

**MICROFILMED**

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VOLUME 1 of 2

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A.C.I. - BALFOUR AREA

21 NOV 1970

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TASMANIAN EXPLORATION EL.16/68

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INTERIM REPORT FOR INCLUSION WITH REAPPLICATION FOR EL.16/68.

During the past six months, a field party has been maintained at Balfour conducting general mapping and undertaking a diamond drilling programme. General details of all work have been included in the monthly report to the Mines Department and this short report aims to outline briefly the results of work to date.

1. GEOPHYSICS.

During the first quarter of 1970, an induced polarisation survey was carried out by McPhar Geophysics at Balfour. Plans 1 and 2 show the location of the base line and initially traverses were made at right angles to the base line every 1600 feet using a 200 foot electrode spacing. Numerous I.P. anomalies were located as shown on the plan and detailed work was undertaken over the following areas :

- 1.1 The Clump - 14 lines 250 feet apart, 75 ft. spreads.
- 1.2 The Blocks- 8 lines 100 feet apart, 75 foot spreads.
- 1.3 Murrays Reward and Central Mine - 14 lines, 150 feet apart, 75 foot spreads.

At the Clump, a strong continuous anomaly occurs over a strike length of 3000 feet, and is inferred from regional work to extend a further 1500 feet. The anomaly varies in width from 75 to 200 feet and regional mapping indicates that graphite in the area is a contributing factor to the width and magnitude of the anomalies.

The limited work at the Blocks Prospect has indicated one definite anomaly and one probable anomaly extending over a minimum strike length of 1000 feet. These anomalies coincide with old copper workings.

Definite anomalies were located on all lines over Murrays Reward and the Central Mine, (covering 2,100 feet of strike), but there appears to be some overlapping of anomalies. The I.P. effects correlate well with the visible copper mineralisation although graphite tends to occur with the mineralisation and hence can produce anomalies where no mineralisation is present.

Further detailed work will be required in the area between the Blocks and Clump Prospects as several strong anomalies occur on several lines spaced 1600 feet apart.

2. UNDERGROUND SAMPLING.

During 1970, the old workings at the Clump, Murrays Reward and Central Mines, were opened up and channel samples cut over 5 foot horizontal widths with the following results :

- 2.1 Clump Mine. The mineralised zone is up to 60 feet in width and samples assayed from 0.01% to 3.53% Cu and a trace to 0.7 oz. silver per ton. Detailed assays plans will be forwarded upon completion.

**OPEN FILE**

- 2.2 Murrays Reward. The main lode assayed 7.9% copper over 5 feet and where intersected by oblique drives gave assay between 0.18% Cu and 2.35% Cu.
- 2.3 Central Mine. Assays over the visible part of the mineralised zone varied from 0.08% to 0.27% Cu.

The sampling indicated that there were good prospects of locating mineable widths of 2% Cu ore at each of the three old mines.

### 3. MAPPING.

1 inch to 100 foot maps have been completed over the Murrays Reward - Central Mine and Blocks area and preliminary plans accompany this report.

The 1 inch to 100 foot maps of the Clump areas are being revised following the cutting of additional roads and costeans.

From the mapping, the mineralisation appears to be restricted to a dark carbonaceous mudstone/siltstone which commonly becomes graphitic. The structural interpretation to date suggests that the mineralisation occurs in a specific lithology on the limb of an anticlinal structure. The drag folds, shears and faults are associated with the mineralised zones, developing during folding of a competent/incompetent sequence.

### 4. DRILLING.

Drilling commenced at the Clump Prospect and seven drill holes were laid out spaced at 150 metre intervals along the strike. To date, three drill holes have been drilled and a fourth is in progress. The drill holes completed to date are summarised below:

<u>Hole No.</u>	<u>Angle</u>	<u>Direction.</u>	<u>Summary Log.</u>
DDH.1	50°	043°	0-54.18.M. sediments. 54.18M-77.10.M.mineralised zone. 77.10.M-138.08.M. sediments with graphitic and thin bands of mineralised material.
DDH.2.	50°	034° mag.	0-58.60.M. sediments. 58.60-72.40. leached mineralised zone. 10% core recovery. Hole abandoned.
DDH.3.	60°	220°	0-c.64.90.M. sediments. 64.90.M.-c.96.30.M. mineralised zone, leached above 71.47.M.

The drilling has indicated that leaching of carbonate in the mineralised zone is irregular and extends over 200 feet below surface in places. Core recovery has been very low in the leached zones and sludge samples have been recovered only in DDH.3. when water returns were established below 71 metres.

Future drilling will be directed towards intersecting the target zones at least 250 feet below ground surface. The mineralised zone does not dip consistently in any one direction and data to date indicate that the zone rolls  $\pm 10^\circ$  from vertical making drilling set-ups critical.

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Assays were obtained from DDH.1. and show copper values up to 1.16% over 5 foot intersection. This hole will be resampled shortly as the site geologist took quarter core samples over set 5 foot units which did not correspond to the lithological boundaries, DDH.3. has been sampled and results are awaited from Spectrometer Services Pty. Limited.

The target zone at the Clump Prospect may be summarised as follows:

Sediments: Dip 70° - 80°

Target zone.

- { Quartzose material + carbonate with bands of graphitic slate. Mineralised with pyrite and chalcopyrite.
- { Graphitic slate band - mineralised.
- { Carbonate zone - altered to talc in part with pyrite and chalcopyrite mineralisation.

Sediments. Dip 30° - 45°

Drilling will continue at the Clump Prospect during 1970/1971.

H. G. DAVIES,  
EXPLORATION MANAGER.

JANUARY 1971:

AUSTRALIAN CONSOLIDATED INDUSTRIES LTD.MINERAL RESOURCES DIVISION.TASMANIAN EXPLORATION EL.16/68.

Date: 25th June, 1971.

DDH.10 - MURRAYS REWARD PROSPECT.

M. H. McINTYRE.

SUMMARY.

DDH.10 at the Murrays Reward Prospect was completed at a depth of 179.83m.

A mineralised zone with poorly defined boundaries was intersected between 120.64m and 126.60m. within a series of chloritic and carbonaceous phyllites and slates and consisted of the following lithologies:

- |     |   |  |
|-----|---|--|
| (a) | Carbonaceous and graphitic phyllite containing several chalcopyritic quartz-carbonate veins. Assay value; 1.25% Cu over 1.12m.  | } 0.77%<br><small>assay</small><br>247m<br>(2.2m true) |
| (b) | Chloritic and pyritic quartz-carbonate veins associated with green chloritic tuff (?). Disseminated blebs of chalcopyrite. Assay value; 3483 ppm. Cu over 1.35m.          |  |
| (c) | Porous, fine grained, cream carbonate containing rare traces of chalcopyrite and covellite. Assay value; 143 ppm. Cu over 0.91m.  |  |
| (d) | White quartz containing chloritic phyllite and siltstone fragments, minor cream carbonate veins and rare disseminated chalcopyrite. Assay value; 2300 ppm. Cu over 2.58m. |  |

This mineralised zone averages about 4150 ppm. Cu over a thickness of 5.96m (true thickness of approximately 4.2m). Anomalously high Cu values (mean value 1287 ppm. Cu) occur over a thickness of about 28.14m. between 110.39 and 138.53m.

DDH.10 - MURRAYS REWARD PROSPECT.

Grid reference:	435 020 N, 319 512 E.
Collar R.L.:	640.5 feet.
Angle:	55°
Direction:	056° magnetic.
Date drilled:	13.3.71 to 18.4.71.
Drilling rate:	5.44m. per shift.

1. OPERATIONAL DETAILS:1.1 Drilling details.

The Mindrill F.30 drill rig commenced moving to the site of DDH.10, after the temporary abandonment of DDH.8, on 8th March, 1971, and DDH.10 was commenced on 13th March, 1971.

NX casing was seated at 18.29m and the hole progressed to 121.9m with NQWL equipment. BX casing was seated at 121.9m. and the hole was completed at 179.83m. on 18th April, 1971, with the use of BQWL equipment.

Drilling progress and engineering details are graphically described by Fig. 1.

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1.2 Drilling conditions.

Drill runs and core recovery are given in Appendix A.

NX casing was drilled to 18.29m. without an inner tube and core recovery to this depth averaged about 16%. From 18.29m. to the bottom of the hole at 179.83m., core recovery was almost invariably 100% except for a 1.81m. interval between 121.30m and 123.11m at which depth, BQWL equipment was introduced and the core recovery was about 54%.

The phyllites had a marked tendency to part parallel to the plane of foliation and the inner tube frequently became blocked. As a result, drill runs were usually short and no ten feet runs with complete core recovery were recorded. The overall drilling rate was very low.

At a depth of about 112.5m. a minor amount of water was issuing from the hole at the rate of about 200 litres/hour.

Sludge samples were collected over intervals of 1.52m. and 0.91m., and those collected between 106.68m. and 123.42m. (intervals of 1.52m.) and 127.39m. and 143.85m. (intervals of 0.91m.) were split and assayed for copper. For reasons unknown, the drillers failed to collect sludge samples between 123.42m and 127.39m.

1.3 Drillhole deviation.

The drillhole surveys were as follows:

Collar	55°	
15.24m.	51°	
30.48m.	55°	
45.72m.	55.5°	
60.96m.	53.5°	
76.20m.	52°	
91.44m.	49°	at 060° magnetic.
106.68m.	46.5°	
121.90m.	45°	
137.14m.	40.5°	
152.40m.	35°	at 073° magnetic.
164.59m.	32°	
167.64m.	30°	at 105° magnetic.

The reliability of the Tropari readings is suspect.

DDH.10, in common with all other drillholes at the Balfour area, showed a marked tendency to shallow with increasing depth.

2. GEOLOGY:

The complete drill log is given in Appendix B and may be briefly summarised as follows:

0 to 28.65m.

Finely foliated to massive, pale to medium grey, argillaceous, carbonaceous and graphitic phyllite and siltstone commonly with pale green chloritic tinge.

Few pyritic quartz veins and chlorite porphyroblasts common in parts.

Sporadic disseminated pyrite, graded beds locally preserved.

28.65 to 49.99m.

Pale to dark green, chloritic phyllite, carbonaceous in parts and containing common chloritic porphyroblasts, sporadic disseminated pyrite and a few pyritic quartz veins including a very few containing traces of carbonate residue.

49.99 to 120.64m.

Finely foliated to massive, medium to dark grey carbonaceous and graphitic phyllite and siltstone, often with pale green chloritic tinge and containing common grey-white and brown porphyroblasts. Graded bedding is locally preserved. Rare bands ( $\leq 15$  cm) of pyritic and chloritic tuff (?). Pyritic quartz and quartz-carbonate veins are common and are often moderately to heavily leached and contain chlorite and traces of chalcopyrite. The carbonate veins appear to become more common towards the base of the unit. Rare quartz-pyrite blebs. Sporadic disseminated pyrite. Rare fine grained pyrite on joint planes. Few micro-faults. Rare breccia zones and slickensided fault planes.

120.64 to 126.60m.

Mineralised Zone, consisting of:

120.64 to 121.76m: dark grey to black slightly talcose, carbonaceous and graphitic phyllite, containing several white and yellow-brown, slightly to moderately cavernous quartz-carbonate veins ( $\leq 10$  cm) containing pyrite and chalcopyrite. Assay values: 1.25% Cu, 230 ppm Pb, 1063 ppm Zn. (lost 0.1)

121.76 to 123.11m: mottled white and brown, chloritic and pyritic quartz-carbonate veins associated with chloritic tuff (?). Minor chalcopyrite. Assay values; 3483 ppm Cu, 105 ppm Pb, 130 ppm Zn.

123.11 to 124.02m: porous, fine grained, cream carbonate containing a few quartz veins and blebs, few chlorite stringers and veinlets and rare traces of chalcopyrite and covellite. Assay values; 143 ppm Cu, 18 ppm Pb, 38 ppm Zn.

