CRA EXPLORATION PTY. LIMITED
ACN 000 057 125

First Annual Report
For The Period Ending 23 January 1996
EL 55/94 Gunns Plains, Tasmania

Author: SA Menpes

Date: June 1996

Licence Holder: CRA Exploration Pty. Limited

Submitted to: Chief Geologist, Vic/Tas

Copies to: Mineral Resources Tasmania
CRAE - Vic/Tas District
CRAE - Zeehan
CRAE - ETIG

Submitted by: A. Jaross (for SA Menpes)

Accepted by:

CRAE Report No. 22157

Abstract

Significant Pb-Zn mineralisation, interpreted to be Irish-style, occurs within the Ordovician Gordon Group carbonates at Oceana and Grieves near Zeehan. Other areas of preserved Gordon Group carbonate are also considered prospective for Irish-style Pb-Zn mineralisation. Hence CRAE acquired EL 55/94 to explore Gordon Group carbonates in the Gunns Plains area.

During the first permit year of the Gunns Plains licence CRAE carried out a partial review of previous exploration and available geological data. No field exploration has been undertaken within EL 55/94 Gunns Plains to date as CRAE's exploration efforts have focussed on advancing prospects identified in other licences.

The review of previous exploration showed that limited conventional stream sediment, panned concentrate, magnetic and water sampling has been done. Much of the carbonate is concealed by scree, marsh deposits, residual gravels and basalt and stream sediment sampling is unlikely to have been effective exploration tool in this area. Hence bedrock sampling methods such as deep soil sampling, wacker sampling or RAB/aircore drilling must be employed to identify geochemically anomalous areas.

A review of published geological maps showed that potential for reactivated Ordovician growth faults exist within the licence area. Mineralisation is associated with each of the possible growth faults within the sub-carbonate stratigraphy.

The following work programme is recommended for the second permit year of the Gunns Plains licence:

- complete the literature review and prepare 1:25,000 scale rock geochemistry, stream sediment geochemistry and geology plans for the licence area
- review geology (existing maps and field reconnaissance) to rank potential growth faults and locate others
- carry out outcrop sampling and soil geochemistry traverses across the Gordon Limestone-Moina Sandstone contact near to the interpreted growth fault at Buttons Rivulet
- undertake RAB traverses along roads in the Preston-Warringa area to test predicted Ordovician stratigraphy (concealed by basalt) near to interpreted growth faults with known mineralisation
- investigate a 1100ppm Zn stream sediment anomaly that occurs downstream of the inferred Denison Sub-group-Gordon Limestone contact 3km east of Loyetea Peak (just south of the licence boundary). The anomaly occurs near the WNW extrapolation of the interpreted growth fault near Buttons Rivulet. Consider wacker bedrock traverses across the inferred contact within the licence boundary.

Contents

List of Plans

Plan No.	Title	Scale
Tv 1151	Gunns Plains EL 55/94 - Location Plan	1:100,000
Tv 1152	Gunns Plains EL 55/94 - Geology Plan	1:25,000__

1. Conclusions and Recommendations

The following conclusions were drawn from the work carried out during permit year one of the Gunns Plains licence:

- previous companies have explored for fluorite in the current Gunns Plains licence area, and VMS and low sulphide gold deposits in the Middle Cambrian volcanics and volcaniclastics peripheral to the licence area. No exploration for carbonate hosted Zn deposits is known in the licence area.
- potential for reactivated Ordovician growth faults exist within the licence area. Mineralisation is associated with each of the possible growth faults within the sub-carbonate stratigraphy

The following work programme is recommended for the second permit year of the Gunns Plains licence:

- complete the literature review and prepare 1:25,000 scale rock geochemistry, stream sediment geochemistry and geology plans for the licence area
- review geology (existing maps and field reconnaissance) to rank potential growth faults identified in section 5 and locate others
- carry out outcrop sampling and soil geochemistry traverses across the Gordon Limestone-Moina Sandstone contact proximal to the potential growth fault near Buttons Rivulet
- undertake RAB traverses along roads in the Preston-Warringa area to test predicted Ordovician stratigraphy (concealed by basalt) proximal to potential growth faults with known mineralisation
- investigate the 1100ppm Zn stream sediment anomaly that occurs downstream of the inferred Denison Sub-group-Gordon Limestone contact 3km east of Loyetea Peak (just south of the licence boundary). The anomaly occurs near the WNW extrapolation of the potential growth fault near Buttons Rivulet. Consider wacker bedrock traverses across the inferred contact within the licence boundary.

