TELEPHONE PACIFIC 8540

ST. EUGENE MINING CORPORATION LIMITED, N.P.L.

901 - 626 WEST PENDER STREET
VANCOUVER 2, B. C.

October 9th, 1953

85

The Mining Recorder,
Cranbrook, B. C.

Dear Sir: Re: Filing of Geochemical Survey for Assessment Work, Moyie 7 and 8 Groups (ML 60-71 Claims): Statement of Qualifications of Alexander Smith as a Geochemist, and James A. Robertson as a specially qualified worker.

The following is an outline of qualifications as required by Order-in-Council 1532 -

Alexander Smith: Minor in Geochemistry for Ph.D. degree, California Institute of Technology.

James A. Robertson: 1930 Compassman timber surveys. 1941-1953 Assistant to Alexander Smith in mining examination and geological & geophysical surveying. Instrument man - plane-table, transit, compass & magnetometer surveying.

Yours very truly,

Alex. Smith

Alexander Smith, Geologist.

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ST. EUGENE MINING CORPORATION LIMITED, N.P.L.

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VANCOUVER 2, B. C.

October 9th, 1953

The Mining Recorder,
Cranbrook, B. C.

Dear Sir:

The following is the record of salaries, wages and expenses paid in connection with the Geochemical Survey of the Moyie 7 and 8 Groups (ML 60-71):

September 20, 1952 - September 15, 1953:

WAGES & SALARIES	DATES	DAYS	RATE	TOTAL
Alexander Smith	Mar. 20-23, 1953	2	$35.00	$ 70.00
James A. Robertson	Oct. 8-30, 1952	20	$15.00	300.00
Assaying Biogeochemical Lab. University of British Columbia - 309 Soil & 306 Twig Assays for Zinc - as per attached invoices #65-6000-508				615.00
			TOTAL	$ 985.00
NOTE - In addition $400. worth of trenching and stripping on the ML 61, ML63, ML65 and ML67 has been recorded, mak- a total expenditure on the 12 claims of				400.00
				$1,385.00

Yours very truly,

Alex Smith, Geologist

AFFIDAVIT:

I declare the above statements to be true and correct.

C
O
P
Y

THE UNIVERSITY OF BRITISH COLUMBIA
Vancouver, B. C.

Office of the Accountant

Date: July 3, 1953

Invoice No. 65-6000-508

IN ACCOUNT WITH

St. Eugene Mining Corp. Ltd. NPL.
c/o Dr. A. Smith
626 West Pender Street,
Vancouver, B. C.

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309 Analyses of soil (these include samples ML60-1 to ML71-1 and SWML 60 & 325 N to NEML 70 & 375W) for Zinc @ $1.00	- $309.00
306 Analyses of Jackpine Twigs (these include samples ML60-1 to ML71-21, SWML-60 & 375N to NEML-70 & 375W) for Zinc @ $1.00	- 306.00
	$615.00

PAID JULY 15th, 1953

Cheque No. 2351

GEOCHEMICAL REPORT

on

MOYIE 7 & 8 GROUPS (ML60-71)

South end Moyie Lake 49° 115° SW

Fort Steele M. D., B. C.

Alex Smith, Geologist

September 20,1952 - September 15, 1953

GEOCHEMICAL REPORT

on

MOYIE 7 & 8 GROUPS (ML60-71)

South end Moyie Lake 49° 115° SW

Fort Steele M. D., B. C.

Alex Smith, Geologist

INTRODUCTION:

ML60 - 71 claims lie at the south end of lower Moyie Lake. They are cut by the southern branch of the Trans-Canada highway, the Kettle Valley Branch of the C.P.R., telephone and telegraph lines and the Moyie River.

In 1947 a geological report was submitted for assessment work covering these claims, and in 1951 a magnetometer report and map, accompanied by topographical map, was prepared. As shown on the topographical map, the area along the Moyie River and to the east thereof, is on river flats and benchland, while to the west the claims extend up mountain slopes.

