COMINCO LTD.

EXPLORATION WESTERN DISTRICT

REPORT ON TRENCHING AND SOIL GEOCHEMISTRY

ST. JOE GROUP

Fort Steele Mining Division

Cranbrook Area

N.T.S. 82G/5

Lat: 49° 29' Long: 115° 55'

OWNER

COMINCO LTD.

Kootenay Exploration
1051 Industrial Road No. 2
Cranbrook, B.C.
V1C 4K7

Work Performed during June & July, 1982

Report by:

M. Waskett-Myers
Technician III

Under the Supervision of:

D. Anderson
Project Geologist

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REPORT ON TRENCHING AND SOIL GEOCHEMISTRY

ST. JOE GROUP

FORT STEELE MINING DIVISION

1.00 SUMMARY

The St. Joe geochemical program consisted of two grids. One grid was the geophysical grid and hence the spacing was fairly wide. The second grid was more detailed.

The St. Joe geochemical grids cover the southern part of the St. Joe group (36 units). The claims are 10 km S.W. of Cranbrook.

A total 1087 soil samples were collected and analyzed for Pb, Zn and As at Cominco's lab in Vancouver.

Statistical analysis was carried out on the trace element values. Histogram data for Pb, Zn and As; log transform histograms and cumulative probability plots for Pb, Zn and As are included in the report.

Expenditures on this survey were $9,753.45 for the geochemistry and $6,572.00 for the trenching.

2.00 INTRODUCTION

2.10 Property Definition

The St. Joe group is owned by Louis and Greg Pommier. The property is under option to Cominco, the work was performed by Kootenay Exploration (Cominco Ltd.).

2.20 Location and Access

The St. Joe geochemical grids are located approximately 10 km SW of Cranbrook. Access is via the number 3 highway to Fassiferne then by 4 wheel drive road to the property.

2.30 Topography and Vegetation

The survey grids are situated in an area of moderate relief at elevations of 1050 meters to 1375 meters above sea level.

The area is covered by lodgepole pine, fir and Larch with scrub brush in some areas.

2.40 Objectives

The geochemical survey and trenching was undertaken to explore for Pb/Zn deposits in Precambrian rocks of the Aldridge formation.

3.00 GEOCHEMISTRY

3.10 Sampling Procedure

In the case of the main grid the geophysical lines were followed and sampled every 50 meters using the geophysical survey sites as sampling sites. The detailed grid was established by running a base line due south for 1 kilometer. Lines were run at 100 meter intervals from the base line. These lines ran due west and were 1200 meters in length. The detailed grid samples were collected at 25 meter intervals.

The samples were collected from the 'B' horizon at depths of 10 to 20 centimeters, using a shovel.

3.20 Analytical Procedures

One half gram of -80 mesh soil is weighed into a test tube, 5 mls of 20% HNO_3 is added. The samples are digested for 90 minutes in a water bath at 95° C (samples are shaken every 15 minutes). After digestion the sample is made up to 10 mls with deionised water shaken and run on the A.A. for Pb, Zn. Background correction is used for Pb determinations. Arsenic is determined using a dry pyrosulphate fussion, hydride generation and colorimetry.

3.30 Conclusions

The geochemistry program extended and delineated a previously found anomaly, this anomaly was trenched in 1982.

Other anomalies found in 1982 have not been fully investigated.

4.00. TRENCHING

Three trenches were dug at the St. Joe property, in July 1982. Approximate physical dimensions are:

1. 20 m x 100 m = 2000 sq. meters.
2. 50 m x 30 m = 1500 sq. meters.
3. 50 m x 15 m = 750 sq. meters.

For a total of 4250 sq. meters. Access roads to the 3 trenches amounts to a total of 2750 sq. meters.

Report by: M Waskett-Myers
M. WASKETT-MYERS
Technician

Endorsed by:
D. ANDERSON, P.Eng.
Project Geologist

Approved for Release by: John Hamilton
J.M. HAMILTON, P.Eng.
Chief Geologist
Kimberley

xc: Mining Recorder (2 copies) ✓
Western District, Exploration
Kootenay Exploration

MAIN GRID

ST. JOE
HISTOGRAM DATA FOR LEAD

CLASS	LIMITS	*	FREQ	%FREQ	CUM	CUM%
1	LESS THAN	0.79	0	0.0	613	100.00
2	0.79TO	0.94	0	0.0	613	100.00
3	0.94TO	1.12	0	0.0	613	100.00
4	1.12TO	1.33	0	0.0	613	100.00
5	1.33TO	1.59	0	0.0	613	100.00
6	1.59TO	1.89	0	0.0	613	100.00
7	1.89TO	2.24	11	1.8	613	100.00
8	2.24TO	2.67	0	0.0	602	98.21
9	2.67TO	3.17	0	0.0	602	98.21
10	3.17TO	3.77	0	0.0	602	98.21
11	3.77TO	4.48	8	1.3	602	98.21
12	4.48TO	5.32	16	2.6	594	96.90
13	5.32TO	6.33	15	2.4	578	94.29
14	6.33TO	7.52	32	5.2	563	91.84
15	7.52TO	8.94	33	5.4	531	86.62
16	8.94TO	10.63	62	10.1	498	81.24
17	10.63TO	12.63	48	7.8	436	71.13
18	12.63TO	15.01	69	11.3	388	63.30
19	15.01TO	17.84	35	5.7	319	52.04
20	17.84TO	21.20	73	11.9	284	46.33
21	21.20TO	25.20	50	8.2	211	34.42
22	25.20TO	29.94	36	5.9	161	26.26
23	29.94TO	35.59	40	6.5	125	20.39
24	35.59TO	42.29	27	4.4	85	13.87
25	42.29TO	50.26	20	3.3	58	9.46
26	50.26TO	59.74	10	1.6	38	6.20
27	59.74TO	70.99	9	1.5	28	4.57
28	70.99TO	84.37	6	1.0	19	3.10
29	84.37TO	100.27	5	0.8	13	2.12
30	100.27TO	119.16	2	0.3	8	1.31
31	119.16TO	141.62	0	0.0	6	0.98
32	141.62TO	168.30	3	0.5	6	0.98
33	168.30TO	200.02	2	0.3	3	0.49
34	200.02TO	237.71	1	0.2	1	0.16
35	237.71TO	282.50	0	0.0	0	0.00
36	MORE THAN	282.50	0	0.0	0	0.00

PPM IN INTERVALS OF .074 LOG (BASE 10)UNITS
THERE ARE 34 REGULAR CLASSES ,AN OVERFLOW AND UNDERFLOW CLASS
THE RANGE CONSIDERED IS 8 STD DEVIATIONS CENTRED ON THE GEOMETRIC MEAN
THE CLASS INTERVAL IS APPROX ONE-QUARTER STD DEVIATION

ST. JOE
HISTOGRAM DATA FOR ZINC

CLASS	LIMITS *		FREQ	%FREQ	CUM	CUM%
1	LESS THAN	9.16	0	0.0	613	100.00
2	9.16TO	10.52	1	0.2	613	100.00
3	10.52TO	12.08	1	0.2	612	99.84
4	12.08TO	13.87	1	0.2	611	99.67
5	13.87TO	15.93	0	0.0	610	99.51
6	15.93TO	18.29	5	0.8	610	99.51
7	18.29TO	21.01	3	0.5	605	98.69
8	21.01TO	24.13	5	0.8	602	98.21
9	24.13TO	27.71	8	1.3	597	97.39
10	27.71TO	31.82	8	1.3	589	96.08
11	31.82TO	36.54	7	1.1	581	94.78
12	36.54TO	41.97	8	1.3	574	93.64
13	41.97TO	48.19	18	2.9	566	92.33
14	48.19TO	55.35	19	3.1	548	89.40
15	55.35TO	63.56	27	4.4	529	86.30
16	63.56TO	72.99	41	6.7	502	81.89
17	72.99TO	83.82	33	5.4	461	75.20
18	83.82TO	96.26	55	9.0	428	69.82
19	96.26TO	110.54	56	9.1	373	60.85
20	110.54TO	126.94	66	10.8	317	51.71
21	126.94TO	145.78	71	11.6	251	40.95
22	145.78TO	167.41	60	9.8	180	29.36
23	167.41TO	192.25	49	8.0	120	19.58
24	192.25TO	220.77	30	4.9	71	11.58
25	220.77TO	253.53	18	2.9	41	6.69
26	253.53TO	291.15	8	1.3	23	3.75
27	291.15TO	334.35	7	1.1	15	2.45
28	334.35TO	383.96	4	0.7	8	1.31
29	383.96TO	440.93	2	0.3	4	0.65
30	440.93TO	506.36	2	0.3	2	0.33
31	506.36TO	581.49	0	0.0	0	0.00
32	581.49TO	667.77	0	0.0	0	0.00
33	667.77TO	766.85	0	0.0	0	0.00
34	766.85TO	880.64	0	0.0	0	0.00
35	880.64TO	1011.30	0	0.0	0	0.00
36	MORE THAN	1011.30	0	0.0	0	0.00

PPM IN INTERVALS OF .060 LOG (BASE 10)UNITS
THERE ARE 34 REGULAR CLASSES ,AN OVERFLOW AND UNDERFLOW CLASS
THE RANGE CONSIDERED IS 8 STD DEVIATIONS CENTRED ON THE GEOMETRIC MEAN
THE CLASS INTERVAL IS APPROX ONE-QUARTER STD DEVIATION

ST. JOE
HISTOGRAM DATA FOR ARSENIC

CLASS	LIMITS		FREQ	%FREQ	CUM	CUM%
1	LESS THAN	0.10	0	0.0	613	100.00
2	0.10TO	0.12	0	0.0	613	100.00
3	0.12TO	0.15	0	0.0	613	100.00
4	0.15TO	0.19	0	0.0	613	100.00
5	0.19TO	0.24	0	0.0	613	100.00
6	0.24TO	0.29	0	0.0	613	100.00
7	0.29TO	0.36	0	0.0	613	100.00
8	0.36TO	0.45	0	0.0	613	100.00
9	0.45TO	0.55	0	0.0	613	100.00
10	0.55TO	0.68	0	0.0	613	100.00
11	0.68TO	0.84	0	0.0	613	100.00
12	0.84TO	1.03	103	16.8	613	100.00
13	1.03TO	1.27	0	0.0	510	83.20
14	1.27TO	1.56	0	0.0	510	83.20
15	1.56TO	1.92	0	0.0	510	83.20
16	1.92TO	2.37	67	10.9	510	83.20
17	2.37TO	2.92	0	0.0	443	72.27
18	2.92TO	3.59	96	15.7	443	72.27
19	3.59TO	4.42	72	11.7	347	56.61
20	4.42TO	5.45	52	8.5	275	44.86
21	5.45TO	6.70	48	7.8	223	36.38
22	6.70TO	8.25	73	11.9	175	28.55
23	8.25TO	10.16	30	4.9	102	16.64
24	10.16TO	12.51	20	3.3	72	11.75
25	12.51TO	15.39	15	2.4	52	8.48
26	15.39TO	18.95	9	1.5	37	6.04
27	18.95TO	23.32	8	1.3	28	4.57
28	23.32TO	28.71	3	0.5	20	3.26
29	28.71TO	35.34	4	0.7	17	2.77
30	35.34TO	43.49	4	0.7	13	2.12
31	43.49TO	53.54	4	0.7	9	1.47
32	53.54TO	65.90	0	0.0	5	0.82
33	65.90TO	81.11	2	0.3	5	0.82
34	81.11TO	99.83	1	0.2	3	0.49
35	99.83TO	122.88	1	0.2	2	0.33
36	MORE THAN	122.88	1	0.2	1	0.00

