EL30309 HALE RIVER
SECOND ANNUAL AND FINAL REPORT
covering the period
26/01/2016 to 8/6/2016

1:250,000 Map Sheets: SG53-02 Rodinga and SG53-03 Hale River
1:100,000 Map Sheets: 5849 Pellinore and 5949 Todd
Target Commodity: Gold
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Date: 30/7/2016

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ABSTRACT

Following a broad search for Australian sedimentary basin environments which might emulate characteristics thought important in localising Carlin-like gold mineralization in Nevada and the Golden Triangle of China, the north-eastern extremity of the Amadeus Basin was selected for further evaluation. Open file search revealed that gold search had been minimal but arsenic, a pathfinder for this type of deposit, had been analysed for by a number of companies during base metal search. Anomalous arsenic, with and without an association with Cu, Pb or Zn, figured in stream sediment and regional lag sampling programmes conducted by Normandy in this region. EL30309, a 20 sub-block area 250km east of Alice Springs covering one of the better defined of the Normandy anomalies 5km west of Hi Jinks Bore on Ringwood Station, was applied for in April 2014 in order to test whether this type of mineralization might exist in the area. Geological and regolith interpretation at 1:50,000 scale on processed Landsat 8 imagery confirmed and refined existing published geology for planning of more detailed geochemical surveys. The EL was granted in January 2015.

Three arsenic anomalies, HR1 West and HR1 East (the Normandy Hi Jinx anomaly) both in the limestone-siltstone sequence of the Ringwood Member of the Aralka Formation and RO2 in glacially derived sediments of the Olympic Formation were sampled during 2015 as bottom-of-hole cuttings from power auger holes drilled to refusal (normally bedrock) at 50m intervals, locally closed to 25m, along 5 traverses at HR1 West and one each at HR1 East and RO2. Geochemical analysis was for Au and 40+ other elements following aqua regia digestion. At HR1 West, As, Sb and Tl are anomalous and Au, Mo, Cu and Pb weakly so within a 300m wide, 1km long zone paralleling the strike of the rocks, mainly calcareous siltstone and silty limestone. Tl/K ratio is negative through much of the zone, Sr/Tl positive, with both of these signatures said to be used as indicators of Au mineralization in Nevada. HR1 results are suggestive of being related to Carlin-like mineralization. HR1 East results showing a weak Cu-Pb-Zn-As-Mn anomaly is more suggestive of SEDEX type mineralization. RO2 showed no anomalous values and it is concluded that the Normandy anomaly, where auger drilled, may have resulted from downhill displacement of lag.

A diamond drill hole seeking confirmation of the mineralization type at HR1 West through some combination of rock alteration (visible decarbonatisation, clay alteration, visible orpiment or realgar) and geochemistry was proposed for 2016 and a hole planned. To assist with funding, application was made for support under the NT Geophysical and Drilling Collaborations program but this was unsuccessful. With external funding unlikely before there were stronger indications of gold mineralization, reliance for funding needed to remain on the pension being drawn by the owner from his Self-Managed Superannuation Fund. Policy changes by the major parties at the Federal level meant that government would progressively look to raising revenue from superannuation savings. With the risk that this could leave nothing surplus above living costs for funding exploration, the decision was made to abandon the project and the EL was surrendered on June 6, 2016.
1. LOCATION, TENEMENT HISTORY AND ACCESS

EL30309 was situated approximately 250km east of Alice Springs. It consisted of a contiguous area of 20 Blocks (62.72 sq km) straddling the boundary between 1:250,000 Sheets SG53-02 Rodinga and SG53-03 Hale River and the boundary between 1:100,000 Sheets 5849 Pellinore and 5949 Todd. It lay entirely within the pastoral property Ringwood Station (PIC TDAS0079). See Map 1.

EL30309 was applied for on 23/3/14 and granted on 27/1/15 for a period of 2 years. The annual report for 2015 was submitted in April 2016. Application for surrender of the EL in its entirety was lodged on 3/6/16 and the tenement surrendered on 8/6/16.

