

UNITED STATES DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

ANALYSES OF ROCK AND STREAM-SEDIMENT SAMPLES FROM THE KETCHIKAN A-3  
QUADRANGLE, SOUTHEASTERN ALASKA

By

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Open-file report

1973

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73-246

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U. S. GEOLOGICAL SURVEY  
DENVER, COLORADO

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Geological Survey standards

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quadrangle, southeastern Alaska

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Introduction

Analytical data for 24 rock and 48 stream-sediment samples from the Ketchikan A-3 1:63,360-scale quadrangle are presented in this report, together with a statistical treatment of the data. The samples were collected in 1969 and 1970 in conjunction with reconnaissance geologic mapping in the area.

The most comprehensive discussion of the geology of the study area is a report by A. F. Buddington and Theodore Chapin (1929).

Sampling and analytical procedures

The analytical data for the stream-sediment and rock analyses are given in tables 1 and 3 respectively and the location of analyzed samples are shown in figure 1.

Standard procedures were followed in the collection and preparation of samples. Stream-sediment samples were generally collected from the active stream channel above the highest high tide level; where this was not possible, samples were collected from bank or terrace deposits adjacent to the channel. The samples were dried, sieved, and the -80 mesh fraction was analyzed.

Rock samples are primarily grab samples from mineralized occurrences or outcrops, or they were chosen for analysis to provide data on background

values. Grab samples were selected because they were strongly iron stained or contained visible sulfides. The rock samples were pulverized and a split analyzed.

The -80 mesh fractions of stream-sediment samples and the pulverized rock samples were analyzed for 30 elements by the six-step semi-quantitative spectrographic method and for gold by the atomic absorption method. The spectrographic analyses were reported in percentage (PCT) or parts per million (PPM) as geometric midpoints (i.e., 1.0, 0.7, 0.5, 0.3, 0.2, 0.15, 0.1, etc.) of geometric brackets having the boundaries 1.2, 0.83, 0.56, 0.38, 0.26, 0.18, 0.12, 0.083, etc. or some multiple of these. The precision of a reported value is approximately plus 100 percent or minus 50 percent. Analyses for gold by the atomic absorption method are accurate to  $\pm 100$  percent. Minimum limits of determination for each element are given on page 3. The semiquantitative spectrographic analyses were done by K. J. Curry and atomic absorption analyses were done by R. L. Miller and A. L. Meier.

Locations of the stream-sediment samples are shown on figure 1. Stream-sediment sample analyses are listed in table 1. Rock sample descriptions are given in table 2 and analyses listed in table 3.

#### Explanation of tables 1 and 3

Analytical results from rock and stream-sediment samples are given in tables 1 and 3 as analytical values such as 7.0 ppm, 10.00 percent, etc., or as qualified values expressed as a letter. These letter codes are N = not detected, L = less than specified limit of detection, G = greater than value shown, B = no data, H = interference. The term T is

equal to trace but does not occur in these data. Note that the right-most zero digits for each analytical value may or may not be significant. Because the original computer printout is used in tables 1 and 3, element symbols are in capital letters; for example, the symbol for iron, Fe, becomes FE, magnesium, Mg, becomes MG, and so on. PCT stands for percent, S for spectrographic, and AA for atomic absorption. The specified limits of detection are as follows:

Lower limits of detection

FE PCT 0.05	MG PCT 0.02	CA PCT 0.05	TI PCT 0.002	MN PPM 20	AG PPM 0.1
AS PPM 0.2	AU PPM 0.02	B PPM 10	BA PPM 20	BE PPM 1	BI PPM 10
CO PPM 5	CR PPM 5	CU PPM 2	LA PPM 20	MO PPM 2	NB PPM 10
NI PPM 2	PB PPM 10	SB PPM 0.5	SC PPM 5	SN PPM 10	SR PPM 50
V PPM 5	W PPM 50	Y PPM 5	ZN PPM 25	ZR PPM 10	

Analyses of rock and stream-sediment samples were processed by a computer program known as GEOSUM and are presented in tables 1 and 3. The GEOSUM program is designed to summarize and tabulate geochemical data-- primarily data from semiquantitative spectrographic analyses (also referred to as six-step spectrographic analyses). The program output consists of: (a) a tabulation of all analytical results, (b) a histogram and frequency distribution table for each element, and (c) a statistical summary for all elements, which includes geometric means and geometric deviations.

Semiquantitative spectrographic analyses by the U.S. Geological Survey are reported as geometric midpoints (e.g., 1.0, 0.7, 0.5, 0.3, 0.2, 0.15, 0.1, etc.) of geometric class intervals having the boundaries 1.2, 0.83, 0.56, 0.38, 0.26, 0.18, 0.12, 0.083, etc. The histograms are on a logarithmic scale and are computed using the class intervals shown below.

<u>Reported value (ppm)</u>	<u>Limits</u>	
1.0	0.83	1.2
1.5	1.2	1.8
2.0	1.8	2.6
3.0	2.6	3.8
5.0	3.8	5.6
7.0	5.6	8.3
10.0	8.3	12.0

Decimal numbers are printed by the computer as powers of 10, for example:

7.0E-01 means  $7.0 \times 10^{-1}$  or 0.7  
 7.0E 00 means  $7.0 \times 10^0$  or 7.0  
 7.0E 01 means  $7.0 \times 10^1$  or 70.0  
 7.0E 02 means  $7.0 \times 10^2$  or 700.0  
 7.0E 03 means  $7.0 \times 10^3$  or 7,000.0

The histograms are constructed of X's; each X represents 1 percent of the total number of samples.

The frequency distribution tables, histograms, and statistics for each element were derived using only data values within the range of analytical determination. If data values qualified with N, L, C, T, or H codes are present, the histograms are incomplete and the frequency

tables and statistics are biased. For example, see the histograms and statistics for zinc in table 1, which were calculated from only three samples.

The geometric mean is the antilogarithm of the arithmetic mean of the logarithms of the analyses. It is not an estimate of geochemical abundance. It is an estimate of "central tendency" (or characteristic value) for a frequency distribution that is approximately symmetrical on a logarithmic scale and is, therefore, useful for characterizing many geochemical distributions. The geometric deviation is the antilogarithm of the standard deviation of the logarithms of the analyses.

The statistical summaries at the ends of tables 1 and 3 show which elements have qualified values, as well as the number and type of qualification. The summary also recomputes the geometric mean and standard deviation using a method devised by A. J. Cohen for treating censored distributions. If an element has no qualified data values, the mean and standard deviation will be the same in both this statistical summary and on the page within the table for the particular element. For elements with qualified data, the estimates of mean and standard deviation are unbiased in a strict sense only where the data are derived from a log-normal parent population, but experiments have shown that large departures from this requirement do not usually invalidate the results. Acceptance and use of the estimates, however, is the responsibility of the user.

For further discussion of geometric mean and standard deviation and Cohen's method for censored distributions, see U.S.G.S. Professional Paper 574-B and U.S.G.S. Bulletin 1147-E.

### Selected references

- Buddington, A. F., and Chapin, Theodore, 1929, Geology and mineral deposits of southeastern Alaska: U.S. Geol. Survey Bull. 800, 398 p.
- Miesch, A. T., 1963, Distribution of elements in Colorado Plateau uranium deposits--A preliminary report: U.S. Geol. Survey Bull. 1147-E, 57 p.
- \_\_\_\_\_, 1967, Methods of computation for estimating geochemical abundance: U.S. Geol. Survey Prof. Paper 574-B, 15 p.

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TABLE 1--STREAM-SEDIMENT SAMPLES, KETCHIKAN A-3 QUADRANGLES, ALASKA<sup>1/</sup>

	SAMPLE	X-COORD.	Y-COORD.	S-FE	%	S-MG	%	S-CA	%	S-TI	%	S-MN	S-AG	AA-AU-P
1	05935S	37249C	9648Q	5.0		2.0		5.0		0.7		1500	0.5N	0.02L
2	05934S	37210C	9948Q	7.0		2.0		7.0		1.0		2000	0.5N	0.02L
3	05933S	37370C	10020Q	7.0		3.0		2.0		0.7		1500	0.5N	0.02L
4	05932S	37417S	10157Q	7.0		2.0		5.0		0.7		1000	0.5N	0.02L
5	05931S	37517S	10680Q	7.0		1.5		3.0		0.3		1500	0.5N	0.02L
6	05930S	37839C	9462Q	15.0		3.0		10.0		1.0		2000	0.5N	0.02L
7	9S304	37242S	10622S	3.0		1.5		3.0		0.5		1500	0.5N	0.02L
8	9S300	37570C	10652S	5.0		1.5		3.0		0.7		1000	0.5N	0.02L
9	9S321	37770Q	10547S	10.0		3.0		3.0		0.7		1000	0.5N	0.02L
10	9S319	37917S	10632S	15.0		1.5		3.0		0.5		1000	0.5N	0.02L
11	9S297	37817S	10760Q	7.0		2.0		5.0		0.7		1000	0.5N	0.02L
12	9S317	38077S	10722S	10.0		1.5		2.0		0.3		1500	0.5N	0.02L
13	9S294	37995Q	10892S	5.0		1.5		3.0		0.3		700	0.5N	0.02L
14	9S292	38077S	11027S	10.0		2.0		5.0		0.7		2000	0.5N	0.02L
15	9S291	38157S	11080Q	20.0		5.0		7.0		1.0		3000	0.5N	0.02L
16	9S290	38220Q	11085Q	15.0		5.0		5.0		0.7		1500	0.5N	0.02L
17	9S366	38325C	11407S	5.0		2.0		3.0		0.3		1500	0.5N	0.02L
18	9S367	38425Q	11790Q	10.0		2.0		5.0		0.5		1500	0.5N	0.02L
19	9S368	38440C	11650Q	5.0		1.5		3.0		0.7		1500	0.5N	0.02L
20	9S364	38430Q	11532S	10.0		2.0		3.0		0.5		1500	0.5N	0.02L
21	9S363	38430Q	11380Q	10.0		3.0		5.0		0.5		1500	0.5N	0.02L
22	9S269	38532S	10905Q	10.0		3.0		3.0		1.0		2000	0.5N	0.02L
23	9S313	38305Q	10917S	10.0		3.0		3.0		0.7		1500	0.5N	0.02L
24	9S310	38372S	10675Q	10.0		3.0		3.0		0.5		1500	0.5N	0.02L
25	9S354	38480Q	10382S	7.0		2.0		3.0		0.5		1000	0.5N	0.02L
26	9S357	38572S	10042S	10.0		3.0		3.0		0.7		1500	0.5N	0.02L
27	9S358	38602S	9947S	10.0		2.0		5.0		0.5		1500	0.5N	0.02L
28	9S359	38625Q	9922S	10.0		3.0		5.0		0.5		1000	0.5N	0.02L
29	9S362	38605Q	10207S	10.0		2.0		3.0		0.7		1500	0.5N	0.02L
30	9S211	38605Q	10425Q	15.0		3.0		5.0		1.0		3000	0.5N	0.02L
31	9S265	38707S	10650Q	15.0		3.0		5.0		1.0		1500	0.5N	0.02L
32	9S260	38885Q	10877S	10.0		2.0		2.0		0.7		2000	0.5N	0.02L
33	9S258	38955C	11065Q	10.0		3.0		1.5		0.7		2000	0.5N	0.02L
34	9S223	39232S	10820Q	7.0		2.0		5.0		0.7		1500	0.5N	0.02L
35	9C002	39302S	10920Q	15.0		1.5		3.0		0.7		2000	0.5N	0.02L
36	9S239	39255Q	11152S	15.0		3.0		3.0		0.7		1500	0.5N	0.02L
37	9S240	39255Q	11162S	15.0		3.0		5.0		1.0		1500	0.5N	0.02L
38	9S253	39145Q	11352S	15.0		3.0		3.0		0.7		1500	0.5N	0.02L
39	9S243	39295Q	11320Q	10.0		3.0		5.0		0.7		1500	0.5N	0.02L
40	9S219	39102S	10685Q	10.0		3.0		5.0		1.0		2000	0.5N	0.02L
41	9S218	39357S	10557S	7.0		3.0		3.0		0.7		1500	0.5N	0.02L
42	9S204	39020Q	10422S	15.0		3.0		5.0		0.7		2000	0.5N	0.02L
43	9S216	39115Q	10345Q	15.0		3.0		3.0		1.0		1500	0.5N	0.02L
44	9S215	39142S	10250Q	15.0		3.0		3.0		1.0		1500	0.5N	0.02L
45	9S353	39185C	10057S	15.0		3.0		3.0		0.5		1500	0.5N	0.02L
46	9S346	39147S	9942S	5.0		1.5		2.0		0.5		1000	0.5N	0.02L
47	9S347	39172S	9867S	5.0		1.5		2.0		0.5		1000	0.5N	0.02L
48	9S348	39225Q	9785Q	5.0		1.5		2.0		0.3		1000	0.5N	0.02L

<sup>1/</sup>The following elements were looked for but if present are below the limits of detectability: As, Sb, W.