UNITS

THERE ARE 34 REGULAR CLASSES ,AN OVERFLOW AND UNDERFLOW CLASS
THE RANGE CONSIDERED IS 8 STD DEVIATIONS CENTRED ON THE GEOMETRIC MEAN
THE CLASS INTERVAL IS APPROX ONE-QUARTER STD DEVIATION

SUMMARY OF STATISTICS FOR ST. JOE

ELEMENT	NO OF ANALYSES	RANGE	UNITS	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
LEAD	613	217 TO	2 PPM	22.1 (67)	16.3 (74)
ZINC	613	469 TO	10 PPM	121.1 (254)	103.1 (346)
ARSENIC	613	162 TO	2 PPM	6.5 (28)	3.9 (24)

IF YOU WISH TO REPLOT THE HISTOGRAM DATA USE ORDINARY ARITHMETIC GRAPH PAPER AND PLOT THE CONC MID-POINTS AT EQUAL SPACINGS ON THE X-AXIS AND FREQUENCY % ON THE Y AXIS
IF YOU WISH TO REPLOT THE CUMULATIVE PLOT USE GRAPH PAPER WITH ARITHMETIC SCALE FOR PPM LOWER LIMITS AND PROBABILITY SCALE FOR CUMULATIVE %

THREE USEFUL REFERENCES :LEPELTIER,C.1969 A SIMPLIFIED STATISTICAL TREATMENT OF GEOCHEMICAL DATA BY GRAPHICAL REPRESENTATION.ECON GEOLOGY 64(5),P538

SINCLAIR,A.J. 1974 SELECTION OF THRESHOLD VALUES IN GEOCHEMICAL DATA USING PROBABILITY GRAPHS.JOURN. GEOCHEM. EXPLORATION 3 ,P129

SINCLAIR,A.J. 1976 APPLICATIONS OF PROBABILITY GRAPHS IN MINERAL EXPLORATION.SPECIAL VOL 4,ASSOCIATION OF EXPL.GEOCHEMISTS,95 P

ST. JOE

LOG TRANSFORM HISTOGRAM FOR LEAD

FREQUENCY (ARITHMETIC SCALE)

SCALED FOR LARGEST CLASS =100

MID-POINT	FREQ%	0 20 40 60 80 100
282.55	0.0	*
259.19	0.0	*
218.10	0.2	*
183.53	0.3	**
154.43	0.5	***
129.96	0.0	*
109.36	0.3	**
92.03	0.8	****
77.44	1.0	*****
65.17	1.5	*******
54.85	1.6	*******
46.16	3.3	**********
38.85	4.4	**********
32.69	6.5	**********
27.52	5.9	**********
23.16	8.2	**********
19.50	11.9	**********
16.41	5.7	**********
13.82	11.3	**********
11.63	7.8	**********
9.80	10.1	**********
8.25	5.4	**********
6.95	5.2	**********
5.85	2.4	**********
4.93	2.6	**********
4.16	1.3	******
3.51	0.0	*
2.96	0.0	*
2.50	0.0	*
2.11	1.8	********
1.78	0.0	*
1.51	0.0	*
1.27	0.0	*
1.08	0.0	*
0.91	0.0	*
0.84	0.0	*

PPM

NOTE :CONC SCALE IS LOGARITHMIC(INTERVAL=.074),VALUES ARE MID-POINTS OF CLASSES

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
LEAD	613	2 TO 217 ppm	22.1 (67)	16.3 (74)

ST. JOE
LOG TRANSFORM HISTOGRAM FOR ZINC

FREQUENCY (ARITHMETIC SCALE)
SCALED FOR LARGEST CLASS =100

MID-POINT	FREQ%	0 20 40 60 80 100
) 1011.35	0.0	*
943.76	0.0	*
821.83	0.0	*
715.65	0.0	*
623.19	0.0	*
542.68	0.0	*
472.57	0.3	**
411.51	0.3	**
358.35	0.7	***
312.06	1.1	*****
271.74	1.3	******
236.64	2.9	**************
206.07	4.9	************************
179.45	8.0	**
156.27	9.8	***
136.08	11.6	**
118.51	10.8	***
103.20	9.1	***
89.87	9.0	***
78.27	5.4	**************************
68.16	6.7	********************************
59.36	4.4	**********************
51.70	3.1	***************
45.02	2.9	**************
39.21	1.3	******
34.15	1.1	*****
29.74	1.3	******
25.91	1.3	******
22.57	0.8	****
19.66	0.5	***
17.12	0.8	****
14.92	0.0	*
12.99	0.2	*
11.32	0.2	*
9.86	0.2	*
(9.21	0.0	*

PPM
NOTE :CONC SCALE IS LOGARITHMIC(INTERVAL=.060),VALUES ARE MID-POINTS OF CLASSES

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
ZINC	613	10 TO 469 PPM	121.1 (254)	103.1 (346)

ST. JOE
LOG TRANSFORM HISTOGRAM FOR ARSENIC

FREQUENCY (ARITHMETIC SCALE)
SCALED FOR LARGEST CLASS =100

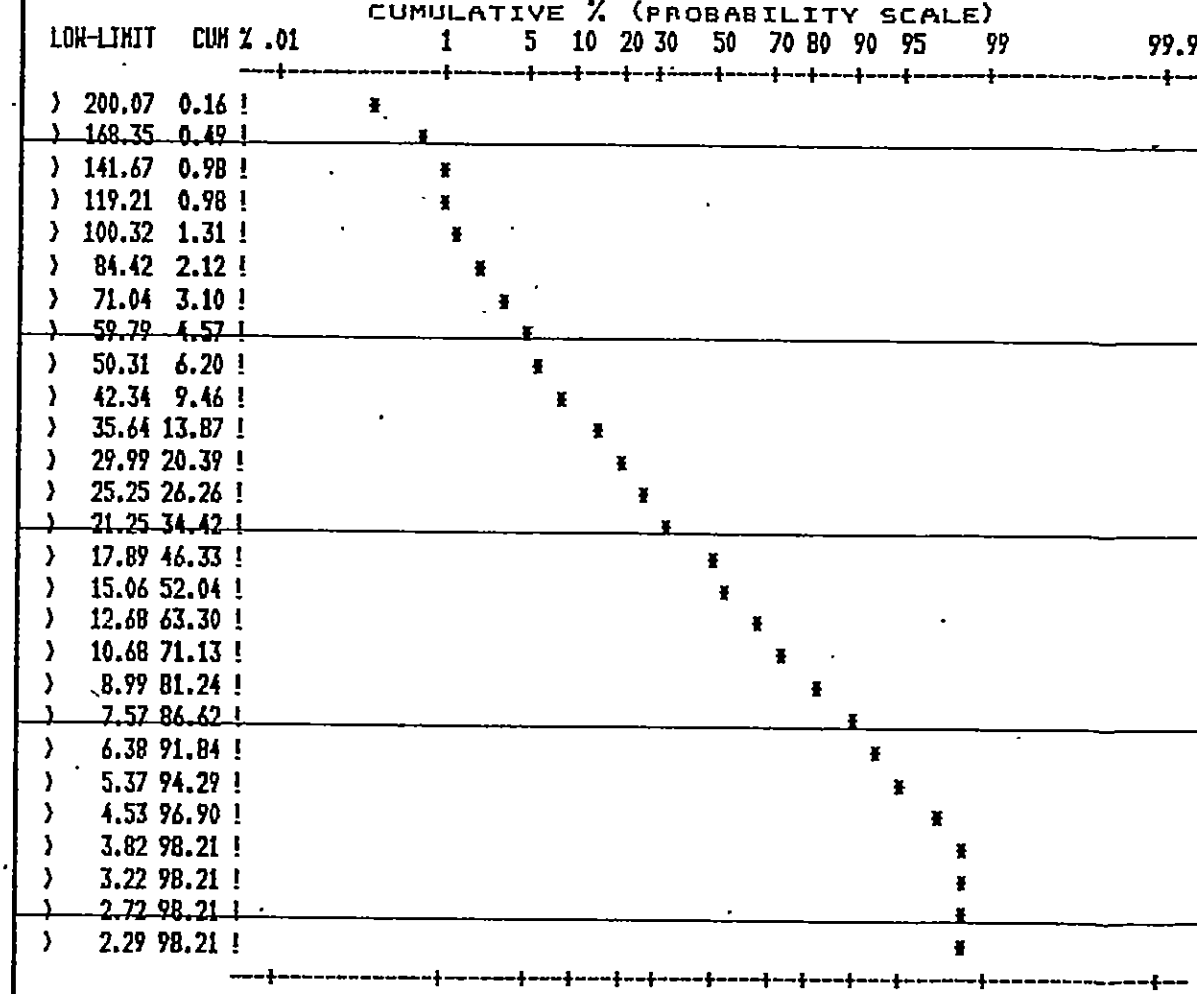
MID-POINT	FREQ%	0 20 40 60 80 100
122.93	0.2	*
110.81	0.2	*
90.03	0.2	*
73.16	0.3	*
59.44	0.0	*
48.30	0.7	**
39.25	0.7	**
31.90	0.7	**
25.93	0.5	**
21.07	1.3	****
17.13	1.5	*****
13.92	2.4	*********
11.32	3.3	**********
9.21	4.9	**********
7.49	11.9	**********
6.09	7.8	**********
4.96	8.5	**********
4.04	11.7	**********
3.29	15.7	**********
2.68	0.0	*
2.19	10.9	**********
1.78	0.0	*
1.46	0.0	*
1.19	0.0	*
0.98	16.8	**********
0.80	0.0	*
0.66	0.0	*
0.55	0.0	*
0.45	0.0	*
0.38	0.0	*
0.31	0.0	*
0.26	0.0	*
0.22	0.0	*
0.19	0.0	*
0.16	0.0	*
0.15	0.0	*

