WESTERN MINING CORPORATION LIMITED
EXPLORATION DIVISION

ANNUAL REPORT
FOR
SUBSTITUTE EXPLORATION LICENCE 7423
AREA EXTERNAL TO ERL's 138 - 140
YEAR ENDING 30TH APRIL 1996

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 SENIOR GEOLOGIST - GOLD

MAY, 1996
PASADENA
WESTERN MINING CORPORATION LIMITED
EXPLORATION DIVISION

TITLE: ANNUAL REPORT FOR SUBSTITUTE EXPLORATION LICENCE 7423 AREA EXTERNAL TO EXPLORATION RETENTION LICENCES 138 - 140

PERIOD: 1ST MAY 1995 TO 30TH APRIL 1996

AUTHOR: M. R. WEDEKIND

LOCATION: TANAMI 250,000 SE 52-15

COMMODITY: GOLD, BASE METALS

DATE: MAY 1996

KEYWORDS: TANAMI PROVINCE, S.W. COOMARIE DOME, GOLD, BLUE COW PROSPECT, AIRBORNE MAGNETICS.

ABSTRACT

Substitute Exploration Licence 7423 expired on 24th April 1995 and is currently subject to an application for renewal under the terms of the Aboriginal Land Rights Act. Three Exploration Retention Licences (138 to 140) were granted over portions of the same area on the 20th April 1995 and the subject of a separate accompanying report. This report documents exploration conducted on SEL 7423 external to the granted ERL's.

The application for renewal of SEL 7423 was originally made in the name of WMC's joint venture partner PNC Australia Pty. Ltd. PNC but PNC have subsequently decided to withdraw from the Joint Venture and the application was transferred to WMC's name on 17th October 1995.

The exploration program during 1995/96 included the interpretation of a detailed airborne magnetometer survey and compilation of existing data. A follow-up programme of mapping and reconnaissance RC drilling is proposed.

Total expenditure on the project area for the year 1st May 1995 to 30th April 1996 was $11,659.
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1. **INTRODUCTION**

The Coomarie Project is located some 40 km west of the Tanami gold mine in the southwest Coomarie Dome area (Fig. 1). The project comprises a single Exploration Licence and four Exploration Retention Licences (ERL's) covering an area of approximately 154 km². The project area is being explored for mesothermal lode and vein array styles of gold mineralisation.

The term for SEL 7423 expired on 24th April 1995 and in addition to the application and subsequent grant of three Exploration Retention Licences, an application was made for the renewal of the original exploration licence in its entirety. This application is currently going through the consent process as set out in the Aboriginal Land Rights Act.

This report describes the work undertaken in the areas of the Exploration Licence that are not covered by the ERL's (Fig. 2). These comprise three separate blocks which are referred to as the western, central and eastern areas and have a total area of approximately 49 km². Work on the ERL's is documented in a separate accompanying report.

This report also outlines the proposed exploration activities and expenditure commitment for the forthcoming year.

2. **LEASING**

With the imminent expiry of Substitute Exploration Licence 7423 in April 1995, WMC and then Joint Venture partner PNC decided to maintain tenure through applications for three Exploration Retention Licences as well as applying for the renewal of the Exploration Licence. The current leasing situation is illustrated in Figure 2 and is summarised in Table 1.

ERL's were sought over those portions of the EL deemed most prospective, an area which includes the broad Cheeseman geochemical anomaly and mineralisation at Perisher Prospect. These applications were granted to the Western Desert Joint Venture in the name of PNC on 20th April 1995. To retain the remainder of SEL 7423 where evaluation is still at an early stage, an application was also made for the renewal of SEL 7423; this application is currently going through the approval process as set out under the terms of the Aboriginal Land Rights Act.

PNC subsequently decided to withdraw from the Western Desert Joint venture and titles to SEL(A) 7423 and ERL's 138 - 140 were transferred to WMC on 17th October 1995.