124.02 to 126.60m: white quartz containing medium to dark green chloritic phyllite and siltstone fragments and minor cream carbonate. Few irregular and discontinuous pyrite bands. Rare disseminated chalcopyrite. Assay values:

- (i) 124.02 to 125.45m; 4068 ppm Cu, 180 ppm Pb, 140 ppm Zn.
- (ii) 125.45 to 126.60m; 115 ppm Cu, 30 ppm Pb, 65 ppm Zn.

126.60 to 137.64m.

This unit consists essentially of chloritic phyllite but contains a few bands of carbonaceous and graphitic phyllite. Yellow-brown porphyroblasts are common. Quartz veins are common and are usually irregular and discontinuous and contain traces of pyrite, carbonate and chlorite. Few quartz-carbonate veins. Rare traces of chalcopyrite.

137.64 to 138.53m.

White quartz containing a few irregular chloritic phyllite fragments and minor carbonate veins. Traces of disseminated chalcopyrite.

138.53 to 179.83m.

Similar to the interval 126.60 to 137.64m, but contains a greater proportion of carbonaceous and graphitic phyllite. Very rare trace of chalcopyrite.

3. SAMPLE AND ASSAY RESULTS:

Two types of samples of the products of DDH.10 were prepared for assay, and in addition, a comprehensive suite of specimens was collected and prepared for thin and polished section examination. The samples were:

- (i) Core samples assayed for Cu, Pb and Zn.
- (ii) Sludge samples from and adjacent to, the mineralised zone, were assayed for Cu.

(i) Core Samples.

A total of 92 samples were collected from the DDH.10 core and were assayed for Cu, Pb and Zn in order to determine the base metal distribution within the Murrays Reward Prospect and to determine the grade of the mineralised zone. The results were:

INTERSECTION (metres)	INTERVAL (metres)	SAMPLE NO. BAL.	ASSAY (ppm)		
			Cu	Pb	Zn
18.29 to 21.23	2.94	0719	50	28	45
21.23 to 22.51	1.28	0720	40	43	58
22.51 to 24.68	2.17	0721	38	30	50
24.68 to 25.90	1.22	0722	50	30	35
25.90 to 27.43	1.53	0723	60	25	33
27.43 to 28.65	1.22	0724	95	20	28
28.65 to 29.72	1.07	0725	110	28	60
29.72 to 31.24	1.52	0726	33	23	45
31.24 to 33.80	2.56	0727	58	28	63
33.80 to 35.66	1.86	0728	30	23	35
35.66 to 37.19	1.53	0729	35	28	40
37.19 to 38.41	1.22	0730	28	33	45
38.41 to 40.07	1.66	0731	43	55	135
40.07 to 41.14	1.07	0732	33	65	70
41.14 to 42.25	1.11	0733	90	200	1000
42.25 to 44.19	1.94	0734	60	120	283
44.19 to 45.40	1.21	0735	33	45	65
45.40 to 46.33	0.93	0736	35	43	40
46.33 to 48.88	2.55	0737	48	45	50
48.88 to 49.99	1.11	0738	45	70	53
49.99 to 51.82	1.83	0739	48	175	35
51.82 to 53.04	1.22	0740	40	53	35
53.04 to 54.33	1.29	0741	35	35	28
54.33 to 56.38	2.05	0742	48	38	35
56.38 to 58.50	2.12	0743	58	30	50
58.50 to 60.02	1.52	0744	53	35	43
60.02 to 61.72	1.70	0745	50	23	33
61.72 to 63.55	1.83	0746	90	35	40
63.55 to 65.23	1.68	0747	40	23	38
65.23 to 66.85	1.62	0748	58	35	108
66.85 to 68.53	1.68	0749	48	33	120
68.53 to 69.27	0.74	0750	45	30	30
69.27 to 70.72	1.45	0751	43	23	48
70.72 to 72.65	1.93	0752	40	25	33
72.65 to 74.22	1.57	0753	48	25	45
74.22 to 75.28	1.06	0754	48	28	40
75.28 to 76.81	1.53	0755	40	33	43
76.81 to 78.52	1.71	0756	55	38	30
78.52 to 80.47	1.95	0757	30	20	50
80.47 to 82.56	2.09	0758	53	390	545
82.56 to 84.29	1.73	0759	50	30	30
84.29 to 85.04	0.75	0760	40	25	20
85.04 to 88.57	3.53	0761	53	33	25
88.57 to 90.22	1.65	0762	53	23	20
90.22 to 91.44	1.22	0763	43	28	13
91.44 to 93.27	1.83	0764	318	25	28
93.27 to 95.16	1.89	0765	55	23	20
95.16 to 97.00	1.84	0766	75	28	20
97.00 to 98.76	1.76	0767	30	105	23
98.76 to 100.43	1.67	0768	63	28	23

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INTERSECTION (metres)	INTERVAL (metres)	SAMPLE NO. BAL.	ASSAY (ppm)		
			Cu	Pb	Zn
100.43 to 101.84	1.41	0769	53	23	23
101.84 to 103.34	1.50	0770	45	25	20
103.34 to 104.48	1.14	0771	53	25	23
104.48 to 105.75	1.27	0772	125	25	25
105.75 to 107.07	1.32	0773	163	30	33
107.07 to 108.67	1.60	0774	58	28	25
108.67 to 110.39	1.72	0775	28	30	20
110.39 to 112.01	1.62	0776	140	33	33
112.01 to 113.27	1.26	0777	188	33	43
113.27 to 114.90	1.63	0778	258	10	58
114.90 to 116.27	1.37	0779	1338	73	158
116.27 to 117.73	1.46	0780	75	15	63
117.73 to 119.02	1.29	0781	153	40	58
119.02 to 120.64	1.62	0782	208	40	50
120.64 to 121.76	1.12	0783	1.25%	230	1063
121.76 to 123.11	1.35	0784	3483	105	130
123.11 to 124.02	0.91	0785	143	18	38
124.02 to 125.45	1.43	0786	4068	180	140
125.45 to 126.60	1.15	0787	115	30	65
126.60 to 127.50	0.90	0788	163	43	45
127.50 to 129.51	2.01	0789	413	18	35
129.51 to 130.84	1.33	0790	225	13	33
130.84 to 132.24	1.40	0791	25	28	40
132.24 to 134.37	2.13	0792	163	35	28
134.37 to 135.78	1.41	0793	313	35	28
135.78 to 137.64	1.86	0794	55	45	35
137.64 to 138.53	0.89	0795	1713	30	33
138.53 to 138.92	0.39	0796	40	35	35
138.92 to 140.80	1.88	0797	20	8	28
140.80 to 142.92	2.12	0798	35	33	33
142.92 to 146.12	3.20	0799	30	40	35
146.12 to 149.00	2.88	0800	43	50	35
149.00 to 152.07	3.07	0801	38	53	40
152.07 to 155.43	3.36	0802	98	43	40
155.43 to 158.30	2.87	0803	83	48	35
158.30 to 161.41	3.11	0804	43	15	30
161.41 to 164.64	3.23	0805	905	30	35
164.64 to 167.27	2.63	0806	23	50	43
167.27 to 170.26	2.99	0807	30	58	43
170.26 to 173.87	3.61	0808	20	58	43
173.87 to 177.69	3.82	0809	90	53	40
177.69 to 179.83	2.14	0810	110	60	35

A visual examination of the Cu values enables the assay results to be roughly sub-divided into three major zones:

Zone A: 18.29 to 110.39m.

Zone B: 110.39 " 138.53m. (i) Mineralised zone 120.04 to 126.60m.

Zone C: 138.53 " 179.83m.

The assay statistics of these zones are:

	MEAN ASSAY VALUES		
	Cu (ppm)	Pb (ppm)	Zn (ppm)
ZONE A	58	46 <sup>2</sup>	71 <sup>3</sup>
ZONE B	1287	53	134
ZONE C	107 <sup>1</sup>	42	37
MINERALISED ZONE	4150 <sup>4</sup>	118	281

NOTES:

1. Includes one anomalous value of 905 ppm. Cu.
2. Includes three values  $\geq 175$  ppm. Pb.
3. Includes two values  $> 500$  ppm. Zn.
4. The values of the mineralised zone only are weighted according to sample interval.

Cu Distribution:

Zone A is a low-grade sequence containing only background Cu values with rare anomalous values associated with chalcopyrite in vein material. The mean assay value (unweighted for sample interval) is 58 ppm. Cu with a range of 28 to 163 ppm. Cu.

Zone B consists of a sequence of anomalous Cu values, the mean Cu value, including and excluding the main mineralised zone, being 1287 and 362 ppm Cu respectively.

Zone C is similar to Zone A in that it consists of a sequence of background Cu values averaging 107 ppm. Cu and owing much of this relatively high value to one sample (BAL.0805) without which the average value is reduced to about 50 ppm. Cu.

There would therefore appear to exist a broad zone of relatively high copper values (Zone B) existing between 110.39 and 138.53m. within which the major mineralised zone occurs and the anomalous values do not appear to be exclusively restricted to any particular rock type. It should be noted that the carbonate unit (Sample BAL.0785) within the main mineralised zone contains comparatively little copper (143 ppm. Cu), this being at variance with the copper distribution within the carbonate rocks at the Clump Prospect.

Pb Distribution:

The Pb distribution is, with few exceptions, confined to background values only. The mean Pb value is 47 ppm Pb. There does appear to exist a low positive correlation, probably statistically significant, between Cu and Pb and Zn and Pb. No lead minerals were positively identified during logging of the core.

Zn Distribution:

The distribution of zinc within the DDH.10 core is similar to that of the Pb distribution in that a series of background values is occasionally punctuated by an anomalously high value which cannot be related to any positively identified Zn minerals. The main mineralised zone has a mean weighted value of about 281 ppm. Zn and the overall mean value is 73 ppm. Zn.

(ii) Sludge samples:

Sludge samples collected between 106.68 and 143.85m were assayed for copper only.

The results were:

INTERSECTION (metres)	INTERVAL (metres)	SAMPLE NO. BAL.	ASSAY ppm. Cu
106.68 to 108.20	1.52	0811	150
108.20 to 109.73	1.53	0812	100
109.73 to 111.25	1.52	0813	160
111.25 to 112.78	1.53	0814	230
114.30 to 115.82	1.52	0815	280
115.82 to 117.34	1.52	0816	370
117.34 to 118.87	1.53	0817	190
118.87 to 120.39	1.52	0818	200
120.39 to 121.90	1.51	0819	200
121.90 to 123.42	1.52	0820	830
127.39 to 128.30	0.91	0821	1300
128.30 to 129.21	0.91	0822	1400
129.21 to 130.13	0.92	0823	1040
130.13 to 131.04	0.91	0824	1500
131.04 to 131.96	0.92	0825	900
131.96 to 132.87	0.91	0826	750
132.87 to 133.79	0.92	0827	560
133.79 to 134.70	0.91	0828	670
134.70 to 135.62	0.92	0829	1000
135.62 to 136.53	0.91	0830	650
136.53 to 137.45	0.92	0831	390
137.45 to 138.36	0.91	0832	480
138.36 to 139.27	0.91	0833	320
139.27 to 140.19	0.92	0834	440
140.19 to 141.10	0.91	0835	340
141.10 to 142.02	0.92	0836	290
142.02 to 142.93	0.91	0837	210
142.93 to 143.85	0.92	0838	240

For reasons unknown the A.D.D. drillers failed to collect sludge samples between 123.42 and 127.39m, and it is unfortunate that this interval corresponds to the mineralised zone. It will be noted, however, that the assay values of the four sludge samples collected immediately below the main mineralised zone are anomalously greater than the assay values of those sludge samples collected away from the mineralised zone, this being caused by the inherent lag between the intersection of the mineralised zone and the collection of the corresponding sludge samples.

It is suggested that a more detailed statistical analysis of the assay values of the DDH.10 core samples should be undertaken and form the basis of a separate report.

