5 September 2014

Excellent gold recovery test results, Julius Gold Discovery, WA

- **Combined gravity separation and cyanide leach testing on a composite metallurgical sample from the Julius Gold Discovery has returned a very high total gold recovery of 98.6%.**

- **33% of the total gold content was extracted via gravity separation.**

- **Gold extraction rates were very fast, with 95.4% of the gold recovered by gravity separation followed by only 2 hours of cyanide leaching.**

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 weathered gold mineralisation from the Julius Gold Discovery.

The Julius Discovery is the most exciting virgin gold find in the Yandal Gold Province since the mid-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). Bedrock gold lodes at Julius are hosted by weathered to fresh, mafic and ultramafic rocks in structural contact with a mineralised granodiorite body along the Julius Shear Zone (Fig. 2).

The main conclusions from the testwork are:

- The calculated head grade of the sample tested was 3.8g/t Au.
- Approximately 33.2 % of the total gold content was recovered via gravity separation and mercury amalgamation.
- A very high total gold recovery of 98.6%.

- The gold extraction was very fast with 95.4% of the gold recovered by gravity separation followed by only 2 hours of cyanide leaching.
- The concentrations of elements such as arsenic, mercury, cadmium, antimony, lead and organic carbon are below levels that might be expected to cause problems.
- Bismuth and tellurium contents are elevated, as previously noted by Echo's multi-element geochemical studies at Julius.
- Elevated concentrations of nickel, cobalt and chromium reflect the presence of ultramafic host-rocks.

Additional metallurgical testing will be undertaken to further investigate the gravity separation and cyanide leaching characteristics of the Julius gold mineralisation, including testing on lateritic, transitional and fresh rock-hosted mineralisation, as well as coarser grind sizes.

Analytical Procedure

The metallurgical testing was conducted on a 24.8kg composite sample (Sample Number JM1) made up of 29 pulverised 1m drill samples taken from six previously reported reverse circulation holes (Tables 1 and 2; Fig. 2). The drill samples were chosen to provide a selection of gold mineralised intercepts across a range of gold grades (0.8g/t Au to 57.6g/t Au). The mass-weighted gold grade of the JM1 was originally estimated to be 3.4g/t Au. Approximately half of the mass of JM1 was comprised of ultramafic-hosted mineralisation, with the remainder comprised of granitoid-hosted mineralisation. JM1 was delivered to ALS Metallurgy (Perth) for testing as outlined in the attached report (Appendix 2). A sizing analysis conducted on a 1kg split from JM1 by Quantum Analytical Services (Perth) showed that 88.6% 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 and Queensland. 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.

