

2829

GEOLOGICAL AND GEOCHEMICAL REPORT

on the

KELSAL CLAIM GROUP

located at

KELSALL LAKE, 100 MILES E.N.E. OF ATLIN,

LATITUDE 59° 52'N., LONGITUDE 136° 30'W.,

ATLIN MINING DIVISION,

BRITISH COLUMBIA

by

R. B. ROWE AND W. D. COWAN

for

PACIFIC PETROLEUMS LTD.

during

September 10 - September 24, 1970

114P/15E4/16W

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT

NO. _____

January 11, 1971

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SUMMARY AND RECOMMENDATION

Geochemical, geophysical and geological surveys suggest that Cu - Zn sulphide mineralization of possible economic interest occurs at depth on the Kelsal claims.

It is recommended that 4 diamond drill-holes totalling approximately 2,000 feet be put down as a test.

INTRODUCTION

This report deals with geological mapping and soil sampling on the Kelsal claims from September 10th., to September 24th., 1970 by W. D. Cowan assisted by M. Linn and under the general supervision of R. B. Rowe.

Thirty-two Kelsal claims were staked in 1969 by W. M. Tupper (1969), on behalf of Pacific Petroleum Ltd., to cover an area of anomalous silts associated with springs and streamlets extending for about 2,500 feet along the base of a slope.

Grid soil sampling by Tupper (1969 and 1970) in the area of interest located Cu and Zn anomalies.

Magnetometer, electromagnetometer and induced polarization surveys were conducted by Tri-Con Exploration Surveys Ltd., during June and July of 1970 on a grid with line spacings of 300 feet (White, 1970).

Three chargeability anomalies were located. The most intense occurs at the intersection of two linear electromagnetic conductors that are probably faults.

Cowan used the grid established for the geophysical surveys as control. The soils were resampled on this grid to provide better correlation with the geophysical data.

Six fractions were found and these have been staked and recorded.

THE PROPERTY

The mining claims and fractions comprising the Kelsal Claim Group are as follows:

<u>Claims</u>	<u>Tag Numbers</u>	<u>Record Numbers</u>
Kelsal #1 to #32 incl.	24561M to 24592M incl.	13212H to 13243H incl.
<u>Fractions</u>		
Kelsall #1 F.M.C.	151886M	15347H
Kelsall #2 F.M.C.	151887M	15348H
Kelsall #3 F.M.C.	151888M	15349H
Kelsall #4 F.M.C.	151885M	15350H
Kelsall #5 F.M.C.	151883M	15351H
Kelsal #6 F.M.C.	validation of recording not received as yet	

LOCATION, ACCESS, TOPOGRAPHY AND VEGETATION

The Kelsal Claim Group is located 100 miles eastnortheast of Atlin, B.C. at Kelsall Lake, latitude 59° 52' N., longitude 136° 30' W., N.T.S. 114 - P - 15 E, 16 W. (See Figures 1 and 2).

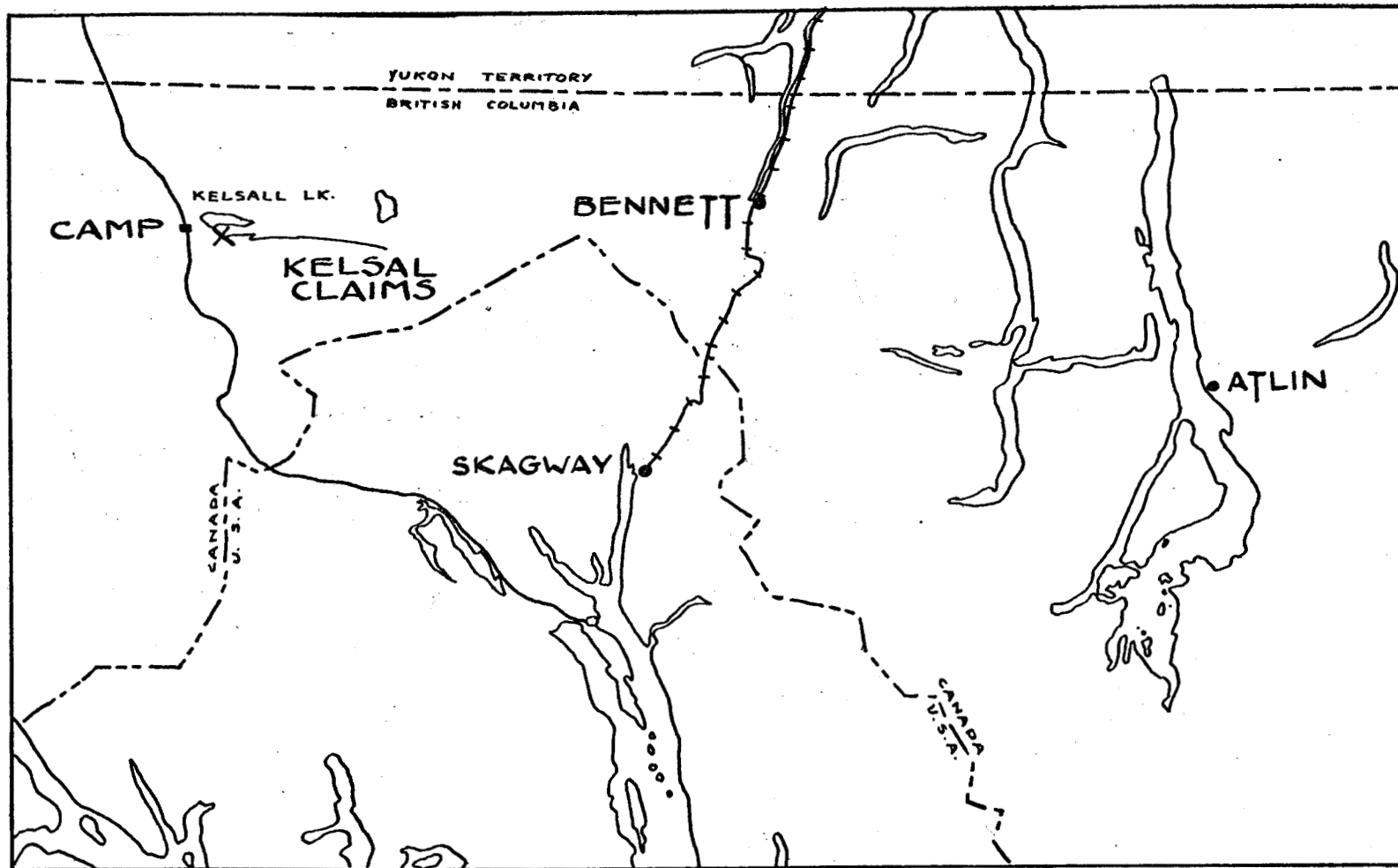
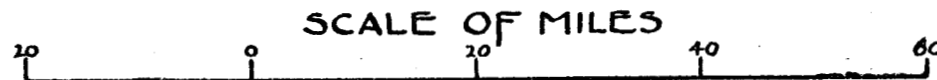


FIG. 1 - MAP SHOWING LOCATION OF
KELSAL CLAIM GROUP



MINERAL RESOURCES BRANCH
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NO. 2829 M-1

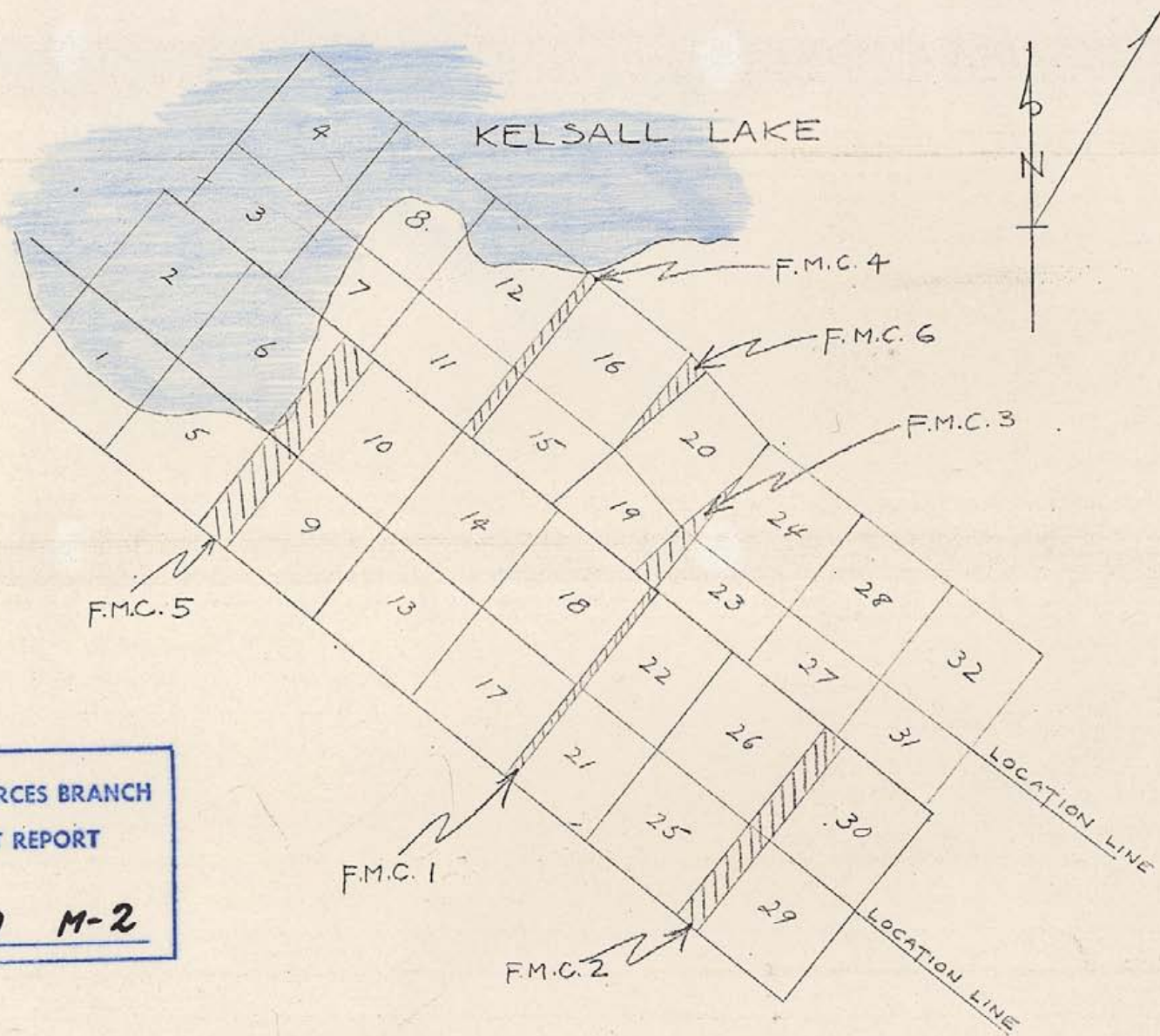
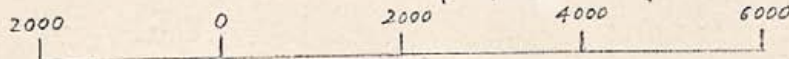