On ML70 and 71 a small isolated hill underlain by a Purcell sill is separated from the main mountain slope by a N-S draw. This sill is some 700 feet thick, and it appears to be offset along the draw. This draw is supposed to be the expression of a fault known as the Chubb fault, extending south from the St. Eugene mine. The sill is overlain by argillaceous quartzites of the Aldridge formation, which here strike about N60°W and dip about 26°NE.

The present geochemical study was undertaken to test the significance of magnetometer anomalies and to prospect for St. Eugene type of mineralization on these claims. Nowhere are

outcrops numerous or continuous. Most of the benchlands and side hills are covered with relatively shallow overburden, that is, under 20 feet. Under the river flats there may be up to several hundred feet of overburden.

GEOCHEMICAL PROSPECTING:

Samples were taken on a grid pattern, with samples 100 to 300' apart. The plant samples were the second year's growth of Jackpine twigs. This tree was chosen as it is the most widespread in the area sampled. A sample consisted of 8 or 10, 2" twigs taken from several trees. A soil sample was taken at the same point from a depth of 1 to 2 feet. This is beneath the surface layer of humus and leaf mould.

All samples were assayed in the Geochemical Lab of the University of British Columbia, under supervision of Dr. Delevault.

Zinc in ppm (parts per million) is given on the accompanying maps for both soil and twigs. These have been contoured to show anomalies. On the accompanying assay sheet for twigs, values are also given for percentage zinc in ash and percentage ash in sample.

In general, the percentage zinc in ash corresponds with the zinc expressed in ppm, but there are a few samples where a high zinc ppm value is due to a large amount of ash rather than to a high percentage of zinc in the ash.

ANALYSIS OF RESULTS:

The following attempts to correlate the twig and soil analyses with the magnetometer and geological work; also to suggest an interpretation or possible significance for the geochemical analysis.

1. High Twig Values along the Moyie River Flats:

There appears to be a fair continuous zone of high zinc values in twigs samples in a belt following the river. Most of the area is covered with thick gravels. These highs are not nearly so apparent in the soil sampling. The magnetometer work showed the river flats to be, in general, a belt of low values with occasional erratic strong negative anomalies.

Such twig highs might be characteristic of the trees growing in areas of deep overburden, or high water table. Perhaps in this instance the overburden is high in zinc from debris from the veins at Moyie, or from zinc-rich horizons in the Aldridge quartzites.

2. Area East of Moyie River:

On ML 60 there is a N-S twig high which does not show up in the soil or magnetometer patterns. This high is on the alluvial plain at the mouth of Farrel Creek. Possibly the outwash at this point might be rich in zinc from the mineralized area up Farrel Creek.

3. Areas West of Moyie River:

ON ML 61 there is an anomaly in the western half of the claim that is common to plant, soil, and magnetometer.

In detail the plant anomaly shows a northeasterly trending high over an area 700' x 800', whereas the peak of the soil anomaly trends northwesterly across an area about 700' x 1200'. The N-E portion of the geochemical anomaly parallels an outcrop of quartzites similar in appearance to these at the Aurora mine, and extends downhill into the covered area. In addition, some small veins paralleling in orientation to the St. Eugene veins, outcrop in the area. This anomaly may then be due to either a vein or a zinc-rich horizon in the sediments.

On ML 63 a twig anomaly cuts E-W from the river flat across the claim. On the soil pattern this shows only as a slight bow in the contours. The magnetometer work showed a distinct high in the same area, but the trend of the high was N70°W, that is, at an angle of about 25° to that of the twig anomaly. This area lies on a bench extending down the north side of a creek coming in from the N-W. In the creek there is a small outcrop of sediments showing a N20°E fault zone with some pyrrhotite.

In the S-W corner of ML 63 a fairly high area of twig values shows less distinctly on the soil pattern, but is marked on the magnetometer work as a strong high 250' across, flanked by corresponding lows. This is just south of the fault zone discussed in the previous paragraph, and may be related to it.

