GEOCHEMICAL REPORT

on the

NADINE (696) and MICHAEL (697) CLAIMS

Raffuse Creek Area, Vancouver Mining Division

92G10W, Lat. 49°38' Long. 122°58'

92 G 10 W

by

K.R. Mackenzie, B.Sc. M.D.

Endorsed by

Frank W. Baumann, P.Eng.

Owner/Operator: Alpen Exploration Ltd.

Squamish, B.C.

June, 1982

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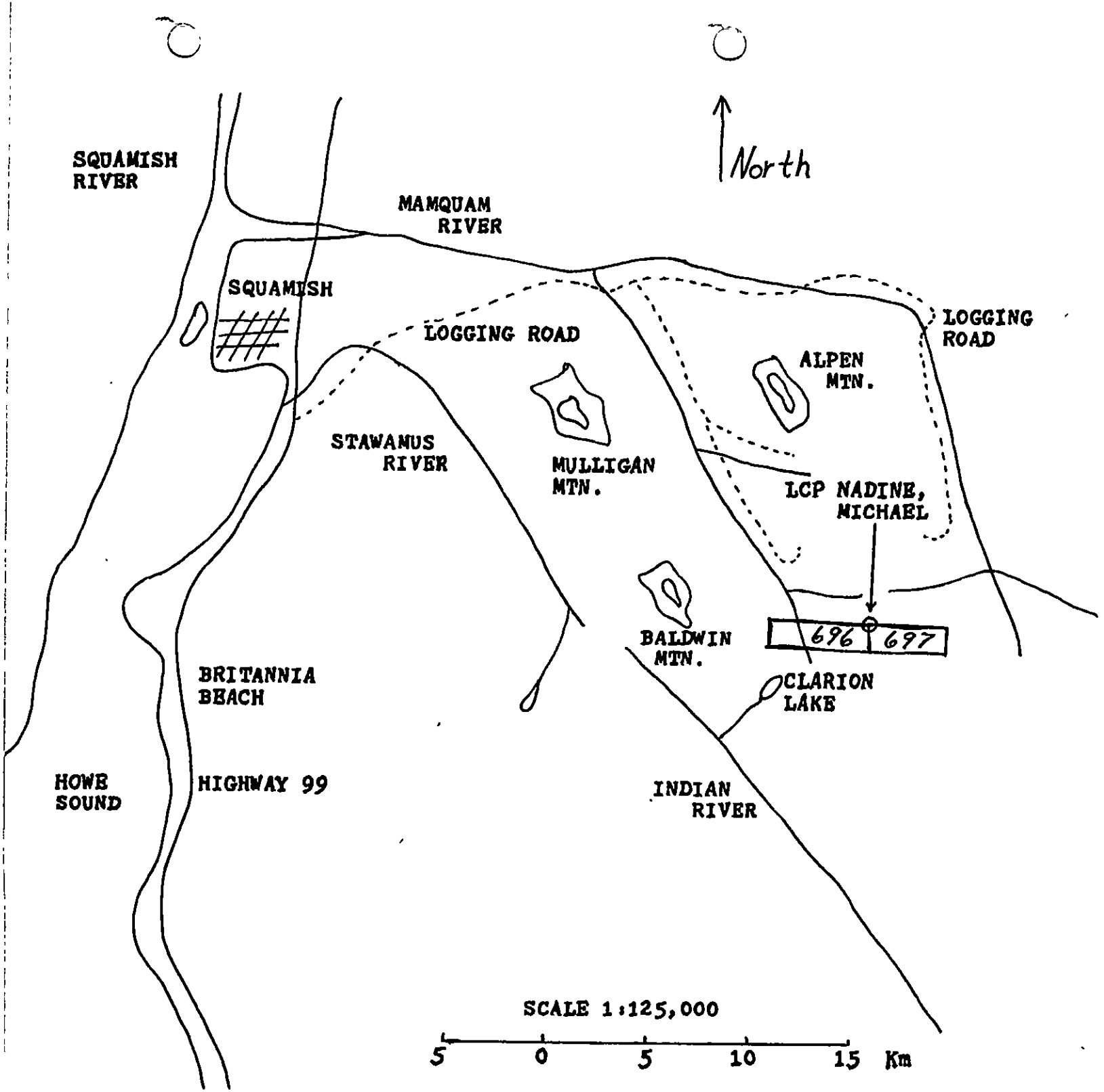