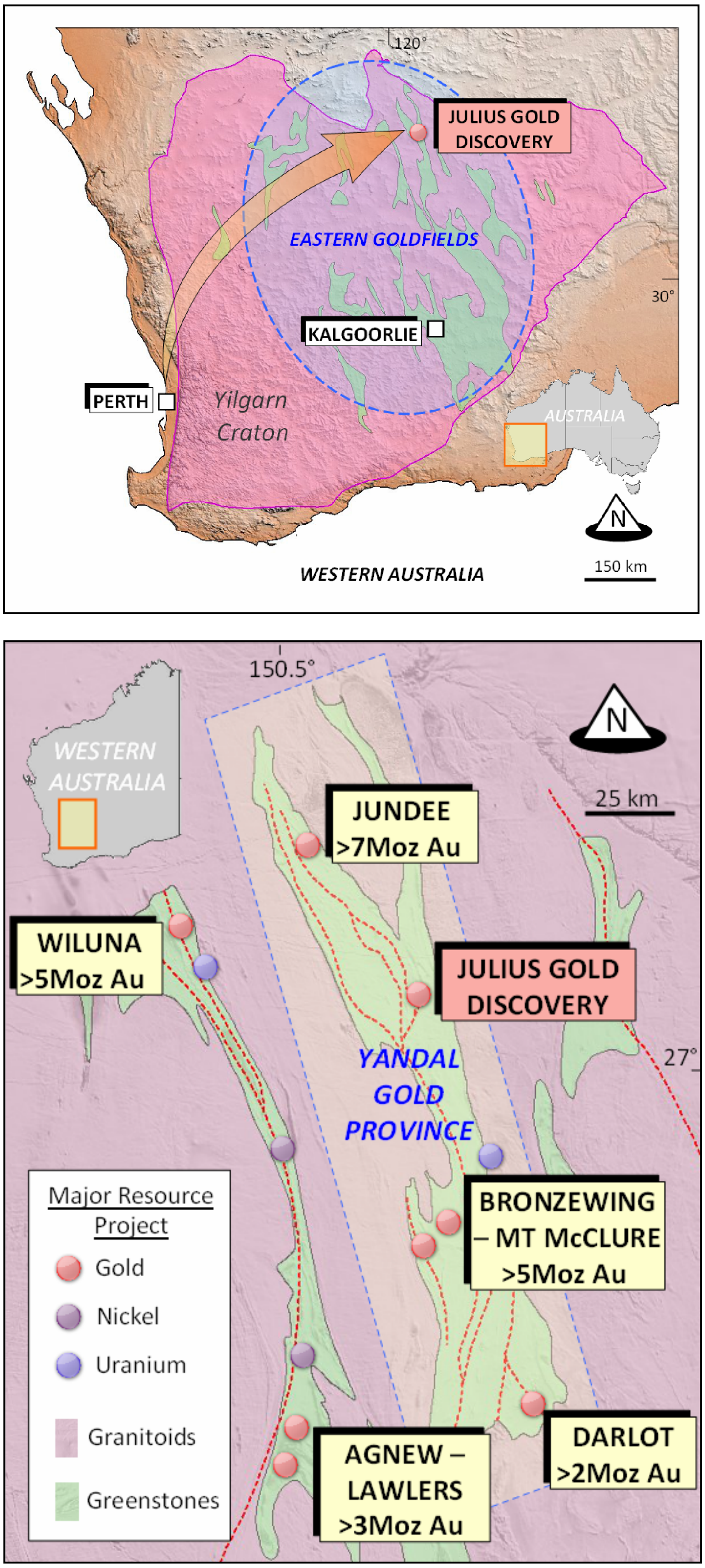

Fig. 1: Location of the Julius Gold Discovery.

