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NEW HOLLAND MINING NL

EL29/87

STRAHAN, TASMANIA

ANNUAL REPORT

**Year 2
(19.9.88-18.9.89)**

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1. INTRODUCTION

1.1 Tenement Details

EL 29/87 Strahan, comprising 150 km² (Figure 1) was granted to New Holland Mining NL on the 18th September, 1987. BHP Minerals and New Holland Mining signed an option agreement in June 1989.

1.2 Exploration aims

The main target sought is a volcanogenic Zn-Pb, massive sulphide deposit in Cambrian, fault-related gold deposits, such as the Henty deposit near Rosebery, and post-peak metamorphic quartz-vein gold deposits in folded upper Palaeozoic rocks. The main exploration tool employed has been a stream sediment survey of the exposed Cambrian rocks within the EL, together with a geological assessment of these rocks (detailed below).

2. WORK COMPLETED IN YEAR 2

2.1. Summary

BHP Minerals carried out exploration in the tenement during July and August, 1989. Work was concentrated in the southwestern corner of EL29/87 over an area of about 25km², and included

- about 20km of track cutting to instal a reconnaissance grid
- geological traversing and rock chip sampling
- ground magnetics
- stream sediment survey

The Hydro Electric Commission has been asked to forward details of their geological investigations in the King River area, and for permission to sample their drillholes along the old Mt Lyell-Strahan railway line.

2.2 Access preparation

The area of volcano-sedimentary rocks which is the subject of the investigations detailed below is, in the main, thickly vegetated, which necessitated the cutting of access tracks. Vehicular access to the northern part of the area is restricted to the sealed Lyell Highway, while an unsealed track following the course of the abandoned Mt Lyell railway allows access to the southern part of the area of interest.

The reconnaissance grid and walking tracks are shown in Figure 3. Gridlines were surveyed using compass and chain. The baseline and lines 29000 and 28000N were pegged at 25m intervals (slope corrected). Line spacing is variable, but in multiples of 200m. The grid was designed primarily to allow access for stream sediment sampling, but also to control geological traversing and sampling, and ground magnetic surveying.

2.3 Geological reconnaissance

The geology of the Cambrian rocks in the south-western part of the EL has been discussed by Baillie and Corbett (1985) and is shown on the 1:100,000 Mt Read Volcanics compilation of Corbett, MacNeil and others (1986). The latter shows an area of basaltic to andesitic rocks in the SW corner of EL29/87 which is not present in the former report. Here, there is a single locality reference to hornblende and feldspar porphyry. Thus, in view of the significance of mafic volcanics rocks to VMS style mineralization elsewhere (e.g. Hellyer, Que River), the aim of geological traversing was to assess the extent of mafic rocks in the so-called Beehive Creek and King River andesites.

A second aim was to assess the extent and intensity of hydrothermal alteration which could be related to submarine, hydrothermal systems. To this end 13 samples were dispatched to Central Mineralogical Services of

The volcanic rocks along the lower King River are dominantly felsic, feldspar phyric crystal-lithic and vitric tuffs, and minor andesites, interbedded with probably volcanogenic, marine and often finely laminated siltstones, mudstone and sandstone. The rocks young to the east, and are thought to range from proximal through distal facies of a mixed andesitic-felsic volcanic pile. The volcanic centre may correspond with the strong magnetic high near the mouth of the King River.

Four rock samples from the Teepookana railway line have been analysed for major and minor element geochemistry (Table 1.)

Chemically, the vitric tuffs and vitric crystal tuffs are calcalkaline, low-medium potassium, rhyolitic lavas (75-77% SiO₂). The mafic rocks near the King River mouth are medium-potassium, calcalkaline andesites (57% SiO₂). The two groups plot within the Que-Hellyer basalt-andesite and dacite-rhyolite fields on a K₂O-SiO₂ plot (Figure 2) and demonstrate the silica gap described by Corbett and Solomon (1989).

Low-grade regional sericitisation and to a lesser extent chloritisation is present in most rock types, locally overprinted with a strong, probably Devonian, schistosity. Unusual quartz-chlorite hydrothermal alteration was observed at two localities in association with feldspar phyric vitric tuffs. More sampling, and petrological and geochemical studies are needed, however, to determine whether there are similarities with the higher-grade quartz-sericite-chlorite-barite-pyrite-carbonate alteration around the Hellyer, Que River, Rosebery and Mt. Lyell orebodies.