INDEX MAP (i)

MAP #1

92 G 10 & 11

LOCATION MAP

FOR GEOCHEMICAL

REPORT ON NADINE (696)

AND MICHAEL (697)

CLAIMS

INTRODUCTION

The Nadine and Michael claims, which form part of the Alpen South mineral prospect are located approximately fifteen kilometers south-east of Squamish. The claims straddle a ridge that separates the headwaters of Raffuse Creek and the Mamquam River, just north of Clarion Lake.

Access is by logging road that leaves Highway 99 approximately one-half kilometer south of the turnoff to Squamish. The road is used for active logging by MacMillan-Bloedel and Weldwood. Permission to use the road can be obtained from the MacMillan-Bloedel offices near the entrance to the road. The logging roads to the area are shown on the index map (Map #1). Recent heavy rains in the Squamish area have washed out some bridges and damaged many parts of the road. As a result, access is more difficult than in previous years.

A prospecting report was filed on these claims one year ago and was written by the author of this report.

The property is owned by Alpen Exploration Ltd. of Squamish, B.C.

To date, no mineral of economic grade or extent has been found on these claims.

INTRODUCTION

For this report, a total of twenty-two geochemical samples have been analysed. The total includes six silt samples, four rock samples and twelve soil samples. The results of these geochemical analyses can be found in Appendix C.

A description of each individual sample and the site where it was obtained is included in Appendix E.

In general, silt samples were obtained by using a clean hand and scooping fine material from creek bottoms and sides. If no fine silt was available, then mixed fine and coarse sand, silt and gravel was screened through a home-made plastic screen with five millimeter holes drilled in it. The coarse material was rejected and the fine material that collected in a plastic container below the screen was kept as the sample.

Usually two or more pools in one creek were sampled and mixed in one bag so that the results obtained would be a reasonably true picture of the mineral present in that creek. Standard brown paper sample bags were used to carry the samples. After

the collection of each silt sample had been completed, all tools (including hands) were cleaned to reduce the possibility of contamination between samples.

Soil sampling was done using an ice axe as a digging tool. The ice axe has a good scooping blade that is useful for cutting roots or pulling dirt from a hole. The ice axe also has a long sharp pick that is useful for digging aroung rocks or breaking up sheared rock that the scoop cannot penetrate. Every effort was made to reach "B" level soil. Occasionally, some soil was scraped right off bed rock and so such a sample probably represents a mixing of "B" and "C" level soils.

Once the hole was dug and the appropriate soil loosened, the sample was removed by hand, and placed in a brown paper sample bag. Both the ice axe and the hand were cleaned after each use to reduce contamination between samples. At each sample site, field notes were made and a number was placed on the sample bag and also recorded in the notes.

Rock samples were collected with a standard

INTRODUCTION

geological rock hammer. Fresh, unweathered rock was taken whenever possible. Chip samples were placed in a labelled, brown paper sample bag while larger hand samples were labelled with black marker pen.

All of the sample sites were marked with coloured plastic ribbon, with the sample number written on the ribbon, so that the site can be easily found and re-examined.

Abbreviations frequently used in this report are:

Cu	copper
Pb	lead
Zn	zinc
Mo	molybdenum
Ag	silver
Au	gold
ppm	parts per million
ppb	parts per billion

Element values for Cu, Pb, Zn, Mo and Ag are reported in parts per million. Gold values are reported in parts per billion.

Map #2 shows each sample number in the approximate location where it was collected. The analysed results are shown below, in a

similar order. The samples were collected along the original claim line that runs due east and west. All measurements have been made from LCP Nadine (696) and Michael (697). Another line running east and west, lies one hundred meters to the south of the the original claim line. Samples have been taken along these lines at intervals of at most one hundred meters. Any stream crossing the lines were sampled and the distance from the reference point recorded. If after traversing one hundred meters, and no stream was found, then a soil sample was collected. The result is the formation of a grid with sample sites located at the corners of squares with sides one hundred meters long. All lines marked on this map have been located by map, air photo, compass, pacing and altimeter.

