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PEKO MINES NO LIABILITY

GEOLITICAL ASSESSMENT.

WEST GIBBET PROSPECT.

by

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INTRODUCTION.

Re-assessment of drill core from West Gibbet Holes 1 and 2 A has been undertaken to determine whether a third hole into the anomaly is necessary. The shape and structural relations of the mineral body and the possibility of slumping have been considered. Core from both holes has been re-logged in detail and a target point for a third diamond drill hole determined.

SUMMARY AND CONCLUSIONS.

(1) The quartz magnetite body dips north at a low angle of approximately 20 degrees, or a much steeper angle of between 60 and 75 degrees (assuming an east-west strike). The pitch of the body is unknown.

(2) The West Gibbet D.D.H. 2 A ironstone intersection is very near the top of the mineral body (vertical depth is approximately 500').

(3) The mineral body must thicken extremely rapidly, as 222 ft. of ironstone was intersected in West Gibbet D.D.H. 1 and only 33 1/2' in West Gibbet D.D.H. 2 A. 110 feet further up dip.

(4) The sediments cored by both drill holes are typical cooperatively undisturbed Narramungas, and do not appear to be part of a slump complex.

(5) The ironstone is extremely siliceous and is probably intrusive, intruded conformably to the bedding or along a shear.

(6) The basic igneous rocks are related to the ironstone, and in places grade into a chlorite magnetite rock.

(7) West Gibbet D.D.H. 1 encountered a narrow, high grade gold shoot conservatively assessed at 23 ozs/t over 10 feet.

(8) The minimum sized gold shoot required at 23 ozs/t is 29,300 tons; i.e. a body 10' x 160' x 200'.

(9) Each additional 29,500 tons, would yield at least £300,000 profit.

(10) Further testing would require a drill hole beneath West Gibbet D.D.H. 1 and would have a total length of about 1000 feet.
It is recommended that the testing of this prospect be completed by drilling one further diamond drill hole to intersect 100 feet down the structure and further west from D.D.H. 1 intersection. Drilling could commence as soon as a rig becomes available.

GEOLGY

STRUCTURAL RELATIONS OF MINERAL BODY.

To determine as accurately as possible the dip, size and shape of the body, the mineral intersections, basic igneous rock intersections and numerous core-bucking angles were plotted on a cross section through 375 E. If the strike of the sediments is assumed to be east-west, and the mineral body is conformable, the quartz magnetite body dips north at either a low angle of approximately 20 degrees or a steeper angle of approximately 60 degrees. A third possibility is that the quartz magnetite is situated on a shear which dips north at 60-75 degrees. It was not possible to determine from the core which of these solutions is the correct one. However the geophysical data favours a fairly steep dip for the magnetite body.

West Gibbet D.D.H. 1 intersected 222 ft. of quartz magnetite and West Gibbet D.D.H. 2 A, which is approximately 110 feet further up the structure, intersected 33.1/2 feet of quartz magnetite in two separate intersections, separated by 9.1/2 feet of sediment. Thus assuming a steep pitch, the mineral body must thin rapidly above the West Gibbet D.D.H. 1 intersection and West Gibbet D.D.H. 2 A intersection is very near the top of the body. The above conclusion would be invalid if the pitch of the quartz magnetite is less than 60 degrees, either east or west. A pitch of 60 degrees or less would have caused West Gibbet D.D.H. 2 A to intersect the side of the body and the quartz magnetite although considerably thinner than where West Gibbet D.D.H. 1 intersected, could extend 100 feet above West Gibbet 2A intersection.

It is extremely difficult to assign a shape to the body between the two intersections and these shown on the cross section are hypothetical.

If the geophysical centre of the body is correctly placed, the ironstone can be expected to extend at least 300 feet down dip from D.D.H. 1 intersection, to a vertical depth of approximately 900 feet.

POSSIBILITY OF SLUMPING.

The sediments cored by both West Gibbet D.D.H. 1 and D.D.H. 2 A are typical Narramungas and are sheared and cleaved to a slight extent throughout. The rocks cored can be divided into four main sections.
(1) The upper parts of each hole, the sediments of which consist of coarsely-graded, mainly, greywackes and slates. The greywackes are fine grained and there are no indications of bedding plane slip, slump shearing, flowstone or slump breccia. A little gneissic iron, similar to that encountered in West Peko D.D.H. 2A is present, but generally there is nothing to distinguish these sediments from "normal" undisturbed Narramungas.

