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ANNUAL REPORT ON TASMANIAN
PROSPECT E.L. 24/85

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REPORT ON TASMANIAN PROSPECTS

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1. INTRODUCTION

During the period covered in this Report, the Company's major exploration activity focused on its Tasmanian platinum group element (P.G.E.) prospects at the WILSON RIVER north of ROSEBERY. Callina N.L. has an 80% interest in E.L. 24/85. The licence is 22 square km. in area and includes deposits formerly worked for alluvial gold and osmiridium. This report relates only to the Company's activity on that prospect.

2. GEOLOGY

Geological interest centres on an ultramafic intrusive complex of dunite-harzburgite which occurs topographically as a long, north-south trending ridge ("Serpentine Ridge"). Records indicate that coarse and fine grained osmiridium and gold were formerly mined from shallow adits excavated in fault related shear zones at several locations within the lease. However, most former mining activity centred on an extensive surficial detrital unit which is best preserved on west facing slopes of SERPENTINITE RIDGE. A series of sub-parallel, west flowing creeks, have incised into this detrital unit and alluvial workings occur mainly along them.

The detrital unit appears to have originated as a deep soil cover developed over the ultramafics. This soil was subsequently lateritised, eroded from the ridge crest and redeposited along the lower flanks. An area of lateritic hardcap is preserved in the catchment of RILEY'S CREEK, and an extensive cover of pisolitic gravel occurs on the ridge's western flanks. An area of approximately 3 kilometres square of laterite covered slopes was selected for preliminary bulk sampling because of its accessibility and because extensive alluvial workings occurred along RILEY'S and LIPPY JANE CREEKS.

3. SAMPLING & ASSAY PROCEDURES

Nine costeans were dug using an excavator (capacity: 1 cubic metre, reach: 6 metres). Sites were selected to test both creek-beds and slope materials. Where possible samples of approximately 0.5 cubic metres were taken at one metre vertical intervals. In creek-beds depth to weathered bedrock was found to vary from 2 to more than 5 metres. On

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slope sites bedrock was not reached using the excavator but subsequent tests using a power auger and portable percussion drill showed that depths ranged from 7.5 metres on the lower slopes, to 14.5 metres at the top of the spur dividing LIPPY JANE and RILEY'S CREEKS. Surface hardcap and loose pisolitic gravel range in depth from 0.75 to 2.0 metres.

A mobile (wet gravity) concentrator was used to process bulk samples on site.

Some difficulty was experienced in dispersing sandy clays which tended to "ball" in the trommel. Also coarse grained osmiridium has a tendency to hang in the plant causing contamination of subsequent samples. Only a minor proportion of the available chromite was extracted during bulk sampling as the small sampling jig was adjusted principally to extract gold and osmiridium metal. The total heavy mineral fraction (greater than 3.9 s.g.) is estimated to have varied from 10% to 20% of bulk materials. In lateritic gravels this proportion of H.M.F. is probably higher and crushing of oversize would increase the proportion of fines recovered. Thirty-six heavy mineral concentrates, each weighing about 5 kgs., were returned to Perth for analysis.

All visible gold and osmiridium metal was removed from concentrates by careful hand panning.

The heavy mineral concentrates were then agitated and washed through a 75 micron sieve. Fines so produced were dried prior to weighing and prepared for mineralogical and chemical analysis. Dried and deslimed concentrates were split at 500 microns producing coarse and fine sand size fractions. These were magnetically separated into high, medium and low magnetic products.

Size and magnetic products were sub-sampled (200 gms.) and analysed for platinum group elements (Pt, Pd, Rh, Ru, Os, Ir), gold and silver. Thirty of these sub-samples were also submitted for assay of chrome-iron ratios. Mineralogical examination of rock samples and composite concentrates of heavy minerals was undertaken by means of optical and scanning electron microscopes.

RESULTS

1. Colloidal gold particles (approximately 2 x 2 microns) were abundant in all slime fractions (less than 75 microns) optically examined. The largest particle observed under the scanning electron microscope was 6 x 5 microns. Particles of this size would not be visible to the naked eye and concentration by jigging is not likely to have occurred.