INTERPRETATION

Background values for this area have been defined as:

Cu	up to 70 ppm
Pb	up to 40 ppm
Zn	up to 100 ppm
Mo	up to 5 ppm
Ag	up to 0.3 ppm
Au	up to 10 ppb

Values above these are considered anomalous. All the silt samples taken in this study show anomalous levels of lead and zinc. Two of the lead levels are around 100 ppm, a level that has correlated well with significant mineralization on other nearby claims. The zinc values are all between two and five times the background, and although clearly anomalous are not as high as the ten to twenty times the background levels found on the nearby Diddi and Ursula claims. Gold values in these streams are also anomalous, which is certainly encouraging and worthy of follow-up.

The soil samples collected from the Nadine claim show sporadic areas of copper and zinc anomalies that at first do not look too significant. The real surprise here was that all the gold levels in this area are anomalous and one sample (212)

INTERPRETATION

showed a highly anomalous reading of 310 ppb. Sample 212 also shows anomalous levels of copper, zinc and molybdenum so that future or present samples with anomalies of these elements should be closely investigated for the presence of gold nearby.

W.J. Wolfe, in a report to the Ontario Ministry of Mines, concluded that intrusive rocks near known gold deposits showed anomalous gold levels ranging from 5 to over 300 ppb.

CONCLUSION

Although no mineral of economic grade or extent has been found on the Nadine and Michael claims, the generally anomalous values of gold in the soils and silts of this area clearly indicate that more study and investigation is warranted.

CONCLUSION

K.R. MacKenzie, B.Sc., M.D.

Frank W. Baumann, P.Eng.

APPENDIX A

AUTHOR'S QUALIFICATIONS

K. R. MacKenzie, B.Sc., M.D.

Doctor MacKenzie is a medical doctor who graduated from the University of British Columbia in 1963 with a B.Sc. in Chemistry and Mathematics. Geology 105 was taken as part of his undergraduate studies. He spent three summers working for the Geological Survey of Canada under Dr. J. O. Wheeler.

After graduating from U.B.C. in 1968 with a medical degree, Dr. MacKenzie has continued to prospect as a hobby.

Recent reading by the author inludes:

- G.S.C. Memoir No. 335 - J.A. Roddick
- Prospecting in Canada (G.S.C.) by A.H. Lang.
- G.S.C. Paper 72-53, Rock and Mineral Collecting in British Columbia, by S. Leaming.
- G.S.C. Paper 72-22, Precambrian Volcanogenic Massive Sulphide Deposits in Canada: A Review by D.F. Sangster.
- Geol. Soc. Malaysia, Bulletin 9, Nov. 1977, pp.1-16, Mineralization in the Coast Plutonic Complex of British Columbia, south of latitude 55°N by G.J. Woodsworth and J.A. Roddick.
- International Geologic Congress, Field Excursion A09-C09, Copper and Molybdenum Deposits of the Western Cordillera.
- Exploration and Mining Geology by William C. Peters.
- A Field Guide to Rocks and Minerals by Pough.
- Volcanogenic Deposits and their Regional Setting in the Canadian Cordillera - Abstracts from the Geological Association of Canada Conference, January 25, 26, 1980.
- Colorimetric determination of traces of Metals by E.B. Sandell
- Geology and Economic Minerals of Canada (G.S.C.) by Douglas

- The Geochemistry of Silver and its Deposits (G.S.C.) by Boyle.
- The Geochemistry of Gold and its Deposits (G.S.C.) by Boyle.
- Geophysics and Geochemistry in the search for Metallic Ores by Duncan R. Derry, Michener, Booth.
- Geochemistry in Mineral Exploration by Rose, Hawkes, Webb.
- Time and Stratabound Ore Deposits by Klemm, Schneider.
- Theory and Practice of Regional Geochemical Exploration by M. Foldvari-Vogl.
- Summary Report on War Eagle, Clarke and Janette Claims (Maggie Mines Ltd.) by Andrew E. Nevin Ph.D., P.Eng. September 18, 1980.
- Western Mines- Myra, Lynx and Price deposits by R.H. Seraphim C.I.M. Bulletin, December 1980.
- Western Mines-Myra, Lynx and Price deposits: a discussion by R.R. Walker C.I.M. Bulletin, December 1980.
- Gold in early Precambrian plutonic rocks; The relation between geochemical abundance and concentration to exploitable levels. by W.J. Wolfe, Econ Geol. 70, No 1 page 253, 1975.
- Semi-Conducting Ore Minerals by R.T. Shuey.
- Introduction to Exploration Geochemistry by A.A. Levinson.
- Handbook of Geochemistry by K.H. Wedepohl et al.
- Ultraviolet Guide to Minerals by Sterling Gleason