#### 4. ROCK SPECIMENS:

A comprehensive suite of specimens was collected from the core of DDH.10 for thin and polished section examination. The results of this examination forms the basis of a separate report.

The specimens were collected from the following depths; T.S. indicating thin section; P.S. indicating polished section.

<u>SPECIMEN NO.</u>	<u>DEPTH</u>		<u>SPECIMEN NO.</u>	<u>DEPTH</u>	
M.R.	(metres)		M.R.	(metres)	
1	12.80	T.S.	31	81.65	T.S./P.S.
2	20.20	T.S.	32	81.65	T.S.
3	22.05	T.S.	33	87.49	T.S./P.S.
4	27.09	T.S.	34	89.97	T.S.
5	29.00	T.S./P.S.	35	91.90	T.S.
6	29.52	T.S.	36	92.05	T.S./P.S.
7	33.02	T.S.	37	92.42	T.S./P.S.
8	36.27	T.S.	38	95.80	T.S./P.S.
9	40.68	T.S.	39	97.10	T.S.
10	43.22	T.S.	40	101.66	T.S./P.S.
11	43.88	T.S./P.S.	41	103.74	T.S.
12	46.18	T.S.	42	105.36	T.S.
13	49.51	T.S.	43	107.92	T.S.
14	50.90	T.S.	44	110.85	T.S./P.S.
15	53.48	T.S.	45	113.31	T.S./P.S.
16	56.53	T.S.	46	115.96	T.S.
17	57.80	T.S./P.S.	47	117.10	T.S.
18	58.84	T.S.	48	118.57	T.S./P.S.
19	61.72	T.S.	49	118.87	T.S.
20	65.38	T.S.	50	123.57	T.S./P.S.
21	66.90	T.S./P.S.	51	124.47	T.S./P.S.
22	68.27	T.S.	52	124.85	T.S./P.S.
23	68.97	T.S.	53	126.50	T.S.
24	71.38	T.S.	54	126.98	T.S.
25	72.43	T.S.	55	128.72	T.S.
26	77.20	T.S.	56	129.67	T.S.
27	79.00	T.S./P.S.	57	132.36	T.S.
28	79.52	T.S.	58	138.00	T.S.
29	80.47	T.S./P.S.	59	143.57	T.S.
30	80.90	T.S./P.S.	60	166.36	T.S.

##### 5. CONCLUSION:

DDH.10 intersected sub-economic copper mineralisation beneath the old mine workings of Murrays Reward. The information yielded by this single drill hole is not sufficient to determine whether the high grade secondary and primary copper mineralisation originally mined from Murrays Reward, pinches out with depth and further drillholes are warranted in this area of the Balfour field.

012

## APPENDIX A

637014

## D.D.H.10 - DRILL RUNS AND CORE RECOVERY

Depth			Metric Equivalent			Core Recovery	
						Metres	Per Cent
0	to	10'0"	0	to	3.05	0.33	11
10'0"	"	22'0"	3.05	"	6.71	0.30	8
22'0"	"	32'0"	6.71	"	9.75	0.61	20
32'0"	"	42'0"	9.75	"	12.80	0.41	13
42'0"	"	52'0"	12.80	"	15.85	0.30	10
52'0"	"	60'0"	15.85	"	18.29	0.91	38
60'0"	"	62'6"	18.29	"	19.05	0.76	100
62'6"	"	63'6"	19.05	"	19.35	0.30	100
63'6"	"	66'6"	19.35	"	20.26	0.91	100
66'6"	"	72'4"	20.26	"	22.05	1.27	71
72'4"	"	74'10"	22.05	"	22.81	0.76	57
74'10"	"	81'0"	22.81	"	24.68	1.06	80
81'0"	"	83'0"	24.68	"	25.29	0.61	100
83'0"	"	85'0"	25.29	"	25.90	0.61	100
85'0"	"	90'0"	25.90	"	27.43	1.22	80
90'0"	"	94'0"	27.43	"	28.65	1.22	100
94'0"	"	96'0"	28.65	"	29.26	0.61	100
96'0"	"	97'6"	29.26	"	29.72	0.46	100
97'6"	"	100'0"	29.72	"	30.48	0.76	100
100'0"	"	102'6"	30.48	"	31.24	0.76	100
102'6"	"	104'0"	31.24	"	31.70	0.46	100
104'0"	"	106'0"	31.70	"	32.31	0.61	100
106'0"	"	109'0"	32.31	"	33.22	0.91	100
109'0"	"	110'0"	33.22	"	33.52	0.30	100
110'0"	"	112'0"	33.52	"	34.14	0.61	100
112'0"	"	114'0"	34.14	"	34.75	0.61	100
114'0"	"	117'0"	34.75	"	35.66	0.91	100
117'0"	"	119'0"	35.66	"	36.27	0.61	100
119'0"	"	122'0"	36.27	"	37.19	0.91	100
122'0"	"	124'0"	37.19	"	37.80	0.61	100
124'0"	"	126'0"	37.80	"	38.41	0.61	100
126'0"	"	128'0"	38.41	"	39.02	0.61	100
128'0"	"	133'6"	39.02	"	40.68	1.67	100
133'6"	"	135'0"	40.68	"	41.14	0.46	100
135'0"	"	136'6"	41.14	"	41.60	0.46	100
136'6"	"	141'0"	41.60	"	42.97	1.37	100
141'0"	"	145'0"	42.97	"	44.19	1.22	100
145'0"	"	152'0"	44.19	"	46.33	2.13	100
152'0"	"	162'0"	46.33	"	49.38	2.59	85
162'0"	"	164'0"	49.38	"	49.99	0.61	100
164'0"	"	166'0"	49.99	"	50.60	0.61	100
166'0"	"	168'0"	50.60	"	51.21	0.61	100
168'0"	"	170'0"	51.21	"	51.82	0.61	100
170'0"	"	174'0"	51.82	"	53.04	1.22	100
174'0"	"	177'0"	53.04	"	53.95	0.91	100
177'0"	"	180'0"	53.95	"	54.86	0.91	100
180'0"	"	182'6"	54.86	"	55.62	0.76	100
182'6"	"	185'0"	55.62	"	56.38	0.76	100
185'0"	"	186'9"	56.38	"	56.91	0.53	100
186'9"	"	189'0"	56.91	"	57.59	0.68	100
189'0"	"	191'0"	57.59	"	58.20	0.61	100
191'0"	"	192'0"	58.20	"	58.50	0.30	100
192'0"	"	195'0"	58.50	"	59.41	0.91	100
195'0"	"	197'0"	59.41	"	60.02	0.61	100
197'0"	"	200'0"	60.02	"	60.96	0.91	100
200'0"	"	201'0"	60.96	"	61.26	0.30	100
201'0"	"	202'6"	61.26	"	61.72	0.46	100
202'6"	"	206'0"	61.72	"	62.79	1.07	100
206'0"	"	208'6"	62.79	"	63.55	0.76	100
208'6"	"	210'6"	63.55	"	64.16	0.61	100

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Depth	Metric Equivalent	Core Recovery	
		Metres	Per Cent
210'6" to 212'6"	64.16 to 64.77	0.61	100
212'6" " 214'0"	64.77 " 65.23	0.46	100
214'0" " 215'0"	65.23 " 65.53	0.30	100
215'0" " 216'6"	65.53 " 65.99	0.46	100
216'6" " 219'0"	65.99 " 66.75	0.76	100
219'0" " 222'0"	66.75 " 67.66	0.91	100
222'0" " 223'8"	67.66 " 68.27	0.51	100
223'8" " 227'3"	68.27 " 69.27	1.00	100
227'3" " 229'8"	69.27 " 70.01	0.74	100
229'8" " 232'0"	70.01 " 70.72	0.71	100
232'0" " 234'0"	70.72 " 71.33	0.61	100
234'0" " 238'0"	71.33 " 72.55	1.22	100
238'0" " 242'4"	72.55 " 73.86	1.31	100
242'4" " 243'6"	73.86 " 74.22	0.36	100
243'6" " 245'0"	74.22 " 74.68	0.46	100
245'0" " 250'0"	74.68 " 76.20	1.52	100
250'0" " 250'6"	76.20 " 76.35	0.15	100
250'6" " 252'0"	76.35 " 76.81	0.46	100
252'0" " 254'0"	76.81 " 77.42	0.61	100
254'0" " 256'0"	77.42 " 78.03	0.61	100
256'0" " 258'0"	78.03 " 78.64	0.61	100
258'0" " 264'0"	78.64 " 80.47	1.83	100
264'0" " 266'6"	80.47 " 81.23	0.76	100
266'6" " 268'0"	81.23 " 81.69	0.46	100
268'0" " 270'0"	81.69 " 82.30	0.61	100
270'0" " 271'6"	82.30 " 82.76	0.46	100
271'6" " 273'8"	82.76 " 83.42	0.66	100
273'8" " 275'0"	83.42 " 83.83	0.41	100
275'0" " 276'6"	83.83 " 84.29	0.46	100
276'6" " 278'0"	84.29 " 84.75	0.46	100
278'0" " 279'0"	84.75 " 85.04	0.29	100
279'0" " 289'0"	85.04 " 88.09	1.22	40
289'0" " 293'0"	88.09 " 89.31	1.22	100
293'0" " 296'0"	89.31 " 90.22	0.91	100
296'0" " 300'0"	90.22 " 91.44	1.22	100
300'0" " 303'0"	91.44 " 92.35	0.91	100
303'0" " 306'0"	92.35 " 93.27	0.91	100
306'0" " 310'0"	93.27 " 94.49	1.22	100
310'0" " 314'0"	94.49 " 95.71	1.22	100
314'0" " 320'0"	95.71 " 97.54	1.83	100
320'0" " 322'0"	97.54 " 98.15	0.61	100
322'0" " 324'0"	98.15 " 98.76	0.61	100
324'0" " 326'4"	98.76 " 99.46	0.70	100
326'4" " 329'6"	99.46 " 100.43	0.97	100
329'6" " 335'6"	100.43 " 102.26	1.83	100
335'6" " 342'4"	102.26 " 104.34	2.08	100
342'4" " 345'0"	104.34 " 105.15	0.91	100
345'0" " 348'2"	105.15 " 106.11	0.96	100
348'2" " 351'4"	106.11 " 107.07	0.96	100
351'4" " 352'0"	107.07 " 107.29	0.22	100
352'0" " 354'0"	107.29 " 107.90	0.61	100
354'0" " 360'0"	107.90 " 109.73	1.83	100
360'0" " 362'2"	109.73 " 110.39	0.66	100
362'2" " 365'6"	110.39 " 111.40	1.01	100
365'6" " 367'6"	111.40 " 112.01	0.61	100
367'6" " 375'0"	112.01 " 114.29	2.28	100
375'0" " 377'0"	114.29 " 114.90	0.61	100
377'0" " 381'6"	114.90 " 116.27	1.37	100
381'6" " 384'9"	116.27 " 117.27	1.00	100
384'9" " 390'6"	117.27 " 119.02	1.75	100
390'6" " 394'6"	119.02 " 120.24	1.22	100
394'6" " 398'0"	120.24 " 121.30	1.06	100

