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Highmont

Courtesy of:

W. G. HAINSWORTH
CONSULTING GEOLOGIST

See this report partly for 1969 work on Highmont property.

February 10, 1969

The President & Directors,
Highmont Mining Corp. Ltd.,
702-850 W. Hastings St.,
Vancouver 1, B.C.

Dear Sirs:

INTRODUCTION

At the request of Mr. R.W. Falkins, President of Highmont Mining Corp. Ltd., the writer is herewith summarizing and evaluating the available evidence from the second phase of the development program. It is emphasized that this phase is still incomplete and many details are lacking. Nowhere is this more obvious than in the incomplete results of the computer study.

It has been slightly better than two weeks since the writer issued his progress report, dated January 17th, 1969.

A comprehensive study and evaluation, along with recommendations, was issued by the writer on August 2, 1968. The present program is based on this report.

The author herewith restates his recommendations as outlined on page 8, paragraph 2 of the August 2nd report.

"It is obviously necessary to re-sample by diamond drilling the main ore zones as outlined by the Chapman report (July 6th, 1967). It is an equal necessity to know the correlation between these results and underground sampling. Lastly, tests must be conducted to prove up the possibilities of deriving an economical finished product."

CONCLUSIONS & RECOMMENDATIONS

Results to date can be based only on visual examination of the core still unassayed, along with the underground and drill results available. This makes for indecisive conclusions. However, results from the above developments, along with the computer work, are very encouraging. Underground operations have exposed a high-grade ore zone which poses the question as to whether similar occurrences may not further be unveiled. Bulk sampling results have, on the whole, proven higher than drill core results. Assays from the drill program provide proof of the steep dipping attitudes of the ore shoots. The geological evidence indicates the contact between the two intrusives has a greater bearing on mineral deposited than previously suspected.

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The present evaluation points towards a continuation of the same program with an expansion into exploration procedures. The surface drill program should be continued in the ore zone to define the outer assay limits. In addition, several areas of interest from past operations should be probed to check out mineralization possibilities. The underground phase - both mining and drilling - has served its purpose and further work in this area of operation, save for one exception, is unnecessary. A recommendation for metallurgical testing made several times by the writer in past reports is once again advanced as a necessity. Several sections of the property warrant investigation on a surface exploration level. Geophysical, particularly induced polarization, is recommended.

On this basis, the recommendations are as follows:

1. Diamond Drilling

Ore Zone : Continue expansion drilling to define assay limits. The gap between the two zones should be thoroughly explored.

25,000 feet of BQ drilling.

Exploration: Probe the anomalous percussion results in the south west corner of the property and the mineralized area resulting from hole 68-63.

8,000 feet of BQ drilling.

Deep Drilling:

5,000 feet of BQ drilling.

2. Underground Mining

Comparison of bulk results with inclined holes is based on one raise results (68-31 raise). To further strengthen the comparison and to assist in evaluating the geology, an additional raise should be run up an inclined hole, preferably at right angles to 68-31 raise. It is recommended that a 45° hole be drilled on an east bearing from a point between P27 and P28 percussion holes to intersect the north crosscut.

On the remote possibility that this raise might be difficult of operation or prove dangerous, another drill location (and raise) is suggested between P33 and P34 percussion holes to break into the south crosscut. These two holes should be drilled prior to any raising action.

3. Metallurgical Testing

A competent company should be engaged to carry out preliminary bench tests on underground material for complete separation of copper and molybdenum concentrates. An organization which has operated in the area and

is familiar with the rock types and attached difficulties is Canadian Bechtel Ltd. of Toronto.

4. Exploration Geophysics

The northern claims and several of the southern claims have received little attention exploration-wise. It is recommended that an I.P. survey to check the potential of these claims be carried out.

5. Computer Processing

During the present recommended program, one, possibly two, runs should be made to keep in touch with changing results. Upon completion of the drilling, a final run incorporating all assay data can be made. Pit designing can be considered by computer action.

6. Deep Drilling

It is recommended that 3 or 4 of the holes in the above program be carried through to the 1500' level as straight exploration holes.

