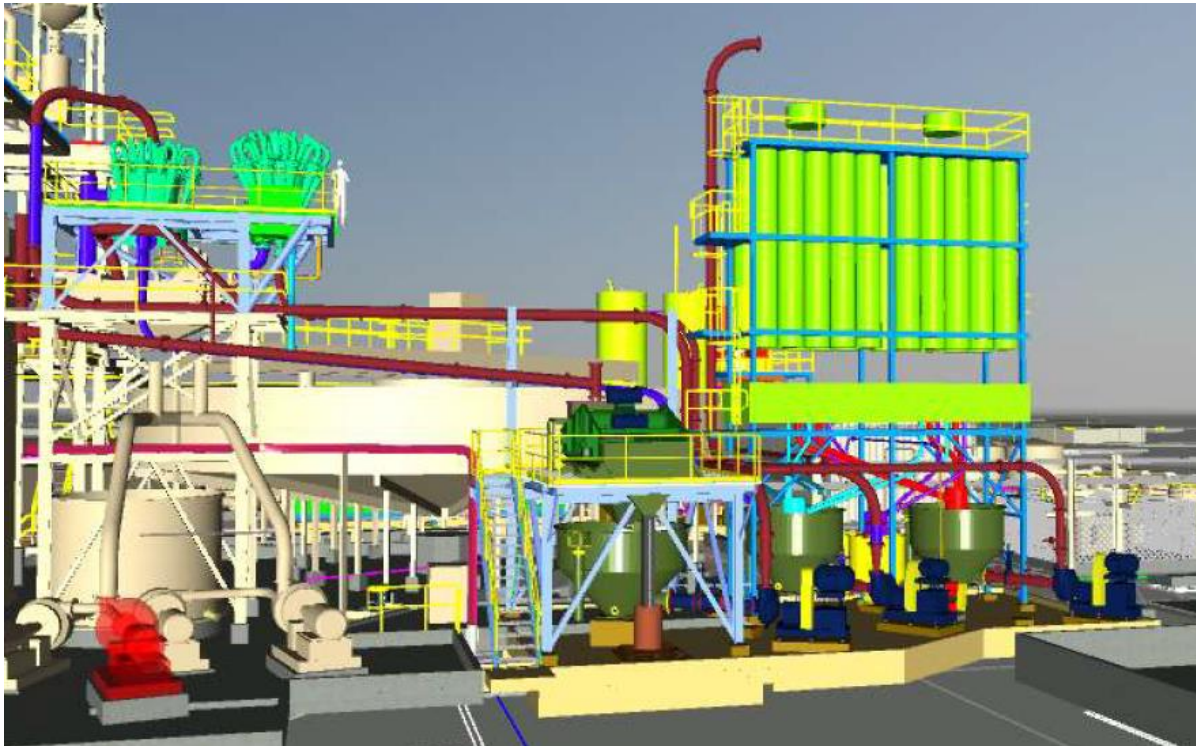


Figure 3: Sulphide plant expansion 3D design of the concentrator circuit.



Figure 4: Sulphide plant expansion 3D design of the grinding and oxidation circuit



Exploration

Millennium achieved further exploration success during the Quarter, with in-fill drilling returning high-grade results from the Golden Eagle deposit, part of the Golden Eagle Mining Centre at Nullagine. Deeper drilling was also carried out in the Golden Gate, Camel Creek and Twenty Mile Mining Centres.

Drilling

Camel Creek Mining Centre

A total of 28 RC holes for 2,178m were drilled for waste sterilisation at the Mustang deposit. This included follow-up drilling on significant mineralisation that was intersected in the initial program. A further 38 RC holes for 2,634m were drilled at the Roscoes Reward and Little Wonder deposits to locate further oxide mineralisation and test the viable extents of the sulphide mineralisation.

Five Mile Mining Centre

Four RC holes for 320m were drilled to test a hyperspectral feature as well as a gravity gradient from the recently acquired data. Assay results from this drilling are expected by the end of January.

Golden Eagle Mining Centre

A total of 252 RC holes for 16,041m were drilled in the Golden Eagle Mining Centre to extend the known oxide mineralisation and scope out the viable extent of potential open pit sulphide mineralisation for both the Golden Eagle and Au81 deposits. Deeper drilling was also conducted at Golden Eagle as an initial test for a bulk mineable underground position.

Results from this drilling will be incorporated into updated Mineral Resource Estimates for the Annual Resource and Reserve Statement.