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Depth		Metric Equivalent		Core Recovery	
				Metres	Per Cent
398'0"	to 399'6"	121.30	to 121.76	0.30	65
399'6"	" 402'3"	121.76	" 122.58	0.30	36
402'3"	" 404'0"	122.58	" 123.11	0.38	72
404'0"	" 407'0"	123.11	" 124.02	0.91	100
407'0"	" 413'0"	124.02	" 125.85	1.83	100
413'0"	" 415'0"	125.85	" 126.46	0.61	100
415'0"	" 422'0"	126.46	" 128.59	2.13	100
422'0"	" 426'6"	128.59	" 129.96	1.37	100
426'6"	" 427'0"	129.96	" 130.11	0.15	100
427'0"	" 431'6"	130.11	" 131.48	1.37	100
431'6"	" 434'0"	131.48	" 132.24	0.76	100
434'0"	" 439'0"	132.24	" 133.76	0.76	50
439'0"	" 441'0"	133.76	" 134.37	0.61	100
441'0"	" 443'0"	134.37	" 134.98	0.61	100
443'0"	" 447'0"	134.98	" 136.20	1.22	100
447'0"	" 448'0"	136.20	" 136.50	0.30	100
448'0"	" 455'8"	136.50	" 138.76	1.37	56
455'8"	" 457'0"	138.76	" 139.27	0.41	100
457'0"	" 460'6"	139.27	" 140.33	1.06	100
460'6"	" 463'0"	140.33	" 141.09	0.76	100
463'0"	" 469'0"	141.09	" 142.92	1.83	100
469'0"	" 477'0"	142.92	" 145.36	2.44	100
477'0"	" 479'6"	145.36	" 146.12	0.76	100
479'6"	" 481'4"	146.12	" 146.68	0.56	100
481'4"	" 487'0"	146.68	" 148.41	1.73	100
487'0"	" 491'0"	148.41	" 149.63	1.22	100
491'0"	" 495'0"	149.63	" 150.85	1.22	100
495'0"	" 499'0"	150.85	" 152.07	1.22	100
499'0"	" 501'0"	152.07	" 152.68	0.61	100
501'0"	" 503'0"	152.68	" 153.29	0.61	100
503'0"	" 506'0"	153.29	" 154.20	0.91	100
506'0"	" 509'0"	154.20	" 155.11	0.91	100
509'0"	" 513'6"	155.11	" 156.48	1.37	100
513'6"	" 517'0"	156.48	" 157.54	1.06	100
517'0"	" 519'6"	157.54	" 158.30	0.76	100
519'6"	" 520'6"	158.30	" 158.60	0.15	50
520'6"	" 524'0"	158.60	" 159.66	1.06	100
524'0"	" 525'0"	159.66	" 159.96	0.30	100
525'0"	" 527'6"	159.96	" 160.72	0.76	100
527'6"	" 528'10"	160.72	" 161.13	0.41	100
528'10"	" 530'4"	161.13	" 161.59	0.46	100
530'4"	" 531'10"	161.59	" 162.05	0.46	100
531'10"	" 534'4"	162.05	" 162.81	0.76	100
534'4"	" 540'4"	162.81	" 164.64	1.83	100
540'4"	" 540'10"	164.64	" 164.84	0.15	100
540'10"	" 542'10"	164.84	" 165.45	0.61	100
542'10"	" 545'10"	165.45	" 166.36	0.91	100
545'10"	" 548'10"	166.36	" 167.27	0.91	100
548'10"	" 554'10"	167.27	" 169.11	1.83	100
554'10"	" 563'0"	169.11	" 171.60	2.49	100
563'0"	" 568'0"	171.60	" 173.12	1.52	100
568'0"	" 573'0"	173.12	" 174.65	1.52	100
573'0"	" 574'0"	174.65	" 174.96	0.30	100
574'0"	" 577'0"	174.96	" 175.87	0.91	100
577'0"	" 577'6"	175.87	" 176.02	0.15	100
577'6"	" 579'6"	176.02	" 176.63	0.61	100
579'6"	" 583'0"	176.63	" 177.69	0.30	28
583'0"	" 586'0"	177.69	" 178.61	0.91	100
586'0"	" 587'6"	178.61	" 179.07	0.46	100
587'6"	" 589'6"	179.07	" 179.68	0.61	100

A.C.I. MINERAL RESOURCES DIVISION

TASMANIAN EXPLORATION

Date drilled: 13.3.71 to 18.4.71.

DDH. 10 MURRAYS PROSPECT: REWARD

Grid Reference: 435 020 N, 319 512 E. Angle 55° RL.640.5'

Direction: 056° magnetic.

INTERVAL IN METRES		DIP IN BEDDING	DESCRIPTION
From	To		
0	12.80	30°	Pale to medium grey with pale green (chlorite) tinge, carbonaceous siltstone. Few graded beds containing sporadic pyrite parallel to bedding and confined to paler and coarser sedimentary bands. Slight graphitic sheen on some bedding surfaces. Porous and slightly friable. Few microfaults.
12.80	18.29		Pale to medium grey, massive argillaceous and carbonaceous siltstone with pale green (chlorite) tinge. Few quartz veins, often slightly pyritic. Few small (<0.5mm) chloritic (?) porphyroblasts. Porous and slightly friable.
→ 18.24	21.23	30°	Finely foliated, pale to medium grey, carbonaceous phyllite. Foliation parallel to original bedding and graded bedding preserved. Slightly chloritic in parts and kink bands common. Well jointed, fragmentary in parts.
21.23	22.51		Pale grey-green, generally massive but slightly phyllitic argillaceous sediment containing numerous small (<0.5mm) green (chloritic ?) porphyroblasts.
22.51	28.65	30° at 27.45m. 30° " 28.25m.	Similar to interval 18.29 to 21.23m, but more chloritic and less carbonaceous. Rare pyrite aligned parallel to bedding. Few small (<0.5mm) grey-white porphyroblasts in argillaceous and carbonaceous units.
28.65	33.80	25°-30° at 33.55m.	Grey-green to medium green, porous, chloritic phyllite, often apparently massive, but with indistinct foliation. Few lensoid quartz-pyrite blebs (≤2 cm) and sporadic disseminated euhedral pyrite. Common pyritic quartz veins (≤15mm) usually parallel, but occasionally normal, to foliation. Often slightly cavernous. Few small (<0.5mm) chloritic porphyroblasts.
33.80	40.07	30° at 34.80m. 25° " 36.50m. 20°-25° at 37.44m. 20° at 39.75m.	Similar to interval 28.65 to 33.80m., but is yellow-green and pale to medium green and very porous and contains numerous chloritic porphyroblasts. Few pyritic quartz blebs and veins, commonly aligned parallel to foliation. Original bedding apparently graded and finely laminated. Few kink bands normal to foliation.

INTERVAL IN METRES		DIP IN BEDDING	DESCRIPTION.
From	To		
40.07	41.14	25°	Medium to dark green chloritic phyllite. Numerous chloritic porphyroblasts. Massive in basal 40 cm. Few pyritic quartz veins ( $\leq 2$ mm), commonly deformed in basal 40 cm of unit.
41.14	42.25		Medium to dark grey-green, strongly fractured chloritic phyllite. Few kink bands. Sporadic fractured pyritic quartz veins ( $\leq 10$ mm). Sporadic disseminated pyrite.
42.25	48.88	20°-25° at 43.32m. 30° at 45.53m.	Medium to dark grey carbonaceous phyllite with pale green chloritic tinge in parts. Foliation is parallel to bedding which is graded and finely laminated. Quartz veins ( $\leq 15$ mm) common, parallel, normal and oblique to foliation. Quartz veins commonly pyritic and slightly cavernous after carbonate with traces of yellow-brown carbonate residue. Massive in parts.
48.88	49.99		Similar to interval 40.07 to 41.14m. Very fragmental in parts, but massive with poorly defined foliation in basal 50 cms. Few talcose fragments in top 10 cms. Massive sections contain abundant small ( $\leq 0.5$ mm) chloritic porphyroblasts. Few quartz veins ( $\leq 2$ mm). Rare disseminated pyrite.
49.99	51.82	20°-25° at 50.70m.	Medium to dark grey, carbonaceous phyllite. Foliation parallel to original bedding. Paler bands represent coarser basal sediments in graded beds. Dark grey argillaceous and carbonaceous bands contain numerous grey-white porphyroblasts ( $\leq 0.5$ mm). Sporadic pyrite in paler bands which usually have a very slight chloritic tinge. Very well-jointed, core fragmentary in parts.
51.82	54.43	40° - 45°	Dark grey, apparently massive carbonaceous siltstone, but phyllite foliation defined by numerous pale grey porphyroblasts. Faint chloritic tinge. Few dark grey carbonaceous and graphitic phyllite bands together with pale grey carbonaceous phyllite. Few irregular and discontinuous quartz veins ( $\leq 2$ mm), often slightly cavernous after pyrite (?). Rare finegrained pyrite on joint surfaces. Rare kink bands.
54.43	58.50	25° at 54.65m. 15°-20° at 55.44m. 20° at 57.00m.	Medium to dark grey carbonaceous and graphitic phyllite with common pale grey to white bands which apparently represent coarser basal sediments in graded beds. Quartz veins common, often containing residues yellow-brown carbonate and with cavities after pyrite and carbonate. Very well jointed. Very fissile in parts with foliation parallel to original bedding, the rock tending to part into thin ( $\leq 0.5$ mm) carbonaceous and graphitic sheets. Quartz veins commonly deformed. Sporadic pyrite, usually occurring in the pale grey bands. Numerous pale grey leucoxene (?) porphyroblasts in darker and more massive carbonaceous units. A slightly brecciated zone occurs at 57.60 m, and a moderately to heavily leached quartz-carbonate vein at 57.75 m. Rare slickensided surfaces and rare kink bands.

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INTERVAL IN METRES		DIP IN BEDDING	DESCRIPTION.
From	To		
58.50	60.02	15° - 20°	Similar to interval 54.43 to 58.50 m, but much less well jointed. Numerous porphyroblasts in darker carbonaceous bands appear to be aligned slightly obliquely to foliation, which is parallel to original bedding. Minor deformed pyritic chlorite-carbonate zone with rare traces of chalcopyrite at about 59.20 m. Faint chloritic tinge.
60.02	66.85	20° at 61.72m. 20° " 63.40m.	Similar to interval 58.50 to 60.02 m. but original bedding finely laminated in parts. Few quartz-pyrite blebs and pyritic quartz veins. Quartz veins ( $\leq 3$ mm) common and often approximately normal to foliation. Graded bedding suggests younging towards East. Numerous porphyroblasts in darker carbonaceous bands. Few kink bands, rare microfaults.
66.85	68.53	45° at 67.15m. 30° " 67.86m.	Medium to dark grey, with green chloritic tinge, graded beds (commonly $< 5$ cm) of carbonaceous phyllite. Abundant small ( $\leq 0.5$ %), grey-green porphyroblasts in darker carbonaceous units. At approximately 66.90 m, occurs a slightly cavernous yellow-green, pyritic quartz-chlorite-carbonate band parallel to original bedding and associated with large ( $\leq 2$ mm) grey-green anhedral porphyroblasts. Few quartz veins ( $\leq 3$ mm). Rare microfaults. A slickensided fault plane roughly parallel to long axis of core occurs at about 67.75 m.
68.53	69.27	25°	Medium to dark grey with green chloritic tinge, finely foliated carbonaceous phyllite. Foliation slightly deformed in parts. Rare quartz-pyrite blebs ( $\leq 2$ cm). Prominent microfaults sub-parallel to long axis of core. Rare quartz veins ( $\leq 1$ mm).
69.27	70.72	20° to 25°	Medium to dark grey-green (with pale grey-green bands) carbonaceous phyllite occurring in graded beds ( $\leq 5$ cm). Graded bedding indicates younging towards East. Numerous grey-green porphyroblasts, particularly in darker and more argillaceous bands. Few pyrite-quartz blebs, particularly in pale grey bands. Prominent pyritic and chloritic quartz vein ( $\leq 10$ mm) at about 70.37 m. Few other quartz veins.
70.72	72.65	30°	Medium to dark grey-green carbonaceous siltstone and phyllite apparently massive but with foliation defined by very numerous grey lensoid porphyroblasts which are aligned parallel to original bedding. Few irregular green-brown, pyritic and chloritic carbonate veins commonly oblique to foliation.
72.65	78.52	20°-25° at 73.30m. 20°-25° at 75.20m. 25° at 76.90m.	Similar to interval 69.27 to 70.72m. Massive in parts and finely foliated in parts. Abundant porphyroblasts. Foliated parts of unit consist of alternations of dark grey carbonaceous phyllite and pale grey phyllite containing yellow-brown carbonate. At approximately 76.35 m, the foliation dips 20° and a drag-fold axis dips 50° to 55°. Also occurring in pale grey phyllite bands are common yellow-brown carbonate (?) porphyroblasts. Sporadic pyrite, usually occurring in pale grey bands. Few quartz, quartz-chlorite and quartz-carbonate veins. Rare microfaults.

