ABN 46 006 045 790

www.cullenresources.com.au

**ASX Symbol: CUL** 18 February 2015

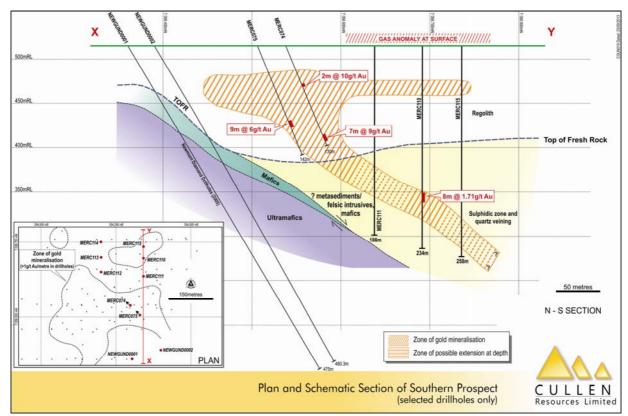
## Further support for gold targeting, Mt Eureka, W.A.

- Recent exploration successes in the north east region of the Yilgarn Craton, such as in the Yamarna (Gruyere) and Yandal belts (Julius), have stimulated a re-appraisal of the Mt Eureka Greenstone Belt, mostly held by Cullen.
- A large target area extending for ~6km from the Southern and Graf's Find gold prospects has been highlighted from a compilation of geological, geochemical, geophysical and drilling data together with some interesting results of a **Soil Gas Hydrocarbon (SGH)**<sup>1</sup> geochemical survey.
- The SGH survey has identified a large (2x1km) <u>redox cell<sup>2</sup></u> which Cullen believes further strengthens the high prospectivity of this gold target area at its 100% owned Mt Eureka Project.
- Interpreted anomalies from Cullen's **SGH** surveys overlie target areas identified from a combination of interpreted prospective structures (shears and thrusts), gold mineralisation trends from previous drilling and locations of gold nugget patches.
- A program of reconnaissance to systematic air core drilling is planned to test across these geochemical anomalies and structural targets along this lightly-explored, ~6km long trend.

### **Background**

A Soil Gas Hydrocrbon (SGH) predictive geochemistry survey was first trialled by Cullen in the area north of the known gold mineralisation at the Southern prospect in 2013. This survey was designed to test the idea that the gold mineralisation intersected in the weathered part of the prospect (0-80m vertically) is an expression of a mineralised system that is plunging/dipping to the north, possibly related to low angle thrusts.

The SGH survey generated an anomaly in the survey area which was drill-tested (6 RC holes, MERC 110-115). It showed a thick, gold-bearing quartz, pyrite and arsenopyrite mineralised sequence dipping north at a low angle. Although the gold grade was not of economic significance, a consistent and laterally continuous mineralised zone was interpreted from the six RC holes drilled, and the experimental SGH survey was considered a technical success (see Figure below). Deep diamond drilling may test the depth extension at a later stage.



Ref: Cullen Quarterly Report - September 2013 (ASX: 23/10/2013)

