Targeting Gold Mineralisation Below Lake Way, near Wiluna – A Potential Geochemical Method for Exploring the Extensive Salt Playa Lake System of Western Australia

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Project Location Plan
Lake Way Auger Geochemical Programme

- Lake Way is located immediately south of Wiluna in the Eastern Goldfields of WA.
- Lake Way provides the opportunity of examining geochemical dispersions in a salt lake with a relatively shallow cover ~ 2 to 12m and near neutral pH ~ 6.5.
- Archaean epigenetic gold mineralisation hosted by a monzogranite porphyry dyke – the Williamson Lode that was originally located using expensive track mounted air core drilling techniques.
- Typical greenstone sequence of tholeiitic basalt, high Mg basalt, komatiites and intercalated volcaniclastic units.
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Lake Way Gold Prospects

Williamson Lode
3.23 Mt @ 2.3 g/t Au
Williamson Lode – initial auger geochemical traverses

Monzogranite dyke hosting Williamson Lode

Auger traverses
Williamson Lode – Cross Section 7035880N showing auger geochemical Au (ppb) anomaly in lake sediments
Lake Way Auger Geochemical Programme

Programme Aims

• To provide a cost effective method of exploring the extensive playa lake system in the East Yilgarn of Western Australia

• Establish the optimum sampling medium or depth & sample density

• Define partial geochemical analytical methods and trace element suites that will potentially define mineralisation under the lake cover.
Lake Way Auger Geochemical Programme

Practical considerations

- Playa lakes in the Eastern Goldfields can be filled with > 100m of transported sediments particularly along their eastern boundaries.
- Hypersaline regime with TDS >35,000 mg/l and relatively acid pH readings ~ 4 to 6.5
- Trace element dispersions in the salt lake environment are still poorly understood despite the excellent work at Lake Lefroy by Michelle Carey & co-workers at WMC Ltd.
- Lake Way provides the opportunity to examine geochemical dispersions associated with epigenetic gold mineralisation.
Lake Way Auger Drilling
Auger interval showing Playa Transition & Saprolite Zones
Lake Way
Regolith Units –
Playa Transition
Zone

Playa Transition Zone
- showing fine
grained pisolites
Lake Way
Regolith Units - Saprolite

Saprolite - showing saprock clasts
Partial Geochemical Orientation Programme

**Traverses selected:**
- 7037400N *(Ore Zone)*
- 7036400N *(Weak mineralisation/background)*

**Auger Drill holes at 50 m intervals**

**Analytical Methods used (6):**
- Aqua Regia (B-EDTA) Method – Genalysis
- Sodium pyrophosphate - Genalysis
- Conc (10M) HCl & dilute (4M) HCl – Ultra Trace Labs
- Hot Cyanide (CN) Leach – Ultra Trace
- Enzyme Leach - Actlabs
Partial Geochemistry Orientation Survey

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Lake Way Gold Prospects

Williamson Lode
3.23 Mt @ 2.3 g/t Au
Lake Way Orientation Traverses

Williamson Lode

Trav 7036400N

Trav 7037400N
Weakly mineralised/background drill hole section 7036400N

BOCO

120 ppb Au

30 ppb Au
Lake Way Regolith Units

Lake Clays  0 – 5.5 m (Average thickness - 3 m)
Playa Transition Zone (incl fine pisolites) 3 – 9.5 m (Average depth – 4 m)
Saprolite Zone  4 – 12.2 m  (Average depth – 5 m)
Aqua Regia Digest – Au, Pt & Pd

Transition

- Au_ppb
- Pd_ppb
- Pt_ppb

Saprolite

- Au_ppb
- Pd_ppb
- Pt_ppb

7036400N
7037400N
Aqua Regia Digest – As, Ag, U & Sb

Transition

Saprolite

7036400N

7037400N
Mineralised Drill Hole Section – 7037400N
- potential deep Au target based on AR
Digest of the Transition & Saprolite Zones
Conc (10M) HCl Digest – Cu, Cd, Bi & I

