

## **Aruma Resources Limited**

ABN 77 141 335 364 ASX: AAJ

ASX ANNOUNCEMENT 6 August 2014

# **BULLOO PROJECT DEVELOPING**

- Bulloo Downs Copper Project extends strike and width
  - > Portable XRF assays extend mineralised zones
  - Increased lengths of mineralisation at all prospects
  - Widths of gossans up to 10m
  - Historical workings and gossans define extensions

Gold and Copper explorer **Aruma Resources Limited (ASX: AAJ)** ("Aruma") is pleased to advise that sampling and mapping at its Bulloo Downs Copper Project (Bulloo Downs) in Western Australia has increased the strike of all copper trends and identified increased widths of gossans.



Figure 1 Bulloo Downs Copper Project leases on geology with structures



Bulloo Downs is developing into a new copper camp and contains many mapped and sampled copper outcrops. The area is developing into a highly prospective region for copper discoveries, with gold, silver, lead and zinc credits.

Aruma is now a major landholder in the area and has secured access to multiple mineralised structures. The recent XRF assays from the identified structures have identified mineralisation with width and length potentially capable of hosting copper (with lead, zinc, silver and gold credits) bodies with significant grades and tonnes.

With the new mapping program just completed within the lease areas, Aruma have extended the strike extent of the mapped structures and seen widths up to 10m for the gossans. The Company will fly over 1720km<sup>2</sup> HyVista Multispectral Scanning in September (to be combined with the previously flown 1050km<sup>2</sup>) to define and confirm further mineralisation targets.

Lease	Prospect	Sample	GDA94	GDA94	Copper	Lead	Zinc
Number	Name	Number	Easting	Northing	percent	ppm	ppm
E52/2429	Mountain Maid	AX43	751453	7313700	35.07	477	1046
E52/2429	Neds Gap	AX50	759628	7317758	16.77	13	826
E52/2429	Koode Maji	AB772	762338	7324899	15.90	169	568
E52/2464	Chandra	AB858	761276	7346729	7.63	<lod< td=""><td>357</td></lod<>	357
E52/2464	Chandra	AB859	761330	7346760	7.54	<lod< td=""><td>206</td></lod<>	206
E52/2464	Chandra	AB860	761451	7346835	6.23	<lod< td=""><td>95</td></lod<>	95
E52/2429	Mountain Maid	AX36	751547	7313750	0.82	155	ND
E52/2429	Mountain Maid	AX34	751669	7313819	0.69	9	27
E52/2429	Mountain Maid	AX35	751557	7313755	0.64	66	86
E52/2429	Koode Maji	AB773	762291	7324840	0.34	137	1080
E52/2429	Neds Gap	AX64	760188	7318182	0.29	860	247
E52/2429	Koode Maji SW	AB840	757466	7321863	0.24	734	1562
E52/2429	Koode Maji SW	AB854	756035	7320726	0.24	1342	<lod< td=""></lod<>
E52/2429	Koode Maji SW	AB836	757545	7321919	0.23	1437	762
E52/2429	Neds Gap	AX68	760192	7318192	0.22	46	87
E52/2429	Neds Gap	AX60	760157	7318168	0.21	247	169
E52/2429	Neds Gap	AX55	759918	7317981	0.21	155	69

## Table 1 Portable XRF Sampling Results greater than 0.2% Cu (full results at end of report)

NB \* in soil mode assays >10% are unreliable and should be treated as >10%

Magnetic data from various sources has been purchased and is being collated and reprocessed to assist in the recognition of further mineralised structures.

Notably some of the historic diggings, in the late 1800s, are thought to have been for gold as gossan material has been removed and the copper ores left scattered at surface. This would tie in with the Goldfields Creek workings at the north of E52/2024.



## **Sampling Notes**

Follow up sampling by hand held XRF and rock chip sampling has taken place on the Bulloo Downs Copper Project as part of the program to map and confirm mineralised structures in the recently acquired JV ground. Regional targets were tested at Koode Maji, Koode Maji SW, Neds Gap, and Mountain Maid.

On the initial project lease E52/2024, sampling extended the known Cu anomalism along the Chandra mineralisation to the north east onto the adjoining E52/2464.

Laboratory assay results from grab samples will be announced when they are received.

Each field mapping and sampling program identifies further zones and extensions and will be completed when the HyMap data and magnetics are available. This will give drilling targets that can be ranked and drilled in the latter half of the year.

