ECHO RESOURCES LIMITED

GROWTH THROUGH DISCOVERY

3 February 2015

Outstanding gold extraction results, Julius Gold Discovery, WA

- **Very high total gold recovery of 97.5% returned from gravity separation and cyanide leach testwork undertaken on a sample of laterite-hosted gold mineralization from the Julius Gold Discovery.**

- **The gold leach kinetics are fast with most of the gold leaching after only 8 hours.**

- **3.2% of the total gold content was extracted via gravity separation suggesting laterite-hosted mineralization at Julius contains only small amounts of coarse gold.**

- **Arsenic, copper, antimony, tellurium, bismuth, cadmium, mercury, molybdenum and selenium levels are below levels that might be expected to cause problems.**

- **No evidence of preg-robbing of gold was detected.**

Echo Resources Limited (ASX: EAR) is pleased to announce that it has received the results of gold recovery testwork conducted by ALS Metallurgy on a composite sample of laterite-hosted gold mineralization from the Julius Gold Discovery. The full ALS Metallurgy report is appended to this announcement.

The Julius Discovery is the most exciting virgin gold find in the Yandal Gold Province since the late-1990's (Fig. 1). The Yandal Province is among Australia's largest goldfields, hosting several multi-million ounce gold deposits, including those at Jundee (Northern Star Resources) and Darlot (Gold Fields).

A near-surface, horizontal domain of gold-bearing laterite and duricrust, containing gold grades of 0.2g/t Au to 10g/t Au, is situated at a depth of 10m under the transported cover in the

southern parts of the Julius drilling area. Based on the current drill pattern, the lateritic unit covers an area of ~450m by 450m, and ranges in thickness from 1m to 10m (typical width ~5m).

The main conclusions from the testwork are:

- The calculated head grade of the composite laterite sample tested was 2.2g/t Au.
- 3.2% of the total gold content was extracted via gravity separation and mercury amalgamation, suggesting that laterite-hosted gold mineralization at Julius contains only small amounts of coarse gold.
- A high total gold recovery of 97.5%.
- Gold extraction was very fast with most of the cyanidable gold recovered after only 8 hours of leaching.
- Arsenic, copper, antimony and tellurium assays are below levels that might be expected to cause problems during processing.
- Carbon speciation assays indicate low levels of organic carbon, which reduces the possibility of preg-robbing during cyanidation.
- Bismuth, cadmium, mercury, molybdenum and selenium levels are low, reducing the possibility of negative environmental impacts.

Additional testing will be undertaken to further investigate the metallurgical characteristics of the Julius gold mineralization, including on transitional and fresh rock-hosted mineralization.

Analytical Procedure

The metallurgical testing was conducted on a 30.3kg composite sample (Sample Number EMET-2) made up of 20 pulverized 1m drill samples taken from seven previously reported reverse circulation holes (Tables 1 and 2; Fig. 2). The samples were chosen to provide a selection of gold mineralized laterite- and duricrust-hosted drill intercepts across a range of gold grades (0.3g/t Au to 6.1g/t Au). The mass-weighted gold grade of the EMET-2 was originally estimated to be 2.1g/t Au. EMET-2 was pulverized and homogenised by Quantum Analytical Services (Perth). The pulverized material was delivered to ALS Metallurgy (Perth) for testing as outlined in the attached report (Appendix 2). Three sizing analyses conducted on EMET-2 by Quantum Analytical Services (Perth) showed that on average 90.1% of the pulverized material passed 75µm.

About Echo Resources

Echo Resources ("Echo") **(ASX code EAR**) is a mineral exploration company committed to the growth of shareholder value through discoveries and project acquisitions. Echo's key projects are located in Western Australia. Echo's corporate goal is the discovery and development of world-class gold, copper and nickel deposits in established, high-potential mineral provinces. Echo has a strong management team capable of rapidly transforming the Company from an explorer to producer.

Echo is committed to building a profitable mining company in the Yandal Gold Province.