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## STREAM-SEDIMENT SAMPLES, KETCHIKAN A-3 QUADRANGLES, ALASKA

SAMPLE	S-B	S-BA	S-8E	S-8I	S-CO	S-CR	S-CU	S-LA	S-MO
1	10.L	500	1.0	10.N	15	100	50.	100.	5.N
2	10.L	700	1.0L	10.N	15	150	15.	500.	5.L
3	20.	500	2.0	10.N	30	150	70.	20.	5.L
4	10.	300	1.5	10.N	20	150	15.	70.	5.N
5	10.L	700	1.0	10.N	15	30	20.	20.	5.L
6	10.	300	1.0L	10.N	30	200	50.	70.	5.L
7	10.L	300	1.0	10.N	20	100	15.	20.	5.N
8	50.	300	1.5	10.N	20	100	50.	20.	5.N
9	15.	700	1.0	10.N	30	150	70.	20.	5.
10	10.	300	1.0L	10.N	30	30	5.	20.N	5.L
11	10.	500	1.0L	10.N	15	70	10.	20.L	5.L
12	10.	700	1.0L	10.N	30	70	20.	20.	5.L
13	10.N	300	1.0L	10.N	15	100	7.	20.N	5.N
14	10.L	1000	1.0	10.N	30	200	30.	20.	5.
15	15.	1000	1.0	10.N	70	300	20.	20.L	5.L
16	15.	1000	1.0	10.N	30	150	30.	20.L	5.
17	10.	150	1.0L	10.N	15	70	5.	20.N	5.N
18	10.	300	1.0L	10.N	30	70	7.	50.	5.L
19	10.	500	1.0	10.N	30	70	30.	50.	5.L
20	10.	500	1.0L	10.N	30	70	15.	20.L	5.L
21	10.	500	1.0	10.N	30	150	30.	150.	5.L
22	15.	300	1.5	10.N	30	150	30.	150.	5.L
23	15.	700	1.0	10.N	70	500	50.	20.	5.L
24	15.	1500	1.5	10.N	30	150	30.	20.L	5.
25	10.	700	1.0	10.N	30	70	10.	20.N	5.L
26	10.	500	1.0	10.N	30	150	15.	20.	5.L
27	10.	500	1.0L	10.N	30	150	15.	20.L	5.L
28	10.	500	1.0L	10.N	20	150	5.	20.L	5.N
29	10.L	500	1.0N	10.N	20	70	30.	20.L	5.L
30	15.	300	1.0	10.N	70	150	20.	20.L	5.L
31	15.	1000	2.0	10.N	30	150	15.	20.L	5.L
32	15.	500	1.5	10.N	30	100	50.	20.L	5.L
33	15.	700	1.5	10.N	30	150	30.	20.	5.L
34	15.	500	1.5	10.N	30	50	5.	20.L	5.L
35	10.	500	1.5	10.N	30	30	10.	20.L	5.L
36	10.	500	1.5	10.N	30	20	10.	20.L	5.L
37	15.	1000	1.5	10.N	50	70	10.	150.	5.L
38	15.	700	1.5	10.N	30	150	20.	30.	10.
39	15.	300	2.0	10.N	30	30	10.	20.L	5.L
40	15.	300	1.5	10.N	30	150	30.	50.	5.L
41	15.	300	1.5	10.N	30	150	15.	70.	5.L
42	15.	700	1.5	10.N	30	150	15.	100.	5.L
43	15.	300	1.5	10.N	30	150	20.	70.	5.L
44	15.	300	1.5	10.N	30	150	20.	100.	5.L
45	10.L	500	1.0	10.N	30	100	15.	20.L	5.L
46	10.L	700	1.5	10.N	20	50	5.	20.L	5.L
47	10.L	500	1.0	10.N	20	30	5.L	20.L	5.L
48	10.	700	1.0	10.N	15	50	5.	20.N	5.L

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STREAM-SEDIMENT SAMPLES, KETCHIKAN A-3 QUADRANGLES, ALASKA

SAMPLE	S-NB	S-NI	S-PB	S-SC	S-SN	S-SR	S-V	S-Y	S-ZN
1	10.	30	10.	30	10.N	700	200	30	200.N
2	10.	30	20.	50	10.N	700	300	70	200.N
3	10.	70	30.	30	10.N	300	300	20	200.N
4	10.	50	20.	30	10.N	500	200	50	200.N
5	10.	15	30.	15	10.N	700	150	15	200.N
6	10.	100	150.	50	10.N	1000	300	15	200.L
7	10.	70	20.	15	10.N	300	150	20	200.N
8	10.	50	20.	20	10.N	300	200	30	200.L
9	10.	100	15.	30	10.N	300	500	30	500.
10	10.	15	10.	30	10.N	700	300	30	200.L
11	10.	30	10.	30	10.N	700	300	30	200.L
12	10.	20	20.	20	10.N	700	200	20	200.L
13	10.L	30	10.	20	10.N	300	200	15	200.L
14	15.	70	30.	30	10.N	300	300	30	200.
15	15.	100	15.	30	10.N	300	500	30	200.L
16	10.	70	15.	30	10.N	300	500	30	200.L
17	10.	30	10.N	20	10.N	200	200	20	200.L
18	10.	30	10.L	30	10.N	300	300	20	200.L
19	10.	30	15.	20	10.N	300	200	20	200.N
20	10.	30	10.	30	10.N	200	300	20	200.L
21	15.	50	15.	30	10.N	300	200	50	200.L
22	15.	70	15.	30	10.N	300	300	70	200.L
23	15.	150	30.	30	10.N	300	200	20	200.L
24	10.	70	30.	20	10.N	700	300	20	200.
25	10.	30	15.	20	10.N	500	200	20	200.N
26	10.	50	10.	30	10.N	300	300	30	200.L
27	10.	50	10.L	30	10.N	300	300	20	200.L
28	10.	50	10.L	30	10.N	200	300	20	200.L
29	15.	30	10.L	30	10.N	200	300	30	200.L
30	15.	70	30.	30	10.N	300	300	70	200.L
31	15.	50	15.	30	10.N	700	200	30	200.L
32	15.	30	20.	30	10.N	300	300	30	200.L
33	15.	100	20.	30	10.N	500	300	30	200.L
34	10.	20	15.	30	10.N	300	300	30	200.L
35	15.	15	15.	30	10.N	500	300	30	200.L
36	15.	10	10.	30	10.N	500	300	30	200.L
37	15.	30	15.	50	10.N	700	300	50	200.L
38	15.	70	15.	30	10.N	700	300	30	200.L
39	15.	15	15.	30	10.N	500	300	30	200.L
40	15.	50	30.	30	15.	300	200	70	200.L
41	10.	70	15.	30	10.N	700	300	30	200.L
42	15.	50	20.	30	10.N	700	300	30	200.L
43	15.	70	15.	30	10.N	300	300	50	200.L
44	15.	70	15.	30	10.N	500	200	50	200.L
45	10.	30	10.	20	10.N	500	300	20	200.L
46	10.	15	15.	20	10.N	500	150	20	200.L
47	10.	10	10.	20	10.N	500	150	20	200.L
48	10.	20	10.	20	10.N	500	150	20	200.L

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STREAM-SEDIMENT SAMPLES, KETCHIKAN A-3 QUADRANGLES, ALASKA

	SAMPLE	S-ZR
1	JS935S	150
2	JS934S	100
3	CS933S	200
4	JS932S	300
5	JS931S	300
6	JS930S	150
7	JS9304	70
8	JS930C	70
9	JS9321	70
10	JS9319	70
11	JS9297	100
12	JS9317	70
13	JS9294	70
14	JS9292	70
15	JS9291	100
16	JS9290	100
17	JS9366	30
18	JS9367	70
19	JS936H	200
20	JS9364	70
21	JS9363	70
22	JS9269	150
23	JS9313	70
24	JS9310	70
25	JS9354	70
26	JS9357	70
27	JS9358	70
28	JS9359	70
29	JS9362	100
30	JS9211	70
31	JS9265	300
32	JS9260	150
33	JS9258	200
34	JS9223	70
35	JS9002	150
36	JS9239	100
37	JS9240	200
38	JS9253	150
39	JS9243	70
40	JS9219	100
41	JS9218	150
42	JS9204	300
43	JS9216	100
44	JS9215	150
45	JS9353	70
46	JS9346	150
47	JS9347	150
48	JS9348	50

TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

THE FREQUENCY DISTRIBUTIONS AND HISTOGRAMS ON THE FOLLOWING PAGES ARE ON LOGARITHMIC SCALES, AND EMPLOY THE SAME CLASS INTERVALS AS USED IN REPORTING 6-STEP SEMIQUANTITATIVE SPECTROGRAPHIC ANALYSES. IMPORTANT NOTE- THE STATISTICS GIVEN BELOW THE HISTOGRAMS ARE DERIVED ONLY FROM DATA VALUES WITHIN THE RANGES OF ANALYTICAL DETERMINATION, AND ARE, THEREFORE, BIASED IF DATA VALUES QUALIFIED WITH N, L, G, T, OR H CODES ARE PRESENT. SEE LATER SECTION OF OUTPUT FOR STATISTICAL ESTIMATES THAT ARE UNBIASED IN THIS REGARD. THE GEOMETRIC MEAN IS AN ESTIMATE OF 'CENTRAL TENDENCY,' OR OF A CHARACTERISTIC VALUE, OF A FREQUENCY DISTRIBUTION THAT IS APPROXIMATELY SYMMETRICAL ON A LOG SCALE, AND IS THEREFORE USEFUL FOR CHARACTERIZING MANY GEOCHEMICAL DISTRIBUTIONS. THE GEOMETRIC MEAN IS NOT AN ESTIMATE OF GEOCHEMICAL ABUNDANCE AND IS OF NO VALUE IN ESTIMATING RESERVES OR TOTAL AMOUNTS OF ELEMENTS PRESENT. SEE USGS PROFESSIONAL PAPER 574-B FOR FURTHER DISCUSSION. SEE USGS BULLETIN 1147E, PAGE 23, FOR EXPLANATION OF GEOMETRIC DEVIATION.

TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

S-AG CONTAINS NO VALID DATA POINTS. THEREFORE THIS VARIABLE WILL BE SKIPPED.  
AA-Au-P CONTAINS NO VALID DATA POINTS. THEREFORE THIS VARIABLE WILL BE SKIPPED.  
S-BI CONTAINS NO VALID DATA POINTS. THEREFORE THIS VARIABLE WILL BE SKIPPED.

TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

FREQUENCY TABLE FOR COLUMN 4 (S-FE %)

LIMITS		FREQ	FREQ CUM	PERCENT FREQ	PERCENT FREQ CUM
LOWER	UPPER				
2.6E 00	3.8E 00	1	1	2.08	2.08
3.8E 00	5.6E 00	8	9	16.67	18.75
5.6E 00	8.3E 00	8	17	16.67	35.42
8.3E 00	1.2E 01	17	34	35.42	70.83
1.2E 01	1.8E 01	13	47	27.08	97.92
1.8E 01	2.6E 01	1	48	2.08	100.00

HISTOGRAM FOR COLUMN 4 (S-FE %)

3.0E 00 XX  
5.0E 00 XXXXXXXXXXXXXXXX  
7.0E 00 XXXXXXXXXXXXXXXX  
1.0E 01 XXXXXXXXXXXXXXXXXXXXXXXX  
1.5E 01 XXXXXXXXXXXXXXXXXXXXXXXX  
2.0E 01 XX

ANALYTICAL VALUES		G		T		B		H		L		N	
		48		0		0		0		0.0		0.0	
12	0.0												

MAXIMUM = 2.00000E 01  
MINIMUM = 3.00000E 00  
GEOMETRIC MEAN = 9.26987E 00  
GEOMETRIC DEVIATION = 1.53588E 00

TITLE

STREAM-SEDIMENT SAMPLES, KETCH

FREQUENCY TABLE FOR COLUMN 5 (S-MG %)

LIMITS		FREQ		PERCENT	
LOWER - UPPER		CUM		FREQ CUM	
1.2E 00 -	1.8E 00	11	11	22.92	22.92
1.8E 00 -	2.6E 00	13	24	27.08	50.00
2.6E 00 -	3.8E 00	22	46	45.83	95.83
3.8E 00 -	5.6E 00	2	48	4.17	100.00

HISTOGRAM FOR COLUMN 5 (S-MG %)

1.5E 00 XXXXXXXXXXXXXXXXXXXXXXXX  
2.0E 00 XXXXXXXXXXXXXXXXXXXXXXXX  
3.0E 00 XXXXXXXXXXXXXXXXXXXXXXXX  
5.0E 00 XXXX

ANALYTICAL		VALUES	
N		G	
0	0	0	0
0.0	0.0	0.0	0.0

MAXIMUM = 5.00000E 00  
MINIMUM = 1.50000E 00  
GEOMETRIC MEAN = 2.34254E 00  
GEOMETRIC DEVIATION = 1.38595E 00

TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

FREQUENCY TABLE FOR COLUMN 6 (S-CA %)

LIMITS		FREQ	FREQ CUM	PERCENT FREQ	PERCENT FREQ CUM
LOWER - UPPER					
1.2E 00 -	1.8E 00	1	1	2.08	2.08
1.8E 00 -	2.6E 00	6	7	12.50	14.58
2.6E 00 -	3.8E 00	22	29	45.83	60.42
3.8E 00 -	5.6E 00	16	45	33.33	93.75
5.6E 00 -	8.3E 00	2	47	4.17	97.92
8.3E 00 -	1.2E 01	1	48	2.08	100.00

HISTOGRAM FOR COLUMN 6 (S-CA %)

1.5E 00 XX  
2.0E 00 XXXXXXXXXXXX  
3.0E 00 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  
5.0E 00 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  
7.0E 00 XXXX  
1.0E 01 XX

ANALYTICAL VALUES		G		T		B		H		L		N	
0.0		0		0		0		0		0.0		0.0	
48		0		0		0		0		0.0		0.0	

14  
MAXIMUM = 1.00000E 01  
MINIMUM = 1.50000E 00  
GEOMETRIC MEAN = 3.54005E 00  
GEOMETRIC DEVIATION = 1.47957E 00

TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

FREQUENCY TABLE FOR COLUMN        7 (S-TI    %)