2. Introduction

The Gunns Plains EL 55/94 was granted to CRA Exploration Pty. Limited (CRAE) on 24th February 1995. The licence covers 71 sq km (Plan Tv 1117) and lies 25km south-south east of Burnie.

CRAE acquired the Gunns Plains licence to explore for economic, Irish-style Pb-Zn mineralisation in the Ordovician Gordon Group carbonates. CRAE's preceding exploration of the Gordon Group carbonates in the Zeehan area has resulted in several very encouraging Pb-Zn intersections. Hence CRAE has expanded exploration efforts to other areas of poorly explored Gordon Group carbonates with potential to host economic Irish-style Pb-Zn mineralisation. The Gunns Plains licence area satifies these criteria.

Exploration within EL 55/94 Gunns Plains is limited. Effort has focussed on advancing prospects identified in other licences in CRAE's Regional Carbonate Project. This report details the limited exploration activities conducted within EL 55/94 Gunns Plains by CRAE during the first permit year ending 23 January, 1996.

Exploration of EL 55/94 Gunns Plains is currently suspended whilst CRAE seeks a joint venture partner.

3. Review of Previous Work

The review of previous exploration is only partially complete and is ongoing. CRAE's open file database has shown that the following work has been carried out in the licence area:

Exploration For Fluorite Deposits:

Comalco explored EL 8/77 Riana, covering most of the current Gunns Plains EL 55/94 and large areas of outcropping Devonian Housetop Granite to the west and north, for economic fluorite deposits. An extensive geochemical survey (conventional stream sediment, panned concentrate, magnetic and water sampling) was carried out over all areas where pre-Tertiary rocks cropout or are possibly at a shallow depth beneath Tertiary Basalt.

A magnetic sample acquired at grid reference 417200mE, 5467000mN in the current licence area, returned 1500ppm Sn, 2000ppm Pb, 200ppm Cu and 500ppm Zn. The anomaly is located in the Ordovician Gordon Limestone near the contact with the overlying Silurian Crotty Quartzite. The -80# samples contained no anomalies indicating the Sn, Pb, Cu and Zn are strongly associated with magnetite. The association with magnetite suggests a possible fine Sn in skarn source.

A -80# Zn anomaly was located in a creek draining east from Loyetea Peak, near its confluence with the River Leven. The 1100ppm Zn anomaly occurs downstream of the inferred contact of the Denison Sub-group clastics and overlying Gordon Limestone. The contact is obscured by talus and scree where it is crossed by the drainage.

Another -80# Zn anomaly (630ppm Zn) was identified in a poorly defined drainage at 419025mE, 5429566mN (Gunns Plains). The creek drains hills capped by Tertiary Basalt and crosses Gordon Limestone outcrop into Quaternary marsh and gravel deposits.

Exploration For VMS and Gold Deposits:

CRAE, Electrolytic Zinc Company and Geopeko, amongst others, have explored for VMS deposits and low sulphide gold deposits in the Middle Cambrian volcanics and volcaniclastics peripheral to the licence area.

4. Work Completed in the 12 Month Period Ending 23 January 1996

4.1 Literature Review

See Section 3. No exploration for carbonate hosted Zn deposits is known in the licence area.

4.2 Geology

Rocks from Cambrian to Recent age outcrop in the licence area (see Plan Tv 1118).

Middle Cambrian felsic to intermediate volcanics and sedimentary rocks (mudstones, sandstones and conglomerates) cropout on the margins of the licence area.

In the Gunns Plains area the dominantly siliciclastic Ordovician Denison Group is represented by the basal Roland Conglomerate/Dial Conglomerate (Owen Conglomerate correlate), overlain by bioturbated sandstones and minor conglomerates of the Moina Sandstone correlate. The Denison Group equivalents unconformably overlie the Middle Cambrian sequence and outcrop on the margins of the licence area.