637019

INTERVAL IN METRES		DIP IN BEDDING	DESCRIPTION.
From	To		
78.52	82.56	35° at 80.67m.	Medium grey-green carbonaceous phyllite, apparently mainly massive but with coarse foliation parallel to original bedding planes and with fine foliation parallel to numerous porphyroblasts with well defined preferred orientation. Paler bands contain brown carbonate blebs parallel to original bedding. Porphyroblasts usually pale yellow-green (chlorite-carbonate (?)). Sporadic quartz and quartz-carbonate veins ( $\leq 3$ mm) often normal to foliation and dipping about 40°. Sporadic pyrite in paler phyllite bands. Rare quartz-pyrite blebs. Unit includes two narrow ( $\leq 15$ cm) zones of fragmental and pyritic very pale grey-green chloritic tuff (?). At 79.0m a mottled white and brown quartz-carbonate vein ( $\leq 2.5$ cm) occurs normal to foliation.
82.56	84.29	30°	Pale grey phyllite and medium to dark grey carbonaceous phyllite in graded beds. Disseminated pyrite blebs ( $\leq 10$ mm) in pale grey phyllite. Few erosional features at base of graded beds. Numerous pale yellow-grey porphyroblasts in dark grey carbonaceous phyllite. Few quartz and quartz-carbonate veins ( $\leq 2$ mm), occasionally pyritic. Finely foliated in parts. At approximately 83.83 and 84.29 m. occurs very pale green, fragmentary, pyritic and chloritic tuff, apparently containing rare pyritic quartz veins.
84.29	90.22	30°	Similar to interval 82.56 to 84.29 m, but with few massive porphyroblastic units and with common pyritic quartz-carbonate veins parallel and slightly oblique to foliation. These veins ( $\leq 6$ mm) are mottled white, yellow and green. Rare microfaults. Veins dip 30° and 35° - 45°.
90.22	98.76		Dark grey to black carbonaceous phyllite. Apparently massive but with foliation defined by preferred orientation of numerous porphyroblasts and numerous thin ( $\leq 2$ mm) quartz and quartz-carbonate veins. Few thicker quartz-carbonate veins, usually pyritic. Between 91.76 and 91.96 m, occurs a complex pyritic and chloritic quartz-carbonate mass which includes a quartz-carbonate vein (7 cm) dipping 45° and containing rare ( $\leq 0.5\%$ ) chalcopryrite. This carbonate vein is only slightly cavernous and appears to consist of a boxwork of quartz infilled with yellow-brown carbonate. Numerous grey porphyroblasts. Few bands pale grey phyllitic siltstone at about 93.25m associated with large ( $\leq 15$ mm) pyrite blebs. At about 95.80m, is a 6 cm quartz-carbonate vein similar to that between 91.76 and 91.96m. This vein is pyritic and highly cavernous and contains rare traces of chalcopryrite. Dip of veins commonly 45°, but also about 30°.
98.76	103.34		Dark grey to black carbonaceous phyllite, finely foliated in parts, massive in parts and with few graded beds. Porphyroblasts abundant throughout, some being yellow-brown suggesting carbonate. Thin (usually $\leq 1$ mm) quartz and quartz-carbonate veins common and often deformed and irregular. Veins are commonly pyritic and chloritic.

637020

INTERVAL IN METRES		DIP IN BEDDING	DESCRIPTION.
From	To		
103.34	105.75	60°	<p>Microfaults are common, apparently increasing in number towards base of unit. At 101.63 m, occurs a large (2.5 x 6 cm) quartz-carbonate-pyrite bleb, consisting mainly of pyrite with minor quartz and carbonate. Few small pyrite blebs. Rare, irregular and discontinuous bedded (?) pyrite. Rare slickensided fault planes.</p> <p>Dark grey and black carbonaceous phyllite containing numerous pyritic quartz and quartz-carbonate veins, occasionally slightly chloritic. This unit is complexly deformed, particularly in the top 58 cm which consists of alternating pale and medium grey phyllitic siltstone dipping about 0-5° and with numerous microfaults. Quartz-carbonate veins (<math>\leq 2</math> mm) are common and dip about 55°. Sporadic pyrite in pale grey bands. Microfaults and foliation dip 55°. At about 103.36 m, occurs a pyritic quartz-carbonate vein (2cm) containing traces of chalcopyrite. Remainder of unit consists of dark grey to black carbonaceous and graphitic phyllite, apparently less well-deformed although original bedding is indistinct or obliterated and quartz and quartz-carbonate veins are commonly deformed and drag-folded and are usually pyritic. All veins are commonly irregular, discontinuous, deformed and without preferred orientation. Pyrite is common (approx. 3% of total rock) and is usually associated with vein material. Few slickensided fault planes.</p>
105.75	110.39		<p>Dark grey to black, porphyroblastic carbonaceous phyllite. Foliation generally not well defined except by orientation of numerous quartz and quartz-carbonate veins (<math>\leq 2</math> mm) and by preferred orientation of small (<math>\leq 1</math> mm) acicular (deformed?) to lensoid grey-white porphyroblasts. Veins straight and regular and commonly dip 45°. The top 1.2 m, is slightly to moderately deformed similar to the interval 103.34 to 105.75 m, and pyritic and chloritic quartz-carbonate veins and quartz-pyrite veins and blebs are common. A few deformed, irregular and discontinuous quartz and quartz-carbonate veins occur towards base of unit. Rare slickensided and pyritic fault planes. Poorly jointed, the rock parting only parallel to foliation.</p>
110.39	114.90		<p>Similar to the interval 105.75 to 110.39 m, but is more argillaceous and contains fewer porphyroblasts and more quartz-carbonate veins. The quartz-carbonate veins are usually pyritic, often heavily so, and are commonly irregular and deformed and contain minor amounts of chlorite. The original bedding is locally preserved although usually only indistinctly.</p> <p>Between 114.08 and 114.29 m, occurs a heavily pyritic and only slightly quartzose pale yellow and red-brown carbonate vein. This vein is slightly to moderately cavernous and contains few black siltstone fragments and traces of chalcopyrite. A minor breccia zone lies adjacent to this carbonate vein.</p>

637021

INTERVAL IN METRES		DIP IN BEDDING	DESCRIPTION.	637022
From	To			
			Other carbonate veins are usually only slightly cavernous and are up to 6 cm thick. A few deformed veins give the appearance of ptygmatic folding. Dip of veins often $50^{\circ}$ - $60^{\circ}$ .	
114.90	116.27	$45^{\circ}$ to $50^{\circ}$	Similar to the interval 110.39 to 114.90 m and contains very numerous grey-white porphyroblasts. Quartz and quartz-carbonate veins ( $\leq 3$ mm) are common and are usually pyritic and slightly chloritic. A few large ( $\leq 6$ cm) quartz and quartz-carbonate veins occur and these are moderately to strongly cavernous and contain traces ( $< 0.1\%$ ) of chalcopyrite, a few siltstone or phyllite fragments and minor pyrite.	
116.27	117.73		Dark grey to black carbonaceous and graphitic phyllite and slate with foliation independant of original bedding. The foliation is usually normal to the original bedding, which apparently consisted of finely laminated pale grey and dark grey siltstone. This unit contains a few quartz and quartz-carbonate veins ( $\leq 2$ cm) which are moderately cavernous.	
117.73	120.64		Dark grey to black carbonaceous and graphitic phyllite. Apparently massive, but original bedding locally preserved. Sporadic small ( $< 0.5$ mm) grey and yellow-brown porphyroblasts. Pyritic quartz and quartz-carbonate veins ( $\leq 10$ mm) are common and are slightly to moderately cavernous. These veins are often irregular, discontinuous and complexly deformed. Dip of veins commonly $45^{\circ}$ - $50^{\circ}$ . At about 118.92 m, is a thin breccia zone with a cement of vein quartz which has been later deformed. A few microfaults are present.	
120.64	121.76		Dark grey to black, slightly talcose carbonaceous and graphitic phyllite containing several thick (10 cm) mottled white and yellow-brown quartz-carbonate veins which are slightly to moderately cavernous. Chalcopyrite ( $\leq 2\%$ ) is associated with pyrite in a vein at about 120.70 m.	
121.76	123.11		Mottled white and red-brown chloritic and pyritic quartz-carbonate veins associated with medium green chloritic tuff (?) which contains small, irregular and discontinuous carbonate veins and yellow-brown carbonate (?) porphyroblasts ( $\leq 1$ mm). Chalcopyrite ( $\leq 0.5\%$ ) occurs as disseminated blebs. This unit is very fragmentary in parts.	

INTERVAL IN METRES		DIP IN BEDDING	DESCRIPTION.
From	To		
123.11	124.02		Porous, fine grained cream carbonate (red-brown on surface of core) containing few white quartz veins and blebs and scattered chlorite stringers and veinlets. This unit contains traces of chalcopyrite and rare traces of covellite. Several fragments of leached quartz occur at top of unit.
124.02	126.60		White quartz containing medium and dark green chloritic phyllite and siltstone fragments and deformed and elongated laminae. A minor amount of cream carbonate occurs as vein material. The unit contains a few apparently later veins of quartz, carbonate and quartz-carbonate and a few irregular and discontinuous bands of pyrite. Sporadic disseminated pyrite. Rare disseminated chalcopyrite.
126.60	127.50		Pale and medium grey carbonaceous phyllite containing numerous complexly deformed pyritic quartz and quartz-carbonate veins ( $\leq 5$ cm). The original bedding apparently consisted of a series of graded pale grey siltstone (base) and dark grey argillaceous and carbonaceous siltstone laminae. The veins are usually extremely irregular, discontinuous and of variable thickness. The veins are dominantly quartz, a few contain minor amounts of carbonate. Dragfolds are common and a few microfaults occur. The unit is chloritic and graphitic in parts, and contains rare disseminated chalcopyrite.
127.50	130.84	55° 15°	Medium green chloritic phyllite containing many yellow-brown carbonate (?) porphyroblasts ( $\leq 1$ mm). The original bedding is locally preserved and dips 0-15°. Quartz veins are common and are usually irregular, discontinuous and of variable thickness. They contain minor carbonate and occasionally have diffuse boundaries. Between about 129.21 and 129.56 m, a white quartz vein with few diffuse chloritic phyllite inclusions and minor carbonate contains approximately 0.5% chalcopyrite in irregular blebs.
130.84	137.64	45°	Similar to the interval 127.50 to 130.84 m, but much more evenly foliated and with much fewer quartz veins. Numerous yellow-brown porphyroblasts. The few quartz veins are slightly chloritic. Rare, narrow ( $\leq 3$ cm) silicified bands contain irregular and discontinuous quartz-carbonate veins and pods with diffuse boundaries. The unit contains rare pyritic quartz veins and rare disseminated pyrite. Very rare chalcopyrite is associated with the pyritic quartz veins.
137.64	138.53		White quartz containing medium green irregular and discontinuous chloritic phyllite and siltstone fragments and minor carbonate veins ( $\leq 3$ mm) and blebs. Pyrite occurs as sporadic disseminated blebs and as fine grained coating on joints. Traces of chalcopyrite occurs as minute blebs.

