A BRIEF GEOLOGICAL REPORT ON THE ARGONAUT MINE, B. C.

May, 1962 D. F. Sangster

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THE ARGONAUT MINE, B.C.

This report is to accompany a model of the former Argonaut Mine (Iron Hill) near Campbell River, B.C., constructed by the writer for Colonial Mines Limited from geological sections obtained from the files of the Argonaut Mining Company Limited.

The model consists of fourteen vertically mounted acetate sheets which represent vertical sections through the ore-body at 100-foot intervals. The geology of the ore-body has been plotted directly on these sections and has been interpreted by the writer from diamond drill data from the Argonaut Company files.

The plot of the rock types in each drill hole has been slightly simplified to preserve neatness and clarity. For instance, mixtures of magnetite and skarn or skarn and country rock have been simplified to represent the predominant rock type present (i.e. greater than 50%). In view of this, and the general paucity of diamond drill data on thw whole, the interpretation as represented on the model is meant only to show the broad relation between ore, skarn, diorite, and sediments. Details, of necessity, cannot be presumed without further information.

The outline of the deposit may be described as roughly canoe-shaped. The shape is controlled by an essentially horizontal syncline developed in a feldspar porphyry volcanic rock which contains two large pods of streaky grey and white marble. The main concentration of ore is found along the contact between limestone and volcanic rock especially where this contact lies in or near the bottom of the "canoe".

Most of the main ore-body has, of course, been removed by the Argonaut Company. However, in the centre of the ore zone over a horizontal distance of about 600 feet (sections 7 to 13 on the model), a zone of magnetite and skarn has been left between the base of the present pit and the projected "floor" of the underlying diorite. The thickness of this zone varies between 25 and 100 feet and is best developed just south of the centre line of the trough. Past operations have shown that most of the ore has developed as a replacement of the volcanics and it is the writer's experience that this condition still exists for the remaining ore.

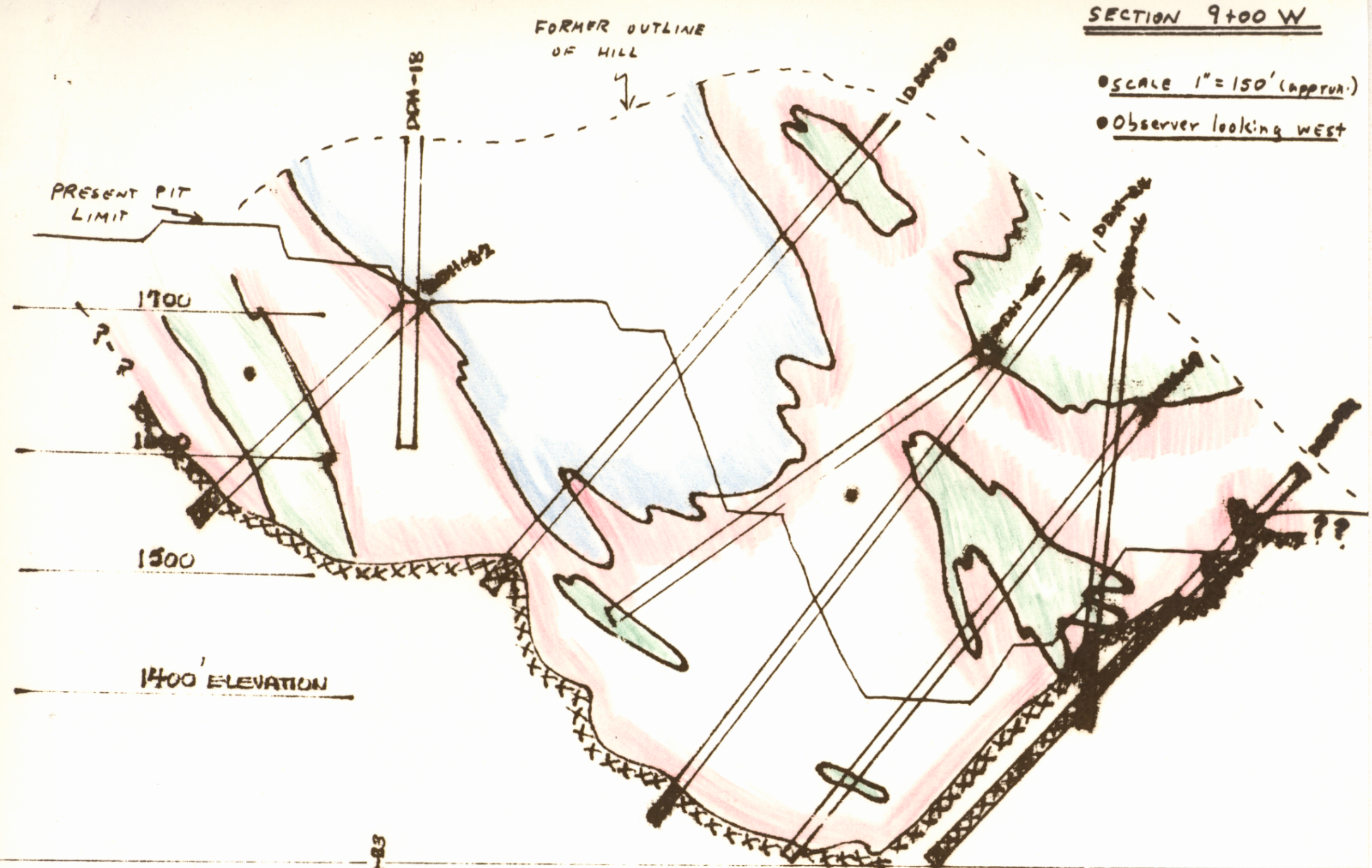
Present surface exposures show that there is ore outcropping on the south wall downward from at least the 1700 foot level to the water level of the flooded pit. This water level is estimated to be at 1520 feet. Diamond drill data show that this ore zone continues downward below the water level and beyond the floor of the present pit. The lowest point on the pit floor is 1400 feet. Between the level of the present pit and the projected