(2) The zone in which basic igneous intrusions are common varies from 90 feet thick in West Gibbet D.D.H. 1 to 130 feet thick in West Gibbet D.D.H. 2A, and consists of slightly chloritic, sheared sediment interspersed between bands of basic igneous rock up to 24 feet wide. Bedding is much less distinctive and the sediments appear slightly metamorphosed. No flowstone, slump breccia or flowed sediment similar to that at True Blue, Orlando or in Explorer 9 D.D.H. 1 and 2 is present and the alteration of the sediment is probably related to the basic igneous rocks.

(3) Mineralised zone or zone of quartz magnetite.

(4) Zone below the quartz magnetite, which consists of relatively chloritic greywackes and slates. Some shearing has occurred, but does not approach in intensity the flow shearing developed in Orlando and Explorer 9 sediments. The amount of chlorite present decreases with depth.

Most of the sediments cored in both diamond drill holes are undisturbed Narrumunga greywackes and slates and are not considered to be part of a slump complex. The zone immediately surrounding the ironstone is definitely more disturbed and chloritic than the "upper" sediments, but this alteration is probably related to the intrusion of the quartz magnetite and genesis of the basic igneous rocks.

Thus it must be concluded that no slumping has occurred and the mineralisation is not in a slump breccia.

**BASIC IGNEOUS ROCKS**

The basic rocks occur in bands which vary from a few inches to 24 feet thick. Microscopically the rock is porphyritic with phenocrysts of biotite and chlorite, set in a fine grained groundmass of potash feldspar, sericite, clay and quartz. Similar specimens have elsewhere been described as basic igneous and if this assumption is followed, the rock can be classified within the iaspisphyric class.

The bands are generally not conformable with the sediments and the band-shear angles vary from 15 degrees to 65 degrees. In several cases, small bands are conformable but these appear to be exceptions. The basic igneous rock zone may be conformable but there is no evidence either for or against this.
A little sulphide, both chalcopyrite and pyrite, is present as rare scattered grains throughout the basic igneous rocks. Magnetite occurs as small scattered granules and reaches quite appreciable proportions in places. It is most common in West Gibbet D.D.H. 2 A at a depth of 600 feet where the basic igneous rock grades into a massive dull magnetite, chlorite rock.

A "chilled" contact zone is present at the boundaries of several basic rock bands. This chilled zone is represented by a gradual decrease in the size of the ferromagnesium minerals towards the boundary. In some cases the sediments at the contact appear slightly silicified and indurated.

There is no doubt that the basic rocks are intrusive but their origin is still uncertain. However they are related to the quartz magnetite and may have been intruded contemporaneously with the mineral body. Whether the basic rocks in West Gibbet 2 A represent the extension of the mineral body or whether any of the bands grade directly into the main quartz hematite must remain conjectural.

**ORIGIN OF THE IRONSTONE**

The ironstone is a particularly siliceous type, often very chloritic and extensively veined with quartz. Specularite is abundant, but sulphides which include chalcopyrite, pyrite and pyrrhotite are rare and occur only as scattered specks throughout certain sections of the ironstone. It is similar in appearance and composition to the Peko-envelope type ironstone.

The ironstone lacks any features suggestive of replacement and is probably essentially an intrusive body, perhaps intruded along a strike fault or shear, or conformable to the sediments.

**ASSESSMENT OF GOLD INTERSECTION**

A narrow ore grade gold intersection was encountered in West Gibbet D.D.H. 1, between approximately 790 ft. and 803 ft. In the initial assays the intersection assayed as follows:

- 790 - 800 ft.  40.2 ozs/ton
- 800 - 803 ft.  43.3 ozs/ton

Average grade of intersection (13') = 32.3 ozs/ton.

As a check, the remaining half core was assayed in 1 ft. sections, resulting in a considerably lower average grade for the intersection.
**ASSESSMENT OF GOLD INTERSECTION**

<table>
<thead>
<tr>
<th>Interval (ft)</th>
<th>Av. assay (t/ton)</th>
<th>Av. assay (t/ton)</th>
</tr>
</thead>
<tbody>
<tr>
<td>790 - 791</td>
<td>0.6</td>
<td>797 - 799</td>
</tr>
<tr>
<td>791 - 792</td>
<td>2.6</td>
<td>799 - 800</td>
</tr>
<tr>
<td>792 - 793</td>
<td>3.4</td>
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<td>795 - 796</td>
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<td></td>
</tr>
<tr>
<td>796 - 797</td>
<td>54.4</td>
<td></td>
</tr>
</tbody>
</table>

Intersection 790 - 803 averages 17.94 t/ton.