APPENDIX A

AUTHOR'S QUALIFICATIONS

Frank W. Baumann, P.Eng.

Mr. Baumann graduated in 1971 from U.B.C. with a B.A.Sc. in Geological Engineering and obtained his P.Eng. in 1973. Prior to graduation, he had spent four summers working with Amax Exploration Inc. and Duval Corp. as a geological field assistant. From 1971 until 1975, he worked for Duval Corporation as an exploration geologist, specializing in the evaluation of mineral deposits. In 1976, he left Duval to do a four month consulting job for the United Nations Development Program in Burma. This job also entailed the evaluation of mineral properties.

Since 1977, Mr. Baumann has been teaching geology and physics at Howe Sound Secondary School in Squamish, as well as doing summer projects in exploration geology. His last major project was in the summer of 1981 when he was the project manager of a program to re-evaluate the Cariboo Gold Quartz mine at Wells, B.C.

Mr. Baumann is the author of numerous private technical reports and has also co-authored a United Nations paper on the Shangalon Porphry Copper Deposit in Burma and a second published paper on the North Fork Copper Deposit in Washington State, U.S.A.

APPENDIX B

ITEMIZED COST STATEMENT

for

NADINE (696) AND MICHAEL (697) CLAIMS

Value of work performed

K. Mackenzie	1981	
November 7,9		
December 8($\frac{1}{2}$ day)		
Total	2$\frac{1}{2}$ days @ $110/day	275.00

Transportation

Motor vehicle

30 Km on 2 days	60 Km	
145 Km on 3 days	435 Km	
Total	495 Km @ 24¢/Km	118.80

Lab Analysis

6 silt samples @ $10.65	63.90
4 rock samples @ $12.55	50.20
12 soil samples @ $10.65	127.80

Report Preparation

K. Mackenzie 1981

December 28-4 hrs, 29-1 hr.

1982

April 28-1 hr

May 1-4 hrs, 7-1 hr, 9-3 hrs, 14-4 hrs

17-9 hrs, 18-6 hrs, 23-2 hrs,

25-4 hrs.

Total 39 hours @ $13.75/hr	536.25
Page Total	1,171.95

ITEMIZED COST STATEMENT

Report Preparation (continued)

F. Baumann	1982	
3 hrs @ $16.25/hr		48.75
E. Kimura	1982	
1 hr @ $16.25/hr		16.25
Maps		25.00
Reproduction		15.00
Miscellaneous		20.00
Previous page total		1,171.95
GRAND TOTAL		1,296.95

APPENDIX C

RESULTS OF GEOCHEMICAL ANALYSES

Sample Number	Type of Sample	Cu ppm	Pb ppm	Zn ppm	Mo ppm	Ag ppm	Au ppb
196	silt	62	55	390	5	0.2	5
197	silt	67	124	340	4	0.2	60
198	silt	57	54	303	3	0.2	30
199	silt	34	99	440	4	0.2	30
200	rock	233	350	430	8	0.3	20
201	silt	72	80	310	3	0.2	30
202	silt	53	36	231	3	0.2	20
203	rock	6	6	43	7	0.2	5
204	soil	25	9	43	2	0.2	30
205	soil	37	46	161	2	0.2	30
206	rock	1,080	31	71	20	3.2	20
207	soil	34	8	60	2	0.2	40
208	soil	31	4	40	2	0.2	40
209	soil	29	7	19	2	0.2	30
210	rock	49	3	46	6	0.2	30
211	soil	54	6	52	4	0.2	30
212	soil	179	15	129	23	0.3	310
213	soil	117	7	69	5	0.2	30
214	soil	10	2	9	2	0.2	50
215	soil	61	13	114	2	0.2	30
216	soil	94	27	162	4	0.7	20
217	soil	115	20	224	3	0.2	20

APPENDIX D

ANALYSIS METHODS USED

All the samples analysed in this study were done by the Placer Development Ltd. research lab at 323 Alexander Street, Vancouver, B.C.