PPM
NOTE :CONC SCALE IS LOGARITHMIC(INTERVAL=.090),VALUES ARE MID-POINTS OF CLASSES

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
ARSENIC	613	(2 TO 162 PPM	6.5 (28)	3.9 (24)

ST. JOE

CUMULATIVE PROBABILITY PLOT FOR LEAD



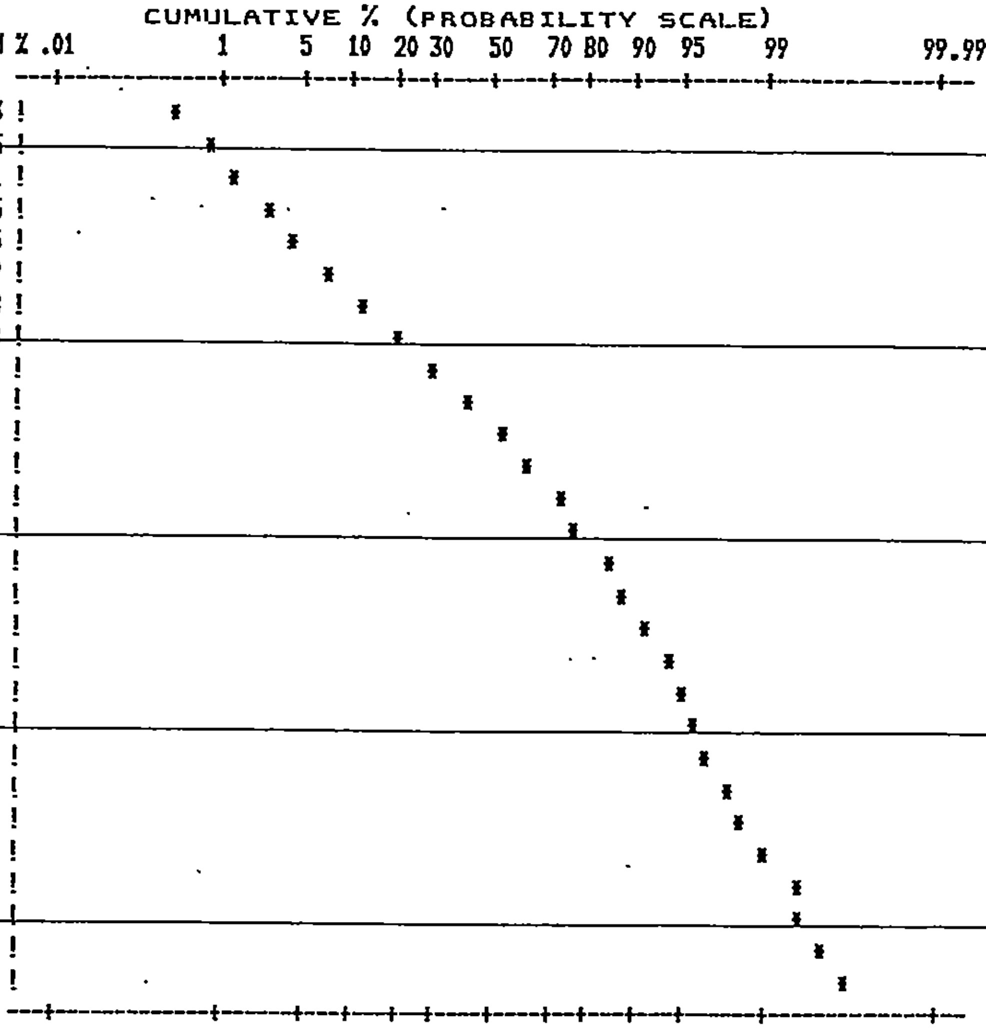
NOTE: CONCENTRATION SCALE IS LOGARITHMIC(INTERVAL=.074),VALUES ARE CLASS LOWER LIMITS

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
LEAD	613	2 TO 217 PPM	22.1 (67)	16.3 (74)

ST. JOE

CUMULATIVE PROBABILITY PLOT FOR ZINC

LOW-LIMIT	CUM %
) 440.98	0.33
) 384.01	0.65
) 334.40	1.31
) 291.20	2.45
) 253.58	3.75
) 220.82	6.69
) 192.30	11.58
) 167.46	19.58
) 145.83	29.36
) 126.99	40.95
) 110.59	51.71
) 96.31	60.85
) 83.87	69.82
) 73.04	75.20
) 63.61	81.89
) 55.40	86.30
) 48.24	89.40
) 42.02	92.33
) 36.59	93.64
) 31.87	94.78
) 27.76	96.08
) 24.18	97.39
) 21.06	98.21
) 18.34	98.69
) 15.98	99.51
) 13.92	99.51
) 12.13	99.67
) 10.57	99.84



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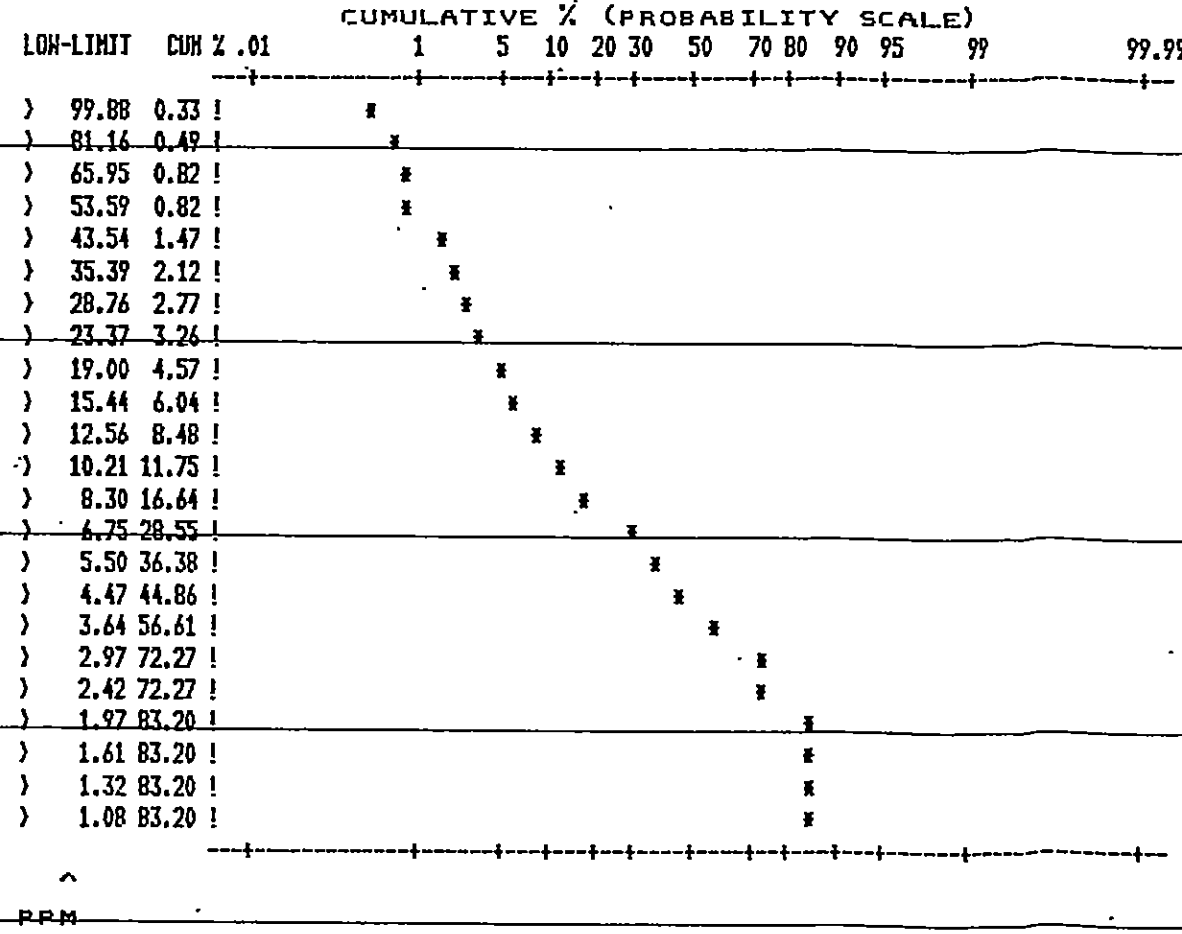
PPM

NOTE: CONCENTRATION SCALE IS LOGARITHMIC(INTERVAL=.060),VALUES ARE CLASS LOWER LIMITS

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
ZINC	613	10 TO 469 PPM	121.1 (254)	103.1 (346)

ST. JOE

CUMULATIVE PROBABILITY PLOT FOR ARSENIC



NOTE: CONCENTRATION SCALE IS LOGARITHMIC(INTERVAL=.090),VALUES ARE CLASS LOWER LIMITS

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
ARSENIC	613	(2 TO 162 PPM	6.5 (28)	3.9 (24)

DETAIL GRID

ST. JOE
HISTOGRAM DATA FOR LEAD

CLASS	LIMITS	*	FREQ	%FREQ	CUM	CUM%
1	LESS THAN	0.69	0	0.0	474	100.00
2	0.69TO	0.83	0	0.0	474	100.00
3	0.83TO	1.00	0	0.0	474	100.00
4	1.00TO	1.20	0	0.0	474	100.00
5	1.20TO	1.45	0	0.0	474	100.00
6	1.45TO	1.74	0	0.0	474	100.00
7	1.74TO	2.10	7	1.5	474	100.00
8	2.10TO	2.53	0	0.0	467	98.52
9	2.53TO	3.04	0	0.0	467	98.52
10	3.04TO	3.66	0	0.0	467	98.52
11	3.66TO	4.41	8	1.7	467	98.52
12	4.41TO	5.31	16	3.4	459	96.84
13	5.31TO	6.39	14	3.0	443	93.46
14	6.39TO	7.69	17	3.6	429	90.51
15	7.69TO	9.25	33	7.0	412	86.92
16	9.25TO	11.13	33	7.0	379	79.96
17	11.13TO	13.40	46	9.7	346	73.00
18	13.40TO	16.12	53	11.2	300	63.29
19	16.12TO	19.40	51	10.8	247	52.11
20	19.40TO	23.34	40	8.4	196	41.35
21	23.34TO	28.09	38	8.0	156	32.91
22	28.09TO	33.80	31	6.5	118	24.89
23	33.80TO	40.67	27	5.7	87	18.35
24	40.67TO	48.94	15	3.2	60	12.66
25	48.94TO	58.89	10	2.1	45	9.49
26	58.89TO	70.87	7	1.5	35	7.38
27	70.87TO	85.27	6	1.3	28	5.91
28	85.27TO	102.61	10	2.1	22	4.64
29	102.61TO	123.47	4	0.8	12	2.53
30	123.47TO	148.58	3	0.6	8	1.69
31	148.58TO	178.78	2	0.4	5	1.05
32	178.78TO	215.13	2	0.4	3	0.63
33	215.13TO	258.87	0	0.0	1	0.21
34	258.87TO	311.50	0	0.0	1	0.21
35	311.50TO	374.82	0	0.0	1	0.21
36	MORE THAN	374.82	1	0.2	1	0.00

