19 April 2016

1

The Company Announcements Office Australian Securities Exchange Limited

SCOPING STUDY ON APHRODITE OXIDE / SUPERGENE / TRANSITIONAL MINERALISATION

### **Key Points**

- This announcement is a clarification of the scoping study announced to the ASX on 29 February 2016 which is being made at the request of the ASX.
- Aphrodite commissioned independent mining consultants, Entech Pty Ltd (Entech), to complete a Scoping Study into the possible development of an initial open pit mining operation based on the oxide/supergene and transitional zone resources of the Aphrodite Gold Deposit.
- The Entech report has outlined a first stage open pit possible operation of 1.1M tonnes at 1.6 g/t gold for 54,000 recovered ounces and a production schedule of approximately of 17 months.
- Total cash costs including royalties and pre-strip capital of A\$15M for this first stage open pit phase is estimated at A\$1,100 per ounce by Entech.
- The improvement of the Australian gold price, and the results of the Entech scoping study in the prevailing lower cost environment, provides Aphrodite with confidence to proceed to a pre-feasibility study.
- The Aphrodite Mineral Resource Estimate of 28.7 M tonnes @1.5 g/t gold for 1.4M contained ounces as previously reported on 12 June 2013 remains unchanged (see Appendix 2 for the full resource statement). Based on the company's market capitalisation of \$11.25M the above resource ounces are valued at only \$8.03 per resource ounce.
- The open pit mineral resource estimate as previously reported on 12<sup>th</sup> June 2013 totalled 25.4M tonnes @ 1.1 g/t gold for 911,000 contained ounces to a depth of 170 meters at a 0.5 g/t cut-off grade. This remains unchanged.

#### **Aphrodite Gold Company Update**

The Aphrodite Gold Deposit (AGD) is located 65 kilometres north of Kalgoorlie adjacent to the Kalgoorlie - Leonora Highway, Goldfields Gas Pipeline and other important infrastructure (Location Map- Appendix 1)



Aphrodite Gold Limited ("Aphrodite" or "the company") commissioned Australian engineering consultant, Entech, to undertake a scoping study into the mining and processing of **only the open pit component of the oxide / supergene and transitional zones** of the total mineral resource estimate at the AGD.

Entech was provided with the AGD resource completed on 12<sup>th</sup> June 2013. This resource comprises 28.7 Mt averaging 1.5 g/t Au for a total of 1.4M ounces in JORC compliant Indicated (898,000 oz) and Inferred (498,000 oz) Resource categories. The input parameters used for the scoping study are as follows

- Geology- the block model is a diluted and recovered resource model (meaning blocks within the model had been factored to account for estimated mining dilution as well as ore recovery) which eliminates the requirement for mining adjustment factors. Entech updated the block model with costs and material type fields for use within the scoping study.
- Processing- An incremental processing cost of \$18.00/t<sub>ore</sub> has been applied to all ore material, with an additional cost of \$4.00/t<sub>ore</sub> for general and administration charges and \$1.00/t<sub>ore</sub> for grade control activities, resulting in a total processing input cost of \$23.00/ t<sub>ore</sub>. Entech noted that no detailed metallurgical information was available and relied on indicative metallurgical recoveries provided by the Company (further detail provided below).
- **Geotechnical** no detailed geotechnical information was available so Entech used their expertise and knowledge of similar scale gold open pit operations for the open pit slope angles (see more information below)
- Hydrology- no detailed hydrological or hydrogeological information was available so
   Entech assumed a typical pumping arrangement will be used and that any water
   inflows into the open pits will not be significant and will not cause delays to mining
   operations.
- **Economic parameters** these are discussed in further detail further in the announcement.

#### The scoping study was based on

- Establishment of a standalone onsite conventional carbon in pulp/leaching processing plant of a nominal capacity of 1 million tonnes per annum
- Current mining, labour and services costs prevailing in the industry
- Australian gold price of \$1,600 per ounce



- Cut-off grades for the geological model of 0.5g/t
- Prior to the Entech study a comprehensive internal geological review of the depth extent of the transitional zone was completed. This review indicated that the transitional zone extended by approximately 10 metres deeper than previously modelled. This is demonstrated in the 2 cross sections shown below (Figure 1 and 2). Figure 3 demonstrates the lateral extent to the supergene mineralisation.