Along the North Bounday of ML 65 there is a NW-SE twig anomaly that is high at the river end with corresponding soil anomaly high at the western end. The magnetometer pattern is not distinctive. The high at the east end of the twig

anomaly might either be a valley high or be due to mineralization along the Chubb fault.

Near the south boundary of the ML 65, there is a strong NW-SE anomaly showing in both the twigs and soil. Here the magnetometer shows 2 fairly good highs with a sharp break on the south side of the twig anomaly. The quartzites outcropping here are altered, faulted and folded, and a small N70°W vein outcrops. This anomaly shows good correlation between twigs, soil, magnetometer and geology and looks as if it may be due to mineralization.

Near the South-West corner of ML66, there is a strong soil anomaly which appears only as a bow in the contours on the twig map. The magnetometer map shows sharp highs flanked by sharp lows. The quartzites here are cut by a N-S fault. There is a possibility that this anomaly is also due to mineralization.

On the ML 67 - 69 Boundary, a strong N-S soil anomaly shows weakly on the twig map and may be due to mineralization on the Chubb Fault. Dark grey argillaceous quartzites outcropping in this area are contorted.

On ML 69 - 71 a N-E trending twig and soil high show as a steep peak in the magnetometer profiles. This is in the quartzites and other sediments on the hanging wall of the Purcell sill, and may be due to zinc impregnation above the hanging wall of the sill.

On the ML 68 - 70 Boundary, a N70°W high in both soil and twigs has a similar geologic setting on the hanging wall of the sill. The magnetometer shows local highs but on the whole this area is to the north of the apex of the major

magnetometer high over the sill outcrop.

On the South Boundary of the ML 70 a twig high, with no corresponding soil or magnetometer effect, shows on the edge of the bench south of the sill hill - probably a bench or gravel-flat type of anomaly.

In general, zinc values in twig and soil over the Purcell sill are low, contrasting with the high magnetometer readings.

CONCLUSION:

On the geochemical anomalies described, the following merit further prospecting: (1) W. Bdy. ML 61, (2) S Bdy. ML 65, (3) SW Cor. ML66, and the Areas above the Purcell sill on ML 68-70.

In general, there is a good correlation between twig and soil results. The exception is along the river flats and bench areas. Here the twig values are in general high without corresponding values in the soil. The soil pattern then appears to be less affected by topography (or water level?).

Alex Smith, Geologist

Vancouver, B. C.
October 13th, 1953

ZINC ANALYSIS - JACKPINE TWIGS

(second year growth only)

NUMBER	ppm Zn in Plant	% Zn in Ash	% Ash
ML-60-1	58	.29	2.0
" 2	44	.30	1.5
" 3	57	.57	1.0
" 4	62	.34	1.8
" 5	59	.34	1.5
" 7	46	.27	1.7
" 11	40	.19	2.1
" 12	69	.25	2.7
ML-61-1	39	.28	1.4
2 2	43	.20	2.1
" 3	50	.22	2.2
" 4	37	.20	1.8
" 5	37	.25	1.5
" 6	53	.33	1.6
" 7	34	.16	2.1
" 8	29	.21	1.3
" 9	35	.18	2.0
" 10	58	.27	2.2
" 11	48	.29	1.7
" 12	62	.39	1.6
" 13	31	.25	1.2
" 14	43	.31	1.4
" 15	44	.21	2.0
" 16	47	.30	1.6
" 17	44	.20	2.2
" 18	35	.17	2.1
" 19	30	.23	1.3
" 20	42	.25	1.6
" 21	39	.19	2.0
ML-62-1	42	.30	1.4
" 2	43	.21	2.0
" 4	51	.32	1.6
" 5	41	.28	1.4
" 7	38	.19	1.9
" 8	40	.23	1.7
" 9	66	.53	1.2
ML-63-L	52	.31	1.6
" 2	35	.23	1.5
" 3	50	.21	2.3
" 4	33	.19	1.8
" 5	47	.24	2.0
" 6	42	.29	1.4
" 7	34	.15	2.2
" 8	36	.14	2.6
" 9	40	.22	1.8
" 10	57	.35	1.6
" 11	43	.24	1.8
" 12	57	.21	2.7
" 13	45	.20	2.2
" 14	64	.47	1.3
" 15	58	.39	1.5
" 16	45	.20	2.3
" 17	86	.28	3.1
" 18	73	.31	2.3