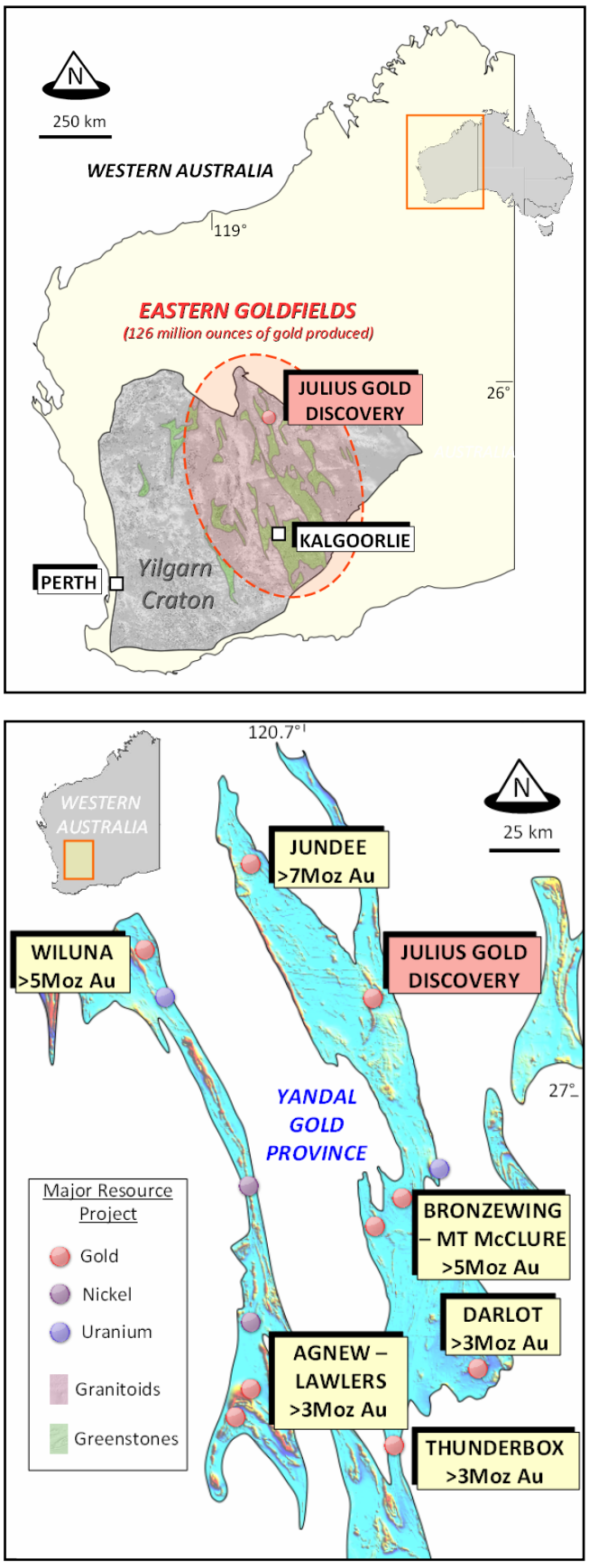

Fig. 1: Location of the Julius Gold Discovery.

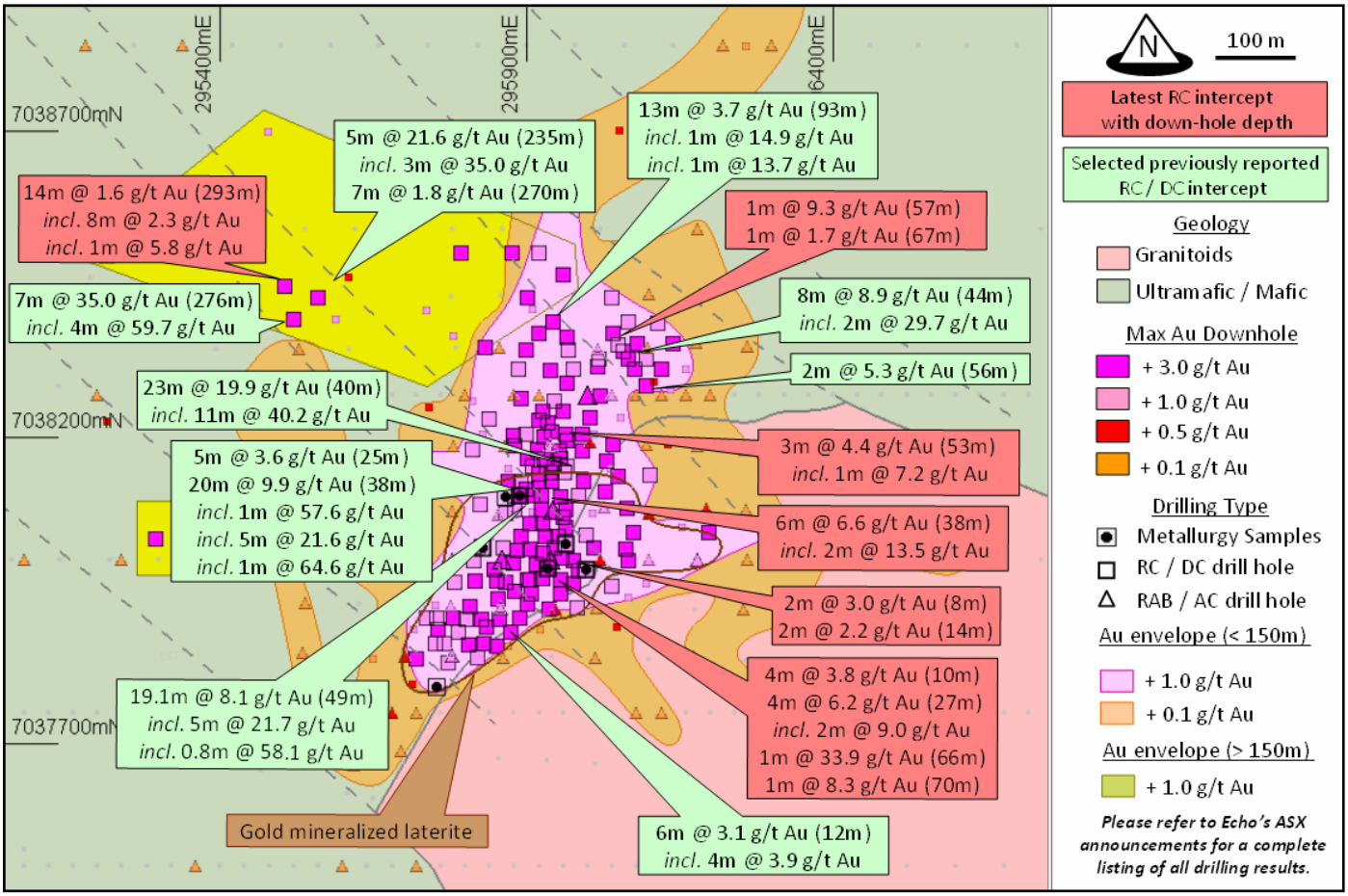

Fig. 2: Geological map showing the location of drill holes used for the metallurgical testwork.