Gold assays of 30 slime fractions washed from

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concentrates range from a low of 0.03 ppm to a high of 9.63 ppm with an average of 1.08 ppm.

2. The quantity of osmiridium metal recovered from bulk samples ranged from trace amounts to 0.42 gms per cubic metre. Samples taken in alluvial workings at RILEY'S CREEK contained the most metal including grains up to 2mm x 2mm in size. More significant perhaps were values up to 0.22 gms per cubic metre recovered from the extensive detrital unit, upslope of creek workings.
3. Chrome/iron ratios indicate consistently high chrome values in the bulk of chromite present (mean value = 57.16% of 12 moderately magnetic fractions). Composition of chromite determined by electron microprobe analysis of 40 randomly selected grains in the fine sand size, moderately magnetic product, averaged 69.70% Cr₂O₃. The moderately magnetic product constitutes 47.8% of the total heavy mineral fraction sampled.
4. The low magnetic product represents 25% of the heavy mineral concentrates sampled. While high P.G.E. values occur sporadically in the medium magnetic product, such values are consistently high in the low magnetic product, especially in the finer sand fractions (-500um).

Iridium values range from a mean of 2.85 ppm (6 samples: range 1.30 ppm to 5.70 ppm) at LIPPY JANE Site 1, to a mean of 5.28 ppm (7 samples: range 1.60 ppm to 13.0 ppm) at LIPPY JANE Site 2. At LIPPY JANE Site 3, where depth of profile was tested to 7.5 metres, iridium recorded a mean of 10.75 ppm (8 samples: range 1.00 ppm to 35.0 ppm). Iridium values at the RILEY'S CREEK sites (1.2 km south) are higher with a mean of 14.05 ppm (10 samples: range 3.1 ppm to 28.0 ppm). Sixteen comparative assays of Iridium : Osmium indicate that these metals occur within the chromite approximately in a one to one ratio. Ruthenium values in the low magnetics ranged from a mean of 1.17 ppm in the 21 LIPPY JANE samples to an average of 2.62 ppm in the 10 RILEY'S CREEK samples. Similarly, platinum averages ranged from 0.45 ppm to 1.07 ppm.

Total platinoids contained in the low magnetic product range therefore from approximately 7.5 ppm in the LIPPY JANE samples to 32 ppm in the samples from RILEY'S CREEK.

Probe analysis has indicated that iridium/osmium values are related to discrete inclusions of these metals within chromite grains. This is important, since it implies that release may be achieved by grinding.

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One concentrate sample returned iridium values of 7.00%, ruthenium 1.4% and platinum values of 2.7 ppm. In view of the unusually high values obtained in this sample it has been omitted from calculations of averages. Chromites which occur in this area are known to occasionally release abundant osmiridium after grinding.

DISCUSSION

1. The areal extent and thickness of the chromite, osmiridium and gold bearing materials, indicate the possibility of a major resource. The lateritised detrital unit is known to occur over an area of at least 3 km square. Its depth at sites tested ranged from 2 to 14 metres.
2. Concentrates from lateritised and clay-sand components returned high chrome, iridium, osmium, values with lesser ruthenium and platinum values. The high grade chromites and P.G.E. bearing low magnetic products are easily concentrated and separated as shown by testing.
3. Abundant colloidal (i.e. clay-size) gold particles have been observed in slime fractions of samples collected from sites over one kilometre apart. The average assay value of this fraction was 1.08 ppm, which may be significant considering the volume of clays present in the bulk material.
4. The high P.G.E. values in low magnetic chromites at RILEY'S CREEK raises the issue of "hard rock" exploration. It is clearly desirable that some drilling of shear-zone targets be budgeted for in 1986-87.

PROPOSED EXPLORATION 1986-87

The Directors believe that results of the preliminary programme are very encouraging. They have determined that Callina will spend the necessary funds to conduct a systemic sampling programme at RILEY'S CREEK during the coming field season. As part of this programme a wet gravity plant will be installed with a view to producing bulk concentrates for further evaluative tests.

The Board believe that the Company's main objective is to prove an alluvial reserve and endeavour to achieve an early cash flow. Where the sampling programme indicates likely hard-rock targets provision will be made for drilling.