<table>
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<tr>
<th>Tenement</th>
<th>Tenement Name</th>
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<th>Grant Date</th>
<th>Expiry Date</th>
<th>Expenditure Commitment</th>
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<tr>
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<tr>
<td>ERL 140</td>
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<td>39.51</td>
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<td>154.29</td>
<td>*</td>
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</table>

* Negotiations commenced for re-grant of title under the terms of the Aboriginal Land Rights Act
**Continuing expenditure commitment on those portions of EL application external to ERL's

Annual Report SEL 7423 - Areas External to ERL's 138 - 140
Western Mining Corporation Limited
Areas discussed in this report

WESTERN MINING CORPORATION LIMITED - EXPLORATION DIVISION

Coomarie Project
Leasing Location Plan

Map Ref.: 7048-496

Date: 29-4-96
Author: M.R. Wedskind

Scale: 1:150,000
Figure No. 2
Plan No.
3. REGIONAL GEOLOGY

The Coomarie Project area is located on the southern edge of the Tanami 1:250,000 Sheet some 40 km west of the Tanami gold mine. The tenements cover the southwestern margin of the Coomarie Dome (Fig. 3); an area where uplift associated with granite intrusion and subsequent erosion has exposed Lower Proterozoic rocks of the Tanami Complex (Blake et al., 1975). The granite is interpreted to have intruded the already tightly folded rocks of the Tanami Complex during a major period of plutonism that occurred between 1820 and 1700 Ma (Page et al., 1976).

Subdued topography, deep weathering, scattered outcrop and the general absence of marker horizons all conspire to make accurate rock identification and correlation, and interpretation of structure extremely difficult. As a consequence, this regional compilation is largely derived from remotely sensed data; predominantly aeromagnetic surveys that have been acquired from third parties or specifically commissioned by WMC.

What is immediately obvious in the aeromagnetic data is the existence of a well defined package of magnetic stratigraphy that wraps around the margin of the Coomarie Dome outlining what is interpreted as a southeast plunging anticline (Fig. 4). Generally this stratigraphy does not appear to be especially deformed, but away from the dome margin, individual magnetic horizons are obviously complexly folded. It is also evident there has been significant disruption through faulting; both sub-parallel to (WNW-NW), and cross-cutting of the stratigraphy (NNE-NE).

The magnetic sequence was originally interpreted to comprise mafic volcanics and iron formation, but as data is accumulated from successive drilling campaigns, it is increasingly evident that the major constituents of the package are wackes and shales of a probable mafic origin. These rocks are correlated with the Mount Charles Beds (Spence, 1964; Blake et al., 1975) which is a regionally extensive sequence of the Tanami Complex located throughout the eastern and central portion of The Granites-Tanami Block (see Figure 3).

South and west of the Mount Charles Beds at Coomarie Dome, the magnetic character of the rocks is subdued and generally lacking in prominent features. Limited drill information and scattered outcrop indicate that these rocks are either non-magnetic wackes and shales that are more felsic in composition compared to the Mount Charles Beds, or they are flat lying cover rocks comprising quartzite and conglomerate. The steeply dipping and non-magnetic wackes and shales are correlated with the Killi Killi Beds of the Tanami Complex which are regionally extensive throughout the western portion of the Granites-Tanami Block (see Figure 3).

Regionally the metamorphic grade varies between upper greenschist facies and almandine-amphibolite facies. The higher metamorphic grades have variously been ascribed to the effects of contact metamorphism associated with granite intrusion (Blake et al., 1979) or syn-deformational regional metamorphism (Mayer, 1990).

4. LOCAL GEOLOGY

The Mount Charles Beds in the project area (and the Tanami in general), are poorly exposed and virtually all information is derived from drilling information and interpretation of aeromagnetic imagery. Recent shallow RC drilling and localised deeper drilling undertaken within the ERL’s suggests that the rocks are predominantly deeply weathered wackes and shales that were probably derived from a mafic source. These rocks are steeply dipping and display a prominent foliation typically defined by the alignment of biotite. Mapping indicates that the rocks have been complexly deformed with evidence of syn-sedimentary slump folds, tectonic isoclinal folding and regional tight-to-open folds.

Locally mafic and ultramafic rocks have been intersected in drilling and there appears to be a general correlation of these units with the strongly magnetic stratigraphy observed in
aeromagnetic imagery. The mafic/ultramafic rocks are deeply weathered but appear to be less deformed; possibly related to competency contrasts with the enclosing sediments.

Juxtaposed against the Mount Charles Beds is a relatively felsic sequence of wackes and pelites (interpreted to be turbidite units) with local interbeds of felsic volcanic rocks, chert and ferruginous chert. The contact between these rocks (Killi Killi Beds) and the Mount Charles Beds appears to be faulted and the relationship between the two units is unknown. Blake (1975, 1979) suggests the two units are probably contemporaneous.

5. WORK COMPLETED AND RESULTS

5.1 Overview

With the concentration of resources within the area of the ERL’s, the areas within the EL, but outside the ERL’s have received relatively little attention. Work undertaken during the past year has included field visits, an airborne magnetometer survey and a compilation of the existing data.