FIG. 2 - SKETCH-MAP OF KELSALL GROUP

SCALE OF FEET



Facile access to the property is by float-equipped aircraft from Whitehorse, Y.T., a distance of 80 airmiles.

The property can also be reached via a rough road to the north-west shore of Kelsall Lake from the Haines Road near the highway camp, thence by boat across Kelsall Lake.

Topography is relatively gentle with relief being about 1,200'.

Vegetation consists of ground-covers, and bushes in patches-- there are no trees.

GEOLOGY

Observations

The rocks outcropping on the Kelsal claims are classified macroscopically as meta-andesite, argillite, tuff, and felsite (See Figure 3).

The meta-andesite is aphanitic to coarse grained, grey-green to dark green to black, and massive to slightly schistose. Hornblende and plagioclase can be recognized in the coarser-grained varieties which probably represent the centres of flows. In places, the rock contains abundant, very fine-grained magnetite. Epidote, quartz, calcite and pyrite are also common, and minor amounts of chalcopryite were observed at two places. Quartz veinlets were seen in several outcrops and some of these contain pyrite and chalcopryite in vugs and hairline fractures. Amygdules containing quartz and calcite were found in the northernmost outcrops mapped.

Interbedded tuff and argillite appear to occur as small lenses in the meta-andesite. The tuff is characterized by brilliant blue quartz eyes in a slightly foliated matrix. Pyrite is common and hornblende and chlorite are recognizable in places. The argillite is black and somewhat slaty. Strongly foliated chloritic rock, probably formed from argillite,

occurs in places at the contact of tuff-argillite and meta-andesite.

The felsite is aphanitic, light brown, and massive to slightly schistose. It could not be determined whether the felsite is extrusive or intrusive.

Quartz float, some of which contains chalcopryrite, was found at several places.

It was not possible to distinguish flow contacts or bedding, however, limestone beds about 1 mile south of the claims strike 120° and dip 60° northeast.

The strike of the schistosity ranges from 100° to 140° with most of the readings between 130° and 140° . Dips are generally moderate to steeply southwest, however, some are to the northeast.

A strong topographic lineament trends across the centre of the claim group and probably represents a southwesterly-dipping fault.

Interpretation

On the basis of lithology and location, there appears to be little doubt that the Kelsal claims are on the southeast extension of a fold belt of the Mush Lake Group, a eugeosynclinal pile of volcanic and sedimentary rocks of Triassic age mapped by Kindle (1953) in the Dezadeash map-area to the north.

The presence in outcrop and float of quartz veinlets, pyrite and chalcopryrite supports the geophysical and geochemical indications of more intense sulphide mineralization at depth.

GEOCHEMISTRY

Procedure

<u>Type of Sample</u>	<u>Number Collected</u>	<u>Horizon</u>	<u>Depth of Sample</u>
Soil	298	B	8 to 10"
Soil	10	A? (not possible to obtain organic- free material)	8 to 10"
Silt	33		8 to 10"

Location Control: Soil samples -- taken at 200-foot intervals on grid with line-spacing of 300 feet.

Silt samples -- sample sites tied-in to grid.

Method of Sample Collection: by hand.

Packaging: geochemical sample envelopes of Kraft paper.

Drying Procedure: dried for 1 day at 98° C. in cabinet with bottom elements.

Screening Procedure: by hand.

Fraction Analyzed: -80 mesh screenings, 0.50 g.

Method of Analysis: atomic absorption with HClO₄ - HNO₃ extraction and Techtron AA₄ and AA₅ detection.

Final Volume: 10 ml.

Analyzed for: Cu, Zn, Mo

Laboratory: Vancouver Geochemical Laboratories Ltd.,
1521 Pemberton Ave., North Vancouver, B.C.

Supervising chemist: L. J. Nicol

Interpretation

Cumulative frequency distribution curves indicate that anomalous soil values for Cu, Zn and Mo are +320, +250, and +8 ppm. respectively (See Figures 4, 5 and 6).

Anomalous Cu, Zn and Mo values in the soil support the geophysical evidence that sulphide minerals are present in some concentration at depth (White, 1970).

The largest areas of higher Cu, Zn and Mo soil values appear to be related to the major induced polarization anomaly (See Figure 3).

Overall soil patterns are somewhat confused. Lack of perfect coincidence is probably due, in part at least, to differences in ion mobilities. The weathering of sulphide minerals in quartz veinlets in the outcrops probably also contributes to the complexity.

REFERENCES

Kindle, E. D.

1953: Dezadeash Map-Area, Yukon Territory; Geol. Surv. Can., Mem. 268

Tupper, W. M.

1969: A Report on Phase II of the Mineral Exploration Program for the Carcross Project, Yukon Territory and British Columbia; unpub. rept.

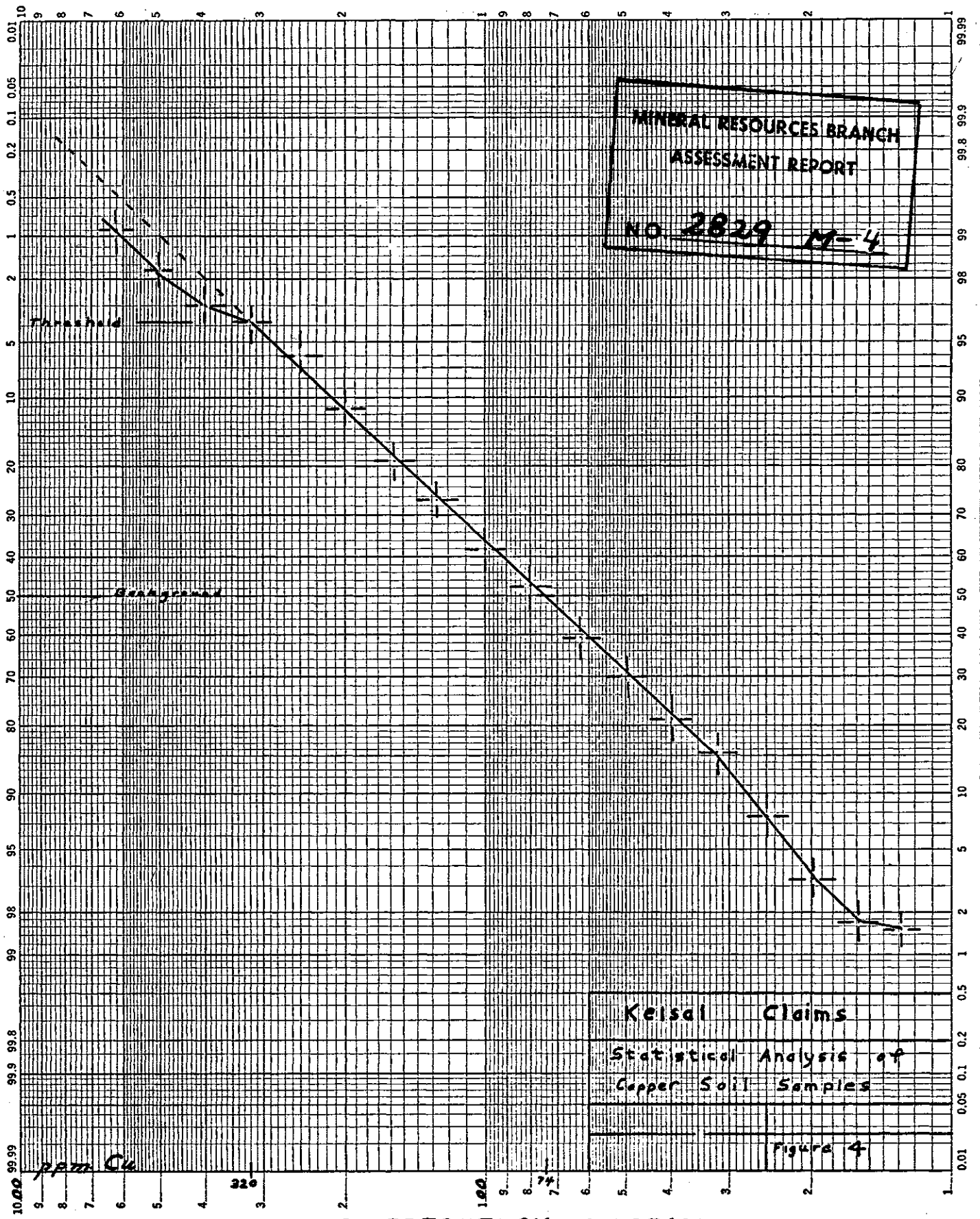
* 1970: Geological and Geochemical Report on the Kelsal Claim Group, Latitude 59° 52' N., Longitude 136° 30' W., unpub. rept.