LIMITS		FREQ		PERCENT		PERCENT	
LOWER	UPPER	FREQ	CUM	FREQ	CUM	FREQ	CUM
2.6E-01	3.8E-01	5	5	10.42		10.42	
3.8E-01	5.6E-01	11	16	22.92		33.33	
5.6E-01	8.3E-01	22	38	45.83		79.17	
8.3E-01	1.2E 00	10	48	20.83		100.00	

HISTOGRAM FOR COLUMN        7 (S-TI    %)

3.0E-01 XXXXXXXXXXXX  
5.0E-01 XXXXXXXXXXXX  
7.0E-01 XXXXXXXXXXXX  
1.0E 00 XXXXXXXXXXXX

					ANALYTICAL		
					VALUES		
N	L	H	B	T	G		
0	0	0	0	0	0		
0.0	0.0			0.0	0.0		

MAXIMUM = 1.00000E 00  
MINIMUM = 3.00000E-01  
GEOMETRIC MEAN = 6.39074E-01  
GEOMETRIC DEVIATION = 1.41697E 00



TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

FREQUENCY TABLE FOR COLUMN 8 (S-MN )

LIMITS		FREQ		PERCENT		PERCENT	
LOWER - UPPER		FREQ		FREQ		FREQ	
5.6E 02 -	8.3E 02	1	1	2.08		2.08	
8.3E 02 -	1.2E 03	10	11	20.83		22.92	
1.2E 03 -	1.8E 03	26	37	54.17		77.08	
1.8E 03 -	2.6E 03	9	46	18.75		95.83	
2.6E 03 -	3.8E 03	2	48	4.17		100.00	

HISTOGRAM FOR COLUMN 8 (S-MN )

7.0E 02 XX  
1.0E 03 XXXXXXXXXXXXXXXXXXXX  
1.5E 03 XXXXXXXXXXXXXXXXXXXX  
2.0E 03 XXXXXXXXXXXXXXXXXXXX  
3.0E 03 XXXX

ANALYTICAL		VALUES	
N	L	H	B
0	0	0	0
0.0	0.0	0.0	0.0

MAXIMUM = 3.00000E 03  
MINIMUM = 7.00000E 02  
GEOMETRIC MEAN = 1.47392E 03  
GEOMETRIC DEVIATION = 1.33431E 00

TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

FREQUENCY TABLE FOR COLUMN 11 (S-B )

LIMITS		FREQ	FREQ CUM	PERCENT	PERCENT FREQ CUM
LOWER - UPPER					
0.3E 00 -	1.2E 01	17	17	35.42	35.42
1.2E 01 -	1.8E 01	19	36	39.58	75.00
1.8E 01 -	2.6E 01	1	37	2.08	77.08
2.6E 01 -	3.8E 01	0	37	0.0	77.08
3.8E 01 -	5.6E 01	1	38	2.08	79.17

HISTOGRAM FOR COLUMN 11 (S-B )

1.0E 01 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  
1.5E 01 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  
2.0E 01 XX  
3.0E 01  
5.0E 01 XX

ANALYTICAL		VALUES	
N	L	H	B
1	9	0	0
2.08	18.75	0	0.0

MAXIMUM = 5.00000E 01  
MINIMUM = 1.00000E 01  
GEOMETRIC MEAN = 1.30124E 01  
GEOMETRIC DEVIATION = 1.36367E 00

TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

FREQUENCY TABLE FOR COLUMN 12 (S-BA )

LIMITS		FREQ	FREQ CUM	PERCENT FREQ	PERCENT FREQ CUM
LOWER - UPPER					
1.2E 02 -	1.8E 02	1	1	2.08	2.08
1.8E 02 -	2.6E 02	0	1	0.0	2.08
2.6E 02 -	3.8E 02	14	15	29.17	31.25
3.8E 02 -	5.6E 02	16	31	33.33	64.58
5.6E 02 -	8.3E 02	11	42	22.92	87.50
8.3E 02 -	1.2E 03	5	47	10.42	97.92
1.2E 03 -	1.8E 03	1	48	2.08	100.00

HISTOGRAM FOR COLUMN 12 (S-BA )

1.5E 02 XX  
2.0E 02  
3.0E 02 XXXXXXXXXXXXXXXXXXXXXXXX  
5.0E 02 XXXXXXXXXXXXXXXXXXXXXXXX  
7.0E 02 XXXXXXXXXXXXXXXXXXXXXXXX  
1.0E 03 XXXXXXXXX  
1.5E 03 XX

ANALYTICAL VALUES		T	G
18	N	0	0
0.0	L	0	0.0
	H	0	0.0
	B	0	0.0

MAXIMUM = 1.50000E 03  
MINIMUM = 1.50000E 02  
GEOMETRIC MEAN = 4.99054E 02  
GEOMETRIC DEVIATION = 1.58455E 00

TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

FREQUENCY TABLE FOR COLUMN 13 (S-BE )

LIMITS		FREQ	FREQ	PERCENT	PERCENT
LOWER	- UPPER		CUM	FREQ	FREQ CUM
8.3E 00	- 1.2E 01	0	0	0.0	0.0

HISTOGRAM FOR COLUMN 13 (S-BE )

N	L	H	B	T	G	ANALYTICAL VALUES
1	11	0	0	0	0	36
2.08	22.92			0.0	0.0	

MAXIMUM = 2.00000E 00  
MINIMUM = 1.00000E 00  
GEOMETRIC MEAN = 1.26867E 00  
GEOMETRIC DEVIATION = 1.27254E 00

TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

FREQUENCY TABLE FOR COLUMN 15 (S-CO )

LIMITS		FREQ		PERCENT		PERCENT	
LOWER - UPPER		FREQ		FREQ		FREQ CUM	
1.2E 01 -	1.8E 01	7	7	14.58	14.58	14.58	
1.8E 01 -	2.6E 01	7	14	14.58	29.17	29.17	
2.6E 01 -	3.8E 01	30	44	62.50	91.67	91.67	
3.8E 01 -	5.6E 01	1	45	2.08	93.75	93.75	
5.6E 01 -	8.3E 01	3	48	6.25	100.00	100.00	

HISTOGRAM FOR COLUMN 15 (S-CO )

1.5E 01 XXXXXXXXXXXXXXXX  
2.0E 01 XXXXXXXXXXXXXXXX  
3.0E 01 XX  
5.0E 01 XX  
7.0E 01 XXXXX

N		L		H		B		T		G		ANALYTICAL	
0		0		0		0		0		0		VALUES	
0.0		0.0		0		0		0.0		0.0		48	

20  
MAXIMUM = 7.00000E 01  
MINIMUM = 1.50000E 01  
GEOMETRIC MEAN = 2.72367E 01  
GEOMETRIC DEVIATION = 1.44981E 00

TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

FREQUENCY TABLE FOR COLUMN 16 (S-CR )

LIMITS		FREQ	FREQ CUM	PERCENT FREQ	PERCENT FREQ CUM
LOWER	UPPER				
1.8E 01 -	2.6E 01	1	1	2.08	2.08
2.6E 01 -	3.8E 01	5	6	10.42	12.50
3.8E 01 -	5.6E 01	3	9	6.25	18.75
5.6E 01 -	8.3E 01	9	18	18.75	37.50
8.3E 01 -	1.2E 02	6	24	12.50	50.00
1.2E 02 -	1.8E 02	20	44	41.67	91.67
1.8E 02 -	2.6E 02	2	46	4.17	95.83
2.6E 02 -	3.8E 02	1	47	2.08	97.92
3.8E 02 -	5.6E 02	1	48	2.08	100.00

HISTOGRAM FOR COLUMN 16 (S-CR )

```

2.0E 01 XX
3.0E 01 XXXXXXXXXX
5.0E 01 XXXXX
7.0E 01 XXXXXXXXXXXXXXXX
1.0E 02 XXXXXXXXXXXXXXXX
1.5E 02 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
2.0E 02 XXXX
3.0E 02 XX
5.0E 02 XX
    
```

N	L	H	T	G
0	0	0	0	0
0.0	0.0	0.0	0.0	0.0

ANALYTICAL  
VALUES  
48

MAXIMUM = 5.0000E 02  
 MINIMUM = 2.0000E 01  
 GEOMETRIC MEAN = 9.85197E 01  
 GEOMETRIC DEVIATION = 1.93448E 00

TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

FREQUENCY TABLE FOR COLUMN 17 (S-CU )

LIMITS		FREQ	CUM	PERCENT FREQ	PERCENT FREQ CUM
LOWER	UPPER				
3.8E 00	5.6E 00	6	6	12.50	12.50
5.6E 00	8.3E 00	2	8	4.17	16.67
8.3E 00	1.2E 01	6	14	12.50	29.17
1.2E 01	1.8E 01	10	24	20.83	50.00
1.8E 01	2.6E 01	7	31	14.58	64.58
2.6E 01	3.8E 01	9	40	18.75	83.33
3.8E 01	5.6E 01	5	45	10.42	93.75
5.6E 01	8.3E 01	2	47	4.17	97.92

HISTOGRAM FOR COLUMN 17 (S-CU )

5.0E 00 XXXXXXXXXXXX  
7.0E 00 XXXX  
1.0E 01 XXXXXXXXXXXX  
1.5E 01 XXXXXXXXXXXXXXXXXXXX  
2.0E 01 XXXXXXXXXXXXXXXXXXXX  
3.0E 01 XXXXXXXXXXXXXXXXXXXX  
5.0E 01 XXXXXXXXXXXX  
7.0E 01 XXXX

N	L	H	B	T	G	ANALYTICAL VALUES
0	1	0	0	0	0	47
0.0	2.08			0.0	0.0	

MAXIMUM = 7.00000E 01  
MINIMUM = 5.00000E 00  
GEOMETRIC MEAN = 1.7363E 01  
GEOMETRIC DEVIATION = 2.09947E 00

TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

FREQUENCY TABLE FOR COLUMN 18 (S-LA )

LIMITS		FREQ	FREQ CUM	PERCENT FREQ	PERCENT FREQ CUM
LOWER	UPPER				
1.8E 01 -	2.6E 01	11	11	22.92	22.92
2.6E 01 -	3.8E 01	1	12	2.08	25.00
3.8E 01 -	5.6E 01	3	15	6.25	31.25
5.6E 01 -	8.3E 01	4	19	8.33	39.58
8.3E 01 -	1.2E 02	3	22	6.25	45.83
1.2E 02 -	1.8E 02	3	25	6.25	52.08
1.8E 02 -	2.6E 02	0	25	0.0	52.08
2.6E 02 -	3.8E 02	0	25	0.0	52.08
3.8E 02 -	5.6E 02	1	26	2.08	54.17

HISTOGRAM FOR COLUMN 18 (S-LA )

2.0E 01 XXXXXXXXXXXXXXXXXXXX  
3.0E 01 XX  
5.0E 01 XXXXX  
7.0E 01 XXXXXXXX  
1.0E 02 XXXXX  
1.5E 02 XXXXX  
2.0E 02  
3.0E 02  
5.0E 02 XX

23

ANALYTICAL VALUES			
N	L	H	T
5	17	0	0
10.42	35.42	0	0.0

MAXIMUM = 5.00000E 02  
MINIMUM = 2.00000E 01  
GEOMETRIC MEAN = 4.70763E 01  
GEOMETRIC DEVIATION = 2.45796E 00



TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

FREQUENCY TABLE FOR COLUMN 19 (S-MO )

LIMITS		FREQ	FREQ CUM	PERCENT FREQ	PERCENT FREQ CUM
LOWER -	UPPER				
3.8E 00 -	5.6E 00	4	4	8.33	8.33
5.6E 00 -	8.3E 00	0	4	0.0	8.33
8.3E 00 -	1.2E 01	1	5	2.08	10.42

HISTOGRAM FOR COLUMN 19 (S-MO )

5.0E 00 XXXXXXXX  
7.0E 00  
1.0E 01 XX

N	L	H	B	T	G	ANALYTICAL VALUES
7	36	0	C	0	0	5
14.58	75.00			0.0	0.0	

MAXIMUM = 1.00000E 01  
MINIMUM = 5.00000E 00  
GEOMETRIC MEAN = 5.74348E 00  
GEOMETRIC DEVIATION = 1.36341E 00

DATE 12/26/72

A470 GEOCHEMICAL SUMMARY - U S G S STATPAC (08/02/71)

TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

FREQUENCY TABLE FOR COLUMN 2C (S-NB )

LIMITS		FREQ	PERCENT	PERCENT
LOWER - UPPER		CUM	FREQ	FREQ CUM
8.3E 00 -	1.2E 01	28	58.33	58.33
1.2E 01 -	1.8E 01	19	39.58	97.92

HISTOGRAM FOR COLUMN 20 (S-NB )

1.0E 01 XX  
1.5E 01 XX

LIMITS		N	L	H	B	T	G	ANALYTICAL
LOWER - UPPER								VALUES
0.0	2.08	0	1	0	0	0	0	47

MAXIMUM = 1.50000E 01  
MINIMUM = 1.00000E 01  
GEOMETRIC MEAN = 1.17809E 01  
GEOMETRIC DEVIATION = 1.22287E 00

TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

FREQUENCY TABLE FOR COLUMN 21 (S-NI )

