NAGAMBIE RESOURCES

### ASX ANNOUNCEMENT

#### RADIAL-DTH IP GIVES ENCOURAGING RESULTS

#### SUMMARY

The first trial of Radial-Down-the-Hole (Radial-DTH) IP, conducted by Zonge on diamond hole NND002 at Nagambie Mine West, has given encouraging results.

A Radial-DTH IP chargeability high adjacent to where diamond hole NAD001 intersected the Nagambie Mine Thrust just to the north of the West Pit (refer east-south-eastern radial spoke on Figure 1) supports the sulphide-gold target indicated by the Ground IP over the area and the drilling of NAD001.

A Radial-DTH IP sulphide-gold target to the south west of the West Pit (refer south-south-eastern radial spoke on Figure 1) is supported by recent anomalous soil sampling over the area (refer Figure 2). It is further supported by lithogeochemical analysis of the diamond core in the NND001 and NND002 holes by Dr Dennis Arne. Both holes, drilled north to south, exhibited significant Fosterville-style hydrothermal alteration of the sediments and showed increasing evidence of arsenic towards the bottom of the holes, consistent with a more prospective mineralising structure to the south.

Radial-DTH IP chargeability increases markedly around 750m west of NND002 or 750m east of the postulated mineralising Wandean Crustal Fault (refer western radial spoke on Figure 1). Additional Ground IP is planned to extend further west to cover the area where the various east-west-trending thrust faults intersect the north-west-trending Wandean Crustal Fault. The aim will be to generate additional sulphide-gold drilling targets similar to the one delineated adjacent to the Wandean Crustal Fault at Wandean, 8 km to the north west.

Strong Radial-DTH IP chargeability highs to the north of NND002 tie in with the stratiform syngenetic pyrite intersected in diamond hole CAD001 in the Cahill area.

The Radial-DTH IP appears to be a more specific IP technique, better suited than Ground IP for locating subsequent drill holes. Radial-DTH IP will therefore be used on selected future diamond holes to hone in on sulphide-gold targets.

#### **RADIAL-DTH IP SURVEY**

Zonge Engineering and Research Organisation ("Zonge") carried out the Radial-DTH IP survey on NND002.

12 radial survey lines, up to 1,000m in length (refer Figure 1), were established with the down-hole probe set at 400m depth in temporary PVC casing in NND002.

Details for the survey are included in the JORC (2012 Edition) Table 1 attached at the end of this announcement.

29 JULY 2019

#### NAGAMBIE RESOURCES

Exploration for Fostervillestyle, structural-controlled, high grade sulphide-gold underground deposits within 2,000 sq km of Waranga Province tenements is being methodically carried out using geophysical targeting techniques and oriented diamond drilling.

Underwater storage of sulphidic excavation material (PASS) in the two legacy gold pits at the Nagambie Mine is an excellent environmental fit with major infrastructure projects for Melbourne such as Metro Rail, West Gate Tunnel and North-East Link.

Recycling of the tailings and overburden dumps can produce aggregates for concrete and gravel products respectively.

Quarrying and screening of sand deposits at the mine to produce various sand and quartz aggregate products is planned.

The first landfill site is planned to take advantage of the 17 Ha of engineered black plastic under the mine tailings pad.

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Figure 1 Radial-DTH IP Chargeability on Diamond Hole NND002

### **GOLD-IN-SOIL SAMPLING AT NAGAMBIE MINE WEST**

Gold-in-soil sampling, using inhouse protocols developed by Geoff Turner, was carried out to the west and north of the West Pit. Details for the sampling are included in Table 1.

The total anomaly factors, accounting for the gold, arsenic and antimony assays in the soil samples, are plotted on Figure 2. Total soil anomaly factors from previous sampling to the north and east of the East Pit are also plotted on Figure 2 for comparison.

The soil sampling is only effective where the thickness of the clay and sand cover over the underlying sandstone and siltstone rocks is less than 70m, the maximum depth extent of the roots of the historical (and current) gum trees in the area. The white (zero or nearly zero anomaly factor) areas shown on Figure 2 are indicative of deep cover areas to the west and north of the West Pit.

