STATE OF ALASKA
Department of Natural Resources
DIVISION OF MINES AND GEOLOGY

LABORATORY NOTES NO. 12

Comparison Analyses

By

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COMPARISON ANALYSES

A sample of heavy sulfide ore was acquired and has been subjected to a comparison of analyses by various methods and laboratories. This approach is useful to indicate, but not to define, analytical accuracy.

The ore sample consisted of about 15 pounds of material. An x-ray diffraction analysis showed the crystalline constituents above about two weight per cent to be:

galena sphalerite pyrite	MAJOR
quartz calcite feldspar	MINOR

The sample was crushed to minus 1/8" and then Braun pulverized to minus 100 mesh. The sample was then thoroughly blended by rolling.

Splits of the sample were analyzed by Miss Cho by atomic absorption for Cu, Pb, Zn, Au, and Ag. Au and Ag values were obtained by Mr. Stein by fire assay. Cu, Pb, Zn, and Sb values were obtained by Mr. Anderson by x-ray spectrography. A sample was analyzed by Rocky Mountain Geochemical Co. for Cu, Pb, Zn, Au, and Ag by atomic absorption. The results of this round - robin are shown in the table.

The correspondence, in my judgment, is satisfactory except for the gold value. The comparison between Miss Cho's AAS value and that of fire assay may be acceptable, but Rocky Mountain's value is a good deal lower.

Splits of these samples will be sent to Alaska Mineral Lab., Anchorage, and to the Bureau of Mines Lab., Juneau, both of which have expressed interest in joining an occasional round - robin analytical check.

RESULTS OF COMPARISON ANALYSES ON BBS SAMPLE

METHOD AND ANALYST	OUNCES PER TON		WEIGHT PER CENT			
	GOLD	SILVER	COPPER	LEAD	ZINC	ANTIMONY
Fire Assay[1] D. Stein	0.18	18.1	-----	----	----	----
AAS[2] N. Cho	0.26	19.8	0.059	10.9	7.00	----
AAS[3] Rocky Mountain	0.09	19.6	0.049	9.70	6.20	----
XRS[4] P. Anderson	----	----	0.09	10.44	7.47	0.06

(1) These values are the means from ten samples run simultaneously. The coefficient of variation was, gold 10.8% and silver 1.9% of the value.

(2) These values are the means of four or more determinations.

(3) These values are the means of two determinations.

(4) These values are from single determinations.