NUMBER	ppm Zn in Plant	% Zn in Ash	% Ash
ML-63-19	52	.19	2.7
" 20	56	.37	1.5
" 21	41	.24	1.7
ML-64- 1 - 200'	41	.23	1.7
" 4	52	.33	1.6
" 7	43	.22	1.9
" 8	65	.29	2.2
ML-65- 1	51	.33	1.5
" 2	47	.19	2.5
" 3	56	.18	3.0
" 4	44	.29	1.5
" 5	46	.22	2.0
" 6	43	.23	1.8
" 7	59	.41	1.4
" 8	39	.18	2.2
" 9	46	.26	1.8
" 10	33	.20	1.6
" 11	40	.17	2.3
" 12	50	.35	1.4
" 13	51	.27	1.9
" 14	55	.33	1.6
" 15	74	.43	1.7
" 16	77	.44	1.7
" 17	43	.33	1.3
" 18	43	.33	1.3
" 19	70	.47	1.5
" 20	51	.21	2.4
" 21	42	.22	1.9
ML-66- 1	72	.50	1.4
" 2	74	.42	1.7
" 3	35	.13	2.7
" 4	43	.20	2.1
" 5	71	.43	1.6
" 6	57	.25	2.2
" 7	56	.34	1.6
" 8	58	.40	1.4
" 9	66	.32	2.0
" 10	42	.22	1.9
" 11	34	.27	1.2
" 12	66	.33	2.0
" 19	110	.38	2.9
" 20	49	.33	1.5
" 21	48	.34	1.4
ML-67- 1	44	.25	1.8
" 2	39	.18	2.1
" 3	45	.26	1.7
" 4	50	.43	1.1
" 5	40	.40	1.0
" 6	36	.21	1.7
" 7	42	.21	2.0
" 8	35	.18	2.0
" 9	33	.16	2.0
" 10	45	.21	2.2
" 11	26	.12	2.2
" 12	41	.22	1.8
" 13	50	.29	1.7
" 14	36	.18	2.0

NUMBER	ppm Zn in plant	% Zn in Ash	% Ash
ML-67-15	48	.26	1.8
" 16	43	.25	1.7
" 17	33	.19	1.7
" 18	447	.22	2.0
" 19	42	.23	1.8
" 20	48	.23	2.0
" 21	30	.14	2.1
ML-68- 1	48	.32	1.5
" 2	37	.20	1.8
" 3	39	.20	1.9
" 4	40	.19	2.1
" 5	34	.20	1.7
" 6	42	.22	1.9
" 7	41	.18	2.2
" 9	48	.22	2.2
" 9	35	.22	1.6
" 10	32	.23	1.4
" 11	51	.35	1.4
" 12	40	.27	1.5
" 13	50	.32	1.5
" 14	42	.31	1.3
" 15	41	.23	1.7
" 16	66	.40	1.6
" 17	47	.24	1.9
" 18	47	.31	1.5
" 19	60	.38	1.6
" 20	33	.21	1.5
" 21	55	.30	1.8
ML-69 1	35	.24	1.5
" 2	45	.25	1.8
" 3	50	.27	1.8
" 4	50	.25	2.0
" 5	35	.19	1.8
" 6	47	.31	1.5
" 7	34	.33	1.0
" 8	55	.27	2.0
" 9	46	.25	1.8
" 10	42	.24	1.8
" 11	56	.34	1.6
" 12	57	.33	1.7
" 13	55	.32	1.7
" 14	48	.25	1.9
" 15	48	.23	2.0
" 16	35	.20	1.8
" 17	35	.15	2.3
" 18	40	.28	1.4
" 19	42	.27	1.6
" 20	61	.34	1.8
" 21	32	.22	1.4
ML-70 1	57	.26	2.2
" 3	36	.23	1.6
" 4	35	.21	1.7
" 5	35	.24	1.5
" 6	30	.18	1.7
" 7	36	.21	1.7
" 8	43	.25	1.7