The soil anomaly immediately south west of the West Pit (refer Figure 2) is consistent with the Radial-DTH IP chargeability anomaly in that area (refer Figure 1).

The soil anomaly to the north west of the West Pit (shown in yellow on Figure 2) is adjacent to the mapped Zanelli Thrust Fault (which roughly aligns with Zanelli Road and is shown in dashed blue). This anomaly generally lines up with two or three soil anomalies well to the east and close to the Zanelli Thrust. However, it is not supported by the Radial-DTH IP survey which doesn't show any significant chargeability anomalism associated with the Zanelli Thrust.

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#### Figure 2 Nagambie Mine Area Soil Geochemistry (Au+As+Sb) Anomaly Factors

### LITHOGEOCHEMICAL ALTERATION IN NND001 AND NND002

Dr Dennis Arne was commissioned by Nagambie Resources to advise on the alteration of the sediments intersected in the 2018 and 2019 diamond drilling program. He was asked to obtain new diamond-core geochemical and hyperspectral data from beneath the Nagambie open pits to characterise the known Nagambie hydrothermal system (holes NAD001 and NAD002) and extend this understanding to regional holes NND001 and NND002 (Nagambie Mine West), CAD002 (Cahill), RAD001 (Racecourse) and WTD001 (Wandean).

He was also commissioned to compare the results obtained to known hydrothermal alteration at the Fosterville gold mine and other mines using published data. His working hypothesis is that the hydrothermal alteration in the Waranga Domain is similar to that observed at Fosterville and that it can be used to vector towards and/or prioritise structures.

Dr Arne supervised the preparation of half-core and quarter-core samples at least every 50m downhole in the unoxidised portions of the seven diamond holes chosen and their subsequent geochemical and hyperspectral laboratory analysis.

No significant hydrothermal alteration of the sediments was found in the Cahill and Racecourse holes. The result for the Cahill hole was expected, given that the only significant sulphide intersected was stratiform syngenetic pyrite and not hydrothermal in nature

All the Nagambie Mine, Nagambie Mine West and Wandean holes exhibited significant Fosterville-style hydrothermal alteration of the sediments. The sediments in the two Nagambie Mine West holes NND001 and NND002, both drilled north to south, also showed increasing evidence of arsenic towards the bottom of the holes, consistent with a more prospective mineralising structure to the south.

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James Earle Chief Executive Officer

#### STATEMENT AS TO COMPETENCY

The Exploration Results in this report have been compiled by Dr Rod Boucher and Mr Geoff Turner. Rod Boucher has a PhD in Geology, is a Member and RPGeo of the Australian Institute of Geoscientists and is a Member of the Australian Institute of Mining and Metallurgy. Geoff Turner is a Fellow of the Australian Institute of Geoscientists. Both Rod Boucher and Geoff Turner have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity which they are undertaking, to qualify as Competent Persons as defined in the 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Both consent to the inclusion in this report of these matters based on the information in the form and context in which it appears.

#### FORWARD-LOOKING STATEMENTS

This report contains "forward-looking statements" within the meaning of securities laws of applicable jurisdictions. Forward-looking statements can generally be identified by the use of forward-looking words such as "may", "will", "expect", "target", "intend", "plan", "estimate", "anticipate", "believe", "continue", "objectives", "outlook", "guidance" or other similar words, and include statements regarding certain plans, strategies and objectives of management and expected financial performance. These forward-looking statements involve known and unknown risks, uncertainties and other factors, many of which are outside the control of Nagambie Mining and any of its officers, employees, agents or associates. Actual results, performance or achievements may vary materially from any projections and forward-looking statements and the assumptions on which those statements are based. Exploration potential is conceptual in nature, there has been insufficient exploration to define a Mineral Resource and it is uncertain if further exploration will result in the determination of a Mineral Resource. Readers are cautioned not to place undue reliance on forward-looking statements and Nagambie Resources assumes no obligation to update such information.