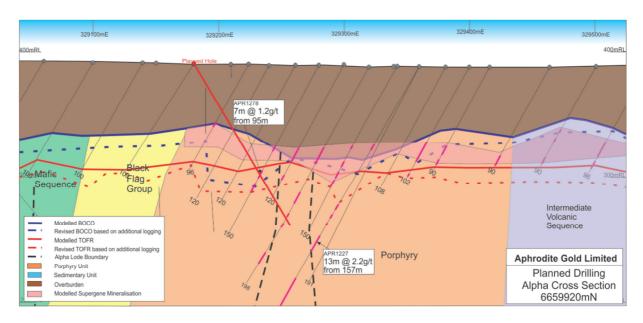


Figure 1- Cross section 6659920mN showing the depth extend to the transitional zone

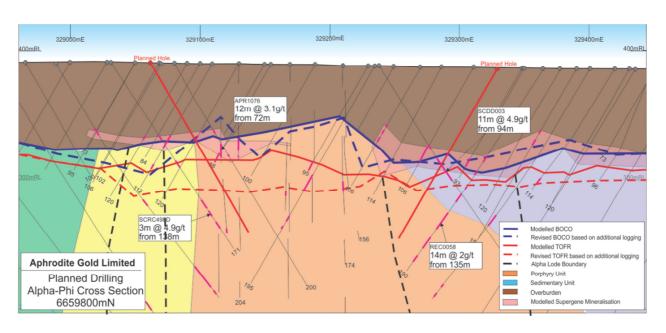


Figure 2- Cross Section 6659800mN showing the depth extent to the transitional zone



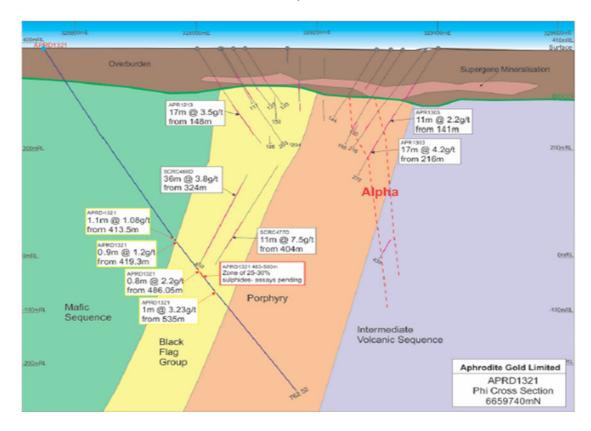


Figure 3- Cross Section showing lateral extent to the Supergene Mineralisation

The scoping study referred to in this report is based on low level technical and economic assessments and is insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the scoping study will be realised.

### **Metallurgy of Aphrodite Gold Deposit**

Metallurgical testwork conducted by METS (Mineral Engineering Technical Services), in 2013 showed that the AGD contains both free milling and refractory gold. The free milling gold contained within oxide, alluvial and transitional zones displayed excellent leach recoveries at 75microns of 93%. These recovery figures were provided to Entech and formed the basis of their processing input parameters. The value generated from gold mined within fresh material types was eliminated as these material types had very low recovery modelled. Refractory material found in the primary zone below the transition zone displayed leach recoveries of approximately 35%.

#### **Entech Evaluation of Open Pit Mining Costs and Optimisation**

Entech, based on their experience in the Eastern Goldfields of Western Australia and costs associated with similar scale gold operations, included in the assessment, the following:



#### Geology

 The input block model is a diluted and recovered resource model (meaning blocks within the model had been factored to account for estimated mining dilution as well as ore recovery) which eliminates the requirement for mining adjustment factors. Entech updated the block model with costs and material type fields for use within the scoping study.

#### **Hydrology**

No detailed hydrological or hydrogeological information was available so Entech
assumed a typical pumping arrangement will be used to meet any water inflows into
the pit, incorporating an in-pit sump and submersible pumps pumping to a location
outside of the open pits. It is assumed that any water inflows into the open pits will
not be significant and will not cause delays to mining operations.

#### **Processing and Mining costs**

- As noted above, Entech relied on indicative metallurgical recovery rates provided by Aphrodite of 93% for oxide, alluvial and transitional zones and 0% for fresh zones.
- An incremental processing cost of \$18.00/ $t_{ore}$  has been applied to all ore material, with an additional cost of \$4.00/ $t_{ore}$  for general and administration charges and \$1.00/ $t_{ore}$  for grade control activities, resulting in a total processing input cost of \$23.00/ $t_{ore}$ .
- Mining costs were sourced by Entech from open pit mining contractor quotes for a similar operation to the Company's and ranged from \$1.94 to \$2.42 per bcm for mineralized material and \$1.84 to \$2.31per bcm for waste from surface to depth of 100m respectively.
- Production rates were heavily discounted in the final months of operations given the high proportion of ore material (mined with more care, grade control) in the final benches;
- Provisional capital costs were estimated for the clearing and land disturbance for the
  extent of the open pit with allowance for on-site offices and laydown areas, and
  rehabilitation of the surface waste dumps.
- Drill and blast costs (sourced from open pit contractor tender quotes for similar operations to the Company's) were assumed to be \$1.13 per bcm for waste material and \$1.83 per bcm in ore zones.
- Thus the cost per tonne of mineralized material for mining cost is estimated based on the above at \$25 per tonne, processing is \$18 per tonne based on commercial knowledge, administration is \$4, royalties (State Government and Franco Nevada) \$3.85, for a total cost of \$51 per tonne of ore;



#### **Scheduling**

- Mining schedules were based on usage of large Komatsu Ex3600 excavator and CAT
  785 haul trucks for first 7 months (while excavating near surface) followed by use of
  Komatsu Ex 1900 excavator with the haul trucks and similar haul trucks for mining of
  ore and waste.
- Total waste mined 7.4 million bank cubic metres, mineralized material 0.5 million bank cubic metres including pre-strip resulting in a strip ratio 15:1 incorporates the relatively flat pit wall angles (see point above) to take into account insufficient geotechnical data.;

#### Geotechnical

 No detailed geotechnical information was available so Entech completed the open pit design using a configuration of open pit design parameters set out in table 1 below. Mining was modelled as conventional open pit mining utilising hydraulic excavators and off highway dump trucks.

