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COMINCO EXPLORATION LTD.

MICROFILM

INTERIM REPORT ON QUEEN HILL

for 4 months ended March 26, 1976.
With summary of exploration prior to
November, 1975.

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COMINCO EXPLORATION PTY. LTD.

SUMMARY OF EXPLORATION AT QUEEN HILL

(near Zeehan) Tasmania :
prior to November, 1975.

INTRODUCTION

In March, 1972 Cominco Exploration Pty. Ltd. and Gippsland Minerals N.L. signed an agreement allowing CEPL to become the operating partner in a joint venture to continue exploration for cassiterite-sulphide mineralisation in the Queen Hill area. Prior to this date Gippsland Minerals N.L. had defined, by drilling, the upper portion of a body now referred to as the Queen Hill body. Since CEPL became the active partner several drilling programmes have been carried out, as well as exploration directed at new targets outside the established zone.

CEPL recognised the apparent conformable nature of the mineralisation with the volcanic/shale contact and the possible relation to Cleveland Mine style of mineralisation.

This report summarises the exploration carried out prior to the 1975-76 summer.

WORK CARRIED OUT

Diamond drilling in recent exploration programmes extended the ore grade and width mineralisation in the Queen Hill zone to R.L. -30m (i.e. 300m below surface). Indicated reserves are calculated at:

1,014,680 tonnes of 1.15% Sn_C.

There are a further 531,560 tonnes of inferred ore at grade 0.65% Sn_C.

25 diamond drill holes were used to define the body, which is interpreted to be a steeply plunging lens, having a plunge extent of approximately 300m. True widths vary from 2 to 25 metres. Below R.L. -30m ore grade mineralisation is present, but widths are less than 1.3m.

Other diamond drilling was directed toward testing of tin occurrences outside the established Queen Hill body.

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At Montana, drilling intersected a 6.5m sulphide lode assaying 1.57% Sn and 2.39% Zn at R.L. +60m (approximately 110m below surface). The stratabound nature of the mineralisation here remains to be confirmed.

At Stormsdown, four diamond holes were drilled to determine the plunge of mineralisation exposed at the surface. Two of these holes intersected ore grade and width mineralisation. The intersections obtained were:

- 10.0m x 1.37% Sn
- 5.05m x 1.36% Sn

Geological mapping was used to define the stratigraphy of interest, i.e. the volcanic-shale contact zone.

Geophysical techniques including turair, magnetics, induced polarisation and applied potential were used in attempts to establish a valid method of ore search outside the known mineralised zones. It is concluded that induced polarisation is such a method in exploration for Queen Hill type mineralisation (i.e. pyrite rich).

Metallurgical studies directed toward increasing tin recoveries from pyrite-rich ore are in progress and to date have produced encouraging results.

DISCUSSION

Following logging of drill core from the Montana area, abundant dolomitic rocks were recognised in the sequence. This sequence was then correlated with the mine sequence at Renison Bell. (See memo and comparative stratigraphic section at end of report.)

It was concluded from these observations, together with the aeromagnetic data available (see plan QH 62 and QH 30b) that the sequence to the east of Queen Hill was highly prospective and capable of producing tin bearing bodies similar to Renison. Subsequently Cominco personnel decided that exploration should immediately commence in the newly identified target zone.

Drilling of the main Queen Hill ore zone closed off that zone down plunge and along strike. Although good intersections were obtained at Stormsdown, it is considered that rapid narrowing with depth is likely. Neither of these two areas offer potential for substantially increasing ore reserves, while it is considered that the area to the east of Queen Hill does.

COMINCO EXPLORATION PTY. LTD.INTERIM REPORT ON QUEEN HILL

for 4 months ended March 26, 1976.

1. INTRODUCTION

This report summarises the work carried out this summer at Queen Hill, with particular reference to the results of the drilling programme recently completed.

2. WORK CARRIED OUT

The program conducted this summer was designed to test the source of a 200W airborne magnetic anomaly immediately to the east of Queen Hill and situated 200m south and along strike from rocks which are interpreted to be the equivalent of the mine sequence at Renison Bell. This program consisted of gridding and a subsequent ground magnetometer survey to delineate the anomaly, follow by diamond drilling.

(a) Gridding

This consisted of extending the existing grid from Queen Hill into the western part of Zeehan township. Seven lines were surveyed, with station spacing along lines being 25 metres.

(b) Ground Magnetometer Survey

This survey was designed to delineate the airborne anomaly obtained by Seigel & Associates in 1973, under CEPL direction.