ESTIMATED COSTS

The recommended program would involve expenditures in the following areas:

<u>Diamond Drilling:</u>	
38,000 of BQ drilling and processing at \$10/ft.	= \$ 380,000
<u>Underground Mining</u>	
200 feet of raising and processing at \$100/ft.	= 20,000
<u>Metallurgical Work</u>	
Flotation Testing & Separation	= 15,000
<u>Geophysical Survey</u>	
10 miles at \$250/mile	= 25,000
<u>Computer Processing</u>	= 10,000
<u>Contingencies 10%</u>	= <u>45,000</u>
Total	= \$ 495,000

LOCATION & ACCESS

The property discussed in this report is on the westerly slopes of Gnawed Mountain, which is located on the south side of Highland Valley, some 25 miles southeast of Ashcroft, B.C. Its approximate coordinates are 50°25' North and 121°00' West.

Access to the area is by the Ashcroft-Highland Valley-Merritt secondary improved gravel-pavement highway. It is some 25 miles southeast from Ashcroft or 45 miles northwest from Merritt to the property service road.

Ashcroft is on the C.P.R. and C.N.R. mainlines, and on the Trans Canada Highway #1, approximately 210 miles from Vancouver.

CLAIMS

The following claims form the Highmont group in the Highland Valley:

	<u>CLAIM</u>	<u>RECORD NUMBER</u>
7	AM 1 to 4 incl.	31188 to 31191 incl.
2	AM 5 and 6 Fr.	31192 and 31193
5	AM 7 to AM 11 incl.	31194 to 31198 incl.
	IDE 1	24994
4	IDE 3	24996
	IDE 4 and 5	24997 and 24998
3	IDE 6 to 8 incl.	24999 to 25001 incl.
5	IDE 12 to 16 incl.	25710 to 25714 incl.
	IDE 17	25715
2	IDE 18	25716
	NEW IDE 19	64034
2	NEW IDE 20	64036
3	ANN 3 FR., 4 FR. & 7 FR.	45132, 45133 and 45136
	ANN 18 FR	46153
2	ANN 20 FR.	46155
	NEW ANN 11 FR.	64030
2	PHYLLIS FR.	48513

PAST WORK

In 1962, Torwest Resources (1962) Ltd. carried out 6 miles of I.P. work and diamond drilled some 5476 feet in 20 holes.

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In 1966, on an option basis, Rio Algom did a minor amount of I.P. work and 2,750 feet of percussion drilling. Following this, Highmont started its main program consisting of 262 percussion holes for a total footage of 61,116 feet. In addition, 16 drill holes aggregating 8,278 feet and 15.4 miles of I.P. work were carried out.

The 1967 program saw a total of 1,730 feet of underground operation. Two underground flat drill holes totalling 900 feet were also drilled.

PRESENT WORK

The present development program followed the recommendations of the writer in his August 2, 1968 report. These recommendations were:

1. 33 surface holes totalling 12,750 feet. To this has been added at different times and by different authorities an additional 7,450 feet in 14 holes. In total, this makes 47 holes of 20,200 feet. (-3931' = 16,269' for 1968)
2. Underground holes were to be drilled in 6 locations for 3,000 feet. This program has been broken into 11 holes, totalling 3,078 feet. (-575' = 2503' for 1968)
3. Further lateral work, totalling 1,600 feet and raise work of 400 feet, were recommended.

DIAMOND DRILLING

This portion of the program is still continuing in the surface phase. Underground drilling has been completed.

The underground drill program was successful in its two main endeavours, the first being to allow a correlation between bulk and drill core assay results. These results are tabulated further along in the report. The second endeavour was to outline the high-grade zone as reported in the first underground hole HU-1. A third result, correlation of geological and assay data with surface drilling, is still being compiled.

Surface drilling is five holes from completion. It should be added that assay results lag well behind the actual drill program. Drill sections are still in the drafting stage. It would be unwise at this time to comment on such incomplete results.