637023

INTERVAL IN METRES		DIP IN BEDDING	DESCRIPTION.
From	To		
138.53	138.92		Similar to the interval 127.50 to 130.83 m.
138.92	140.80		Pale grey-green and medium grey-green chloritic and carbonaceous phyllite. The original bedding is relatively well preserved and consists of graded beds ( $\leq 3$ cm) of pale grey siltstone (base) grading up to dark grey argillaceous and carbonaceous siltstone. Disseminated pyrite occurs in pale grey bands. A few grey-brown porphyroblasts occur in the dark grey carbonaceous bands. Rare quartz veins.
140.80	155.43	40° at 143.55m 45-50° " 145.36m 40° " 146.75m 40-45° " 148.45m 35° " 149.65m 45° " 150.90m 45° " 152.53m	Medium grey-green carbonaceous phyllite, slightly chloritic and similar to interval 130.84 to 137.64 m, but containing only rare yellow-brown porphyroblasts. The original bedding apparently consisted of thin ( $\leq 15$ mm) graded beds and laminated pale grey and dark grey carbonaceous siltstone. The unit contains a few quartz and quartz-carbonate veins. The veins are usually $\leq 2$ mm, but at 148.56m, there occurs a moderately cavernous and slightly pyritic quartz-carbonate vein 2 cm thick. Very fissile.
155.43	177.69	40-45° at 156.25m 45° " 157.19m 45° " 159.01m 40-45° " 161.13m 45-50° " 162.81m 45° " 164.64m 40-45° " 166.45m 50° " 169.15m 45-50° " 174.05m 55° " 174.80m	Medium green and grey-green, finely foliated chloritic phyllite. The foliation is parallel to the original bedding which is relatively well preserved and apparently consisted of finely laminated siltstone, carbonaceous in parts, and a few thin ( $\leq 2$ cm) graded beds. A slight colour banding reflects the original lithology. This unit is generally even-textured and has an overall uniform colour. A few quartz and mottled white-red/brown quartz-carbonate veins occur. These veins are often deformed and slightly pyritic and have a few cavities after carbonate. Rare chalcopyrite is associated with these veins. The unit is slightly porous about 157.54m, and parts very readily parallel to the original bedding. A few minor dragfolds occur in places.
177.69	179.83	55° at 178.75m	Similar to the interval 155.43 to 177.69m, but much paler green. Parts very readily parallel to original bedding. Sporadic euhedral pyrite.
			<u>DDH.10 COMPLETED AT 179.83 METRES.</u>

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SUMMARY REPORT FOR THE DIRECTOR OF MINES, TASMANIAINTRODUCTION

Mineral exploration in E.L. 16/68 by Australian Consolidated Industries Ltd has proved the existence of sub-economic cupriferous mineralization in at least eight discrete prospects extending along a strike length of 17 kilometres. Exploration is to be continued.

GEOLOGY

Geological mapping on a scale of 1 : 10000 over a 6000 hectare area between the southern South Balfour Prospect and the northern Clump Prospect revealed that an easterly dipping sequence of sandstone and shale in the west is successively overlain by fine grained carbonaceous sediments and slate and fine grained slaty chloritic sediments. These rocks, which have been tentatively assigned a Younger Precambrian to Lower Palaeozoic age, have been locally intruded by (?) Cambrian diorite and are unconformably overlain by thin Tertiary conglomerate and basalt.

The rocks in the Balfour area strike between NNE and NNW and dip steeply toward the east. Graded bedding indicates that the rocks also young toward the east and are therefore right side up.

Several synclinal folds occur in the western part of the area. The folds plunge moderately toward the north or south along NNW trending axes.

Faults are widespread in the area and although they are not directly associated with the genesis of the sulphide mineralization they may serve as favourable depositional sites for remobilized cupriferous quartz-dolomite.

MINERALIZATION

Cupriferous mineralization in the Balfour area consists essentially

of chalcopyrite, with minor amounts of secondary copper sulphides, in a pyritic quartz-dolomite gangue. The secondary copper sulphides, notably chalcocite and covellite, have been observed in several prospects but are rarely of economic importance.

Pyrite is ubiquitous in the cupriferous quartz-dolomite and is also a common primary constituent of the carbonaceous sediments.

Magnetite is associated with the quartz-dolomite in at least two prospects but does not occur in quantities sufficient to produce magnetic anomalies.

Minor amounts of other sulphides, notably galena and sphalerite, are associated with the cupriferous sulphides, but are not of economic significance. Trace amounts of marcasite, tetrahedrite, pyrrhotite, arsenopyrite and pyrargyrite have been observed microscopically. Silver and gold values are negligible.

The cupriferous quartz-dolomite occurs as tabular bodies, generally conformable with the enclosing carbonaceous and chloritic sediments. At Murrays Reward Prospect a potentially economic cupriferous quartz-dolomite body has been formed by the introduction of remobilized cupriferous material into a fault which intersects the primary mineralized zone. The conformable nature of the mineralization and sulphur isotope studies indicate a sedimentary origin for the mineralization.

In the Specimen Hill area, wolframite, pyrite, arsenopyrite, cassiterite and chalcopyrite occur in thin quartz veins but this mineralization is not of economic significance.

#### GEOPHYSICS

An I.P. survey along a 12 kilometre baseline between the Pierpont

Morgan and Clump Prospects recorded numerous anomalies. Although many of the anomalies are attributed to the presence of graphitic shear zones, the known zones of sulphide mineralization are generally well defined by I.P. anomalies the location of which have been utilized in the planning of drillhole locations.

The association of magnetite and cupriferous sulphides prompted a ground magnetometric survey but no magnetic anomalies were recorded.

#### COSTEAN GEOCHEMISTRY

Costean geochemistry (Cu, Pb, Zn) has been used successfully to delimit zones of mineralization particularly in those areas lacking natural rock outcrop. In future exploration in the area it is proposed to limit costean construction to an absolute minimum.

#### DIAMOND DRILLING

Subsurface exploration by diamond drilling has been carried out on eight prospects and 37 holes have been drilled to a total depth of 5816.2 metres. The eight prospects are;

##### Clump Prospect (8 drillholes totalling 1668.6 metres)

A subeconomic cupriferous and pyritic quartz-dolomite formation extends about 750 metres along strike in a sequence of carbonaceous sediments.

##### Gully Prospect ( 1 drillhole of 143.0 metres)

Thin, subeconomic cupriferous quartz-dolomite occurs within carbonaceous sediments.

##### Development Prospect (1 drillhole of 98.1 metres)

Trace amounts of cupriferous mineralization occur within chloritic sediments.

Blocks Prospect (3 drillholes totalling 361.2 metres)

Thin, low grade cupriferous mineralization occurs within chloritic and carbonaceous sediments.

Central Prospect (4 drillholes totalling 351.1 metres)

Discontinuous, low grade cupriferous mineralization occurs along a strike length of about 800 metres. It is proposed to continue drilling in this area.

Murrays Reward Prospect (16 drillholes totalling 2604.8 metres)

Low grade cupriferous quartz-dolomite occurs along a strike length of about 500 metres and also occurs within a fault zone which intersects the primary zone of mineralization.

Pierpont Morgan Prospekt (2 drillholes totalling 273.7 metres)

Thin, subeconomic cupriferous mineralization occurs along a strike length of about 300 metres within a sequence of carbonaceous and chloritic sediments.

Waratah Prospect (2 drillholes totalling 315.8 metres)

A thin quartz formation containing traces of copper occurs in carbonaceous sediments.

FUTURE EXPLORATION

It is proposed to continue surface and subsurface exploration in E.L. 16/68 during 1973 - 74.

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A.C.I. MINERALS PTY. LIMITED

TASMANIAN EXPLORATION, E.L. 16/68 BALEFOUR

SUMMARY REPORT ON 1973 DRILLING PROGRAMME

D.O.M. A.O. REGISTRAR	G. CC & M. D.S.M.E.
RECEIVED 11 JUL 1973 ANSWERED DEPT. OF MINES REF. No.	REGISTRAR E & IL

SUMMARY

Following the completion of regional geological mapping of an economically significant part of E.L. 16/68 during 1972-73, a nine hole drilling programme was carried out on three Balfour prospects.

Two drillholes (DDH 29 and 30) at the Waratah Prospect some seven kilometres south of Balfour, intersected a thin, discordant quartz formation containing rare traces of cupriferous mineralisation. No further exploration is warranted at this prospect.

Two drillholes (DDH 31 and 32) at the Pierpont Morgan Prospect, some four kilometres south of Balfour, intersected slightly cupriferous quartz and quartz-dolomite containing minor magnetite. No further exploration is warranted at this prospect.

At Murrays Reward Prospect, about one kilometre west of Balfour, five drillholes (DDH 33 to 37 inclusive) proved the existence of a small, low grade, discordant, cupriferous quartz-dolomite body which strikes northwest and dips 50° to 60° towards the southwest in a sequence of finegrained chloritic and carbonaceous sediments which strike north and dip steeply east.

This cupriferous body contains an unweighted average of about 0.8 per cent Cu and has approximate dimensions of 220 metres (along strike) by 220 metres (down-dip) by 5 metres (thickness). Both the grade and thickness of this body decrease significantly along strike towards the northwest.

The mineralisation is believed to have been deposited in a transverse fault zone after mobilization from a sedimentary cupriferous formation.

The 1973 drilling programme in E.L. 16/68 failed to locate a cupriferous orebody but the drilling results did support the theory that relatively high grade mineralisation may be concentrated along fault zones which intersect sedimentary cupriferous formations. Future exploration in this area should therefore concentrate on the location and testing of such fault zones.

The 1973 drilling costs averaged \$27.76 per metre and the drilling rate averaged 15.2 metres per shift.

THE 1973 DRILLING PROGRAMME

Introduction

The results of the 1971-72 drilling programme and the 1972-73 regional geological mapping indicated that diamond drilling was warranted at the Murrays Reward, Pierpont Morgan and Waratah Prospects.

The contract drillers (Longyear Australia Pty. Limited) commenced DDH 29 on February 4th, 1973 and completed DDH 37 on April 3rd, 1973. During this two month period, nine drillholes totalling

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1660.17 metres were completed. The relevant technical information is tabulated in Appendix A and detailed information is presented in the reports of each drillhole. The drilling costs are tabulated in Appendix B.

This report briefly summarises the drilling results for each prospect and a synthesis of the results of the drilling programme, regional geological mapping, costean geochemistry and other exploration activities carried out during 1972-73 will form the basis of a separate report.

THE WARATAH PROSPECT DRILLING PROGRAMME

Introduction

The Waratah Prospect lies about seven kilometres south of the Balfour township (see Plan A).

The prospect consists of a subdued ridge about 300 metres long rising up to 25 metres above the surrounding, relatively level, plain. This ridge, which owes its upstanding nature to a thin quartz core and which forms part of a subdued and discontinuous ridge several kilometres long, strikes about NNW in a sequence of fine grained carbonaceous sediments which strike NNE and dip moderately towards the east.

This prospect was investigated during the early exploration of the area by means of an adit and several costeans, but no cupriferous ore was produced. Minor amounts of chalcopyrite and secondary copper sulphides occur in pyritic quartz on a small dump near the adit.

Diamond Drilling

Two drillholes, about 105 metres apart, were collared on the western side of the ridge and drilled on an ENE bearing. (see Plan D).

DDH 29

This drillhole was completed at a depth of 161.54 metres after intersecting a slightly pyritic quartz formation between 140.32 and 145.54 metres, this interval containing less than 5 ppm Cu over a true thickness of about 3.0 metres.

The quartz is associated with a highly fragmentary fault zone between 145.54 and 148.03 metres.

DDH 30

This drillhole was located about 105 metres SSE of DDH 29 and was completed at a depth of 154.53 metres.

A slightly pyritic quartz formation was intersected between 135.90 and 138.96 metres, this interval containing 36 ppm Cu over a true thickness of about 1.6 metres.

A fragmentary fault zone occurs adjacent to the quartz between 132.90 and 135.90 metres.

Conclusion

At the Waratah Prospect, very slightly cupriferous quartz strikes NNW and dips about the vertical or steeply east in an easterly dipping

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sequence of fine grained carbonaceous sediments.