Analysis of an andesite (NHS49, Table 1) revealed loss of alkalis (Na₂O 1.18%, CaO 0.17%) which could be regarded as a favourable indication of alteration typical of VMS footwall. Further to the north, however, there is little evidence of mafic rock. In Beehive Creek the dominant rock type is a massive pink feldspar-porphritic rock, described by Baillie and Corbett (1985) as a porphyritic biotite dacite. They also describe a 'porphyritic andesite with tabular feldspar phenocrysts' but do not relate this rock to a specific outcrop. A pebble of a similar rock type was found in Beehive Creek. It contained about 1% pyrite, although the feldspars appeared unsericitised. Further upstream, the dacitic? lavas gives way to volcanoclastic sediments, possibly of epiclastic origin.

Baillie and Corbett (1985) also describe 'intermediate to acid volcanoclastic' sediments in Blackwood Creek to the north. This paucity of mafic rocks at outcrop is surprising in view of the large aeromagnetic anomaly attributed by Cromer (1988) to their presence.

In order to clarify the affinities of the Beehive Creek dacite, four samples were despatched to Classic Comlabs for ICP analysis of major and trace elements. Results are awaited.

Elsewhere, reconnaissance geological traversing is also in accord with Baillie and Corbetts' (1985) findings. The eastern Cambrian succession is dominated by turbiditic? sediments and lesser volcanoclastics. Sixteen rock chip samples were submitted for analysis of Cu, Pb, Zn, As, Ba, Ag and Au. Results are summarised in Table 2, and sample locations shown in Figure 3.

2.4 Reconnaissance ground magnetics

Lines 29000 and 28000N were surveyed using a Geometrics 'Memory Mag' proton magnetometer, at station spacings of 25m. A base station was employed to monitor diurnal variation. Results have not yet been processed.

2.5 Stream sediment survey

Thirty seven samples, including three duplicates, were collected (Figure 3) in order to detect surface base metal or gold enrichment. Sample spacing based on previous experience was a nominal 1 km. About 3 kg of -2 mm material was collected and dried, and sieved to -80#. Samples were submitted to Classic Comlabs for Cu, Pb, Zn, Fe and Mn (method AAS1) and Au (method AAS10) analysis. Results are awaited.

3. PROPOSED FUTURE EXPLORATION

Exploration on EL29/87 has in the past year focussed on the volcano-sedimentary succession of Cambrian age in the southern part of the tenement. Not all results are to hand, and few conclusions can be drawn as to prospectivity.

If the stream sediment survey yields anomalous base metal or gold values, it is recommended that the following

1. Check analyses, and detailed stream sediment follow-up of anomalies
2. Soil geochemistry of anomalous drainages to delineate extent and orientation of anomalous zones
3. UTEM coverage of approximately 50 line km
4. Additional geological traversing, petrography and rock chip sampling

The second and third items will require additional track cutting and gridding. It is recommended that expenditure on this programme is of the order of \$100 000.

4. REFERENCES

BAILLIE, P.W., CORBETT, K.D., 1985. Geological Survey Explanatory Report — Strahan. *Tasmanian Department of Mines Geological atlas 1:50 000 series.*

CORBETT, K. D., MaCNEIL W. A. and OTHERS, 1988. Geological Compilation Map of the Mt. Read Volcanics and Associated Rocks, Hellyer to Darwin Peak. *Tasmanian Department of Mines.*

CORBETT, K. D. and SOLOMON, M., 1989. Cambrian Mt. Read Volcanics and associated Mineral Deposits, in Burrett, C. F. and Martin, E. L. (Eds.) *Geology and Mineral Resources of Tasmania*. Geol. Soc. Aust. Special Publ. 15

CROMER, W. C., 1988. EL29/87. Strahan, Annual Report Year 1 (1987-88). *New Holland Mining NL*

Table 1 Cambrian whole-rock analyses, Teepeekana railway line, lower King River

	NHS35	NHS37a	NHS46	NHS49
AMG Coords	668270	668270	656272	652273
	vitric crystal tuff	quartz-chlorite rock	vitric tuff	andesite
SiO ₂	75.0	31.1	77.3	57.4
TiO ₂	0.57	0.06	0.05	0.75
Al ₂ O ₃	12.5	21.7	13.1	18.1
Fe ₂ O ₃	2.63	19.5	1.09	4.56
FeO	1.02	12.0	0.81	6.18
MnO	0.06	0.15	0.08	0.13
MgO	0.74	8.70	0.53	2.62
CaO	0.21	0.11	0.10	0.17
Na ₂ O	0.43	0.052	0.134	1.18
K ₂ O	2.50	0.073	2.70	1.38
P ₂ O ₅	0.13	0.05	0.05	0.11
H ₂ O-	-	-	-	-
CO ₂	0.26	0.55	0.55	0.62
SO ₄	0.014	0.006	0.005	0.004
S	0.06	0.02	0.03	0.02
Total	96.12	94.07	96.53	93.22
ppm				
Ba	139	<10	52	38
Rb	90	10	80	10
Sr	<10	<10	<10	17
Y	40	<10	<10	<10
Nb	<10	<10	<10	<10
Zr	230	20	70	200
Co	<5	7	<5	14
Ni	13	39	<5	18
Cr	29	<10	<10	47
V	56	91	15	193
Sc	<10	<10	<10	<10
Cu	18	6	7	10
Pb	24	25	<5	18
Zn	26	211	7	70