* PPM IN INTERVALS OF .080 LOG (BASE 10) UNITS
THERE ARE 34 REGULAR CLASSES ,AN OVERFLOW AND UNDERFLOW CLASS
THE RANGE CONSIDERED IS 8 STD DEVIATIONS CENTRED ON THE GEOMETRIC MEAN
THE CLASS INTERVAL IS APPROX ONE-QUARTER STD DEVIATION

ST. JOE
HISTOGRAM DATA FOR ZINC

CLASS	LIMITS *		FREQ	%FREQ	CUM	CUM%
1	LESS THAN	12.83	0	0.0	474	100.00
2	12.83TO	14.53	0	0.0	474	100.00
3	14.53TO	16.47	0	0.0	474	100.00
4	16.47TO	18.66	0	0.0	474	100.00
5	18.66TO	21.14	1	0.2	474	100.00
6	21.14TO	23.95	3	0.6	473	99.79
7	23.95TO	27.14	7	1.5	470	99.16
8	27.14TO	30.75	6	1.3	463	97.68
9	30.75TO	34.84	4	0.8	457	96.41
10	34.84TO	39.47	3	0.6	453	95.57
11	39.47TO	44.72	6	1.3	450	94.94
12	44.72TO	50.67	5	1.1	444	93.67
13	50.67TO	57.40	15	3.2	439	92.62
14	57.40TO	65.04	21	4.4	424	89.45
15	65.04TO	73.69	16	3.4	403	85.02
16	73.69TO	83.49	24	5.1	387	81.65
17	83.49TO	94.59	47	9.9	363	76.58
18	94.59TO	107.17	34	7.2	316	66.67
19	107.17TO	121.42	42	8.9	282	59.49
20	121.42TO	137.57	46	9.7	240	50.63
21	137.57TO	155.86	47	9.9	194	40.93
22	155.86TO	176.59	48	10.1	147	31.01
23	176.59TO	200.08	39	8.2	99	20.89
24	200.08TO	226.68	21	4.4	60	12.66
25	226.68TO	256.83	18	3.8	39	8.23
26	256.83TO	290.98	13	2.7	21	4.43
27	290.98TO	329.68	5	1.1	8	1.69
28	329.68TO	373.52	2	0.4	3	0.63
29	373.52TO	423.19	1	0.2	1	0.21
30	423.19TO	479.47	0	0.0	0	0.00
31	479.47TO	543.23	0	0.0	0	0.00
32	543.23TO	615.47	0	0.0	0	0.00
33	615.47TO	697.31	0	0.0	0	0.00
34	697.31TO	790.04	0	0.0	0	0.00
35	790.04TO	895.11	0	0.0	0	0.00
36	MORE THAN	895.11	0	0.0	0	0.00

PPM IN INTERVALS OF .054 LOG (BASE 10)UNITS
THERE ARE 34 REGULAR CLASSES ,AN OVERFLOW AND UNDERFLOW CLASS
THE RANGE CONSIDERED IS 8 STD DEVIATIONS CENTRED ON THE GEOMETRIC MEAN
THE CLASS INTERVAL IS APPROX ONE-QUARTER STD DEVIATION

ST. JOE
HISTOGRAM DATA FOR ARSENIC

CLASS	LIMITS	*	FREQ	%FREQ	CUM	CUM%
1	LESS THAN	0.09	0	0.0	474	100.00
2	0.09TO	0.12	0	0.0	474	100.00
3	0.12TO	0.15	0	0.0	474	100.00
4	0.15TO	0.19	0	0.0	474	100.00
5	0.19TO	0.24	0	0.0	474	100.00
6	0.24TO	0.30	0	0.0	474	100.00
7	0.30TO	0.38	0	0.0	474	100.00
8	0.38TO	0.48	0	0.0	474	100.00
9	0.48TO	0.60	0	0.0	474	100.00
10	0.60TO	0.75	0	0.0	474	100.00
11	0.75TO	0.95	0	0.0	474	100.00
12	0.95TO	1.19	57	12.0	474	100.00
13	1.19TO	1.50	0	0.0	417	87.97
14	1.50TO	1.88	0	0.0	417	87.97
15	1.88TO	2.36	56	11.8	417	87.97
16	2.36TO	2.97	0	0.0	361	76.16
17	2.97TO	3.73	45	9.5	361	76.16
18	3.73TO	4.69	43	9.1	316	66.67
19	4.69TO	5.89	44	9.3	273	57.59
20	5.89TO	7.40	64	13.5	229	48.31
21	7.40TO	9.29	42	8.9	165	34.81
22	9.29TO	11.67	24	5.1	123	25.95
23	11.67TO	14.66	22	4.6	99	20.89
24	14.66TO	18.42	32	6.8	77	16.24
25	18.42TO	23.13	12	2.5	45	9.49
26	23.13TO	29.06	16	3.4	33	6.96
27	29.06TO	36.50	2	0.4	17	3.59
28	36.50TO	45.84	7	1.5	15	3.16
29	45.84TO	57.58	3	0.6	8	1.69
30	57.58TO	72.33	2	0.4	5	1.05
31	72.33TO	90.84	0	0.0	3	0.63
32	90.84TO	114.10	1	0.2	3	0.63
33	114.10TO	143.31	1	0.2	2	0.42
34	143.31TO	180.01	1	0.2	1	0.21
35	180.01TO	226.09	0	0.0	0	0.00
36	MORE THAN	226.09	0	0.0	0	0.00

PPM IN INTERVALS OF .098 LOG (BASE 10)UNITS
THERE ARE 34 REGULAR CLASSES ,AN OVERFLOW AND UNDERFLOW CLASS
THE RANGE CONSIDERED IS 8 STD DEVIATIONS CENTRED ON THE GEOMETRIC MEAN
THE CLASS INTERVAL IS APPROX ONE-QUARTER STD DEVIATION

SUMMARY OF STATISTICS FOR ST. JOE

ELEMENT	NO OF ANALYSES	RANGE	UNITS	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
LEAD	474	448 TO	(4 PPM	25.6 (91)	17.6 (89)
ZINC	474	380 TO	21 PPM	130.2 (257)	114.0 (340)
ARSENIC	474	180 TO	(2 PPM	9.0 (37)	5.2 (38)

IF YOU WISH TO REPLOT THE HISTOGRAM DATA USE ORDINARY ARITHMETIC GRAPH PAPER AND PLOT THE CONC MID-POINTS AT EQUAL SPACINGS ON THE X-AXIS AND FREQUENCY % ON THE Y AXIS
IF YOU WISH TO REPLOT THE CUMULATIVE PLOT USE GRAPH PAPER WITH ARITHMETIC SCALE FOR PPM LOWER LIMITS AND PROBABILITY SCALE FOR CUMULATIVE %

THREE USEFUL REFERENCES :LEPELTIER,C.1969 A SIMPLIFIED STATISTICAL TREATMENT OF GEOCHEMICAL DATA BY GRAPHICAL REPRESENTATION.ECON GEOLOGY 64(5),P538
SINCLAIR,A.J. 1974 SELECTION OF THRESHOLD VALUES IN GEOCHEMICAL DATA USING PROBABILITY GRAPHS.JOURN. GEOCHEM. EXPLORATION 3 ,P129
SINCLAIR,A.J. 1976 APPLICATIONS OF PROBABILITY GRAPHS IN MINERAL EXPLORATION.SPECIAL VOL 4,ASSOCIATION OF EXPL.GEOCHEMISTS,95 P

ST. JOE
LOG TRANSFORM HISTOGRAM FOR LEAD

FREQUENCY (ARITHMETIC SCALE)
SCALED FOR LARGEST CLASS =100

MID-POINT	FREQ%	0 20 40 60 80 100
) 374.87	0.2	*
341.75	0.0	*
284.01	0.0	*
236.04	0.0	*
196.17	0.4	**
163.03	0.4	**
135.49	0.6	***
112.61	0.8	****
93.59	2.1	**********
77.79	1.3	******
64.65	1.5	*******
53.74	2.1	**********
44.67	3.2	**********
37.13	5.7	**********
30.86	6.5	**********
25.66	8.0	**********
21.33	8.4	**********
17.73	10.8	**********
14.74	11.2	**********
12.26	9.7	**********
10.20	7.0	**********
8.48	7.0	**********
7.06	3.6	**********
5.87	3.0	**********
4.89	3.4	**********
4.07	1.7	********
3.39	0.0	*
2.82	0.0	*
2.35	0.0	*
1.96	1.5	*******
1.64	0.0	*
1.37	0.0	*
1.15	0.0	*
0.96	0.0	*
0.81	0.0	*
(0.74	0.0	*

PPM
NOTE :CONC SCALE IS LOGARITHMIC(INTERVAL=.080),VALUES ARE MID-POINTS OF CLASSES

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
LEAD	474	(4 TO 448 PPM	25.6 (91)	17.6 (89)