# **JORC Code, 2012 Edition – Table 1 report template**

### Section 1 Sampling Techniques and Data

### (Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul> <li>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul> <li>Soil Sampling</li> <li>All sampling has been supervised and conducted by Nagambie Resources subcontractors utilising protocols developed by Geoff Turner, Exploration Management Services Pty Ltd, Consulting Geologist to Nagambie Resources.</li> <li>All sample material is collected in commercially available sample bags.</li> <li>The sampling was conducted on 50 m spacing on lines 200m apart.</li> <li>Sample weights were approximately 1 kg per sample.</li> <li>The soil samples were submitted to Intertek Genalysis laboratory in Perth, Western Australia for sample preparation. Sample preparation involved sample crushing and pulverising. Au analysis is conducted with an aqua regia extraction and ICPMS finish (code AR25/MS). Cu, Fe, Pb, and Zn analysis is conducted with an aqua regia digestion and ICPAES finish (code AR25/OE). As and Sb analysis is conducted with a digestion with modified Na pyrophosphate for humic/fulvic rich soils and ICPMS finish (code TL9/MS).</li> </ul>
Drilling techniques	• Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	N/A
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>	N/A

Criteria	JORC Code explanation	Commentary
Logging	<ul> <li>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	N/A
Sub- sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul> <li>Soil Sampling</li> <li>Soil samples were collected from just below the topsoil (A horizon) by hand and passed through a mesh screen.</li> <li>1 kg of sample was collected in calico bags and sent to the laboratory. The sample sizes are considered to be appropriate for the type of mineralisation in this area.</li> <li>No field duplicates were collected</li> </ul>
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</li> <li>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</li> </ul>	<ul> <li>Soil Sampling</li> <li>The sample preparation and analytical procedures are considered appropriate for the style of mineralisation.</li> <li>Intertek Genalysis laboratory provide details of their routine quality controls.</li> <li>Radial Down-the-Hole IP Survey:</li> <li>Array: Radial IP: modified Mise-a-la-Masse</li> <li>Station, dipole size: 50m receiver dipoles.</li> <li>Line spacing: Lines at 30-degree orientations around central transmitter electrode projected location</li> <li>Coordinate system: local grid during acquisition, data presented in regional GDA94</li> <li>Frequency: 0.125Hz</li> <li>Transmitter current: 11-13A</li> </ul>

Criteria	JORC Code explanation	Commentary
		<ul> <li>Transmitter: Zonge International GGT-30</li> <li>Receiver: Zonge International GDP-32ii</li> <li>Receiver electrodes: porous copper sulphate pots</li> <li>Transmitter electrodes: foil lined pit for remote ~2x2m, 1m copper rod used for down-hole electrode</li> <li>GPS: handheld Garmin, accuracy ~+/-3m</li> </ul>
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul> <li>Soil Sampling</li> <li>All assay data are imported and stored in a database.</li> <li>Primary data for sampling was recorded onto paper-based templates and was then transferred into a database and validated by a geologist.</li> <li>No adjustments have been made to any assay data contained in this report.</li> </ul>
Location of data points	<ul> <li>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>Soil Sampling</li> <li>All sample location coordinates are measured using handheld GPS by the consulting geologist. This is considered appropriate at this stage of exploration.</li> <li>The grid/projection system used is GDA MGA 94 Z55.</li> <li>The RL was interpolated from a Digital Terrain Model (DTM) compiled from local ground survey and VicMap topographic data for the region.</li> </ul>
		<ul> <li>Radial Down-the-Hole IP Survey:</li> <li>Transmitter and receiver stations recorded by 12-channel GPS. GPS accuracy is ±3 metres.</li> <li>All coordinates are in MGA94, Zone 55 and AHD</li> <li>Relative elevations used in processing were obtained from NASA SRTM data.</li> </ul>
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>Soil Sampling</li> <li>Sampling was conducted on 50 m spacing on lines 200m apart.</li> <li>Radial Down-the-Hole IP Survey:</li> <li>Receiver electrodes placed at 50 metre intervals. Transmitter electrodes were not moved during the data acquisition.</li> </ul>

