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AUSTRALIAN CONSOLIDATED INDUSTRIES LTD

MINERAL RESOURCES DIVISION

TASMANIAN EXPLORATION E.L. 16/68 BALFOUR

REPORT ON D.D.H.14, MURRAYS REWARD PROSPECT

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SUMMARY

D.D.H. 14 at Murrays Reward Prospect was successfully completed at a depth of 112.78 metres.

A thick zone of anomalous and potentially economic copper mineralization was intersected between 84.43 and 105.61 metres, This interval contained an average of 0.95 per cent Cu over an estimated true thickness of 16.6 metres.

The bulk of the copper mineralization occurs within four quartzose sub-zones defined as follows by copper content and lithology.

(a) 84.43 to 86.33 metres (1.78 per cent Cu): Cavernous and fragmentary dolomitic quartz containing disseminated pyrite and chalcopyrite.

(b) 87.39 to 93.27 metres (1.41 per cent Cu): Quartz and quartzose chloritic phyllite.

(c) 96.21 to 100.88 metres (1.12 per cent Cu): Pyritic and chalcopyritic quartz and quartzose chloritic slate and phyllite.

(d) 102.35 to 105.61 metres (0.91 per cent Cu): Pyritic and chalcopyritic quartz.

Core recovery within the mineralized zone was low, averaging 77 per cent. The core loss has obscured the accurate placement of the lithological boundaries and leaching of the sulphides has masked the true grade of the mineralized intervals and therefore the reported grade and thickness of the mineralized sub-zones are to be considered only as approximations.

The mineralized zone dips about 85° towards the West.

Drilling costs attributable to D.D.H.14 totalled $2,175. at an average cost of $19.30 per metre.

D.D.H.14 - MURRAYS REWARD PROSPECT

| | |
|---|---|
| Grid Reference | 434 870N, 319 680E |
| Elevation | 201.2 metres |
| Angle | 60° |
| Bearing | N 70° E - (true) |
| Date Drilled | 30.11.71 to 2.12.71 |
| Drilling Rate | 18.8 metres per shift. |

## 1. OPERATIONAL DETAILS

### 1.1 Drilling Details

D.D.H.14 at Murrays Reward Prospect was commenced on November 30th. 1971, and completed on December 2nd. 1971, at a depth of 112.78 metres.

HW casing was seated at 1.52 metres and the drill hole advanced to a depth of 70.1 metres with the airmast.

NW casing was seated at 70.1 metres and the hole was continued and completed with NQWL diamond coring equipment. An NQ triple tube core barrel was used from 99.4 metres to the end of the hole.

All casing was successfully recovered.

Drilling costs directly attributable to D.D.H.14 totalled $2,174.86, made up as follows:-

| | |
|---|---|
| Air drilling | $ 805.00 |
| Diamond drilling | $1,199.24 |
| Running casing | $ 71.62 |
| Surveys | $ 64.00 |
| Sundry | $ 35.00 |
| Total | $2,174.86 |

The average drilling cost was $19.30 per metre.

1.2 Drilling Conditions

Drill runs and core recovery are tabulated in Appendix A.

Drilling with the airmast advanced without incident to 70.1 metres, including 44.5 metres in one shift. Diamond drilling commenced at a depth of 70.1 metres and advanced satisfactorily to 84.43 metres with only negligible core loss.

Broken ground between 84.43 and 93.27 metres resulted in considerable core loss and core recovery in this interval averaged only 45 per cent. In addition, the recovered core was generally fragmentary and it is in this interval that core loss has obscured the accurate placement of lithological boundaries and has introduced discrepancies between the "true" and reported assay grades due to the probable non-representative nature of the recovered core. Core recovery in the overall mineralized zone between 84.43 and 105.61 metres averaged 77 per cent.

Between 93.27 metres and the end of the drill hole at 112.78 metres core recovery was 100 per cent.

