MIM EXPLORATION PTY LTD

TECHNICAL REPORT

No. 2519

TITLE: EXPLORATION LICENCE No. 7891 "MULE CREEK"
NORTHERN TERRITORY
PARTIAL RELINQUISHMENT REPORT

ISSUING DEPARTMENT: EXPLORATION

AUTHOR: S. BUSUTTIL
D. CRABB

INVESTIGATIONS CONDUCTED BY: MIM EXPLORATION STAFF

DATE: FEBRUARY 1995

CR 95/158
DISTRIBUTION

1. M.I.M. Exploration Pty. Ltd - Brisbane
2. M.I.M. Exploration Pty. Ltd - McArthur River
3. Department of Mines and Energy - Darwin
4. M.I.M. Exploration Pty. Ltd. - Brisbane
CONTENTS

1. INTRODUCTION AND SUMMARY
2. LOCATION AND ACCESS
3. TENURE
4. REGIONAL GEOLOGY
5. PREVIOUS EXPLORATION
6. WORK BY MIM EXPLORATION PTY LTD
   6.1 Geophysics
      6.1.1 1993 Review of NTGS Aeromagnetics
      6.1.2 1994 QUESTEM Survey
7. CONCLUSIONS
8. REFERENCES
TABLES

Table 1: Open File Company Reports Covering EL 7891 "Mule Creek"

FIGURES

FIG 1: Location Map
FIG 2: Licence Area Relinquished

LIST OF DRAWINGS

<table>
<thead>
<tr>
<th>DRAWING NO.</th>
<th>TITLE</th>
<th>SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>41915</td>
<td>Questem Channel 10 75 Hz</td>
<td>1:25 000</td>
</tr>
</tbody>
</table>
EXPLORATION LICENCE No. 7891 "MULE CREEK"

PARTIAL RELINQUISHMENT REPORT

1. INTRODUCTION AND SUMMARY

Exploration Licence No. 7891 "Mule Creek" is located approximately 960 km by road SE of Darwin, in the McArthur Basin. The Licence covers approximately 357 km². "Mule Creek" was granted for six years on November 16th, 1992.

The tenement is predominantly covered by recent sediments, with sparse exposures of Tawallah Group rocks. A number of major structural lineaments, interpreted from potential field data, pass through the tenement area.

During the first year, MIM Exploration Pty Ltd re-assessed aeromagnetic data over the tenement. Several magnetic domains were identified, which appear to have potential to contain favourable geological environments for base metal mineralisation.

A Questem survey was undertaken in June of this year. Salt flats in the northern half of the tenement produce strong EM anomalies. No sulphidic conductors have been interpreted from the Questem data on the relinquished area.
2. LOCATION AND ACCESS

"Mule Creek" lies on the Bing Bong (6166) 1:100 000 scale topographic map, approximately 100 km NW of Borroloola or 960 km (by road) SE of Darwin, Northern Territory. The EL is bounded by latitudes 15°35'S and 15°50'S and longitudes 136°15'E and 136°26'E (Fig. 1).

Access to EL 7891 is by the Stuart Highway from Darwin to Daly Waters, the Carpentaria Highway to Borroloola, and along the Bing Bong road for approximately 85 km to the turn-off into the Licence area.

Within the area there are numerous sand tracks which allow four-wheel drive vehicle access into most parts, although cross-country traverses are difficult due to the low and thick nature of the scrub. The terrain is mostly sandy with occasional black soil and paper bark swamps. Topographically the majority of the EL is flat lying.

3. TENURE

Exploration Licence No. 7891 was applied for on 20th July 1992 and granted to Mount Isa Mines Limited on 16th November 1992 for a term of six years. The original licence comprised 111 one minute graticular blocks, an area of approximately 357 km². The licence was reduced to 56 graticular blocks on November 16, 1992 as shown on Figure 2. This report covers the area relinquished.

4. REGIONAL GEOLOGY

EL 7891 "Mule Creek" is located within Carpentarian rocks of Lower-Middle Proterozoic age and lies on the Mt. Young 1:250 000 geological sheet area (SD53-15). The licence is extensively covered by sand, ferruginous cemented detritus and alluvium. The sequence of interest here is the McArthur Group. The McArthur Group forms part of a thick platform-cover sequence deposited within the McArthur Basin. It unconformably overlies the Tawallalah Group and is overlain by the Nathan and Roper Groups. Many base metal deposits within the North Australian Craton are hosted by the McArthur Group or its equivalents. This coupled with major lineaments which traverse the Licence makes EL 7891 prospective.