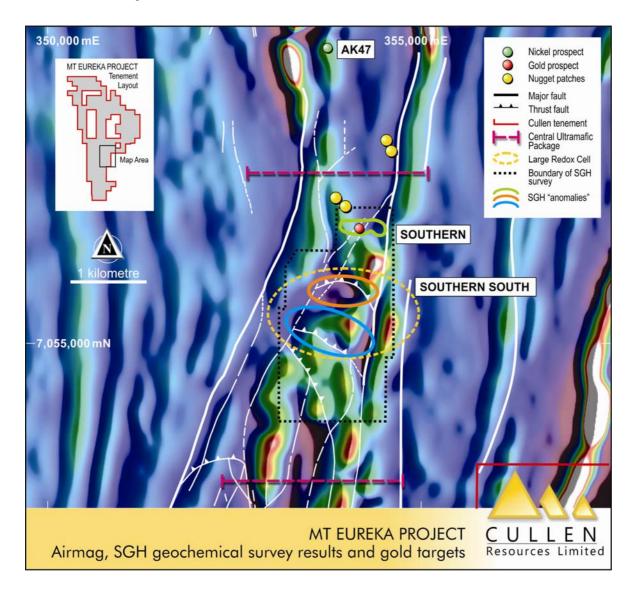
#### **Follow-up survey**

Cullen has since expanded its SGH surveying to the south of the Southern and Galway gold prospects, across a palaeochannel covering what Cullen believes are several gold-prospective structures (possibly thrusts). These structures are considered similar to those that host gold mineralisation at Southern and "Southern North" – as seen in the figure above.

The SGH survey of "Southern South" identified a very large Redox Cell and delineated two specific features within the Redox Cell – one characterised by Actlabs to be a **gold target** and the other a **copper-gold target**. The target characterisation is based on templates obtained by Actlabs from their previous studies and experience<sup>1</sup>.

In Cullen's opinion, the results of the SGH survey, when considered together with other compiled data, reinforce the gold prospectivity of the general target area at Southern South, and will assist in positioning planned, broad-spaced reconnaissance to systematic air core drill traverses (400-800 by 40-80m) across the area. A plan for expanding the SGH geochemical survey has been drawn up, covering areas further south and north.

(The target area for gold at Southern South, is also prospective for nickel sulphide mineralisation associated with three individual ultramafic units interpreted from aeromagnetics data. Nickel and copper analyses from air core drilling will be a vector for follow-up nickel sulphide exploration in conjunction with the planned ground EM surveying around the A3 bedrock conductor.)

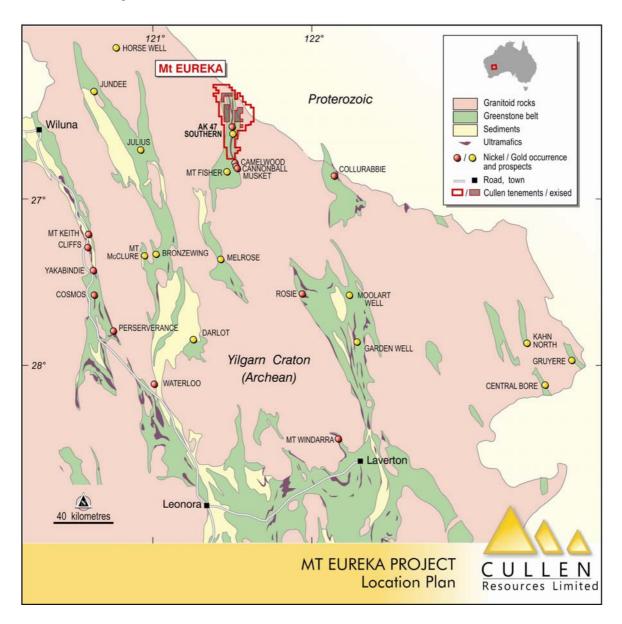


#### **NOTES**

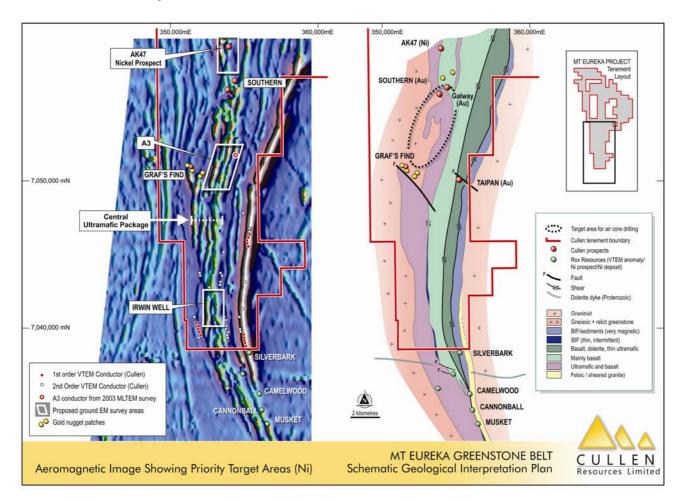
<sup>1</sup>SGH is a proprietary technology developed by Actlabs Laboratories Ltd (Actlabs) in collaboration with the Canadian Mineral Research Organization (CAMIRO), the governments of Ontario, Manitoba, Alberta, and Canada, as well as twelve major mining companies. This proprietary method extracts organic compounds adsorbed onto particles in the soil B horizon. It provides highly sensitive analysis of 162 organic compounds in the C5-C17 range using gas chromatography/mass spectrometry (GC/MS). Analysis utilizes a very weak leach to liberate the hydrocarbons from the sample. They are then separated using high capillary column gas chromatography. This method is designed to detect near surface redox variations present above deeply-buried, sulphide mineralization, and hydrocarbons produced directly from the sulphide source as a result of bacterial activity.

