Exploration and Technology Innovation Update
for the half year ended 31 December 2018

GREENFIELDS
During the second half in 2018, Greenfields exploration activities were undertaken in Argentina, Australia, Brazil, and the USA. Greenfields exploration completed 59,596m of drilling globally with a total expenditure of $14.8m for the second half of 2018.

In **Australia**, the first stage of the Butcher Well and Lake Carey Earn-in was completed in late August, AGA now owns 51% of the Butcher Well and Lake Carey tenements. A scoping study on the Butcher Well and Mt Minnie project was completed in July with positive results.

During the second half in 2018, a programme of 20 DD holes for 11,024m was completed to infill the Old Camp Zone to enhance the confidence of the Mineral Resource in the potential underground mining zone. The drilling has generally confirmed the Old Camp Zone underground target, located between 300m and 600m vertical depth. A programme of 80 RC holes for 6,400m was completed in the fourth quarter of the year to define open pit targets south of the Camp Zone pit and north of the Enigmatic pit. Several intersections drilled north of the Enigmatic pit will potentially increase oxide Mineral Resource in that area.

Elsewhere in Australia, a small programme of 47 lake AC holes (3,837m) was completed at the Bismarck prospect located 10km south of Sunrise Dam. Encouraging gold intercepts were received from a number of holes from three wide spaced lines over 2kms strike length. A small RC programme was completed at the Leone prospect located 2km west of Butcher Well. The drilling was designed to test significant gold anomalies within a thick oxide layer.

An IP survey was completed over the Mt Clarke breccia complex in NE Queensland. A large chargeability anomaly was defined, associated with the breccia complex. Processing and integration of this data with other datasets will define drilling targets on this breccia complex for 2019.

In the **USA**, at the Aegir project area in Minnesota, follow up roto-sonic drilling was undertaken for a total of 1,080m. Results are pending.

At the Silicon project in Nevada, a 17,000m follow-up RC and DD programme commenced, with eight RC and five DD holes completed for a total of 3,147m and 2,190m, respectively. The programme follows up encouraging observations made during Phase 1 drilling, which was completed in the first quarter of 2018 and will also test other structural targets within the Silicon project area.

A 2.7km pole-dipole Induced Polarization orientation survey line was completed over the Silicon project at 100m station spacing and 100m dipole spacing. Further IP lines are scheduled for the first quarter in 2019 and will aim to delineate additional drill targets within the project area. Surface mapping delineated additional potential litho-structural targets within the Silicon claim block.

In **Brazil**, exploration focused on target generation. Detailed desktop studies were followed by field campaigns focused on sampling of drainages and regional geological mapping.

In **Argentina**, exploration properties were placed on care and maintenance.

In **Colombia** and **Tanzania**, exploration programmes are on hold pending internal review processes.

BROWNFIELDS

During the second half in 2017, Brownfields exploration activities were undertaken across the globe. Brownfields exploration completed 323,297m of drilling for a total expenditure for the second half of $24.5m (capital) and $32.0m (expensed).

South Africa: The capital allocation to surface exploration activities for 2018 was reduced which resulted in the stoppage of surface drill hole UD63A. Site de-establishment and rehabilitation have been completed and only the diamond drill derrick remains on site.

Advances in borehole UD61A have been slow due to water loss being experienced in the Eccles formation. 2 directional wedges have been installed to ensure the hole continues to rotate clockwise. The hole was grouted in November to seal the fractures and curb water loss. At the end of the year, the hole was at 1,632m just over 40% of total hole depth planned (3,850m).

Tanzania: Capitalised (Underground) and Expensed (Surface/ Underground) drilling programmes completed a total of 38,068m during the second half of the year.

Nyankanga underground drilling projects continued to provide positive results, successfully upgrading Inferred Mineral Resource to Indicated Mineral Resource and confirming the high-grade model for blocks 3, 4 & 5 as well as producing several results that suggest potential for greater continuity of high grade between project stopes in blocks 3 & 4. The interpretation made from the geology and gram-metre plots also shows a prominent high-grade plunge towards west (local grid) with significant gaps that will require several phases of Mineral Resource conversion and exploratory drilling to prove them up.

