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803630

Kerr-Sulphurets

October 27, 1988

R.S. Hewton
Exploration Manager
Western Canadian Mining Corp.
1170 - 1055 W. Hastings St.
Vancouver, B.C.
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Dear Bob:

Thank you for your letter, recent news release and results of this summer's drilling on the Kerr property. The letter only took 10 days to get here! Rod is in China looking after an international copper-deposit workshop so I know that he will be interested to know that he walked over your porphyry deposit while mapping in the sixties. Please keep us informed about "P" results as well as Ted Ray-Bornite showing results.

We have now dried all of your drill-core pulps and they are now being ball-milled to 250 mesh prior to being sent out for N.A.A. gold plus 33 element analysis.

As part of an on-job co-operative university student program, each of the drill core pulps is undergoing XRD analysis to determine the relative abundance of quartz, chlorite, K-spar, calc, musc, barite etc. We have already done this for West and Shore zones and we are now comparing these results with whole rock data. In your porphyry deposit, this approach should help to determine and define the types and attitudes of the various alteration "shells" in and surrounding the different mineralized zones.

The following is an update of the drill-holes sampled and number of samples for each:

DDH	# Samples	
K88-18	36	require: list your sample # = depth
K88-05	50	and core logs
K88-11	34	
K88-12	27	
K88-01	70	
K88-02	49	
TOTAL	266	

Has Bornite-Ted Ray 88-DDH pulps been shipped to G.S.C. yet?

Canad

We also have a series of surface rock samples from three traverses. If possible we would like to obtain a copy of your base map showing the new grid over Ted Ray, drill hole location compilation, and accurate locations of what is referred to as Meyers showing etc. If the base is compatible with UTM coordinates or if you have an up graded structure and geology base it would be most helpful. Don Harris has many probe mounds already made but if you could send complete drill hole Au, Ag, Cu etc. data and core logs for our holes it would be far easier at this stage to know which zones to concentrate on during microprobe and S.E.M. investigations and to understand mineral zoning.

Thank you for your cooperation.

We will be sending out your samples for the NAA, gold plus 33 element option ($15.00), Pt and Pd by fire assay/AAS ($15.00) and Te ($6.00-8.00). Whole rock ICP, plus S_T, FeO, CO_2, H_2O ($40.00) and ICP (total digestion) 10 trace element package including Pb, Zn, Cu, ($11.00-18.00) work will be done in-house. Our own labs suggest that all 266 samples could be complete by the end of January. We expect a fair number of dilutions due to high copper contents which a commercial lab would not do without charging assay rates. The estimate using 266 samples is that outside contract analysis will cost $10,000.00 and that in-house analysis if sent out would cost $16,000.00.

We do not have the money left in the 1988-89 budget to complete all of this work. We intend to do as much as possible and to continue when new budgets are released April 1, 1989.

I enclose a series of photos taken with the SEM from the one out of four Bornite showing mounds which Don Harris found mereskyite. If you require any information etc. for Cordilleran Round-up core display etc. please don't hesitate to ask.

D. Harris will fill you in on what he has discovered to date.

Yours sincerely,

S.B. Ballantyne

SBB/mab

c.c. E.H. Hornbrook
A.G. Plant
R.V. Kirkham

Preliminary Mineralogical Study

Drill core and hand samples collected in summer 1988.

B-Zone	
Drill hole	metres
88-11	33.3, 52.2, 52.4, 112.5, 137.4
88-1	177.4, 240
88-14	58.65, 136.5, 228.0, 264.57
88-18	22.2, 75.17, 118.87, 160.6, 252.37

A-Zone	
88-5	54.4, 73.0, 92.8
88-4	89.3(ruby silver?)
A-North	Tetrahedrite-rich hand sample
Halley's North	Chalcopyrite-rich float
C-Zone	
88-12	93.9

Results

DH 88-11

33.3 - pyrite with chalcopyrite, trace sphalerite. Carbonate and black chlorite in gangue.

52.2 - pyrite with chalcopyrite and tennantite, trace galena. Slight alteration of chalcopyrite. Chalcopyrite and tennantite about equal in amounts.

52.4 - pyrite with chalcopyrite and tennantite. Trace barite in gangue. Chalcopyrite and tennantite about equal.

112.5 - pyrite with major chalcopyrite, galena, sphalerite, tennantite. Trace molybdenite. Three less than 10 micrometre sized grains of gold. Barite in gangue.

137.4 - pyrite with chalcopyrite (slightly altered). Trace sphalerite and molybdenite.

Drill Hole 88-1

177.4 - pyrite with chalcopyrite and minor tetrahedrite.

240 - pyrite with chalcopyrite. Trace sphalerite, tennantite. One less than 10 micometre sized gold grain in chalcopyrite in pyrite fracture.

The presence of tetrahedrite in sample 177.4 and tennantite in 240 appears to suggest a change in mineralogy or is there a fault between the two samples?

Drill Hole 88-14.

58.65 - pyrite with chalcopyrite. Trace galena and sphalerite.

136.5 - pyrite with chalcopyrite with some coarse sphalerite in later veinlets. Trace molybdenite. Barite in gangue.

228.0 - pyrite with chalcopyrite. Barite in gangue.

264.57 - pyrite with trace chalcopyrite and sphalerite. Carbonate-rich gangue.