The Ordovician Gordon Limestone conformably overlies the Moina Sandstone in the Gunns Plains area. In the Railton-Moina-Gunns Plains-Paloona region the limestone attains a maximum thickness of 1000m at Gunns Plains (Jennings, 1979) suggesting the Gunns Plains area is a depositional centre. The limestone is deeply weathered and forms the topographically subdued Gunns Plains. The limestone outcrops along the eastern margin of the Leven River valley but is obscured by Quaternary marsh deposits, residual gravels and alluvium within the valley, scree deposits along the western valley margin and Tertiary Basalts in the surrounding hills.

1.5km southeast of the Gunns Plains Cave, the Gordon Limestone is overlain, apparently conformably, by a white sandstone (Jennings, 1979). Fossil evidence from nearby Gordon Limestone outcrops suggest the sandstone is Silurian and possibly equivalent to the Crotty Sandstone.

The eastern margins of the Devonian Housetop Granite batholith outcrop within

1-2km of the western margin of the licence suggesting that the licence area may be at least partially underlain by the granite at depth. The granite is dominantly an equigranular, medium to course grained biotite granite, with minor porphyritic and finer grained variants.

Tertiary Basalts cover a large area of older rocks centred on Warringa in the licence area. Since the basalt flows tend to be valley-fill, it is likely that the pre-Tertiary rocks obscured include the Gordon Limestone as the limestone tends to be a valley forming unit. Structural measurements also indicate the basalt conceals an E-W trending syncline of Gordon Limestone with a core of Silurian Crotty Sandstone equivalent.

Deep weathering of the Gordon Limestone has resulted in significant karst development. The Gunns Plains tourist caves occur within (but are excluded from) the licence area.

5. Discussion of Results

CRAE acquired the Gunns Plains licence to explore the Gordon Limestone for Irish-style, carbonate hosted zinc deposits. Prospective horizons recognised in the Gordon Limestone in the Zeehan area include:

- the contact of the Gordon Limestone with the underlying Moina Sandstone
- clean carbonates beneath clastic equivalents of the Lords Siltstone 'seal' in the middle of the Gordon Limestone sequence
- dolomitised carbonates at the contact of the Gordon Limestone sequence and the overlying Crotty Sandstone

The Gordon Limestone in the licence area has only seen conventional stream sediment, panned concentrate, magnetic and water sampling to date. As much of the carbonate is concealed by scree, marsh deposits, residual gravels and basalt, stream sediment sampling is unlikely to be an effective exploration tool in this area. Hence bedrock sampling methods such as deep soil sampling, wacker sampling or RAB/aircore drilling must be employed to identify geochemically anomalous areas.

Ordovician growth faults are believed to have acted as conduits for mineralising fluids controlling the distribution of Zn-Pb mineralisation in the Zeehan carbonates. Hence exploration in the Gunns Plains licence area should commence in the vicinity of potential Ordovician growth faults within the sequence. Several potential reactivated growth faults have been identified on the Sheffield 1 Mile geology map (see Plan Tv 1118) in the Gunns Plains area including:

- an ESE-WNW trending fault interpreted in the southern licence area near Buttons Rivulet. The Roland Conglomerate appears to thicken to the north-east across the fault. The Gordon Limestone-Moina Sandstone contact is outcropping/subcropping in the vicinity of the fault
- an ESE-WNW trending fault interpreted in the south-eastern corner of the licence. CRAE's Castra Road Prospect (422800mE, 5423000mN) is proximal to the fault. A 500m long exposure of altered Cambrian acid volcanics and tuffaceous sediments occurs along the road. In places the volcanics are highly silicified and pyritic, with fist sized clots and stringers of barite (Purvis, 1978)
- a NNW-SSE trending fault cutting across the north-eastern corner of the licence. Preston's Ag-Pb workings occur within the Cambrian Gog Range Greywacke, adjacent to the faulted contact with the Ordovician Dial Range Conglomerate, about three kilometres south of Preston. The workings exploited parallel lines of lode consisting of galena, sphalerite and pyrite in cleavage planes and joints.