Table 1: Composite laterite sample EMET-2

Hole No.	From (m)	To (m)	Exploration Fire Assay (g/t Au)
ERC205	14	15	1.4
	15	16	1.3
ERC215	13	14	2.5
	14	15	2.8
	15	16	1.3
	16	17	1.0
ERC219	14	15	1.4
	15	16	1.6
ERC230	14	15	1.7
ERC231	10	11	6.1
	11	12	1.1
ERC232	9	10	2.2
	10	11	0.7
	11	12	0.8
ERC233	10	11	5.2
	11	12	4.4
	12	13	3.5
	13	14	1.9
	14	15	0.5
	15	16	0.3

Table 2: Drill hole details

Hole No.	Northing (mN)*	Easting (mE)*	Elevation (mRL)	Dip	Azimuth	EOH Depth (m)
ERC205	7,037,792	295,753	514	-55°	090°	66
ERC215	7,038,018	295,830	511	-55°	090°	145
ERC219	7,038,104	295,889	512	-55°	090°	127
ERC230	7,038,102	295,866	512	-55°	090°	144
ERC231	7,038,025	295,964	512	-70°	090°	35
ERC232	7,037,984	295,997	512	-75°	090°	25
ERC233	7,037,985	295,936	512	-60°	090°	80

* AMG84 Zone 51

The information in this report that relates to Exploration Results and Mineral Resources is based on information compiled by Dr Ernst Kohler who is a Member of The Australasian Institute of Mining and Metallurgy. Dr Kohler is Managing Director and a shareholder of Echo Resources Limited. Dr Kohler has sufficient experience which is relevant to the style of mineralization and type of deposit under consideration and to the activity which he is undertaking 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'. Dr Kohler consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to the testing shown in ALS Metallurgy Report A16290 (Appendix 2) is based on information compiled by Mr Wayne Harding who is a Member of The Australasian Institute of Mining and Metallurgy. Mr Harding is a full-time employee ALS Metallurgy. Mr Harding has sufficient experience which is relevant to the style of mineralization and type of deposit under consideration and to the activity which he is undertaking 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 Harding consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

It is common practice for a company to comment on and discuss its exploration in terms of target size and type. The information in this announcement relating to exploration targets should not be misunderstood or misconstrued as an estimate of Mineral Resources or Ore Reserves. Hence the terms Resource(s) or Reserve(s) have not been used in this context. Any potential quantity and grade is conceptual in nature, since there has been insufficient work completed to define them beyond exploration targets and that it is uncertain if further exploration will result in the determination of a Mineral Resource.

This report may contain forward-looking statements concerning the potential of Echo's exploration projects and proposed exploration programs. No assurance can be given that Echo's proposed plans for the exploration of its project areas will proceed as planned, or that they will result in the discovery or delineation of additional or new mineral deposits, or that any mineralisation discovered will be amenable to economic extraction, or that the tenement applications will proceed to grant. Exploration programs may not proceed as planned due to delays beyond the control of the Company, including adverse weather and ground conditions, and contractor and government approval delays. Nothing in this announcement should be construed as either an offer to sell or a solicitation of an offer to buy or sell securities.

APPENDIX 1: JORC Code, 2012 Edition

Section 1 Sampling Techniques and Data
(Criteria in this section apply to all succeeding sections.)