5. PREVIOUS EXPLORATION

The western half of the current tenement was held under AP1973 by Australus Mining Co Pty Ltd in 1968 (Table 1). The licence was operated by Placer Prospecting Pty Ltd. Eleven auger holes were drilled and samples panned to define areas of heavy mineral sand accumulations. Results were disappointing and the AP was relinquished in 1969.

AP's 2169 and 2170 were held by US Steel Int (NY) Inc in 1969. Target mineralisation was base metals, uranium and manganese. Limited helicopter supported reconnaissance geological mapping and rock and stream sediment sampling were conducted in the present tenement. The AP’s were relinquished in 1971 due to poor results.
Fig. 1.

LOCATION MAP
<table>
<thead>
<tr>
<th>TENEMENT No.</th>
<th>GRANTED</th>
<th>COMPANY</th>
<th>CR NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP1973</td>
<td>01-07-68</td>
<td>Australus Mining Co Pty Ltd</td>
<td>69/039</td>
</tr>
<tr>
<td>AP2169</td>
<td>01-02-69</td>
<td>US Steel Int (NY) Inc</td>
<td>70/075</td>
</tr>
<tr>
<td>AP2170</td>
<td>01-02-69</td>
<td>US Steel Int (NY) Inc</td>
<td>70/075</td>
</tr>
<tr>
<td>EL1425</td>
<td>23-12-76</td>
<td>Aust and New Zealand Expl Co</td>
<td>78/011</td>
</tr>
<tr>
<td>EL4678</td>
<td>20-10-84</td>
<td>BHP Minerals Ltd</td>
<td>86/009</td>
</tr>
<tr>
<td>EL4756</td>
<td>18-06-85</td>
<td>BHP Minerals Ltd</td>
<td>86/206</td>
</tr>
<tr>
<td>OP198</td>
<td>22-01-81</td>
<td>Amoco Production Co</td>
<td>PR82/003</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PR82/025A-E</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PR83/036A-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PR83/058A-H</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PR84/007</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PR85015A-F</td>
</tr>
</tbody>
</table>
EL1425 was explored for manganese by Australia and New Zealand Exploration. A number of shallow auger holes were drilled in the present tenement area and although ferruginous manganiferous siltstone and laminated silty argillite with abundant manganese was intersected, an economic deposit was considered unlikely. The Licence was surrendered in 1977.

BHP Minerals Co held two tenement areas, EL's 4678 and 4746, which covered the southwest portion of EL7891 "Mule Creek". A HYC equivalent base metal deposit was targeted. Extensive airborne geophysics (aeromagnetics and radiometrics) were flown to define ground targets. EM-37 soundings and limited gravity surveys over these targets were completed. Limited reconnaissance work was conducted in the present tenement area with disappointing results. Both Licences were surrendered by late 1986.

OP198 held by Amoco Productions Co, in 1981, was taken out to explore for hydrocarbons. Much of the work consisted of geophysical, geochemical and drilling of favourable hydrocarbon hosts through the southern McArthur Basin. Little work was done on EL7891 due to the extensive alluvial cover. The Licence was relinquished in 1985 with no significant results being achieved.

6. WORK BY M.I.M. EXPLORATION PTY. LTD.

6.1 Geophysics

6.1.1 1993 Review of NTGS Aeromagnetics

A review of the NTGS multi-client aeromagnetic data over the tenement was undertaken during 1993.

The interpretation was carried out to identify major structures in the area, with the aim of focusing further ground and possibly airborne geophysical surveys.

6.1.2 1994 QUESTEM Survey

In June 1994 an airborne Questem survey was undertaken over the tenement area. The survey initially planned for late 1993, was delayed due to instrument malfunction.

The survey specifications are given below:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traverse Line Spacing</td>
<td>300/500 m</td>
</tr>
<tr>
<td>Tie Line Spacing</td>
<td>2000 m</td>
</tr>
<tr>
<td>Line Direction</td>
<td>East - West</td>
</tr>
<tr>
<td>Total Estimated Line Kilometres</td>
<td>850 line km</td>
</tr>
</tbody>
</table>

6.1.2.1 Results and Interpretation

The majority of the relinquished area incorporates a considerable area of salt flats and tidal creeks which form a very conductive overburden. This is well shown in the channel 10 image presented in Drawing 41915. Channel 10 values, within the salt affected areas (essentially the red parts of the image), commonly exceed 6 000 ppm. No conductivity anomalies associated with bedrock 'sulphides' have been interpreted within the relinquished area.
7. CONCLUSION

No prospective target for base metal mineralisation has been delineated within relinquished portion of the licence.

Stephen Busuttil
Project Geophysicist - Northern Territory
8. REFERENCES


DRAWINGS