Table 1- Open Pit Design Parameters

Deposit	Weathering Type	Batter Angle	Bench Height	Berm Width
	Alluvial	50 Degrees	20m	5m
Anhrodita Cold	Oxide	50 Degrees	20m	5m
Aphrodite Gold	Transitional	55 Degrees	20m	5m
	Fresh	60 Degrees	20m	5m

 These parameters resulted in the overall slope angles summarised in table 2 below which are used within the scoping study.

Table 2- Overall Slope Angles for Optimisation

Deposit	Wall Location	Oxide	Transitional	Fresh
	North	32	40	52
Anhnodita Cold	East	32	40	52
Aphrodite Gold	South	32	40	52
	West	32	40	52

# Mine Design

 The design extends approximately 450m in the north-south direction and approximately 40m in the east-west direction. The pit extends to a maximum depth of approximately 100m with the use of 15m wide single lane ramps at a gradient of 1:10.



- The large extents of the open pit, as well as the oxide capping material, lend to the
  opportunity of a large equipment fleet achieving high material movement rates. The
  ore is predominantly in the base of pit, further lending to increased waste material
  movement rates in the upper benches.
- Figure 4 below shows the optimized pit shell for the Entech scoping study.

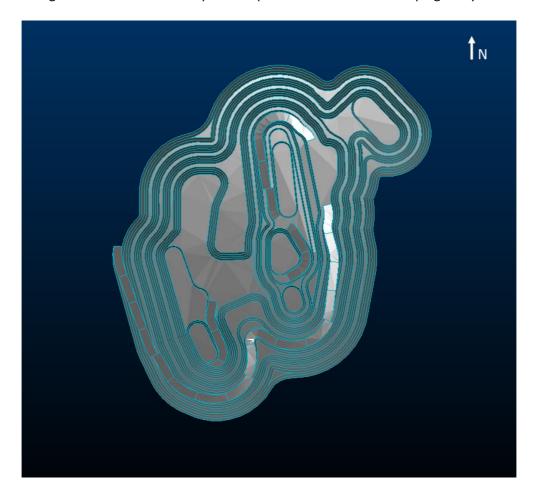


Figure 4- Aphrodite Open Pit Mine Design (Plan View)

### **Optimisation**

• The optimisation inputs in table 3 below were used to calculate the optimum pit limits via the Lerchs-Grossman algorithim to create a series of 'nested' pit shells.



Table 3- Open Pit Optimisation Input Parameters

Item	Units	Value	
<b>Production Factors</b>			
Dilution	%	0	
Mining recovery	%	100	
Mining Costs			
Haulage cost at Surface - Oxide	\$/bcm	variable	
Grade Control	\$/t ore	1.00	
Processing Recoveries			
Alluvial	%	95	
Oxide	%	95	
Transitional	%	95	
Fresh	%	0	
Processing Cost			
Processing	\$/t ore	18.00	
Grade Control	\$/t ore	1.00	
G & A	\$/t ore	4.00	
Selling Costs			
State Royalty Au	%	2.5	
Franco Nevada Royalty Au	%	2.5	
Revenue			
Sale Price Au	\$ / oz	1,600	

The Entech Study delivered a first stage open pit possible operation of 1.1 million tonnes at 1.6g/t for 54,000 of recoverable gold ounces, which includes 1.06Mt @ 1.66g/t Au indicated resource (99%) and 9,193t @ 1.78g/t Au inferred resource (1%). As this target does include inferred resources there is a low level of geological confidence associated with inferred mineral resources and there is no certainty that further exploration work will result in the determination of indicated mineral resources or that the first stage open pit possible operation itself will be realised. The stated first stage open pit possible operation is based on the company's current expectations of future results or events and should not be solely relied upon by investors when making investment decisions. Further evaluation work and appropriate studies are required to establish sufficient confidence that this target will be met.

The Entech study reported that mining production activity would occur over a 17 month period from the commencement of overburden removal. The estimated capital cost for the pre strip mining is \$15M over a 7 month period based on the overburden production schedule using the mining equipment described above.

The mineralised material production and processing according to the Entech study would then occur over a subsequent 10 month period.