Access from Alice Springs is via the sealed Ross Highway for 29km from its junction with the Stuart Highway and then along the formed gravel Numery Road for 100km to its junction with a station road, 11km past the Ringwood Station homestead. This station road leads southward for 20km to Middle Bore, passing through what was the northern part of EL30309. Access to the southern part of the EL was from the station road linking Middle Bore to High Jinks Bore, 13km to the south-east.
2. GEOLOGICAL SETTING, EXPLORATION HISTORY AND EXPLORATION RATIONALE

The EL was situated towards the north-eastern corner of the large segment of the Amadeus Basin exposed south of the McDonnell Ranges. Upper Proterozoic, Ediacran and Lower Palaeozoic stratigraphy, extending from the basal Heavitree Quartzite to Devonian Mereenie Sandstone, is exposed. The rocks are folded into a north-east to east-west trending series of broad synclines and somewhat tighter anticlines. Thrust faulting modifies the pattern, juxtaposing Proterozoic rocks on Palaeozoic units in the east but much less spectacularly to the west. Thrust faults strike north-east to east-west and dip west or north. A few in the north strike north-west and dip south-west.

The area was selected following an extensive literature search aimed at assessing the potential for Carlin-like gold deposits in Australia. Some of the search parameters developed for exploration in the Golden Triangle of southern China appeared to have broader application and were used as a filter during the Australian research.

Common regional features of the known fields of Carlin-like deposits include:

- Sedimentary basin with extensive development of carbonates overlain by siliclastics commonly carbonate rich; both carbonaceous and pyritic in part.
- Deep faulting and several periods of contractional and extensional tectonics resulting in complex structural architecture and multiple rejuvenation of faults.
- Evidence of hydrocarbon development in the carbonate sequence.
- Little or no evidence of igneous activity.

Common deposit features include:

- Individual deposits are controlled mostly by structure. Host rock characteristics are known to have some control on ore. A relative few have their greatest expression as stratabound mineralization.
- Gold in unoxidised ore is mainly located in arsenian overgrowths on pre-ore (diagenetic and early mineralizing phase) pyrite and in fine grained pyrite. Some occurs in arsenopyrite.
- Alteration in the form of decarbonatisation expresses itself as bleaching extending a few metres out from the lode.
- More arsenic, as orpiment and realgar, is deposited as open space fillings during the waning stage of mineralization. Antimony as stibnite and mercury as cinnabar are also deposited in a similar fashion during this phase. The arsenic minerals can occur up to a hundred metres or so out from the deposit; stibnite even further and the mercury further still.
- Base metal sulphides and barytes are generally rare but occur as early mineralizing phase minerals in a few deposits.

The Amadeus Basin was one of a very few Australian basins with these regional features. The north-eastern part of the basin was targeted because there appeared to be more faulting apparent at surface and the units considered more likely to host Carlin-like mineralization were well exposed.

Literature search revealed no indication of gold having been found in the area. Open File research showed campaigns of exploration stretching back to the 1960’s targeting mainly
base metals but including uranium and diamonds. Most of these used stream sediment and/or soil geochemistry as the primary search tool. Normandy was the most active identifying a number of areas for grid sampling of lag. Very few of the regional geochemical samples were analysed for gold and there were no anomalous values but arsenic was routinely assayed for. With its constant association with Carlin-like mineralization, arsenic can be a useful pathfinder and WEC identified a number of discrete anomalies in the region from Normandy sampling.

This was sufficient incentive for the selection of a small block of ground containing several As anomalies for EL application within the then very limited ground available for application in the area. The objective was to determine the nature of mineralization producing the surface anomalies and, if Carlin-like mineralizing fluids appeared to have been active, to develop a plan to assess the Au ore potential of the EL and more broadly in the area.