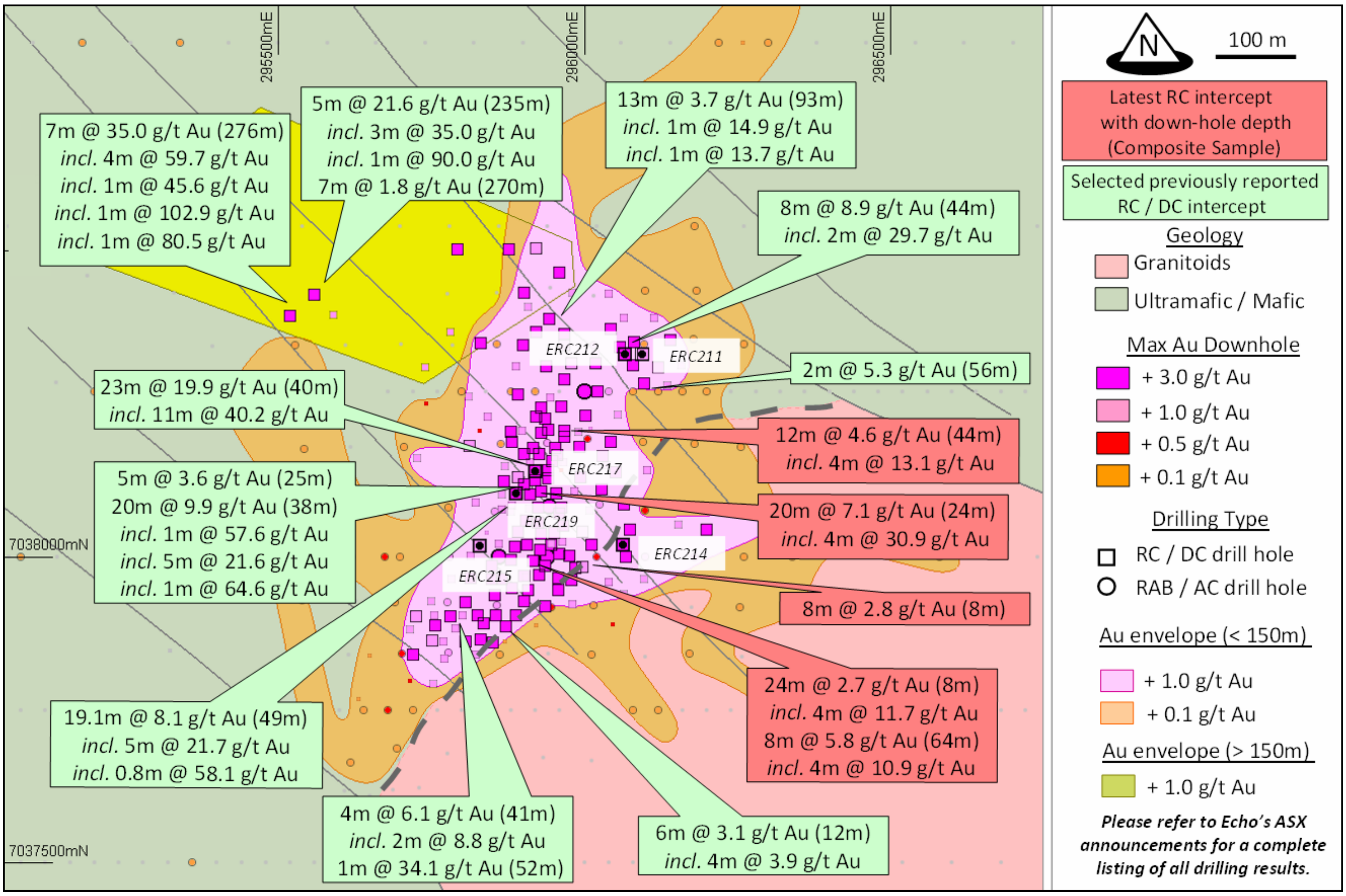

Fig. 2: Geological map showing the location of drill holes used for the metallurgical testwork.

Table 1: Composite sample JM1

Hole No.	From (m)	To (m)	Exploration Fire Assay (g/t Au)	Weathered Host Rock
ERC211	56	57	2.9	Granitoid
	57	58	1.7	Granitoid
	59	60	1.4	Granitoid
ERC212	45	46	1.7	Ultramafic
	47	48	1.8	Ultramafic
	52	53	2.1	Ultramafic
	53	54	38.0	Ultramafic/Granitoid
	54	55	21.4	Granitoid
	55	56	3.1	Granitoid
ERC214	82	83	8.0	Granitoid
	83	84	0.8	Granitoid
	85	86	3.3	Granitoid
	86	87	3.3	Granitoid
	87	88	0.8	Granitoid
ERC215	25	26	0.8	Ultramafic
	26	27	1.3	Ultramafic
	28	29	1.5	Ultramafic
ERC217	29	30	2.4	Ultramafic
	38	39	1.7	Ultramafic
	41	42	6.3	Ultramafic
	45	46	57.6	Ultramafic
	57	58	5.3	Ultramafic
	61	62	0.9	Granitoid
	62	63	1.9	Granitoid
	63	64	1.3	Granitoid
ERC219	44	45	3.2	Ultramafic
	45	46	3.6	Ultramafic
	46	47	1.7	Ultramafic
	47	48	1.4	Ultramafic

Table 2: Drill hole details

Hole No.	Northing (mN)*	Easting (mE)*	Elevation (mRL)	Dip	Azimuth	EOH Depth (m)
ERC211	7,038,327	296,093	511	-65°	090°	100
ERC212	7,038,330	296,066	511	-75°	090°	95
ERC214	7,038,019	296,063	512	-55°	090°	101
ERC215	7,038,018	295,830	511	-55°	090°	145
ERC217	7,038,140	295,920	511	-55°	090°	105
ERC219	7,038,104	295,889	512	-55°	090°	127

* 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 A15981 (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 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). The fire assays were announced on 28 April 2014. Given the nature of the mineralization being drilled, coarse gold may be present in the samples which may result in assay variability. Sample JM1 is a 24.8kg composite sample made up of 29 one metre split sample intervals taken from six 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 rock samples which were passed through a cone splitter to obtain 1kg – 4kg sub-samples.
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. Most of the drill samples were dry, however, the drilling locally encountered high water flows, which resulted in wet or damp samples, and further work is needed to confirm that results from wet or damp intervals are representative. Some sample contamination may have occurred in wet intervals. Insufficient drilling and geochemical data is available to evaluate any sample bias, although results from this study 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 (see Figure 9 in ASX release of 28 April 2014). 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 metallurgical testwork composite sample JM1 were chosen to provide a selection of gold-bearing material across a range of gold grades and weathered rock types (Table 1). A sizing analysis conducted on a 1kg split from JM1 by Quantum Analytical Services (Perth) showed that 88.6% 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 JM1 was analysed by ALS