Table 2. Rock chip assay results, EL29/87. Sample locations are shown on Figure 3

Sample No.	Au	Cu	Pb	Zn	Ag	As	Ba
BX 4661	<0.01	14	6	44	<1	19	10
BX 4662	<0.01	17	6	14	<1	9	690
BX 4663	<0.01	13	8	13	<1	8	510
BX 4664	<0.01	15	8	24	<1	11	440
BX 4665	<0.01	9	16	26	<1	11	250
BX 4666	<0.01	10	4	6	<1	9	60
BX 4667	<0.01	14	12	40	<1	6	440
BX 4668	<0.01	34	52	19	<1	115	490
BX 4669	<0.01	8	14	7	<1	7	460
BX 4670	<0.01	7	12	10	<1	8	510
BX 4671	<0.01	19	52	8	<1	62	490
BX 4672	<0.01	50	24	110	1	16	340
BX 4673	<0.01	13	18	84	1	5	440
BX 4674	<0.01	9	8	22	<1	5	980
BX 4675	<0.01	46	12	40	<1	7	740
BX 4676	<0.01	10	4	18	<1	5	1020
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Scheme	FA1	AAS1	AAS1	AAS1	AAS2	XRF1	XRF1

CAPE SORELL

REFER TO THIS MAP AS: SHEET 7913 EDITION 1 1978

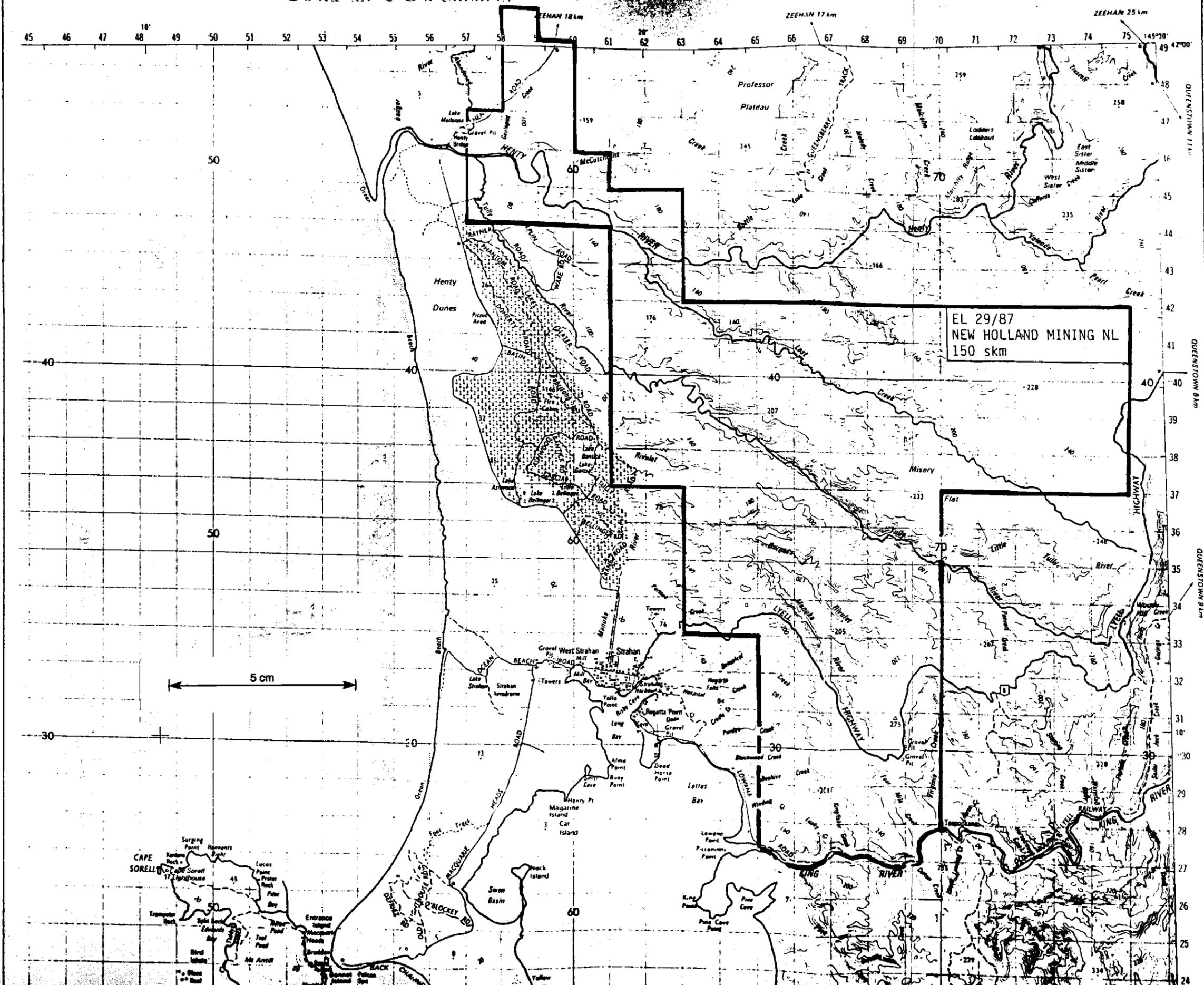


Figure 1 : Location map, EL29/87 (1:100 000)

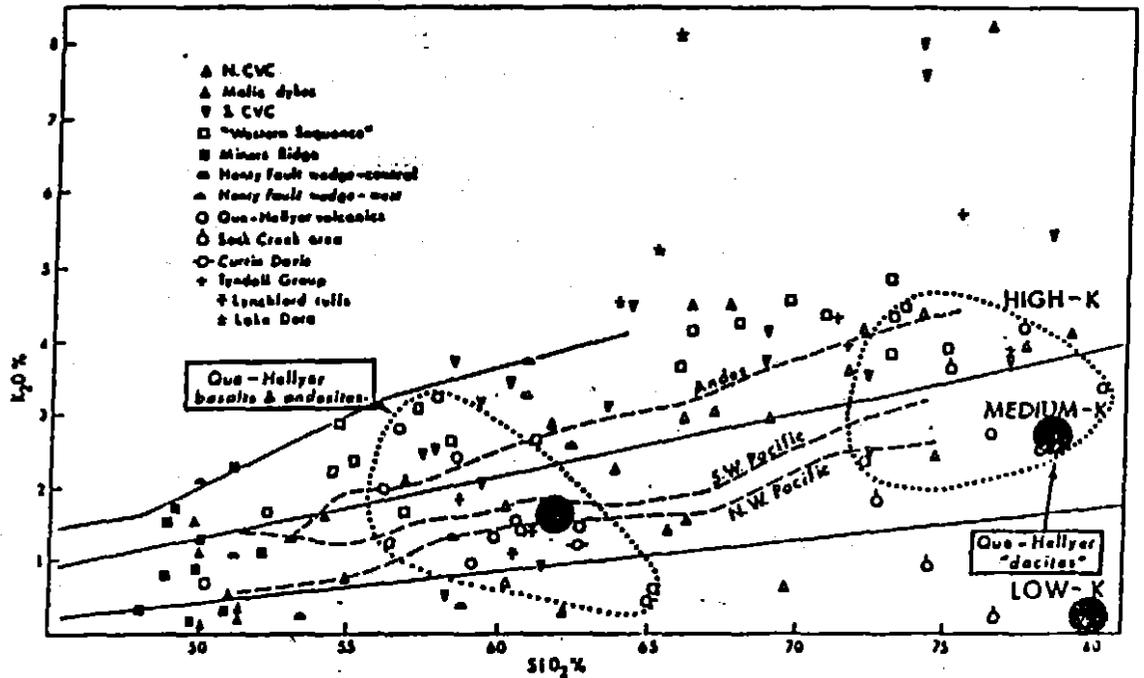
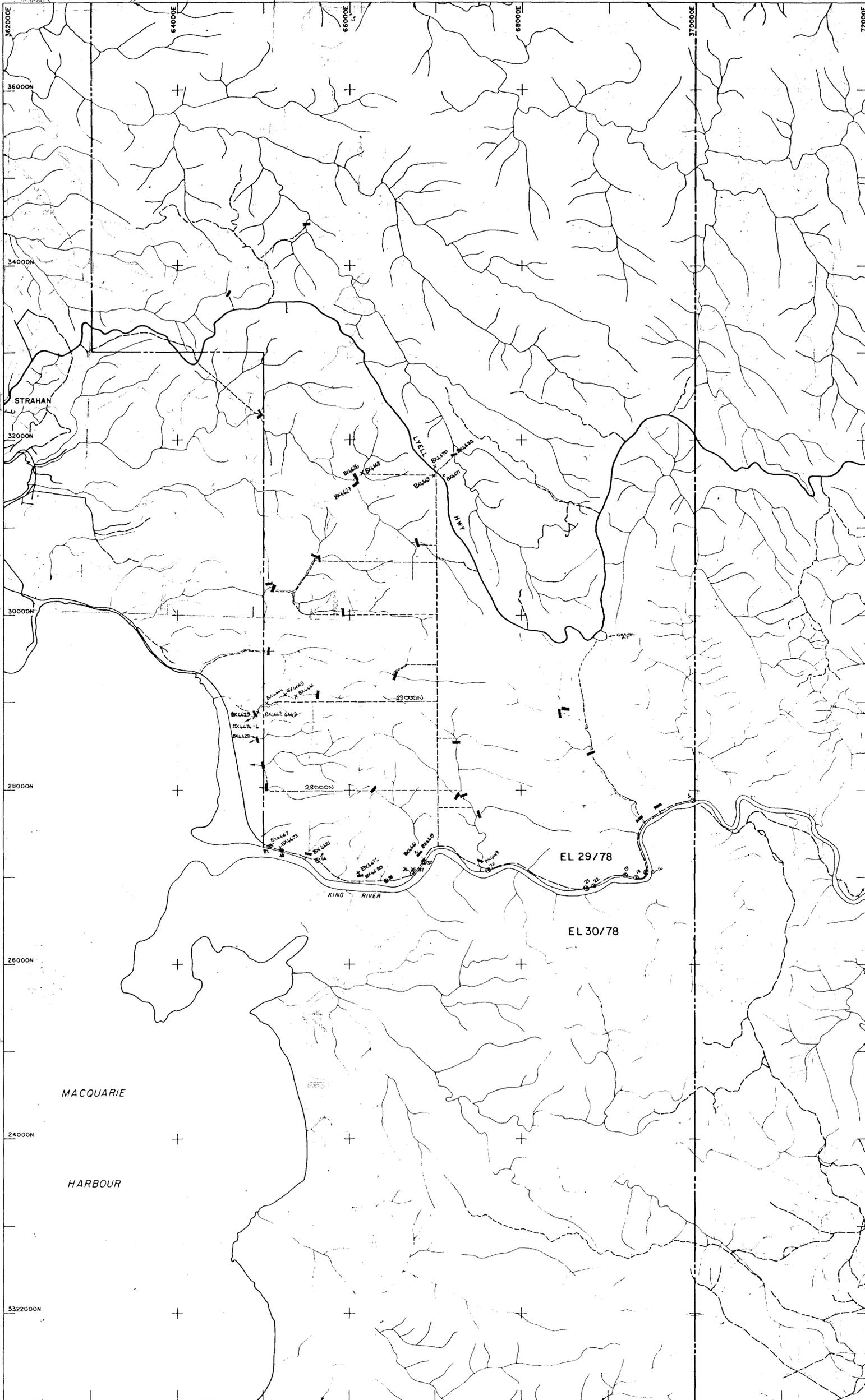