## Chandra E52/2024 and 2464

## 8000m by 2m gossan zone with up to 7.63% Cu and 0.03% Zn

Field mapping identified a zone of previously unrecorded copper (and gold) prospecting along the northeast extension of the Chandra line of mineralisation. Located within E52/2464, the workings occur over a 200m strike length. Copper occurs as chrysocolla and malachite-azurite and has been mined along a 1-2m wide line of workings (Plate 1).

The Chandra line of mineralisation has now been identified over a strike length of 8km (previously 5.4km). A zone of 2km remains to be sampled to the south west of the recent mapping and sampling.





## Plate 1 Chandra extension workings

## Hard to Find ELA52/2887

## 100m by 2m gossan zone

As previously reported (21 July, 2014) a small zone of Cu mineralisation was mapped at the historic Hard to Find workings. The zone of anomalism was identified over a small strike extent of 100m in the Discovery Chert. Sampling will occur after this lease is granted.

## Koode Maji SW E52/2429

## 900m with up to 10m gossan zone with up to 0.24% Cu, 0.14% Pb and 0.16% Zn

Samples were taken along a line of gossan in a 20m to 40m wide fault zone. Anomalous results were recorded in two locations separated by a zone of alluvial cover. The main zone extends for a strike length of some 900m and is open to the north east where sampling and mapping is yet to take place. Significant thicknesses of gossan were noted, in places up to 10m wide 10m thick.

A smaller zone of 200m of identified anomalism occurs approximately 1000m south west from the larger zone. The zone's extensions to the south west are covered by recent alluvial cover.



## Koode Maji E52/2429

## 100m gossan zone with up to 15.9% Cu and 0.11% Zn

Mineralisation occurs as malachite and chrysocolla. The zone of mineralisation is some 100m long identified from historical workings and shallow costeans (Plate 2). Sampling using an Olympus Innovx XRF produced anomalous results with anomalous Cu up to 15.9%. The prospect is located on the northern margin of the lease E52/2429.



Plate 2

Koode Maji workings



#### Neds Gap E52/2429

#### 1100m by 2m gossan zone with up to 16.7% Cu, 0.12% Pb and 0.09% Zn

Historic workings and trenching occur over a strike length of 300m, with copper mineralisation as chrysocolla and malachite occurring in weathered clays in the Neds Gap fault zone usually adjacent to 0.5m to 2m wide vertical ironstones. The zone has been mapped and sampled by XRF for an additional 800m to the north east, making the identified strike length of the anomalous zone some 1100m. Ironstones and possible gossans after massive sulphides were mapped and sampled within and on both bounds of the Neds Gap Fault (Plates 3 and 4).

The structure remains to be sampled to the north east were it is identified for another 2.4km using HyVista spectral mapping data. The Neds Gap mineralisation extension to the south west is not visible due to colluvium covering the structure.



Plate 3 Gossan on western side of Neds Gap fault





## Plate 4 Ironstone on eastern side of Neds Gap fault outcropping in creek.

## Mountain Maid E52/2429

## 600m by 2m gossan zone with up to 35% \*Cu, 0.05% Pb and 0.1% Zn

The zone of anomalism was identified over a strike extent of 600m in ironstone within the Neds Gap fault and also within small shears in the dolerite along the Neds Gap Fault. The Mountain Maid mineralisation occurs some 8.4km to the south of the Neds Gap mineralisation.

NB\* In soil mode assays >10% are unreliable and should be treated as >10%.

**Other work** included the sampling and mapping of HyVista structures on tenements E52/2283, E52/2317 and E52/2803.

Structures on E52/2283 mapped included a 20m wide fault zone similar in style to the Keep it Dark south west structure. No anomalism was noted however and the fault lacked any significant ironstones where inspected. Further work is required on this structure as it has a similar style to Keep it Dark south west. One sample on E52/2283 recorded 857ppm Lead at 756448E 7359215N.



There remain significant lengths of strike of possible extensions of mineralised positions that have observable HyVista anomalies in the south and north of the project, that have not been field checked at this time.

Following the completion of the acquisition and processing of further HyVista and geophysical data, Aruma will undertake field surveys of these structures including mapping and sampling prior to any drilling program.

## **Current Exploration Program**

The acquisition and assemblage of all data will occur in the next two months so that a properly constructed drilling program can be undertaken.

#### Glandore

The Air Core programme is now booked to take place in August/September, whilst the HyMap and magnetics are being collected and processed at Bulloo Downs. Some 3,000m is programmed to cover the HyMap and Fluid Flow targets on the lake which is now dried out sufficiently to allow drilling.

