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EVALUATION OF TUNGSTEN SOIL SILT AND ROCK GEOCHEMISTRY DEWAR CREEK PROJECT 1973

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by: W. Gruenwald
March 30/73

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A. SOIL GEOCHEMISTRY

a) Statistical Analysis

DATA: N = No. of samples = 476

Sum of Xi = 35,600 ppm

i) Arithmetic Mean $\bar{X} = \frac{35,600}{476} = 74.8$ ppm

ii) Mode: is 0-10 range (i.e. most frequently occurring sample

iii) Median: is that at which 50% of the samples are greater than it and 50% are less than it. From frequency histogram this is approximately 32 ppm

iv) Standard Deviation - (S)

$$S = \sqrt{\frac{(\Sigma x_i - \bar{x})^2}{n-1}} = \sqrt{\frac{35,600\ (74.8)^2}{476-1}} = \sqrt{\frac{30,000}{475}} = \sqrt{63}$$

$$= \underline{\underline{7.95 \text{ ppm}}}$$

The 95% confidence limits are $\bar{x} \pm 2$ standard deviations. That is, there is a 95% probability that the mean lies between the values 58.90 ppm and 90.70 ppm.

b) Background Calculation

From page one and the curve on page four, one can see that the mean value and anomalous values are rather high, this being due to the inclusion of high values (i.e. 400 ppm). Thus, the indicated background on page four (left of curve) is in a sense a "background" of an anomalous area.

To find a background in the true sense, elimination of certain high values is necessary. The following calculation follows this approach.

a) Total number of samples = 476 = 100%

b) Number of samples < 50 ppm = 272 = 57.1%

c) Number of samples > 50 ppm = 204 = 42.9%

The arithmetic mean of b) $= \frac{\Sigma N < 50}{N < 50} \quad \frac{3440}{272}$ ppm = 13 ppm

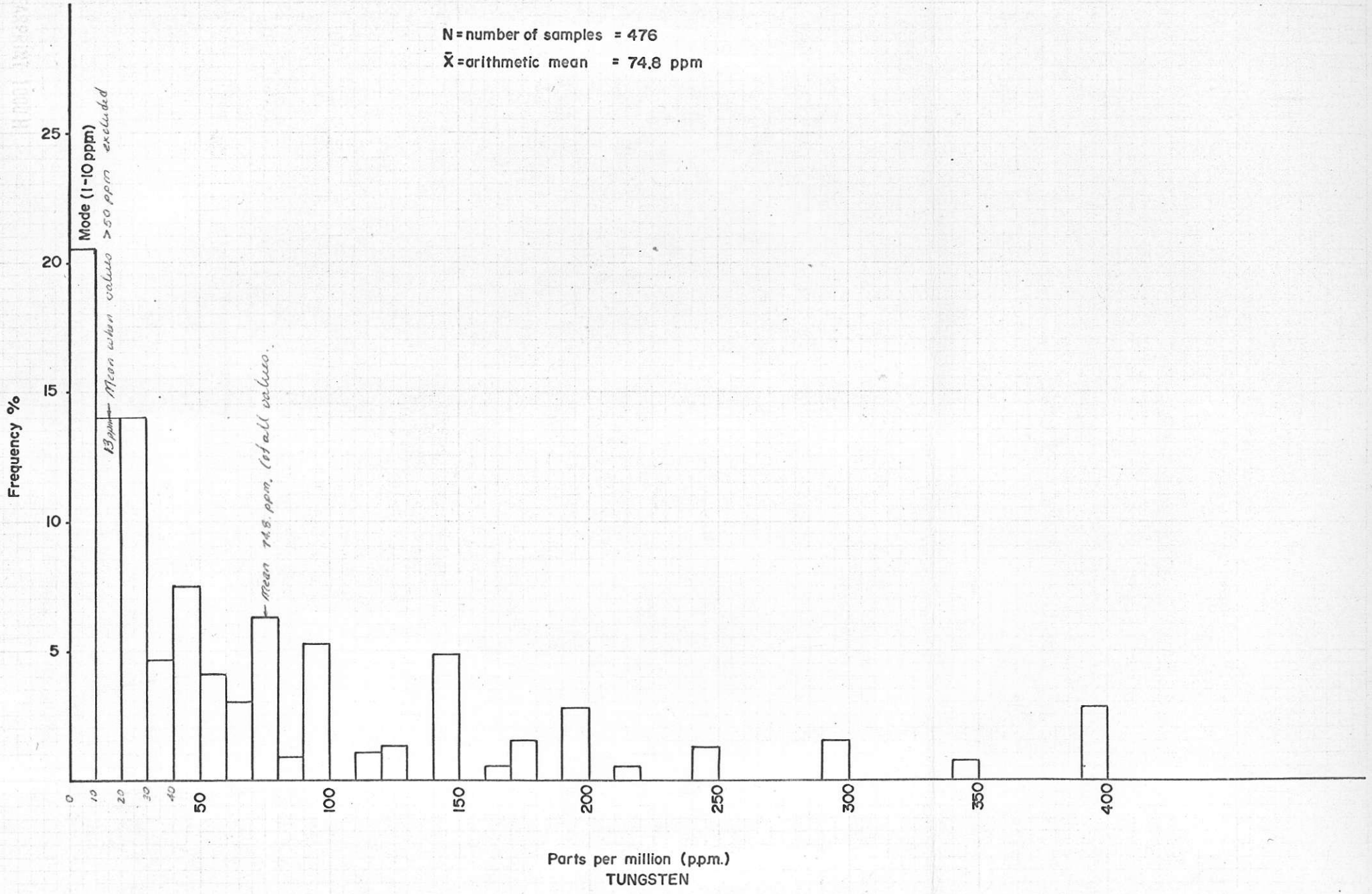
Thus the range 0 to 26 ppm (i.e. 2 x Mean) would be considered background; 26 to 39 ppm would be threshold and anomalous would be any values above 39 ppm. (See this on page four - right side of curve).

