

# Base Metal mineralisation identified in initial drilling at Cauldron's Marree Project

# <u>HIGHLIGHTS</u>

- Reconnaissance drilling returns significant Ag assays and anomalous Pb, Cu values.
- Geochemical analysis, geological mapping and drill and rock chip samples indicate multiple mineralised alteration systems with potential for multiple deposit types including:
  - Carbonate hosted breccia Pb-Ag-Cu
  - Carbonate altered fractures Pb-Ag-Zn
  - Sedimentary exhalative mineralisation Pb-Ag.
- New targets in large complex alteration zones prospective for multiple styles of mineralisation.
- Gravity survey shows a western extension to the highly prospective historical Ooloo Mine buried under cover.
- Traditional Owner agreement near completion for high priority drill sites.
- Future priorities include:
  - Geochemical sampling targeting geological contacts and carbonate alteration zones;
  - Reprocess historical 2D inverse polarisation geophysics data in Ooloo region using modern 3D technology; and
  - Additional geological and structural mapping to identify alteration zones and favourable structures.

Australian resources company, Cauldron Energy Limited **(ASX: CXU)** ("Cauldron" or "the Company") wishes to update the market on the progress of its base metals discovery at Marree in South Australia (refer ASX Announcement dated 17 October 2012).

Commenting on the planned drilling, Cauldron head of operations, Mr Simon Youds, said, "The main aim of drilling was to test for the continuation at depth of mineralised gossanous veins and Adelaidean aged sedimentary exhalative (SEDEX) type mineralisation seen at surface".

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In total eight reverse circulation (RC) holes were drilled totalling 898 metres of drilling (Figure 1). The drill rig used for the program proved inadequate for the ground and water conditions encountered, with the majority of holes failing to intersect designed targets. However, anomalous silver, lead and copper mineralisation was identified with the most significant intercepts shown on Table 1.

Hole	Eacting	Northing	Din	A-i	TD	From	То	Interval	Au	Ag	Cu	Pb	Zn
Number	Easting	Northing	Dib	A21	m	m	m	m	ppm	ppm	ppm	ppm	ppm
MRRC001	331133	6698806	-75	335	142	Failed to drill target							
MRRC002	331415	6698906	-60	118	166	143	145	2				1205	
						146	147	1				6600	
						143	148	5		3.78			
MRRC003	335882	6698435	-60	312	120	Failed to drill target							
						114	115	1			2670		
MRRC004	333355	6699339	-60	22	94	Failed to drill target							
MRRC005	330845	6698772	-60	360	118	6	9	3				1293	
MRRC006	331047	6698547	-60	320	100	No significant Assay Results							
MRRC007	335887	6698445	-60	315	88	Failed to drill target							
MRRC008	335913	6698515	-60	295	70	Failed to drill target							

## Table 1 Significant Drill Intersections. Co-ordinate datum GDA94 (MGA54)

Due to the limitations of the drill rigs capacity in the conditions encountered, the majority of the holes failed to reach target depth and as such target zones were not adequately tested. Three of the eight holes returned anomalous base metal values although lower than anticipated based on the mineralisation values seen at surface. This is interpreted to be due to the presence of a depleted zone which is deeper than anticipated below outcropping mineralisation where the original sulphides have been heavily oxidised and leached from the area.

The gossanous veins drilled showed anomalous base metal mineralisation but appeared to be thin and suggest a later re-mobilisation of mineralised fluids from other sources within the region. These veins indicate a large volume of mineralised fluid moving throughout the project region, but as yet no economically significant deposits have been defined.

Drilling of the SEDEX style mineralisation identified anomalous base metal mineralisation. This mineralisation is located within Wilpena Group sediments where it follows folded bedding of Adelaidean aged sediments. This mineralisation represents in-situ sea-floor accumulations from likely sources such as black smokers.

Based on the drilling results the SEDEX style model for base metal mineralisation tested to date is of a low volume but does confirm that there is continuation at depth.

Mr Simon Youds stated that "Although the tenor of mineralisation identified at the SEDEX style targets were lower than expected, it is encouraging to have confirmed that Adelaidean aged SEDEX style mineralisation is located within the project".

"This initial phase of drilling was primarily aimed at confirming the models for mineralisation and creating a basis from which we can conduct further detailed exploration to identify possible economic scale base metal deposits."



#### Overview

Mineralisation is located in Proterozoic aged Adelaidean sediments within the Curnamona Province. Within the Marree Project, previous geological interpretation had these units covered by more recent sediments that are more favourable for sandstone hosted uranium mineralisation (e.g. Beverley and Beverley Four-Mile Uranium Deposits).

The Company has determined outcropping Proterozoic units, favourable for base metal mineralisation, are much more extensive than previously believed.

Within the Marree Project, there are several silver-lead-zinc-copper prospects that were identified and mined in the 1920's and 1930's. Some of these prospects indicate multiple lodes over several hundred metres strike. They appear as small scale operations with exceptional metal tenor.

#### **Geological Models for Mineralisation**

Follow-up geological mapping completed at the end of the drilling program has identified two new geological models for mineralisation at the Marree Project which have not yet been tested.

The first model is karst style deposits created by breccia forming within sedimentary carbonate units. Historical deposits such as Billy Springs Pb-Ag-Cu deposit located 10 km southeast of the CXU tenements show this type of model. There appears to be an extension of carbonate units that host numerous historical mines including the Billy Springs Deposit below recent cover which has a strike of over 15km from outcrops occurrences.