LIMITS		FREQ		PERCENT		PERCENT	
LOWER - UPPER		FREQ		FREQ		FREQ CUM	
8.3E 00 -	1.2E 01	2	2	4.17	4.17	4.17	
1.2E 01 -	1.8E 01	5	7	10.42	14.58	14.58	
1.8E 01 -	2.6E 01	3	10	6.25	20.83	20.83	
2.6E 01 -	3.8E 01	13	23	27.08	47.92	47.92	
3.8E 01 -	5.6E 01	9	32	18.75	66.67	66.67	
5.6E 01 -	8.3E 01	11	43	22.92	89.58	89.58	
8.3E 01 -	1.2E 02	4	47	8.33	97.92	97.92	
1.2E 02 -	1.8E 02	1	48	2.08	100.00	100.00	

HISTOGRAM FOR COLUMN 21 (S-NI )

```

1.0E 01 XXXX
1.5E 01 XXXXXXXXXXXX
2.0E 01 XXXXXX
3.0E 01 XXXXXXXXXXXXXXXXXXXXXXXX
5.0E 01 XXXXXXXXXXXXXXXXXXXXXXXX
7.0E 01 XXXXXXXXXXXXXXXXXXXXXXXX
1.0E 02 XXXXXXXX
1.5E 02 XX

```

N	L	H	B	T	G	ANALYTICAL
0	0	0	0	0	0	VALUES
0.0	0.0	0	0	0.0	0.0	48

MAXIMUM = 1.50000E 02  
MINIMUM = 1.00000E 01  
GEOMETRIC MEAN = 3.97128E 01  
GEOMETRIC DEVIATION = 1.92533E 00

TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

FREQUENCY TABLE FOR COLUMN 22 (S-PB )

LIMITS		FREQ	FREQ CUM	PERCENT	PERCENT FREQ CUM
LOWER	UPPER				
8.3E 00 -	1.2E 01	10	10	20.83	20.83
1.2E 01 -	1.8E 01	17	27	35.42	56.25
1.8E 01 -	2.6E 01	8	35	16.67	72.92
2.6E 01 -	3.8E 01	7	42	14.58	87.50
3.8E 01 -	5.6E 01	0	42	0.0	87.50
5.6E 01 -	8.3E 01	0	42	0.0	87.50
8.3E 01 -	1.2E 02	0	42	0.0	87.50
1.2E 02 -	1.8E 02	1	43	2.08	89.58

HISTOGRAM FOR COLUMN 22 (S-PB )

1.0E 01 XXXXXXXXXXXXXXXXXXXX  
 1.5E 01 XXXXXXXXXXXXXXXXXXXX  
 2.0E 01 XXXXXXXXXXXXXXXXXXXX  
 3.0E 01 XXXXXXXXXXXXXXXXXXXX  
 5.0E 01  
 7.0E 01  
 1.0E 02  
 1.5E 02 XX

27

N	L	H	B	T	G	ANALYTICAL VALUES
1	4	0	0	0	0	43
2.08	8.33			0.0	0.0	

MAXIMUM = 1.50000E 02  
 MINIMUM = 1.00000E 01  
 GEOMETRIC MEAN = 1.70074E 01  
 GEOMETRIC DEVIATION = 1.64061E 00

TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

FREQUENCY TABLE FOR COLUMN 23 (S-SC )

LIMITS		FREQ		PERCENT		PERCENT	
LOWER - UPPER		FREQ		FREQ		FREQ CUM	
1.2E 01 -	1.8E 01	2	2	4.17	4.17	4.17	
1.8E 01 -	2.6E 01	11	13	22.92	27.08	27.08	
2.6E 01 -	3.8E 01	32	45	66.67	93.75	93.75	
3.8E 01 -	5.6E 01	3	48	6.25	100.00		

HISTOGRAM FOR COLUMN 23 (S-SC )

1.5E 01 XXXX  
2.0E 01 XX  
3.0E 01 XX  
5.0E 01 XXXXXX

ANALYTICAL		VALUES		48	
N	L	H	B	T	G
0	0	0	0	0	0
0.0	0.0	0.0	0.0	0.0	0.0

MAXIMUM = 5.00000E 01  
MINIMUM = 1.50000E 01  
GEOMETRIC MEAN = 2.74209E 01  
GEOMETRIC DEVIATION = 1.29646E 00

TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

FREQUENCY TABLE FOR COLUMN 25 (S-SR )

LIMITS		FREQ		PERCENT		PERCENT	
LOWER - UPPER		CUM		FREQ		FREQ CUM	
1.8E 02 -	2.6E 02	3	3	6.25		6.25	
2.6E 02 -	3.8E 02	22	25	45.83		52.08	
3.8E 02 -	5.6E 02	11	36	22.92		75.00	
5.6E 02 -	8.3E 02	11	47	22.92		97.92	
8.3E 02 -	1.2E 03	1	48	2.08		100.00	

HISTOGRAM FOR COLUMN 25 (S-SR )

2.0E 02 XXXXX  
3.0E 02 XX  
5.0E 02 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  
7.0E 02 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  
1.0E 03 XX

ANALYTICAL		VALUES	
N		48	
0			
0.0			
L			
0			
0.0			
H			
0			
B			
0			
T			
0			
0.0			
G			
0			
0.0			

MAXIMUM = 1.00000E 03  
MINIMUM = 2.00000E 02  
GEOMETRIC MEAN = 4.09419E 02  
GEOMETRIC DEVIATION = 1.51356E 00

DATE 12/26/72

A470 GEOCHEMICAL SUMMARY - U S G S STATPAC (08/02/71)

TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

FREQUENCY TABLE FOR COLUMN 26 (S-V )

LIMITS		FREQ		PERCENT	
LOWER - UPPER		FREQ CUM		FREQ CUM	
1.2E 02 -	1.8E 02	5	5	10.42	10.42
1.8E 02 -	2.6E 02	14	19	29.17	39.58
2.6E 02 -	3.8E 02	26	45	54.17	93.75
3.8E 02 -	5.6E 02	3	48	6.25	100.00

HISTOGRAM FOR COLUMN 26 (S-V )

1.5E 02 XXXXXXXXXXXX  
2.0E 02 XXXXXXXXXXXXXXXXXXXXXXXXXXXX  
3.0E 02 XX  
5.0E 02 XXXXXX

ANALYTICAL		VALUES	
N		G	
0	0	0	48
0.0	0.0	0.0	0.0

30  
MAXIMUM = 5.0000E 02  
MINIMUM = 1.5000E 02  
GEOMETRIC MEAN = 2.56013E 02  
GEOMETRIC DEVIATION = 1.35246E 00

TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

FREQUENCY TABLE FOR COLUMN 27 (S-Y )			
LIMITS		FREQ	PERCENT
LOWER - UPPER		CUM	FREQ CUM
1.2E 01 -	1.8E 01	3	6.25
1.8E 01 -	2.6E 01	16	33.33
2.6E 01 -	3.8E 01	20	41.67
3.8E 01 -	5.6E 01	5	10.42
5.6E 01 -	8.3E 01	4	8.33
		48	100.00

HISTOGRAM FOR COLUMN 27 (S-Y )

1.5E 01 XXXXXX  
2.0E 01 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  
3.0E 01 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  
5.0E 01 XXXXXXXXXXXX  
7.0E 01 XXXXXXXX

ANALYTICAL VALUES					
N	L	H	B	T	G
0	0	0	0	0	0
0.0	0.0			0.0	0.0

63  
14  
MAXIMUM = 7.00000E 01  
MINIMUM = 1.50000E 01  
GEOMETRIC MEAN = 2.84039E 01  
GEOMETRIC DEVIATION = 1.51488E 00



TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

FREQUENCY TABLE FOR COLUMN 28 (S-ZN )

LIMITS		FREQ		PERCENT	
LOWER	UPPER	FREQ	CUM	PERCENT	FREQ CUM
1.8E 02 -	2.6E 02	2	2	4.17	4.17
2.6E 02 -	3.8E 02	0	2	0.0	4.17
3.8E 02 -	5.6E 02	1	3	2.08	6.25

HISTOGRAM FOR COLUMN 28 (S-ZN )

2.0E 02 XXXX  
3.0E 02  
5.0E 02 XX

N	L	H	B	T	G	ANALYTICAL VALUES
9	36	0	0	0	0	3
18.75	75.00			0.0	0.0	

MAXIMUM = 5.00000E 02  
MINIMUM = 2.00000E 02  
GEOMETRIC MEAN = 2.71441E 02  
GEOMETRIC DEVIATION = 1.69725E 00

TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

FREQUENCY TABLE FOR COLUMN 29 (S-ZR )

LIMITS		FREQ		PERCENT		PERCENT	
LOWER - UPPER		FREQ		FREQ		FREQ CUM	
2.6E 01 -	3.8E 01	1	1	2.08	2.08	2.08	
3.8E 01 -	5.6E 01	1	2	2.08	4.17	4.17	
5.6E 01 -	8.3E 01	20	22	41.67	45.83	45.83	
8.3E 01 -	1.2E 02	7	29	14.58	60.42	60.42	
1.2E 02 -	1.8E 02	10	39	20.83	81.25	81.25	
1.8E 02 -	2.6E 02	4	43	8.33	89.58	89.58	
2.6E 02 -	3.8E 02	4	47	8.33	97.92	97.92	
3.8E 02 -	5.6E 02	0	47	0.0	97.92	97.92	
5.6E 02 -	8.3E 02	0	47	0.0	97.92	97.92	
8.3E 02 -	1.2E 03	1	48	2.08	100.00	100.00	

HISTOGRAM FOR COLUMN 29 (S-ZR )

3.0E 01 XX  
5.0E 01 XX  
7.0E 01 XX  
1.0E 02 XXXXXXXXXXXXXXXX  
1.5E 02 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  
2.0E 02 XXXXXXXX  
3.0E 02 XXXXXXXX  
5.0E 02  
7.0E 02  
1.0E 03 XX

ANALYTICAL		VALUES	
N		T	
O		G	
0.0		0.0	
L		B	
0		0	
0.0		0.0	
H		0	
0		0.0	
0.0		0.0	

MAXIMUM = 1.00000E 03  
MINIMUM = 3.00000E 01  
GEOMETRIC MEAN = 1.09813E 02  
GEOMETRIC DEVIATION = 1.84685E 00

TITLE  
STREAM-SEDIMENT SAMPLES, KETCH

IN THE COMPUTATIONS PERFORMED TO PRODUCE THE FOLLOWING TABLE OF GEOMETRIC MEANS AND DEVIATIONS, ALL ELEMENTS ARE IGNORED WHERE ONE OR MORE OF THE UNQUALIFIED DATA VALUES IS LESS THAN THE ANALYTICAL LIMIT OF DETECTION SPECIFIED ON INPUT OR WHERE ANY DATA VALUES ARE QUALIFIED WITH THE G (GREATER THAN) CODE. DATA VALUES QUALIFIED WITH B OR H ARE NOT USED IN THE COMPUTATIONS. WHERE NONE OF THE DATA VALUES FOR AN ELEMENT ARE QUALIFIED THE MEAN AND DEVIATION SHOULD BE THE SAME AS THOSE GIVEN IN THE PRECEDING SECTION. WHERE DATA ARE QUALIFIED WITH THE CODES N, L, OR T, THE ESTIMATES OF GEOMETRIC MEAN AND DEVIATION ARE BASED ON A METHOD BY A. J. COHEN FOR TREATING CENSORED DISTRIBUTIONS. THE APPLICATION OF THIS METHOD TO GEOCHEMICAL PROBLEMS IS DESCRIBED IN USGS PROFESSIONAL PAPER 574-B. THE ESTIMATES ARE UNBIASED IN A STRICT SENSE ONLY WHERE THE DATA ARE DERIVED FROM A LOGNORMAL PARENT POPULATION, BUT EXPERIMENTS HAVE SHOWN THAT LARGE DEPARTURES FROM THIS REQUIREMENT MAY NOT GREATLY INVALIDATE THE RESULTS ACCEPTANCE AND USE OF THE ESTIMATES, HOWEVER, IS THE RESPONSIBILITY OF THE INDIVIDUAL.

ELEMENT	N	L	H	B	T	G	ANALYTICAL VALUES
---------	---	---	---	---	---	---	----------------------

S-FE	0	0	0	0	0	0	48
S-MG	0	0	0	0	0	0	48
S-CA	0	0	0	0	0	0	48
S-TI	0	0	0	0	0	0	48
S-MN	0	0	0	0	0	0	48
S-B	1	9	0	0	0	0	38
S-BA	0	0	0	0	0	0	48
S-BE	1	11	0	0	0	0	36
S-CO	0	0	0	0	0	0	48
S-CR	0	0	0	0	0	0	48
S-CU	0	1	0	0	0	0	47
S-LA	5	17	0	0	0	0	26
S-MD	7	36	0	0	0	0	5
S-NB	0	1	0	0	0	0	47
S-NI	0	0	0	0	0	0	48
S-PB	1	4	0	0	0	0	43
S-SC	0	0	0	0	0	0	48
S-SR	0	0	0	0	0	0	48
S-V	0	0	0	0	0	0	48
S-Y	0	0	0	0	0	0	48
S-ZN	9	36	0	0	0	0	3
S-ZR	0	0	0	0	0	0	48

ELEMENT	GEOMETRIC MEAN	GEOMETRIC DEVIATION	REMARKS
---------	-------------------	------------------------	---------

S-FE	9.269862	1.54	48 SAMPLES AND 48 ANALYTICAL VALUES.
S-MG	2.342535	1.39	48 SAMPLES AND 48 ANALYTICAL VALUES.
S-CA	3.540048	1.48	48 SAMPLES AND 48 ANALYTICAL VALUES.
S-TI	0.639074	1.42	48 SAMPLES AND 48 ANALYTICAL VALUES.
S-MN	1473.917480	1.33	48 SAMPLES AND 48 ANALYTICAL VALUES.
S-B	11.279544	1.49	10 NOT DETECTED, LESS THAN, OR TRACE VALUES.
S-BA	499.053467	1.58	48 SAMPLES AND 48 ANALYTICAL VALUES.