Criteria	Explanation	Comment
Sampling techniques	• 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. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • Aspects of the determination of mineralisation that are Material to the Public Report. 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.	Drilling was carried out with a Reverse Circulation (RC) drill rig which was used to collect 1m split samples of pulverized lateritic rock material (typically 1kg–4kg in weight) for geochemical analysis. At the laboratory, the samples were dried in kilns and then pulverized using disk-style grinding mills with at least 85% of the material less than 75 microns (200 mesh). A 25g charge of the pulverized material was prepared for gold fire assay analysis with AAS finish (0.01ppm Au detection limit). Given the nature of the mineralization being drilled, coarse gold may be present in the samples which may result in assay variability. Sample EMET-2 is a 30.3kg composite sample made up of twenty 1m split laterite sample intervals taken from seven RC drill holes as outlined in Tables 1 and 2. The locations of drill holes used for metallurgical testing are shown in Figure 2.
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).	An RC drill rig with a face-sampling bit was used to collect 1m pulverized lateritic rock samples which were passed through cone and riffle splitters to obtain 1kg – 10kg sub-samples for geochemical and metallurgical analyses.
Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure representative nature of the samples. • 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.	No formal recovery studies have been undertaken. Overall sample recovery is considered reasonable to good, and in line with normal expectations for this type of drilling. Insufficient drilling and geochemical data is available to evaluate any sample bias, although results from previous studies suggest the presence of coarse gold which may cause assay variability.
Logging	• 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. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. • The total length and percentage of the relevant intersections logged.	Chip samples from the drilling were sieved, washed and placed into plastic chip trays for future reference. The chip trays are not routinely photographed, however, photographs have been taken of some higher-grade sample intervals. All of the samples have been geologically logged using standardized qualitative and quantitative logging codes. The logging recorded sample quality, rock age and variant, hardness, grain size, colour, weathering, texture and fabric, alteration type and intensity, and vein and mineralization styles.
Sub-sampling techniques and sample preparation	• If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • 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. • Whether sample sizes are appropriate to the grain size of the material being sampled.	The RC drilling produced samples of pulverized rock (chips and dust) in 1m down-hole sample intervals. The samples were passed through a cone-splitter installed below the rig cyclone to collect a 1kg-4kg sub-sample which was placed into a numbered calico bag. Intervals for lateritic material for metallurgical testwork composite sample EMET-2 were chosen to provide a selection of gold-bearing material across a range of gold grades (Table 1). Three sizing analyses conducted on EMET-2 by Quantum Analytical Services (Perth) showed that on average 90.1% of the pulverised material passed 75µm.
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • 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. • 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.	The drill samples were originally prepared and assayed at the Quantum Analytical Services laboratory in Perth using 25g fire assay techniques. Fire assay is considered to be a near-total gold analysis technique. The gold concentration is expressed in parts per million (ppm) or grams per tonne (g/t): 1ppm Au is equivalent to 1g/t Au. The analytical scheme includes the inclusion of laboratory standards, blanks, and duplicate and replicate analyses, as well as blind standards. The standards and repeat assays were checked by laboratory personnel and the Competent Person, and found to have acceptable levels of accuracy. Composite sample EMET-2 was analysed by ALS Metallurgy in Perth using standard gravity separation and cyanide leach techniques as outlined in report A16290 provided in Appendix 2. No geophysical tools were employed during the drilling.

Section 1 Sampling Techniques and Data *(Criteria in this section apply to all succeeding sections.)*		
Verification of sampling and assaying	• The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data.	No twinned holes have been drilled. Significant gold assays were visually checked by the Competent Person against the chip trays and geological logs. Primary data for the sample and geological logs was collected using a standardised set of paper-based templates and then entered into Excel spreadsheets and validated prior to being loaded into MicroMine computer databases for further validation. Assay results are received from the laboratory in Excel and PDF computer files which are checked by a geologist prior to being loaded into the MicroMine databases. For samples with repeat assays by the same laboratory, the un-weighted average of all assays has been used for reporting purposes. No adjustments have been made to assay data.
Location of data points	• 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. • Specification of the grid system used. • Quality and adequacy of topographic control.	The grid system used is AMG84 Zone 51. The drill hole collar azimuth was laid out by the rig geologist with a hand-held sighting compass. A clinometer placed directly on to the rig mast was used by the drilling contractor to establish the correct hole dip. After completion, the drill collar locations were determined with a hand-held GPS with horizontal accuracy expected to be better than 5m. The area drilled is flat to very gently sloping. Drill hole collar elevations have been allocated using a digital terrane model (DTM) generated from differential GPS ground height measurements. The drill hole collar RL's are between 511m – 514mRL.
Data spacing and distribution	• Data spacing for reporting of Exploration Results. • 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. • Whether sample compositing has been applied.	The spacing of drill collars at Julius varies from approximately 15m to more than 100m. One cone- or riffle-split sample was collected for every metre of drilling undertaken. Sample EMET-2 is a composite sample made up of 20 one metre split sample intervals from seven RC drill holes as outlined in Tables 1 and 2. The locations of drill holes used for metallurgical testing are shown in Figure 2.
Orientation of data in relation to geological structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. • 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 assessed and reported if material.	Gold deposits of this type are commonly characterized by marked variations in the orientation, width and grade of mineralized zones. The detailed orientation of the gold mineralization is not known at this stage. The holes were drilled at a collar azimuth of 090° which is approximately perpendicular to the interpreted regional 010° - 030° strike of the host rocks and master shear zones. Aeromagnetic images also show a series of 140°-striking features (linears and demagnetized rock zones) of uncertain dip orientation which may represent mineralised or barren cross-cutting faults. There is insufficient drilling and geological data to determine if there is a sampling bias.
Sample security	• The measures taken to ensure sample security.	The drill samples were collected in pre-numbered calico and green plastic bags. The samples were transported to Perth under the supervision of a geologist, where they were kept in a locked yard prior to submission to the laboratory.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	The drilling, sampling and assaying techniques are industry-standard. Check assays on selected high- and low-grade samples have been conducted by Quantum Analytical Services laboratory staff, with acceptable results. The preparation and assaying techniques employed by ALS Metallurgy on composite sample EMET-2 are industry standard. A full copy of ALS Metallurgy report A16290 for composite sample EMET-2 is provided in Appendix 2.