White, G. E.

* 1970: Geophysical Report, Kelsal Claim Group, Southwestern Shore of Kelsall Lake, 136° 35' W. Longitude, 59° 47' N. Latitude; unpub. rept.

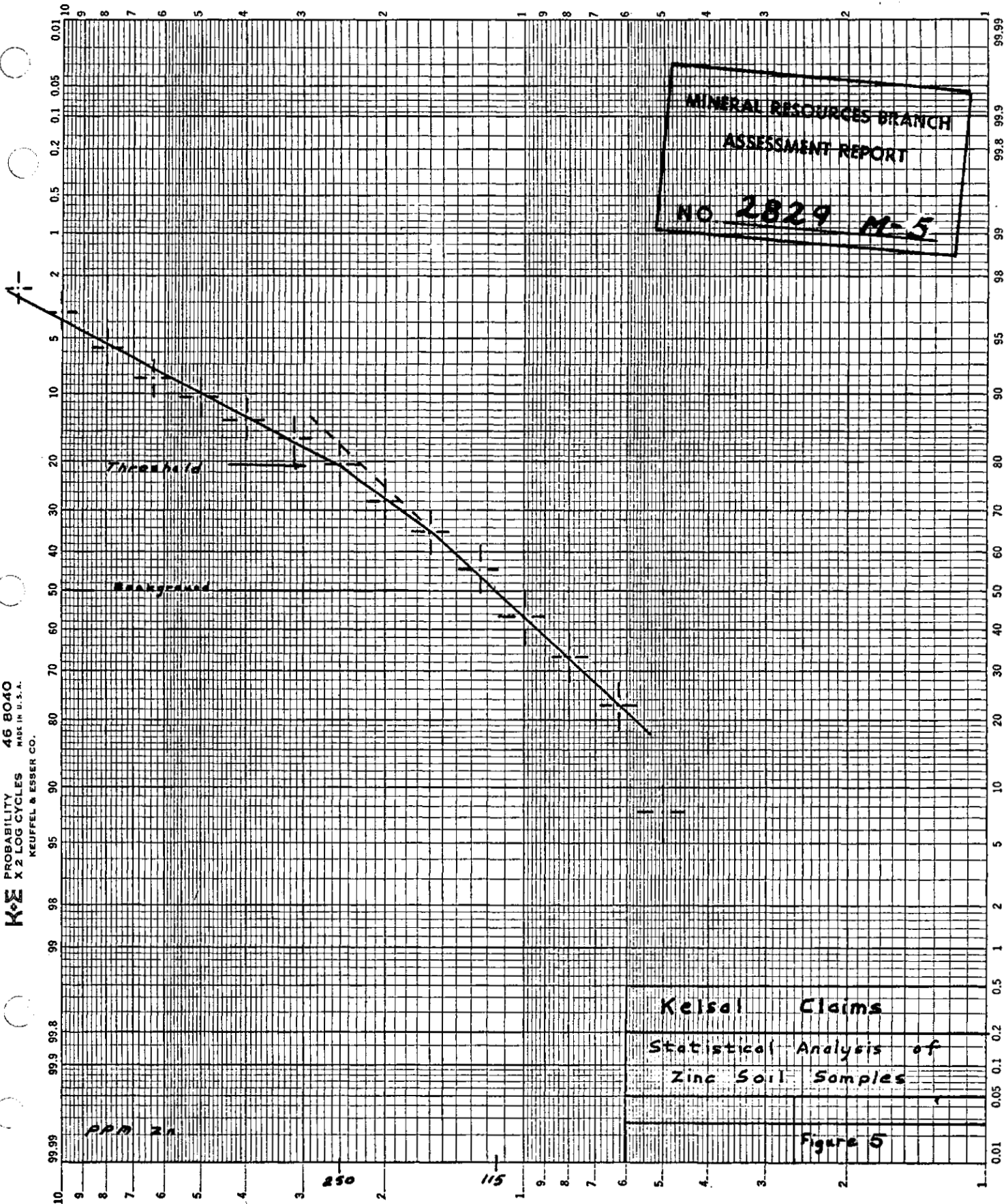
* Submitted in support of assessment work requirements.

K-E PROBABILITY 46 8040
X 2 LOG CYCLES
MADE IN U.S.A.
KEUFFEL & ESSER CO.



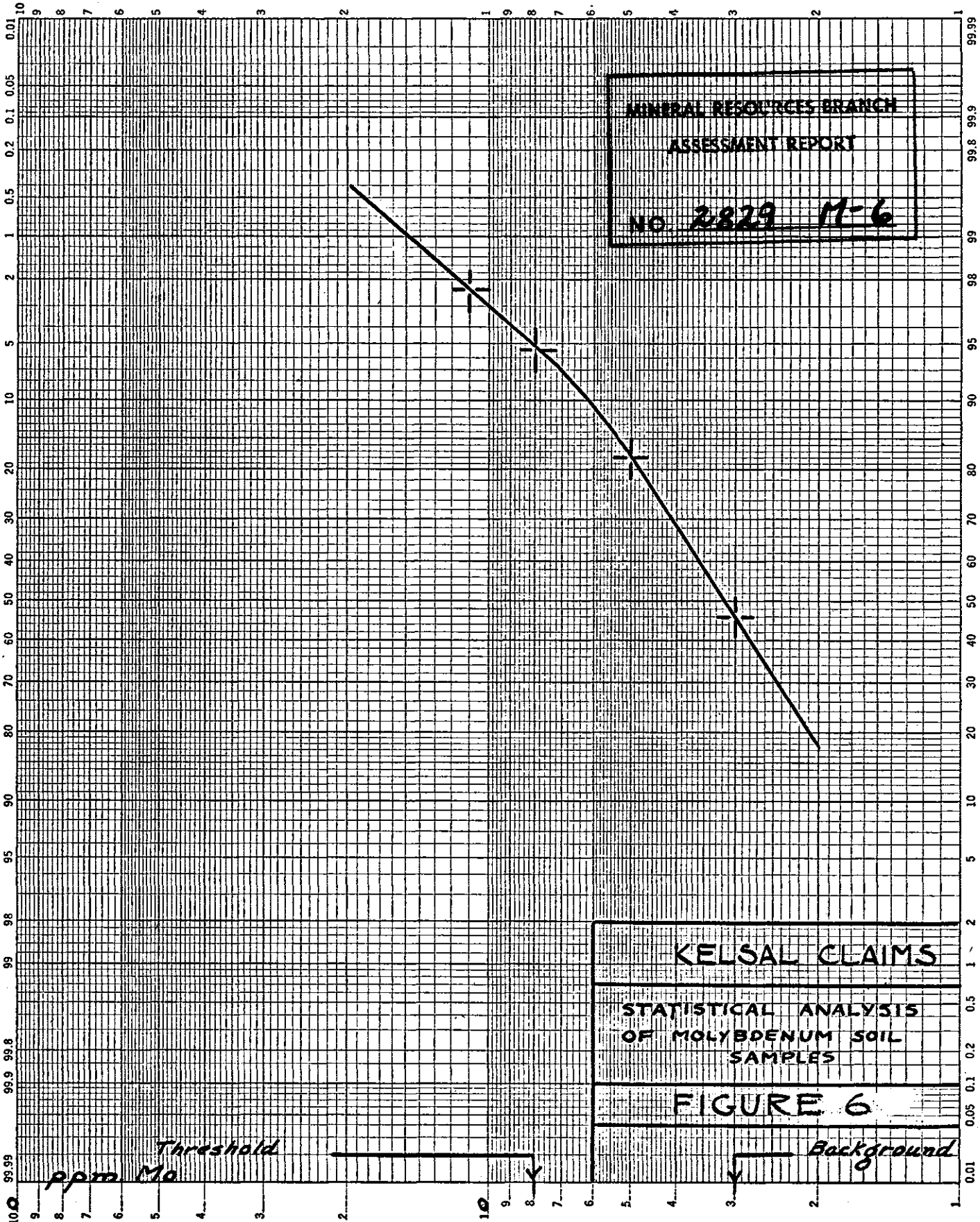
CUMULATIVE FREQUENCY DIAGRAM

K&E PROBABILITY 46 8040
X 2 LOG CYCLES
MADE IN U.S.A.
KEUFFEL & ESSER CO.



CUMULATIVE FREQUENCY DIAGRAM

KE PROBABILITY 46 8040
X 2 LOG CYCLES
MADE IN U. S. A.
KEUFFEL & ESSER CO.



CUMULATIVE FREQUENCY DIAGRAM

APPENDIX A

Vancouver Geochemical Laboratories Ltd.

1521 PEMBERTON AVENUE NORTH VANCOUVER, B.C., CANADA TELEPHONE 604-988-2172

GEOCHEMICAL ANALYTICAL REPORT

REPORT No. **70-73-008** DATE **September, 22, 1970**
 SAMPLES SUBMITTED BY **Pacific Petroleum Ltd.** COMPANY **Pacific Petroleum Ltd.**
 SHIPPED VIA **Delivered** FROM _____
 REPORT ON **341 Samples for Mo, Cu,** DATE SAMPLES ARRIVED **September, 17, 1970.**

* * *

COPIES OF THIS REPORT SENT TO:

- (1) **Pacific Petroleum Ltd.**
- (2) **#510-580 Granville Street,**
- (3) **Vancouver, B.C.**

TRANSMITTED BY:

Mail

SAMPLES SIFTED OR GROUND TO **-80** MESH WEIGHT USED **.50 g**
 FINAL VOLUME **10 ml** ALIQUOT USED **n/a**

* * *

METHOD OF ANALYSIS: **Instrumental - Atomic Absorption**

EXTRACTION: **HClO₄ & HNO₃**

DETECTION: **Techtron AA4 & AA5**

SAMPLES ASSIGNMENT: (a) PREPARED SAMPLES: **Filed**

(b) REJECTS: **Discarded**

* * *

ANALYST(S) _____ TYPIST **if**

SUPERVISING CHEMIST **L. Nicol**

CHECKED BY **C. CHUN**

COSTS:

SHIPPING CHARGE	\$	1111
SAMPLE PREPARATION	\$	68.20
ANALYSIS	\$	511.50
OTHER	\$	1111
TOTAL	\$	579.70

nd - none detected.