S-BE	*****	*****	36 VALUES LESS THAN SPECIFIED LIMIT OF DETECTION. NO COMPUTATIONS.
S-CD	27.236618	1.45	48 SAMPLES AND 48 ANALYTICAL VALUES.
S-CR	98.519440	1.93	48 SAMPLES AND 48 ANALYTICAL VALUES.
S-CU	16.694366	2.18	1 NOT DETECTED, LESS THAN, OR TRACE VALUES. 47 REPORTED VALUES.
S-LA	18.878769	3.68	22 NOT DETECTED, LESS THAN, OR TRACE VALUES. 26 REPORTED VALUES.
S-MO	1.352215	2.28	43 NOT DETECTED, LESS THAN, OR TRACE VALUES. 5 REPORTED VALUES.
S-NB	11.672652	1.23	1 NOT DETECTED, LESS THAN, OR TRACE VALUES. 47 REPORTED VALUES.
S-NI	39.712738	1.93	48 SAMPLES AND 48 ANALYTICAL VALUES.
S-PB	15.305692	1.76	5 NOT DETECTED, LESS THAN, OR TRACE VALUES. 43 REPORTED VALUES.
S-SC	27.420868	1.30	48 SAMPLES AND 48 ANALYTICAL VALUES.
S-SR	409.418701	1.51	48 SAMPLES AND 48 ANALYTICAL VALUES.
S-V	256.012207	1.35	48 SAMPLES AND 48 ANALYTICAL VALUES.
S-Y	28.403778	1.51	48 SAMPLES AND 48 ANALYTICAL VALUES.
S-ZN	*****	*****	COHEN'S TABLE EXCEEDED. H( 0.9) OR GAMMA( 1.6) GTR THAN ALLOW. NO COMPUTATIONS.
S-ZR	109.812500	1.85	48 SAMPLES AND 48 ANALYTICAL VALUES.

Table 2.--Description of background and mineralized rock samples from the Ketchikan A-3 quadrangle.  
Sample localities are shown by sample number on the accompanying map, figure 1.

<u>No.</u>	<u>Sample</u>	<u>Type</u> <sup>1/</sup>	<u>Description</u>
1	0S932	B	Biotite-quartz schist; composite sample.
2	9S304	B	Quartz-mica schist; chips across 30-foot interval.
3	9S300	B	Pyrite-bearing mica schist; chip sample.
4	9S321	B	Biotite-chlorite-quartz schist; chip sample.
5	9S298	M	Slightly mineralized mica schist; grab sample of most mineralized rock.
6	9S296	M	Pyrite-bearing biotite-quartz schist; selected sample of most mineralized rock.
7	9S295	M	Quartz-mica-garnet-zoisite schist and quartzite; composite selected sample of most mineralized rock.
8	9S315	M	Pegmatitic alaskite intrusive into schists and gneisses; composite selected sample of most mineralized rock.
9	9S312	B	Pyrite-bearing biotite-garnet-kyanite gneiss and amphibolite; chips across 40 of outcrop.
10	9S290	M	Weakly mineralized (pyrite) garnet-kyanite schist; selected sample of most mineralized part of 6-inch-wide zone.
11	9S289	B	Quartz-hornblende-biotite schist; chips across 50 feet of outcrop.
12	9S270C	B	Fine-grained amphibolite; chip sample across amphibolite 30 feet away from 270B.
13	9S270B	M	Pyritized biotite-quartz schist layer in amphibolite; layer is 10 feet thick; selected sample of most mineralized rock.
14	9S308	B	Amphibolite; chip sample.
15	9S210	B	Biotite hornblende gneiss.
16	9S260	M	Pyrite-bearing biotite-garnet-quartz schist; composite selected sample of most mineralized rock.
17	9S258	M	Pyrite-bearing biotite-garnet-sillimanite quartz gneiss; composite selected sample across 75 feet of outcrop of most mineralized rock.
18	9S257	M	Pyrite-bearing biotite quartz schist; composite selected sample of most mineralized rock across 75 feet of outcrop.
19	9S255	M	Fine-grained pyrite-bearing calc-silicate layer in biotite quartz-plagioclase gneiss; chip sample.
20	9S236	B	Biotite-hornblende gneiss; chip sample.
21	9S221	B	Biotite-quartz-garnet gneiss; chip sample across 30 feet of outcrop.
22	9S204	B	Quartz-biotite-garnet gneiss; chip sample across 20 feet of outcrop.
23	9S217	B	Biotite-quartz gneiss; chip samples across 30 feet.
24	9S347	B	Biotite-plagioclase gneiss; chip samples every foot across 20 feet of outcrop.

<sup>1/</sup> B = background sample  
M = mineralized sample

DATE 3/10/73

TABLE 3--ROCK SAMPLES, KETCHIKAN A-3 QUADRANGLE, ALASKA<sup>1/</sup>

	SAMPLE	X-COORD.	Y-COORD.	S-FE %	S-MG %	S-CA %	S-TI %	S-MN	S-AG	AA-AU-P
1	05932	374175	101570	7.0	1.5	0.5	0.70	700	0.5N	0.02L
2	95304	372450	106225	2.0	1.0	0.5	0.15	300	0.5N	0.02L
3	95300	375700	106500	7.0	1.5	0.7	0.70	700	0.5N	0.02L
4	95321	377725	105425	7.0	1.5	1.0	0.50	200	0.5L	0.02L
5	95298	377575	107250	3.0	0.7	0.7	0.30	200	0.5N	0.02L
6	95296	379000	107875	7.0	1.0	1.5	0.70	700	0.5L	0.02L
7	95295	379575	188450	3.0	1.0	1.0	0.30	300	10.0	0.02L
8	95315	381700	108800	20.0	5.0	1.0	0.70	1500	0.5L	0.02L
9	95312	383250	109325	15.0	3.0	7.0	1.00	1500	0.5N	0.02L
10	95290	382200	110850	5.0	1.0	1.0	0.70	150	0.5L	0.02L
11	95289	382925	111025	7.0	1.0	1.0	0.50	500	0.5N	0.02L
12	95270C	384900	110600	10.0	3.0	7.0	0.30	1000	0.5N	0.02L
13	95270B	384900	110600	5.0	2.0	3.0	0.50	1000	0.7	0.02L
14	95308	384725	104375	10.0	3.0	5.0	0.50	1500	0.5N	0.02L
15	95210	386575	104325	5.0	2.0	1.5	0.30	500	0.5N	0.02L
16	95260	388850	108775	3.0	1.5	7.0	0.50	2000	0.5	0.02L
17	95258	389525	110500	7.0	1.5	1.5	0.50	1500	0.5L	0.02L
18	95257	390050	110675	3.0	1.5	1.5	0.30	500	1.0	0.02L
19	95255	390875	112350	1.5	0.7	1.5	0.15	200	0.5N	0.02L
20	95236	391350	109900	15.0	3.0	3.0	0.70	1000	0.5N	0.02L
21	95221	390650	108050	7.0	1.5	3.0	0.30	500	0.5L	0.02L
22	95204	390200	104225	10.0	1.0	1.0	0.50	1500	0.5L	0.02L
23	95217	390875	104125	7.0	2.0	2.0	0.70	1000	0.5N	0.02L
24	95347	391725	98675	3.0	1.5	1.5	0.30	700	0.5N	0.02L

<sup>1/</sup>The following elements were looked for but if present are below the limits of detectability: As, Sb, W.

DATE 3/10/73

ROCK SAMPLES, KETCHIKAN A-3 QUADRANGLE, ALASKA

	SAMPLE	S-B	S-BA	S-BE	S-BI	S-CO	S-CR	S-CU	S-LA	S-MO
1	0S932	20.	700.	1.0L	10.N	50.	100.	100	20.	5.N
2	9S304	10.N	700.	1.0L	10.N	5.L	5.L	50	20.N	5.N
3	9S300	10.	300.	1.5	10.N	30.	70.	100	20.L	5.
4	9S321	50.	1500.	1.5	10.N	30.	70.	100	20.L	5.
5	9S298	15.	300.	1.0	10.N	15.	70.	5	20.L	5.N
6	9S296	10.L	1500.	1.0	10.N	50.	30.	30	20.L	5.
7	9S295	10.L	1500.	1.0N	20.	50.	70.	150	20.N	5.L
8	9S315	10.	100.	1.0L	10.N	50.	30.	100	20.L	5.L
9	9S312	15.	700.	1.0L	10.N	30.	300.	100	30.	5.L
10	9S290	10.	500.	1.0	10.N	30.	70.	70	20.L	5.L
11	9S289	10.	700.	1.0N	10.N	20.	30.	70	20.N	7.
12	9S270C	10.N	20.L	1.0N	10.N	50.	300.	50	20.N	5.N
13	9S270B	10.	1500.	1.0L	10.N	30.	150.	150	20.N	5.
14	9S308	15.	700.	1.0L	10.N	70.	100.	20	20.N	5.L
15	9S210	10.N	300.	1.0N	10.N	30.	100.	50	20.N	5.L
16	9S260	15.	200.	1.0L	10.N	20.	70.	50	20.L	5.
17	9S258	10.N	700.	1.5	10.N	20.	70.	30	20.	5.L
18	9S257	10.N	1500.	1.0L	10.N	15.	150.	100	20.N	5.L
19	9S255	10.N	300.	1.0	10.N	5.L	15.	7	20.L	5.N
20	9S236	10.	1000.	1.0L	10.N	30.	30.	30	20.	5.L
21	9S221	15.	1000.	1.0	10.N	30.	70.	70	50.	5.L
22	9S204	15.	1500.	1.0	10.N	50.	70.	70	50.	5.
23	9S217	15.	1000.	1.0	10.N	30.	70.	15	20.	5.L
24	9S347	10.L	1000.	1.0	10.N	10.	20.	10	20.N	5.N

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ROCK SAMPLES, KETCHIKAN A-3 QUADRANGLE, ALASKA

	SAMPLE	S-NB	S-NI	S-PB	S-SC	S-SN	S-SR	S-V	S-Y	S-ZN
1	05932	10.	50	20.	20	10.N	150.	150	20	200.N
2	95304	10.L	5	10.N	7	10.N	200.	30	15	200.N
3	95300	15.	50	20.	20	10.N	150.	200	15	200.L
4	95321	10.	50	10.L	30	10.N	300.	500	15	1500.
5	95298	15.	30	10.N	7	10.N	200.	70	10	200.N
6	95296	10.	30	10.N	30	10.N	300.	200	30	200.L
7	95295	10.L	70	700.	15	10.N	100.L	100	10	200.L
8	95315	10.	30	10.L	30	10.N	200.	500	20	200.
9	95312	10.	100	15.	30	10.N	300.	300	30	200.L
10	95290	10.	50	10.	30	10.N	200.	200	15	200.L
11	95289	10.	30	10.N	15	10.N	150.	200	20	200.N
12	95270C	10.	100	10.N	30	10.N	100.	200	15	200.N
13	95270B	10.	150	10.L	30	10.N	300.	500	30	300.
14	95308	10.	70	10.	30	10.N	300.	300	15	200.L
15	95210	10.	70	10.L	20	10.N	200.	150	15	200.N
16	95260	10.	150	10.N	15	10.N	700.	200	30	300.
17	95258	10.	100	10.L	20	10.N	200.	150	30	200.
18	95257	10.	50	15.	15	10.N	150.	150	10	200.L
19	95255	10.L	15	15.	5	10.N	300.	30	10	200.N
20	95236	10.	30	10.	30	10.N	700.	300	30	200.L
21	95221	15.	70	30.	15	10.N	300.	150	20	200.N
22	95204	15.	150	10.L	15	10.N	200.	150	50	200.L
23	95217	15.	30	10.L	15	10.N	500.	150	20	200.L
24	95347	10.L	15	15.	7	10.N	500.	150	15	200.



DATE 3/10/73

ROCK SAMPLES, KETCHIKAN A-3 QUADRANGLE, ALASKA

	SAMPLE	S-ZR
1	0S932	300.
2	9S304	70.
3	9S300	100.
4	9S321	70.
5	9S298	150.
6	9S296	100.
7	9S295	50.
8	9S315	10.L
9	9S312	70.
10	9S290	100.
11	9S289	70.
12	9S270C	10.L
13	9S2708	70.
14	9S308	50.
15	9S210	70.
16	9S260	70.
17	9S258	150.
18	9S257	70.
19	9S255	30.
20	9S236	70.
21	9S221	70.
22	9S204	70.
23	9S217	200.
24	9S347	70.