The total cash operating cost identified by the Entech study is A\$1,100 per ounce including state government and the Franco-Nevada royalties of 2.5% respectively and pre-strip and establishment costs of A\$15M of capital referred to above. Table 4 below summarises the undiscounted financial analysis for the AGD, while table 5 summarises the undiscounted unit costs.



Table 4- Undiscounted Financial Analysis

Summary of Physicals and Costs		Total	2017	2018
Surface Mining				
Waste Mined	BCM	7,402,572	6,740,681	661,891
Ore Mined	BCM	506,241	259,319	246,922
Total Movement	BCM	7,908,813	7,000,000	908,813
Ore Mined	t	1,123,845	544,840	579,005
Strip Ratio	Waste:Ore	14.6	26	3
Grade Mined	g/t	1.6	1.5	1.7
Processing				
Processed Tonnes	t	1,123,845	447,844	676,001
Processed Grade	g/t	1.6	1.5	1.7
Recovery	%	90.8%	94%	89%
Recovered Grade	g/t	1.5	1.4	1.6
Recovered Metal	oz	54,085	20,328	33,757
Costs				
Mining	\$	28,256,730	23,513,926	4,742,803
Processing	\$	20,229,206	8,061,185	12,168,021
General Administration	\$	4,495,379	2,179,358	2,316,021
Open Pit Infrastructure Capital	\$	1,308,204	1,308,204	-
Total Project Costs	\$	54,289,519	35,062,674	19,226,845

Table 5- Undiscounted Unit Costs Analysis

Unit Cost Analysis (\$/t ore processed)				
Mining Costs (Ore and Waste)	\$/t processed	\$ 25.14	\$ 52.50	\$ 7.02
Concentrate Costs	\$/t processed	\$ 18.00	\$ 18.00	\$ 18.00
Administration	\$/t processed	\$ 4.00	\$ 4.87	\$ 3.43
C1 cash costs	\$/t processed	\$ 47.14	\$ 75.37	\$ 28.44
Depreciation	\$/t processed	\$ -	\$ -	\$ -
C2 cash costs	\$/t processed	\$ 47.14	\$ 75.37	\$ 28.44
Royalties	\$/t processed	\$ 3.85	\$ 3.63	\$ 3.99
C3 cash costs	\$/t processed	\$ 50.99	\$ 79.00	\$ 32.44
All in Sustaining Costs	\$/t processed	\$ 50.99	\$ 79.00	\$ 32.44
Unit Cost Analysis (\$/oz)				
Mining Costs (Ore and Waste)	\$/Rec oz	\$ 522.45	\$ 1,156.70	\$ 140.50
Other Costs	\$/Rec oz	\$ 398.21	\$ 460.90	\$ 360.46
Administration	\$/Rec oz	\$ 83.12	\$ 107.21	\$ 68.61
C1 cash costs	\$/Rec oz	\$ 1,003.78	\$ 1,724.81	\$ 569.57
Depreciation	\$/Rec oz	\$ -	\$ -	\$ -
C2 cash costs	\$/Rec oz	\$ 1,003.78	\$ 1,724.81	\$ 569.57
Royalties (Government & Franco-Nevada)	\$/Rec oz	\$ 80.00	\$ 80.00	\$ 80.00
Corporate Costs	\$/Rec oz	\$ -	\$ -	\$ -
C3 cash costs	\$/Rec oz	\$ 1,083.78	\$ 1,804.81	\$ 649.57
Sustaining Capex	\$/Rec oz	\$ -	\$ -	\$ -
All in Sustaining Costs	\$/Rec oz	\$ 1,083.78	\$ 1,804.81	\$ 649.57

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The results of the Entech 2016 scoping study are to be integrated with the results of the earlier 2012 scoping study. The 2012 study focused on the underground development, mining and processing of the refractory gold mineralisation at depths generally greater than 100 metres below surface. On 9 February 2012, the company announced to the ASX the results of the scoping study (See Appendix 3). The company then began work on a Pre-Feasibility Study (PFS). While significant progress was made on this study, the Board of Aphrodite determined, in April 2014, to halt the PFS.

The Board of Aphrodite determined that the expenditure required to complete the PFS was not an effective use of shareholder funds due to the elevated operating cost, capital costs and a gold price of ~A\$1300/ounce and as a consequence halted the PFS. The chart below (Figure 5) shows that the gold price at that time of the decision was well below the current gold price of A\$1,600-\$1,700 per ounce.



Figure 5- Gold price at time of the previous Pre-Feasibility Study

#### **Future Activities**

The integration of the two studies may facilitate a new pre-feasibility study as the next step, which will incorporate:

- Drilling for geotechnical purposes to assist with cost estimates of mining the overburden and confirm the overall open pit wall angles.
- Infill drilling to improve the understanding of gold grade distribution of the oxide/supergene and transition zone.
- Additional metallurgical testwork on the transitional zone mineralisation.
- Additional work on selecting the optimal process to treat the primary ores.