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CALLINA_{N.L.}
MINING & EXPLORATION



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SOIL	A.G.	C.G.	E.U.	D. DIR.
				- 3 NOV 1986
D. DIR.	DEPT. OF MINES			E & I
REF. No. 11,121,17				

19th October, 1986.

WORKS PROGRAMME

WILSON RIVER PROJECT - North-West Tasmania

Surfacing and extension of existing access network

The existing access track is unsurfaced and virtually unusable in winter. Figure 1 is a survey of the present access system. A 100mm thick screened aggregate surface is proposed to facilitate year round access. Extensions of the network are also proposed for further sampling purposes. Screened materials are to be selected from gravel deposits within the licence.

Primary Sampling Grid

It is proposed that a sampling grid be surveyed over the area known as RILEY'S CREEK (Figure 1). The grid will consist of a base line (2000 metres) running at 310 degrees and approximately parallel to SERPENTINE RIDGE.

It is envisaged that the grid provide a statistically viable network upon which systematic sampling may proceed. It is proposed that the primary grid will initially provide for co-ordinates at 250 x 250 metre intervals. Undisturbed core samples will be taken using a tractor mounted GEMCO 210B/D hollow auger. The width of this unit is 1.95 metres, hence grid lines will need to be cut to 2.5 metres width. It is envisaged that a small angle blade dozer (D4) be employed to clear lines. The base line to be cleared for 4 km., with 3 offsets north of THREE MILE CREEK. The area at RILEY'S CREEK will be surveyed as shown in Figure 2.

Sampling Procedures

Core samples (60mm diameter) will be collected in trays (1 metre) and stored. Split core samples to be separated into clay, silt and sand size fractions and forwarded to Perth for chromite, gold and platinum group element analysis.

Laterite hardcap and gravels will be grid sampled separately. Heavy mineral sand samples to be sieved and returned to Perth for analysis.

A mobile wet gravity plant will be utilised to produce bulk concentrates from areas of interest. These concentrates will provide the basis for detailed metallurgical assessment. It is anticipated that sample lots will be 25 cubic metres, and to be selected from sites already core sampled.

A camp will be established to accommodate up to 10 field personnel. This will include Mess and Ablution facilities. A soils laboratory will be set up at the camp to receive core samples. Particle size fractionation will be carried out and materials prepared for dispatch to Perth.

The field programme is to be administered and supervised by a qualified Geologist with several years' experience in similar sampling programmes. He will be responsible to Mr. L. Killigrew, Managing Director of Callina N.L. and will liaise with Officers of the Mines Department

Expenditure

Surfacing and extension of existing access network	
100mm screened cover over 6 km	\$20,000
Provision of primary grid	\$20,000

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Auger sampling programme

(Stage 1)	200 holes average depth 4 metres @ \$4/metre	\$3,200	
(State 2)	200 holes average depth 4 metres @ \$4/metre	\$3,200	\$6,400

Bulk sampling programme

1 cubic metre/hour mobile concentrator 100 hours @ \$60/hour	\$6,000
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Analysis Programme

(Stage 1) - particle size fractionation - 800 samples x \$5.00 ea Cr O /Fe O , Au, Pt, P, Ru, Rh, Ir, Os.	\$4,000
1200 at \$80.00 ea	\$96,000

Camp facilities

Accommodation Mess/Ablutions	plus <i>for 3 months?</i>	\$50,000
Soils Laboratory		\$15,000

Data Storage and analysis

(State 1)	100 hours @ \$100/hour	\$10,000
(State 2)	50 hours @ \$100/hour	\$5,000

Administration (over 3 months)

200 hours @ \$100/hour	\$20,000
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Food/drink and general supplies:
\$20/man/day

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\$7,200

Field Wages and Salaries (3 months)

1 Field Geologist	\$12,000
1 Consultant Geologist	
300 hours at \$75/hour	\$22,500
2 Field Assistants	\$15,000

Workers Compensation	\$6,000
Insurance	\$5,000

Vehicles (Two 4 x 4 Landcruisers - 90 days)	\$18,000
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Air fares	\$6,000
Freight costs (incl. mobilisation of plant)	\$7,000