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MARKING	No	Cu		
KL - 1	3	41		
2	3	57		
3	nd	18		
4	2	150		
5	6	105		
6	5	80		
7	5	78		
8	5	110		
9	4	37		
10	2	52		
11	nd	30		
12	4	75		
13	2	36		
14	5	37		
15	2	41		
16	nd	75		
17	5	35		
18	2	18		
19	1	3		
KL- 20	6	710		

MARKING	No	Cu		
KL -21	4	45		
22	4	42		
23	4	111		
24	2	123		
25	4	74		
26	4	85		
27	5	570		
28	nd	1500		
29	1	11		
30	nd	25		
31	2	122		
32	1	20		
33	nd	17		
34	nd	19		
35	1	115		
36	1	8		
37	1	8		
38	2	20		
KL- 39	4	22		

REMARKS

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MARKING	Mo	Cu		
KL-40	4	23		
41	2	33		
42	1	30		
43	2	230		
44	4	52		
45	3	46		
46	nd	225		
47	nd	22		
48	2	20		
49	nd	26		
50	nd	170		
51	4	52		
52	7	320		
53	15	27		
54	nd	40		
55	8	225		
56	2	36		
57	2	20		
58	nd	25		
KL-59	3	27		

MARKING	Mo	Cu		
KL-60	nd	1400		
61	1	2450		
62	8	37		
63	2	215		
64	2	22		
65	1	37		
66	nd	22		
67	1	25		
68	2	30		
69	5	9		
70	6	37		
71	4	30		
72	4	63		
73	4	315		
74	3	40		
75	2	37		
76	1	38		
77	2	2750		
KL-78	nd	1080		

REMARKS

All values are reported in parts per million unless specified otherwise. All values are believed to be correct to the best knowledge of the analyst based on the method and instruments used.

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MARKING	No	Cu		
KL-79	2	30		
80	2	23		
81	2	22		
82	nd	47		
83	3	63		
84	3	35		
85	2	29		
86	8	124		
87	5	120		
88	2	175		
89	4	37		
90	4	278		
91	3	43		
92	1	1950		
93	5	115		
94	4	27		
95	4	30		
96	2	42		
97	2	68		
KL-98	2	75		

MARKING	No	Cu		
KL-99	2	53		
100	2	72		
01	2	970		
02	4	800		
03	2	600		
04	nd	125		
05	2	64		
06	7	74		
07	2	290		
08	1	35		
109	nd	55		
110	1	15		
11	2	135		
12	1	80		
13	2	112		
14	2	77		
15	4	16		
16	2	115		
KL-117	4	245		

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MARKING	No	Cu		
KL-118	3	150		
19	2	100		
20	4	45		
21	1	20		
22	2	210		
23	1	125		
24	1	200		
25	4	77		
26	20	76		
27	1	172		
28	13	45		
29	4	210		
30	8	90		
31	4	77		
32	4	135		
33	4	50		
34	3	92		
35	2	160		
36	nd	60		
KL-137	2	120		

MARKING	No	Cu		
KL-138	1	105		
39	3	210		
40	4	55		
41	10	155		
42	5	67		
43	2	98		
44	6	37		
45	6	160		
46	5	90		
47	1	32		
48	2	76		
49	1	63		
50	3	165		
51	5	142		
52	3	95		
53	3	70		
54	4	145		
55	4	65		
KL-156	nd	45		
		✓		

REMARKS

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MARKING	No	Cu		
KL-157	nd	115		
58	3	130		
59	8	53		
60	6	115		
61	4	27		
62	6	132		
63	3	30		
64	5	55		
65	nd	61		
66	4	60		
67	2	60		
68	2	70		
69	5	170		
70	3	65		
71	2	150		
72	nd	170		
73	3	81		
74	3	180		
75	3	75		
KL-176	4	48		

MARKING	No	Cu		
KL-177	nd	115		
78	1	130		
79	nd	240		
80	4	420		
81	1	145		
82	nd	130		
83	1	100		
84	5	135		
85	2	65		
86	3	170		
88	1	260		
89	13	95		
90	4	110		
91	7	183		
92	11	55		
93	5	312		
94	7	133		
95	3	185		
KL-196	2	85		

REMARKS

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MARKING	No	Cu		
KL-197	1	150		
98	3	95		
199	4	300		
200	4	80		
01	2	29		
02	4	75		
03	3	75		
04	4	100		
KL-205	2	139		
KL-1801	1	11		
02	1	10		
03	1	41		
KL-1804	2	60		
KL-500	3	170		
01	6	57		
02	6	75		
03	4	480		
04	nd	160		
05	4	4100		
KL-506	2	47		

MARKING	No	Cu		
KL-197	2	90		
08	2	95		
509	3	45		
10	2	115		
11	2	45		
12	2	20		
13	3	27		
14	1	25		
15	1	25		
16	nd	51		
17	1	30		
18	2	43		
19	3	40		
20	1	130		
21	nd	103		
22	2	85		
23	2	71		
24	1	55		
KL-525	nd	160		

REMARKS

All values are reported in parts per million unless specified otherwise. All values are believed to be correct to the best knowledge of the analyst based on the method and instruments used.

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MARKING	No	Cu		
KL-526	3	440		
27	1	30		
28	1	140		
29	4	168		
30	4	115		
31	3	55		
32	8	53		
33	nd	115		
34	6	465		
35	5	95		
36	5	70		
37	6	148		
38	3	62		
39	4	73		
40	1	60		
41	4	34		
42	1	71		
43	4	100		
44	2	51		
KL-545	4	52		

MARKING	No	Cu		
KL-546	nd	53		
47	6	75		
48	4	75		
49	3	72		
50	3	72		
51	2	98		
52	2	63		
53	2	105		
54	2	225		
55	5	125		
56	nd	130		
57	3	41		
58	4	160		
59	3	135		
60	3	90		
61	4	220		
62	4	117		
63	1	35		
KL-564	1	85		

REMARKS

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COMPANY

Pacific Petroleum Ltd.

REPORT NO.

70-73-008

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MARKING	No	Cu		
KL-565	1	32		
66	3	47		
67	nd	40		
68	10	25		
69	2	240		
70	1	70		
71	15	95		
72	3	23		
73	2	35		
74	2	93		
75	2	70		
76	2	165		
77	nd	108		
78	3	115		
79	6	203		
80	2	85		
81	nd	160		
82	3	165		
83	3	135		
KL-584	2	170		

REMARKS

MARKING	No	Cu		
KL-585	1	97		
86	5	180		
87	2	80		
88	3	102		
89	2	62		
90	4	355		
91	2	360		
92	3	75		
93	nd	65		
94	3	300		
95	2	85		
96	2	25		
97	2	55		
98	3	135		
599	nd	10		
600	2	24		
01	3	65		
02	1	17		
KL-603	4	90		

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MARKING	No	Cu
KL-604	5	95
05	3	53
06	3	61
07	3	40
08	1	47
609	2	110
610	nd	72
11	2	45
12	1	107
13	nd	80
14	2	162
15	nd	233
16	2	215
17	3	210
18	2	75
19	3	430
20	1	225
21	nd	103
22	nd	92
KL-623	3	76

MARKING	No	Cu
KL-624	4	137
25	1	95
26	1	165
27	5	230
28	3	40
29	2	100
30	1	27
31	4	45
KL-632	10	190

REMARKS

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1521 PEMBERTON AVENUE NORTH VANCOUVER, B.C., CANADA TELEPHONE 604-988-2172

GEOCHEMICAL ANALYTICAL REPORT

RECEIVED
OCT 1 1970
VANCOUVER OFFICE
Minerals Exploration

REPORT No. 70-73-008 B DATE September 30, 1970
 SAMPLES SUBMITTED BY COMPANY Pacific Petroleum Ltd.
 SHIPPED VIA delivered FROM
 REPORT ON 341 samples for Zn DATE SAMPLES ARRIVED from report no. 70-73-008

* * *

COPIES OF THIS REPORT SENT TO:

TRANSMITTED BY:

(1) Pacific Petroleum Ltd., Vancouver, B.C.mail

(2)

(3)

SAMPLES SIFTED OR GROUND TO -80 MESH WEIGHT USED 0.50 g
 FINAL VOLUME 10 ml ALIQUOT USED n/a

* * *

METHOD OF ANALYSIS: Instrumental - Atomic AbsorptionEXTRACTION: HClO₄ - HNO₃DETECTION: Techtron AA4 and AA5SAMPLES ASSIGNMENT: (a) PREPARED SAMPLES: re-filed(b) REJECTS: n/a

* * *

ANALYST(S) TYPIST ati.SUPERVISING CHEMIST L.J. Nicol CHECKED BY C. CHEN

COSTS:

SHIPPING CHARGE	\$ <u>0</u>
SAMPLE PREPARATION	\$ <u>Charge</u>
ANALYSIS	\$ <u>Charge</u>
OTHER	\$ <u>Charge</u>
TOTAL	\$ <u>Charge</u>

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NORTH VANCOUVER, B.C. CANADA

TELEPHONE 604-988-2172

COMPANY Pacific Petroleum Ltd.REPORT No. 70-73-006 BPAGE 1 OF 9

MARKING	Zn			MARKING	Zn		
KL - 1	135						
2	140			KL - 21	85		
3	80			22	84		
4	115			23	116		
5	209			24	185		
6	170			25	121		
7	140			26	138		
8	140			27	1320		
9	94			28	1420		
10	1131			29	40		
11	130			30	35		
12	237			31	99		
13	210			32	30		
14	140			33	60		
15	108			34	35		
16	110			35	84		
17	69			36	50		
18	42			37	37		
19	19			38	50		
KL - 20	106			KL - 39	65		

REMARKS

Vancouver Geochemical Laboratories Ltd.