Drill Hole 88-18

22.2 - pyrite with chalcopyrite

75.17 - pyrite with chalcopyrite

118.87 - bornite-rich with major tennantite, enargite and chalcocite, minor chalcopyrite. Trace colusite.

160.6 - no polished sections available yet

252.37 - no polished sections available yet.

The presence of the bornite interval is a characteristic feature of this part of the B-zone. Note the V and Ge in the colusite (microprobe analyses). This mineral only occurs as minute inclusions in pyrite and bornite, but the presence of these elements is noteworthy. I have more study to do on these samples. Would you have other samples from this interval that I could examine. We are currently crushing the assay rejects for XRD and I have selected some of the coarser chips for polished sections. Perhaps we will be able to see more details in these.

A-Zone

Drill Hole 88-5

54.4 - pyrite with chalcopyrite, Trace galena.

73.0 - pyrite with chalcopyrite. Carbonate in gangue.

92.8 - pyrite with altered chalcopyrite and coarse tetrahedrite.

Drill Hole 88-4

89.3 - This is the ruby silver sample, however the ruby silver mineral occurs as fine dustings that I could not confirm its identity in the one polished section available. The major minerals are pyrite with hessite (Ag_2Te), chalcopyrite, galena, native gold as inclusions in pyrite, native silver in gangue and trace altaite (PbTe) as inclusion in pyrite. See microprobe data sheet.

A-North

Tetrahedrite sample. Tetrahedrite-rich with traces of chalcopyrite, pyrite. Two less than 5 micrometre gold grains.

Halley's North chalcopyrite float.

Chalcopyrite-rich with minor pyrite and sphalerite.

C-Zone
Drill Hole 88-12

93.9 - major pyrrhotite with minor pyrite and chalcopyrite. Carbonate-rich gangue. This one sample if typical of the C-zone shows a different mineralogy and thus a completely separate zone. I would expect a higher magnetic signal due to the pyrrhotite.

General comments

The chalcocite in drill hole 88-18 is truely hypogene chalcocite, whereas the copper sulfide that occurs as an alteration of chalcopyrite is supergene. Because of the fine alteration rims on the chalcopyrite, frequently associated with limonite, the proper identification of the mineral is difficult. I would suggest you refer to the alteration product as a secondary copper sulfide and not as chalcocite to avoid confusion with the chalcocite in drill hole 88-18. This bornite-chalcocite-tennantite-enargite assemblage is new for the area. This highly siliceous mineralized interval could represent a mineral zonation pattern grading outwards to chalcopyrite or a younger completely different zone of mineralization. Further mineralogical and geochemical study together with your field mapping may provide the answers. The B-zone appears to contain principally tennantite whereas the A-zone contains tetrahedrite. I am detecting low concentrations of Hg and Se in the tennantite-tetrahedrites. However, both of these minerals having practially no silver, so I cannot account for any silver assays values.

For your up-coming beneficiation tests, chalcopyrite is the major copper mineral, in places altered. It ranges from a few micrometres to as much as 500 micrometres in grain size. It occurs mainly in the gangue, but also as inclusions and fracture fillings in pyrite. Tennantite in places is an important copper mineral. The bornite-rich samples in hole 88-18 are completely different as noted above. The gold should report to the chalcopyrite and pyrite concentrates. The altered chalcopyrite could present some flotation difficulties as its surface properties will be different than so-called fresh chalcopyrite. However, the grinding may expose fresh surfaces.

I have taken a number of color slides from which I will make prints to illustrate some of the minerals and their textures. When these are ready I will some them to you.

Microprobe Analyses

Gold

	Au	Ag	Hg
88-11, 112.5	82.3	16.6	0.7
	83.8	14.8	0.8
88-1, 240	75.3	20.0	3.0
A-North Tetrahedrite	83.4	16.4	0.2
88-4, 89.3	70.8	27.2	0.4
	67.9	31.9	0.7
	----	76.0	23.6

Tennantite-Tetrahedrite

	Cu	Ag	Hg	Fe	Zn	As	Sb	S	Se
88-11, 52.4	41.7	0.2	0.3	1.6	6.4	13.1	7.6	27.4	0.1
88-11, 112.5	42.6	--	0.2	0.8	7.7	15.0	6.3	27.7	0.1
88-1, 177.4	41.3	--	--	1.1	7.0	9.2	15.8	26.7	0.2
240.0	41.0	0.1	1.2	1.3	6.5	17.0	1.9	27.8	0.3
88-5, 92.8	40.3	0.1	0.2	1.8	6.0	6.5	19.5	26.4	0.2
88-18, 118.87	51.0	--	1.3	1.5	0.4	19.5	0.5	27.8	0.1
A-North	38.2	0.7	0.1	2.4	4.5	4.1	23.2	25.9	0.1

Galena

	Pb	S	Se
88-11,112.5	86.9	13.5	1.1
88-4,89.3	86.0	13.9	0.5

Colusite $Cu_{26}V_2(As,Ge,Sn,Sb)_6S_{32}$

	Cu	Fe	V	Ge	As	Sb	S
88-18, 118.87	49.8	2.4	3.1	1.3	11.9	0.4	32.8

Enargite Cu_3AsS_4

	Cu	As	S
88-18, 118.87	49.6	19.0	33.0