NUMBER	ppm Zn in plant	% Zn in Ash	% Ash
ML-70- 9	37	.29	1.3
" 10	59	.38	1.5
" 11	40	.21	1.9
" 12	49	.37	1.3
" 13	32	.27	1.2
" 14	58	.35	1.6
" 15	43	.23	1.8
" 16	53	.28	1.9
" 17	54	.32	1.7
" 18	52	.33	1.6
" 19	43	.23	1.9
" 20	67	.34	1.9
" 21	43	.29	1.5
ML-71 1	65	.54	1.2
" 2	69	.38	1.8
" 3	35	.19	1.9
" 4	45	.30	1.5
" 5	36	.26	1.4
" 6	55	.31	1.7
" 7	55	.38	1.4
" 8	40	.30	1.3
" 9	85	.35	2.4
" 10	43	.21	2.1
" 11	34	.22	1.5
" 12	39	.19	2.0
" 13	46	.26	1.8
" 14	42	.25	1.7
" 15	43	.23	1.9
" 16	44	.31	1.4
" 17	34	.23	1.5
" 18	43	.19	2.2
" 19	32	.22	1.5
" 20	39	.22	1.7
" 21	40	.22	1.8

NUMBER	ppm Zn in Plant	% Zn in Ash	% Ash
SWML 60 + 375' N	36	.19	1.9
" 60 + 750 N	52	.15	3.4
" 60 +1125 N	46	.25	1.9
" 60 +NWML 62 (4 corners)	68	.47	1.4
SWML 61 + 375' N	40	.22	1.8
" 61 + 750 N	67	.41	1.6
" 61 +1125 N	33	.17	1.9
" 61 + 375 E	39	.25	1.5
" 61 + 750 E	39	.20	2.0
" 61 +1125 E	44	.24	1.8
SWML 62 + 375 N	48	.21	2.2
" 62 + 750 N	52	.20	2.6
" 62 +1125 N	76	.51	1.5
" 62 +NWML 64 (4 corners)	49	.28	1.7
SWML 63 + 375 N	45	.24	1.9
" 63 + 750 N	49	.31	1.6
" 63 +1125 N	34	.20	1.7
" 63 + 375 E	59	.25	2.4
" 63 + 750 E	45	.31	1.4
" 63 +1125 E	78	.46	1.7
" 63 +NWML 65	28	.16	1.7
SWML 64 +NWML 66 (4 corners)	55	.36	1.5
" 65 + 375 N	33	.16	2.1
" 65 + 750 N	39	.27	1.4
" 65 + 750 E	47	.31	1.5
" 65 + 375 E	49	.32	1.5
" 65 +1125 E	47	.29	1.6
" 65 +NWML 67	41	.22	1.8
SWML 66 + 375 N	41	.19	2.2
" 66 + 750 N	36	.21	1.7
" 66 +1125 N	46	.26	1.8
" 66 +NWML 68 (4 corners)	38	.14	2.6
SWML 67 + 375 N	46	.31	1.5
" 67 + 750 N	34	.18	1.9
" 67 +1125 N	31	.21	1.5
" 67 + 375 E	36	.25	1.4
" 67 + 750 E	49	.33	1.5
" 67 +1125 E	45	.25	1.8
" 67 +NWML 69	44	.28	1.6
SWML 68 + 375 N	43	.24	1.8
" 68 + 750 N	36	.22	1.6
" 68 +1125 N	43	.16	2.7
" 68 +NEML 71 (4 corners)	52	.21	2.4