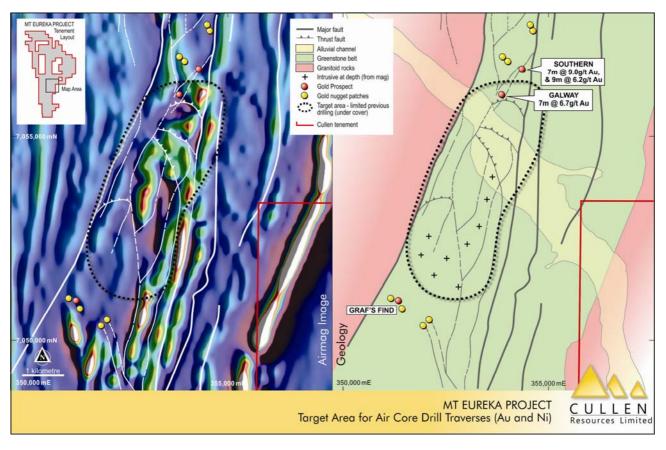
Over the past 14 years of research and investigation, Actlabs has developed an in-depth understanding of the unique SGH signatures associated with different commodity targets. Using a forensic approach Actlabs has developed target signatures or templates for identification, and the understanding of the expected geochromatography that is exhibited by each class of SGH compounds. (References: <a href="www.actlabs.com">www.actlabs.com</a>).

<sup>&</sup>lt;sup>2</sup> The term Redox cell, as used herein, refers to the presence of a local gradient or difference in oxidizing/reducing conditions within the regolith, or between regolith and fresh rock (for example sulphide).



Cullen holds 100% of ELs 53/1299, 1300, 1209, 1630, 1635, and 1637 in the Mt Eureka Greenstone Belt in the North Eastern Goldfields of Western Australia (approximately 500km²) with multiple targets for nickel sulphides and gold. The high nickel prospectivity of Cullen's ground is confirmed by the discovery of nickel sulphides by Rox Resources Limited (Rox) at Camelwood and Cannonball – Musket (Fisher East Project), located a few kilometres along strike to the south of Cullen's tenement boundary (Rox ASX release, ASX: RXL of 4/9/2014 describes an updated mineral resource for their project). The next phase of Cullen's exploration for nickel sulphides - ground EM over the AK47 prospect and the "A3" bedrock conductors - is planned to commence in February, pending suitable weather and ground conditions.





Cullen Resources Limited Mt Eureka – Gold Target Area

**ABOUT CULLEN**: Cullen is a Perth-based minerals explorer with a multi-commodity portfolio including projects managed through a number of JVs with key partners (Fortescue, APIJV (Baosteel/Aurizon-AMCI/Posco), Hannans Reward, Northern Star, Matsa and Thundelarra/Lion One Metals), and a number of projects in its own right. The Company's strategy is to identify and build targets based on data compilation, field reconnaissance and early-stage exploration (particularly geochemistry), and to pursue further testing of targets itself or farm-out opportunities to larger companies. Projects are sought for most commodities mainly in Australia but with selected consideration of overseas opportunities

#### ATTRIBUTION: Competent Person Statement

The information in this report that relates to exploration activities is based on information compiled by Dr. Chris Ringrose, Managing Director, Cullen Resources Limited who is a Member of the Australasian Institute of Mining and Metallurgy. Dr. Ringrose is a full-time employee of Cullen Resources Limited. He has sufficient experience which is relevant to the style of mineralisation and types of deposits under consideration, and to the activity which has been undertaken, to qualify as a Competent Person as defined by the 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Dr. Ringrose consents to the report being issued in the form and context in which it appears.