Fig 1

FREQUENCY DISTRIBUTION OF TUNGSTEN VALUES (DEWAR CREEK PROJECT)

N = number of samples = 476

$\bar{X}$ = arithmetic mean = 74.8 ppm



Tungsten Assays (Soils)

Dewar Creek Project

N = 476
X = 7.48 ppm

Background - Anomalous range when high values are included
Suitable for use on an anomalous zone

"Highly" anomalous

Threshold

Mean 7.8

Non-anomalous or Background

Median 3 32 ppm.

Background - Anomalous range when high values are excluded.
Suitable for use on a more regional basis.

Anomalous.

Threshold

Background

Parts per million (Tungsten)

Cumulative Percent.

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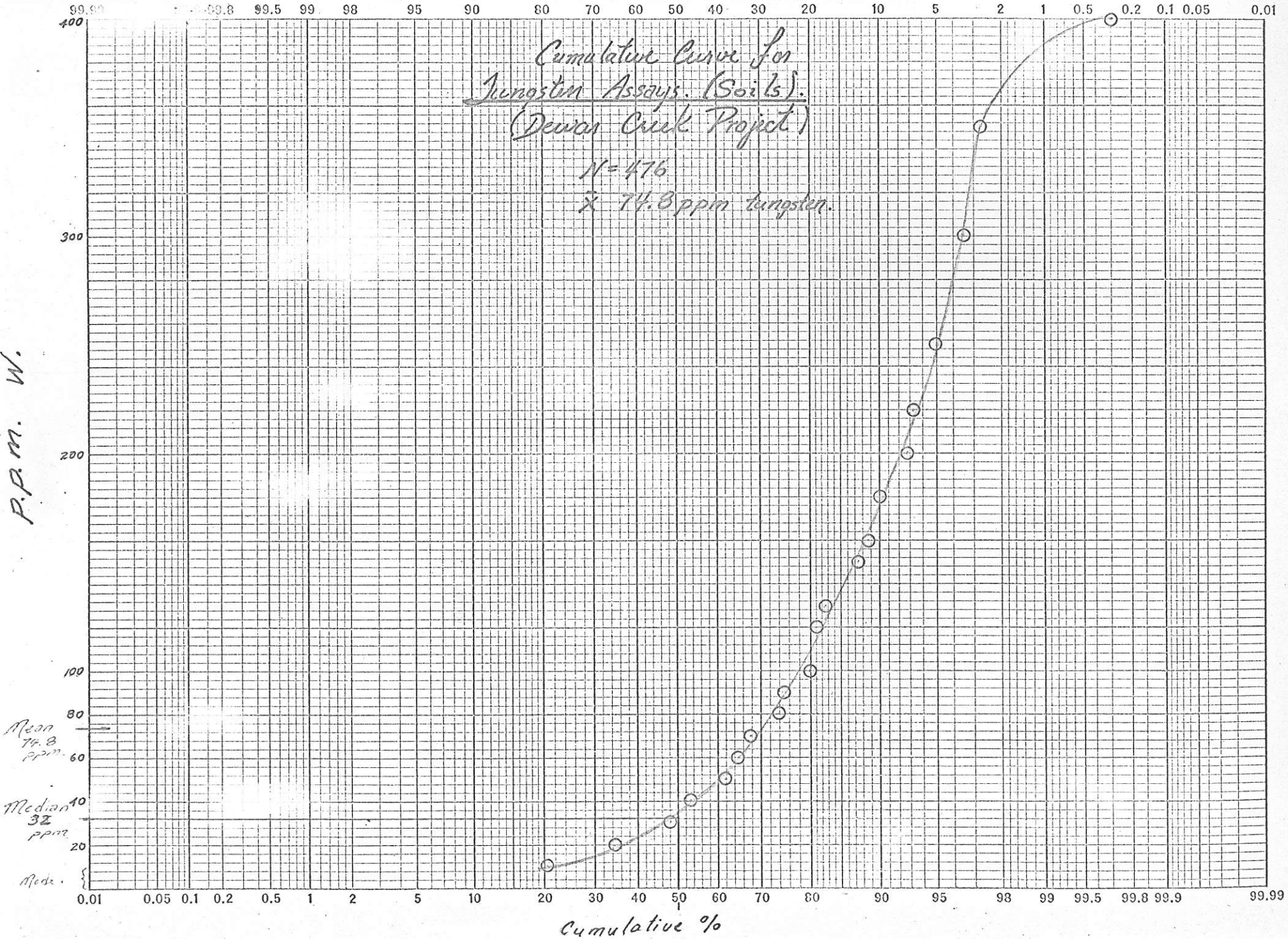
273