Nyankanga Block 3 Lower drilling has confirmed the potential down-dip extension of the designed mining stope and remains open-ended to the east and south-east towards Block 2. While drilling results from Nyankanga Block 5 identified a high-grade shoot within a low-grade zone located west of the Block 5 lower. The continuity of this high-grade shoot will be followed up. Two exploratory holes were completed at Nyankanga Block 5 from surface to test the potential continuity of Au mineralisation down-plunge. No mineralisation was intersected, and preliminary interpretation suggests a fault displaces the ore body.

Mineral Resource development drilling programmes were carried out at Star & Comet (S&C) Cut 2 and drilling returned significant intersections that warrant further follow up drilling. A borehole drilled from level 1055m RaiseLine (RL) intersected several zones with good intersections. Results from 1065, 1215 and 1055mRLs provided Mineral Resource confidence below 1000mRL, and indicate the need to extend the decline design to 950mRL.

At S&C Cut 3, drilling was conducted from level 1156mRL aiming at testing the potential below the 1000mRL. Assay results from the drill holes confirmed the existence of mineralisation below 1000mRL and it remains open down-plunge. Mineral Resource development drilling programmes were carried out at S&C Cut 3 south level 1091mRL, successfully converting level 1056 &1026mRL to Indicated Mineral Resource. Ongoing drilling programmes at S&C Cut 3 North and South levels 1071mRL and 1081mRL are awaiting assay results however visual indications confirm the model.

Mineral Resource development drilling was carried out at Geita Hill Block 1&2 from surface aimed at converting the Inferred Mineral Resource to Indicated in order to confirm the stope design ahead of underground mining development. Assays from Block 2 drilling have confirmed the model and have shown potential up-dip potential which needs follow-up. Assays from several holes in Block 1 are still pending.

Expensed Mineral Resource delineation and reconnaissance drilling programmes were conducted at the Selous and Mabe satellite targets. Several holes from Selous reported encouraging intersections that were used to develop a conceptual model which will be updated with drilling results during the first quarter of 2019.

A detailed target consolidation project for Roberts and Kalondwa Hill was completed, which involved detailed field mapping, review of existing datasets and geological modelling. The outcomes of this work

will be used to plan further exploration. A review and update of the Ridge 8 geology model was completed. The review will be used to plan Mineral Resource development drilling, to determine the position of the access drive across from Star and Comet as well as the conceptual position of the decline.

Guinea: Bidini West infill drilling was completed, and material was upgraded to Inferred Mineral Resource. Foulata fresh-rock drilling was completed in the third quarter of the year and the assays results show thinner mineralisation than expected from the fresh rock in Foulata central.

The Foulata East Reconnaissance programme is 79% completed. No significant intersections were reported. While the NW Reconnaissance programme is 11% completed also with no significant intersections.
The Saraya infill drilling programme was completed. While the Saraya West Reconnaissance drill programme is half way with no significant intersections to date.

The Tubani infill drill plan was completed with multiple significant intercepts reported. At Seguelen, the sterilisation drilling assay results were returned in third quarter in 2018 and multiple significant intercepts have been reported which show an extension of the mineralisation in oxide material to the East and in fresh material to the West below the pit. Backfilling of the pit has not been recommended.

A sterilisation drill programme was initiated at Silakaro after it became apparent that a change in design of the Silakoro waste dump could potentially cover a known mineralisation trend. Drilling is not yet completed but assay results returned indicate the existence of mineralisation along a NNW-SSE trending, steeply dipping fault. The infill at Silakoro West is almost complete and one drillhole returned a significant intersection in the breccio-conglomerate unit confirming a NE-SW trend. A further infill programme is now all but complete. The mineralisation does not extend to the North West but is associated with steep dipping structures crossing a strongly silicified and deformed breccio-conglomerate host rock.

At Eureka North the infill drill programme is now almost complete. Significant intersections that were received are thinner than the Mineral Resource model and indicate extension of shallow mineralisation in oxide to the SE but no more drilling will take place as a result of the community access issues.