1521 PEMBERTON AVENUE

NORTH VANCOUVER, B.C. CANADA

TELEPHONE 604-988-2172

COMPANY Pacific Petroleum Ltd.REPORT No. 70-73-008 BPAGE 2 OF 9

MARKING	Zn				MARKING	Zn			
KL - 40	44								
41	46				KL - 60	1280			
42	86				61	1480			
43	220				62	465			
44	80				63	860			
45	54				64	135			
46	1460				65	270			
47	700				66	34			
48	50				67	30			
49	27				68	20			
50	42				69	7			
51	60				70	50			
52	59				71	30			
53	460				72	51			
54	40				73	270			
55	36				74	49			
56	254				75	32			
57	45				76	52			
58	43				77	1250			
KL - 59	60				KL - 78	800			

REMARKS

Vancouver Geochemical Laboratories Ltd.

1521 PEMBERTON AVENUE

NORTH VANCOUVER, B.C. CANADA

TELEPHONE 604-988-2172

COMPANY Pacific Petroleum Ltd.REPORT No. 70-73-008 BPAGE 3 OF 9

MARKING	Zn				MARKING	Zn			
KL - 79	44								
80	40				KL - 99	64			
81	44				100	95			
82	43				1	430			
83	85				2	470			
84	30				3	300			
85	46				4	120			
86	42				5	60			
87	115				6	87			
88	190				7	230			
89	41				8	60			
90	100				9	34			
91	60				10	24			
92	800				11	62			
93	160				12	50			
94	55				13	34			
95	60				14	36			
96	61				15	30			
97	62				16	100			
KL - 98	65				KL - 117	155			

REMARKS

Vancouver Geochemical Laboratories Ltd.

1521 PEMBERTON AVENUE NORTH VANCOUVER, B.C. CANADA TELEPHONE 604-988-2172

COMPANY Pacific Petroleum Ltd.

REPORT No. 70-73-008 B

PAGE 4 OF 9

MARKING	Zn			
KL - 118	400			
19	138			
20	67			
21	75			
22	1600			
23	2000			
24	1200			
25	91			
26	540			
27	1380			
28	1880			
29	1660			
30	1680			
31	134			
32	460			
33	155			
34	154			
35	385			
36	60			
KL - 137	64			

MARKING	Zn			
KL - 138	95			
39	195			
40	63			
41	115			
42	80			
43	60			
44	70			
45	26			
46	64			
47	40			
48	50			
49	72			
50	200			
51	116			
52	250			
53	76			
54	235			
55	156			
KL - 156	180			

REMARKS

Vancouver Geochemical Laboratories Ltd.

1521 PEMBERTON AVENUE

NORTH VANCOUVER, B.C. CANADA

TELEPHONE 604-988-2172

COMPANY Pacific Petroleum Ltd.70-73-008 B
REPORT No. PAGE 5 OF 9

MARKING	Zn				MARKING	Zn			
KL - 157	500								
58	680				KL - 177	75			
59	285				78	128			
60	800				79	220			
61	95				80	315			
62	770				81	205			
63	46				82	86			
64	136				83	129			
65	95				84	265			
66	80				85	160			
67	85				86	340			
68	205				88	310			
69	158				89	450			
70	64				90	236			
71	145				91	405			
72	100				92	78			
73	57				93	174			
74	114				94	139			
75	89				95	360			
KL - 176	65				KL - 196	315			

REMARKS

Vancouver Geochemical Laboratories Ltd.

1521 PEMBERTON AVENUE

NORTH VANCOUVER, B.C. CANADA

TELEPHONE 604-988-2172

COMPANY Pacific Petroleum Ltd.REPORT No. 70-73-008BPAGE 6 OF 9

MARKING	Zn				MARKING	Zn			
KL - 197	62								
98	75				KL - 507	125			
99	212				8	100			
200	137				9	95			
1	75				10	180			
2	125				11	65			
3	218				12	54			
4	150				13	31			
KL - 205	360				14	54			
KL - 1801	54				15	35			
2	24				16	40			
3	41				17	84			
KL - 1804	65				18	70			
KL - 500	710				19	54			
1	340				20	54			
2	900				21	180			
3	1600				22	60			
4	760				23	60			
5	765				24	10			
KL - 506	82				KL - 525	65			

REMARKS

Vancouver Geochemical Laboratories Ltd.

1521 PEMBERTON AVENUE NORTH VANCOUVER, B.C. CANADA TELEPHONE 604-988-2172

COMPANY Pacific Petroleum Ltd.

70-73-008 B
REPORT No. _____ PAGE 7 OF 9

MARKING	Zn				MARKING	Zn			
KL - 526	280								
27	50				KL - 546	110			
28	175				47	125			
29	218				48	90			
30	341				49	74			
31	148				50	60			
32	560				51	76			
33	810				52	46			
34	2400				53	60			
35	580				54	80			
36	410				55	50			
37	930				56	165			
38	112				57	60			
39	190				58	112			
40	70				59	108			
41	59				60	95			
42	122				61	224			
43	85				62	100			
44	58				63	40			
KL - 545	31				KL - 564	128			

REMARKS

Vancouver Geochemical Laboratories Ltd.

1521 PEMBERTON AVENUE

NORTH VANCOUVER, B.C. CANADA

TELEPHONE 604-988-2172

70-73-008 B

COMPANY Pacific Petroleum Ltd.

REPORT No. _____

PAGE 8 OF 9

MARKING	Zn				MARKING	Zn			
KL - 565	90								
66	185				KL - 585	140			
67	118				86	108			
68	330				87	50			
69	2200				88	68			
70	168				89	45			
71	345				90	159			
72	50				91	50			
73	190				92	28			
74	200				93	39			
75	144				94	168			
76	262				95	121			
77	75				96	56			
78	74				97	58			
79	140				98	190			
80	105				99	24			
81	100				600	150			
82	55				1	175			
83	75				2	90			
KL - 584	105				KL - 603	332			

REMARKS

Vancouver Geochemical Laboratories Ltd.

1521 PEMBERTON AVENUE

NORTH VANCOUVER, B.C. CANADA

TELEPHONE 604-988-2172

COMPANY Pacific Petroleum Ltd.REPORT No. 70-73-008 BPAGE 9 OF 9

MARKING	Zn				MARKING	Zn			
KL - 604	215								
5	119				KL - 624	720			
6	180				25	110			
7	70				26	280			
8	85				27	500			
9	104				28	100			
10	210				29	315			
11	460				30	69			
12	560				31	125			
13	70				KL - 632	270			
14	84								
15	64								
16	170								
17	164								
18	60								
19	98								
20	70								
21	100								
22	230								
KL - 623	255								

REMARKS

APPENDIX C

DECLARATION OF EXPENSES

I, W. D. Cowan, P.Eng., do hereby declare that the following are the direct costs of the geological and geochemical surveys conducted on the Kelsal Claim Group during the period September 10th., to September 24, 1970:

1. Wages

W. D. Cowan: field, September 10 - 24 travel, 2 days report preparation, 2 days	
Total: 19 days @ \$1,000/month	\$ 633.33
M. Linn: field, September 10 - 24 travel, 2 days plotting of data, 4 days	
Total: 21 days @ \$750/month	525.00

2. Travel Expenses

Vancouver to Whitehorse and return (CPA)	332.00
Whitehorse to Kelsall Lake and return (GNA)	334.00
Room and Board, Whitehorse, 3 days	70.00

3. Camp Costs

2 men, 15 days @ \$10 per man per day	600.00	<i>300</i>
<i>2 x 15 x 10 = 300</i>		

4. Supplies and Reproduction Costs

Stationery, maps, aerial photos, map and report reproduction	100.00
--	--------

5. Analyses of Samples

341 samples for Cu, Mo, Zn, Vancouver Geochemical Laboratories Ltd.	579.70
---	--------

Total

2,874.03
~~\$3,174.03~~

APPENDIX D

STATEMENTS OF QUALIFICATIONS

I, Robert Burton Rowe, do hereby certify:

1. That I am a Professional Engineer registered by The Association of Professional Engineers of the Province of British Columbia.
2. That I am a graduate in geology of the Universities of Western Ontario (B.Sc., 1947), Toronto (M.A., 1948), and Wisconsin (Ph.D., 1951).
3. That I have practised the profession of geology for 19 years.
4. That I am an employee of Pacific Petroleum Ltd., with offices at #408 - 580 Granville Street, Vancouver 2.
5. That this report is based on geological and geochemical surveys carried out under my supervision.

Dated this *20th* day of *January*, 1971.