The unfavourable drilling results indicate that further exploration in this area is not warranted.

THE PIERPONT MORGAN PROSPECT DRILLING PROGRAMME

Introduction

The Pierpont Morgan Prospect is situated about 4 kilometres south of Balfour (see Plan A) and, like the Waratah Prospect, consists of a ridge some 300 metres long rising up to about 25 metres above the surrounding plain.

This ridge has a core of white quartz, limonitic and iron-stained in parts, and lies within an easterly dipping sequence of fine grained chloritic and carbonaceous sediments.

The spoil from an old adit driven into the eastern side of the ridge includes minor amounts of pyritic quartz containing traces of chalcopyrite and secondary copper sulphides.

Diamond Drilling

Two drillholes, about 100 metres apart, were drilled into the western side of the ridge on an ENE bearing. (see Plan E)

DDH 31

This drillhole was completed at a depth of 123.42 metres.

A quartz-dolomite formation containing minor amounts of pyrite and magnetite, was intersected between 103.27 and 111.93 metres, this interval containing an average of 37 ppm Cu over a true thickness of about 5.9 metres.

DDH 32

This drillhole was sited about 100 metres NNW of DDH 31 and was completed at a depth of 150.24 metres after intersecting very slightly cupriferous quartz-dolomite between 137.28 and 142.02 metres. This mineralised interval contains an average of 190 ppm Cu over a true thickness of 2.9 metres.

Conclusion

Cupriferous mineralisation at the Pierpont Morgan Prospect is very low grade and discontinuous.

The copper occurs as chalcopyrite and secondary copper sulphides in quartz-dolomite which dips about the vertical in an easterly dipping sequence of chloritic and carbonaceous sediments.

No economic significance is attached to the cupriferous mineralisation at this prospect and no further exploration is warranted.

THE MURRAYS REWARD PROSPECT DRILLING PROGRAMME

Introduction

This prospect has been the subject of earlier reports and will not be described in detail.

The mapping of adit No. 3 and drilling results of DDH 16 and 17 during 1971-72 indicated that a cupriferous fault zone, devoid of surface expression, may occur in this area.

During the 1972-73 field seasons five holes were drilled in a successful attempt to prove this hypothesis. (see Plans A, B, C, F and G)

### Diamond Drilling

#### DDH 33

This drillhole was completed at a depth of 254.16 metres.

A cupriferous quartz and quartz-dolomite formation was intersected between 118.11 and 124.35 metres, this interval containing an average of 1.31 per cent Cu over a true thickness of 5.4 metres.

The drillhole was continued to a depth of 254.16 metres in an unsuccessful attempt to prove the existence of a suspected cupriferous zone beneath the main Murrays Reward- Central Prospects ridge.

#### DDH 34

This drillhole, some 61 metres northwest of DDH33, was completed at a depth of 173.28 metres.

A cupriferous quartz-dolomite formation was intersected between 136.20 metres and 139.42 metres, this interval containing 0.26 per cent Cu over a true thickness of 3.0 metres.

#### DDH 35

This drillhole, some 64 metres north of DDH 34, was completed at a depth of 182.9 metres, without intersecting cupriferous mineralisation.

It is believed that the grade and thickness of the cupriferous mineralisation decrease significantly northwest along the strike of the fault zone and that the mineralised zone is represented in DDH 35 by the interval 143.64 to 147.50 metres which consists of irregular and discontinuous veins and segregations of quartz and quartz-dolomite in brecciated and fragmentary chloritic siltstone.

#### DDH 36

This drillhole was completed at a depth of 237.78 metres. Sporadic, low grade cupriferous mineralisation was intersected between 189.32 and 221.78 metres, this interval containing an average of 2960 ppm Cu over a true thickness of 32.2 metres.

The copper, which occurs mainly as chalcopyrite, is associated with quartz or quartz-dolomite although thin bands of massive chalcopyrite occur in sediments between 208.09 and 215.93 metres.

#### DDH 37

This drillhole was completed at a depth of 222.77 metres.

Low grade cupriferous quartz-dolomite was intersected between 204.90 and 210.04 metres, this interval containing an average of 2340 ppm Cu over a true thickness of 5.0 metres.

### Conclusion

Diamond drilling at this prospect proved a northwestern extension of the cupriferous fault zone intersected earlier by DDH 16 and DDH 17.

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Inspection of the assay results and drill logs however, indicates an along strike decrease in both grade and thickness of the mineralised zone and a down dip decrease in grade is suspected.

This cupriferous body has an average grade (unweighted as to drillhole zone of influence) of about 0.8 per cent Cu and has approximate dimensions as follows: strike length 220 metres, down-dip depth 220 metres average thickness 5 metres.

The solution of a three point problem indicates that the mineralised quartz-dolomite strikes about N40° W (true) and dips 50° to 60° towards the southwest.

It is considered that the discordant cupriferous quartz-dolomite at Murrays Reward Prospect represents a fault zone which formed the depositional site for quartz, dolomite and copper and iron sulphides which were mobilised and transported from the primary Murrays Reward cupriferous formation during or after faulting.

#### DRILLING COSTS

The 1973 drilling costs totalled about \$46,100 (see Appendix B) including the costs of core boxes, assays, tropari rental and mobilisation.

The average drilling cost was \$27.76 per metre over 1660.22 metres.

The average drilling rate was 15.2 metres per shift over 109 shifts.

M.H. McIntyre

May 15th, 1973

## APPENDIX A

## SUMMARY OF DRILLING RESULTS - 1973

Drillhole & Prospect	DDH 29 Waratah	DDH 30 Waratah	DDH 31 Pierpont Morgan	DDH 32 Pierpont Morgan	DDH 33 Murrays Reward	DDH 34 Murrays Reward	DDH 35 Murrays Reward	DDH 36 Murrays Reward	DDH 37 Murrays Reward
R.L. (1)	1250	1247	1233	1230	1201.2	1202.7	1202.7	1201.2	1210.3
Grid Reference (2)	N.A.	N.A.	N.A.	N.A.	10258N 9858E	10314N 9836E	10374N 9859E	10227N 9785E	10263N 9772E
Depth metres	161.54	154.53	123.42	150.24	254.16	173.28	182.90	237.78	222.77
Angle	62°	60°	59.5°	60°	64.5°	65°	65°	67°	65.5°
Bearing true	063°	065°	062°	062°	069°	043°	042°	047°	049°
(3) Drilling rate metres per shift	12.4	22.1	24.7	25.0	11.5	19.2	30.5	13.9	13.9
Cost \$ (4)	4407	3692	2968	3630	7370	4653	4482	5939	6253
Cost/Metre \$	27.30	23.90	24.30	24.20	29.00	26.90	24.50	25.00	28.10
Mineralisation grade & thickness	<5ppm Cu 3.0 metres	36ppm Cu 1.6 metres	37ppm Cu 5.9 metres	190ppm Cu 2.9 metres	1.31percent 5.4 metres	0.26percent 3.0 metres	Nil Nil	2960ppm Cu 32.2 metres	2340ppm Cu 5.0 metres

## NOTES:

1. Local elevation plus 1000 metres.
2. Local grid at Murrays Reward Prospect.
3. Excluding moving of rig, and recovery of rods and casing.
4. Excluding cost of core boxes, assays, tropari rental and drill rig mobilisation.

## APPENDIX B

## DRILLING COSTS - 1973

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Drillhole	DDH 29	DDH 30	DDH 31	DDH 32	DDH 33	DDH 34	DDH 35	DDH 36	DDH 37	Total	Per Cent
Depth - metres	161.54	154.53	123.42	150.24	254.16	173.28	182.90	237.78	222.77	1660.22	-
Tricone drilling	350.52	543.47	543.47	471.27	568.21	281.39	543.47	954.51	743.87	5,006.18	10.8
NQ Diamond drill	3,669.68	3,046.68	2,176.16	3,080.28	3,908.80	2,765.28	3,840.48	4,523.12	4,087.44	31,097.92	67.5
BQ Diamond drill	-	-	-	-	1,841.49	1,308.57	-	-	411.81	3,561.87	7.8
Running casing	33.53	57.91	57.91	52.42	285.30	148.13	45.72	76.20	276.47	1,033.59	2.2
Reaming casing	180.16	-	-	-	291.17	-	-	201.14	420.30	1,092.77	2.5
Recovering casing	113.75	-	-	-	35.00	35.00	-	87.50	99.50	370.75	0.8
Cementing	-	-	-	-	140.00	-	-	-	-	140.00	0.3
Surveys	52.50	46.75	52.50	26.25	140.00	70.00	52.50	96.25	84.75	621.50	1.3
Moving	-	-	138.12	-	104.81	-	-	-	-	242.93	0.5
Material in hole	6.59	-	-	-	-	-	-	-	128.95	135.54	0.3
Additives	-	-	-	-	138.50	-	-	-	-	138.50	0.3
Core boxes *1	120.00	95.00	70.00	100.00	185.00	135.00	135.00	145.00	155.00	1,140.00	2.5
Assays	4.00	12.00	10.00	16.00	105.00	12.00	-	165.00	8.00	332.00	0.7
Tropari rental *2	41.67	41.67	41.67	41.67	41.67	41.67	41.66	41.66	41.66	375.00	0.8
Mobilisation *2	88.89	88.89	88.89	88.89	88.89	88.89	88.88	88.89	88.89	800.00	1.7
Total \$	4,661.29	3,932.37	3,178.72	3,876.78	7,873.84	4,891.93	4,747.71	6,379.27	6,546.64	46,088.55	100.0
Cost/Metre \$	28.55	25.45	25.75	25.80	31.00	28.20	25.95	26.80	29.40	27.76	

Note: \*1 = approximate  
\*2 = average

637037

## ASSORTED REPORTS

1971 to 1973

EL 16 / 68

TASMANIAN CONSOLIDATED  
INDUSTRIES

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Sheet 1 - Mt Balfour - The Blocks Area

Sheet 2 - " " " "

Sheet 1 - " " - Murray's Reward + Central Mt  
Balfour Prospect.

Sheet 2 - " " - " " "

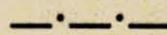
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LEGEND



Carbonaceous mudstone  
and graphitic slate.



Inferred fault.



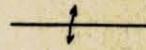
Chloritic slate.



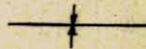
Definite fault.



Quartzite.



Anticlinal axis.



Synclinal axis.



Alternating siltstone  
and argillites.



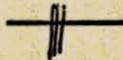
Dip of sediment.



Dip with facing



Quartz capping/gossan.



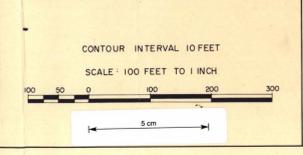
Cleavage.



GROUND CONTROL  
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DATUM OF HEIGHTS MEAN SEA LEVEL DERIVED FROM  
MT. FRANKLAND 1465 FEET.  
GRID VALUES IN FEET ARE ON AUSTRALIAN TRANSVERSE  
MERCATOR PROJECTION WITH CENTRAL MERIDIAN OF 146°  
EAST LONGITUDE DERIVED FROM MT. FRANKLAND.