ANALYSIS METHODS USED BY PLACER DEVELOPMENT LTD.

Element	Extraction	Method	Size fraction
Cu	C HCLO4/HNO3	Atomic Absorption	-80
Pb	C HCLO4/HNO3	A.A. Background correction	-80
Zn	C HCLO4/HNO3	Atomic Absorption	-80
Mo	C HCLO4/HNO3	Atomic Absorption	-80
Ag	C HCLO4/HNO3	A.A. Background correction	-80
Au	C HBR/BR	A.A. Solvent extract	-80

DESCRIPTION OF ANALYSED SAMPLES AND SITES

Sample Number	Description
196	This silt sample was taken from a small north flowing stream that lies fifty-five meters east of the legal corner post for Nadine (696) and Michael (697).
197	A silt sample taken from another parallel stream one hundred and ten meters east of the reference point. Rock outcrops in the vicinity of 196 and 197 are quartz diorite.
198	Silt from another small stream lying one hundred and fifty meters east. Nearby rocks are quartz diorite, but some Gambier Group meta-volcanics are are present as float in the stream.
199	Another silt sample from a stream located one hundred and eighty-eight meters from the LCP.
200	This rock sample was taken from the

Sample Number	Description
200	same site as sample 199. It is a piece of quartz rich rhyodacite, dark green in colour, with a black weathered surface. Small specks of sphalerite were seen in this piece of float.
201	Silt sample collected from a small creek two hundred and sixty meters east of the reference point. Outcrop is mainly quartz diorite but a dyke of recent origin also crosses the creek.
202	This silt sample was taken from a very small stream that flows roughly north down the steep sides of a linear depression that has a bearing of one hundred and ten degrees. Creek 201 flows north until it reaches this depression where it abruptly changes direction and flows easterly in the bottom of the trench. Creek 202 therefore flows into creek 201. This large linear depression may represent a shear.

