ASARCO AUSTRALIA LTD.

TENNANT CREEK PROJECT

MLC 522

First Annual Report to the
N.T. Department of Mines and Energy

by
D. Johnson
October, 1988
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Figure A  Sketch of claim and location map
Figure B  Geological interpretation
Figure C  Geochem (Au/Bi/Cu)
1. Introduction

This report is a summary of the work to date on MLC 522 known as the Aga Khan since a joint venture was entered into between Asarco Australia Ltd. and Top End Resources on May 23, 1988.

In brief the area was gridded with fifty metre spacing and mapped on a scale of 1:1000. Geochemical analyses were taken of rock chip samples taken around the old workings. An airborne survey was flown by Aerodata over the area of which this lease was an integral part. Interpretation and enhancement of the airborne data is in progress. Available data is being studied with a view to selecting drill targets.

2. Location and Access

The Aga Khan prospect lies 14 kilometres east of Tennant Creek, Northern Territory. It is easily accessible by way of a well graded track which runs from the Peko bypass out past the relay station and carries east to other mine sites such as Mt. Margaret and Blackrock (see location map on appendix 4).

3. Previous Work

In the 1960's under the original name of 'Iris' the lease was held under option by Australian Development NL. It is believed that some shallow holes were drilled prior to the relinquishment of the lease but no records are available.

Results from previous dump and rock chip samples taken by National Gold NL over the area were not very encouraging with uniformly low gold values, the highest being 0.09 gpt gold.

4. Present Work

4.1 Geology

During the period covered by this report the area was mapped at 1:1000 scale to evaluate the prospect and also to determine the extent of any mineralization and alteration. This mapping revealed an ironstone lode some seventy metres in length and trending north west lying within a sheared zone of Warramunga Group sediments. There was no boundary differentiation made between the mudstones, siltstones and fine sandstones due to the complex interfingering of the various units.

The hematite lode dips steeply northwards and is associated with a small zone of alteration. The alteration comprises siliceous dolomite, a small patch of black leached boxwork similar to that noted at the Mint prospect to the west of the Aga Khan. Also a talcose halo with minor chlorite was noted in the surrounding sediments. The area lies along a zone of shearing which is approximately along the same strike as the Mint prospect.
Although no fold structures were seen at the Aga Khan, the area has a number of anticlinal and synclinal structures further west which undoubtedly continue through the Aga Khan prospect. At this stage of the investigation the local structure is unclear.

4.2 Prospecting Activity

The area adjacent to the ironstone lode has been the centre of earlier prospecting and mining activity with shallow pits, shafts and even a small adit into the mineralized zone. More recent activity at the western end has included back hoe trenching but these have unsystematic and of dubious exploratory value.

4.3 Geochemistry

Geochemical lag and rock chip samples were taken over the area. These were analysed for gold, copper and bismuth. Although the lag results showed the area to be anomalous the rock chip samples taken around the workings have not supported the former. The reason for this is under review and advice is being sought of a consultant geochemist.

4.4 Geophysics

A large area has been flown by Aerodata for magnetics and radiometrics of which this lease makes up an integral part.

The work has been plotted in the following forms;

1:10 000 scale stacked profile magnetics
1:10 000 scale contours
1:10 000 flight path map and photo
Magnetic and total count radiometrics
Photography of flight paths

At present we have a consultant carrying out an interpretation of the geophysical data including image processing, first vertical derivative and enhanced contour maps are being prepared.

5. Conclusions and Recommendations

This sheared zone with associated ironstone and alteration has historical evidence of gold. The follow up work to date has not given much encouragement for focussed targets but this may be due to the lack of effectiveness of the actual techniques. More work is being considered to resolve this situation. Further soil samples across the area particularly along strike should be carried out and a study of the aero-magnetics made to evaluate further exploratory indicators and possible future drill sites.

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6. **Expenditure**

Since May 23, 1988 Asarco has expenditure totalling $5,500 this is broken down into the following categories:

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<thead>
<tr>
<th>Category</th>
<th>Amount</th>
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<tr>
<td>Gridding</td>
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<tr>
<td>Mapping</td>
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<td>Surface geochemistry</td>
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<td>Rock sampling</td>
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**Total**  $5,500

D. Johnson