The Sanu Tinti Infill programme is 85% completed. Multiple significant intersections were received during this quarter. The best intersection received is in a breccio-conglomerate unit. The main mineralisation does not extend to the North where the mineralised breccio-conglomerate layer is very thin and is not altered, but extension of mineralised breccio-conglomerate and the main thrust fault to the South of Sanu Tinti were confirmed.

The Kozan PB3 infill programme was completed and significant intersections obtained. The geological model was handed over for Mineral Resource evaluation. No significant intersections were reported from the TSF target drilling . The Doko reconnaissance programme has just started. While the Sintroko West Reconnaissance programme is now complete with no significant intersections reported. Drilling was completed in the Kossise hard rock Reconnaissance programme. Assays results received during the fourth quarter confirm the extensions of the mineralisation below Kossise pit in the fresh rock close to main faults.

At Sintroko PB2, drilling was completed during third quarter and in the fourth quarter all outstanding assays results were received. Significant intersections were received in the projected extensions in fresh rock, restricted to an interval between two major faults. A geological model and a handover document were submitted for update the Mineral Resource model.

Ghana: Half-year drilling totalled 6,614m. At Block 7 & 8 all outstanding samples were submitted for assays and significant intercepts were reported. The Mineral Resource conversion drilling at Ajopa yielded a total of 3,127m. Four of the holes were aimed at sterilisation however logging of the holes revealed that there is reef (B & C bands) below the planned backfill pit limit.

The Block 5 Extension drilling campaign (946m) returned some significant intercepts. The Mile 5W drilling campaign (1,861m) showed some interesting geological alteration and mineralisation features.

The core is still being processed and no assay results are available. The TSF reconnaissance drilling (480m of RC) yielded two significant assays.

The lease scale soil sampling programme results were used to produce gold contour plots which show anomalies mimicking the Kawere anticlinal structure.

Democratic Republic of the Congo: None of the drilled holes intersected the KCD 12000 lode, up plunge from current drilling. The information suggests only deep potential, and this will be tested with further drilling. Drilling has confirmed the 5101 and 9101 high grade mineralisation corresponding to the upper and lower limbs of the fold B.

At Ngyoba (Sessenge – Kibali river gap), the model was confirmed and the mineralisation down dip and down plunge is still open and thinning towards the southeast with lower grade. Bottle roll test across the main orebody were done because of a gold-arsenic association. The results indicated poor leach recoveries (41%) due to the arsenic. The four blends generated from concentrate produced after the flotation test still confirm the poor leach recovery (57%) despite of the good floatation response. These results combined with the preliminary gold deportment indicate a refractory ore type which is not economic for an underground project at the current grade.

The southwest projection of the Sessenge-KCD complex folding corridor supports a structurally complex model for the area. No significant drilling intercepts reported. At Kalimva Ikamva, a general review aiming to highlight potential opportunity around the Kalimva-Ikamva area identified 3 main targets to be tested in 2019.

At Kombokolo main, analysis of the model was done, and an eastern, more prospective domain was identified. One diamond hole was drilled and confirmed the geological model predicted with significant intercepts confirming that the mineralised envelope is still open down plunge and down dip with narrow high-grade zones that would not support an underground project.

At Oere, a RC programme of twenty holes (1,805m) were drilled on eight fences to test the potential. All results were received and support the model of the down dip planar mineralisation along the shear corridor. At Aindi Southwest, the analysis of all results of the auger (25 x 400m) highlighted a 2.4km strike length of anomalism, supporting the southwest extension of Aindi Watsa main mineralisation.

At Zakitoko-Birindi, assay results support the geological model suggesting a steep planar and sigmoidal shaped mineralisation and confirm the down dip continuity, though narrower when compared to the trench results. At Birindi, results of the last two trenches support the pinching and swelling system of mineralisation as observed at Zakitoko and confirm the potential of over 900m of strike.

Republic of Mali: No exploration was done.

In **Argentina**, a total of 6,514m was drilled in this second half of the year, completing the 2018 exploration drilling programme.