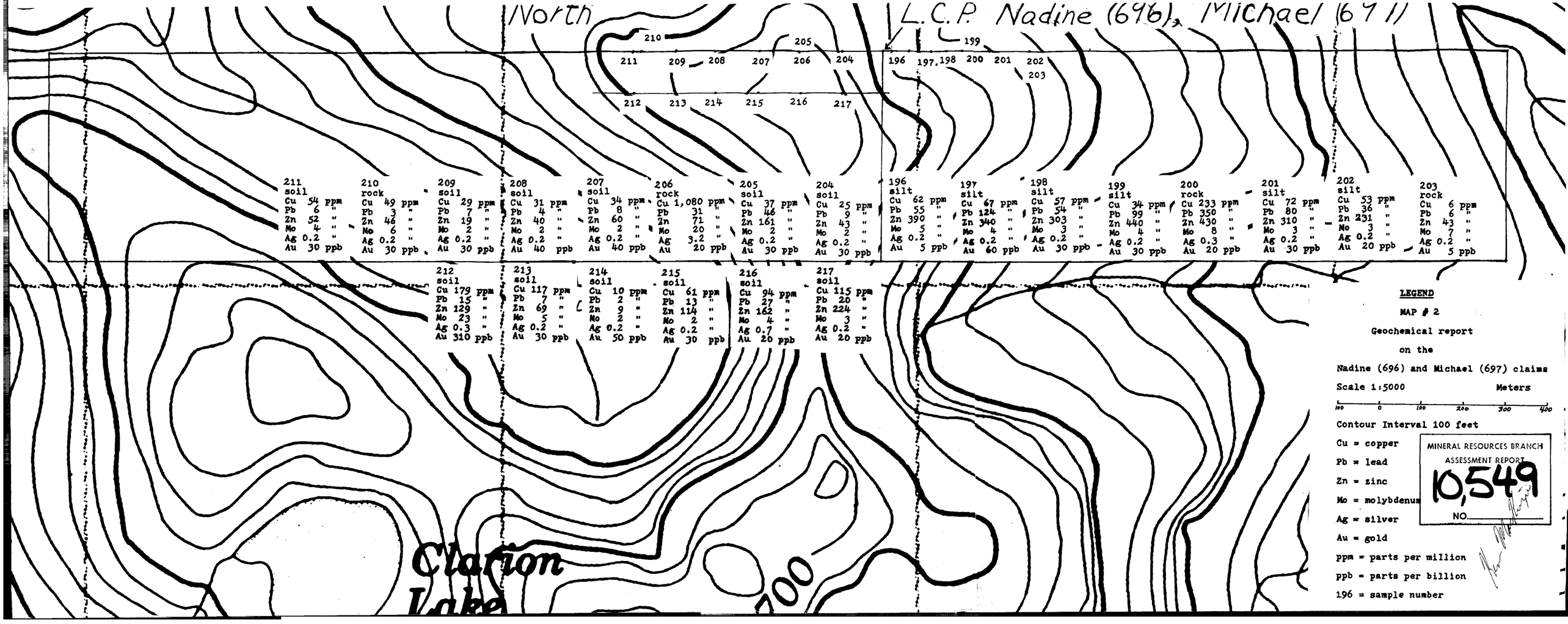
Sample Number	Description
203	This rock was found at the same site as sample 202. The main rock outcropping in this area is quartz diorite, but sample 203 appears to be an outcrop of bedded quartz that probably forms an inclusion in the quartz diorite. The rock is light coloured and contains pyrite. The bedding planes strike at one hundred and seventy degrees and dip at ninety degrees.
204	This soil sample was taken from above the cliffs one hundred meters to the west of LCP Nadine and Michael. It was a dry soil, "B" level, thirty centimeters deep, closely related to quartz diorite outcrops. The soil colour was a light rusty-brown.
205	Soil taken from two hundred meters west of the LCP. Dry, "B" level, light brown, thirty centimeters deep, close

Sample Number	Description
205	to quartz diorite outcrops.
206	This rock sample comes from a large boulder perched on the hillside quite close to 205. It is clearly a piece of float, rhyodacite with veins of white and red quartz. Associated with the quartz veins is pyrite and some chalcopyrite. Outcrop similar to this rock has not been found on the hillside above this point, so it may be possible that 206 represents an erratic carried here from the ridge to the north where similar rocks occur frequently.
207	Soil sample taken three hundred meters along the line. "B" level, thirty centimeters deep, dry, colour deep brown, almost black. Outcrops of dark hornblende rich diorite nearby. The hornblende crystals in this rock are quite small near this sample.
208	Soil sample, four hundred meters west of LCP Nadine and Michael. Dry, "B"

Sample Number	Description
208	level, thirty centimeters deep, near diorite with small hornblende crystals. Light brown rusty colour.
209	Light brown soil sample five hundred meters from the reference point. The soil was dry, "B" level taken from thirty centimeters deep and was near quartz diorite outcrops that contained fairly large hornblende crystals.
210	This rock is quartz diorite with an estimated content of pyrite at five percent. No other minerals were evident. It was found on the line five hundred and eighty-five meters from the LCP.
211	There was very little "B" level soil to sample in this area before broken quartz diorite rock was encountered. As a result the sample has some mixed

Sample Number	Description
211	"A" and "B" soils. Dry, thirty centimeters deep.
212	The remaining samples in this report are taken from a line one hundred meters to the south of the claim boundary. 212 is due south of 211 and is soil from the edge of a small stream. The soil was light brown, dry, from thirty centimeters deep, and closely associated with pyritized quartz diorite.
213	Soil taken one hundred meters east of 212. Wet, brown "B" level, thirty centimeters deep. A small stream follows a linear depression with a bearing of three hundred and fifty degrees.
214	Dark brown, "B" level soil taken from one hundred meters east of 213. Dry, thirty centimeters deep, associated with diorite nearby.

