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July 19, 1973

Mr. W.E. Clarke
Giant Mascot Mines Limited
2410 - 700 West Georgia Street
Vancouver, B.C.

Dear Mr. Clarke;

Regarding your exploration program in the mine area near Hope, we wish to submit the following lab results and general comments:

a. IP Lab Tests

Laboratory IP tests were run on 14 specimens and the results are enclosed. Because the sample preparation is time consuming, not all the specimens were tested. However, a representative suite was processed based on rock type, mineralization and degree of magnetism. Accompanying the lab tests are my observations regarding mineralization and degree of magnetism.

When considering the test results, the magnitude of the frequency effect (FE) must be considered in light of the resistivity, i.e. the same quantity of mineralization will give a higher FE in a higher resistivity environment.

Under normal survey conditions an IP survey would have no difficulty locating material similar to specimen 10 and specimens 1 and 9-A should be relatively easy to locate. More weakly mineralized material such as specimens 2-B, 3-B, 7 and 9-B could probably be detected if present in a large enough volume and not located immediately adjacent to more anomalous material.

At least part of the recorded IP effect seems to be caused by magnetite, i.e. specimens 3-A and 3-B appear similar except that 3-B

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is more magnetic. Consequently, it will be most important when interpreting IP anomalies to consider both the geological environment and magnetic background.

b. Electrical prospecting methods in areas of large local relief

EM-surveys carried out in the early 50's did not locate any strong well defined anomalies. This is probably related to the attitude and shape of the mineralized bodies. Steeply plunging cylinders do not couple well with the primary EM field.

Self-potential surveys normally record a potential difference on steep slopes that can be of the same order as that expected from mineralization. For this reason relatively little SP surveying is done in B.C.

The IP method is also subject to some terrain difficulties. The chief problem is just the physical difficulty of operating in areas of steep local relief. The potential difference described above is "backed out" so is not a problem with IP. Deep gullies and valleys can cause erroneous resistivity readings and IP effects. This problem can be overcome by carefully noting all terrain changes on the IP profiles.

In general, the IP method when carefully used can be quite successful in areas of difficult relief. However, the terrain difficulties will result in increased costs. The higher resistivity level indicated in the lab results may permit the use of lightweight battery powered IP.

c. Magnetometer Survey

This type of survey should be particularly useful in this geological environment. The degree of magnetism although very roughly checked seems quite variable and should help with the geological mapping. The magnetometer results could also prove useful in interpreting IP results.

d. Underground Geophysics

Underground drill hole EM has been successfully used in the search for small sulfide bodies. The geometry is quite different because of the extra dimension. The biggest problem would probably be the insertion of the equipment in drill holes. McPhar drill hole units are designed to enter EX holes. However, when the holes are flat-dipping or horizontal it is necessary to either push the equipment in with a non-conductor or pull it in by means of a smally pully inserted at the hole end. The pully method has been most successful. With this method a small brass pully is attached to a brass plug and inserted with drill rods. Nylon cord then pulls in the EM transmitter and receiver. By using brass, the hole can be later extended by removing the pully with a chopping bit.

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IP surveying has been successfully carried out underground, but metal air and water pipes usually prevent its use in most operating mines.

Thank you for the opportunity of discussing this exploration project. We hope that we may have the opportunity of working with you in the near future.

Yours truly,

McPHAR GEOPHYSICS LIMITED

A. W. Mullan,
Western Manager.

AWM/lm

IP TESTS - GIANT MASCOT MINES LIMITED

sample no.	rock type	mineralized	magnetic	frequency effect	resis.	metal factor
1	pyroxenite-bronzite	yes	very weak	18%	446	40.4
2-A	diorite	no	no	3.2%	2569	1.2
2-B	diorite	specks	weak	4.4%	942	4.7
3-A	peridotite	specks	very weak	5.2%	142K	0.04
3-B	peridotite	specks	moderate	29.5%	4922	6.0
4	norite	no	no	2.5%	2422	1.03
5	pyroxen-bronzite	no	no	4.1	32K	0.13
6-A	hornblend-pyroxenite	no	no	3.0	11.5K	0.26
6-B	hornblend-pyroxenite	no	very weak	1.9	12.5K	0.15
7	pyroxenite-bronzite	yes	moderate	19.2	12.9K	1.5
8	peridotite	no	weak	0.3	61	4.9
9-A	hornblend-pyroxenite	yes	moderate	14.5	403	36
9-B	hornblend-pyroxenite	yes	moderate	8.9	5.7K	1.6
10	peridotite	yes	moderate-strong	54.5	4.0	13,625