Information in this report may also reflect past exploration results, and Cullen's assessment of exploration completed by past explorers, which has not been updated to comply with the JORC 2012 Code. The Company confirms it is not aware of any new information or data which materially affects the information included in this announcement.

Dr Chris Ringrose, Managing Director

18 February 2015

# Data description as required by the 2012 JORC Code - Section 1 and Section 2 of Table 1

## Section 1 Sampling techniques and data

Criteria	JORC Code Explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.	Soil samples were collected on a regularly spaced rectangular grid with samples 100m apart. A handheld GPS is used to determine the sample locations.  Approx. 200-300g of soil is collected from 10-15cm below surface and placed in a plastic bag that is then sealed airtight.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	An equal aliquot of a random sample from the survey submitted is analysed as a laboratory replicate.  Due to the large number of hydrocarbon measurements, the estimate of method variability is reported as the percent coefficient of Variation (%CV).  A laboratory replicate analysis is reported at a frequency of 1 for every 15 samples analysed.  The variability of field duplicate samples (1 per 20) is similarly reported.
	Aspects of the determination of mineralisation that are Material to the Public report	SGH has been proven to be a deep penetrating geochemistry that is based on the analysis of surficial samples taken over potential mineral or petroleum targets. The analysis involves the testing for 162 specific hydrocarbon compounds in the C5-C17 carbon series range applicable to a wide variety of sample types. The hydrocarbons are residues from the decomposition of bacteria and microbes that have fed on the target commodity as they require inorganic elements to catalyze the reactions necessary to develop the organic hydrocarbons necessary for them to grow in their life cycle. In the death phase, the cells breakdown and the organic hydrocarbons migrate to the surface. Samples of various media have been successfully used with this geochemistry. These include soils (any horizon), sand, till, sill, drill core, rock, peat, humus, lake-bottom sediments and even snow. After preparation in the laboratory, the SGH analysis incorporates a very weak leach, essentially aqueous, that only extracts the surficial bound hydrocarbon compounds and those compounds in intersitial spaces around the sample particles. These are the hydrocarbons that are the decomposition products that have been migrated from the target depth. Specific classes of hydrocarbons (SGH) have been proven to be successful in delineating mineral and petroleum targets found at over 950 metres in depth.
	In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain Im samples from which 3kg was pulverised to produce a 30g 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.	The soil samples are air-dried at a relatively low temperature of 40°C.  The samples are then sieved and the -60 mesh sieve fraction (<250 microns) is collected as the "pulp" sample.  The collected "pulp" is packaged in a Kraft paper envelope and transported from the sample preparation department to the Organics/Forensics department at Activation Laboratories, Ontario.  Each sample is then extracted, 162 compounds separated by high resolution gas chromatography and detected by mass spectrometry at a Reporting Limit of one part-per-trillion (ppt or nanogram/Kg).
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, facesampling bit or other type, whether core is oriented and if so, by what method etc).	Not applicable – no drilling used
Drill Sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed	Not applicable – no drilling used
	Measurements taken to maximise sample recovery and ensure representative nature of the samples.	Not applicable – no drilling used
	Whether a relationship exists between sample recovery and grade and wether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	Not applicable – no drilling used
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.	The type of soil and the general landform are descriptively logged by experienced field staff.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel etc) photography.	Not applicable – no drilling used
	The total length and percentage of the relevant intersections logged	Not applicable – no drilling used
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and wether quarter, half or all core taken.	No subsampling or sieving is done in the field. The total soil sample is submitted to the laboratory and all sample preparation is done there.
	If non-core, whether riffles, tube sampled, rotary split, etc and whether sampled wet or dry.	The samples are sieved and the -60 mesh sieve fraction (<250 microns) is collected as the "pulp" sample.
	For all sample types, quality and appropriateness of the sample preparation technique.	SGH is a proprietary method developed by Activation Laboratories. All sample preparation is carried out at the laboratory and is considered appropriate and to industry standard, to the best of our knowledge.
	Quality control procedures adopted for all sub- sampling stages to maximise representavity of samples.	An equal aliquot of a random sample from the survey submitted is analysed as a laboratory replicate. A laboratory replicate analysis is reported at a frequency of 1 for every 15 samples analysed.
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field	Field duplicates are collected at a rate of 1:20.