1.3 Drillhole Deviation

Drillhole deviation surveys yielded the following results:-

| | | |
|---|---|---|
| Collar | 60° | |
| 30.5 metres | 56° | acid - tube |
| 61.0 " | 51° | " |
| 91.4 " | 43.5° | " |
| 112.8 " | 38° | " |

2. GEOLOGY

The complete drill log is presented in Appendix B and may be summarised as follows:-

AIR DRILLING

0 to 70.10 Metres

Carbonaceous shales with carbonaceous slates becoming more common towards the base.

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DIAMOND DRILLING

70.10 to 84.43 Metres

Carbonaceous and graphitic slate. Minor amounts of chalcopyrite are associated with pyritic quartz veins below about 70 metres.

84.43 to 89.61 Metres

Cavernous and fragmentary white quartz containing sporadic dolomite and minor disseminated pyrite, chalcopyrite and secondary copper sulphides.

89.61 to 93.27 Metres

Pyritic and quartzose chloritic phyllite containing a few carbonate and quartz-dolomite veins. Chalcopyritic quartz veins are common in parts, particularly between about 91.1 and 92.0 metres.

93.27 to 98.76 Metres

Chloritic slate and phyllite containing a few thin (less than 2mm) quartz, dolomite and quartz-dolomite veins which are commonly pyritic and rarely chalcopyritic.

98.76 to 100.88 Metres Mineralized Quartz Zone

Slightly to moderately cavernous quartz containing minor pyrite, chalcopyrite and secondary copper sulphides.

100.88 to 102.35 Metres

Chloritic slate and phyllite containing a few quartz, dolomite and quartz-dolomite veins which commonly contain traces of chalcopyrite.

102.35 to 105.61 Metres Mineralized Quartz Zone

Slightly cavernous quartz containing minor pyrite, chalcopyrite and secondary copper sulphides.

105.61 to 112.78 Metres

Chloritic slate with rare chalcopyrite and pyrite in quartz veins.

3. SAMPLES AND ASSAYS

Three types of samples were collected from the products of D.D.H.14 and were subsequently assayed for copper.

(a) Percussion Samples: Cuttings from the airmast drilling were collected over intervals of 1.52 metres and ten samples collected from between 54.86 and 70.10 metres were assayed for copper with the following results:-

| Intersection Metres | Sample No. BAL | Assay Value ppm Cu. |
|---|---|---|
| 54.86 to 56.38 | 1408 | 77 |
| 56.38 " 57.91 | 1409 | 83. |
| 57.91 " 59.43 | 1410 | 74 |
| 59.43 " 60.96 | 1411 | 80 |
| 60.96 " 62.48 | 1412 | 75 |
| 62.48 " 64.01 | 1413 | 86 |
| 64.01 " 65.53 | 1414 | 52 |
| 65.53 " 67.06 | 1415 | 44 |
| 67.06 " 68.58 | 1416 | 59 |
| 68.58 " 70.10 | 1417 | 4300 |

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With the exception of sample BAL 1417 all percussion samples yielded background copper assay values. The high value for BAL 1417 reflects the occurrence of chalcopyritic quartz veins.

(b) Sludge Samples: Seven sludge samples collected from between 81.99 and 92.96 metres were assayed for copper in order to complement the core sample assay values from the interval of low core recovery. The assay values were:-

| Intersection Metres | Sample No. BAL | Assay Value ppm Cu. |
|---|---|---|
| 81.99 to 83.82 | 1418 | 200 |
| 83.82 " 85.34 | 1419 | 7625 |
| 85.34 " 86.86 | 1420 | 8500 |
| 86.86 " 88.39 | 1421 | 9400 |
| 88.39 " 89.91 | 1422 | 6000 |
| 89.91 " 91.44 | 1423 | 11250 |
| 91.44 " 92.96 | 1424 | 14800 |

The anomalously high copper content of the rocks below 84.43 metres is reflected in the high assay values of the sludge samples which can be crudely correlated with core sample assay values from similar intersections. The high density of the chalcopyrite and the consequent time lag between intersection of the mineralization and return of the sludge to the surface, combine to damp the variation in copper content which occur in the core samples.