Sample Number	Description
215	Soil sample, dry, light brown, "B" level thirty centimeters deep. The rocks nearby are diorite with larger than usual hornblende crystals up to 0.5 centimeters in length.
216	Soil sample taken from the top of the ridge, one hundred meters east of 215. It was a dry, brown "B" level soil taken from twenty centimeters deep. Quartz diorite nearby.
217	This soil sample was taken part way down the east side of the ridge, one hundred meters east of 216. Dry, brown soil, "B" level fifteen centimeters deep, associated with quartz diorite outcrops.


North
L.C.P. Nadine (696), Michael (697)
210
205
211
209
208
207
206
204
212
213
214
215
216
217
196
197
198
200
201
202
203
199
211
soil
Cu 54 ppm
Pb 6 "
Zn 52 "
Mo 4 "
Ag 0.2 "
Au 30 ppb
210
rock
Cu 49 ppm
Pb 3 "
Zn 46 "
Mo 6 "
Ag 0.2 "
Au 30 ppb
209
soil
Cu 29 ppm
Pb 7 "
Zn 19 "
Mo 2 "
Ag 0.2 "
Au 30 ppb
208
soil
Cu 31 ppm
Pb 4 "
Zn 40 "
Mo 2 "
Ag 0.2 "
Au 40 ppb
207
soil
Cu 34 ppm
Pb 8 "
Zn 60 "
Mo 2 "
Ag 0.2 "
Au 40 ppb
206
rock
Cu 1,080 ppm
Pb 31 "
Zn 71 "
Mo 20 "
Ag 3.2 "
Au 20 ppb
205
soil
Cu 37 ppm
Pb 46 "
Zn 161 "
Mo 2 "
Ag 0.2 "
Au 30 ppb
204
soil
Cu 25 ppm
Pb 9 "
Zn 43 "
Mo 2 "
Ag 0.2 "
Au 30 ppb
196
silt
Cu 62 ppm
Pb 55 "
Zn 390 "
Mo 5 "
Ag 0.2 "
Au 5 ppb
197
silt
Cu 67 ppm
Pb 124 "
Zn 340 "
Mo 4 "
Ag 0.2 "
Au 60 ppb
198
silt
Cu 57 ppm
Pb 54 "
Zn 303 "
Mo 3 "
Ag 0.2 "
Au 30 ppb
199
silt
Cu 34 ppm
Pb 99 "
Zn 440 "
Mo 4 "
Ag 0.2 "
Au 30 ppb
200
rock
Cu 233 ppm
Pb 350 "
Zn 430 "
Mo 8 "
Ag 0.3 "
Au 20 ppb
201
silt
Cu 72 ppm
Pb 80 "
Zn 310 "
Mo 3 "
Ag 0.2 "
Au 30 ppb
202
silt
Cu 53 ppm
Pb 36 "
Zn 231 "
Mo 3 "
Ag 0.2 "
Au 20 ppb
203
rock
Cu 6 ppm
Pb 6 "
Zn 43 "
Mo 7 "
Ag 0.2 "
Au 5 ppb
212
soil
Cu 179 ppm
Pb 15 "
Zn 129 "
Mo 23 "
Ag 0.3 "
Au 310 ppb
213
soil
Cu 117 ppm
Pb 7 "
Zn 69 "
Mo 5 "
Ag 0.2 "
Au 30 ppb
214
soil
Cu 10 ppm
Pb 2 "
Zn 9 "
Mo 2 "
Ag 0.2 "
Au 50 ppb
215
soil
Cu 61 ppm
Pb 13 "
Zn 114 "
Mo 2 "
Ag 0.2 "
Au 30 ppb
216
soil
Cu 94 ppm
Pb 27 "
Zn 162 "
Mo 4 "
Ag 0.7 "
Au 20 ppb
217
soil
Cu 115 ppm
Pb 20 "
Zn 224 "
Mo 3 "
Ag 0.2 "
Au 20 ppb
Clarion Lake
700
LEGEND
MAP # 2
Geochemical report
on the
Nadine (696) and Michael (697) claims
Scale 1:5000
Meters
100 0 100 200 300 400
Contour Interval 100 feet
Cu = copper
Pb = lead
Zn = zinc
Mo = molybdenum
Ag = silver
Au = gold
ppm = parts per million
ppb = parts per billion
196 = sample number
MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
10,549
NO.