A470 GEOCHEMICAL SUMMARY - U S G S STATPAC (08/02/71)

DATE 12/26/72

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

THE FREQUENCY DISTRIBUTIONS AND HISTOGRAMS ON THE FOLLOWING PAGES ARE ON LOGARITHMIC SCALES, AND EMPLOY THE SAME CLASS INTERVALS AS USED IN REPORTING 6-STEP SEMIQUANTITATIVE SPECTROGRAPHIC ANALYSES. IMPORTANT NOTE- THE STATISTICS GIVEN BELOW THE HISTOGRAMS ARE DERIVED ONLY FROM DATA VALUES WITHIN THE RANGES OF ANALYTICAL DETERMINATION, AND ARE, THEREFORE, BIASED IF DATA VALUES QUALIFIED WITH N, L, G, T, OR H CODES ARE PRESENT. SEE LATER SECTION OF OUTPUT FOR STATISTICAL ESTIMATES THAT ARE UNBIASED IN THIS REGARD. THE GEOMETRIC MEAN IS AN ESTIMATE OF 'CENTRAL TENDENCY,' OR OF A CHARACTERISTIC VALUE, OF A FREQUENCY DISTRIBUTION THAT IS APPROXIMATELY SYMMETRICAL ON A LOG SCALE, AND IS THEREFORE USEFUL FOR CHARACTERIZING MANY GEOCHEMICAL DISTRIBUTIONS. THE GEOMETRIC MEAN IS NOT AN ESTIMATE OF GEOCHEMICAL ABUNDANCE AND IS OF NO VALUE IN ESTIMATING RESERVES OR TOTAL AMOUNTS OF ELEMENTS PRESENT. SEE USGS PROFESSIONAL PAPER 574-B FOR FURTHER DISCUSSION. SEE USGS BULLETIN 1147E, PAGE 23, FOR EXPLANATION OF GEOMETRIC DEVIATION.

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A470 GEOCHEMICAL SUMMARY - U S G S STATPAC (08/02/71)

DATE 12/26/72

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

AA-AU-P CONTAINS NO VALID DATA POINTS. THEREFORE THIS VARIABLE WILL BE SKIPPED.

THE MAX AND MIN 0.20000E 02 FOR S-BI ARE THE SAME. THEREFORE THIS VARIABLE WILL BE SKIPPED.

S-SN CONTAINS NO VALID DATA POINTS. THEREFORE THIS VARIABLE WILL BE SKIPPED.

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

FREQUENCY TABLE FOR COLUMN 4 (S-FE %)

LIMITS		FREQ	FREQ CUM	PERCENT FREQ	PERCENT FREQ CUM
LOWER - UPPER					
1.2E 00 -	1.8E 00	1	1	4.17	4.17
1.8E 00 -	2.6E 00	1	2	4.17	8.33
2.6E 00 -	3.8E 00	5	7	20.83	29.17
3.8E 00 -	5.6E 00	3	10	12.50	41.67
5.6E 00 -	8.3E 00	8	18	33.33	75.00
8.3E 00 -	1.2E 01	3	21	12.50	87.50
1.2E 01 -	1.8E 01	2	23	8.33	95.83
1.8E 01 -	2.6E 01	1	24	4.17	100.00

HISTOGRAM FOR COLUMN 4 (S-FE %)

1.5E 00 XXXX  
2.0E 00 XXXX  
3.0E 00 XXXXXXXXXXXXXXXXXXXX  
5.0E 00 XXXXXXXXXXXXXXXX  
7.0E 00 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  
1.0E 01 XXXXXXXXXXXXXXXX  
1.5E 01 XXXXXXXX  
2.0E 01 XXXX

N	L	H	B	T	G	ANALYTICAL VALUES
0.0	0	0	0	0	0	24
0.0	0.0	0	0	0.0	0.0	

MAXIMUM = 2.0000E 01  
MINIMUM = 1.5000E 00  
GEOMETRIC MEAN = 5.82862E 00  
GEOMETRIC DEVIATION = 1.91522E 00

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

FREQUENCY TABLE FOR COLUMN 5 (S-MG %)

LIMITS		FREQ	FREQ	PERCENT	PERCENT
LOWER - UPPER			CUM	FREQ	FREQ CUM
5.6E-01 -	8.3E-01	2	2	8.33	8.33
8.3E-01 -	1.2E 00	6	8	25.00	33.33
1.2E 00 -	1.8E 00	8	16	33.33	66.67
1.8E 00 -	2.6E 00	3	19	12.50	79.17
2.6E 00 -	3.8E 00	4	23	16.67	95.83
3.8E 00 -	5.6E 00	1	24	4.17	100.00

HISTOGRAM FOR COLUMN 5 (S-MG %)

7.0E-01 XXXXXXXX  
1.0E 00 XXXXXXXXXXXXXXXXXXXX  
1.5E 00 XXXXXXXXXXXXXXXXXXXX  
2.0E 00 XXXXXXXXXXXXXXXX  
3.0E 00 XXXXXXXXXXXXXXXXXXXX  
5.0E 00 XXXX

ANALYTICAL		VALUES	
N	L	H	G
0	0	0	0
0.0	0.0	0.0	0.0

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MAXIMUM = 5.00000E 00  
MINIMUM = 7.00000E-01  
GEOMETRIC MEAN = 1.55618E 00  
GEOMETRIC DEVIATION = 1.64767E 00

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

FREQUENCY TABLE FOR COLUMN 6 (S-CA %)

LIMITS		FREQ	FREQ CUM	PERCENT FREQ	PERCENT FREQ CUM
LOWER	UPPER				
3.8E-01	5.6E-01	2	2	8.33	8.33
5.6E-01	8.3E-01	2	4	8.33	16.67
8.3E-01	1.2E 00	6	10	25.00	41.67
1.2E 00	1.8E 00	6	16	25.00	66.67
1.8E 00	2.6E 00	1	17	4.17	70.83
2.6E 00	3.8E 00	3	20	12.50	83.33
3.8E 00	5.6E 00	1	21	4.17	87.50
5.6E 00	8.3E 00	3	24	12.50	100.00

HISTOGRAM FOR COLUMN 6 (S-CA %)

5.0E-01 XXXXXXXX  
7.0E-01 XXXXXXXX  
1.0E 00 XXXXXXXXXXXXXXXXXXXX  
1.5E 00 XXXXXXXXXXXXXXXXXXXX  
2.0E 00 XXXX  
3.0E 00 XXXXXXXXXXXXXXXX  
5.0E 00 XXXX  
7.0E 00 XXXXXXXXXXXXXXXX

N	L	H	B	T	G	ANALYTICAL VALUES
0.0	0	0	0	0	0	24
0.0	0.0	0	0	0.0	0.0	

MAXIMUM = 7.00000E 00  
MINIMUM = 5.00000E-01  
GEOMETRIC MEAN = 1.63295E 00  
GEOMETRIC DEVIATION = 2.2110E 00

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

FREQUENCY TABLE FOR COLUMN 7 (S-TI %)

LIMITS		FREQ	FREQ CUM	PERCENT FREQ	PERCENT FREQ CUM
LOWER	UPPER				
1.2E-01	1.8E-01	2	2	8.33	8.33
1.8E-01	2.6E-01	0	2	0.0	8.33
2.6E-01	3.8E-01	7	9	29.17	37.50
3.8E-01	5.6E-01	7	16	29.17	66.67
5.6E-01	8.3E-01	7	23	29.17	95.83
8.3E-01	1.2E 00	1	24	4.17	100.00

HISTOGRAM FOR COLUMN 7 (S-TI %)

```

1.5E-01 XXXXXXXX
2.0E-01
3.0E-01 XXXXXXXXXXXXXXXXXXXXXXXXXXXX
5.0E-01 XXXXXXXXXXXXXXXXXXXXXXXXXXXX
7.0E-01 XXXXXXXXXXXXXXXXXXXXXXXXXXXX
1.0E 00 XXXX
    
```

N		L	H	B	T	G	ANALYTICAL VALUES
0	0.0	0	0	0	0	0	24
		0.0			0.0	0.0	

MAXIMUM = 1.0000E 00  
 MINIMUM = 1.5000E-01  
 GEOMETRIC MEAN = 4.42441E-01  
 GEOMETRIC DEVIATION = 1.64079E 00

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

FREQUENCY TABLE FOR COLUMN 8 (S-MN )

LIMITS		FREQ		PERCENT		PERCENT	
LOWER - UPPER		CUM		FREQ		FREQ CUM	
1.2E 02 -	1.8E 02	1	1	4.17	4.17	4.17	4.17
1.8E 02 -	2.6E 02	3	4	12.50	16.67	16.67	16.67
2.6E 02 -	3.8E 02	2	6	8.33	25.00	25.00	25.00
3.8E 02 -	5.6E 02	4	10	16.67	41.67	41.67	41.67
5.6E 02 -	8.3E 02	4	14	16.67	58.33	58.33	58.33
8.3E 02 -	1.2E 03	4	18	16.67	75.00	75.00	75.00
1.2E 03 -	1.8E 03	5	23	20.83	95.83	95.83	95.83
1.8E 03 -	2.6E 03	1	24	4.17	100.00	100.00	100.00

HISTOGRAM FOR COLUMN 8 (S-MN )

1.5E 02 XXXX  
2.0E 02 XXXXXXXXXXXX  
3.0E 02 XXXXXXXX  
5.0E 02 XXXXXXXXXXXXXXXX  
7.0E 02 XXXXXXXXXXXXXXXX  
1.0E 03 XXXXXXXXXXXXXXXX  
1.5E 03 XXXXXXXXXXXXXXXX  
2.0E 03 XXXX

ANALYTICAL		VALUES	
N		G	
0	0	0	0
0.0	0.0	0.0	0.0

MAXIMUM = 2.00000E 03  
MINIMUM = 1.50000E 02  
GEOMETRIC MEAN = 6.42630E 02  
GEOMETRIC DEVIATION = 2.13992E 00

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

FREQUENCY TABLE FOR COLUMN 9 (S-AG )

LIMITS		FREQ	FREQ CUM	PERCENT FREQ	PERCENT FREQ CUM
LOWER	UPPER				
3.8E-01	5.6E-01	1	1	4.17	4.17
5.6E-01	8.3E-01	1	2	4.17	8.33
8.3E-01	1.2E 00	1	3	4.17	12.50
1.2E 00	1.8E 00	0	3	0.0	12.50
1.8E 00	2.6E 00	0	3	0.0	12.50
2.6E 00	3.8E 00	0	3	0.0	12.50
3.8E 00	5.6E 00	0	3	0.0	12.50
5.6E 00	8.3E 00	0	3	0.0	12.50
8.3E 00	1.2E 01	1	4	4.17	16.67

HISTOGRAM FOR COLUMN 9 (S-AG )

5.0E-01 XXXX  
7.0E-01 XXXX  
1.0E 00 XXXX  
1.5E 00  
2.0E 00  
3.0E 00  
5.0E 00  
7.0E 00  
1.0E 01 XXXX

N	L	H	B	T	G	ANALYTICAL VALUES
13	7	0	0	0	0	4
54.17	29.17			0.0	0.0	

47

MAXIMUM = 1.00000E 01  
MINIMUM = 5.00000E-01  
GEOMETRIC MEAN = 1.36778E 00  
GEOMETRIC DEVIATION = 3.88111E 00



TITLE

ROCK SAMPLES, KETCHIKAN A-3 QU

FREQUENCY TABLE FOR COLUMN 11 (S-B )

LIMITS		FREQ	FREQ CUM	PERCENT FREQ	PERCENT FREQ CUM
LOWER	UPPER				
8.3E 00 -	1.2E 01	6	6	25.00	25.00
1.2E 01 -	1.8E 01	7	13	29.17	54.17
1.8E 01 -	2.6E 01	1	14	4.17	58.33
2.6E 01 -	3.8E 01	0	14	0.0	58.33
3.8E 01 -	5.6E 01	1	15	4.17	62.50

HISTOGRAM FOR COLUMN 11 (S-B )

1.0E 01 XXXXXXXXXXXXXXXXXXXXXXXX  
 1.5E 01 XXXXXXXXXXXXXXXXXXXXXXXX  
 2.0E 01 XXXX  
 3.0E 01  
 5.0E 01 XXXX

N	L	H	B	T	G	ANALYTICAL VALUES
6	3	0	0	0	0	15
25.00	12.50			0.0	0.0	

48

MAXIMUM = 5.00000E 01  
 MINIMUM = 1.00000E 01  
 GEOMETRIC MEAN = 1.40877E 01  
 GEOMETRIC DEVIATION = 1.52066E 00

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

FREQUENCY TABLE FOR COLUMN 12 (S-BA )

LIMITS		FREQ	FREQ CUM	PERCENT FREQ	PERCENT FREQ CUM
LOWER - UPPER					
8.3E 01 -	1.2E 02	1	1	4.17	4.17
1.2E 02 -	1.8E 02	0	1	0.0	4.17
1.8E 02 -	2.6E 02	1	2	4.17	8.33
2.6E 02 -	3.8E 02	4	6	16.67	25.00
3.8E 02 -	5.6E 02	1	7	4.17	29.17
5.6E 02 -	8.3E 02	6	13	25.00	54.17
8.3E 02 -	1.2E 03	4	17	16.67	70.83
1.2E 03 -	1.8E 03	6	23	25.00	95.83

HISTOGRAM FOR COLUMN 12 (S-BA )

1.0E 02 XXXX  
1.5E 02  
2.0E 02 XXXX  
3.0E 02 XXXXXXXXXXXXXXXX  
5.0E 02 XXXX  
7.0E 02 XXXXXXXXXXXXXXXXXXXX  
1.0E 03 XXXXXXXXXXXXXXXX  
1.5E 03 XXXXXXXXXXXXXXXXXXXX

49	N	L	H	B	T	G	ANALYTICAL VALUES 23
	0	1	0	0	0	0	
	0.0	4.17			0.0	0.0	

MAXIMUM = 1.50000E 03  
MINIMUM = 1.00000E 02  
GEOMETRIC MEAN = 6.72405E 02  
GEOMETRIC DEVIATION = 2.11215E 00

DATE 12/26/72

A470 GEOCHEMICAL SUMMARY - U S G S STATPAC (08/02/71)