Following completion of the pre-feasibility study and further development work and assuming positive results from the pre-feasibility study, the Company's implementation strategy and pathway to development may potentially include the following:

- Open pit mining of the oxide/supergene and transitional zone resources to a depth of approximately 100 meters.
- Open pit extension to depth of approximately 170 meters to mine the first available refractory mineralisation.
- Optimising the depth to change from open pit mining to underground mining.
- Underground development to mine the higher grade refractory mineralisation of which there is a total mineral resource estimate of 3.3M tonnes @ 4.6 g/t for 485,000 contained ounces based on a cut-off grade of 3 g/t gold (see appendix 2).
- The building of a 1M tonne per annum conventional CIP/CIL processing plant to be followed by an add on concentrate production facility or the pursuit of other processing alternatives.

#### **Conclusions**

The results of the Entech Scoping study in 2016 give Aphrodite the confidence that:

- Initial mining capital outlay is lower than previous studies indicated; and
- The material movement calculated by Entech runs for a total of 17 months from the date of commencement of operations, subject to availability of processing facilities.
- The margin between lower cash costs and a higher prevailing gold price of A\$1,600 per ounce should result in improved revenue.
- Proceeding with a pre-feasibility study incorporating additional infill drilling; geotechnical drilling to determine the mining costs, and metallurgical testwork to confirm the metallurgical recovery of the transitional zone is warranted.

Yours sincerely

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Michael Beer

Company Secretary

The information in the report to which this statement is attached that relates to open pit possible operations, Scoping Studies, Resource estimates is based on information compiled by Mr Eduard Eshuys, a Competent Person who is a Fellow of The Australasian Institute of Mining and Metallurgy. Mr Eduard Eshuys has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and 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, Mineral Resources and Ore Reserves'. Mr Eshuys consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.



#### **APPENDIX 1- LOCATION MAPS**

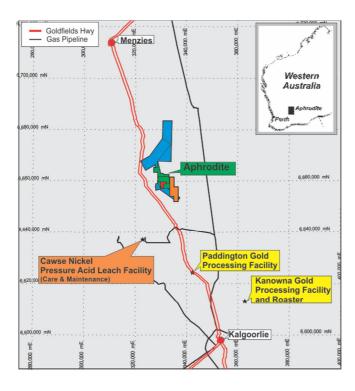


Figure 1- Aphrodite Regional Location Map

The Aphrodite deposit consists of 5 granted Mining Leases, 1 Exploration Licence E24/186, 3 granted Miscellaneous Licences which have been issued for water exploration and an application of a Miscellaneous Licence for haul road construction (see Fig 2)

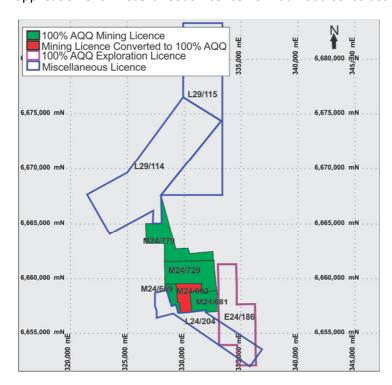


Figure 2- Aphrodite Tenement Map

13

## **APPENDIX 2 APHRODITE RESOURCE ESTIMATE**

Details of the resource estimate at various open pit and underground cut-off grades are represented in the tables below (Tables 1-3)

Table 1: Mineral Resource Estimates
Potential Open Pit (OP) and Underground (UG) Mineable

	Indicated		Inferred		Indicated + Inferred				
Cut-off	Tonnes	Gold		Tonnes	Gold		Tonnes	Gold	
(g/t)	(t)	(g/t)	(oz)	(t)	(g/t)	(oz)	(t)	(g/t)	(oz)
OP									
0.3	16,780,000	1.07	577,000	15,890,000	0.84	429,000	32,670,000	0.96	1,006,000
0.5	13,910,000	1.21	542,000	11,520,000	1.00	369,000	25,430,000	1.11	911,000
0.8	9,280,000	1.49	444,000	5,381,000	1.43	248,000	14,660,000	1.47	692,000
1.0	6,760,000	1.72	374,000	3,250,000	1.78	186,000	10,010,000	1.74	560,000
UG									
2.0	6,420,000	3.21	662,000	3,140,000	3.03	306,000	9,560,000	3.15	968,000
2.5	4,010,000	3.81	490,000	1,810,000	3.63	212,000	5,820,000	3.75	702,000
3.0	2,480,000	4.47	357,000	830,000	4.79	128,000	3,310,000	4.55	485,000
3.5	1,650,000	5.10	270,000	560,000	5.53	100,000	2,210,000	5.21	370,000
4.0	1,160,000	5.68	212,000	420,000	6.15	82,000	1,580,000	5.80	294,000

Table 2: Resource Summary at cut off of 0.5 g/t gold applied to potential open pit (OP) mineable resources and 3.0 g/t for the underground (UG) mineable resources.