\$351,100

Leo King

5 cm

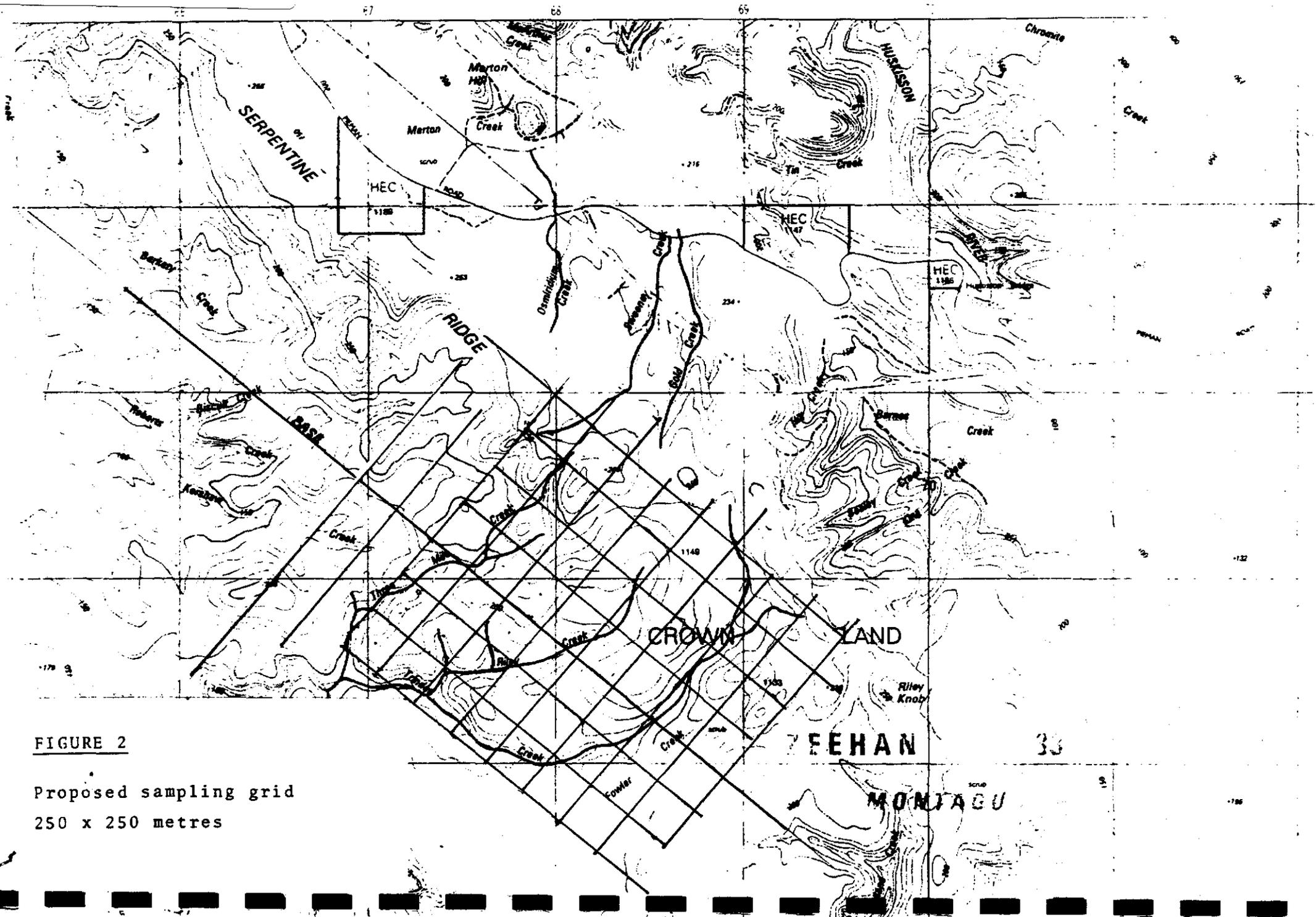


FIGURE 2

Proposed sampling grid
250 x 250 metres

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FIGURE 1

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TAPE - COMPASS ONLY

Existing access network,
Riley's Creek area.

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