#### Jundee South

A data package is currently under evaluation by a major operator in the district.

For further information please contact: Peter Schwann Managing Director Aruma Resources Limited Tel: +61 8 6389 1799 Mobile: +61 417 946 370 info@arumaresources.com

#### **Competent Person's Statement**

The information in this release that relates to Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Peter Schwann who is a Fellow of the Australasian Institute of Mining and Metallurgy and Chartered Professional (Geology). Mr Schwann is Managing Director and a full time employee of the Company. Mr Schwann has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Schwann consents to the inclusion in the release of the matters based on his information in the form and context in which it appears.



## Table 2Anomalous (>500 ppm Cu Assays from the Portable XRF survey)

	1		1	1		1	1
Lease	Prospect	Sample ID	Easting	Northing	Cu-ppm*	Pb-ppm	Zn-ppm
E52/2429	Mountain Maid	AX42	751452	7313700	590	95	<lod< td=""></lod<>
E52/2429	Mountain Maid	AX43	751453	7313700	35.70%	477	1046
E52/2429	Mountain Maid	AX38	751547	7313707	809	61	173
E52/2429	Mountain Maid	AX39	751548	7313707	1718	115	213
E52/2429	Mountain Maid	AX41	751490	7313722	1786	545	72
E52/2429	Mountain Maid	AX36	751547	7313750	8152	155	<lod< td=""></lod<>
E52/2429	Mountain Maid	AX35	751557	7313755	6371	66	86
E52/2429	Mountain Maid	AX34	751669	7313819	6876	9	27
E52/2429	Mountain Maid	AX29	751784	7313865	851	25	27
E52/2429	Neds Gap	AX50	759628	7317758	16.80%	13	826
E52/2429	Neds Gap	AX55	759918	7317981	2086	155	69
E52/2429	Neds Gap	AX57	760091	7318112	1344	1179	268
E52/2429	Neds Gap	AX58	760087	7318116	1613	689	343
E52/2429	Neds Gap	AX59	760133	7318141	1481	1119	287
E52/2429	Neds Gap	AX62	760171	7318165	1101	237	227
E52/2429	Neds Gap	AX60	760157	7318168	2088	247	169
E52/2429	Neds Gap	AX65	760188	7318180	984	123	448
E52/2429	Neds Gap	AX61	760175	7318181	1542	990	359
E52/2429	Neds Gap	AX64	760188	7318182	2920	860	247
E52/2429	Neds Gap	AX67	760188	7318186	1319	245	159
E52/2429	Neds Gap	AX68	760192	7318192	2168	46	87
E52/2429	Neds Gap	AX70	760245	7318206	714	51	150
E52/2429	Neds Gap	AX71	760303	7318251	1429	<lod< td=""><td><lod< td=""></lod<></td></lod<>	<lod< td=""></lod<>
E52/2429	Neds Gap	AX72	760317	7318261	1175	171	57
E52/2429	Koode Maji SW	AB848	757154	7321614	159	623	759
E52/2429	Koode Maji SW	AB847	757235	7321652	261	347	1592
E52/2429	Koode Maji SW	AB846	757251	7321661	310	334	727



Lease	Prospect	Sample ID	Easting	Northing	Cu-ppm*	Pb-ppm	Zn-ppm
E52/2429	Koode Maji SW	AB842	757419	7321825	1612	64	702
E52/2429	Koode Maji SW	AB844	757266	7321832	<lod< td=""><td>849</td><td>53</td></lod<>	849	53
E52/2429	Koode Maji SW	AB840	757466	7321863	2375	734	1562
E52/2429	Koode Maji SW	AB841	757472	7321866	1082	1369	1185
E52/2429	Koode Maji SW	AB839	757500	7321877	958	169	754
E52/2429	Koode Maji SW	AB837	757513	7321897	233	1219	351
E52/2429	Koode Maji SW	AB836	757545	7321919	2317	1437	762
E52/2429	Koode Maji SW	AB835	757590	7321953	991	1408	572
E52/2429	Koode Maji SW	AB831	757648	7321994	283	1448	634
E52/2429	Koode Maji SW	AB827	757746	7322066	<lod< td=""><td>908</td><td>91</td></lod<>	908	91
E52/2429	Koode Maji SW	AB826	757768	7322071	<lod< td=""><td>502</td><td>137</td></lod<>	502	137
E52/2429	Koode Maji SW	AB820	757821	7322075	648	284	254
E52/2429	Koode Maji SW	AB825	757759	7322075	<lod< td=""><td>605</td><td>212</td></lod<>	605	212
E52/2429	Koode Maji	AB774	762269	7324819	540	<lod< td=""><td>57</td></lod<>	57
E52/2429	Koode Maji	AB773	762291	7324840	3401	137	1080
E52/2429	Koode Maji	AB772	762338	7324899	15.90%	169	568
E52/2429	Koode Maji SW	AB852	756172	7320809	486	1426	64
E52/2429	Koode Maji SW	AB853	756103	7320743	581	236	<lod< td=""></lod<>
E52/2429	Koode Maji SW	AB854	756065	7320726	2426	1342	<lod< td=""></lod<>
E52/2464	Chandra	AB858	761276	7346729	7.60%	<lod< td=""><td>357</td></lod<>	357
E52/2464	Chandra	AB859	761330	7346760	7.50%	<lod< td=""><td>206</td></lod<>	206
E52/2464	Chandra	AB860	761451	7346835	6.20%	<lod< td=""><td>95</td></lod<>	95