ST. JOE
LOG TRANSFORM HISTOGRAM FOR ZINC

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                        FREQUENCY (ARITHMETIC SCALE)
                             SCALED FOR LARGEST CLASS =100
MID-POINT  FREQ%   0        20        40        60        80       100
                   +----+----+----+----+----+----+----+----+----+----+
 ) 895.16   0.0    *
   840.99   0.0    *
   742.28   0.0    *
   655.16   0.0    *
   578.27   0.0    *
   510.40   0.0    *
   450.50   0.0    *
   397.63   0.2    **
   350.96   0.4    ***
   309.78   1.1    ******
   273.42   2.7    **************
   241.33   3.8    *******************
   213.01   4.4    **********************
   188.02   8.2    *****************************************
   165.95  10.1    ****************************************************
   146.48   9.9    **************************************************
   129.29   9.7    *************************************************
   114.12   8.9    *********************************************
   100.73   7.2    ************************************
    88.92   9.9    **************************************************
    78.48   5.1    **************************
    69.28   3.4    *****************
    61.15   4.4    **********************
    53.98   3.2    ****************
    47.65   1.1    ******
    42.06   1.3    *******
    37.13   0.6    ****
    32.78   0.8    *****
    28.94   1.3    *******
    25.54   1.5    ********
    22.55   0.6    ****
    19.91   0.2    **
    17.58   0.0    *
    15.52   0.0    *
    13.70   0.0    *
 (  12.88   0.0    *
                   +----+----+----+----+----+----+----+----+----+----+
      ^
```

PPM
NOTE :CONC SCALE IS LOGARITHMIC(INTERVAL=.054),VALUES ARE MID-POINTS OF CLASSES

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
ZINC	474	21 TO 380 PPM	130.2 (257)	114.0 (340)

ST. JOE
LOG TRANSFORM HISTOGRAM FOR ARSENIC

FREQUENCY (ARITHMETIC SCALE)
SCALED FOR LARGEST CLASS =100

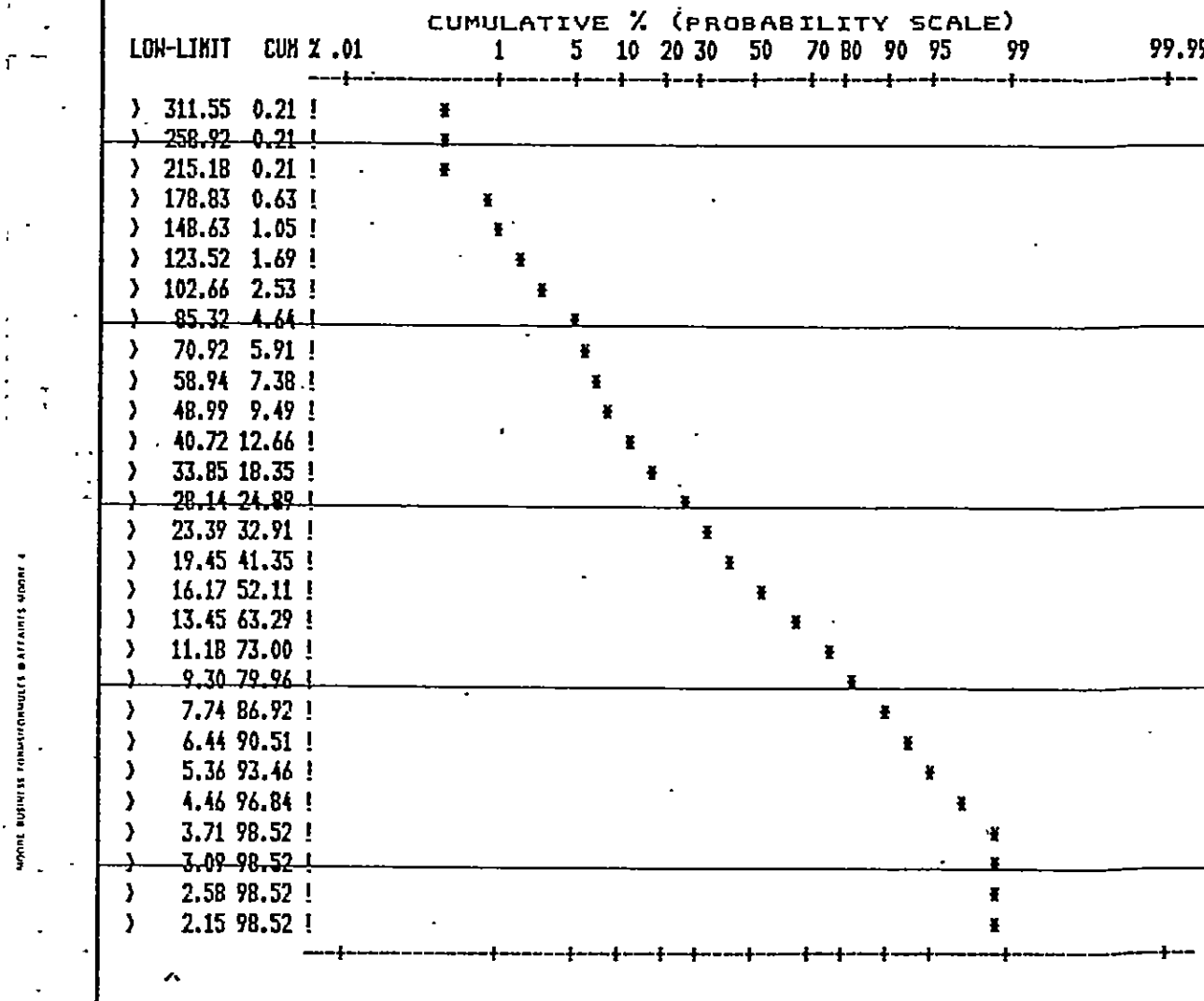
MID-POINT	FREQ%	0 20 40 60 80 100