Section 1 Sampling Techniques and Data *(Criteria in this section apply to all succeeding sections.)*		
		Metallurgy in Perth using standard gravity separation and cyanide leach techniques as outlined in report A15981 provided in Appendix 2. No geophysical tools were employed during the drilling.
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 – 512mRL.
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 JM1 is a composite sample made up of 29 one metre split sample intervals from six 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 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 JM1 are industry standard. A full copy of ALS Metallurgy report A15981 for composite sample JM1 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 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.
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 – 512mRL.
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 JM1 is a composite sample made up of 29 one metre split sample intervals from six 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 20º - 50º 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 Figs. 3 – 8 of Echo's ASX release of 28 April 2014.
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 A15981 for composite sample JM1 is provided in Appendix 2.

Section 2 Reporting of Exploration Results *(Criteria listed in the preceding section also apply to this section.)*		
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 A15981

(15 Pages)

Metallurgical Testwork
conducted upon
Composites from the Julius Gold Discovery
for
Echo Resources Limited

Metallurgical Testwork

conducted upon

Composites from the Julius Gold Discovery

for

Echo Resources Limited

Report No. A15981

September 2014

The results contained in this report relate only to the sample(s) submitted for testing.
ALS Metallurgy accepts no responsibility for the representativeness of the sample(s) submitted.

TABLE OF CONTENTS

FIGURES

APPENDICES

SUMMARY

A defined program of metallurgical testwork was carried out for Echo Resources Limited, on the JM 1 Composite sample, derived 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 Master Composite are tabulated below.

Sample ID	Head Assays							
	Au (ppm)	Ag (ppm)	As (ppm)	$C_{ORGANIC}$ (%)	Cu (ppm)	$S_{SULPHIDE}$ (%)	Sb (ppm)	Te (ppm)
JM 1 Composite	3.94/ 3.12	<0.3	<10	0.06	56	<0.02	0.6	3.6

• Gravity/Cyanidation Testwork

Gravity separation and subsequent cyanidation testwork was carried out on the JM1 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
MK1551	33.17	95.39	95.39	96.97	98.55	3.79	0.06	3.54	3.82

1. INTRODUCTION

Dr Ernst Kohler, representing Echo Resources Limited, requested that ALS Metallurgy conduct a defined program of metallurgical testwork on the JM1 Composite derived from the Julius Gold Discovery in 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 Ms Mahsa Kenvil and 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.

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MAHSA KENVIL
Metallurgist
B.Eng (Chem)(Hons) GAusIMM

2. SAMPLES AND SAMPLE PREPARATION

On 16th July 2014, ALS Metallurgy was supplied by Echo Resources Limited, with 24.8 kg of the JM 1 Composite derived from the Julius Gold Discovery in 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/HNO3/HCLO4)/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/HNO3/CHLO4/HF)/ICP-OES finish
Mercury:	Mercury (Residue)/ICP-MS finish
Antimony, Tellurium, Selenium:	Antimony digest/ICP-OES finish

5. HEAD ASSAY

A sub-sample of the JM 1 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)	$C_{ORGANIC}$ (%)	Cu (ppm)	$S_{SULPHIDE}$ (%)	Sb (ppm)	Te (ppm)
JM 1 Composite	3.94/ 3.12	<0.3	<10	0.06	56	<0.02	0.6	3.6

6. GRAVITY/CYANIDATION TESTWORK

Gravity separation and subsequent cyanidation testwork were conducted on one sub-sample of the JM 1 Composite (Figure 1) that was tested at the 'as received' grind size. Based on the Quantum analytical laboratory size analysis provided by the client, the grind size of the samples is P88.6 % passing 75 µm.

6.1 Gravity Separation Procedure

Gravity separation testwork was carried out as follows:

(1) A 5 kg sub-sample was split into three charges (2 x 2 kg and 1 x 1 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
MK1551	33.17	95.39	95.39	96.97	98.55	3.79	0.06	3.54	3.82

Comments on the above results are as follows:

- Approximately 33% of the total gold in the JM 1 Composite was recovered via gravity separation/amalgamation.
- Based on the leach kinetics, 95.4% of the gold in the JM 1 Composite was recovered by gravity separation followed by two hours of leaching. An additional 46 hours increased the recovery by approximately 3%.