Signed,

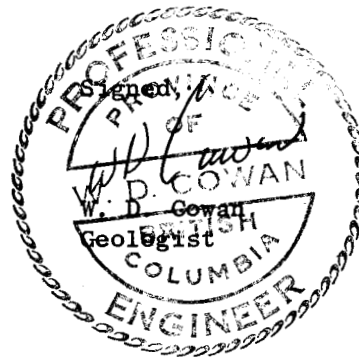


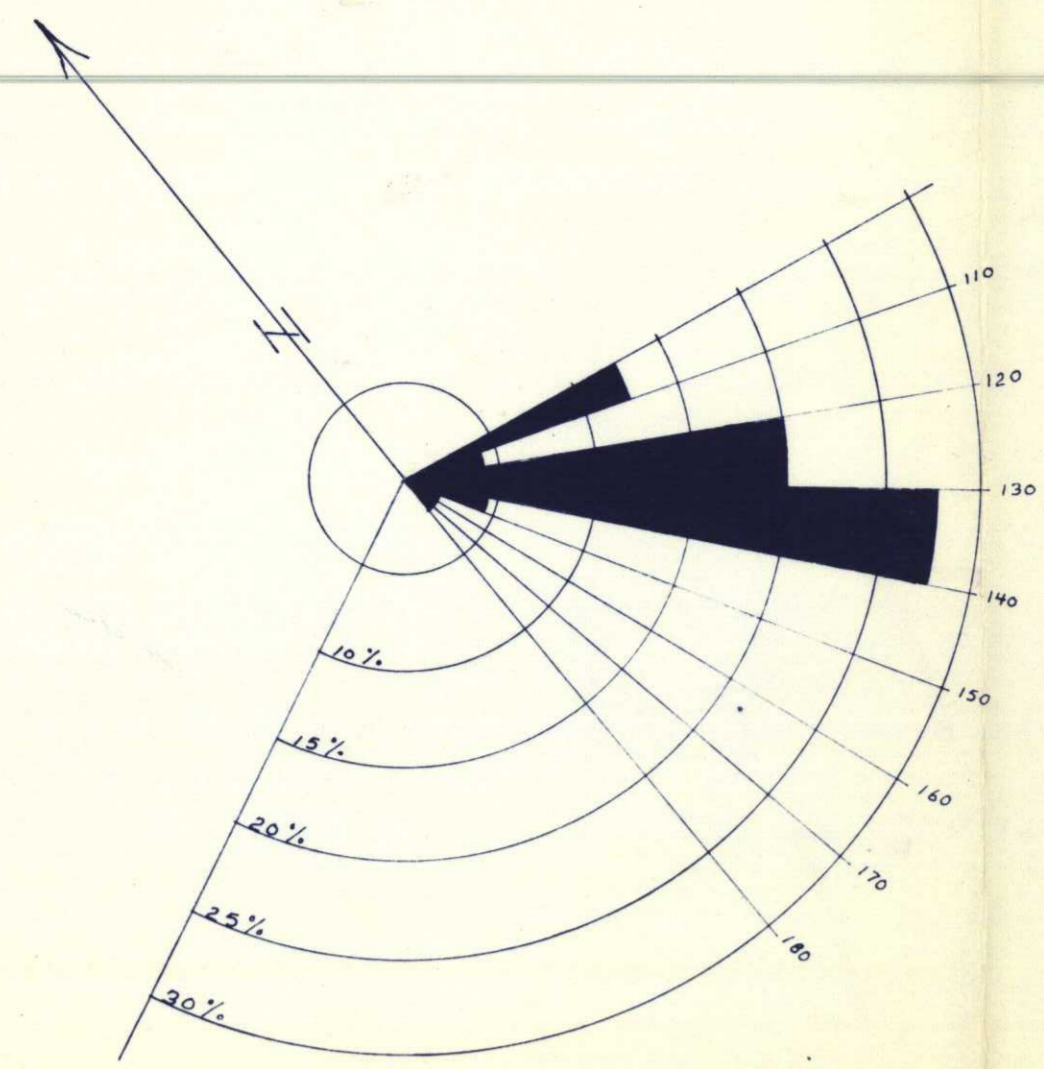
R. B. Rowe
District Mining Geologist

I, William Donovan Cowan, do hereby certify:

1. That I am a Professional Engineer registered by The Association of Professional Engineers of the Province of British Columbia.
2. That I am a graduate in mining engineering of the University of Alberta (B.Sc., 1960), and McGill University (M.Sc., 1969).
3. That I have practised the profession of engineering for 10 years.
4. That I am an employee of Pacific Petroleum Ltd., with offices at #408 - 580 Granville Street, Vancouver 2.
5. That I conducted geological and geochemical surveys that are the basis of this report.

Dated this 20 day of January, 1971.





Rose Diagram— Showing the Strike of Schistosity

LEGEND

- Meta-Andesite — 1A
- Amphibolite — 2
- Siliceous Tuff, Argillite — 3
- Felsite

Mineral Occurrence

- Chalcopyrite — Cp
- Pyrite > 5% — Py
- Epidote — E
- Quartz / Quartz Vein — q/q

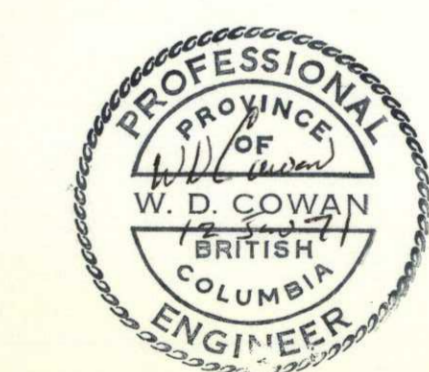
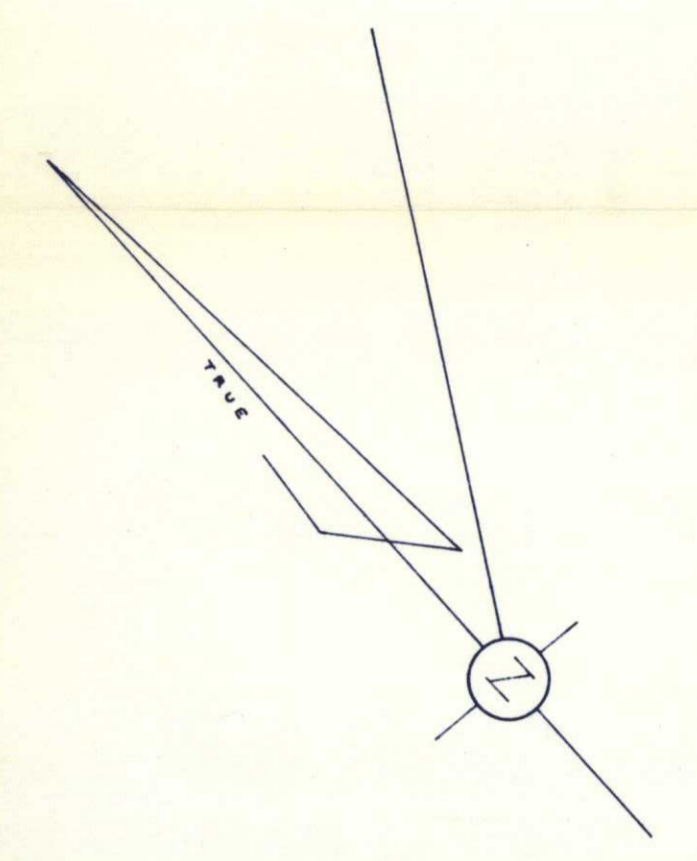
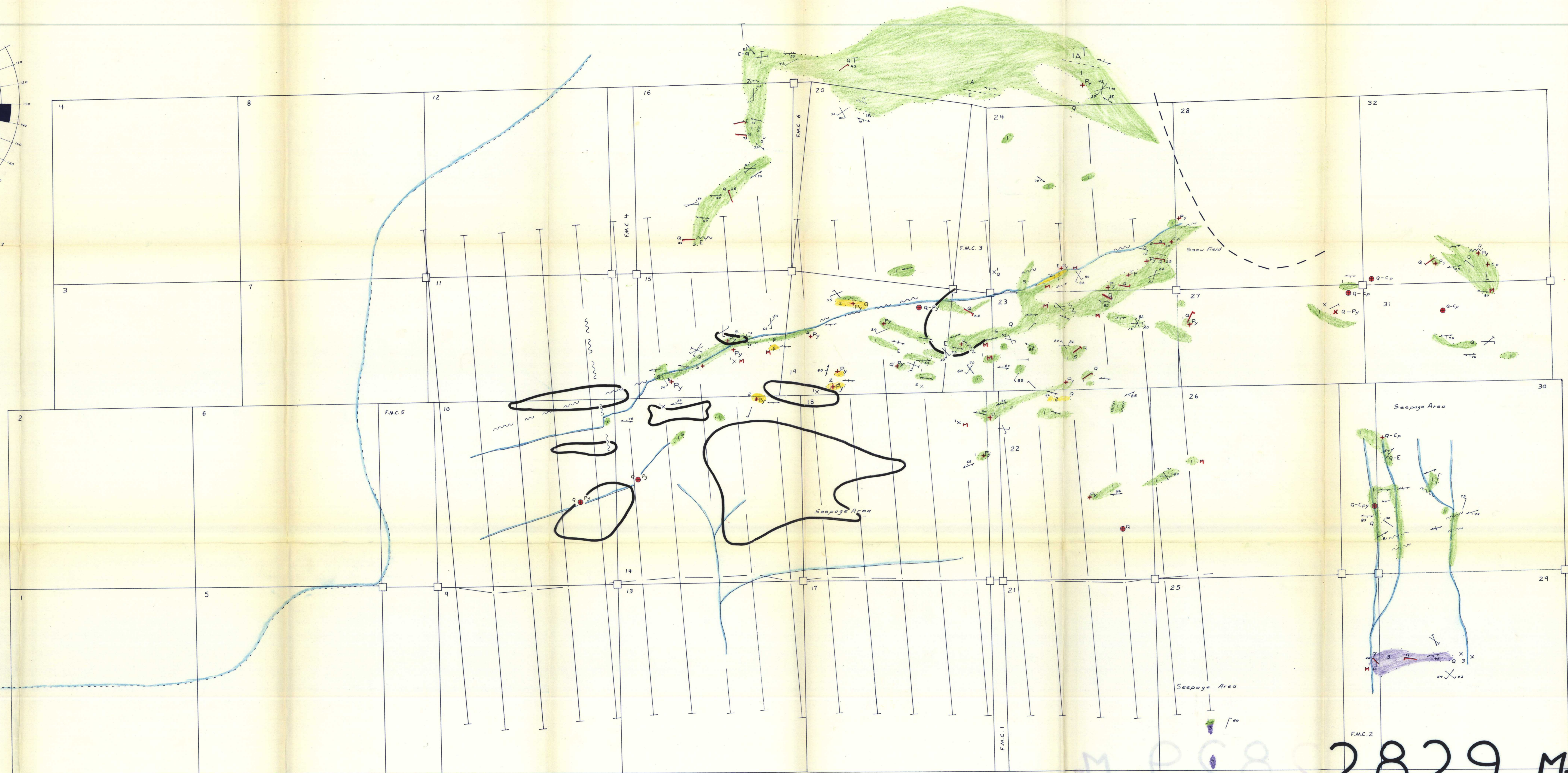
Mineral Occurrence in Float