The ground survey was conducted using a proton precession magnetometer with station spacings at 12.5 metres. Noise (principally from buildings and scrap steel) was a problem in the town area but, with selection of intermediate lines plus smoothing of results of the survey, an accurate position and depth to the centre of the source was obtained. It was interpreted that the centre of the source was located 100 metres vertically below grid co-ordinates 1040E 1640N. A near vertical, or steep westerly dip, was assigned to the source.

(c) Diamond Drilling and Results (See Plate QH 64)

One drill hole of 350m length was proposed to test the anomaly, being collared at coords. 1640N, 1173E with a declination at the collar of 41° and bearing grid west (258° magnetic). The hole was successful in:

- i) Obtaining an ore grade intersection of tin mineralisation, being -
5.65m x 1.95% Sn (true width estimated to be 4.8m)
from 221.6 - 227.25m
- ii) Intersecting a zone of significant pyrite-pyrrhotite mineralisation from 135 - 246 metres. This zone averages 0.25% Sn including a 23m interval at zero grade (unsampled).

The mineralisation is in a distinct new horizon approximately 300 metres east of the Queen Hill body.
- iii) Drilling through to the quartzite of Queen Hill (proper), thus establishing the relationship of the above mineralised rocks to the sequence on Queen Hill.

A list is attached showing assay intervals plus X.R.F. analyses for tin for the section which has been sampled to date. (It will be noted that sampling is not continuous around 230-236m. Core here appeared barren but as assays show tin is present, sampling will be extended. Inspection of the assay data shows widespread low grade tin mineralisation over the sampled interval. It appears that pyrrhotite is more closely related to tin content than is pyrite (e.g. the lower grade section from 224.3 - 225.4 coincides with a pyrite rich zone within the pyrrhotite lode).

Acid soluble tin and copper assays indicate there are only trace amounts of stannite present.

One feature of the sequence of rocks from about 170m to 304m is their dolomitic nature. There do not appear to be any true dolomites in the mineralised zone but the sediments often contain 5 - 30% dolomite. One rock type, which appears to be a dolomitic sandstone, is particularly susceptible to pyrrhotite replacement.

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The massive dolomites occurring below 280 metres are substantially unmineralised but are cut by numerous thin veins carrying chlorite, traces of pyrite and vivianite. (Vivianite is an hydrated iron phosphate which commonly accompanies tin mineralisation.) This section of dolomites thus becomes a good exploration target.

Magnetic susceptibility measurements carried out on the core and used in conjunction with the values interpreted from the magnetometer data suggest that there is insufficient magnetic material intersected in the drill hole to explain the magnetic anomaly. Further data processing is necessary to calculate where the bulk of magnetic material lies in relation to that intersected.

Preliminary thin section studies of mineralisation from 221.6 - 224.3m indicate that the cassiterite is fine grained, i.e. 95% <50µ. It does not appear to be locked in sulphides as it is in the Queen Hill body, but is associated with carbonate.

3. DISCUSSION

From the results available to date it is proposed that the mineralisation intersected in DDH G39 is similar in many ways to that occurring at Renison Bell (10km to the north-east.) It is also firmly believed that the host rocks are the stratigraphic equivalent of the mine sequence at Renison. While the mineralisation at Renison is generally coarser grained (both pyrrhotite and cassiterite) it has the following characteristics in common:

- i) there are few or no hydrothermal minerals e.g. fluorite, tourmaline;
- ii) it is pyrrhotite-rich rather than pyrite-rich as on Queen Hill;
- iii) it occurs in rocks that are dolomitic; and
- iv) it has a strong magnetic response.

Because of this magnetic response magnetometer surveys will be used as one of the principal methods of exploration and drill target definition.

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4. CONCLUSIONS

1. The drilling successfully located tin mineralisation in a new stratigraphic position believed to be equivalent to the Renison Bell position.
2. A pyrrhotite rich ore grade and width intersection of 5.65m x 1.95% Sn was intersected within a 112m wide mineralised zone. The zone averages 0.25% Sn including a 23m wide section of zero grade not yet assayed.
3. Exploration potential exists for large tonneages of high grade ore and possibly also for extensive low grade "open cut" ore.

Submitted *David Simpson*
 D.C. Simpson
 Geologist.

Endorsed *L.V. Gentle*
 L.V. Gentle
 Chief Geologist.

DCS:KMW
 6/5/76.

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Queen Hill.