B. SILT GEOCHEMISTRY

a) Background Values

For the 66 silt samples assayed the same method of background calculation was used (i.e. exclusion of > 50 ppm values). This gave a mean of approximately 14 ppm which is nearly the same as the mean for the soils. Thus the background - anomalous values would be very similar in both soils and silts.

NOTE: When one is sampling far from the batholith (i.e. > 3 miles) the values are even lower having only a range of 0-10 ppm with background being in the order of 0-5 ppm.

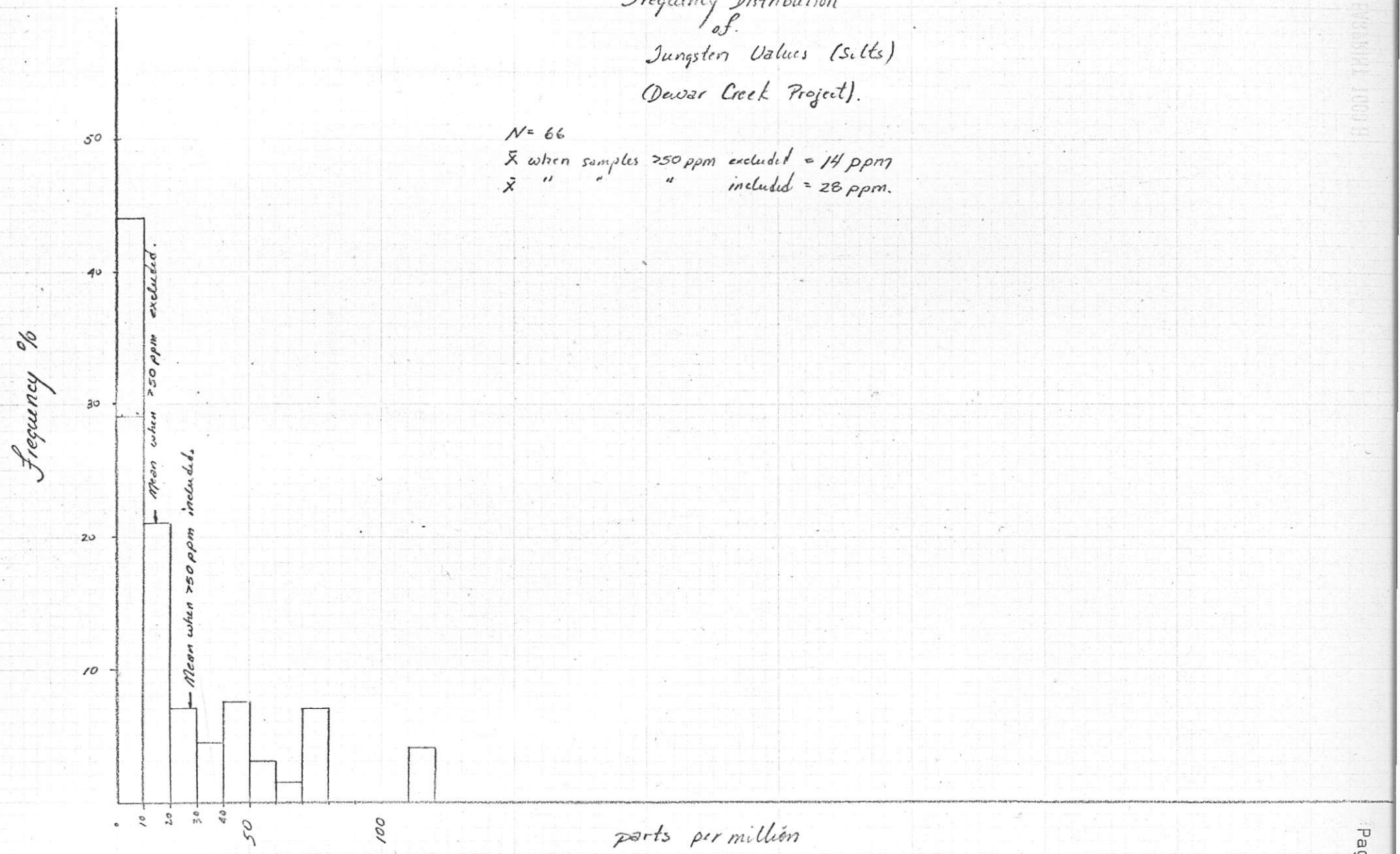
Thus in the case of a region with no batholith influence one can expect values to approach that of the 1-2 ppm range which is cited in Hawkes and Webb as being the average tungsten content in sedimentary and intrusive rocks.

Frequency Distribution of Tungsten Values (Silts) (Dewar Creek Project).

$N = 66$

$\bar{X}$ when samples >50 ppm excluded = 14 ppm

$\bar{X}$ " " " included = 28 ppm.