5.2 Geophysical Surveying

An aeromagnetic survey commissioned and flown in early 1995 (Fig. 5), had not been examined in any detail at the time of reporting (Barratt, 1995). Subsequent examination of this data in the areas under discussion has improved our understanding of the geology in this area (see below).

5.3 Data Compilation and Interpretation

The generally poor quality of outcrop in the areas under consideration means much of the information presented here is derived from the recently completed airborne magnetometer survey. It is evident that the characteristics of the three areas are quite different (see Figure 4), and each area will be discussed separately.

5.3.1 Western Area

The western area comprises a single block overlying magnetically unresponsive Killi Killi Beds. Contained within the block is the Blue Cow Prospect; an erratic geochemical anomaly (peak value 95 ppb) defined from surface sampling during 1991/92. In view of the fact that scattered outcrop of Killi Killi Beds occur throughout the area of anomalism, follow-up of this area has been deferred while more prospective targets have been explored elsewhere in the project area.

5.3.2 Central Area

For the most part this westernmost portion of SEL 7423 (Area 1) overlies outcropping Lower Proterozoic Pargee Sandstone. These rocks unconformably overlie the Tanami Complex and are considered to be non-prospective for the target mineralisation styles. However, in the north of the central area, Tanami Complex rocks emerge from beneath the cover stratigraphy in what is considered the most prospective portion of this area. An outcropping sequence of siltstone with intercalated chert of the Killi Killi Beds has previously been mapped and sampled and is without interest, but to the east under cover is the northerly
continuation of the magnetic Mount Charles Beds stratigraphy that is the focus of ongoing exploration within the ERL's.

The north-south trending belt of magnetic stratigraphy is typically 3 to 4 km in width and conceptually offers a favourable target for further exploration. Unfortunately flight lines of the aeromagnetic survey are parallel to the strike of stratigraphy and much of the finer detail of the individual units is obscured and possible structures are not apparent. However, at least two major WNW - NW trending faults that cut the stratigraphy with significant offsets are evident.

5.3.3 Eastern Area

The eastern area overlies the edge of the Coomarie Dome and adjacent magnetic stratigraphy wrapping around its southern margin. The stratigraphy comprises a sequence of relatively continuous magnetic units that can be individually traced over distances of up to 10 km around the granite margin. There is considerable evidence of fault modification of the stratigraphy and three orientations seem important; 1) WNW trending major structures which appear to have stacked the sequence, 2) NE trending structures that are evident as significant zones of demagnetisation that cause offsets in the stratigraphy of the order of a few hundred metres, and 3) radially disposed breaks in the magnetic stratigraphy proximal to the margins of the granite. The significance of these structures and any association with mineralisation has yet to be established.

The source of the magnetic units identified in the survey remains uncertain but probably reflects the presence of mafic stratigraphy. Outcrop at the margin of the Coomarie Dome comprises contact metamorphosed sediments.

6. EXPENDITURE

Overall expenditure on the area of SEL 7423 (including the ERL's) was well in excess of that required. However, the concentration of the exploration effort within the ERL's has meant that the expenditure on those portions of the SEL outside the ERL's falls below the commitment set by the NTDME. It is WMC's intention in the second year of EL renewal (aboriginal negotiations permitting) to maintain an averaged level of expenditure consistent with the established commitment for this project. A breakdown of the expenditure on the three ERL's within SEL 7423 and areas of the EL outside the ERL's is summarised in Table 5.

7. PROPOSED WORK PROGRAM AND EXPENDITURE

The work programme proposed for the coming includes the following:

1) Mapping of the Blue Cow Prospect area to relate areas of geochemical anomalism with geology and structures and ascertain the likely prospectivity of this area.

2) Completion of a reconnaissance RC drilling programme over the northern continuation of magnetic stratigraphy under shallow (?) cover in central area.

3) Evaluation of the effectiveness of surface sampling already conducted over eastern area and possible extension of the reconnaissance drilling programme to cover this area.

Expenditure proposals for 1996/97 exploration within the area of SEL 7423 are presented in Table 6.
Table 5. Expenditure for year 1 May 1995 to 30 April 1996 - SEL 7423

<table>
<thead>
<tr>
<th></th>
<th>Coomarie SEL 7423</th>
<th>Cheeseman ERL 138</th>
<th>Smiggins ERL 139</th>
<th>Perisher ERL 140</th>
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Table 6. Proposed Expenditure for year 1 May 1996 to 30 April 1997
SEL 7423

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<th></th>
<th>Coomarie SEL 7423</th>
<th>Cheeseman ERL 138</th>
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Western Mining Corporation Limited
8. REFERENCES