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DDH G39X.R.F. ANALYSES FOR TIN

N.B. Tin is quoted in ppm where less than 0.1%.

From (m)	To (m)	Interval (m)	Tin	
			%	ppm
135.6	136.9	1.30		180
136.9	137.9	1.00		670
137.9	138.5	0.60	0.12	
138.5	139.4	0.90	0.18	
139.4	140.1	0.70		100
140.1	140.8	0.70	0.15	
140.8	141.3	0.50	0.57	
141.3	141.9	0.60	1.58	
141.9	142.7	0.80	0.12	
142.7	143.6	0.90	0.20	
143.6	144.6	1.00	0.21	
167.3	168.2	0.90		260
168.2	169.0	0.80		410
169.0	170.0	1.00	0.10	
170.0	171.0	1.00	0.67	
171.0	172.0	1.00		130
172.0	173.0	1.00		850
173.0	173.95	0.95		200
173.95	175.00	1.05		700
175.0	176.0	0.60	0.34	
175.6	176.8	1.20	0.14	
176.8	177.8	1.00	0.15	
177.8	179.0	1.20	0.12	
179.0	180.0	1.00	0.30	
180.0	181.0	1.00	0.33	
181.0	182.0	1.00	0.52	

From (m)	To (m)	Interval (m)	Tin	
			%	ppm
182.0	183.0	1.00		930
183.0	184.0	1.00	0.14	
184.0	184.9	0.90	0.18	
184.9	185.6	0.70		220
185.6	186.4	0.80		610
186.4	187.6	1.20	0.79	
187.6	188.6	1.00	0.37	
188.6	189.2	0.60		920
189.2	189.7	0.50		380
189.7	190.7	1.00	0.16	
190.7	191.5	0.80	0.24	
191.5	192.3	0.80		770
192.3	193.1	0.80	0.16	
193.1	193.7	0.60	0.56	
193.70	194.55	0.85	0.24	
194.55	195.50	0.95		460
195.5	196.5	1.00		420
196.5	197.6	1.10	0.19	
197.6	198.2	0.60	0.11	
198.2	198.8	0.60	1.31	
198.8	199.5	0.70	0.10	
199.5	200.5	1.00		920
200.5	201.75	1.23	0.18	
201.75	202.80	1.05	0.56	
202.80	203.30	0.50		700
203.30	204.20	0.90		800
204.2	205.1	0.90	1.19	
205.1	206.1	1.00	0.35	
206.1	207.1	1.00	0.14	
207.1	207.9	0.80	0.30	

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From (m)	To (m)	Interval (m)	Tin	
			%	ppm
207.9	209.0	1.10	0.12	
209.0	210.0	1.00	0.24	
210.0	211.0	1.00	0.22	
211.0	212.0	1.10	0.18	
212.1	213.0	0.90		100
213.0	214.0	1.00		500
214.0	215.0	1.00		200
215.0	215.7	0.70		400
215.7	216.9	1.20	0.23	
216.9	218.0	1.10		200
218.0	218.9	0.90	0.13	
218.9	219.8	0.90	0.11	
219.8	220.8	1.00		900
220.8	221.6	0.80	0.27	
221.6	222.6	1.00	1.32	
222.6	233.6	1.00	2.92	
223.6	224.3	0.70	4.18	
224.3	224.9	0.60	0.15	
224.9	225.4	0.50	0.49	
225.4	226.0	0.60	1.41	
226.0	226.6	0.60	1.70	
226.6	227.25	0.65	2.50	
227.25	228.0	0.75		430
228.0	229.2	1.20	0.53	
229.2	230.2	1.00	0.23	
231.1	231.80	0.70	0.33	
233.15	234.0	0.85	0.44	
236.8	237.85	1.05		310
237.85	238.45	0.60	0.39	
238.45	239.00	0.55	0.37	

011

From (m)	To (m)	Interval	Tin	
			%	ppm
239.00	239.75	0.75	0.12	
239.75	240.30	0.45	0.27	
240.30	240.80	0.50	0.14	
240.80	241.70	0.90	0.23	
241.70	242.10	0.40	0.18	
242.10	242.75	0.65	0.13	
242.75	243.75	1.00	0.14	
243.75	244.50	0.75		390
244.50	245.40	0.90		300
245.50	246.20	0.70	0.14	
246.20	246.70	0.50	0.33	

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Memorandum
For Use Within The Company Only

To	Chief Geologist (LVG) <small>(Use Title if Possible)</small>	Date	November 10, 1975
From	Geologist (DCS) <small>(Use Title if Possible)</small>	File No.	<i>111/100</i>
Subject	Comparison of sequences at "Montana" and Renison Bell.	Reference	

Following logging of DDH G37 and partial relogging of DDH's G19 and G20 it was observed that dolomite is far more abundant than previously recognised. No thin section support for this observation is available to date - it is based on cold and warm acid tests on the core.