(c) Core Samples: Fourteen core samples collected from between 83.06 and 110.36 metres were assayed for copper with the following results:-

| Intersection Metres | Interval Metres | Sample No. BAL | Assay Value per cent Cu |
|---|---|---|---|
| 83.06 to 84.43 | 1.37 | 1449 | 0.019 |
| 84.43 " 86.33 | 1.90 | 1450 | 1.78 |
| 86.33 " 87.39 | 1.06 | 1451 | 0.029 |
| 87.39 " 89.61 | 2.22 | 1452 | 0.29 |
| 89.61 " 91.14 | 1.53 | 1453 | 0.25 |
| 91.14 " 93.27 | 2.13 | 1454 | 3.42 |
| 93.27 " 96.21 | 2.94 | 1455 | 0.029 |
| 96.21 " 98.76 | 2.55 | 1456 | 0.14 |
| 98.76 " 100.88 | 2.12 | 1457 | 2.30 |
| 100.88 " 102.35 | 1.47 | 1458 | 0.043. |
| 102.35 " 104.39 | 2.04 | 1459 | 0.37 |
| 104.39 " 105.61 | 1.22 | 1460 | 1.74 |
| 105.61 " 107.61 | 1.73 | 1461 | 0.084 |
| 107.34 " 110.36 | 3.02 | 1462 | 0.018 |

The core sample assay values define a thick mineralized zone between 84.43 and 105.61 metres. This interval containing an average of 0.95 per cent Cu over an estimated true thickness of 16.6 metres. The bulk of the copper is contained within four mineralized sub-zones separated by thin barren intervals. The four sub-zones are:-

(a) 84.43 to 86.33 metres (1.78 per cent Cu), fragmentary and cavernous quartz.

(b) 87.39 to 93.27 metres (1.41 per cent Cu), quartz and quartzose chloritic phyllite.

(c) 96.21 to 100.85 metres (1.12 per cent Cu), quartz and quartzose chloritic phyllite.

(d) 102.35 to 105.51 metres (0.91 per cent Cu), quartz.

The barren intervals separating these sub-zones contain less than 500 ppm Cu.

The copper occurs almost exclusively as chalcopyrite with only trace amounts of secondary copper sulphides, notably bornite. The copper sulphides are invariably associated with quartz.

A systematic decrease in copper content occurs from the hanging wall to the footwall and it is possible that this decrease reflects a systematic variation in copper distribution during the original deposition, assuming a syngenetic sedimentary origin.

The mineralized zone intersected by D.D.H.14 dips about 85° towards the West.

(d) Fire Assays for Gold and Silver: Fire assays for gold and silver were carried out on those samples containing about 1 per cent Cu or greater. The assays results were:-

| Sample No. BAL | | Intersection Metres | Interval Metres | Assay Value | | |
|---|---|---|---|---|---|---|
| | | | | Cu. | Au** | Ag** |
| 1420 | S* | 85.34 to 86.86 | 1.52 | 8500 ppm | <0.5 | <0.1 |
| 1421 | S | 86.86 " 88.39 | 1.53 | 9400 | <0.5 | <0.1 |
| 1423 | S | 89.91 " 91.44 | 1.53 | 11250 | <0.5 | <0.1 |
| 1424 | S | 91.44 " 92.96 | 1.52 | 14800 | <0.5 | 1.42 |
| 1450 | C | 84.43 " 86.33 | 1.90 | 1.78% | <0.5 | 0.82 |
| 1454 | C | 91.14 " 93.27 | 2.13 | 3.42 | <0.5 | 2.80 |
| 1457 | C | 98.76 " 100.88 | 2.12 | 2.30 | <0.5 | 2.20 |
| 1460 | C | 104.39 " 105.61 | 1.22 | 1.74 | <0.5 | 4.00 |

S* = sludge sample
C = core sample
** dwt per long ton

The mineralized zone intersected by D.D.H.14 contains negligible gold and apparently negligible but variable amounts of silver.

4. CONCLUSION

D.D.H.14 at Murrays Reward Prospect intersected a potentially economic zone of chalcopyritic mineralization. Leaching of sulphides and low core recovery have combined to mask the true grade and it is suggested that the original or preleaching grade exceeded one per cent Cu. Similarly, the down dip continuation of this mineralized zone may exceed one per cent Cu below the zone of leaching.