226.14	0.0	*
201.79	0.0	*
160.67	0.2	*
127.93	0.2	*
101.86	0.2	*
81.11	0.0	*
64.58	0.4	**
51.43	0.6	***
40.96	1.5	******
32.62	0.4	**
25.98	3.4	**************
20.69	2.5	**********
16.48	6.8	*****************************
13.13	4.6	*******************
10.47	5.1	*********************
8.34	8.9	************************************
6.65	13.5	***
5.30	9.3	**************************************
4.23	9.1	*************************************
3.38	9.5	**************************************
2.70	0.0	*
2.16	11.8	**
1.73	0.0	*
1.38	0.0	*
1.11	12.0	**
0.89	0.0	*
0.72	0.0	*
0.58	0.0	*
0.47	0.0	*
0.39	0.0	*
0.32	0.0	*
0.26	0.0	*
0.22	0.0	*
0.18	0.0	*
0.15	0.0	*
0.14	0.0	*

PPM
NOTE :CONC SCALE IS LOGARITHMIC(INTERVAL=.09B),VALUES ARE MID-POINTS OF CLASSES

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
ARSENIC	474	(2 TO 180 PPM	9.0 (37)	5.2 (38)

ST. JOE

CUMULATIVE PROBABILITY PLOT FOR LEAD



PPM

NOTE: CONCENTRATION SCALE IS LOGARITHMIC(INTERVAL=.080),VALUES ARE CLASS LOWER LIMITS

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
LEAD	474	(4 TO 448 PPM	25.6 (91)	17.6 (89)

ST. JOE

CUMULATIVE PROBABILITY PLOT FOR ZINC

CUMULATIVE % (PROBABILITY SCALE)

LOW-LIMIT CUM % .01 1 5 10 20 30 50 70 80 90 95 99 99.99

LOW-LIMIT	CUM %
) 373.57	0.21
) 329.73	0.63
) 291.03	1.69
) 256.88	4.43
) 226.73	8.23
) 200.13	12.66
) 176.64	20.89
) 155.91	31.01
) 137.62	40.93
) 121.47	50.63
) 107.22	59.49
) 94.64	66.67
) 83.54	76.58
) 73.74	81.65
) 65.09	85.02
) 57.45	89.45
) 50.72	92.62
) 44.77	93.67
) 39.52	94.94
) 34.89	95.57
) 30.80	96.41
) 27.19	97.68
) 24.00	99.16
) 21.19	99.79

^

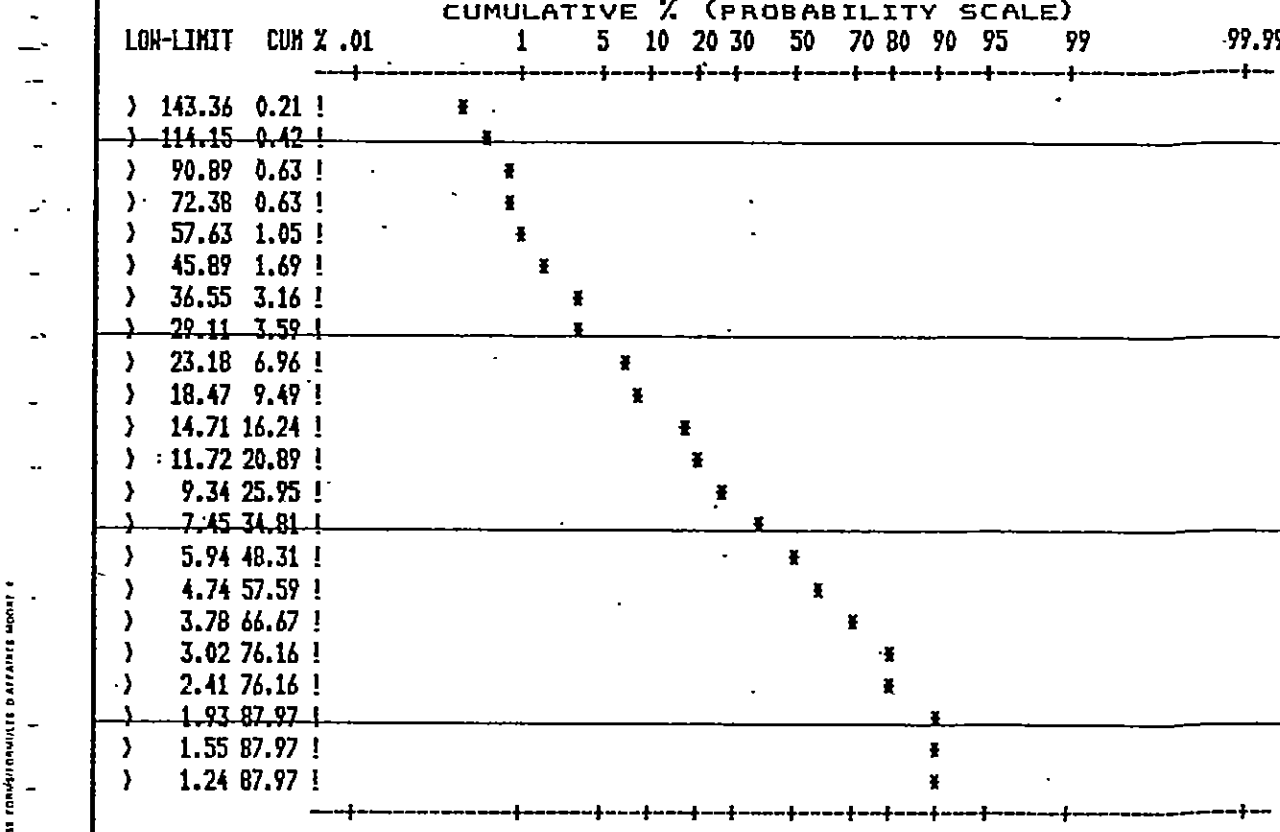
PPM

NOTE: CONCENTRATION SCALE IS LOGARITHMIC(INTERVAL=.054),VALUES ARE CLASS LOWER LIMITS

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
ZINC	474	21 TO 380 PPM	130.2 (257)	114.0 (340)

ST. JOE

CUMULATIVE PROBABILITY PLOT FOR ARSENIC



PPM

NOTE: CONCENTRATION SCALE IS LOGARITHMIC(INTERVAL=.098),VALUES ARE CLASS LOWER LIMITS.

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