Golden Gate Mining Centre

Drilling at the Golden Gate Mining Centre is delivering very positive results, confirming its potential to form a major mining hub.

Current drilling programs are designed to increase both the high-grade open pit and underground Resources at Golden Gate, with this area expected to deliver Millennium's second underground mine at Nullagine, as well as providing an important source of ore for its Sulphide Expansion Project.

Condor Northwest and Condor

Drilling commenced in late October to test the down-dip extensions to the Condor and Condor Northwest deposits, as well as testing between the two deposits.

This drilling was designed to potentially deepen and expand the proposed pit for Condor Northwest as well as to establish if there is potential for a cut-back on the Condor pit. Drilling was carried out on a nominal 20 x 20m spacing, with a total of 33 RC holes completed for 2,465m.

Condor Northwest returned the following significant results:

- 13m @ 7.13g/t Au from 57m, including 2m @ 26.2g/t Au and 2m @ 13.64g/t Au (CORD120)
- 7m @ 3.02g/t Au from 22m, including 1m @ 12.35g/t Au (CORD114)
- 7m @ 3.18g/t Au from surface, including 2m @ 7.3g/t Au (CORD115)
- 4m @ 3.20g/t Au from 65m, including 1m @ 7.35g/t Au (CORD102)

At Condor significant results included:

- 12m @ 3.07g/t Au from 98m, including 4m @ 6.46g/t Au (CORD095)
- 5m @ 3.49g/t Au from 172m, including 1m @ 10.65g/t Au (CORD129)
- 2m @ 4.35g/t Au from 65m, including 1m @ 8.03g/t Au (CORD099)



ABC Reef, D Reef and Crow Sulphide drilling

A nominal 20m x 20m program commenced in November (36 RC holes for 3,187m have been completed to date) to test the depth potential beneath the ABC Reef, Crow, D Reef and Harrier pits.

This drilling is designed to both test the sulphide potential and provide material for metallurgical testwork. A further two RC holes for 204m remain to be drilled in this program.

ABC Reef returned the following significant results:

- 17m @ 1.83g/t Au from 52m (ABCRD030)
- 7m @ 6.13g/t Au from 96m including, **3m @ 11.04g/t Au** (ABCRD037)
- 9m @ 2.66g/t Au from 129m including, **1m @ 16.4g/t Au** (ABCRD037)
- 10m @ 2.67g/t Au from 94m including, **2m @ 9.27g/t Au** (ABCRD049)

Deeper and Extensional Program

A program comprising 22 RC holes for 2,956m was completed to test the depth potential beneath Condor and the mineralisation parallel to the Crow deposit. Drilling also targeted oxide mineralisation parallel to Crow, with the drilling aimed at identifying extensions along strike up to the northern end of the ABC Reef deposit. Final assay results from this drilling are expected by the end of January.

Twenty Mile Mining Centre

A total of four RC holes for 684m were drilled to scope out the underground potential at the Redbeard deposit. One hole for 250m remains to be drilled in this program. An assessment of the likelihood of an underground position will be made upon receipt of the final assays.

Bartons Underground

A major new round of resource in-fill and extensional diamond drilling (36 holes for 6,434m) was completed at the Bartons deposit during the Quarter, designed to in-fill deeper portions of the Mineral Resources and allow conversion of the next five development levels into Ore Reserves.

With the underground resource remaining open at depth, the drilling also tested for extensions of the deposit to a depth of 200m below the currently-defined mineralisation.

Previously-reported deep intercepts below the current Mineral Resource include (see ASX Announcement 24 July 2017):

- 41m grading 6.02g/t Au from 129m, including 2m @ 87.47g/t Au (BARD0285)

An updated Mineral Resource and Ore Reserve estimate for Bartons Underground is expected to be included in the Company's December 2018 Mineral Resource and Ore Reserve statement, scheduled to be released in February 2019.

Potential VMS Target

In August 2017, Millennium reported that drill hole BARD0233 at Bartons unexpectedly intersected a 3 metre down-hole zone of high-grade copper-lead-zinc-gold-silver mineralisation in association with elevated levels of other elements (see ASX Announcement 23 August 2017).

Optical mineralogy assessment of samples from the drill-hole revealed that the predominantly massive chalcopyrite and pyrite had textural similarities to VMS mineralisation.