FIGURE

FIGURE 1: METALLURGICAL TEST PROGRAMME FLOWSHEET

RECEIVE THE SAMPLE FROM THE CLIENT (RC CHIP)

FOR EACH SAMPLE SEPARATELY

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

1 x SUB-SAMPLE

HEAD ASSAY:
Au [DUPLICATE]: 50gram fire assay **3.5-4.5g/t**
Ag,Sb
Ag, As, Hg, Cu
S total
S sulphide
C total
C organic
Se, Te
ICP Scan

1 x 5.0kg

GRIND TO: 30-50%gold by gravity
* AS RECEIVED 70-100grams

GRAVITY SEPARATION
[KNELSON]

REMOVE CONCENTRATE AFTER PASSING EVERY 2.0KG THROUGH KNELSON

KNELSON TAIL

KNELSON CON

MERCURY AMALGAMATION

REMOVE ANY COARSE GOLD YOU OBSERVE

ANALYSE MERCURY : Au

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

RESERVE

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

ALS Metallurgy

NOTE: USE PERTH TAP WATER

APPENDICES

APPENDIX I

Head Assays

A15981

ECHO RESOURCES LTD

HEAD ASSAYS

ANALYTE	UNIT	MASTER COMPOSITE (JM 1)
Au_1	g/t	3.94
Au_2	g/t	3.12
Ag	g/t	<0.3
Al	%	6.72
As	ppm	<10
Ba	ppm	360
Be	ppm	<20
Bi	ppm	25
C_{TOTAL}	%	0.03
$C_{ORGANIC}$	%	0.06
Ca	ppm	2500
Cd	ppm	<20
Co	ppm	60
Cr	ppm	3000
Cu	ppm	56
Fe	%	8.12
Hg	ppm	0.3
K	%	1.10
Li	ppm	20
Mg	%	2.76
Mn	ppm	280
Mo	ppm	<20
Na	%	1.73
Ni	ppm	660
P	ppm	<250
Pb	ppm	<20
S_{TOTAL}	%	<0.02
$S_{SULPHIDE}$	%	<0.02
SiO_2	%	60.0
Sb	ppm	0.6
Se	ppm	<5
Sr	ppm	170
Te	ppm	3.6
Ti	ppm	2000
V	ppm	65
Y	ppm	<100
Zn	ppm	45

APPENDIX II

Gravity/Cyanidation Testwork

Details and Results

PROJECT	A15981 : METALLURGICAL TEST PROGRAM
CLIENT	ECHO RESOURCES LTD
TEST No	MK1551
SAMPLE	MASTER COMPOSITE (JM 1)
GRIND SIZE	**P80 : AS RECEIVED**
WATER	PERTH TAP WATER
DATE	AUGUST 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				8.9	8.0										
0			20.00	10.95	1.0		10.5	0.200		0.000	0.00	0.0			33.17	0.00	0.00
2			0.00	8.16		19.7	9.9	0.148		1.18	0.10	2.92			95.39	51.28	9.60
4			0.00	0.00		20.1	10.1	0.145		1.18	0.10	2.88			95.39	51.28	9.47
8			0.00	0.00		19.8	10.2	0.130		1.21	0.12	3.46			96.97	61.54	11.37
24			11.20	0.00		19.8	10.3	0.088		1.22	0.12	4.14			97.50	61.54	13.61
48			0.00	0.00		20.3	10.6	0.135		1.24	0.12	4.42			98.55	61.54	14.53

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	1.45	0.2	750	38.46	52	260000	85.47
Solution (mls)	10000.0	1.24	12400	65.38	0.12	1200	61.54	4.42	44200	14.53
Gravity*			6290	33.17						
Total Extraction				**98.55**			**61.54**			**14.53**
Total			18965	100.00		1950	100.00		304200	100.00
Calculated Head		3.79			0.4			61		
Assay Head		3.94 / 3.12			<0.3			56		

* : Gravity gold from mercury amalgamation

COMMENTS :

1. NaCN addition : 6.24 (Kg/t)
2. NaCN consumption : 3.54 (Kg/t)
3. Lime consumption : 3.82 (Kg/t)
4. Perth tap water used : 1.000 (SG)
5. Grind size P80 : As received
6. Leach test conducted in mechanically stirred, baffled agitation vat leach.

RATE OF GOLD, SILVER & COPPER EXTRACTION