ARSENIC	474	(2 TO 180 PPM	9.0 (37)	5.2 (38)

EXHIBIT "A"

STATEMENT OF EXPENDITURES

TRENCHING AND SOIL GEOCHEMISTRY

ST. JOE GROUP

FORT STEELE MINING DIVISION

GEOCHEM

Salaries

G.M. Chesham	6 days @ $70/day.	$ 420.00
D.E. MacDonald	6 days @ $70/day.	420.00
L.J. Molnar	6 days @ $70/day.	420.00
B.P. Smith	6 days @ $70/day.	420.00
M.D. Waskett-Myers - Supervision - Field - 2 days @ $136/day.		272.00
	Office - Report & Map Preparation 4 days @ $136/day	544.00
Materials	Flagging, Sample Bags, Cotton etc.	125.00
Geochem Assays	. . . . .	6,932.45
Transportation	8 days @ $25/day.	200.00
		$9,753.45

TRENCHING

Bearcat Contracting Ltd. - Fort Steele, B.C. 57 hours @ $75/hr.		$4,275.00
Henderson Heavy Hauling - Mobilization		287.00
D.L. Pighin	Field & Supervision - 9 days @ $175/day.	1,575.00
D. Anderson	Office - Report & Map preparation 1 day @ $210/day.	210.00
Transporation	9 days @ $25/day.	225.00
		$6,572.00

Geochem - $9,753.45
Trenching - $6,572.00
Linecutting- $5,916.72
Total Work Applied $22,242.17

m Waskett-Myers
M.D. Waskett-Myers

IN THE MATTER OF THE

B.C. MINERAL ACT

AND

IN THE MATTER OF A TRENCHING & SOIL GEOCHEMISTRY PROGRAM

CARRIED OUT ON THE ST. JOE MINERAL CLAIMS

in the Fort Steele Mining Division of the
Province of British Columbia

More Particularly N.T.S. 82G/5

A F F I D A V I T

I, M. Waskett-Myers, of the City of Cranbrook in the Province of British Columbia, make Oath and say:

1. That I am employed as a Technician with Cominco Ltd. and as such, have a personal knowledge of the facts to which I hereinafter depose;

2. That annexed hereto and marked as Exhibit "A" to this my Affidavit is true copy of expenditures incurred on a Trenching and Soil Geochemistry program, on the St. Joe Group.

3. That the said expenditures were incurred between the 25th day of April, 1982 and the 18th day of July, 1982, for the purpose of mineral exploration on the above noted claims.

M. Waskett-Myers

M. WASKETT-MYERS
Technician

COMINCO LTD.

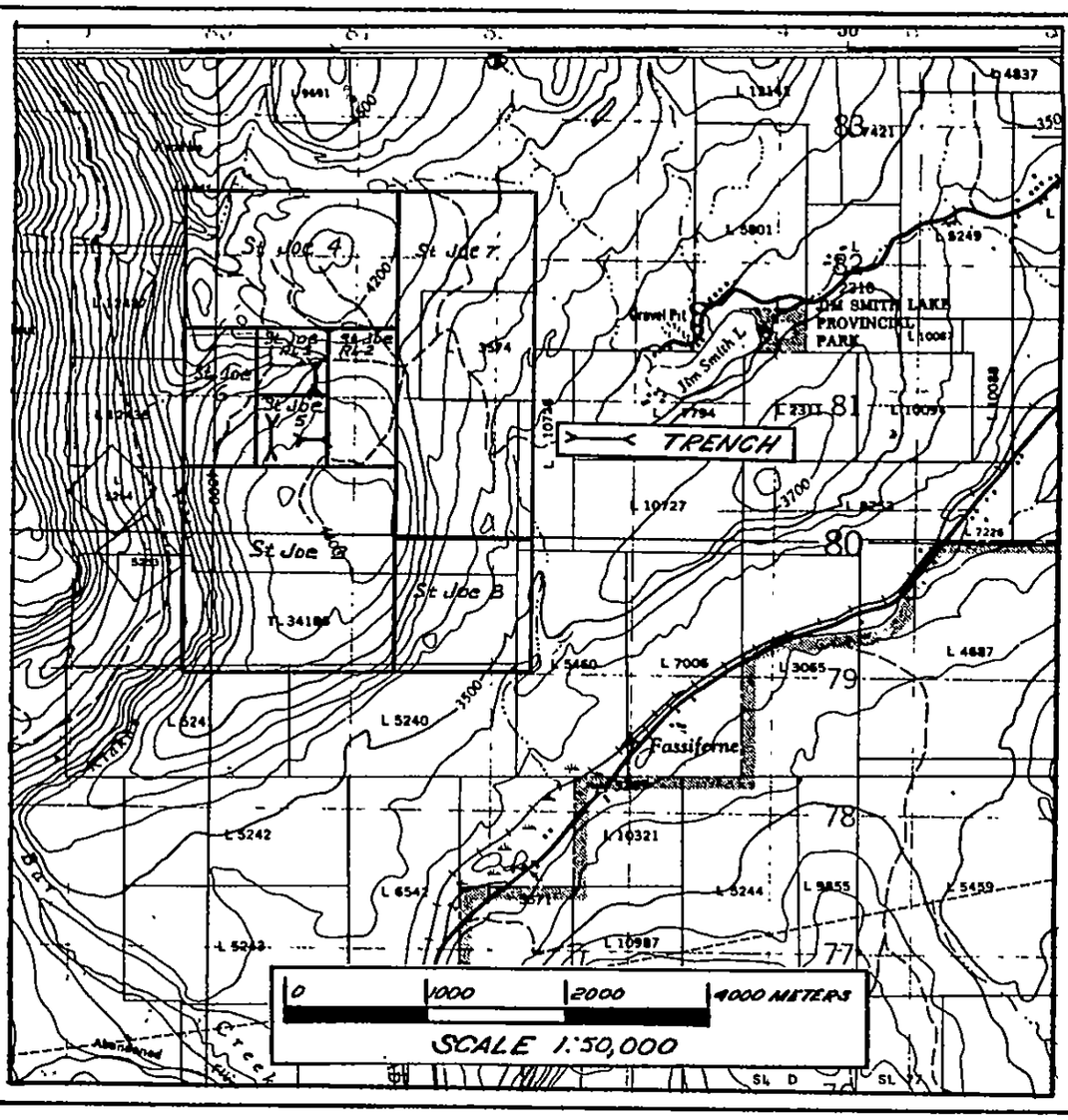