Indicated			Inferred			Indicated + Inferred				
Domain	Cutoff	Tonnes	Gold		Tonnes	Gold		Tonnes	Gold	
	(g/t)	(t)	(g/t)	(oz)	(t)	(g/t)	(oz)	(t)	(g/t)	(oz)
ОР	0.5	13,910,000	1.21	542,000	11,520,000	1.00	369,000	25,430,000	1.11	911,000
UG (Primary)	3.0	2,480,000	4.47	357,000	830,000	4.79	128,000	3,310,000	4.55	485,000
TOTAL		16,400,000	1.70	898,000	12,340,000	1.26	498,000	28,740,000	1.52	1,396,000



Table 3: Mineral Resource Estimate
Potential Open Pit (OP) Mineable Material at 0.5 g/t Cut Off

Indicated			Inferred			Indicated + Inferred			
Material	Tonnes Gold		Tonnes	Gold		Tonnes Gold			
	(t)	(g/t)	(oz)	(t)	(g/t)	(oz)	(t)	(g/t)	(oz)
Oxide	1,670,000	1.17	63,000	2,060,000	1.04	69,000	3,730,000	1.10	131,000
Transitional	4,950,000	0.96	153,000	6,720,000	0.88	191,000	11,670,000	0.92	344,000
Primary	7,290,000	1.39	326,000	2,740,000	1.25	110,000	10,030,000	1.35	436,000
TOTAL	13,910,000	1.21	542,000	11,520,000	1.00	369,000	25,430,000	1.11	911,000

#### Notes

- 1. All resource estimates are undiluted.
- 2. Resources estimated by Ordinary Kriging (OK).
- 3. Density factors applied: Oxide = 1.75, Transitional =2.4, Primary = 2.75.
- 4. Some errors due to rounding.
- 5. Aphrodite Gold has completed 305 RC holes for an aggregated length of 47,589 m, out of a total of 953 RC and DDH holes for 159,147 m. The revised resource is based on 788 of these holes.

The information in the report to which this statement is attached that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Mr Eduard Eshuys, a Competent Person who is a Fellow of The Australasian Institute of Mining and Metallurgy. Mr Eduard Eshuys has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and 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, Mineral Resources and Ore Reserves'. Mr Eshuys consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

15

#### **APPENDIX 3 APHRODITE 2012 SCOPING STUDY**

The 2012 Scoping Study was conducted during a period of intense demand for technical and labour services, contracts and supplies. As a consequence the capital cost and operating costs to develop an integrated mining and processing operation, particularly of the Aphrodite refractory gold mineralisation, were substantial as shown below in Table 1 and 2

Table 1 shows the estimated capital costs, in AUD millions, in the scoping study

Table 1- Estimated CAPEX Costs from Scoping study

Open Pit Mine	37
Underground Mine	0
Processing Plant	108
Infrastructure	10
TOTAL	155

Table 2 shows the estimated capital cost of the process plant in the Aphrodite Scoping Study.

Table 2- Estimated CAPEX costs of the Pressure oxidisation (POX) process plant in the 2012 Scoping Study

Area	Description	Direct Cost (AUD \$M)
100	Crushing	10.3
200	Grinding	17.7
300	Flotation and concentrate thickening	7.4
400	Autoclave and CCD wash	16.7
500	CIL	9.7
600	Elution and metals recovery	5.4
700	Tailings	2.4
800	Reagents	2.4
900	Services	0.9
Total direct Costs		72.9
Total indirect costs		34.9
Total Estimated plant CAPEX		107.8

Development and completion of the prefeasibility study of the Aphrodite was slowed in 2013 due to a combination of:

- Lower gold prices, especially in AUD terms, with the gold price being below \$A 1,350/oz, compared with around \$A 1,600-\$1,700/ounce at present
- Elevated operating and capital costs due to the impacts of the mining boom at that time; and



• The capital risk inherent in a project that required a capital outlay of \$155m, and more than 2 years, before achieving positive cash flow.

### **Reduction of Upfront Capital Costs**

The Board and Management of Aphrodite have been focused on

- Reducing the Upfront Capital cost by
  - Deferring the installation of the plant to process the refractory ore by having an extended period processing the oxide and transitional zone material only; and
  - Reviewing the current price of the required equipment.

In addition, the Board and Management of the Company has noted that there has likely been a reduction in mining operating costs based on costs in the recent Entech scoping study as opposed to the 2012 scoping study.