- 790 - 800 = 22.50
- 800 - 803 = 2.3

The best ore grade intersection, as determined by the 1st samples, is 791 - 801 ft at 23.0 t/ton.

In calculating minimum size ore body required, the following were assumed:

1. The ore shoot is 10 ft wide at an average grade of 23 t/ton.
2. Mining, milling, etc. expenses will require 10 t/ton, leaving 13 t/ton or £10.2 per ton profit.
3. Initial expenditure before production, including shaft, exploratory cross cuts and drives, power, accommodation and other services, will be approximately £300,000.

To recover initial £300,000 spent, number of tons needed at 23 t/ton = 300,000 / 10.2 = 29,350.

Assuming that 11 cu.ft. of ore = 1 ton, then 29,300 tons = 264,350 cu.ft.

Thus an ore body, 160 ft x 200 ft x 10 ft, contains enough gold to repay all initial expenses. Every additional 29,300 tons present would yield at least £300,000 profit.

The total gold ore, and possible profit, can be calculated if the West Gibbet D.D.H. 1 intersection is assumed to be a typical intersection, and if certain assumptions are made concerning the size of the mineral body. The figures thus obtained are hypothetical, but give some guide as to what could be expected.

The percentage of gold ore present in the West Gibbet D.D.H. 1 intersection = 4.5
Assuming that the shape of the quartz magnetite body is that of an oblate spheroid, with two major semi axes (strike length & depth) 250 ft., long, and a minor semi axes (width) 150 ft. long, the volume of quartz magnetite is:

\[ \frac{4}{3} \times \pi \times 250^2 \times 150 \text{ cu. ft.} \]
\[ = 37,500,000 \text{ cu. ft.} \]

The volume of gold ore = 37,500,000 x 4.61/100
\[ = 1,770,000 \text{ cu. ft.} \]

At a grade of 23 ozs/ton, we need 264,500 cu. ft. of ore for each £300,000 profit.

Thus profit = \[ \frac{1,770,000 \times 300,000}{264,500} \]
\[ = £2,010,000 \]

Less initial £300,000 expended to bring mine into production.

Total profit = £1,710,000.

The West Gibbet 1 intersection, 790 - 800', is fairly near the top of the ironstone body and it is doubtful if the ore shoot extends more than 50 feet above the drill hole. In addition it probably thins in this direction. However the ironstone body extends 300 - 400 feet down dip below the intersection and the ore shoot may also extend over much of this distance.

An alternative to this suggestion is that the gold represents a small pod similar to those encountered at various places in PEko - both in the ore and the envelope.

A second minor gold intersection between 639 & 651 feet averages 2.43 ozs/ton over 12 ft. This pod may well improve in grade with depth, and develop into an ore grade body.

Only scattered granular chalcopyrite is present throughout certain parts of the quartz magnetite and the possibility that a copper ore body exists with depth is considered to be very slight. However as both drill holes intersected near the top of the mineral body, a replacement core of copper mineralisation at depth is just possible.

**FURTHER DRILLING:**

The nature of the gold shoots can only be tested by further drilling and before this prospect is abandoned, another drill hole to intersect below West Gibbet D.D.H. 1 is necessary. As D.D.H. 1 intersection is near the top of the quartz magnetite body, the main gold shoot probably does not extend more than 50 feet up dip. Assuming the minimum length of an ore-body to be 160 feet, it would be necessary to intersect with a future drill hole approximately 100 feet below the West Gibbet D.D.H. 1 intersection. This hole would pass just below the geophysical centre of the body, which is placed 700 feet below the grid positions 850E, 460N and would also prove fairly conclusively
whether or not copper mineralisation is present.

Both East Gibbet B.D.H.'s 1 and 2A, drilled by J. Green, deflected markedly to the East, but this excessive deflection is considered to be primarily due to old and worn equipment. A future drill hole, drilled with better equipment would probably not deflect as much. The third hole should be collared at 050° E, 923M and drilled on a bearing of 107 degrees at an angle of -65 degrees. The final length of such a hole would be approximately 1000 feet.

LEASING PARTICULARS:

The West Gibbet Lease N. 126 H is except from work conditions until 27th March, 1963.

Peko Mines N.L.

[Signature]