Drilling tested the lateral and down-dip extensions at the Atila, Concepción (for the future COCB1 pit), Joana, Osvaldo Diez, Sandra, Melisa, Norma, Oveja, Potrero, Teresa and Vanguardia veins.

A total of 8,496m of new trenches were excavated in 174 trenches and a total of 194 channels were cut. A total of 30 chip samples were taken for Geochem.

Geophysics for the second half year were focused on ground magnetics (surveyed 85 Km^2) and HLEM (1.75 km^2 surveyed).

In **Brazil**, at Cuiabá, drilling continued on underground infill targets at Serrotinho, Dom Domingos, Fonte Grande, Galinhero as well as Galinheiro extension.

Drilling at Fonte Grande Sul (Level 21) showed continuity of high grades down plunge. A close spaced grid drilling campaign is planned for 2019.

The Galinheiro Ext holes intersected a BIF with a massive sulphide which returned good grades. Drilling on hold until infrastructure is upgraded. The VQZ ore body continues to show positive results, with continuity along the plunge, adding Mineral Resource.

The LIB drilling programme commenced in the fourth quarter of the year. However, the drilling campaign has experienced significant delays caused by geotechnical challenges, an accident, mechanical drill rig problems and the hole deviation. The hole is likely to be stopped and redesigned.

Regionally, the Descoberto underground drilling commenced during the fourth quarter and was completed in December 2018. Even though development restricted drilling to reach deeper targets, the model indicates that the mineralised structure is continuing along strike and remains open on the eastern and western flanks.

At Cuiabá SW, line cutting, soil sampling and mapping continued throughout the fourth quarter of 2018 and two very good intercepts were retuned, which aligned with anomalies in an area with no outcrop. The Olhos D'agua IP survey, surface sampling and drill plan was completed. A borehole EM survey was done at ODA 1 and initial interpretations don't seem to explain the anomaly. A deep IP survey is scheduled for first quarter in 2019.

At Lamego, activities at Cabeça de Pedra were initially delayed with drill pad unavailability during third quarter of the year, and it was decided to commence with the drilling at the Carruagem SW target first. This drilling is complete and results show the normal limb has constant and continuous regions of high grade while on the inverted limb, the grades are lower and more dispersed with peaks of high grades. Drilling of Cabeça de Pedra continues to return low but economical grades, adding Mineral Resource that will extend Lamego's LOM.

Meanwhile at Córrego do Sítio a total of 42,661m was drilled in the second half of the year, while underground conversion drilling was focused around Carvoaria and Laranjeiras and achieved 14,925m.

At Laranjeiras significant intercepts towards the south of the mine indicated continuation in mineralisation and at Carvoaria the drilling campaign is important as it presents the opportunity to upgrade the Mineral Resource classification and because the drill pad is at the centre of the ore body, it allows for data collection from drill holes that cover the 2020-2021 production plan area.

The development of exploration drives is ongoing and development at Cachorro Bravo has been completed, Laranjeiras is ahead of schedule and Carvoaria is delayed.

At Cachorro Bravo (Sulphide ore), a total of 6,561m DD was finished to complete the drilling campaign. The programme was aimed at verifying the continuity of the 102 lens that is mined underground. The data collected is currently being modelled and the Mineral Resource model will be updated.

At Rosalino (Sulphide ore) DD totalled 7,028m. The aim of the campaign was to convert the Inferred Mineral Resource to Indicated. The campaign will continue in 2019. The available drilling results are confirming the expected grades and thicknesses as well as indicating the possibility of new, deep orebodies.

The 2018 surface drilling campaign in CDSIII finished in July and completed 1,978m at the Anomalia target. The results confirmed the mineralisation along CDSIII's main strike and further exploration potential has been confirmed at the Jambeiro target. The Mineral Resource model was updated and the geological interpretation updated using mapping and drilling, trenching and channel sampling.

At Serra Grande, exploration drilling was completed at Limoeiro Target (Structure IV) and surface drilling commenced in quarter four of 2018. Significant intercepts returned resulted in an increase in ounces for the ore body.