# JORC Code, 2012 Edition – Table 1 report - Aphrodite

# **Section 3 Estimation and Reporting of Mineral Resources**

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	<ul> <li>Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.</li> <li>Data validation procedures used.</li> </ul>	• At least 10% of the assay data was verified with the official hardcopy assay certificates. No inadvertent or keying errors were found during or after the data import into Vulcan software. All relevant tables were checked by internal Vulcan routines and no erroneous data was identified.
Site visits	<ul> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	<ul> <li>Tetra Tech has completed 3 site visits in the last 2.5 years.</li> <li>Drilling and mineralisation was observed on all 3 visits</li> <li>Collar coordinates were also verified on the 3 visits.</li> </ul>
Geological interpretation	<ul> <li>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</li> <li>Nature of the data used and of any assumptions made.</li> <li>The effect, if any, of alternative interpretations on Mineral Resource estimation.</li> <li>The use of geology in guiding and controlling Mineral Resource estimation.</li> <li>The factors affecting continuity both of grade and geology.</li> </ul>	<ul> <li>Sufficient information was available from both diamond and RC drilling data as to provide clear structural interpretation of the mineralised zones. Adequate information was also provided to ensure sufficient interpretation of the weathering surfaces. There is sufficient uniformity in the gold mineralisation to confirm continuity between sections where appropriate.</li> <li>No alternative interpretations were considered necessary given the geological control understanding.</li> <li>The mid-section of the interpretation seems to be the zone of greatest dilation and hence greatest grade input; the grade profile weakens at the northern and southern extents where deformation is weakest and hence lesser plumbing availability for mineralizing fluids.</li> </ul>

Criteria	JORC Code explanation	Commentary
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	• The Aphrodite mineralisation extents for about 3km along strike, where 7 domains have been identified: 2 supergene and 5 primary, 3 primary domains trend NNW and the other 2 domains of linking structure trend about NE. Mineralisation is interpreted to extend to about 540m below surface and is open at depth and along strike. The main Alpha and Phi zones are about 50-80m wide.
Estimation and modelling techniques	<ul> <li>The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.</li> <li>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</li> <li>The assumptions made regarding recovery of by-products.</li> <li>Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).</li> <li>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</li> <li>Any assumptions behind modelling of selective mining units.</li> <li>Any assumptions about correlation between variables.</li> <li>Description of how the geological interpretation was used to control the resource estimates.</li> <li>Discussion of basis for using or not using grade cutting or capping.</li> <li>The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</li> </ul>	<ul> <li>A block size of 15x15x5m was deemed appropriate given the drill spacing's. All digital interpretations were done on vertical sections orthogonal to the mineralisation trends, and wire-framed together in Vulcan 8.1.4 software. Extensive variography was carried out to determine the search ranges, and Quantitative Kriging Neighbourhood Analysis was employed to optimize the min and max number samples, discretization's and max samples per hole to be used for a block estimate. All samples were length weighted in the estimations. All interpolations were completed using Ordinary Kriging, with Inverse Distance Squared and Nearest Neighbour estimates run also for validation purposes. The assay values for gold were estimated along with Arsenic, to ensure that the deleterious elements were sufficiently considered. Validation was done to compare the block estimates with the drill data in three ways: (1) visually in Vulcan in section and plan; (2) overall mean statistics comparisons, and; (3) swath plots. All estimates were done based on two estimation pass only, with varying criteria required to be satisfied for each pass, criteria were relaxed for the second pass estimations.</li> <li>A small proportion of the assays were capped per domain to remove obvious outliers which were determined by analysis of log-probability plots and the point of maximum deviation.</li> <li>Raw assays were capped prior to compositing.</li> </ul>

Criteria	JORC Code explanation	Commentary
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	The tonnages in the estimates assume dry tonnages, with no factoring for moisture.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	<ul> <li>Resources are reported at a threshold of 0.5g/t for material above 240mRL which is assumed to be the open pit mineable part of the resource.</li> <li>Resources are reported at a threshold of 3.0g/t for material below 240mRL which is assumed to be the underground mineable part of the resource.</li> <li>Please note that the above relate to separate volumes of the resource, with no overlaps.</li> </ul>
Mining factors or assumptions	• Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	• Given the steep nature of the mineralised bodies it seems likely that part of the resource will be extracted by open pit methods with the remainder extractable by underground methods. The already completed scoping study showed that this was the most likely scenario given the deep seated nature of the mineralisation. Extraction of the entire resource by open pit means is not likely to be economically viable given the current and forecast gold price.
Metallurgical factors or assumptions	• The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	<ul> <li>Metallurgical test work has been carried out for the scoping study and also as part of the forthcoming Pre-Feasibility study by METS. The significant concentrations of Arsenic and Sulphur within the deposit indicate that it is mostly refractory in nature.</li> <li>No metallurgical factors have been applied to the resource other than the estimation of Arsenic for ARD (acid rock drainage) and processing considerations.</li> </ul>