Section 2 Reporting of Exploration Results *(Criteria listed in the preceding section also apply to this section.)*		
Criteria	**Explanation**	**Comment**
Mineral tenement and land tenure Status	• 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. • The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The drilling and sampling was undertaken on Exploration Licence E53/1042, wholly owned by Echo Resources Limited, located 750km northeast of Perth. The tenement is located in the Wiluna Native Title Claim Group (WC99/24). Newmont Yandal Operations Pty Ltd (Newmont) has the right to buy back a 60% interest in any gold discovery containing aggregate Inferred Mineral Resources of at least 2.0 million ounces of gold. If a buy back occurs, then Echo and Newmont will be in a joint venture under which the interests will be Newmont 60% / Echo 40%. Newmont may elect to increase its interest to 75% and free carry Echo's 25% through to completion of a feasibility study. A net smelter royalty of 1.5% (in addition to a Government Royalty) applies in respect of all minerals produced from the tenement.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	The gold anomalies at Julius were first identified during wide-spaced (drill traverses spaced 250m – 550m apart) rotary air blast (RAB) and air core (AC) scout drilling programs undertaken by Newmont.
Geology	• Deposit type, geological setting and style of mineralisation.	The gold mineralization is located in the Archaean Yandal Greenstone Belt, beneath 7m – 25m of Quaternary colluvium. Mafic, ultramafic and granodioritic rocks hosting the gold mineralization have been weathered to depths of 40m – 90m. In some areas, gold mineralization is present in lateritic units. The contact between the mafic and ultramafic rocks with granodiorite is marked by a shear zone dipping 20° - 45° west-northwest. In the primary zone, the gold mineralized rocks show evidence of shearing, veining and extensive hydrothermal alteration. The Archaean rock sequence is considered prospective for structurally controlled orogenic gold mineralization, as well as intrusion-related gold mineralization styles. This study focused on the lateritic gold mineralization at Julius.
Drill hole Information	• 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: easting and northing of the drill hole collar; elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar; dip and azimuth of the hole; down hole length and interception depth; hole length. • 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.	Refer to Tables 1 and 2. All holes drilled with collar azimuth of 090°. The surface of the drilling area is flat to very gently sloping, and the drill collars are located at elevations of 511mRL – 514mRL.
Data aggregation methods	• 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. • 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. • The assumptions used for any reporting of metal equivalent values should be clearly stated.	All interval lengths and depths are expressed as down-hole measurements. No assay top-cut was applied. For samples with repeat assays, the average of all assays was used in the calculation of the sample grade. No metal equivalent values have been used. Sample EMET-2 is a composite sample made up of twenty 1m split sample intervals from seven RC drill holes as outlined in Tables 1 and 2. The locations of drill holes used for metallurgical testing are shown in Figure 2.
Relationship between mineralisation widths and intercept lengths	• These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. • 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').	The Julius gold system is interpreted to dip 20° - 50° west-northwest and plunges northwest. The detailed geometry of the mineralized zones is not known at this stage. Accordingly, the reported intercept lengths may not reflect true mineralization widths. The host rock sequences and the sheared granodiorite contact are interpreted to dip at 20° - 45° west-northwest.
Diagrams	• 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.	Refer to Figure 2 and Tables 1 and 2 in this announcement. Geological maps and drill cross-sections are provided in Echo's ASX releases.

Section 2 Reporting of Exploration Results *(Criteria listed in the preceding section also apply to this section.)*		
Balanced Reporting	• Where comprehensive reporting of all Exploration results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	A full copy of ALS Metallurgy report A16290 for composite laterite sample EMET-2 is provided in Appendix 2.
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.	Previous drilling has included programs of RAB, AC, RC and diamond core (DC) drilling to a maximum vertical depth of 540m. Some drill holes are characterized by significant down-hole lengths of hydrothermal altered rocks showing anomalous (plus 0.1g/t Au) gold values and variable enrichments of gold-related pathfinder elements, including Bi, Mo, Te and Ag. Pyrite is the dominant gold-associated sulphide. In plan view, gold mineralization at greater than 1 g/t Au has been defined over an area of 850m (north-south) by 950m (east-west). The altered and gold mineralized system is open to the north, east, west and south. Please refer to Echo's ASX announcements for previous drilling results and other geological information.
Further work	• The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling). • Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Additional testing will to be undertaken to assess the gravity separation and cyanide leaching characteristics of the gold mineralised zones at Julius. Further extensional and infill RC drilling will be undertaken to test for possible near-surface and down-dip/down-plunge extensions of the gold mineralization; to define the orientation of potential high-grade gold lodes; and to determine host rock distribution, structure and alteration styles. Please refer to Echo's previous ASX announcements for potential targets and future drilling areas.

APPENDIX 2

ALS Metallurgy Report A16290

Metallurgical Testwork

conducted upon

A Composite of Laterite Gold Mineralisation

from the Julius Gold Discovery

for

Echo Resources Limited

Metallurgical Testwork

conducted upon

A Composite of Laterite Gold Mineralisation from the Julius Gold Discovery

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Echo Resources Limited

Report No. A16290

February 2015

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FIGURE

APPENDICES

SUMMARY

A defined program of metallurgical testwork was carried out for Echo Resources Limited, on a selected Laterite Gold Composite sample, from the Julius Gold Discovery in Western Australia.

The project included head assay determination and gravity/cyanidation testwork. Salient testwork results are presented in the following sections.

• Head Assays

Summary head assays for the EMET-2 Laterite Gold Composite are tabulated below.

Sample ID	Head Assays							
	Au (ppm)	Ag (ppm)	As (ppm)	CORGANIC (%)	Cu (ppm)	SSULPHIDE (%)	Sb (ppm)	Te (ppm)
EMET-2 Laterite Gold Composite	1.87/1.97	0.6	20	0.06	60	<0.02	1.4	1.2

• Gravity/Cyanidation Testwork

Gravity separation and subsequent cyanidation testwork was carried out on the EMET-2 Laterite Gold Composite sub-sample to investigate gold extraction characteristics. Summary data are tabulated below.