As far as I observed there are no pure dolomites such as those at Renison, however, the dolomitic content of the sediments is possibly as high as 60%.

Also observed within these cores are chert horizons. The occurrence of several different rock types allows good correlation to be made between the holes.

When this correlation is made and approximate thicknesses are assigned to the various units it is possible to draw a stratigraphic column similar to the mine sequence at Renison. (To do this it is necessary to assume that the sequence at Queen Hill faces east. From a number of good load casts observed in the core from the last drilling programme I think we can be reasonably certain of this.) The sequence is not identical but the similarities seem, to me, remarkable. Both sequences are shown on the accompanying sketch.

From our observation over the last few years at Queen Hill it seems most likely that there are no major sedimentary breaks and no faults of such magnitude as to remove significant parts of the sequence (at least from the Queen Hill body upward to the vicinity of the Montana drill holes). I disagree with Wendy Lutley's fold and complementary fault interpretation of the structure.

Based on these observations I would now correlate the dolomitic sequence at Montana with the Renison Mine succession. As I see it this makes the sequence of rocks at the foot of Queen Hill (east side) highly prospective particularly as tin mineralisation is already known to exist within it.

A +200 γ magnetic anomaly is centred within this sequence approximately 450m along strike to the south of the Montana mineralisation. It seems more than coincidental that a lobe from this anomaly extends to Queen Hill and occupies the same position in plan as the most pyrrhotite-rich portion of the Queen Hill body. I cannot help speculating that a pyrrhotite body of large dimensions exists at a moderate depth. (Estimated at 250-300 metres.)

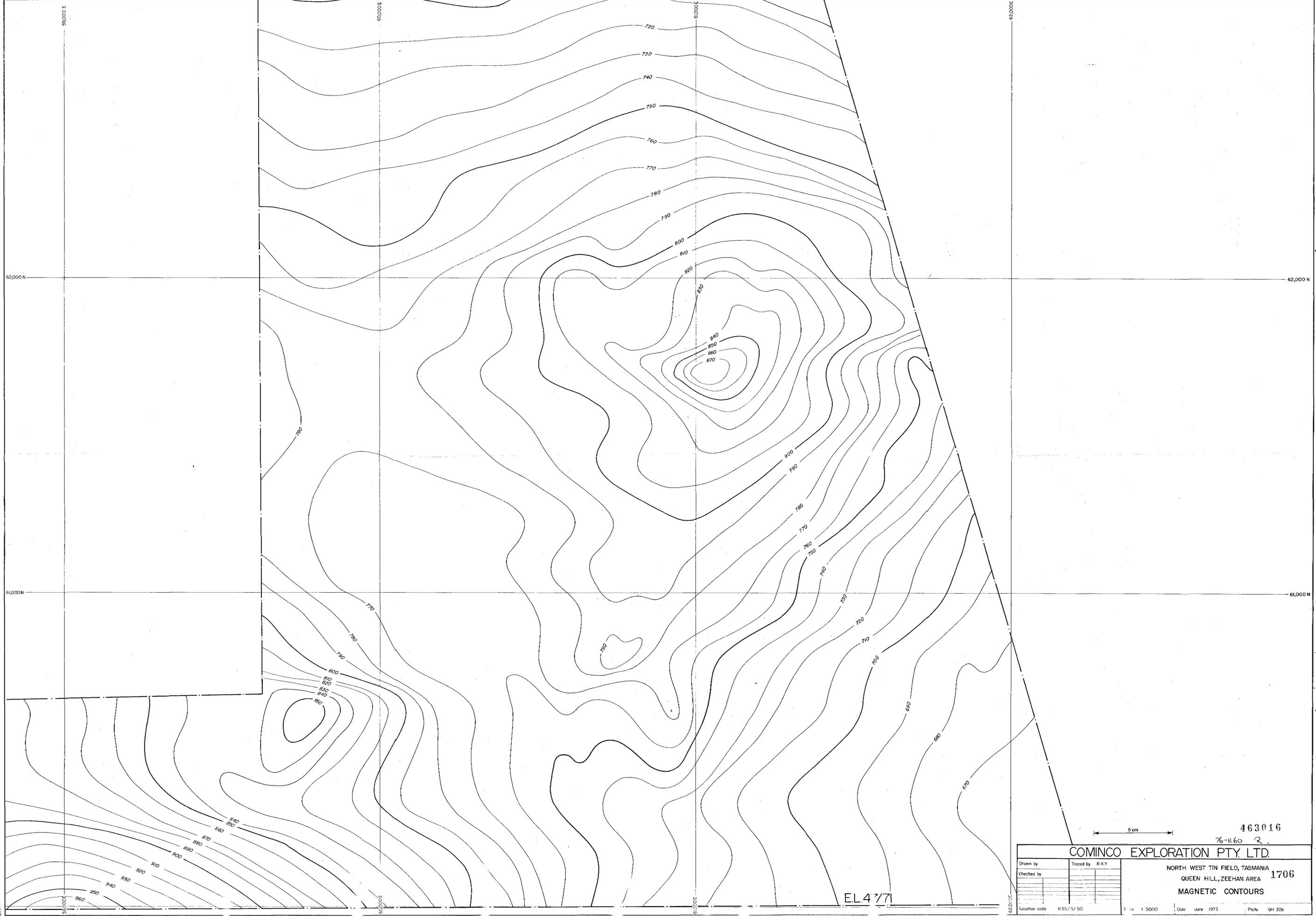
The last drilling programme has, for practical purposes, closed off the main Queen Hill body at depth. I believe strongly that we should change our emphasis in exploration of the area to the dolomitic sequence and, in particular, the magnetic anomaly within it. I think it offers the chance to substantially increase tonneages rather than drilling targets such as Stormsdown.