M.H. McINTYRE
June 8th. 1972

APPENDIX A

DIAMOND DRILL HOLE AND CORE RECOVERY

| INTERSECTION (METRES) | CORE RECOVERY METRES | CORE RECOVERY PERCENT |
|---|---|---|
| 70.10 to 71.47 | 1.22 | 89 |
| 71.47 " 72.08 | 0.61 | 100 |
| 72.08 " 73.15 | 1.06 | 100 |
| 73.15 " 74.52 | 1.37 | 100 |
| 74.52 " 75.13 | 0.61 | 100 |
| 75.13 " 76.04 | 0.91 | 100 |
| 76.04 " 76.65 | 0.61 | 100 |
| 76.65 " 77.35 | 0.70 | 100 |
| 77.35 " 78.33 | 0.98 | 100 |
| 78.33 " 79.14 | 0.81 | 100 |
| 79.14 " 80.61 | 1.47 | 100 |
| 80.61 " 81.67 | 1.06 | 100 |
| 81.67 " 83.04 | 1.37 | 100 |
| 83.04 " 84.41 | 1.37 | 100 |
| 84.41 " 86.25 | 0.61 | 34 |
| 86.25 " 86.86 | 0.61 | 100 |
| 86.86 " 87.47 | 0.10 | 17 |
| 87.47 " 88.23 | 0.46 | 60 |
| 88.23 " 88.69 | 0.15 | 34 |
| 88.69 " 89.30 | 0.15 | 25 |
| 89.30 " 89.60 | 0.15 | 50 |
| 89.60 " 90.21 | 0.30 | 50 |
| 90.21 " 90.82 | 0.53 | 87 |
| 90.82 " 91.44 | 0.36 | 58 |
| 91.44 " 92.05 | 0.15 | 25 |
| 92.05 " 93.27 | 0.46 | 37 |
| 93.27 " 94.49 | 1.22 | 100 |
| 94.49 " 95.25 | 0.76 | 100 |
| 95.25 " 95.86 | 0.61 | 100 |
| 95.86 " 98.14 | 2.28 | 100 |
| 98.14 " 98.60 | 0.46 | 100 |
| 98.60 " 99.36 | 0.76 | 100 |
| 99.36 " 101.19 | 1.83 | 100 |
| 101.19 " 102.41 | 1.22 | 100 |
| 102.41 " 102.87 | 0.46 | 100 |
| 102.87 " 104.49 | 1.52 | 100 |
| 104.49 " 106.09 | 1.60 | 100 |
| 106.09 " 107.23 | 1.14 | 100 |
| 107.23 " 108.90 | 1.67 | 100 |
| 108.90 " 109.66 | 0.76 | 100 |
| 109.66 " 110.42 | 0.76 | 100 |
| 110.42 " 111.10 | 0.68 | 100 |
| 111.10 " 112.16 | 1.06 | 100 |
| 112.16 " 112.78 | 0.62 | 100 |

APPENDIX B

DDH. 14, MURRAY'S REWARD PROSPECT

DRILL LOG

| | |
|---|---|
| GRID REFERENCE | 434870N, 319680E |
| ELEVATION | 201.2 metres |
| ANGLE | 60° |
| BEARING | N 70° E (true) |
| DATE DRILLED | 30.11.71 to 2.12.71 |
| DRILLING RATE | 18.8 metres per shift |