Assay results from BARD0233 included:

- 3m @ 5.45% Cu, 8.52g/t Au, 141.4g/t Ag, 4.3% Zn and 0.6% Pb from 270m (down-hole) and 230m (vertical depth) including, 1m @ 11.75% Cu, 15.70g/t Au, 238g/t Ag, 6.1% Zn and 0.6% Pb from 270m



Limited follow-up drilling and down-hole electromagnetic surveys at Bartons failed to explain this highly anomalous intercept.

During the Quarter, Millennium undertook exploration drilling (one diamond hole for 455m) to target a prominent coincident electromagnetic (EM) and gravity anomaly located 350m to the north-west of the Bartons Underground mine. Drill core logging and sampling is ongoing with assay results expected late this quarter.

The VMS exploration program is being supported by specialist base metals consultant, Jon Hronsky, and is being co-funded by a West Australian Department of Mines, Industry Regulation and Safety (DMIRS) Exploration Incentive Scheme grant of up to \$150,000.

Gravity Survey

During the Quarter, the Company reported preliminary results from a gravity survey over the Golden Eagle, Five Mile, Middle Creek and Camel Creek Mining Centres at Nullagine.

The gravity survey has significantly enhanced Millennium's understanding of the controls over gold mineralisation in the district, showing that mineralisation across the project area is strongly coincident with the edges of gravity anomalies.

The results provide Millennium with an important new dataset to assist with exploration targeting.

Exploration at Nullagine has historically focused on geochemical anomalies. However, the gravity data shows a compelling correlation with the gold mineralisation discovered at Nullagine to date.

A number of distinct gravity features have been identified in areas that have not previously been tested by drilling. Several of these features are located beneath cover, in areas where surface geochemical anomalism may not be present.

In light of these compelling results, drill programs are now being planned to test the most prospective gravity targets for gold mineralisation.

Planned Activities for the March Quarter

The focus during the March Quarter will be on completing the upgrade of the Nullagine processing plant to accommodate sulphide ore, with construction expected to be largely complete by Quarter-end ahead of commissioning in early April.

A comprehensive update on the sulphide expansion project is scheduled for release later this month following the completion of the current phase of metallurgical testwork.

Deep drilling will continue at Redbeard and Golden Eagle targeting depth extensions. Further drilling will be carried out to follow up on extensions to both the oxide and sulphide drilling that was completed in the December Quarter.

Planning is also continuing for a drill program to test priority targets identified by the recent gravity survey.

An updated Mineral Resource and Ore Reserve statement is scheduled for release in mid-February.

ENDS

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Competent Persons Statement – Exploration Results

The information relating to exploration results from the Nullagine project is extracted from the announcements titled:

1. *First high-grade ore exposed at Bartons following outstanding progress with underground development dated 13 August 2018;*
2. *Millennium makes key exploration breakthrough at Nullagine dated 27 August 2018;*
3. *Outstanding new high-grade results of up to 54.9 g/t transform outlook for Golden Eagle dated 10 September 2018;*
4. *Millennium achieves 100,000ozpa production run-rate at Nullagine ahead of schedule dated 11 September 2018;*
5. *New high-grade intercepts of up to 42.35g/t upgrade discovery potential at Golden Eagle SW dated 17 September 2018;*

all of which are available to view at www.millenniumminerals.com.au.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements relating to the drill results and that all material assumptions and technical parameters underpinning the drill results in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings as presented here have not been materially modified from the original market announcement.

Qualifying Statement

This report may include forward-looking statements. These forward-looking statements are based on Millennium's expectations and beliefs concerning future events. Forward-looking statements are necessarily subject to risks, uncertainties and other factors, many of which are outside the control of Millennium, which could cause actual results to differ materially from such statements. Millennium makes no undertaking to subsequently update or revise the forward-looking statements made in this report or to reflect the circumstances or events after the date of this report.

Notes

- ¹ *All-In Sustaining Cost (AISC) per ounce sold represents: C1 Cash Costs, corporate administration costs related to operations, royalties, sustaining capital, development capital, tenement management of active mining tenements, rehabilitation and reclamation accretion, employee share payments provided to operational staff and production stripping adjustments and amortisation. It does not include expansionary development costs, including the sulphide plant expansion study, Bartons Underground development, corporate development costs, tenement acquisition expenditure, or exploration and evaluation expenditure of new deposits and projects.*
- ² *C1 cash cost represents the costs for mining, processing, administration, by-product credits, royalties and accounting adjustments for movements in stockpiles, gold in circuit and waste stripping. It does not include capital expenditure, exploration, tenement management and corporate administration costs.*

Unless otherwise denoted all currency units are Australian dollars.

All data provided is unaudited.