UNDERGROUND OPERATIONS

The underground work has been completed and all results are herewith tabulated:

<u>Location</u>	<u>Length</u>	<u>Cu.</u>	<u>MoS2</u>
South Cross Cut (1967)	586'	.199	.024
South Cross Cut Ext. (1968) ✓	633'	.317	.028
West Dr. (1967)	206'	.170	.014
West Dr. Ext. (1968) ✓	202'	.189	.031
North Cross Cut (1968) ✓	265'	.250	.045
East Dr. (1968) ✓	243'	.392	.053
West Dr. #2 (1968) ✓	67'	.564	.020
Total	2202'	.268	.030
P-33 Raise (1967)	18'	.097	.003
P-19 Raise (1967)	160'	.320	.026
P-20 Raise (1967)	113'	.250	.006
68-10 Raise (1968) (Completed in 1969) ✓	55'	.679	.015
68-31 Raise (1968) ✓	190'	.310	.015
Total	536'	.331	.016
Grand Total	2738'	.280	.028

Copper Equivalent = .350

Note that this total does not include the first 575 feet of the adit, which portion is considered out of the mineralized area.

The grade established is a straight mining grade and does not take an ore-waste ratio into consideration, which point would materially raise the indicated grade.

One of the expected results of the present program is a correlation factor between underground bulk sampling results and the corresponding diamond drill hole core assays. The results were stated in my January 17th report and are herewith restated.

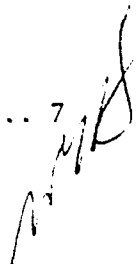
Four workings drifted out guide drill holes. They were:

- (A) South Crosscut Extension along HU-1.
- (B) North Crosscut along HU-4.
- (C) West Drift Extension along HU-8.
- (D) West Drift #2 along HU-7.

South Crosscut Extension (0' to 633') (Williams Assays)

Bulks:	Cu.	0.317	MoS2	0.028	No. of samples	108
Hole HU-1:	Cu.	0.265	MoS2	0.013	No. of samples	63

Increase of bulks		
over drill core	+20%	+115%

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North Crosscut (0° to 265') (Williams Assays)

Bulks:	Cu.	0.250	MoS2	0.045	No. of samples	42
Hole HU-4:	Cu.	0.210	MoS2	0.036	No. of samples	27

Increase of bulks
over drill core + 19% +25%

West Crosscut Extension (205' to 408') (Eldridge Assays)

Bulks:	Cu.	0.174	MoS2	0.025	No. of samples	34
Hole HU-8:	Cu.	0.167	MoS2	0.014	No. of samples	20

Increase of bulks
over drill core +4% +79%

West Drift #2 (0 - 49') (Eldridge Assays)

Bulks:	Cu.	0.564	MoS2	0.020	No. of samples	8
Hole HU-7:	Cu.	0.486	MoS2	0.015	No. of samples	5

Increase of bulks
over drill core +16% +33%

Several assayers are involved in the assaying of the underground results. Comparison of the three shows:

South Crosscut Extension (1161' to 1794' from Portal)

	<u>Cu.</u>	<u>MoS2</u>
Williams	0.317	0.028
Coast Eldridge	0.317	0.023
Bethlehem	Incomplete	

South Crosscut (575' to 1794' from Portal)

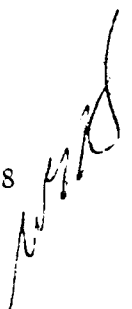
	<u>Cu.</u>	<u>MoS2</u>
Williams	0.260	0.026
Coast Eldridge	0.269	0.024

North Crosscut

	<u>Cu.</u>	<u>MoS2</u>
Williams	0.250	0.045
Coast Eldridge	0.283	0.042
Bethlehem	0.226	0.031

East Drift

	<u>Cu.</u>	<u>MoS2</u>
Williams	0.392	0.053
Coast Eldridge	0.378	0.046
Bethlehem	0.347	0.031

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<u>West Drift #2</u>	<u>Cu.</u>	<u>MoS2</u>
Williams	0.55	0.027
Coast Eldridge	0.53	0.021
Bethlehem	0.48	0.015
<u>West Drift Extension</u>	<u>Cu.</u>	<u>MoS2</u>
Williams	0.189	0.031
Coast Eldridge	0.174	0.025
Bethlehem	0.152	0.014
<u>West Drift (Complete Length)</u>	<u>Cu.</u>	<u>MoS2</u>
Williams	.179	.022
Coast Eldridge	.184	.018
Bethlehem	.176	.011
<u>68-10 Raise</u>	<u>Cu.</u>	<u>MoS2</u>
Williams	.679	.015
Coast Eldridge	.656	.015
Bethlehem	Incomplete	

The south crosscut extension cut a high grade plug of ore described in both the January 17th, 1969 and October 16, 1968 progress reports. This above-average zone has been intersected by 3 lateral drives, 2 raises and 3 flat underground drill holes. Data is still incomplete at this time but, based on present assays, the zone averages 0.452% copper and 0.036% MoS2 with a tonnage potential of 5800 tons per vertical foot.