EXPLORATION WESTERN DISTRICT

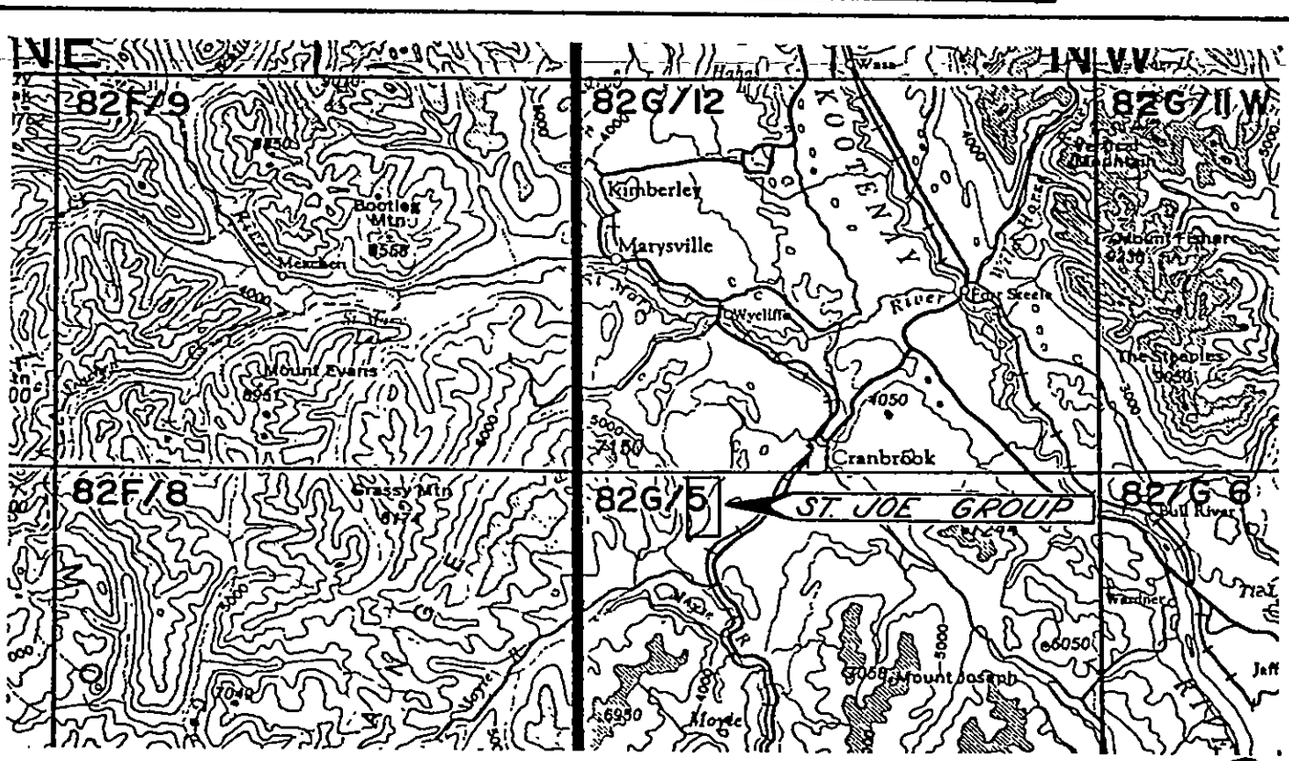
STATEMENT OF QUALIFICATIONS

M.D. WASKETT-MYERS has worked in Mineral Exploration for the past thirteen years. He spent the last five years working for Cominco Ltd., principally in the field of geochemistry.

I consider him qualified to prepare this report.

DOUGLAS ANDERSON, P.Eng.
Project Geologist





INDEX MAP
SCALE 1:500,000

10,717

ST. JOE GROUP

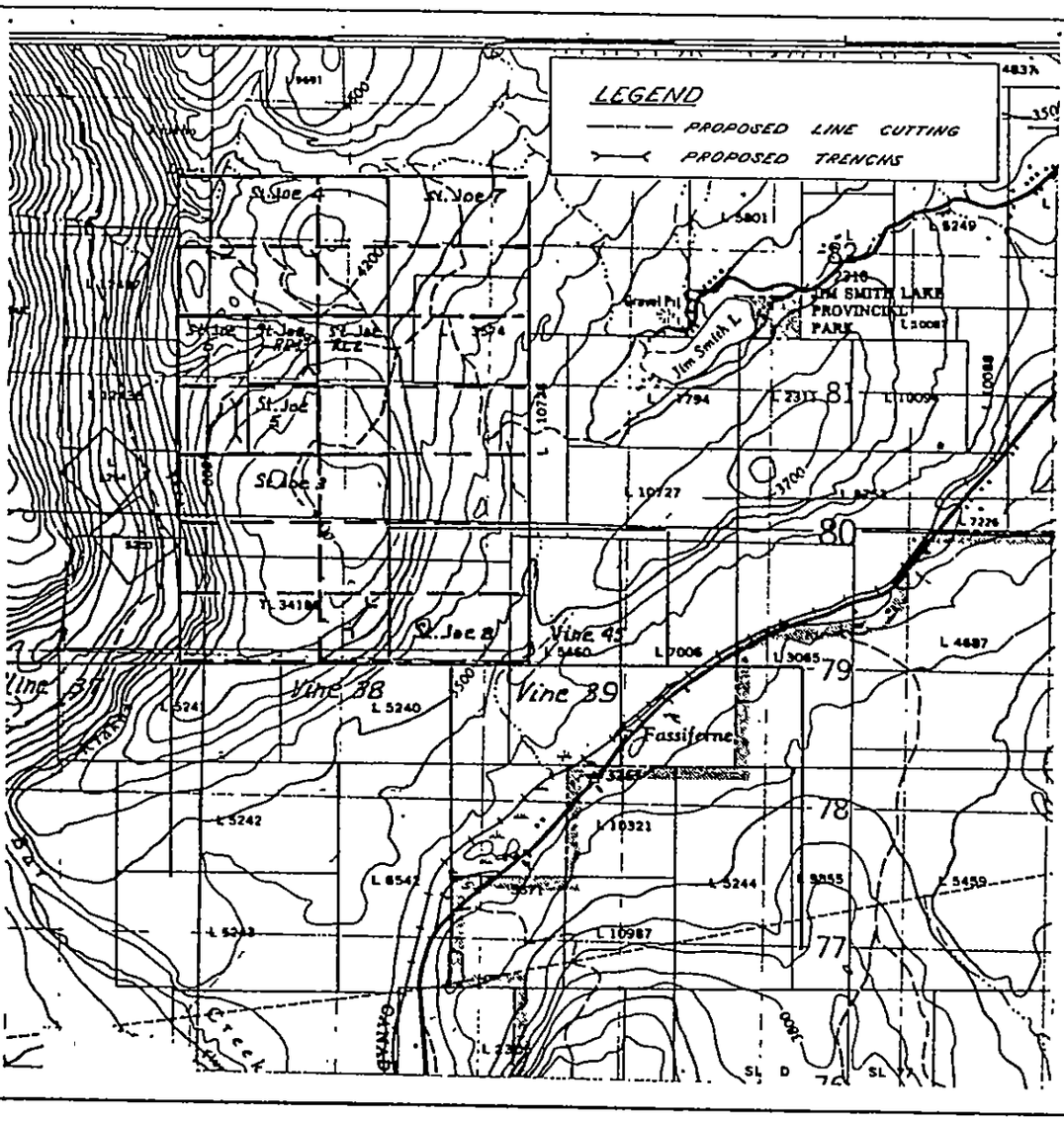
Drawn by: D.L. Pighin		Traced by:	
Revised by	Date	Revised by	Date

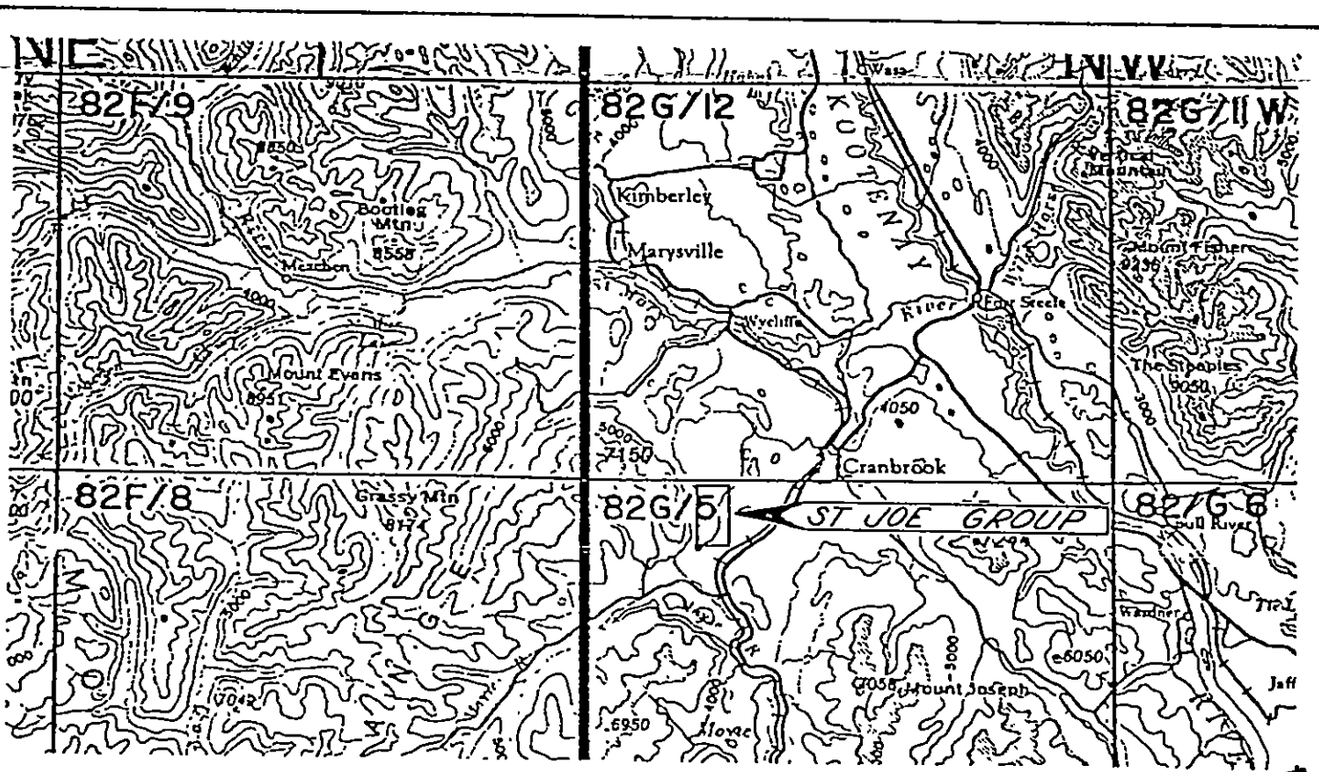
1982 TRENCH PLAN

Scale: 1:50,000 | Date: SEPT. 13 1982 | Plate: 4

NCI - 112A - CL

210-0610





INDEX MAP
SCALE 1:500,000

10,717

ST. JOE GROUP

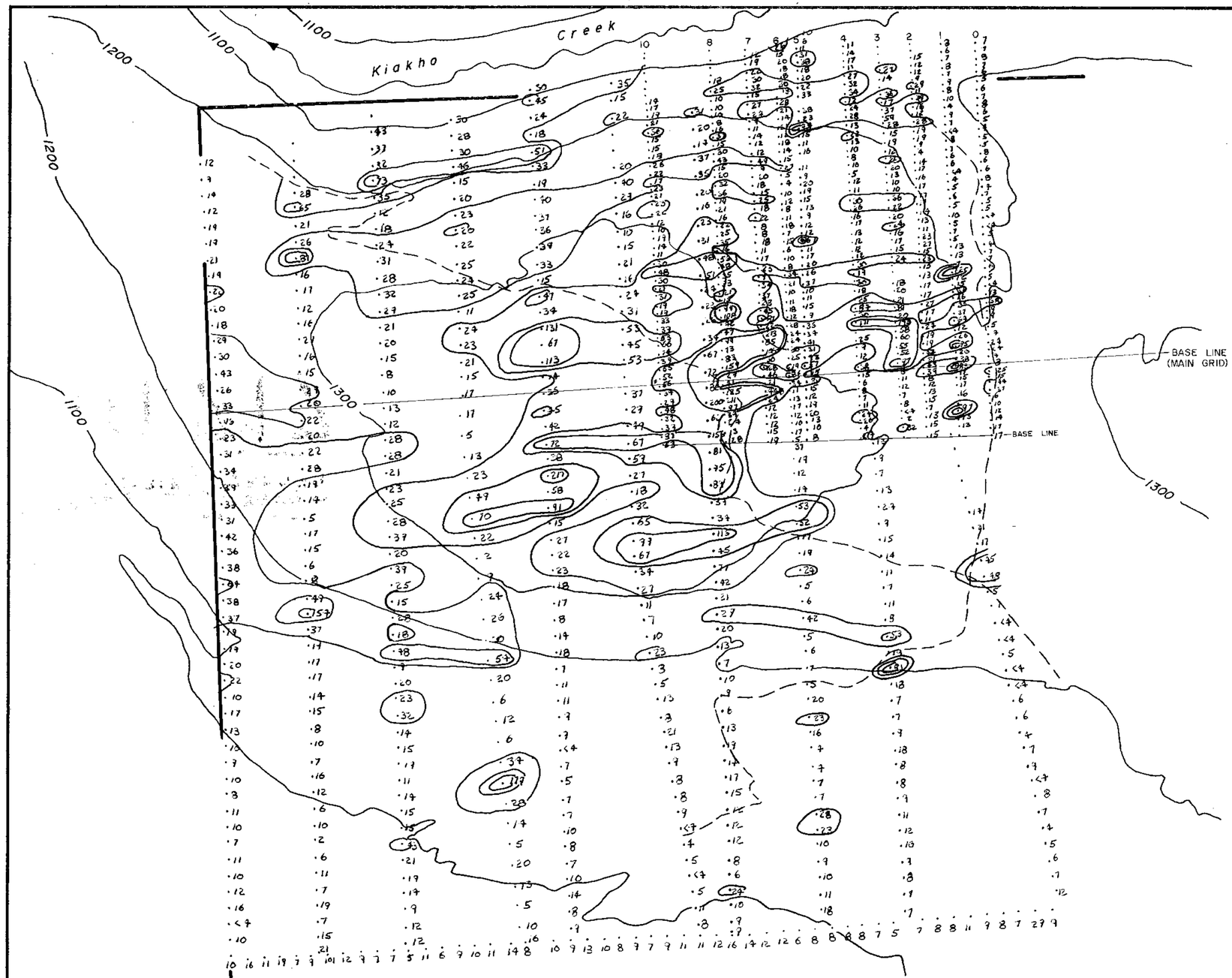
Drawn by: D.L. Pighin	Traced by:
Revised by / Date	Revised by / Date

LOCATION MAP

Scale: 1:50,000 | Date: MARCH 16, 1982 | Plate: 5

NCI 112A - CL

210-0610



GEOLOGICAL BRANCH
ASSESSMENT REPORT

10,717

LEGEND

- Road
- 22-43 ppm
- 44-65 ppm
- > 65ppm

0 100 200 300 400 500
metres

ST JOE PROPERTY — CRANBROOK, B.C.

Comaco

Drawn by:		Traced by:	
Revised by	Date	Revised by	Date

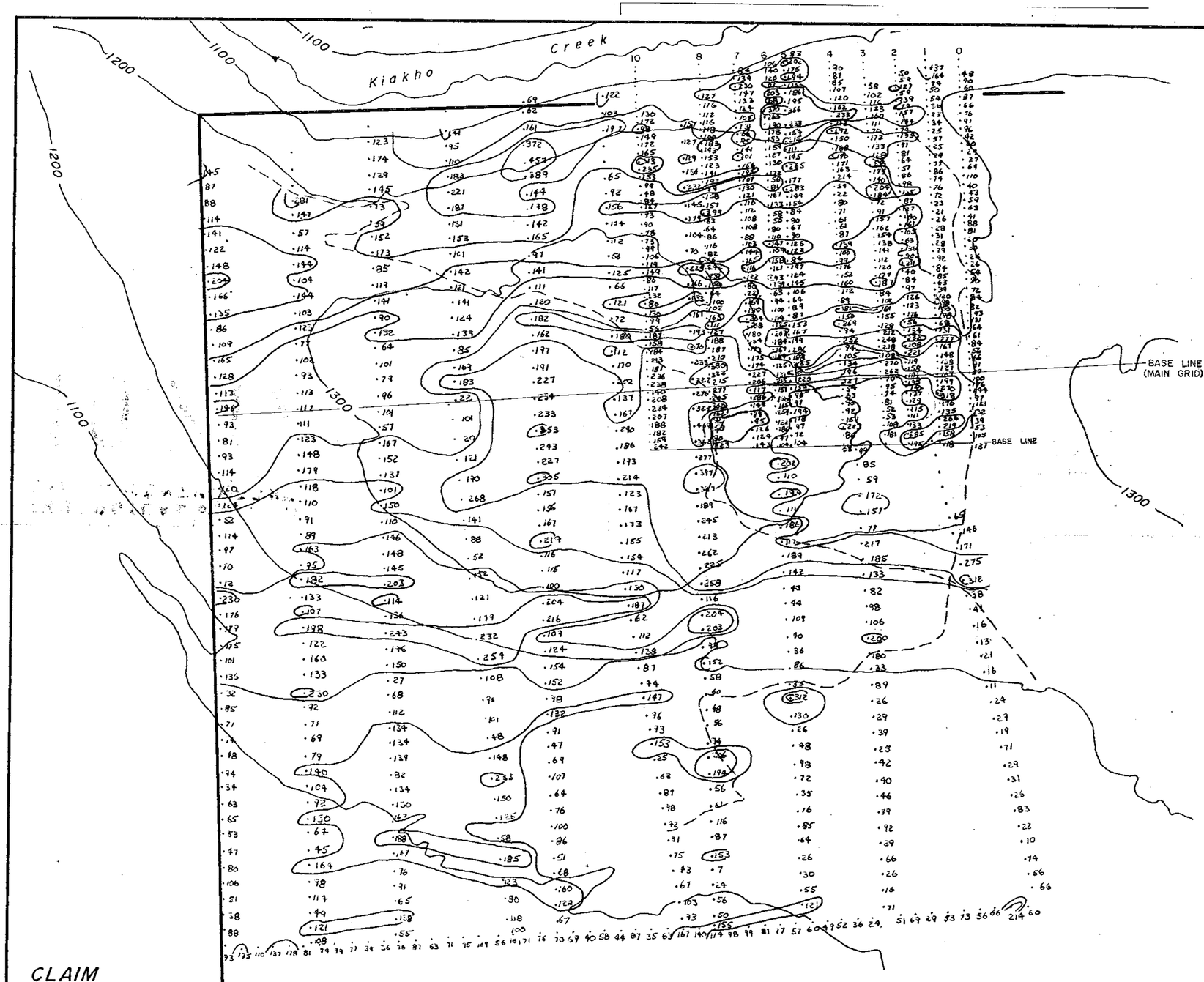
SOIL GEOCHEMISTRY GRIDS

LEAD VALUES (ppm)

Scale: 1:10,000 | Date: AUG. 1982 | Plate: 1

NCI - 114 - CL

#210-0640



GEOLOGICAL BRANCH
ASSESSMENT REPORT

10,717

LEGEND

--- Road

121-180ppm

181-301ppm

> 301ppm

0 100 200 300 400 500
metres

ST JOE PROPERTY — CRANBROOK, B.C.

Dominco

Drawn by:		Traced by:	
Revised by	Date	Revised by	Date

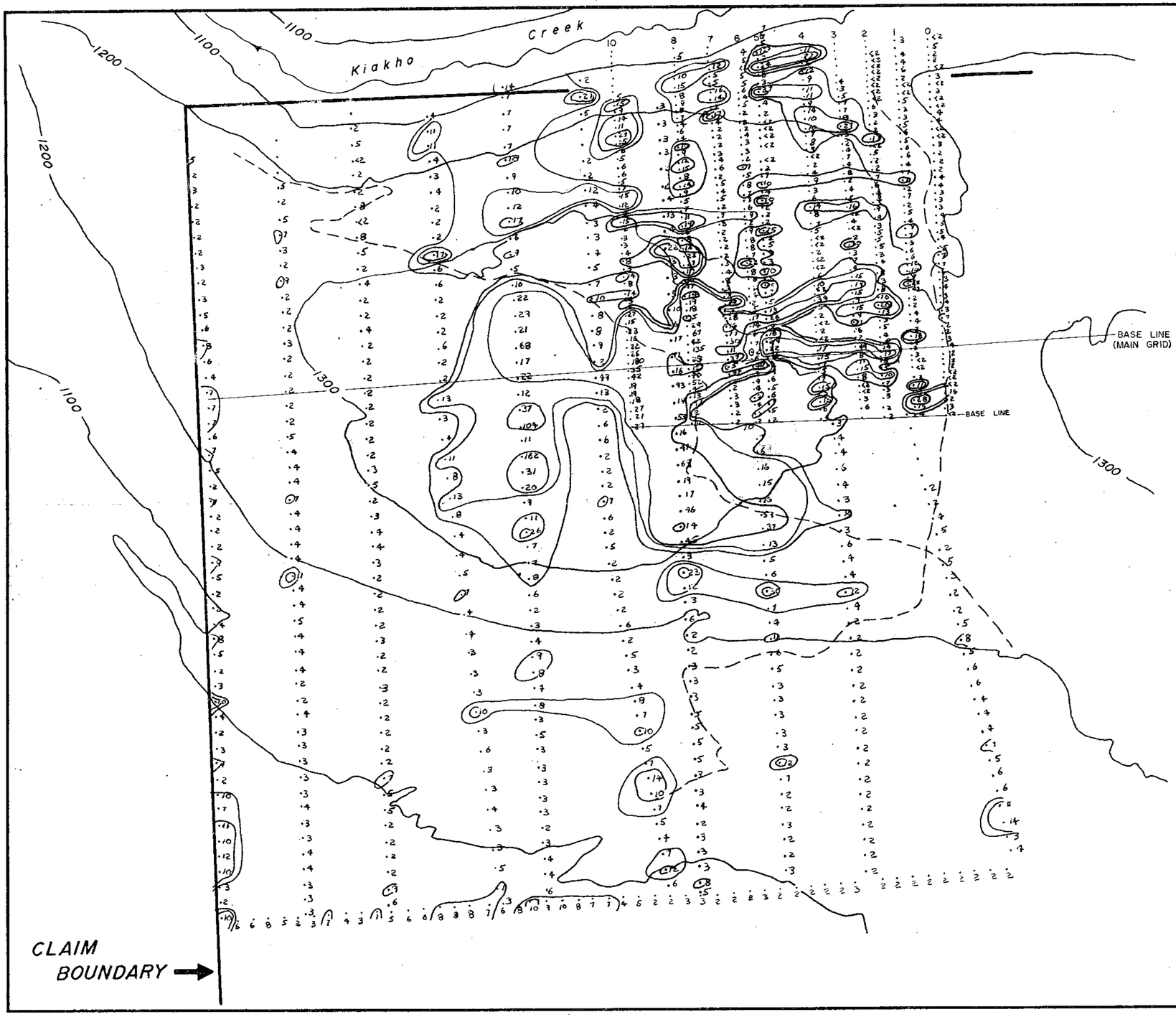
SOIL GEOCHEMISTRY GRIDS

ZINC VALUES (ppm)

Scale: 1:10,000 | Date: AUG. 1982 | Plate: 2

NCI - 114 - CL

#210-0640



GEOLOGICAL BRANCH
ASSESSMENT REPORT

10,717

LEGEND

- Road
- 7-9ppm
- 10-16ppm
- >16ppm

0 100 200 300 400 500
metres

ST JOE PROPERTY — CRANBROOK, B.C.

Cominco

Drawn by:		Traced by:	
Revised by	Date	Revised by	Date

SOIL GEOCHEMISTRY GRIDS

ARSENIC VALUES (ppm)

Scale: 1:10,000 | Date: AUG. 1982 | Plate: 3

#210-0640

NCI - 114 - CL