**MT. BALFOUR AREA**  
**THE BLOCKS PROSPECT**  
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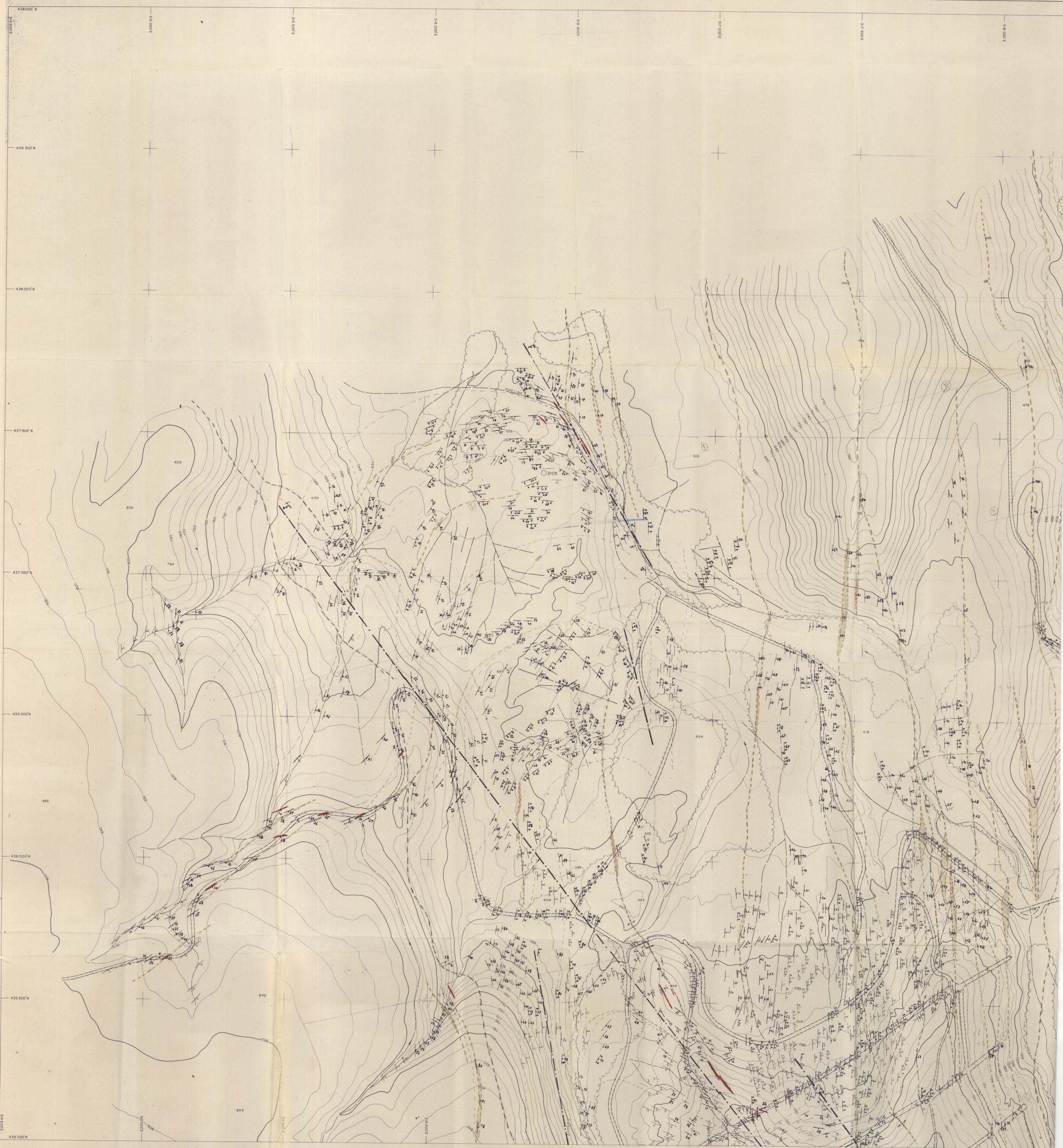


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**MT. BALFOUR AREA**  
**MURRAY'S REWARD & CENTRAL MT. BALFOUR PROSPECT**  
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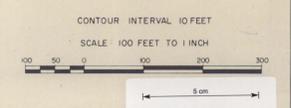
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AUSTRALIAN CONSOLIDATED INDUSTRIES LTD.



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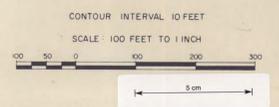


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**MT. BALFOUR AREA**  
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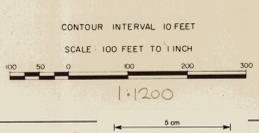
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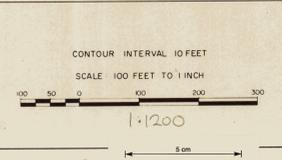
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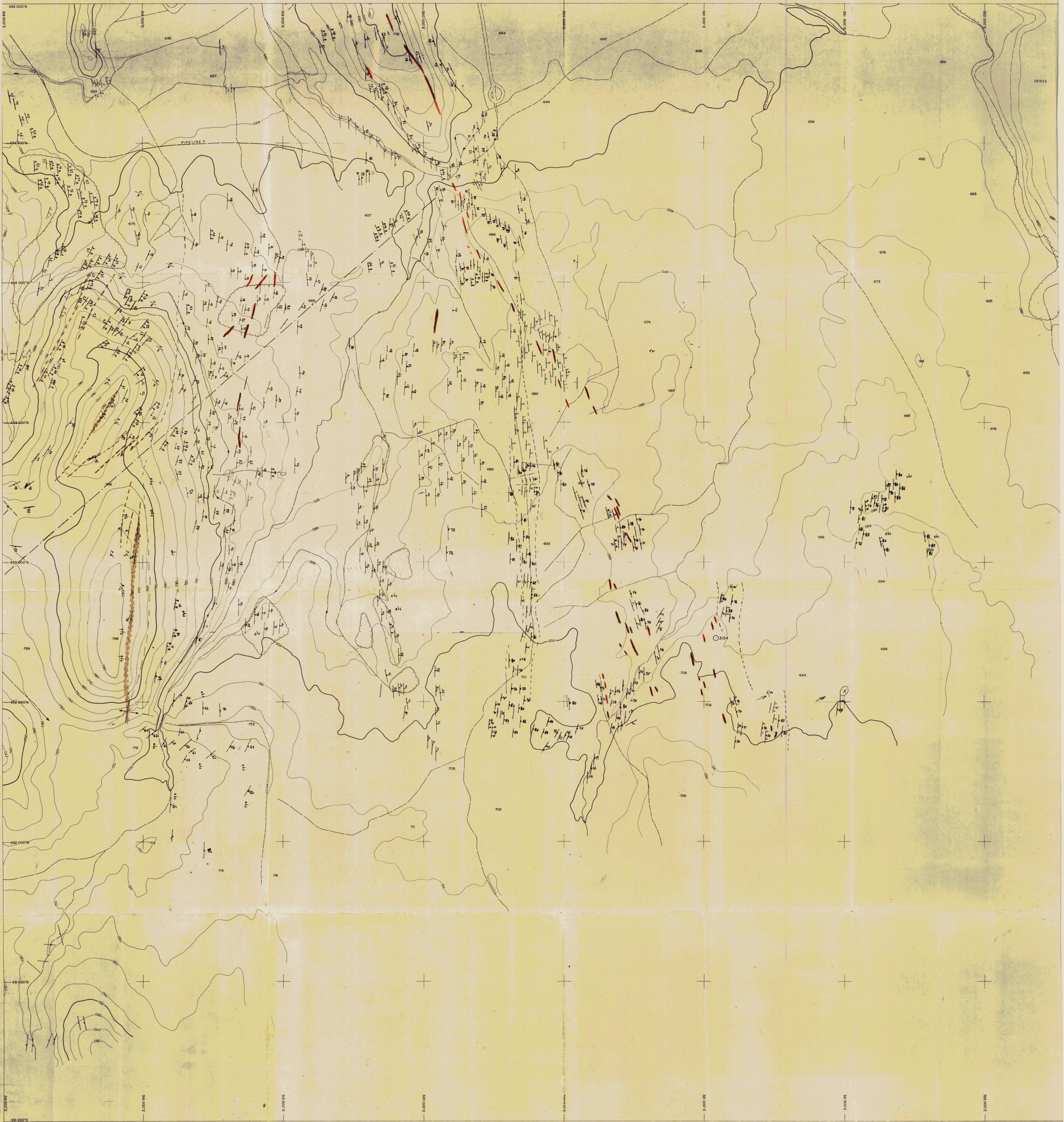
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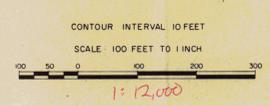


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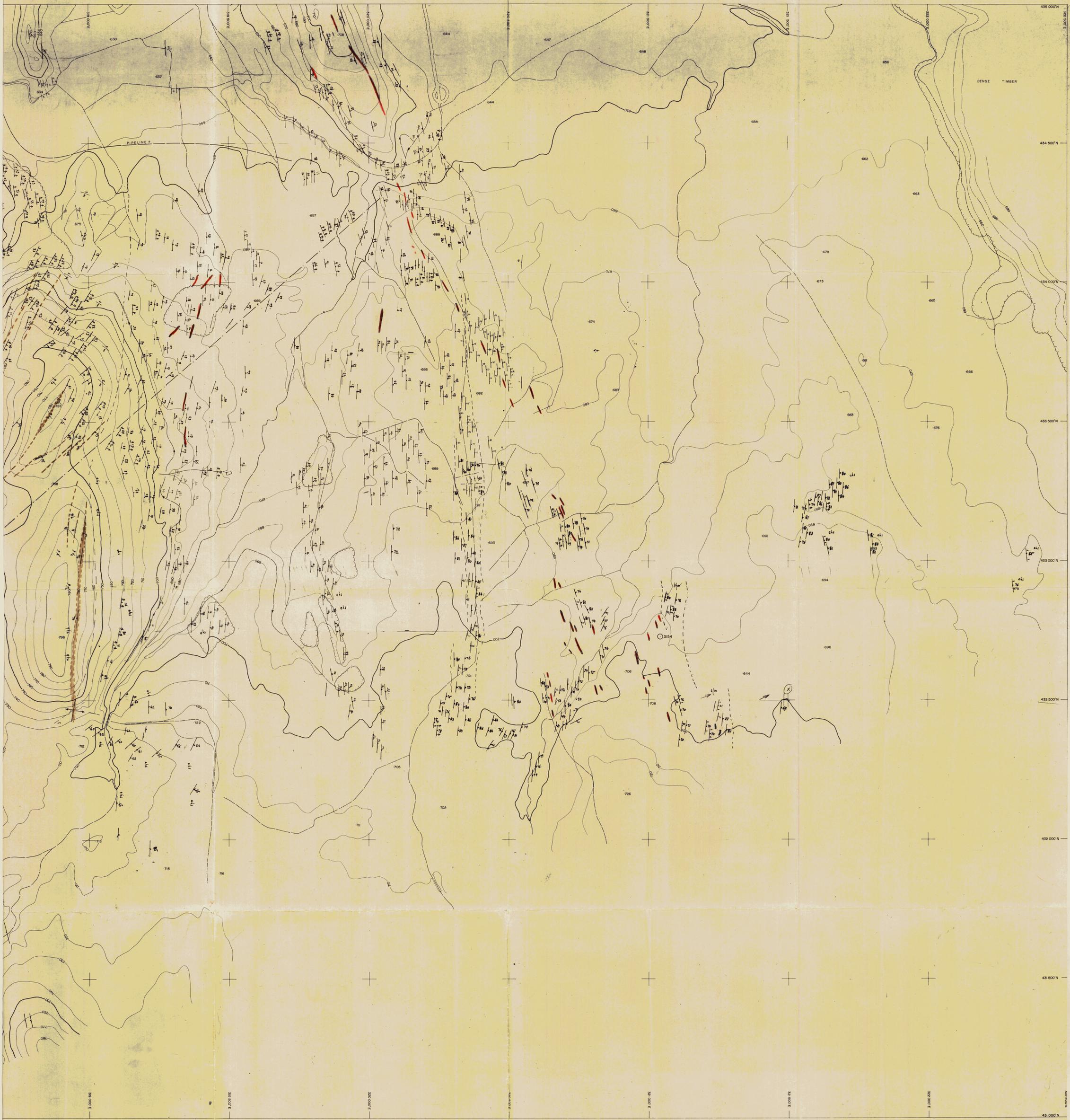
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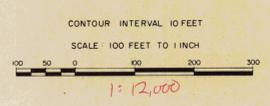


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