  The Copper Creek mine may lie on the same fault just north of the licence area. The vertical lode consisting of quartz and calcite veinlets carrying pyrite, chalcopyrite, covellite, hematite and minor gold and silver in a brecciated slate, occurs within a NNW-SSE trending fault between the Ordovician Dial Conglomerate and Cambrian rocks. South-east of the mine, the Moina Sandstone has pinched out and the Gordon Limestone directly overlies the Dial Conglomerate.

6. Rehabilitation

No field exploration has been undertaken to date. Hence no rehabilitation has been carried out.

7. Expenditure

Expenditure during current term: $6,222

Total Expenditure: $6,222

8. References

Baillie P.W et al	1986	St Valentines Peak 1: 50,000 Geology Sheet 8015N
Jennings, I.B	1979	Geological Atlas 1 Mile Series. Sheet 37 (8115S) Sheffield. Explan. Rep. Dep. Mir Tasm.
Purvis, J. G	1978	EL 19/72 Nietta - North West Tasmania Progress Report No. 4. CRAE Report No.9278.
Virgoe, K.J	1989	EL 96/87 Preston. Annual Report on Exploration Activity, April 1988 - March 1989.
Virgoe, K.J	1990	EL 96/87 Preston. Annual Report on Exploration Activity April 1989 - March 1990. Pasminco Ltd. TDR Report No. 90-3105
Weste, G	1979	EL 8/77 - Riana. Report on all investigatio to December 1979. Comalco Exploration. TDR Report No. 79-1383