NUMBER	ppm Zn in Plant	% Zn in Ash	% Ash
SWML 69 + 375 N	37	.20	1.9
" 69 + 750 N	55	.26	2.1
" 69 + 1125 N	37	.23	1.6
" 69 + 375 E	48	.26	1.8
" 69 + 750 E	36	.22	1.6
" 69 + 1125 E	46	.34	1.3
" 69 + NWML 71	39	.18	2.1
SWML 70 + 375 N	54	.23	2.4
" 70 + 750 N	46	.29	1.6
" 70 + 1125 N	48	.30	1.6
" 70 + 375 E	61	.45	1.3
" 70 + 750 E	54	.24	2.3
SWML 71	44	.29	1.5
" 71 + 375 N	42	.21	2.0
" 71 + 750 N	33	.19	1.7
" 71 + 1125 N	53	.36	1.5
NWML 61 +	34	.22	1.6
" 61 + 375 E	49	.22	2.2
" 61 + 750 E	53	.25	2.1
" 61 + 1125 E	41	.20	2.0
NWML 63 + SWML 61	49	.26	1.9
NWML 66 + 375 E	69	.39	1.7
NWML 70 + 375 E	52	.35	1.5
" 70 + 750 E	60	.21	2.3
SEML 60 + 375 N	66	.35	1.9
" 60 + 750 N (a)	53	.31	1.6
" 60 + 750 N (b)	42	.24	1.6
" 60 + 1125 N	72	.44	1.6
" 62 + 375 N	43	.26	1.7
" 62 + 750 N	35	.20	1.8
" 62 + 1125 N	39	.17	2.3
" 64 + 375 N	41	.24	1.7
" 64 + 750 N	35	.22	1.6
" 64 + 1125 N	32	.23	1.4
" 66 + 375 N	54	.22	2.4
" 66 + 750 N	38	.22	1.7
" 68 + 375 N	49	.28	1.7
" 68 + 750 N	60	.41	1.4
" 68 + 1125 N	55	.35	1.6
" 70	54	.25	2.2
" 70 + 375 N	59	.30	1.9
" 70 + 750 N	50	.20	2.5
" 70 + 1125 N	41	.20	2.0
" 71 + SWML 70	46	.24	1.9
" 71 + 370 W	42	.24	1.8
" 71 + 750 W	42	.19	2.2
" 71 + 1125 W	43	.30	1.4

NUMBER	ppm Zn in Plant	% Zn in Ash	% Ash
NEML 61 + NWML 60	57	.33	1.7
" 62 + 375 W	46	.31	1.5
" 62 + 750 W	44	.28	1.6
" 62 + 1125 W	69	.49	1.4
" 62 + SEML 60	57	.32	1.8
" 64 + 375 W	48	.37	1.3
" 64 + 750 W	60	.24	2.4
" 64 + SEML 62	38	.19	2.0
" 68	52	.24	2.1
" 68 + 375 W	80	.43	1.8
" 68 + 750 W	39	.21	1.8
" 68 + 1125 W	64	.26	2.5
" 70	40	.24	1.6
" 70 + 375 W	42	.22	1.9

ML 60

ML 62

ML 64

ML 66

ML 68

ML 70

ML 61

ML 63

ML 65

ML 67

ML 69

ML 71

NORTH

PLANT AND SOIL ANALYSIS FOR ZINC
SOUTH END MOYIE LAKE, B.C.
FORT STEELE, M.D.
SCALE 1"=200'

82

Zinc content expressed in parts per million.

P.P.M. Second year jackpine twigs — 46
Sample location — o
P.P.M. in soil — 212

LEGEND

Twigs		Soil
40	A	150
45	B	200
50	C	250
55	D	300
60	E	350
65	F	400
70	G	450

TWIG SHEET

ML 60

ML 62

ML 64

ML 66

ML 68

ML 70

ML 61

ML 63

ML 65

ML 67

ML 69

ML 71

NORTH

PLANT AND SOIL ANALYSIS FOR ZINC
SOUTH END MOYIE LAKE, B.C.
FORT STEELE, M.D.
SCALE 1"=200'

Zinc content expressed in parts per million.

P.P.M. Second year jackpine twigs 46
Sample location
P.P.M. in soil 212

LEGEND

TWIGS	SOIL
40	150
45	200
50	250
55	300
60	350
65	400
70	450

SOIL SHEET