Signed *[Signature]*

Comparison of sequences at
RENISON BELL and MONTANA

(Thicknesses in metres)

<u>MONTANA</u>		<u>RENISON BELL</u>	
		<i>Mine sequence after J. Teluk</i>	
+ 40	<i>Shales & siltstones</i>		
<hr/>			
5 - 10	<i>Dolomitic sandstone</i>	<i>Argillite</i>	
<hr/>		<i>(some thin spilite bands)</i>	+ 180
5	<i>Shale</i>	<hr/>	
<hr/>		<i>No. 1 Horizon</i>	?
<hr/>		<hr/>	
10 - 15	<i>Siltstone & black shale</i>	<i>Red Rock</i>	5 - 20
<hr/>		<hr/>	
10 - 15	<i>Dolomitic siltstone</i> <i>Chert</i>	<i>No. 2 Horizon</i>	3 - 21
<hr/>		<hr/>	
	<i>Shale & siltstone locally pyritic some spilite</i>	<i>Renison Bell Shale</i>	40 - 50
~ 40		<hr/>	
	<i>Montana Sn - Zn Carbonate</i>	<i>No. 3 Horizon</i>	1 - 12
	<i>Thin chert bands</i>	<hr/>	
<hr/>		<hr/>	
10 - 30	<i>Queen Hill Quartzite</i>	<i>Dalcoath Quartzite</i>	?
<hr/>		<hr/>	
<i>Oonah Quartzite & slate</i>		<i>Oonah Quartzite & slate</i>	