TITLE

ROCK SAMPLES, KETCHIKAN A-3 QU

FREQUENCY TABLE FOR COLUMN 13 (S-8E )

LIMITS		FREQ	FREQ CUM	PERCENT	PERCENT FREQ CUM
LOWER -	UPPER				
8.3E-01 -	1.2E 00	8	8	33.33	33.33
1.2E 00 -	1.8E 00	3	11	12.50	45.83

HISTOGRAM FOR COLUMN 13 (S-8E )

1.0E 00 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  
1.5E 00 XXXXXXXXXXXXXXXX

N	L	H	B	T	G	ANALYTICAL VALUES
4	9	0	0	0	0	11
16.67	37.50			0.0	0.0	

MAXIMUM = 1.50000E 00  
MINIMUM = 1.00000E 00  
GEOMETRIC MEAN = 1.11693E 00  
GEOMETRIC DEVIATION = 1.20852E 00

DATE 12/26/72

A470 GEOCHEMICAL SUMMARY - U S G S STATPAC (08/02/71)

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

FREQUENCY TABLE FOR COLUMN 15 (S-CO )

LIMITS		FREQ		PERCENT		PERCENT	
LOWER - UPPER		CUM		FREQ		FREQ CUM	
8.3E 00 -	1.2E 01	1	1	4.17	4.17	4.17	4.17
1.2E 01 -	1.8E 01	2	3	8.33	12.50	12.50	12.50
1.8E 01 -	2.6E 01	3	6	12.50	25.00	25.00	25.00
2.6E 01 -	3.8E 01	9	15	37.50	62.50	62.50	62.50
3.8E 01 -	5.6E 01	6	21	25.00	87.50	87.50	87.50
5.6E 01 -	8.3E 01	1	22	4.17	91.67	91.67	91.67

HISTOGRAM FOR COLUMN 15 (S-CO )

1.0E 01 XXXX  
1.5E 01 XXXXXXXX  
2.0E 01 XXXXXXXXXXXX  
3.0E 01 XXXXXXXXXXXXXXXXXXXXXXXX  
5.0E 01 XXXXXXXXXXXXXXXXXXXXXXXX  
7.0E 01 XXXX

ANALYTICAL		VALUES		G	
N		H		T	
0	0	0	0	0	0
0.0	8.33	0	0	0.0	0.0

51

MAXIMUM = 7.00000E 01  
MINIMUM = 1.00000E 01  
GEOMETRIC MEAN = 3.02887E 01  
GEOMETRIC DEVIATION = 1.62449E 00

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

FREQUENCY TABLE FOR COLUMN 16 (S-CR )

LIMITS		FREQ	FREQ CUM	PERCENT FREQ	PERCENT FREQ CUM
LOWER	UPPER				
1.2E 01 -	1.8E 01	1	1	4.17	4.17
1.8E 01 -	2.6E 01	1	2	4.17	8.33
2.6E 01 -	3.8E 01	4	6	16.67	25.00
3.8E 01 -	5.6E 01	0	6	0.0	25.00
5.6E 01 -	8.3E 01	10	16	41.67	66.67
8.3E 01 -	1.2E 02	3	19	12.50	79.17
1.2E 02 -	1.8E 02	2	21	8.33	87.50
1.8E 02 -	2.6E 02	0	21	0.0	87.50
2.6E 02 -	3.8E 02	2	23	8.33	95.83

HISTOGRAM FOR COLUMN 16 (S-CR )

1.5E 01 XXXX  
2.0E 01 XXXX  
3.0E 01 XXXXXXXXXXXXXXXX  
5.0E 01  
7.0E 01 XX  
1.0E 02 XXXXXXXXXXXXXXXX  
1.5E 02 XXXXXXXX  
2.0E 02  
3.0E 02 XXXXXXXX

ANALYTICAL VALUES					
N	L	H	B	T	G
0	1	0	0	0	0
0.0	4.17			0.0	0.0

MAXIMUM = 3.00000E 02  
MINIMUM = 1.50000E 01  
GEOMETRIC MEAN = 6.79674E 01  
GEOMETRIC DEVIATION = 2.12975E 00

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

FREQUENCY TABLE FOR COLUMN 17 (S-CU )

LIMITS		FREQ	FREQ CUM	PERCENT FREQ	PERCENT FREQ CUM
LOWER	UPPER				
3.8E 00	5.6E 00	1	1	4.17	4.17
5.6E 00	8.3E 00	1	2	4.17	8.33
8.3E 00	1.2E 01	1	3	4.17	12.50
1.2E 01	1.8E 01	1	4	4.17	16.67
1.8E 01	2.6E 01	1	5	4.17	20.83
2.6E 01	3.8E 01	3	8	12.50	33.33
3.8E 01	5.6E 01	4	12	16.67	50.00
5.6E 01	8.3E 01	4	16	16.67	66.67
8.3E 01	1.2E 02	6	22	25.00	91.67
1.2E 02	1.8E 02	2	24	8.33	100.00

HISTOGRAM FOR COLUMN 17 (S-CU )

5.0E 00 XXXX  
7.0E 00 XXXX  
1.0E 01 XXXX  
1.5E 01 XXXX  
2.0E 01 XXXX  
3.0E 01 XXXXXXXXXXXX  
5.0E 01 XXXXXXXXXXXXXXXX  
7.0E 01 XXXXXXXXXXXXXXXX  
1.0E 02 XXXXXXXXXXXXXXXX  
1.5E 02 XXXXXXXX

N	L	H	B	T	G	ANALYTICAL VALUES
0	0	0	0	0	0	24
0.0	0.0	0.0	0.0	0.0	0.0	0.0

MAXIMUM = 1.50000E 02  
MINIMUM = 5.00000E 00  
GEOMETRIC MEAN = 4.63308E 01  
GEOMETRIC DEVIATION = 2.56698E 00

DATE 12/26/72

A470 GEOCHEMICAL SUMMARY - U S G S STATPAC (08/02/71)

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

FREQUENCY TABLE FOR COLUMN 18 (S-LA )

LIMITS		FREQ		PERCENT		PERCENT	
LOWER - UPPER		CUM		FREQ		FREQ CUM	
1.8E 01 -	2.6E 01	4	4	16.67		16.67	
2.6E 01 -	3.8E 01	1	5	4.17		20.83	
3.8E 01 -	5.6E 01	2	7	8.33		29.17	

HISTOGRAM FOR COLUMN 18 (S-LA )

2.0E 01 XXXXXXXXXXXXXXXX  
3.0E 01 XXXX  
5.0E 01 XXXXXXXX

ANALYTICAL		VALUES		T		G	
N		L		H		B	
9	8	37.50	33.33	0	0	0	0
				0.0	0.0	0.0	0.0

MAXIMUM = 5.00000E 01  
MINIMUM = 2.00000E 01  
GEOMETRIC MEAN = 2.75348E 01  
GEOMETRIC DEVIATION = 1.54279E 00

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

FREQUENCY TABLE FOR COLUMN 19 (S-MO )

LIMITS		FREQ	FREQ	PERCENT	PERCENT
LOWER - UPPER			CUM	FREQ	FREQ CUM
3.8E 00 -	5.6E 00	6	6	25.00	25.00
5.6E 00 -	8.3E 00	1	7	4.17	29.17

HISTOGRAM FOR COLUMN 19 (S-MO )

5.0E 00 XXXXXXXXXXXXXXXXXXXXXXXX  
7.0E 00 XXXX

ANALYTICAL		VALUES	
N	L	H	B
6	11	0	0
25.00	45.83	0.0	0.0

MAXIMUM = 7.00000E 00  
MINIMUM = 5.00000E 00  
GEOMETRIC MEAN = 5.24620E 00  
GEOMETRIC DEVIATION = 1.13562E 00



DATE 12/26/72

A470 GEOCHEMICAL SUMMARY - U S G S STATPAC (08/02/71)

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

FREQUENCY TABLE FOR COLUMN 20 (S-NB )

LIMITS		FREQ	FREQ	PERCENT	PERCENT
LOWER -	UPPER	CUM	CUM	FREQ	FREQ CUM
8.3E 00 -	1.2E 01	15	15	62.50	62.50
1.2E 01 -	1.8E 01	5	20	20.83	83.33

HISTOGRAM FOR COLUMN 20 (S-NB )

1.0E 01 XX  
1.5E 01 XX

LIMITS		FREQ	FREQ	PERCENT	PERCENT
LOWER -	UPPER	CUM	CUM	FREQ	FREQ CUM
0.0	16.67	4	4	16.67	16.67

N	L	H	B	T	G	ANALYTICAL
0	4	0	0	0	0	VALUES
0.0	16.67	0	0	0.0	0.0	20

MAXIMUM = 1.50000E 01  
MINIMUM = 1.00000E 01  
GEOMETRIC MEAN = 1.10667E 01  
GEOMETRIC DEVIATION = 1.19741E 00

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

## FREQUENCY TABLE FOR COLUMN 21 (S-NI )

LIMITS		FREQ		PERCENT	
LOWER	UPPER	FREQ	CUM	FREQ	CUM
3.8E 00 -	5.6E 00	1	1	4.17	4.17
5.6E 00 -	8.3E 00	0	1	0.0	4.17
8.3E 00 -	1.2E 01	0	1	0.0	4.17
1.2E 01 -	1.8E 01	2	3	8.33	12.50
1.8E 01 -	2.6E 01	0	3	0.0	12.50
2.6E 01 -	3.8E 01	6	9	25.00	37.50
3.8E 01 -	5.6E 01	5	14	20.83	58.33
5.6E 01 -	8.3E 01	4	18	16.67	75.00
8.3E 01 -	1.2E 02	3	21	12.50	87.50
1.2E 02 -	1.8E 02	3	24	12.50	100.00

## HISTOGRAM FOR COLUMN 21 (S-NI )

```

5.0E 00 XXXX
7.0E 00
1.0E 01
1.5E 01 XXXXXXXX
2.0E 01
3.0E 01 XXXXXXXXXXXXXXXXXXXX
5.0E 01 XXXXXXXXXXXXXXXXXXXX
7.0E 01 XXXXXXXXXXXXXXXXXXXX
1.0E 02 XXXXXXXXXXXXXXXX
1.5E 02 XXXXXXXXXXXXXXXX

```

N	L	H	B	T	G	ANALYTICAL VALUES
0	0	0	0	0	0	24
0.0	0.0	0.0	0.0	0.0	0.0	0.0

MAXIMUM = 1.5000E 02  
 MINIMUM = 5.0000E 00  
 GEOMETRIC MEAN = 4.78506E 01  
 GEOMETRIC DEVIATION = 2.25670E 00

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

FREQUENCY TABLE FOR COLUMN 22 (S-PB )

LIMITS		FREQ		PERCENT		PERCENT	
LOWER	UPPER	FREQ	CUM	FREQ	CUM	FREQ	CUM
8.3E 00 -	1.2E 01	3	3	12.50	12.50		
1.2E 01 -	1.8E 01	4	7	16.67	29.17		
1.8E 01 -	2.6E 01	2	9	8.33	37.50		
2.6E 01 -	3.8E 01	1	10	4.17	41.67		
3.8E 01 -	5.6E 01	0	10	0.0	41.67		
5.6E 01 -	8.3E 01	0	10	0.0	41.67		
8.3E 01 -	1.2E 02	0	10	0.0	41.67		
1.2E 02 -	1.8E 02	0	10	0.0	41.67		
1.8E 02 -	2.6E 02	0	10	0.0	41.67		
2.6E 02 -	3.8E 02	0	10	0.0	41.67		
3.8E 02 -	5.6E 02	0	10	0.0	41.67		
5.6E 02 -	8.3E 02	1	11	4.17	45.83		

HISTOGRAM FOR COLUMN 22 (S-PB )

1.0E 01 XXXXXXXXXXXXX  
1.5E 01 XXXXXXXXXXXXXXX  
2.0E 01 XXXXXXXXX  
3.0E 01 XXXX  
5.0E 01  
7.0E 01  
1.0E 02  
1.5E 02  
2.0E 02  
3.0E 02  
5.0E 02  
7.0E 02 XXXX

N	L	H	B	T	G	ANALYTICAL VALUES
6	7	0	0	0	0	11
25.00	29.17			0.0	0.0	

MAXIMUM = 7.00000E 02  
MINIMUM = 1.00000E 01  
GEOMETRIC MEAN = 2.13735E 01  
GEOMETRIC DEVIATION = 3.33791E 00

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

FREQUENCY TABLE FOR COLUMN 23 (S-SC )

LIMITS		FREQ		PERCENT		PERCENT	
LOWER - UPPER		CUM		FREQ		FREQ CUM	
3.8E 00 -	5.6E 00	1	1	4.17	4.17	4.17	4.17
5.6E 00 -	8.3E 00	3	4	12.50	16.67	16.67	16.67
8.3E 00 -	1.2E 01	0	4	0.0	16.67	16.67	16.67
1.2E 01 -	1.8E 01	7	11	29.17	45.83	45.83	45.83
1.8E 01 -	2.6E 01	4	15	16.67	62.50	62.50	62.50
2.6E 01 -	3.8E 01	9	24	37.50	100.00	100.00	100.00

HISTOGRAM FOR COLUMN 23 (S-SC )