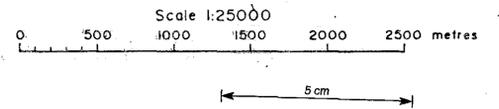
Figure 2: K₂O vs SiO₂ plot for Mt. Read Volcanics, and lower showing low-K, medium-K, high-K boundaries, trends for Andes and Pacific suites and basaltic-andesitic and dacitic-rhyolitic envelopes for Que-Hellyer volcanics. Reproduced from Corbell and Solomon (1989) Fig.4.11, p 113) with lower King River analyses added (larger filled circles). Analyses recalculated volatile-free.



LEGEND

- /— STREAM SEDIMENT (-80#) SAMPLE LOCATION
- x ROCK CHIP SAMPLE LOCATION
- ⊙ ROCK CHIP SAMPLE LOCATION (CARNER '89, PRESERVED NHS-)
- - - WALKING TRACKS - GRIDLINES (APPROXIMATE ONLY)

2600 37000



587010

BHP-Utah Minerals International Asia Pacific Division - Exploration Department		
EL 29/87, STRAHAN & EL 30/87, KING R, TAS		
LOCALITY MAP - ACCESS TRACKS, GRID, ROCKCHIP & STREAM SED'S		
Prepared: A. Wilde	Date: July 89	Centre: Melbourne
Drawn: M. Rosler	Project No.: B48/B49	Fig
Checked: A. Wilde	Drawing No.:	

Figure 3