STATE OF ALASKA
Department of Natural Resources
DIVISION OF GEOLOGICAL SURVEY

LABORATORY NOTES NO. 5

Suggested Reporting Procedures for the Atomic Absorption Silver and Gold Analyses

By

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SUGGESTED REPORTING PROCEDURES FOR THE ATOMIC ABSORPTION SILVER AND GOLD ANALYSES

I N T R O D U C T I O N

In order that the results of our gold and silver analyses by atomic absorption be consistent and valid the considerations given below are thought to be useful as reporting procedures.

C O N S I D E R A T I O N S

By consulting the attached graph representing a typical analytical line for the range of 0.0 to 1.0 ppm of silver or gold, and accepting that reading the absorbence value to two significant figures is easily attained, reading the concentration value to two significant figures is valid. Therefore, in the range up to 1 ppm the results should be reported to two decimal places of a ppm.

Though the above is true for reporting geochemical values where very small changes in concentration are significant, a different reporting procedure for ore and sub-ore type samples, where dollar values are more important, is required. In the case of these samples the ppm values are converted to troy ounces per ton by dividing the ppm value by 34.3 which is the number of ppm per troy ounce. In this case, as a reasonable cut off limit, and to be consistent with fire assay, below 0.034 ppm (0.001 oz/ton) in the sample is termed Nil; 0.034 to 0.34 ppm (0.01 oz/ton) is termed Trace. Values above 0.34 ppm are converted to troy ounces per ton and that value reported.

Considering that in the range below 1 ppm there are two significant figures in the concentration value and three significant figures in the conversion value the ounces per ton figure could be reported to two significant figures; at the minimum value, $\frac{0.34}{34.3} = 0.010$ with the final zero significant. Because these are ore samples the third place has little "economic significance" and it is suggested that the values in troy ounces per ton be reported to only two decimal places. Reporting to two decimal places is valid to 10 ounces per ton. Ten ounces per ton to 100 ounces per ton reporting to one decimal place is valid, and no decimal places at 100 ounces per ton and above.

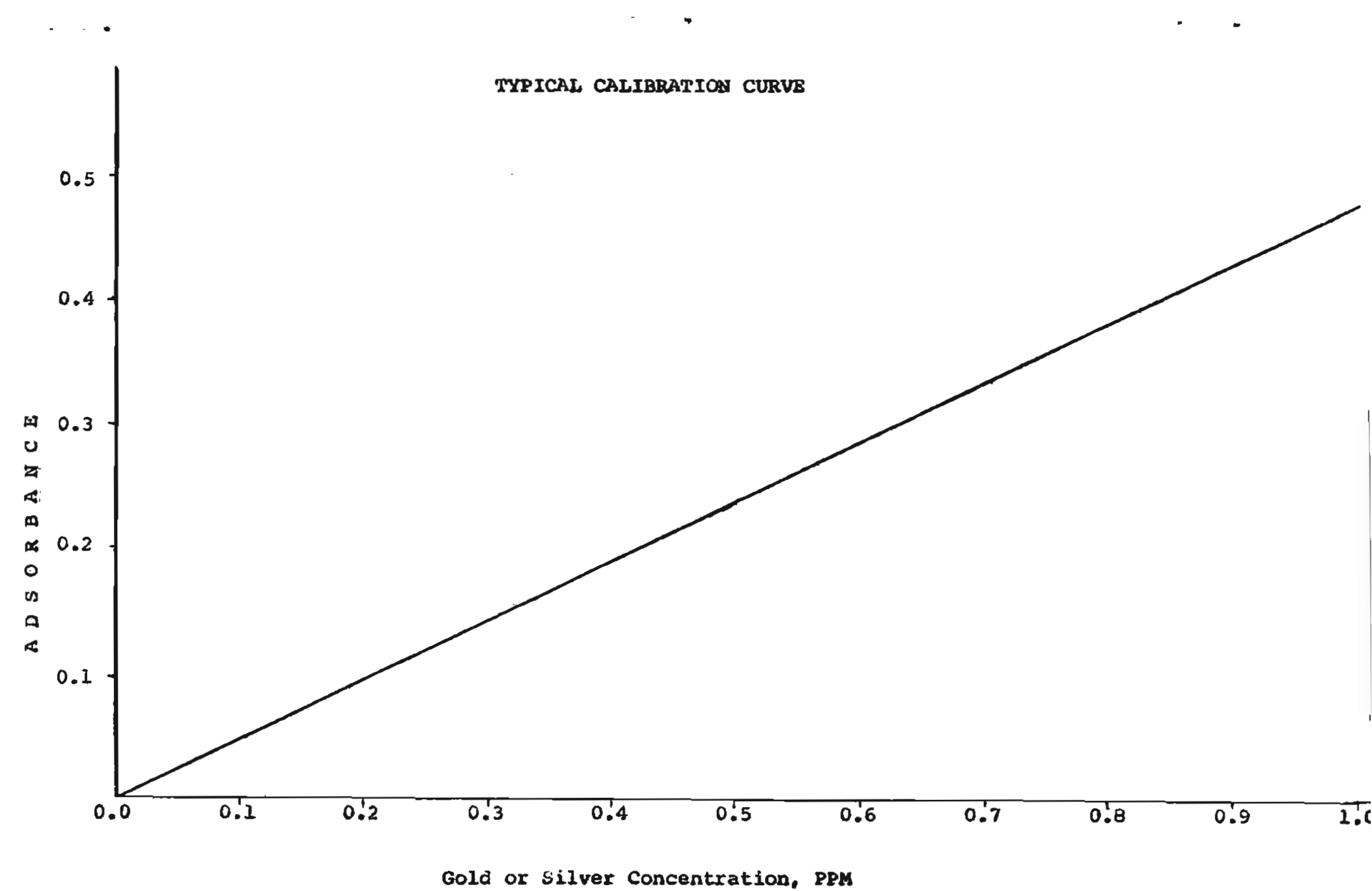
The table on the following page outlines the proposed reporting procedures.

SUGGESTED REPORTING SCHEME OF GOLD AND SILVER BY ATOMIC ABSORPTION

Gold-Silver Concentration in the Sample as Determined by Atomic Absorption Analyses	Geochemical Reporting in Parts Per Million	Ore and Sub-ore Samples in Troy Ounces Per Ton, Divide PPM by 34.3
0.0 to 0.034	2 significant figures*	Nil
0.035 to 0.34	2 significant figures	Trace
0.35 to 0.99	2 significant figures	2 decimal places, ie, 0.01 to 0.03 oz/ton
1.00 to 9.99	3 significant figures	2 decimal places, ie, 0.03 to 0.28 oz/ton
10.0 to 99.9	3 significant figures	2 decimal places, ie, 0.28 to 2.91 oz/ton
100 to 343	3 significant figures	2 decimal places, ie, 2.91 to 9.99 oz/ton
344 to 3426	3 significant figures**	1 decimal place, ie, 10.0 to 99.9 oz/ton
above 3426	3 significant figures	0 decimal place, ie, 100

* Significant figures do not include those zeros used only to establish the position of the decimal point, eg, 0.0028 has 2 significant figures, 28.

** Write a 4 digit number with only 3 significant figures by writing the last digit as a small superscript, eg, 3426 is written as 342^{6}, and explain the notation on the report sheet.


TYPICAL CALIBRATION CURVE
0.5
0.4
0.3
0.2
0.1
ADSORBANCE
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
Gold or Silver Concentration, PPM