No.	Sample No	Rock Type	Mineralization	Carbonate	Wassay(ppm)	Nearest Batholith	Area	Misc.
1	6 - 1R	Diorite	Minute Pyrite Cubes	High	130	1.7 mi	Greenland Creek	Calcite Veinlets
2	6 - 2R	Quartzite	Dissem. Pyrrhotite	Slight	nd	1.7 mi	"	Rusty Surfaces
3	4 - 4R	Diorite		None	20	2.0 mi	"	50% Mafics
4	4 - 5R	Quartzite		None	10	2.0 mi	"	Rusty Surfaces
5	4 - 8R	Quartzite		None	nd	2.0 mi	"	Medium Grained
6	4 - 9R	Quartzite		None	5	2.0 mi	"	Grey
7	4 - 16R	Quartzite		None	10	1.8 mi	"	Grey
8	4 - 17R	Quartzite		None	15	1.8 mi	"	Grey
9	4 - 18R	Quartzite		None	nd	1.5 mi	"	Grey
10	4 - 19R	Quartzite		None	nd	1.5 mi	"	Grey
11	4 - 20R	Quartzite		None	nd	1.5 mi	"	Rusty Surfaces
12	4 - 21R	Quartzite		None	nd	1.5 mi	"	Rusty Surfaces
13	4 - 22R	Quartzite		None	nd	1.5 mi	"	Grey
14	4 - 23R	Quartzite		None	nd	1.5 mi	"	Grey
15	4 - 24R	Quartzite		None	nd	1.4 mi	"	Grey-br.
16	4 - 25R	Quartzite		None	nd	1.4 mi	"	Rusty Surfaces
17	4 - 26R	Quartzite		None	nd	1.4 mi	"	Rusty Surfaces
18	4 - 27R	Quartzite	Scheelite Specks	None	700	1.4 mi	"	Rusty Surfaces