The second model is a carbonate alteration of the primary rock along structures (Figure 2). This type of alteration is known as carbonate metasomatism and is essentially a chemical alteration of the primary rocks by hydrothermal fluids. Geochemical analysis of the rock chips collected to date show that there are alteration zones at some of the historical workings. There is both calcium and magnesium flooding in the form of limestone and dolomite rich fluids as well as siderite alteration resulting in increased iron, magnesium and manganese fluids filling structures such as localised faults. Ore minerals such as lead, silver and zinc appear to have a close association with the carbonate alteration zones.

Geological mapping completed at the conclusion of the drilling program has identified carbonate altered outcrops within the primary sandstone unit which has been partially covered with recent sediments. Further exploration of these high priority exploration areas is highly recommended.

#### **Future Priority Regions**

An area which still remains of major interest is the site of the historical Ooloo mine for silver, lead and minor copper. This was an operation with two shaft accesses to underground workings that operated from 1923 to 1937. There were two mineralised zones referred to as the north lode and south lode which are 250 metres apart at the surface. Access to the area is restricted due to incomplete but ongoing negotiations to develop an Exploration and Mining Agreement with Dieri people who are the Traditional Owners of the area.



Historical reports from Ooloo Mine report that there is a strong likelihood that the north and south lodes actually merge at depth. In 1969 to 1970 Mid-East Minerals completed a series of Induced Polarisation (IP) transects. The conclusion from this work was that most of the lines were severely affected by recent alluvium at the surface making it hard to distinguish anomalies at depth. The report does however state that strong anomalies were identified at depth but could not be confirmed due to the alluvium cover.

Modern geophysical processing can reprocess the historical 2D data and create a 3D model where surface noise can be minimised so the alluvium cover can be removed from the interpretation so that deep anomalies become more distinguishable.

Cauldron is currently sourcing an experienced geophysicist to complete the reprocessing of the historical IP data. This work is expected to identify deep mineralised zones and will assist in showing the regions where further geophysics is needed to define exploration targets.

The Company believes the style of mineralisation at Marree could be derived from concealed sediment-hosted mineralisation from SEDEX or breccia style deposits or from granitic sources where mineralised hydrothermal fluids are injected into late cross-cutting structures. Geochemical results from soil and rock chip sampling indicate high Pb & Ag metal presence with suggestions of multiple sources. These are being used to help refine the exploration target model; attempting to understand primary metal source, timing and emplacement mechanisms and controls on mineralisation.

### Future Exploration Work

Due to extensive transported cover of the tenements the potential for concealed positions exists with strong indicators that base metals exist in various locations throughout the project. The following activities are being considered with preliminary planning in progress.

#### Geochemistry

Additional soil sampling and rock chip sampling is recommended to identify both buried sedimentary carbonate units where breccia style mineralisation could exist as well as identify any hydrothermal carbonate alteration.

Due to extensive transported cover over parts of the project area bedrock geochemistry is seen as an option to locate anomalous readings in the deeper, older rocks. An auger rig could be used to drill to the top of the target horizons to allow for targeted bedrock geochemistry.

### Mapping

The aim of mapping over selected areas will be to: -

- 1. Develop further understanding of the main geological units and the stratigraphic sequence
- 2. Develop a structural interpretation for the region with an understanding of timing of these events
- 3. Determine the likely sources of the anomalous base metals observed



- 4. Evaluate the timing of mineralisation in the various geological models
- 5. Identify areas of chemical alteration
- 6. Provide guidance towards areas where greater focus is justified

#### **Geophysical Surveys**

The immediate geophysical work that needs to be completed is the re-processing of the historical IP data collect in 1969 to 1970.

Once the re-processing has been completed a critical review of what can be identified using IP needs to be completed to justify whether additional IP work is needed. If the IP re-processing does show deep targets then further IP lines should be completed where surface alterations have been identified.

Other geophysical techniques need to be assesses, particularly airborne surveys which can cover large areas in a short amount of time and with less cost. The most likely technique is to complete further airborne EM over the prospective regions.



**Figure 1** – Marree Base Metal Project drill hole location map and geological interpretation shown with gravity and magnetic images in the background







**Figure 2** – Photographs taken from the historical Ooloo Mine North Lode showing structure related carbonate alteration. This represents a new mineralisation model for the Marree Project region.

The photograph insert shows an enlarged section of a siderite altered ore vein surrounded by hydrothermal dolomitic limestone alteration of the primary rock.

Subsequent geological mapping at the conclusion of the drilling program has identified surface outcrops showing identical carbonate alteration which are partially concealed by recent cover.



### End.

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### **Disclosure Statements**

#### Analytical Method

Laboratoty:- Australia Laboratory Services Pty Ltd (ALS)

Techniques used:

- ME ICP61 Four Acid "Near Total" Digestion for 33 elements (Inductively Coupled Plasma with both Atomic Emission Spectrometry and Mass Spectroscopy)
- Au AA25 Ore Grade Fire Assay Fusion

### **Competent Person Statement**

The information in this announcement that relates to Cauldron Energy Limited's Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Mr Brett Smith who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Smith is a Director of Cauldron Energy Limited. Mr Smith has sufficient experience which is relevant to the styles of mineralisation and types of deposits under consideration. Mr Smith is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Smith consents to the inclusion in the announcement of the matters based on the information in the form and context in which it appears.