\*Note that Copper Assays have been reported as % over 1% Cu



## **Section 1 Sampling Techniques and Data**

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul> <li>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 handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (e.g. '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 (e.g. submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul> <li>Handheld XRF sample of rock sample or soil On the HyMap anomalous structures. These were sampled with the Niton hand held XRF where the presence of goethite was noticed. Multiple readings were done with a hand specimen for later analysis was also obtained for samples over 0.2% Cu It soon became obvious that where no goethite was present, no copper could be detected (Limit of Detection). These were confirmed by assays at SGS.</li> </ul>
Drilling techniques	• Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. 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.).	<ul> <li>No Drilling done</li> </ul>
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>	<ul> <li>No Drilling done</li> </ul>
Logging	<ul> <li>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul> <li>No Drilling done</li> </ul>
Sub-sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>Measures taken to ensure that the sampling is representative of the in situ material collected, including for</li> </ul>	No Drilling done

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#### **BULLOO PROJECT DEVELOPING**

Criteria	JORC Code explanation	Commentary
	<ul> <li>instance results for field duplicate/second-half sampling.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</li> <li>Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie. lack of bias) and precision have been established.</li> </ul>	<ul> <li>Niton XRF, Soil sampling mode, 30 second read, no calibration factors applied, no QC data undertaken as not relevant to this stage of exploration</li> <li>Assays at SGS by AR133, AAS42S and AAS43B.</li> </ul>
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul> <li>Assays at SGS by AR133, AAS42S and AAS43B.</li> </ul>
Location of data points	<ul> <li>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul><li>Sample location by GPS.</li><li>All locations are GDA94 Zone 50</li></ul>
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>Preliminary Field sampling, data spacing is based on availability of outcrop</li> </ul>
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</li> </ul>	<ul> <li>No Drilling done</li> </ul>
Sample	The measures taken to ensure sample security.	Samples digitally and physically recorded.



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Criteria	JORC Code explanation	Commentary	
security			
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	<ul> <li>No audits or reviews were deemed necessary outside of internal standards as this is purely qualitative assaying for exploration.</li> </ul>	

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

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

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</li> <li>The security of the tenure held at the time of reporting along with any known impediments to obtaining a license to operate in the area.</li> </ul>	<ul> <li>All tenements and issues required are detailed in the reports.</li> <li>All work done under PoWs.</li> </ul>
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Previous work on the area not applicable
Geology	Deposit type, geological setting and style of mineralisation.	Structurally controlled Hydrothermal     Copper
Drill hole Information	<ul> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: <ul> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul>	• All in the report

#### **Aruma Resources Limited**

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Criteria	JORC Code explanation	Commentary
Data aggregation methods	<ul> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul> <li>Robust results with spikes identified to mineralogy</li> </ul>
Relationship between mineralisation widths and intercept lengths	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').</li> </ul>	<ul> <li>N/A Field observations in weathered rock and soil</li> </ul>
Diagrams	<ul> <li>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</li> </ul>	• As done
Balanced reporting	<ul> <li>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.</li> </ul>	<ul> <li>All samples on the leases are shown graphically and/ or have been previously reported</li> </ul>
Other substantive exploration data	<ul> <li>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.</li> </ul>	<ul> <li>HyVista data and figures and the relationship with the Aruma exploration and genesis model are detailed in many previous reports and presentations.</li> </ul>
Further work	<ul> <li>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	• As detailed in the report.