Test No.	% Au Extraction @ hours					Au Grade (g/t)		Consumption (kg/t)	
	Gravity	2	4	8	48	Calc'd Head	Leach Residue	NaCN	Lime
WH5834	3.19	91.45	94.69	97.46	97.46	2.16	0.06	2.30	6.74

1. INTRODUCTION

Dr Ernst Kohler, representing Echo Resources Limited, requested that ALS Metallurgy conduct a defined program of metallurgical testwork on the EMET-2 Laterite Gold Composite from Western Australia.

This work included the following:

- Sample preparation
- Head assay determination
- Gravity/cyanidation testwork.

The test program is presented as a flow diagram in Figure 1.

The testwork was controlled by Dr Ernst Kohler, on behalf of Echo Resources Limited, with Mr Wayne Harding supervising the program on behalf of ALS Metallurgy. Testwork results were communicated to the client immediately when available, which enabled the program to progress on a fully informed basis.

The purpose of this report is to describe the testwork program and present results together with some commentary and observations.

RON GROGAN
Chief Executive - Metallurgy

WAYNE HARDING
Principal Metallurgist
Gold and Comminution

2. SAMPLES AND SAMPLE PREPARATION

Echo Resources Limited provided ALS Metallurgy with 30.26 kg (in three bags) of the EMET-2 Laterite Gold Composite from Western Australia.

Sample preparation was conducted as outlined below (Figure 1). The sample was homogenised by passing three times through a rotary sample divider, and split into the following charges:

- 1 x 250 g for head assay
- 1 x 5 kg, submitted 'as received', for gravity/cyanidation testwork.

3. TESTWORK WATER

Perth tap water was used for all facets of the test program where wet grinding and slurry preparation were required.

4. ANALYTICAL PROCEDURES

All of the assay samples generated during the course of the test program were submitted to the ALS Metallurgy analytical laboratory in Perth for analysis.

The following analytical techniques were employed:

Gold in ores and leach residues:	Fire assay/ICP-MS (50 g)
Gold in solution:	Direct ICP-MS
Silver in solids:	Mixed acid digestion ($HCl/HNO_3/HCLO_4$)/ICP-OES
Arsenic:	Arsenic digest/ICP-OES finish
Carbon speciation:	*Labfit* CS2000 analyser
Sulphur speciation:	*Sherritt* method *Labfit* CS2000 analyser
General element scan:	Mixed acid digestion ($HCL/HNO_3/CHLO_4/HF$)/ICP-OES finish
Mercury:	Mercury (Residue)/ICP-MS finish
Antimony, Tellurium, Selenium:	Antimony digest/ICP-OES finish

5. HEAD ASSAYS

A sub-sample of the EMET-2 Laterite Gold Composite was submitted for head assay determination.

Comprehensive results are included in Appendix I, whilst summary results on the Master Composite are presented in the following table.

Sample ID	Head Assays							
	Au (ppm)	Ag (ppm)	As (ppm)	CORGANIC (%)	Cu (ppm)	SSULPHIDE (%)	Sb (ppm)	Te (ppm)
EMET-2 Laterite Gold Composite	1.87/1.97	0.6	20	0.06	60	<0.02	1.4	1.2

Comments on the above results are as follows:

- For the EMET-2 Laterite Gold Composite sample supplied, the average gold head grade is 1.92 g/t Au, with a silver grade of 0.6 g/t Ag.
- Arsenic levels are low, decreasing the possibility of some gold being locked in arsenopyrite.
- Carbon speciation assays indicate low levels of organic carbon, which reduces the probability of preg-robbing during cyanidation.
- Copper levels are present in low concentrations, which decreases the possibility of some excess cyanide consumption through preferential complexing.
- Sulphur speciation assays indicate low levels of sulphide sulphur, decreasing the possibility of producing a high mass pull sulphide mineral flotation concentrate with this composite.
- The EMET-2 Laterite Gold Composite sample contains low grades of antimony. If present as sulphides, antimony can solubilise at high pH and potentially form passivating oxide layers on gold surfaces, which can have a detrimental effect on gold cyanidation. Tellurium assays are low reducing the likelihood of gold bearing telluride minerals.
- Bismuth, cadmium, mercury, molybdenum and selenium levels in the EMET-2 Laterite Gold Composite sample are all either close to the assay detection limit (for mercury) or below the detection limits, reducing the probability of negative environmental impacts.
- The lead levels in the EMET-2 Laterite Gold Composite sample are slightly elevated at 40 ppm.

6. GRAVITY/CYANIDATION TESTWORK

Gravity separation and subsequent cyanidation testwork were conducted on one sub-sample of the EMET-2 Laterite Gold Composite (Figure 1) that was tested at the 'as received' grind size. As the pulverised sample was previously sized by Quantum, the "as received" grind size reported for this testwork was P_{90}: 75 µm.

6.1 Gravity Separation Procedure

Gravity separation testwork was carried out as follows:

(1) A 5 kg sub-sample was split into two charges (2 x 2.5 kg).

(2) Each charge was separately passed through a laboratory *Knelson* KC-MD3 gravity concentrator, with the following specifications:

- 0.12 kW drive
- 1500 rpm
- 3.5 L/min fluidisation flow rate.