EL30309 was applied for in March 2014. During 2014 there was also a more detailed review of previous exploration within the application area. Normandy in 1991 and 1992 had undertaken regional lag sampling over an area which covered most of the EL30309 blocks. The regional lag sampling (lag continuously sampled over 200m intervals along lines nominally at 2km spacing) resulted in three 2km spaced lines through the northern part of EL30309 and 6 of narrower spacing covering a stream sediment anomaly 5km west of Hijinks Bore which has been given the prospect name of HR1 by WEC. Anomalous base metal values from this survey prompted grid sampling, on 200m spaced lines and using the same lag parameters, over three areas within or mostly within the boundary of EL30309 – HR1, one in the north named prospect RO2 and one near the centre of the EL named HR4. Figures 2 and 3 of the 2016 Annual Report show the location of the lines sampled and summarise the As geochemistry. Mapinfo TAB files of these results form part of Appendix 2 of this report. All three areas had samples with anomalous As values, HR1 the most and in two areas designated HR1 West and HR1 East. These results were used to plan auger drilling and geochemical sampling at HR1 and RO2 in the first phase of work on EL30309. Normandy went on to drill a number of lines of RAB holes in the region but the base metal results from HR1 apparently did not rate highly and none of the holes were drilled within EL30309.

Australian Geophysical Pty Ltd had explored for base metals in the area 20 years earlier than Normandy. The company drilled two RAB holes into Ringwood Member rocks at a reported position just outside the eastern boundary of EL30309 near the Middle Bore-Hi Jinks Bore road. One hole recorded 7.5m averaging 0.39% Pb from grey dolomitic siltstone containing finely disseminated pyrite from a depth of 50m. Cuttings were not assayed for Au or As. Two diamond drill holes found by Normandy and recently re-located are attributed to Australian Geophysical. No records of results have been located. Their location is shown on the Mapinfo layer “EL30309_DrillCollars” in Appendix 2.

Also as part of the lead up to exploring in the area, WEC undertook interpretation of the geology and regolith at a scale of 1:50,000 over an area of about 1,100km² utilising enhanced Landsat 8 imagery. Figure 5, 6 7 of the 2016 Annual Report show the interpreted geology and regolith; Mapinfo layers used to compile these maps make up Appendix 1 of this report.
EL30309 was granted to WEC on 27th January 2015. During the first year, exploration consisted of two phases of geochemical sampling of near-surface bedrock using a powered auger to obtain samples. In the first phase, 3 traverses were sampled at the HR1 West Prospect at 50m spacing and single lines sampled at two other prospects, HR1 East and RO2. Analysis was for gold and 40+ other elements. A second phase auger drilling and sampling was undertaken at HR1 West on infill lines at 25m spacing and some infill of original lines to 25m spacing. Analysis of results shows that As, Sb, Tl and Pb are anomalous at HR1 West and there is weaker anomaly in Au, Se, Mo, Ba and Cu. Anomalous values lie within a zone 300m wide following the north-east strike of the rocks for over 800m. There is a strong negative (desired) anomaly for K/Tl ratio over part of this zone and a Tl/Sr anomaly covering much the same area. Figures 20 to 29 of the 2016 Annual Report summarise the results. The Mapinfo layers used to compile these figures plus layers summarising results for a further 10 elements are included in Appendix 2. Host rocks are calcareous siltstones and silty dolomites of the Ringwood Member of the Aralka Formation. Most rock chips from the drilling show a dusting of fine goethite after pyrite; only one hole displays alteration indicative of more pervasive sulphide mineralization. Figures 9 and 10 of the 2016 Annual Report depict features from the logging of chips and these plus further Mapinfo layers are included in Appendix 3.

The geochemical results from HR1W were interpreted as representing weak mineralization, the nature of which seems much more akin to Carlin-like than to Sedex.