"floor" of diorite, magnetite and skarn are found in a 25 to 100 foot thick zone extending in an east-west direction for about 600 feet. This zone, however, has every possibility of being deeper over short distances below the pit floor because of irregularities in the diorite contact. Vertical drilling through the pit floor would reveal any such pockets. The drilling should also extend for 20 to 30 feet into the diorite to ensure that it is the main mass that has been penetrated and not merely thin cross-cutting fingers or dykes of diorite.

The contact between diorite and overlying rocks is also very indefinite under the south wall of the pit. It is presumed to rise upward toward the top of the hill but its exact location is far from established. The contact is shown on the model to be smooth and slightly undulating whereas, in fact, it may be quite irregular. Such irregularities could enclose more pods or pockets of ore. Small aplite dykes (cross-cutting fingers of diorite) are common near the top of the south wall and may have been interpreted in the drill core as being part of the main diorite body.

The north wall consists of a fine-grained crumbly greenish-white rock which is interpreted as being the chilled border of the diorite stock. If this interpretation is correct, then the probability of ore existing under the north wall is slight since magnetite is seldom developed in diorite. Diamond drill data are singularly lacking in this area.

The ore zone has little chance of continuing to any great extent in either direction along the length of the trough beyond


SECTION 9+00 W
SCALE 1" = 150' (approx.)
Observer looking west
FORMER OUTLINE OF HILL
PRESENT PIT LIMIT
DDH-18
DDH-20
DDH-24
1700
1600
1500
1400' ELEVATION


SECTION 11+00 W
LIMESTONE
VOLCANIC
MAGNETITE AND SKARN
DIORITE
N
SCALE 1"=150' (approx.)
Observer looking west
FORMER OUTLINE OF HILL
PRESENT PIT LIMIT
DDH-23
DDH-28
DDH-8
DDH-26
1700
1600
1500
1400' ELEVATION

SCALE 1" = 200'
DUMP
1530'
1650' LEVEL
PIT FLOOR
1400' (APPROX.)
ROAD
ROAD
ROAD

the limits of the present pit. The west end is cut off by the edge of the hill and the east end pinches out toward a large body of diorite outcropping in a hill a few hundred feet to the east of the pit.

The main points of this report may be summarized as follows:

1. A large part of the main ore zone still remains to be investigated.

2. This remaining ore will, in all probability, be found in pockets developed in "wrinkles" in the diorite contact.

3. The diorite contact under the south wall is ill-defined at present and holds good possibility of being deeper or more complex than as outlined by present information.

4. Several small pockets of ore remain to be exploited on the south wall.

5. The area of greatedt promise appears to lie between sections 7 and 13 below the 1550 foot level. The ore zone here varies between 25 and 100 feet below and behind the present limits of the pit in this area.

6. The ore zone pinches out along the length of the trough to the east and west.

7. The north wall, as interpreted at present, is presumed to be barren but this remains to be proven.

Respectfully submitted,

D.F. Sangster

May 7, 1962
Vancouver, B.C.

D.F. Sangster, Geologist