Criteria	JORC Code explanation	Commentary
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be supposed and explanation if metaricity.</li> </ul>	<ul> <li>Soil Sampling</li> <li>Sample lines are designed to cross the regional strike to attempt to locate mineralised structures.</li> <li>Radial Down-the-Hole IP Survey:</li> </ul>
	assessed and reported if material.	<ul> <li>Survey lines were orientated at 30-degree intervals away from the projected down hole transmitter electrode position. Survey lines were between 700 – 1200m long depending on land access.</li> </ul>
Sample security	The measures taken to ensure sample security.	<ul> <li>Soil Sampling</li> <li>All samples are stored at a secure shed on the Nagambie mine site and dispatched to the laboratory by a national courier.</li> </ul>
		<ul> <li>Sample number receipt information from the laboratory is cross- referenced and rationalised against sample number dispatch information.</li> </ul>
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	<ul> <li>Soil Sampling</li> <li>No processes or data used in developing the release of exploration results have been subject to audit or review by non-company personnel or contractors so as to reduce timelines for reporting.</li> </ul>
		<ul> <li>Radial Down-the-Hole IP Survey:</li> <li>No audits or reviews have been undertaken</li> </ul>

## **Section 2 Reporting of Exploration Results**

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</li> <li>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate</li> </ul>	<ul> <li>NND002, the hole that the Radial Down the Hole IP was conducted on, is located on EL5511 and is 100% owned by Nagambie Resources Ltd.</li> <li>Sampling was conducted within EL5511, which is also partly covered by MIN5412 and is 100% owned by Nagambie Resources Ltd.</li> </ul>

Criteria	JORC Code explanation	Commentary
	in the area.	
<i>Exploration done by other parties</i>	Acknowledgment and appraisal of exploration by other parties.	<ul> <li>Open pit mining at Nagambie was conducted in the 1990's. Previous drilling under the pits was conducted by Panaegis Gold Mines Ltd in 2006 and 2007.</li> <li>The drill hole used for the Radial DTH IP, NND002, was part of a drilling program to test a new target identified by an IP survey conducted in early 2018 (refer ASX:NAG 22/3/18).</li> <li>No drilling in the area covered by the Radial DTH IP target has occurred previous to this drill program.</li> </ul>
Geology	• Deposit type, geological setting and style of mineralisation.	<ul> <li>The host rocks at Nagambie are marine sandstones and shales. Previous mining shows gold is associated with quartz veining and faulting in anticlinal folds.</li> <li>The mineralisation style at Nagambie is orogenic gold and gold mineralisation is disseminated within pyrite, arsenopyrite and stibnite.</li> </ul>
Drill hole Information	<ul> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: <ul> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul>	N/A
Data aggregation methods	<ul> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</li> <li>The assumptions used for any reporting of metal equivalent</li> </ul>	N/A

Criteria	JORC Code explanation	Commentary
	values should be clearly stated.	
Relationship between mineralisati on widths and intercept lengths	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').</li> </ul>	N/A
Diagrams	<ul> <li>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</li> </ul>	Refer to figures.
Balanced	Where comprehensive reporting of all Exploration Results is	Soil Sampling
reporting	not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	Nagambie Resources is developing a large database of surface soil geochemistry over the region, from which it can estimate threshold values (the difference between the background geochemistry and values indicating buried mineralisation) for the three path finder metals (gold, arsenic and antimony). The assay value of each metal is divided by its corresponding Threshold Value to determine an Anomaly Factor (AF) for that metal.
		Gold, arsenic and antimony anomaly factors are reported in full as graduated symbols with a corresponding legend.
		<ul> <li>Radial Down-the-Hole IP Survey:</li> <li>Processed observed data are presented in plan view. This data has not currently been incorporated into a 3D inversion model.</li> </ul>
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	All relevant data is presented in the text, tables and diagrams.

Criteria	JORC Code explanation	Commentary
Further work	<ul> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul> <li>Radial Down-the-Hole IP is expected to be conducted on additional drill holes in future.</li> </ul>