Gibraltar Oxide Study
675061

# PLACER DEVELOPMENT LIMITED
## RESEARCH CENTRE

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MEMO TO: Ken Dawson

FROM: Brian Robson

As previously stated, there is no way to get a strictly accurate oxide figure on copper. Each and every method now in use will give oxide plus. The standard method used in this laboratory (a leach soln. of 30% $H_2SO_4$) while not strictly accurate is reproducible and the figures obtained do corelate to the flotation process.

Previous tests have shown some unusual trends when a timed leach is run. These unusual trends are also reproducible and would indicate that there is a possible electrolytic action taking place in the first few seconds of the leach, but this quickly reaches equilibrium.

A series of tests were made on chalcocite and chalcopyrite using the analytical procedure of the Duval Corporation, whereby the oxide fraction is leached with a 10% solution of HCl saturated with $SO_2$ gas. The Duval Corporation claim that by this method the oxide is removed and the chalcocite and the chalcopyrite can then be determined separately, however, our results show that both chalcocite and chalcopyrite are dissolved to a greater degree than by our own method.

30% $H_2SO_4$ leach

| | Mesh | % Cu |
|---|---|---|
| Chalcocite | -100 + 200 | .368 |
| Chalcopyrite | -100 + 200 | .328 |
| Native Copper | -100 + 200 | .436 |

10% HCl saturated with $SO_2$

| | Mesh | % Cu |
|---|---|---|
| Chalcocite | -100 + 200 | 1.158 |
| Chalcopyrite | -100 + 200 | .472 |
| Native Copper | -100 + 200 | 4.52 |

In this facility we use the figures obtained by our standard method for the head material and the various products and these back calculate to the figures we obtain for oxide content in the tailings.

This is the best that can be done at the moment and I would recommend that until such time as a new procedure is discovered, the standard 30% $H_2SO_4$ leach be used to determine the copper oxide content of ore.

B. Robson

BR/jan

cc B.W.