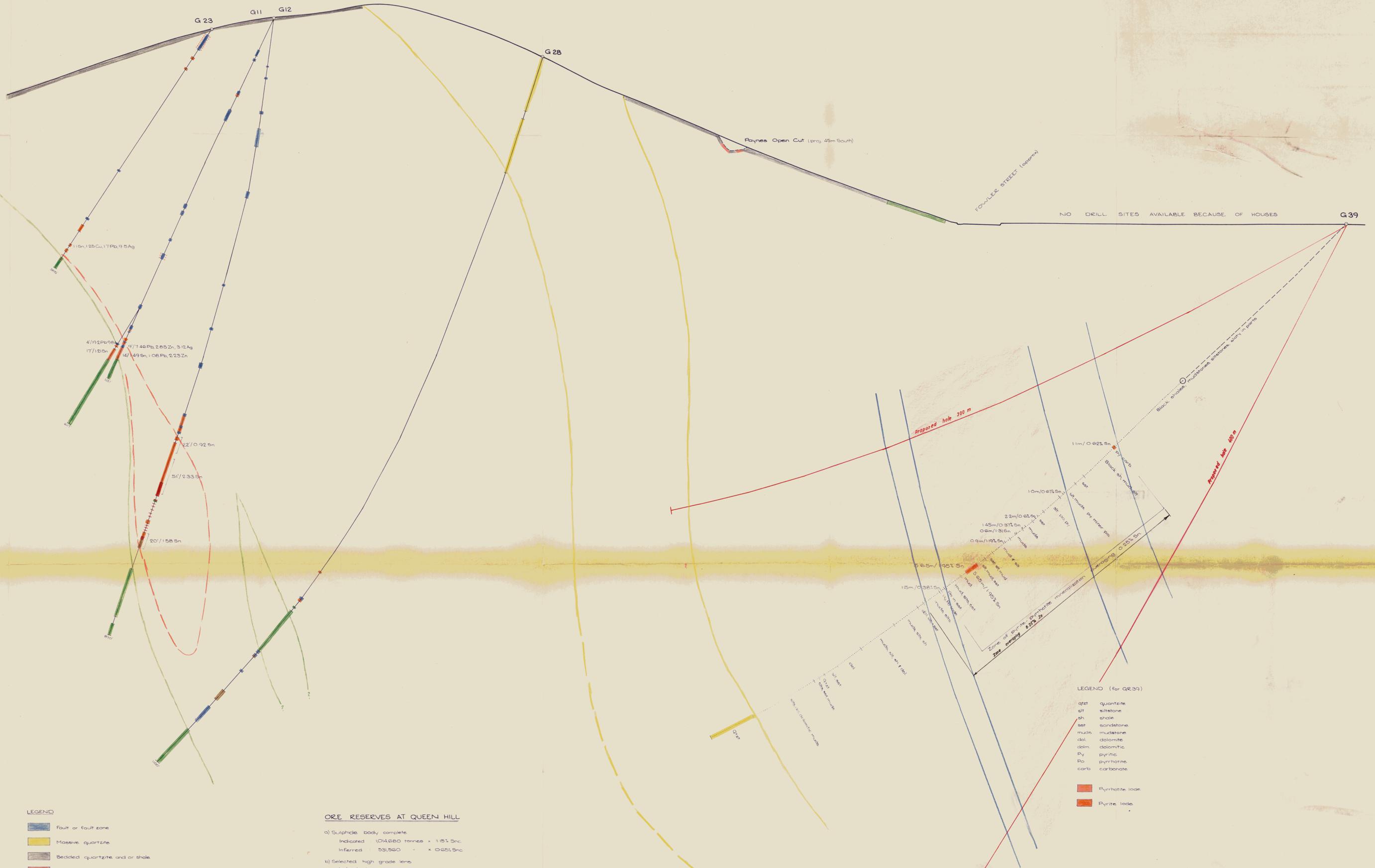
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5 cm

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76-1160 R

COMINCO EXPLORATION PTY. LTD.	
Drawn by	Traced by R.K.Y.
Checked by	
NORTH WEST TIN FIELD, TASMANIA QUEEN HILL, ZEEHAN AREA 1706 MAGNETIC CONTOURS	
Location code K55/5/50	Scale 1:5000 Date June 1973 Plate QH 30B



- LEGEND**
- Fault or fault zone
 - Massive quartzite
 - Bedded quartzite and/or shale
 - Chert
 - Primary carbonate siderite
 - Spilitic fragments, tuffite, tuff, lapilli tuff, agglomerate
 - Pyrite: Pyrrhotite coarse grained - massive / disseminated
 - Pyrite, bedded fine grained - massive / disseminated
- Assays Sn,Cu,Pb,Zn %; Ag oz/ton

ORE RESERVES AT QUEEN HILL

a) Sulphide body complete

Indicated	1014680 tonnes	x 1.15% SnC
Inferred	531560	x 0.65% SnC

b) Selected high grade lens

Indicated	576540 tonnes	x 1.89% SnC
Inferred	336360	x 1.41% SnC

- LEGEND (for G39)**
- qtzt quartzite
 - silt siltstone
 - sh shale
 - ssr sandstone
 - mucl mudstone
 - dol dolomite
 - clsm dolomitic
 - py pyritic
 - Py pyrrhotite
 - carb carbonate
- Pyrrhotite lode
 - Pyrite lode

5 cm

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76-1160 R

COMINCO EXPLORATION PTY. LTD.

NORTH WEST TASMANIA 1705
QUEEN HILL

CROSS SECTION THROUGH G39,G28

Looking North

Drawn RKY	Traced
Checked	
Location code	

Scale 1:600 Date March 1976 Plate Q1164