Positive results confirmed the continuity and thickness of inferior zone at Ingá mine. While Long Inclined (LIB) drilling was successfully tested at Corpo IV down plunge. At Palmeiras South, the first exploratory drill holes were drilled down plunge of the principal excavation and intersected the Palmeiras and IV structures. Palmeiras South has been experiencing delays due to negotiations for access. Positive results were returned from the Palmeiras structure above the structure IV (Limoeiro target).

At Mangaba, underground drilling intersected significant intercepts on the up-plunge side of the deposit, this resulted in an increase in Mineral Resource. Another significant intersection confirmed the extension of Structure V to a total strike length of 7.8km across the Crixás greenstone belt and at Pequizão, positive results confirmed the continuity of Orebody G down plunge.

In **Colombia**, at Gramalote grade control spaced drilling continued at Plataforma Norte and Plataforma Sur.

The La Palma drilling programme was delayed due to slippage in the completion of the geophysics IP survey. Additional drill holes were then added to the exploration programme, which was completed in October with some significant intercepts being returned. The metallurgical test work was completed, and no evidence was found that suggests the material could not be treated at the designed Gramalote plant.

An exploration programme was completed in the area between Manizales and Cristales to identify areas with potential to be included in the formalisation process. The final report is expected by the end of January once all the assays are returned.

The revised Gramalote geological model was completed and reviewed by GCL geological team.

At La Colosa, no exploration occurred.

At the Quebradona, drilling of the valley infrastructure was completed in August, a month ahead of schedule. The geotechnical rock testing has been completed with soil testing 95% completed.

Geophysics for condemnation and foundations continued with the IP campaign for condemnation finished. A 3D fault interpretation was completed using original regional exploration information (field mapping and geophysics), photo interpretation and mine scale interpretations.

The feasibility pre-work drilling campaign is almost completed with just under half of the planned test pit remaining to be dug. The second ARCE seismic campaign was completed over the TSF and plant sites. An external audit of the Mineral resource and Ore Reserve was conducted in December.

In **Australia**, at Sunrise Dam 112 significant intercepts were reported for the period and results indicate:

- Continuation of the wide, high grade zones in the Vogue ore domains over a 500m strike length x 500m width x 400m vertical extent.
- Up dip extensions to Midway Shear Steep ore domains, as well as a likely southerly extension at 80m south of current ore domains.
- An increase in confidence in the Elle steep ore zone immediately above MWS Steep, as wide and high-grade infill results have been returned.
- The MLE4 endowment panel may have some southerly extensions to Cosmo East, 40m south of the current ore domain. Results indicate that the most eastern ore domain of Vogue is holding together well with the most significant grades between the Carey Main and Carey 2 shears. A lack of significant intercepts in the bulk of the MLE4 panel suggests the area is unlikely to contain a significant orebody.
- A wide, high grade intercept in MLE5 was returned. The intercept is isolated and not close to any current infrastructure.
- Some high grade and relatively wide intercepts were returned from the northern Astro area, which is currently being domained and assessed for continuity.

Work is progressing towards building a 3D architectural model of the deposit to help with targeting.

Surface Exploration drilling completed 6 RC holes (720m) to test a magnetic high cross-cut by NW-SE interpreted faults extending between the historic Jubilee pit and the Spartan prospect.

At Tropicana, highly anomalous and significant AC intercepts were returned from Angel Eyes West and a NNW trending zone of anomalism is present over a 1km strike and is still open. These intercepts are to be followed up with lake based AC and DD programs in 2019. One mineralised RC intercept was reported from drilling at Wild Thing. Regional exploration drilling for 2018 was completed in October.

Drilling focused on Boston Shaker and all the Feasibility study priority 1 holes have been completed in time for the Mineral Resource update. Four priority 2 holes will be completed in 2019.

Confirmation was received that the EIS submission to DMIRS for part funding of a drill programme at the Iceberg Prospect was successful. Drilling will be carried out in 2019.

A study is ongoing in characterising the Proterozoic dykes that occur in the Tropicana mine so that these rock types can be distinguished in the grade control drill holes which are not geologically logged. This will help with on-going geological modelling of the deposit and grade control models.