No.	Sample No	Rock Type	Mineralization	Carbonate	Wassay(ppm)	Nearest Batholith	Area	Misc.
19	4 - 28R	Quartzite		None	nd	1.4 mi	Greenland Creek	Rusty Surfaces
20	5 - 20R	Quartzite		None	20	1.4 mi	"	Rusty Surfaces
21	5 - 21R	Quartzite		None	nd	1.4 mi	"	Rusty Surfaces
22	5 - 25R	Quartzite		None	nd	2.0 mi	"	Highly Rusty
23	5 - 26R	Diorite	Chalco. in qtz. veins	Slight	nd	2.0 mi	"	Rusty
24	5 - 27R	Diorite		None	150	2.1 mi	"	Rusty Surfaces
25	5 - 28R	Quartzite		None	500	2.1 mi	"	Very Rusty
26	5 - 29R	Quartzite		None	5	2.1 mi	"	Rusty Surfaces
27	5 - 30R	Quartzite	Dissem. Magnetite	Slight	5	2.2 mi	"	Rusty Spots
28	5 - 31R	Quartzite		None	nd	2.2 mi	"	Rusty Surfaces
29	5 - 32R	Quartzite		Slight	nd	2.2 mi	"	Rusty Specks
30	5 - 35R	Diorite		Slight	40	2.0 mi	"	Rusty Surfaces
31	3-15-51R	Diorite		None to Slight	nd	2.1 mi	"	Unaltered
32	3-15-52R	Quartzite		None to Slight	10	2.1 mi	"	Rusty Specks
33	3-15-53R	Diorite		None	20	1.9 mi	"	
34	3-15-54R	Diorite		None	100	1.4 mi	"	Unaltered
35	3-15-55R	Diorite		None	180	1.7 mi	"	Unaltered
36	3-15-56R	Diorite		None	5	1.8 mi	"	Diorite

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No.	Sample No	Rock Type	Mineralization	Carbonate	Wassay(ppm)	Nearest Batholith	Area	Misc.
37	1-10- 2R	Diorite		None	nd	2.1 mi	Upper Greenland Creek	25% Mafics
38	1-7- 3R	Diorite	Near Mo, WO_3 showing	Slight	nd	0.5 mi	"	40% Mica
39	3-6-34R	Quartzite		None	nd	2.6 mi	Rusty Ridge	Brown-black
40	3-9-42R	Diorite	Chalco. in qtz. veins	Slight to moderate	nd	> 4 mi	North of Doc Peak	35-40% Mafics
41	3-9-44R	Diorite	Chalco. & pyrr.specks	Moderate	nd	> 4 mi	"	60% Mafics
42	3-9-45R	Diorite	Dissem. Mag & pyrr.	High	nd	> 4 mi	"	35% Mafics
43	3-8-40R	Diorite & Quartzite		High	nd	> 4 mi	Findlay Creek	Fine-grained
44	2-6-364R	Diorite	Dissem. Magnetite	Moderate	nd	> 4 mi	Upper Findlay Creek	25-30% Mafics
45	3-B-17R	Diorite	Dissem. Mag & pyrr.	Slight to Moderate	nd	> 4 mi	Pyramid Creek	Fine-grained
46	3-3-23R	Gabbro		Moderate	nd	1.7 mi	"	
47	3-1-R8	Diorite		None	nd	> 4 mi	Mathews Creek	45% Mafics
48	3-1-R3	Diorite		None	nd	> 4 mi	"	60% Mafics
49	3-B-36R	Quartzite		None	nd	> 4 mi	Meacham Creek	Silicified and Rusty
50	3-B-34R	Diorite	Dissem. Chalco.	Moderate	nd	> 4 mi	Hall Lake	Rusty Fractures

W.C. Mar 73.

EVALUATION OF ROCK ASSAY DATA:

Quartzites
Total "W" ppm — No. of samples = $\frac{1280}{30} = \overline{X} = 42.6$ ppm

23% of quartzites assayed had values > 5 ppm

Diorites
Total "W" ppm — No. of samples = $\frac{645}{20} = \overline{X} = 32.2$ ppm

35% of diorites assayed had values > 5 ppm

From the 50 samples assayed it appears that the diorites and quartzites both have appreciable amounts of tungsten in the anomalous area north of Greenland Creek.

Since some of the tungsten anomalies are situated near known diorite outcrops it would be important to determine whether the tungsten mineralization is concentrated in the diorite (i.e. fractures) or along the diorite-quartzite contacts.

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