All underground work has been completed.

COMPUTER RESULTS

The first run has been completed by V.W. Ruskin & Associates of Vancouver. The purpose of this initial run was:

1. To see if there is an observable trend.
2. To eliminate from, add to or enlarge portions of the computer program in future runs.

It should be emphatically stated that this is more in the way of a test run and was conducted on incomplete results. The holes involved consisted of 37, arranged:

- 14 holes from the 1966 diamond drill program
- 23 holes (of the 58) from the current diamond drill program

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The underground bulk results fed into the machine consisted of 70% of the total results. The resulting figures of the computer program are given in copper equivalents, where the molybdenum assays have been multiplied by a factor of 2.5 to bring them to an equivalent copper assay. Both assays are then totalled for a copper equivalent assay.

The sludge assays are brought into the picture by introducing them and the core assays into a formula which incorporates them according to percentage recovery and individual net weights per sample. The final result is a formula assay.

The computer results show:

Average grade = 0.27% copper equivalent
Ore tonnage = 136,037,000 tons
Waste tonnage = 95,241,000 tons
Total ore and
waste tonnage = 231,278,000 tons

These figures are broken up as follows:

East Zone

Grade = 0.27% copper equivalent
Ore tonnage = 111,611,000 tons
Waste tonnage = 58,604,000 tons

West Zone

Grade = 0.30% copper equivalent
Ore tonnage = 24,426,000 tons
Waste tonnage = 36,637,000 tons

It should be noted that the waste tonnage includes pit slope areas not drilled; therefore, given a grade of 0.0%.

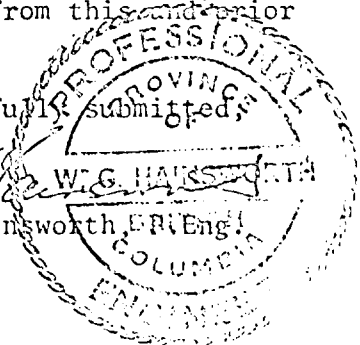
No waste-to-ore ratio is defined at this stage. The assay figures presume complete mining and milling of the ore tonnage.

Playing around with figures at this stage can be dangerous and misleading. However, the writer draws to attention only one set of figures from the run. Presuming a cut-off grade of 0.24% copper equivalent, the average grade would then result in 0.44% copper equivalent (the figure stated by the writer in his August 2nd, 1968 report, page 7, paragraph 2) with an ore tonnage of 42,040,000.

The second run, complete with all assays from this and prior programs is expected to be made in late February.

Respectfully submitted,

W.G. Hainsworth, P.Eng.



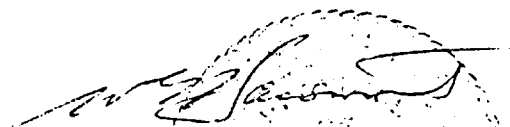
W. G. HAINSWORTH

CONSULTING GEOLOGIST

CERTIFICATE

I, W.G. Hainsworth of Vancouver, B.C. do hereby certify:

1. That I am a Consulting Geologist residing at 4664 Clovelly Walk, West Vancouver, B.C.;
2. That I am a graduate of the University of Western Ontario, B.Sc.;
3. That I have practiced my profession for 19 years;
4. That I am a member in good standing with the Association of Professional Engineers of British Columbia;
5. That I have no interest, direct or indirectly, nor do I expect to receive any interest, direct or indirectly, in the property or the securities of Highmont Mining Corp. Ltd. (N.P.L.);
6. That the information contained in this report is based on personal knowledge of the property from previous and present supervision of work and examination of maps and data pertaining to the property and the area in general.


W.G. Hainsworth, P.Eng.

Vancouver, B.C.
February 12, 1969