5.0E 00 XXXX  
7.0E 00 XXXXXXXXXXXX  
1.0E 01  
1.5E 01 XXXXXXXXXXXXXXXXXXXXXXXXXXXX  
2.0E 01 XXXXXXXXXXXXXXXXXXXX  
3.0E 01 XXXXXXXXXXXXXXXXXXXXXXXXXXXX

ANALYTICAL		VALUES	
N		G	
0	0	0	24
0.0	0.0	0.0	0.0

MAXIMUM = 3.00000E 01  
MINIMUM = 5.00000E 00  
GEOMETRIC MEAN = 1.77232E 01  
GEOMETRIC DEVIATION = 1.73185E 00

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

FREQUENCY TABLE FOR COLUMN 25 (S-SR )

LIMITS		FREQ	FREQ CUM	PERCENT FREQ	PERCENT FREQ CUM
LOWER - UPPER					
8.3E 01 -	1.2E 02	1	1	4.17	4.17
1.2E 02 -	1.8E 02	4	5	16.67	20.83
1.8E 02 -	2.6E 02	7	12	29.17	50.00
2.6E 02 -	3.8E 02	7	19	29.17	79.17
3.8E 02 -	5.6E 02	2	21	8.33	87.50
5.6E 02 -	8.3E 02	2	23	8.33	95.83

HISTOGRAM FOR COLUMN 25 (S-SR )

1.0E 02 XXXX  
1.5E 02 XXXXXXXXXXXXXXXX  
2.0E 02 XXXXXXXXXXXXXXXXXXXXXXXX  
3.0E 02 XXXXXXXXXXXXXXXXXXXXXXXX  
5.0E 02 XXXXXXXX  
7.0E 02 XXXXXXXX

N	L	H	B	T	G	ANALYTICAL VALUES
0	1	0	0	0	0	23
0.0	4.17			0.0	0.0	

MAXIMUM = 7.00000E 02  
MINIMUM = 1.00000E 02  
GEOMETRIC MEAN = 2.52182E 02  
GEOMETRIC DEVIATION = 1.65216E 00

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

FREQUENCY TABLE FOR COLUMN 26 (S-V )

LIMITS		FREQ		PERCENT		PERCENT	
LOWER - UPPER		CUM		FREQ		FREQ CUM	
2.6E 01 -	3.8E 01	2	2	8.33	8.33	8.33	8.33
3.8E 01 -	5.6E 01	0	2	0.0	8.33	8.33	8.33
5.6E 01 -	8.3E 01	1	3	4.17	12.50	12.50	12.50
8.3E 01 -	1.2E 02	1	4	4.17	16.67	16.67	16.67
1.2E 02 -	1.8E 02	8	12	33.33	50.00	50.00	50.00
1.8E 02 -	2.6E 02	6	18	25.00	75.00	75.00	75.00
2.6E 02 -	3.8E 02	3	21	12.50	87.50	87.50	87.50
3.8E 02 -	5.6E 02	3	24	12.50	100.00	100.00	100.00

HISTOGRAM FOR COLUMN 26 (S-V )

```

3.0E 01 XXXXXXXX
5.0E 01
7.0E 01 XXXX
1.0E 02 XXXX
1.5E 02 XXXXXXXXXXXXXXXXXXXXXXXXXXXX
2.0E 02 XXXXXXXXXXXXXXXXXXXXXXXXXXXX
3.0E 02 XXXXXXXXXXXXXXX
5.0E 02 XXXXXXXXXXXXXXX

```

ANALYTICAL		VALUES		24	
N	L	H	B	T	G
0.0	0.0	0	0	0.0	0.0

61  
 MAXIMUM = 5.00000E 02  
 MINIMUM = 3.00000E 01  
 GEOMETRIC MEAN = 1.70190E 02  
 GEOMETRIC DEVIATION = 2.04872E 00

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

FREQUENCY TABLE FOR COLUMN 27 (S-Y )

LIMITS		FREQ		PERCENT		PERCENT	
LOWER	- UPPER	FREQ	CUM	FREQ	CUM	FREQ	CUM
8.3E 00	- 1.2E 01	4	4	16.67		16.67	
1.2E 01	- 1.8E 01	8	12	33.33		50.00	
1.8E 01	- 2.6E 01	5	17	20.83		70.83	
2.6E 01	- 3.8E 01	6	23	25.00		95.83	
3.8E 01	- 5.6E 01	1	24	4.17		100.00	

HISTOGRAM FOR COLUMN 27 (S-Y )

1.0E 01 XXXXXXXXXXXXXXXX  
1.5E 01 XXXXXXXXXXXXXXXXXXXXXXXX  
2.0E 01 XXXXXXXXXXXXXXXXXXXXXXXX  
3.0E 01 XXXXXXXXXXXXXXXXXXXXXXXX  
5.0E 01 XXXX

ANALYTICAL		VALUES	
N	L	H	G
0	0	0	0
0.0	0.0	0	0.0

MAXIMUM = 5.0000E 01  
MINIMUM = 1.0000E 01  
GEOMETRIC MEAN = 1.86127E 01  
GEOMETRIC DEVIATION = 1.53990E 00

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

FREQUENCY TABLE FOR COLUMN 28 (S-ZN )

LIMITS		FREQ	FREQ	PERCENT	PERCENT
LOWER	UPPER		CUM	FREQ	FREQ CUM
1.8E 02 -	2.6E 02	3	3	12.50	12.50
2.6E 02 -	3.8E 02	2	5	8.33	20.83
3.8E 02 -	5.6E 02	0	5	0.0	20.83
5.6E 02 -	8.3E 02	0	5	0.0	20.83
8.3E 02 -	1.2E 03	0	5	0.0	20.83
1.2E 03 -	1.8E 03	1	6	4.17	25.00

HISTOGRAM FOR COLUMN 28 (S-ZN )

2.0E 02 XXXXXXXXXXXX  
3.0E 02 XXXXXXXX  
5.0E 02  
7.0E 02  
1.0E 03  
1.5E 03 XXXX

ANALYTICAL		VALUES	
N	L	H	G
8	10	0	0
33.33	41.67	0	0.0

83

MAXIMUM = 1.50000E 03  
MINIMUM = 2.00000E 02  
GEOMETRIC MEAN = 3.20309E 02  
GEOMETRIC DEVIATION = 2.18582E 00



TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

FREQUENCY TABLE FOR COLUMN 29 (S-ZR )

LIMITS		FREQ	FREQ CUM	PERCENT FREQ	PERCENT FREQ CUM
LOWER - UPPER					
2.6E 01 -	3.8E 01	1	1	4.17	4.17
3.8E 01 -	5.6E 01	2	3	8.33	12.50
5.6E 01 -	8.3E 01	12	15	50.00	62.50
8.3E 01 -	1.2E 02	3	18	12.50	75.00
1.2E 02 -	1.8E 02	2	20	8.33	83.33
1.8E 02 -	2.6E 02	1	21	4.17	87.50
2.6E 02 -	3.8E 02	1	22	4.17	91.67

HISTOGRAM FOR COLUMN 29 (S-ZR )

3.0E 01 XXXX  
5.0E 01 XXXXXXXX  
7.0E 01 XX  
1.0E 02 XXXXXXXXXXXXXXX  
1.5E 02 XXXXXXXX  
2.0E 02 XXXX  
3.0E 02 XXXX

N	L	H	B	T	G	ANALYTICAL VALUES
0	2	0	0	0	0	22
0.0	8.33	0	0	0.0	0.0	

MAXIMUM = 3.0000E 02  
MINIMUM = 3.0000E 01  
GEOMETRIC MEAN = 8.23660E 01  
GEOMETRIC DEVIATION = 1.63896E 00

TITLE  
ROCK SAMPLES, KETCHIKAN A-3 QU

IN THE COMPUTATIONS PERFORMED TO PRODUCE THE FOLLOWING TABLE OF GEOMETRIC MEANS AND DEVIATIONS, ALL ELEMENTS ARE IGNORED WHERE ONE OR MORE OF THE UNQUALIFIED DATA VALUES IS LESS THAN THE ANALYTICAL LIMIT OF DETECTION SPECIFIED ON INPUT OR WHERE ANY DATA VALUES ARE QUALIFIED WITH THE G (GREATER THAN) CODE. DATA VALUES QUALIFIED WITH B OR H ARE NOT USED IN THE COMPUTATIONS. WHERE NONE OF THE DATA VALUES FOR AN ELEMENT ARE QUALIFIED THE MEAN AND DEVIATION SHOULD BE THE SAME AS THOSE GIVEN IN THE PRECEDING SECTION. WHERE DATA ARE QUALIFIED WITH THE CODES N, L, OR T, THE ESTIMATES OF GEOMETRIC MEAN AND DEVIATION ARE BASED ON A METHOD BY A. J. COHEN FOR TREATING CENSORED DISTRIBUTIONS. THE APPLICATION OF THIS METHOD TO GEOCHEMICAL PROBLEMS IS DESCRIBED IN USGS PROFESSIONAL PAPER 574-B. THE ESTIMATES ARE UNBIASED IN A STRICT SENSE ONLY WHERE THE DATA ARE DERIVED FROM A LOGNORMAL PARENT POPULATION, BUT EXPERIMENTS HAVE SHOWN THAT LARGE DEPARTURES FROM THIS REQUIREMENT MAY NOT GREATLY INVALIDATE THE RESULTS ACCEPTANCE AND USE OF THE ESTIMATES, HOWEVER, IS THE RESPONSIBILITY OF THE INDIVIDUAL.

ELEMENT	N	L	H	B	T	G	ANALYTICAL VALUES
S-FE	0	0	0	0	0	0	24
S-MG	0	0	0	0	0	0	24
S-CA	0	0	0	0	0	0	24
S-TI	0	0	0	0	0	0	24
S-MN	0	0	0	0	0	0	24
S-AG	13	7	0	0	0	0	4
S-B	6	3	0	0	0	0	15
S-BA	0	1	0	0	0	0	23
S-BE	4	9	0	0	0	0	11
S-CO	0	2	0	0	0	0	22
S-CR	0	1	0	0	0	0	23
S-CU	0	0	0	0	0	0	24
S-LA	9	8	0	0	0	0	7
S-MO	6	11	0	0	0	0	7
S-NB	0	4	0	0	0	0	20
S-NI	0	0	0	0	0	0	24
S-PB	6	7	0	0	0	0	11
S-SC	0	0	0	0	0	0	24
S-SR	0	1	0	0	0	0	23
S-V	0	0	0	0	0	0	24
S-Y	0	0	0	0	0	0	24
S-ZN	8	10	0	0	0	0	6
S-ZR	0	2	0	0	0	0	22

ELEMENT      GEOMETRIC MEAN      GEOMETRIC DEVIATION      REMARKS

S-FE	5.828614	1.92	24 SAMPLES AND	24 ANALYTICAL VALUES.
S-MG	1.556184	1.65	24 SAMPLES AND	24 ANALYTICAL VALUES.
S-CA	1.632948	2.21	24 SAMPLES AND	24 ANALYTICAL VALUES.
S-TI	0.442441	1.64	24 SAMPLES AND	24 ANALYTICAL VALUES.
S-MN	642.628418	2.14	24 SAMPLES AND	24 ANALYTICAL VALUES.
S-AG	*****	*****	COHEN'S TABLE EXCEEDED. H( 0.8) OR GAMMA( 1.1) GTR THAN ALLOW. NO COMPUTATIONS.	

S-B	9.819305	1.84	9 NOT DETECTED, LESS THAN, OR TRACE VALUES.	15 REPORTED VALUES.
S-BA	608.448730	2.40	1 NOT DETECTED, LESS THAN, OR TRACE VALUES.	23 REPORTED VALUES.
S-BE	0.804535	1.44	13 NOT DETECTED, LESS THAN, OR TRACE VALUES.	11 REPORTED VALUES.
S-CO	26.620834	1.89	2 NOT DETECTED, LESS THAN, OR TRACE VALUES.	22 REPORTED VALUES.
S-CR	62.408493	2.33	1 NOT DETECTED, LESS THAN, OR TRACE VALUES.	23 REPORTED VALUES.
S-CU	46.330750	2.57	24 SAMPLES AND 24 ANALYTICAL VALUES.	
S-LA	11.525841	2.13	17 NOT DETECTED, LESS THAN, OR TRACE VALUES.	7 REPORTED VALUES.
S-MO	3.086188	1.53	17 NOT DETECTED, LESS THAN, OR TRACE VALUES.	7 REPORTED VALUES.
S-NB	10.325225	1.26	4 NOT DETECTED, LESS THAN, OR TRACE VALUES.	20 REPORTED VALUES.
S-NI	47.850479	2.26	24 SAMPLES AND 24 ANALYTICAL VALUES.	
S-PB	*****	*****	COHEN'S TABLE EXCEEDED. H( 0.5) OR GAMMA(	1.6) GTR THAN ALLOW. NO COMPUTATIONS.
S-SC	17.723175	1.73	24 SAMPLES AND 24 ANALYTICAL VALUES.	
S-SR	238.552933	1.75	1 NOT DETECTED, LESS THAN, OR TRACE VALUES.	23 REPORTED VALUES.
S-V	170.189468	2.05	24 SAMPLES AND 24 ANALYTICAL VALUES.	
S-Y	18.612701	1.54	24 SAMPLES AND 24 ANALYTICAL VALUES.	
S-ZN	*****	*****	COHEN'S TABLE EXCEEDED. H( 0.8) OR GAMMA(	1.8) GTR THAN ALLOW. NO COMPUTATIONS.
S-ZR	73.274261	1.85	2 NOT DETECTED, LESS THAN, OR TRACE VALUES.	22 REPORTED VALUES.