| INTERSECTION METRES | DESCRIPTION |
|---|---|
| to 70.1 | AIR DRILLING<br>Carbonaceous and graphitic slate. |
| 0.10 to 84.43 | DIAMOND DRILLING<br>Pale, medium and dark grey to black carbonaceous and graphitic slate. Original sedimentary structure, including graded bedding is locally well preserved.<br>Complexly deformed in parts with well developed cleavage and dragfolds and microfaults. Shearing and minor brecciation in parts. Common irregular, deformed and discontinuous pyritic quartz veins (generally ≤1cm.) rarely with chalcopyrite.<br>The larger quartz veins are commonly highly cavernous after carbonate (?) and sulphides.<br>A white cavernous quartz vein (4cm.) at about 72.8 metres contains about 5% chalcopyrite occurring as small micaceous flakes and most commonly as disseminated irregular blebs. A white pyritic and highly cavernous quartz vein (≤2cm.) at 75.6 metres contains minor chalcopyrite. Chalcopyrite is also associated with quartz veins at 70.56, 71.17, 76.50 and 78.33 metres. An irregular, white, pyritic quartz vein (≤ 5 cm.) at 77.4 metre contains minor disseminated chalcopyrite. Traces of chalcopyrite occur in a thin (≤ 2cm.) cavernous, and pyritic quartz-carbonate vein at abour 81.4 metres. Common chalcopyrite occurs in a thin (≤ 1cm.) quartz-carbonate vein at 81.0 metres.<br>Few small (<1mm.) white-grey, leucoxene porphyroblasts occur in black slate in parts.<br>Bedding dips very variable, cleavage dips between 40° and 50°. |
| 84.43 to 89.61 | Considerable core loss from this interval.<br>The recovered core consists mainly of cavernous and fragmentary white quartz containing sporadic pale brown oxidised carbonate and minor disseminated pyrite, chalcopyrite, and bornite occurring in irregular blebs and veinlets. |

| INTERSECTION METRES | DESCRIPTION |
|---|---|
| | A band (45cm.) of very pale grey, silver-grey, pale green and white, quartzose, chloritic phyllite occurs at about 86.9 metres. |
| 9.61 to 93.27 | Quartzose chloritic phyllite made up of pale green and grey-white chloritic phyllite containing common, irregular and cavernous quartz veins and segregations and minor carbonate and quartz-carbonate veins. |
| | Chalcopyrite is common in parts, particularly between about 91.1 and 92.1 metres and is apparently restricted to intimate association with quartz veins and segregations. Pyrite is also common. |
| | Much of the recovered core, particularly that containing little quartz and common carbonate and phyllite, is soft and friable. |
| 3.27 to 98.76 | Pale to medium green chloritic slate and phyllite containing a few thin ($\leq$ 2cm.) quartz, carbonate and quartz-carbonate veins, commonly pyritic and rarely with traces of chalcopyrite. |
| | Massive quartz veins in parts, commonly containing pyrite and minor disseminated chalcopyrite. |
| | The unit becomes more quartzose and chalcopyrite content apparently increases slightly as the base of the unit is approached. |
| | At the base of the unit is a heavily pyritic quartz vein containing rare red/pink hematitic quartz. |
| 3.76 to100.88 | MINERALIZED QUARTZOSE ZONE |
| | Grey-white, slightly to moderately cavernous (after carbonate and sulphides) quartz containing sporadic chalcopyrite, pyrite, bornite (plus other secondary Cu sulphides?). The copper minerals occur as disseminated irregular blebs or as irregular and discontinuous stringers occupying incipient fractures in the quartz. |
| | A few irregular and discontinuous bands and fragments of chloritic material occurs towards the base of the unit. |
| | A crude banding of the sulphides dips $40^{o}$ to $50^{o}$. |
| 0.88 to102.35 | Pale, medium and dark green chloritic slate and phyllite containing a few quartz, carbonate, and quartz-carbonate veins ($\leq$ 2.5cm.) commonly containing minor irregular disseminated chalcopyrite blebs. |
| | Cleavage dips $60^{o}$. |
| 2.35 to105.61 | MINERALIZED QUARTZ ZONE |
| | Dense, grey and white quartz, only slightly cavernous, containing minor pyrite and chalcopyrite and rare bornite. |
| | The basal 1.2 metres contains a greater amount of copper sulphides. Large ($\leq$ 5cm.) irregular pyrite-chalcopyrite masses occur in this basal unit. |
| | A dragfold defined by a chloritic slate band ($\leq$ 2cm.) at about 105.3 metres contains pyrite and chalcopyrite. |

| INTERSECTION METRES | DESCRIPTION |
|---|---|
| 105.61 to 107.34 | Green chloritic slate containing massive white quartz with minor carbonate and rare disseminated pyrite and chalcopyrite. |
| 107.34 to 112.78 | Green and grey-green chloritic slate. |

DDH. 14 COMPLETED AT 112.78 METRES