Transition

Saprolite

Cd ppb

Bi, I ppb, Cu ppm

7036400N

7037400N
Dilute (4M) HCl Digest – Cu, Cd, Bi & I

Transition

Saprolite

Cd ppb

Bi, I ppb, Cu ppm

7036400N

7037400N
Mineralised Drill Hole Section – 7037400N
- potential deep Au target based on Transition Zone sampling using partial HCl digests
Na Pyrophosphate Digest – Au, Ag, As & U

Graphs showing the concentrations of Au, Ag, As, and U (in ppb) for samples 7036400N and 7037400N.
Na Pyrophosphate Digest – Cu, Cd, W & Mo

Transition

Saprolite

7036400N

7037400N

Cd, W ppb

Cu, Mo ppm

Cd _ ppb

W _ ppb

Cu _ ppm

Mo _ ppm
Hot CN Digest – Au, Ag Pt & Pd

Transition

Saprolite

Ag, Au, Pt ppb, Cu ppm

7036400N

7037400N
Mineralised Drill Hole Section – 7037400N – potential deep Au target based on Transition Zone sampling using Na pyrophosphate & Hot CN Digests
Weakly mineralised/background drill hole section 7036400N – possible Au target based on Transition Zone sampling using Na pyrophosphate & Hot CN Digests

120 ppb Au

BOCO

30 ppb Au
Enzyme Leach – Au, Te, Cd & Y

Transition

Saprolite

Cd, Te, Y ppb

Au ppb

Cd

Te

Au

Y

7036400N

7037400N
Mineralised Drill Hole Section – 7037400N – potential Au target based on Transition Zone sampling using Enzyme Leach

350 ppb Au

BOCO

350 ppb Au

420 ppb Au
Partial Geochemical Orientation Programme – Result Summary

**Saprolite Zone Sampling:**

- All digestion methods satisfactory
- AR digest achieved Au, Pt, Ag & As anomalies that were followed up successfully by air core drilling

**Disadvantages** – deeper lake auger drilling required, ie > 5m, and relatively narrow dispersions, ie ~ 50m.
Partial Geochemical Orientation Programme – Result Summary (cont)

Playa Transition Zone Sampling:

- Broad (>100 m) dispersion haloes achieved by all partial digests
- Broad target element anomalies (Au, Ag & Pt) achieved by Conc & Dilute HCl
- “Rabbit ears” and apical anomalies for Cd, I, Bi & Cu in Conc & Dilute HCl data may indicate a deeper target
- Na pyrophosphate responsive with broad As, U, Cd, W & Cu anomalies
- Enzyme Leach has produced very broad (~ 150 m) apical anomalies for Au, Cd, Te, Mo & Y.
Lake Way Auger Drilling - Results
Lake Way Auger Geochemistry
Aqua Regia Au (ppb) Images

Depths - 0 – 4 m

Depths > 4 m

Williamson Lode
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Distribution of Elements in Lake Way Regolith Units – Fe (%)
Distribution of Elements in Lake Way Regolith Units – Au (ppb)

Distribution of Au within the Lake Way Regolith

- Min-Max
- 25%-75%
- Median value

Au (ppb)

Lake Clays  |  Transitional  |  Saprolite

-2  |  0  |  2  |  4  |  6  |  8  | 10
Distribution of Elements in Lake Way Regolith Units – Pt (ppb)
Distribution of Elements in Lake Way Regolith Units – As (ppm)

Distribution of As within the Lake Way Regolith

- Min-Max
- 25%-75%
- Median value

As (ppm)

Lake Clays  Transition  Saprolite
Distribution of Elements in Lake Way Regolith Units – Cu (ppm)
Distribution of Elements in Lake Way Regolith Units – U (ppb)

Distribution of U within the Lake Way Regolith

- Min-Max
- 25%-75%
- Median value

U (ppb)

Lake Clays  Transitional  Saprolite