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582 Market St., Room 1209,
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Jan. 6, 1928.

Mr. Chas. C. Starr,
Care Maj. Gavin Davis,
Field, B.C.

My dear Mr. Starr:-

Mr. E. A. Julian has requested me to present you with my interpretations of the geology of the Monarch and Kicking Horse Mines as deduced from my reconnaissance examinations Nov. 11 and 12, 1927 as a guide to your evaluations of the developed orebodies and prognostications of the future possibilities.

In addition to my own observations, I had the benifit of the experience of a former assistant of mine, Mr. E. W. Watson, who worked in the East Monarch Orebody and who mined all the ore from the West Monarch Orebody. Also he was a regular mountain goat and did more surface work than any other man. Furthermore, I examined the mine under the personal guidance of Maj. A. W. Davis who ~~did~~ developed most of the West Monarch and Kicking Horse Orebodies.

My deductions are that the orebodies are controlled by:- (1) favorable beds of rock which have been replaced by ore; (2) longitudinal, steep fissures, and; (3) cross fissures which strike about 60 degrees to the longitudinal. Both of these sets of fissures are remarkably continuous, plainly visable on the outcrop and there is practically no faulting. When the three controlling factors intersect, the quantity and grade of the ore are greatest. The ore on only one favorable bed is developed or mined. This bed is beneath a series of pink quartzite and above a black dolomitic limestone. There are other ore outcrops 700 feet above and about the same distance below (near the

C.P.R. tracks) the West Monarch Orebody. There are, therefore, opportunities to prospect or develop nine favorable intersections of favorable beds and longitudinal fissures. Mr. Watson has seen a strong outcrop 3 miles south on the south side of Mt. Stevens which he correlates with the Monarch Orebodies. The ore belt has been definately determined to be at least 4 miles long, two miles of which is covered by the claims.

The cross-fissure at the north end of the developed ore block in the West Orebody will intersect the longitudinal fissure of the East Monarch Orebody about 120 feet southerly from the East Stope. The best ore should concentrate at the junction of the three controls and extend both northerly and southerly therefrom. Development southerly from the present breast should encounter commercial ore long before the 120 feet is driven.

In general, development southerly along the intersection between the favorable bed and the longitudinal fissure should increase the quantity, width, height and grade of the ore as each cross-fissure is approached and decrease therefrom to a point midway between the cross fissures, then increase again.

The work in the West Monarch Orebody showed that the maximum height of the outcrop was 40 feet and width of 200 feet. The stope is actually 30 feet high but now partly filled with development ore. The engineer for the owner uses an average height of 20 feet, width of 135 feet and length of 350 feet in figuring tonnage. Each of these dimensions I consider conservative. He estimates 3,500 tons of broken ore in the stope.

In the Kicking Horse, I deduced that the locus of the developed orebody begins just east of the main enterence and trends N27W (astronomic) and pitches about 8 degrees downward northwesterly. The workings

therefore, are driven to the westerly footwall and northeasterly hangingwall. To develop this orebody, it would be necessary to sink an incline in the direction given above or do equivalent horizontal drifting and vertical sinking in order to follow the ore shoot. My cross sections indicate that this orebody has a conservative height of more than 10 feet, maximum width of 150 feet and a length as long as you wish to make it. As this pitching shoot has been developed but a short distance, it would be easy to develop much more ore with little work.

Trusting that you will be able to confirm these conclusions and that they will be of service to you in expediting your examination, I am

Very truly yours,

Willbur H. Grant.