- Magnetic Rock — M
- Outcrop — X
- Small Outcrop — x

Geologic Boundary

- Small Lens of Map Unit 2 — S
- Foliation — |
- Fracture / Joint — |
- Fault / Shear — |
- End Moraine — |
- Claim Post — |
- Claim Line — |
- Picketed Line — |
- Lake — |
- Stream — |
- I.P. Anomaly — |

Scale: 1 inch = 300 feet



*R.B. Rowe
Jan 11, 1971*

FIGURE 3
To Accompany Geological and Geochemical Report on the Kelsal Claim Group located at Kelsal Lake, 59°52'N - 136°30'W, Atlin Mining Div., by R.B. Rowe and W.D. Cowan dated Jan. 11, 1971.

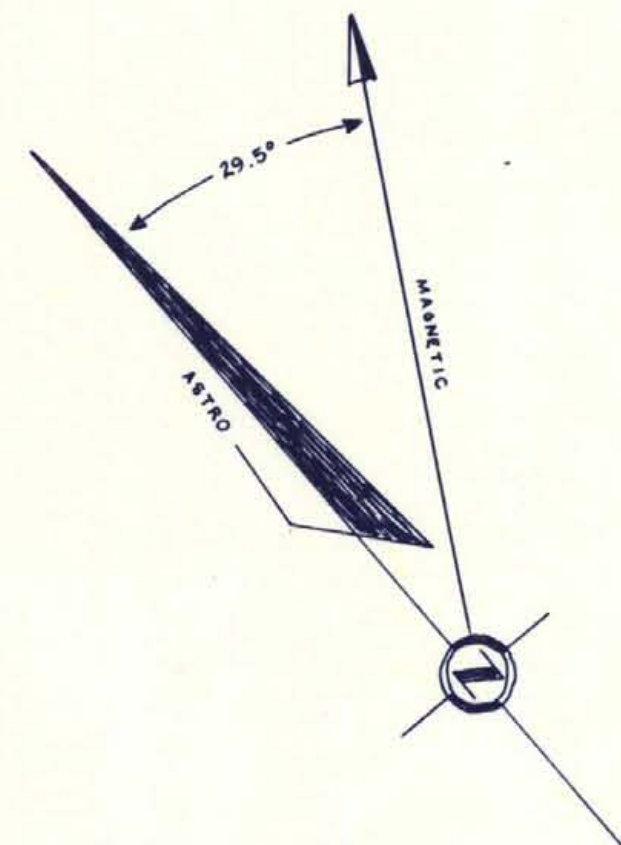
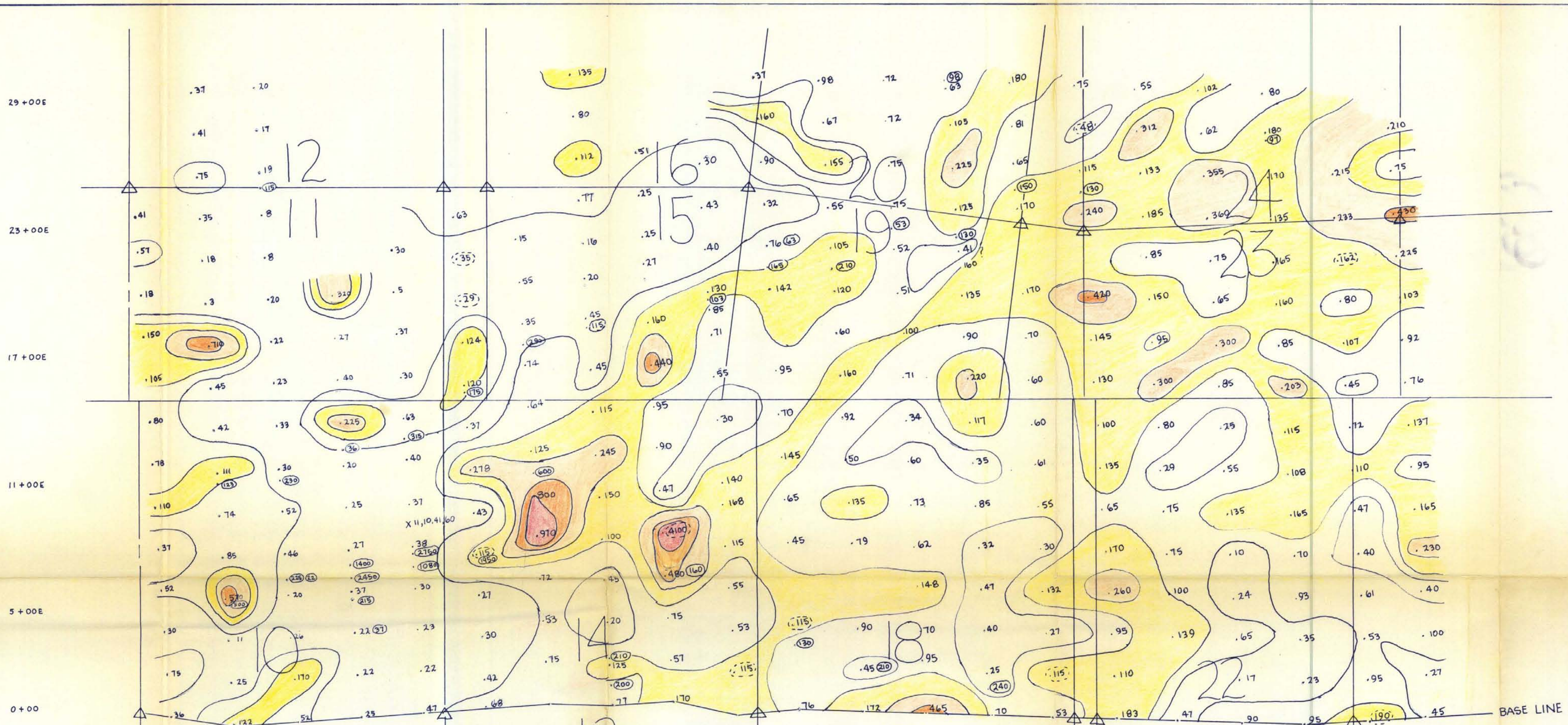
MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 2829 M-3

PACIFIC PETROLEUMS LTD.

Geological Map of The Kelsal Claims to Accompany the Geological Report on the Kelsal Claims, Atlin Mining Division, B.C. by W.D. Cowan P.Eng.

Drawn: *W.D. Cowan* Date: *12 Jan 71*
Checked: _____ Figure **3**

M P 585 2829 M-3



300 150 0 300 600
Scale in Feet

LEGEND

- (160) Silt Sample
- (190) High organic content
- Claim line
- △ Claim post

Copper (ppm) in Soils

- > 800 ppm
- 400 - 800 ppm
- 200 - 400 ppm
- 100 - 200 ppm
- 50 - 100 ppm
- < 50 ppm