(3) The *Knelson* gravity concentrates were then combined. The combined concentrate was subsequently amalgamated with 5.0 g of mercury by rolling the concentrate for at least two hours prior to recovering the loaded amalgam via pan separation.

(4) The loaded amalgam was dispatched for total gold assay.

(5) All three amalgam tails were filtered, washed and blended with the three gravity tails to generate one combined tail.

6.2 Cyanidation Procedure

The combined gravity/amalgam tailing was subjected to direct cyanidation that was conducted as follows:

(1) The combined gravity tailing was transferred into a 7-litre baffled vat, with overhead agitator, along with a sufficient quantity of Perth tap water to prepare a slurry comprising 33.33 % solids (w/w).

(2) Sufficient hydrated lime (60 % CaO) was added to the slurry to establish a pH of approximately 10.5, and the slurry was thoroughly agitated for 5 minutes.

(3) The pH of the slurry sample was measured again, and if necessary, more lime was added to achieve a pH of 10.5.

(4) Lead nitrate at a dosage of 200 g/t was added to the slurry.

(5) Sodium cyanide solution was added to the slurry to establish an initial cyanide concentration of 0.20% (w/w).

(6) The vat was sparged with oxygen during the test to provide an elevated dissolved oxygen (DO) content to the slurry.

(7) At regular intervals (2, 4, 8 and 24 hours), slurry pH, DO and cyanide concentration were monitored and recorded.

(8) Lime and cyanide were added as required, to maintain target pH (>10.0) and cyanide concentration (>0.10 %).

(9) All intermediate solution sub-samples were assayed for gold, silver and copper.

(10) At the conclusion of the test (48 hours), the terminal pH, oxygen and cyanide levels were determined and a solution sample was assayed for gold, silver and copper.

(11) The residual slurry sample was filtered, washed and dried to provide leach residue solids, a sub-sample of which, was assayed for gold, silver and copper.

6.3 Results

Detailed test report sheets are included in Appendix II, whilst summary results are presented in the following table.

Test No.	% Au Extraction @ hours					Au Grade (g/t)		Consumption (kg/t)	
	Gravity	2	4	8	48	Calc'd Head	Leach Residue	NaCN	Lime
WH5834	3.19	91.45	94.69	97.46	97.46	2.16	0.06	2.30	6.74

Comments on the above results are as follows:

- The final results for the gravity direct cyanidation time leach testwork for the EMET-2 Laterite Gold Composite sample indicate that the sample only contained relatively small amounts of clean coarse gravity gold (3.19%), but contained high levels of cyanidable gold with an overall gold extraction of 97.46%.
- Silver extraction was low at only 11.76% after 48 hours of leaching.
- The calculated gold grade of 2.16 g/t from the leach test matches reasonably well with the head assays of 1.87/1.97 g/t Au.
- The gold leach kinetics are fast with the majority of the gold leaching after only 8 hours. The sodium cyanide consumption rate was 2.30 kg/t, whilst the lime consumption rate was 6.74 kg/t.
- No evidence of preg-robbing of gold was detected.

FIGURE

FIGURE 1: METALLURGICAL TEST PROGRAMME FLOWSHEET

A16290 ECHO RESOURCES LIMITED - EMET-2 LATERITE GOLD COMPOSITE EXTRACTION TESTWORK

RECEIVE EMET-2 LATERITE SAMPLE FROM THE CLIENT (RC CHIP / PULVERISED to P90: 75µm) - 30kg

FOR THE SELECTED SAMPLE - CONDUCT THE FOLLOWING:

HOMOGENISE & SPLIT INTO SUB-SAMPLES (ROTARY SAMPLE DIVIDER)

1 x SUB-SAMPLE

HEAD ASSAY:
Au [DUPLICATE]: 50gram fire assay
Ag,Sb
Ag, As, Hg, Cu
S total
S sulphide
C total
C organic
Se, Te
ICP Scan

STOP POINT
SEND CLIENT Au ASSAY
PRIOR TO LEACH TESTWORK

1 x 5.0kg

RETAIN
FOR CLIENT

1 x 5.0kg

GRIND TO:
* AS RECEIVED

GRAVITY
SEPARATION
[KNELSON]

30-50%gold by gravity
70-100grams

REMOVE CONCENTRATE AFTER
PASSING EVERY 2.0KG THROUGH KNELSON

KNELSON TAIL

KNELSON CON

MERCURY AMALGAMATION

REMOVE ANY COARSE GOLD
YOU OBSERVE

INTENSIVE LEACH TAILING

DIRECT CYANIDE
LEACH TESTWORK
*ADD2:1 SOLUTION TO SOLID RATIO
*ADD TWICE AS MUCH WATER AS SOLID
* pH: 10.5 [LIME]
MAINTAIN >10.0
* NaCN: 2000PPM, 0.2%w/v [INITIAL]
MAINTAIN > 1000PPM, 0.1%w/v
*LEAD NITRATE ADDITION: 200g/t
* OXYGEN SPARGING
* DURATION: 48 HRS
* MONITOR DO, pH, NaCN @
2, 4, 8, 24 & 48 HOURS
* ASSAY SOL'NS: Au,Ag,Cu
* ASSAY RESIDUE: Au (50gram fire assay), Ag,Cu