Criteria	JORC Code explanation	Commentary
Environmental factors or assumptions	• Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	<ul> <li>Arsenic concentrations have been estimated in the block model to assist with environmental, geochemical and ARD considerations.</li> <li>Environmental considerations have been assessed as part of the scoping study already completed and as part of the forthcoming Pre-Feasibility study.</li> <li>No major environmental concerns have been identified at this time.</li> </ul>
Bulk density	<ul> <li>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.</li> <li>The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.</li> <li>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</li> </ul>	<ul> <li>Aphrodite and previous owners have collected a substantial dataset of bulk density/SG data mostly by standard immersion methods.</li> <li>Most of these measurements were collected at a recognized laboratory facility, which applied necessary procedures to the weathered material to ensure accuracy of measurements.</li> <li>Based on statistical analysis of all the available data; an SG of 1.75 for the oxidised material, 2.4 for transitional material and 2.75 for the fresh material were applied.</li> </ul>
Classification	<ul> <li>The basis for the classification of the Mineral Resources into varying confidence categories.</li> <li>Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> </ul>	<ul> <li>The current drill spacing's combined with the extensive variography data, and the level of confidence in geological and grade continuity is sufficient to support both Indicated and Inferred Resource categories for all resources at Aphrodite.</li> <li>Tetra Tech is comfortable with the classification of all the resources.</li> </ul>
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	Tetra Tech's Chief Geologist has carried out a peer review of the current model and estimate, and was satisfied that there are no fatal flaws in the estimate.

Criteria	JORC Code explanation	Commentary
Discussion of relative accuracy/confidence	<ul> <li>Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.</li> <li>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</li> <li>These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</li> </ul>	support the applied Indicated and Inferred Resource categories.

**Section 4 Estimation and Reporting of Ore Reserves** (Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	<ul> <li>Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.</li> <li>Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.</li> </ul>	Not applicable at this time, as no mineral reserve has been estimated or reported.
Site visits	<ul> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	Not applicable at this time, as no mineral reserve has been estimated or reported.
Study status	<ul> <li>The type and level of study undertaken to enable Mineral Resources to be converted to Ore</li> <li>Reserves.</li> <li>The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.</li> </ul>	Not applicable at this time, as no mineral reserve has been estimated or reported.
Cut-off parameters	• The basis of the cut-off grade(s) or quality parameters applied.	Not applicable at this time, as no mineral reserve has been estimated or reported.

Criteria	JORC Code explanation	Commentary
Mining factors or assumptions	<ul> <li>The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).</li> <li>The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.</li> <li>The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.</li> <li>The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).</li> <li>The mining dilution factors used.</li> <li>Any minimum mining widths used.</li> <li>The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.</li> <li>The infrastructure requirements of the selected mining methods.</li> </ul>	Not applicable at this time, as no mineral reserve has been estimated or reported.
Metallurgical factors or assumptions	<ul> <li>The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.</li> <li>Whether the metallurgical process is well-tested technology or novel in nature.</li> <li>The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.</li> <li>Any assumptions or allowances made for deleterious elements.</li> <li>The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.</li> <li>For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?</li> </ul>	Not applicable at this time, as no mineral reserve has been estimated or reported.
Environmental	• The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	Not applicable at this time, as no mineral reserve has been estimated or reported.

Criteria	JORC Code explanation	Commentary
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	Not applicable at this time, as no mineral reserve has been estimated or reported.
Costs	<ul> <li>The derivation of, or assumptions made, regarding projected capital costs in the study.</li> <li>The methodology used to estimate operating costs.</li> <li>Allowances made for the content of deleterious elements.</li> <li>The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.</li> <li>The source of exchange rates used in the study.</li> <li>Derivation of transportation charges.</li> <li>The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.</li> <li>The allowances made for royalties payable, both Government and private.</li> </ul>	Not applicable at this time, as no mineral reserve has been estimated or reported.
Revenue factors	<ul> <li>The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.</li> <li>The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.</li> </ul>	Not applicable at this time, as no mineral reserve has been estimated or reported.
Market assessment	<ul> <li>The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.</li> <li>A customer and competitor analysis along with the identification of likely market windows for the product.</li> <li>Price and volume forecasts and the basis for these forecasts.</li> <li>For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.</li> </ul>	Not applicable at this time, as no mineral reserve has been estimated or reported.
Economic	<ul> <li>The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.</li> <li>NPV ranges and sensitivity to variations in the significant assumptions and inputs.</li> </ul>	Not applicable at this time, as no mineral reserve has been estimated or reported.

Criteria	J	ORC Code explanation	C	ommentary
Social	•	The status of agreements with key stakeholders and matters leading to social licence to operate.	•	Not applicable at this time, as no mineral reserve has been estimated or reported.
Other	•	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:  Any identified material naturally occurring risks.  The status of material legal agreements and marketing arrangements.  The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	•	Not applicable at this time, as no mineral reserve has been estimated or reported.
Classification	•	The basis for the classification of the Ore Reserves into varying confidence categories.  Whether the result appropriately reflects the Competent Person's view of the deposit.  The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	•	Not applicable at this time, as no mineral reserve has been estimated or reported.
Audits or reviews	•	The results of any audits or reviews of Ore Reserve estimates.	•	Not applicable at this time, as no mineral reserve has been estimated or reported.

Criteria	JORC Code explanation	Commentary
Discussion of relative accuracy/confidence	<ul> <li>Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.</li> <li>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</li> <li>Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.</li> <li>It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</li> </ul>	Not applicable at this time, as no mineral reserve has been estimated or reported.