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 2829 M-7

2829 M-7

KELSALL LAKE CLAIM GROUP
Copper (ppm) in Soils

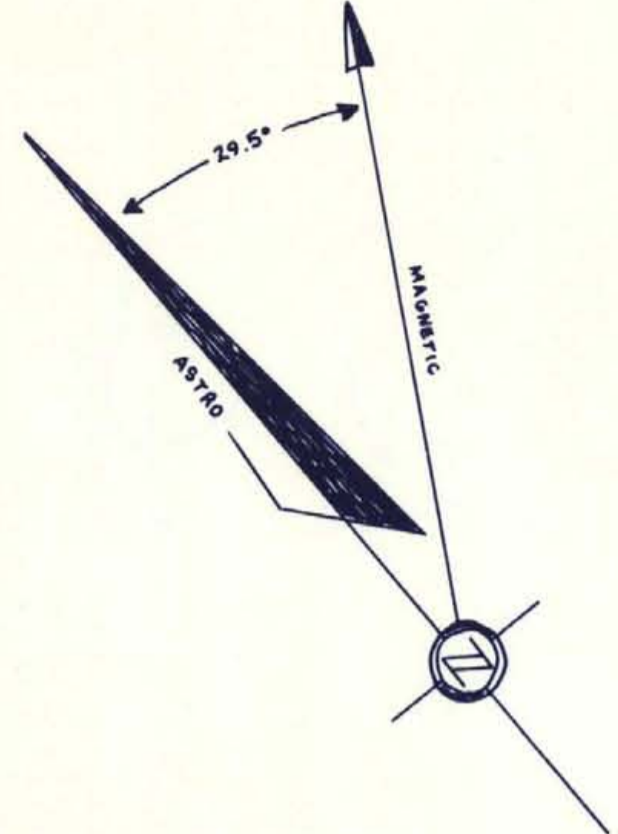
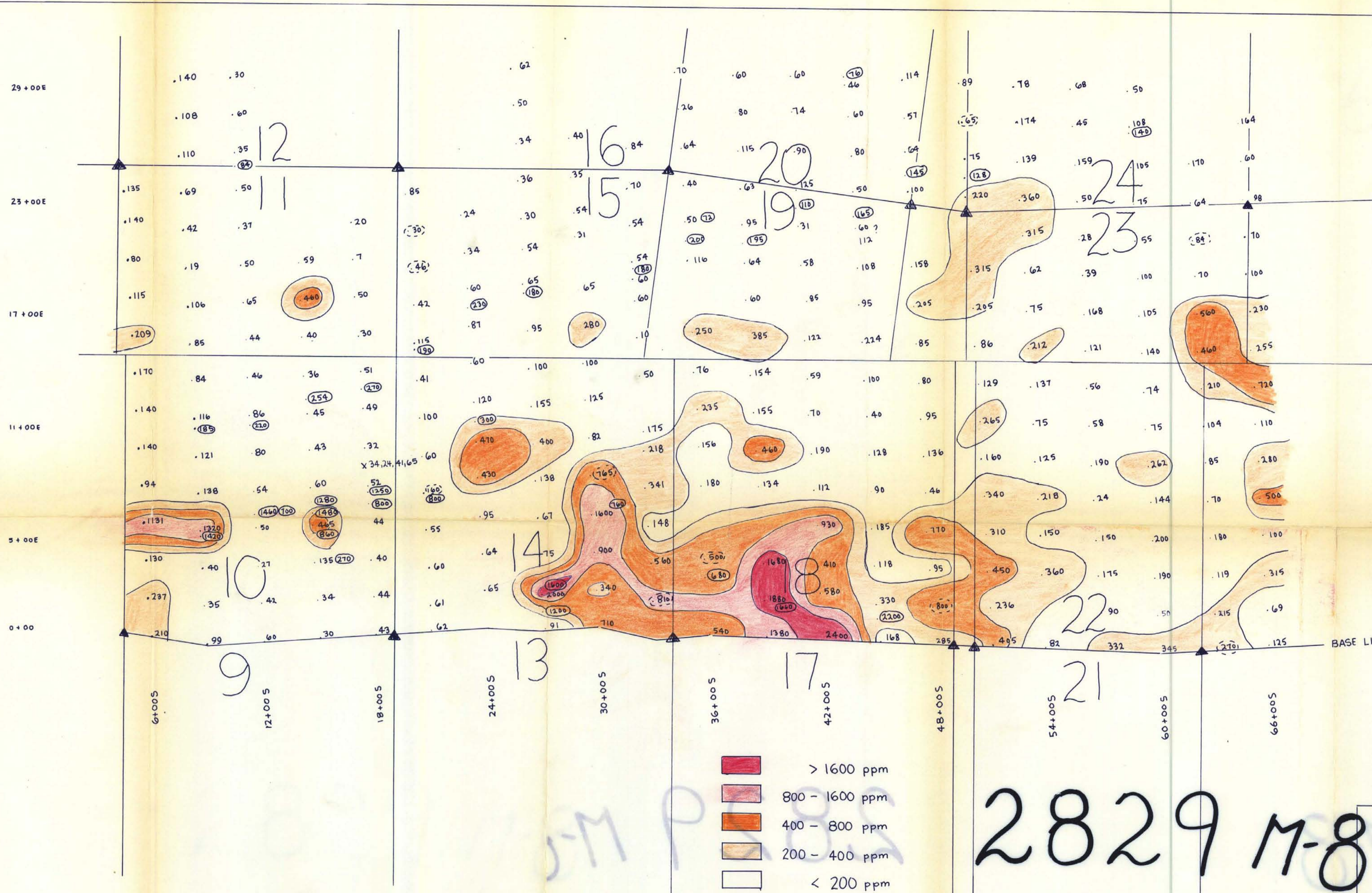


R.B. Rowe Jan 11/71

PACIFIC PETROLEUMS LTD.
KELSALL CLAIMS
ATLIN MINING DIVISION - BRITISH COLUMBIA, CANADA
Copper (ppm) in Soils

SEPT. 1970	REVISED	DWN. M.J. LINN
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FIGURE 7
To Accompany Geological and Geochemical Report on the Kelsall Claim Group located at Kelsall Lake, 59°52'N - 136°30'W, Atlin Mining Div. by R.B. Rowe and W.D. Cowan dated Jan 11, 1971.



MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 2829 M-8

300 150 0 300 600
Scale in Feet

LEGEND
 (160) Silt Sample
 (190) High organic content
 — Claim line
 ▲ Claim post

> 1600 ppm
 800 - 1600 ppm
 400 - 800 ppm
 200 - 400 ppm
 < 200 ppm

2829 M-8

KELSALL LAKE CLAIM GROUP

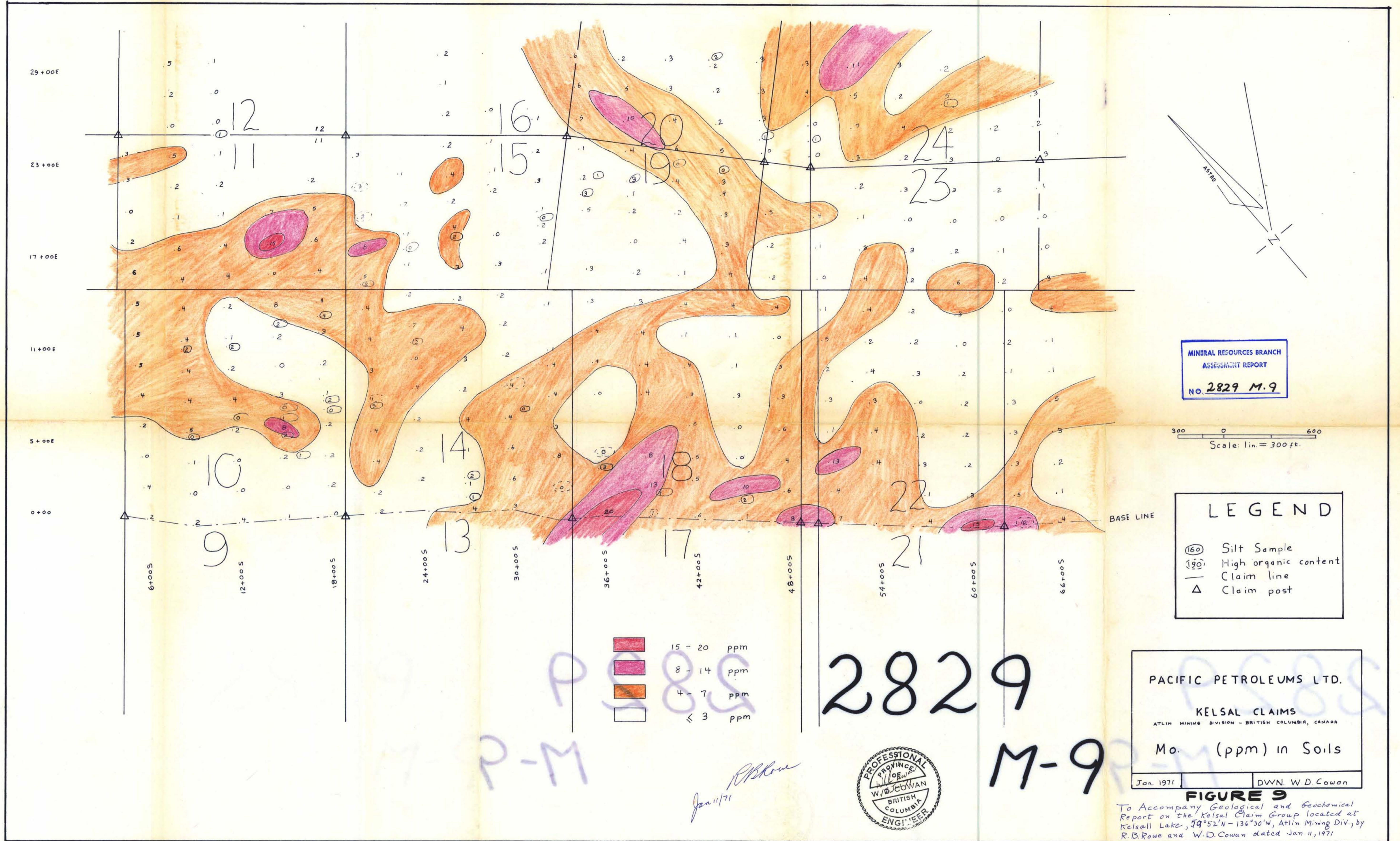


PACIFIC PETROLEUMS LTD.
 KELSALL CLAIMS
 ATLIN MINING DIVISION - BRITISH COLUMBIA, CANADA
 Zinc (ppm) in Soils
 OCT. 1970 REVISED DWN. M. J. LINN

FIGURE 8

To Accompany Geological and Geochemical Report on the Kelsall Claim Group located at Kelsall Lake, 59°52'N - 136°30'W, Atlin Mining Div. by R.D. Rowe and W.D. Cowan, dated Jan. 11, 1971.

R.D. Rowe
Jan 11/71



MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 2829 M.9

300 0 600
Scale: 1 in = 300 ft.

LEGEND
 (160) Silt Sample
 (190) High organic content
 — Claim line
 Δ Claim post

15 - 20 ppm
 8 - 14 ppm
 4 - 7 ppm
 ≤ 3 ppm

2829

M-9

PACIFIC PETROLEUMS LTD.
 KELSAL CLAIMS
 ATLIM MINING DIVISION - BRITISH COLUMBIA, CANADA
 Mo. (ppm) in Soils
 Jan. 1971 DWN. W.D. Cowan



R.B. Rowe
 Jan 11/71

FIGURE 9
 To Accompany Geological and Geochemical Report on the Kelsal Claim Group located at Kelsal Lake, 59°52'N - 136°30'W, Atlin Mining Div., by R.B. Rowe and W.D. Cowan dated Jan 11, 1971