ANALYSE MERCURY : Au, Ag, Cu

*** CHECK WITH WH REGARDING SLURRY VISCOSITY PRIOR TO START OF LEACH**

HAZARD ID
Sample Contains no
Known Hazardous Material
Caution with fine dust

NOTE: USE PERTH TAP WATER FOR ALL TESTWORK

ALS Metallurgy

APPENDICES

APPENDIX I

Head Assays

A16290 EMET-2 LATERITE GOLD COMPOSITE SAMPLE TESTWORK
ECHO RESOURCES LIMITED

AS RECEIVED P90: 75µm PULVERISED SAMPLE WEIGHTS:

SAMPLES ID:
EMET-2 LATERITE GOLD COMPOSITE SAMPLE

Sample Identity	Bag #	As Received Weight (g)
EMET-2 LATERITE	1	9477.0
EMET-2 LATERITE	2	10640.5
EMET-2 LATERITE	3	10145.8
Total:		30263.3

ALS Metallurgy

A16290 LATERITE GOLD ORE TESTWORK PROGRAM

ECHO RESOURCES LTD

EMET-2 LATERITE GOLD COMPOSITE SAMPLE - HEAD ASSAYS

ANALYTE	UNIT	EMET-2 LATERITE GOLD COMPOSITE SAMPLE
Au_1	g/t	1.87
Au_2	g/t	1.97
Au (Average)	g/t	1.92
Ag	g/t	0.6
Al	%	10.8
As	ppm	20
Ba	ppm	300
Be	ppm	< 20
Bi	ppm	< 25
C_{TOTAL}	%	0.12
$C_{ORGANIC}$	%	0.06
Ca	ppm	625
Cd	ppm	< 20
Co	ppm	40
Cr	ppm	7400
Cu	ppm	60
Fe	%	24.8
Hg	ppm	0.1
K	ppm	750
Li	ppm	40
Mg	ppm	1300
Mn	ppm	360
Mo	ppm	< 20
Na	ppm	600
Ni	ppm	220
P	ppm	500
Pb	ppm	40
S_{TOTAL}	%	< 0.02
$S_{SULPHIDE}$	%	< 0.02
SiO_2	%	31.0
Sb	ppm	1.4
Se	ppm	< 5
Sr	ppm	15
Te	ppm	1.2
Ti	ppm	3800
V	ppm	315
Y	ppm	< 100
Zn	ppm	10

APPENDIX II

Gravity/Cyanidation Testwork

Details and Results

PROJECT	**A16290 : METALLURGICAL TEST PROGRAM**
CLIENT	**ECHO RESOURCES LTD**
TEST No	**WH5834**
SAMPLE	**EMET-2 LATERITE GOLD COMPOSITE**
GRIND SIZE	**P90 : 75µm**
WATER	PERTH TAP WATER
DATE	DECEMBER 2014

GRAVITY SEPARATION / CYANIDATION TIME LEACH TESTWORK : *OXYGEN SPARGE*

TIME	ADDITIONS					SOLUTION DATA							EXTRACTION (%)		
(Hours)	Ore (g)	Water (g)	NaCN (g)	Lime (g)	$Pb(NO_3)_2$ (g)	Oxygen (ppm)	pH	NaCN (%)		Au (ppm)	Ag (ppm)	Cu (ppm)		Total Au	Liquor Ag	Total Cu
	5000.0	10000.0				7.6	7.09									
0			20.00	27.95	1.00	7.6	10.52	0.200		0.000	0.00	0.0		3.19	0.00	0.00
2			0.00	5.77		19.1	9.97	0.158		0.955	0.02	0.50		91.45	5.88	1.59
4			0.00	0.00		17.7	10.21	0.155		0.990	0.02	0.58		94.69	5.88	1.84
8			0.00	0.00		18.5	10.19	0.145		1.02	0.02	0.78		97.46	5.88	2.48
24			0.00	0.00		18.5	10.20	0.108		1.02	0.04	1.20		97.46	11.76	3.82
48			0.00	0.00		17.9	10.18	0.083		1.02	0.04	1.44		97.46	11.76	4.58
Total:			20.00	33.72	1.0											

GOLD, SILVER & COPPER EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Copper		
		Assay (ppm)	Total (µg)	Dist'n (%)	Assay (ppm)	Total (µg)	Dist'n (%)	Assay (ppm)	Total (µg)	Dist'n (%)
Solids (g)	5000.0	0.06	275	2.54	0.6	3000	88.24	60	300000	95.42
Solution (mls)	10000.0	1.02	10200	94.27	0.04	400	11.76	1.44	14400	4.58
Gravity*			**345**	3.19		**6**	0.18		**3**	0.00
Total Extraction				**97.46**			**11.76**			**4.58**
Total			10820	100.00		3400	100.00		314400	100.00
Calculated Head		2.16			0.7			63		
Assay Head		1.87 / 1.97			0.6			60		

COMMENTS :

1. NaCN addition : 4 (Kg/t)
2. NaCN consumption : 2.30 (Kg/t)
3. Lime consumption : 6.74 (Kg/t)
4. Perth tap water used : 1.000 (SG)
5. Grind size P90 : 75µm
6. Leach test conducted in mechanically stirred, baffled agitation vat leach.

* : Gravity gold from mercury amalgamation

RATE OF GOLD, SILVER & COPPER EXTRACTION