The HR1 East Cu-Pb-Zn anomaly is relatively weak and associated with weak anomaly in Mo, Tl, As and Sb and elevated Mn. There is no associated Au or Ba or a K/Tl low. Figures 30 to 33 of the 2016 Annual Report summarise these results. Mapinfo layers applicable to these are included in Appendix 2. Layers showing other elements for HR1W also cover HR1E. Appendix 3 includes lithology and related layers for this prospect. The HR1E anomaly could be interpreted as representing weak SEDEX mineralization.

There were no anomalous levels of As, Au, Sb, Cu or Pb in the RO2 samples. Zn was weakly anomalous in one auger hole. Mapinfo layers for these elements and ratios K/Tl, Tl/Sr and Mg/Ca are included in Appendix 2, lithology and related features from chip logging in Appendix 3. A possible explanation is that lag sampled by Normandy in this part of its lag arsenic anomaly was float from higher on the hill to the east where bedrock may be anomalous.
3. GEOLOGICAL ACTIVITIES AND OFFICE STUDIES

There was no field work undertaken during the second year of the licence.

Review of the project undertaken during compilation of the annual report lead to the following conclusions:

1. The question of whether Carlin-like gold mineralization could occur in the region had not been answered
2. Geochemical results from HR1 West prospect are suggestive of this type of mineralization; local lithology included what would be good hosts
3. The exploration at HR1 West clearly had not come in contact with significant gold mineralization. If ever present in the system, it could be at depth and the search for it would most likely be costly and time consuming. It could have been eroded off. There is no clear distinction between geochemical signatures within the channels below and above the ore.
4. Much clearer indications that HR1 West mineralization is Carlin-like are needed before appropriate funding could be sought to explore for ore at HR1 West or elsewhere in the region.
5. Diamond drill core was considered the best medium through which to seek a combination of indicators, visually as (i) decarbonatisation, (ii) vughs/fractures with orpiment or realgar or stibnite or cinnabar, (iii) silicification as chalcedonic silica, (iv) patches of kaolinite alteration or (v) multiple phases of pyrite, perhaps needle-like arsenopyrite, using Hylogger to check for kaolinite/smectite clay alteration, using laser ablation ICP MS to check for arsenical rims (+/- gold) on pyrite and primary rock geochemical analysis for the indicator elements as used in the near surface samples.
6. The HR1 East geochemical anomaly was considered too weak and unfavourable for any follow up exploration.
7. Arsenic anomaly RO2 was regarded as not located and unchecked but further work on it, on anomaly HR6 or any of the other arsenic anomalies in the district should be deferred until there was much stronger indication of Carlin-like mineralization if this resulted from drilling of HR1.

A 100m drill hole was planned for HR1 tentatively scheduled for drilling in September 2016. The hole was to pass beneath the surface zone of highest As, Sb and Tl on Line B, it bearing and dip designed to cover two possibilities: stratabound mineralization or a steeply dipping structure parallel to the local faulting.

Funding was available for injection into the business from a pension being paid to the owner from his Self-Managed Superannuation Fund sufficient for the drilling and for post-drilling analysis and test work. Some funds for ongoing exploration, if this were warranted, would be available from the same source but external sources would also be needed.

Application was lodged under the 2016-2017 Geophysics and Drilling Collaborations Program for drilling funding as a possible way of delaying the seeking of funds from the market but the application was unsuccessful.

This setback coincided with the lead up to the Federal election where both of the main parties made it clear that superannuation savings were now open targets for tax revenue. The worst of the two policies for the WEC Fund would have seen a third of the remaining funds payable as income tax on the large pension payments necessary over
the next few years. This and/or other legislation which might be brought forward to gain revenue from superannuation raised the risk of pension income becoming barely sufficient to cover cost of living let alone fund other activities such as exploration. And, in turn, this led to the decision to abandon the plans for drilling and the investment made into EL30309 and to surrender the EL forthwith. A letter requesting surrender was sent out in early June and the surrender accepted on June 8, 2016.

4. REFERENCES

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<th>Year</th>
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