	duplicate/second-half sampling.	
	Whether sample sizes are appropriate to the grain	Samples are taken in accordance with instructions from Activation Laboratories
	size of the material being sampled.	and are considered adequate in size for the analytical method used.
	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	This data is semi-quantitative and is presented in units of pg/g or parts-per- trillion (ppt) as the concentration of specific hydrocarbons in the sample. The number of samples submitted for this survey is adequate to spatially cover the survey area and use SGH as an exploration tool.
	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.	Not applicable – no such instruments used in the field.
Quality of assay data and laboratory tests	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.	No control procedures or external checks done.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel	Not applicable – no drilling used
V G	The use of twinned holes	Not applicable – no drilling used
	Documentation of primary data, data entry procedures, data verification, data storage (physically and electronic) protocols.	Not applicable – no drilling used
	Discuss any adjustment to assay data.	Not applicable – no drilling used
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 Resources estimation.	Soil samples located using a handheld GPS.
	Specification of the grid system used.	GDA94, MGA Z51
	Quality and adequacy of topographic control.	No topographic control.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Samples are 100m spaced.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Reserve and Ore Re4serve estimation procedure(s) and classifications applied.	Not applicable – no drilling used
	Whether sample compositing has been applied.	No compositing applied.
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.	Sampling is on a regular rectangular grid which is thought to be optimal at this early stage of exploration.
	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.	Not applicable – no drilling used
Sample security	The measures taken to ensure sample security.	All samples are collected and bagged by experienced field technicians and take to the laboratory by Cullen staff.
Audits or reviews	The results of and audits or reviews of sampling techniques and data.	No reviews or audits of techniques and data.
	•	•

## Section 2 Reporting of exploration results

Mineral tenements 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 interest, historical sites, wilderness or national park and environmental settings.	The samples are taken on E53/1299 which is held by Cullen Exploration Pty Ltd (Cullen). Heritage clearance has been obtained from the group representing the traditional owners.
	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 tenure is secure and there are no known impediments.
Exploration done by other parties	Acknowledgement and appraisal of exploration by other parties.	Previous work was done mainly by Cullen and comprised various sampling and drilling programmes.
Geology	Deposit type, geological settings and style of mineralisation	The sampling targets Archean orogenic gold deposits.
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)and the drill hole collar  • Dip and azimuth of the hole  • Down hole length and interception depth  • Hole length	Not applicable – no drilling used
	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.	
Data aggregation methods	In reporting Exploration results, weighing averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually material and should be stated.	The SGH results are interpreted and classed by Activation Laboratories.
	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.	Not applicable – no drilling used
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	Not applicable – no drilling used
mercept tengins	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Not applicable – no drilling used
	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')	Not applicable – no drilling used
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.	Diagrams depicting the distribution of SGH anomalies are attached.
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.	The shown diagrams depict the entire survey area.
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 containing substances.	Previous drilling in the area of the SGH survey has intersected gold mineralisation with grades of > 1g/t. However, little is known about the orientation and depth extension of such mineralisation and the results of this SGH survey will assist in further targeting.
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	Drilling of the SGH anomalies is planned.
	possible extensions, including the main geological interpretations and future drilling areas, providing this information is not commercially sensitive.	