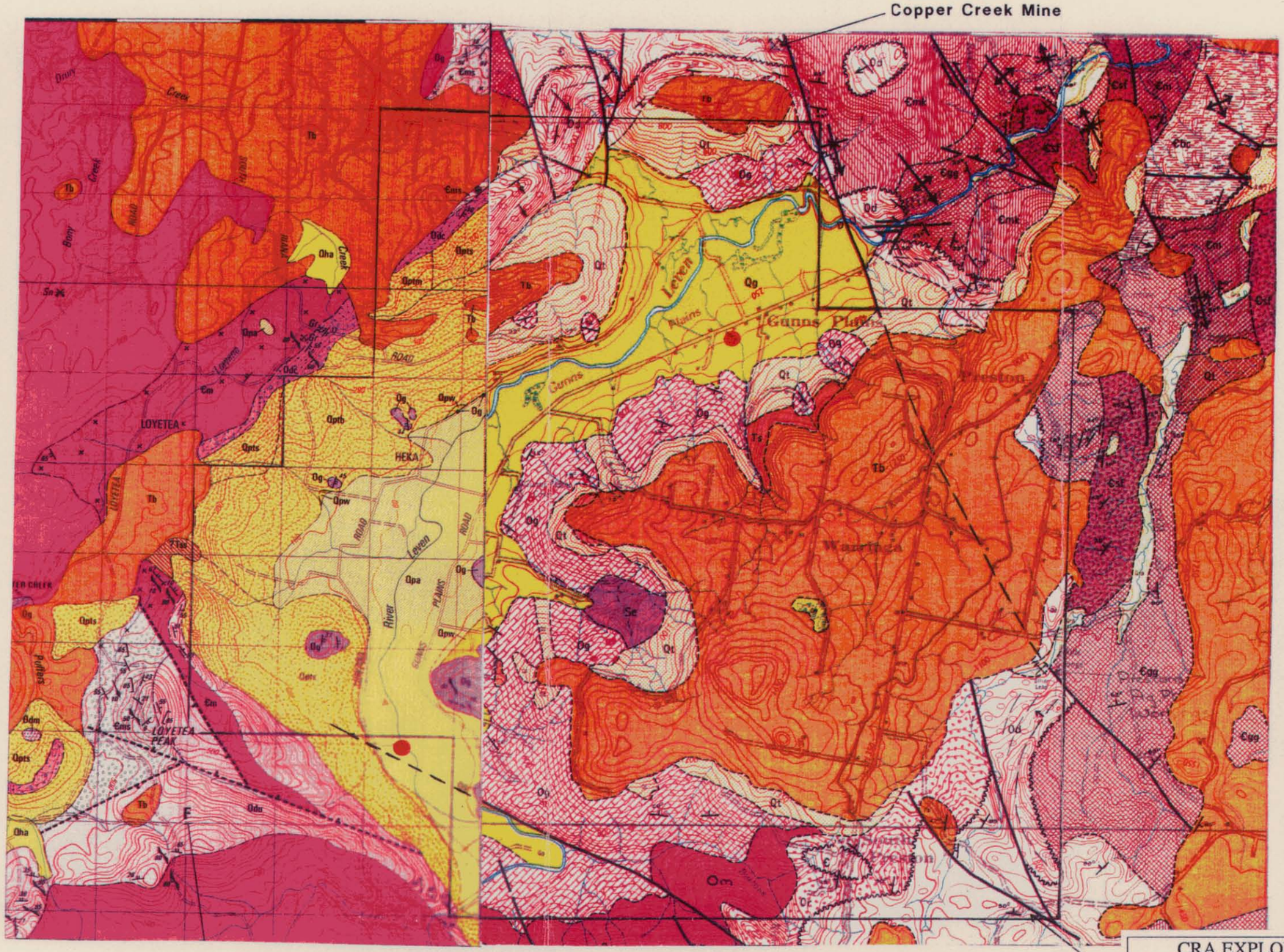
9. Location

Burnie	SK55-3	1:250,000
Forth	8115	1:100,000
Inglis	8015	1:100,000
Castra	4242	1:25,000
Kindred	4243	1:25,000
Loyetea	4042	1:25,000
Riana	4043	1:25,000

10. Keywords

Tasmania, Base Metals, Ordovician, Carbonate Hosted, Literature Review.

Copper Creek Mine



Qg, Qptb, Qpw, Qptm etc
= Quaternary Sediments

Tb = Tertiary Basalt

Se = Silurian Eldon Group

Og = Gordon Limestone

Om = Moina Sandstone

Od/Or = Dial/Roland Conglomerate

€, €gg, €mk, €m etc.
= Cambrian Volcanics & sediment

Zn anomaly (Stream Sd)

Extrapolated Fault

690010

Castra Road Prospect

0 5km

5 cm

96-3901

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EL 55/94 - GUNNS PLAINS - S A MENPES

CRA EXPLORATION PTY. LIMITED

GUNNS PLAINS EL 55/94

GEOLOGY PLAN

Author: S.A.MENPES	Reference: SK5503
Drawn: A.Jelen	File Name:
Date: JULY 1996	Report No: 22157
Scale: 1:50 000	Plan No: Tv1152

145.9°
410000 mE
146°
420000 mE
146.1°
Ulverstone
5440000 mN
41.2°
EL4/94 Gunns Plains
5430000 mN
Gunns Plain
Preston
Loyetea
Heka
Warringa
41.3°
Loyetea Peak
South Preston
5420000 mN
41.4°
N
0 2 4
Kilometers
Projection: AMG Zone 55
Grid: AMG Zone 55 & Lat/Long AGD66
5 cm

96-3901

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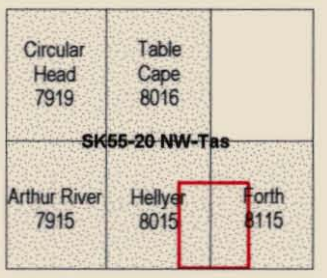
Location Diagram



Mapsheet Reference

Legend

- Town
- Mountain
- EL Boundary
- Perennial Drainage
- Non-Perennial Drainage
- Highway
- Secondary Road
- Minor Road
- Track
- Railway
- Lake
- Swamp
- Urban

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EL55/94 Gunns Plain

Location Plan

690011

Author: Sandy Menpes	Reference: NW Tasmania SK55-20
Drawn: Tony Sargeant	File Name: Tv1151.wor
Date: July 1996	Report No: 22157
Scale: 1:100,000	Plan No: Tv1151