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REPORT ON AN ECONOMIC GEOLOGICAL APPRAISAL
OF THE
BLUEY GROUP OF MINERAL CLAIMS
ASPEN GROVE AREA
NICOLA MINING DIVISION
BRITISH COLUMBIA

CLAIMS: BLUEY MINERAL CLAIM, AND
BALSAM FRACTION (70 UNITS)

LOCATION: THE BLUEY GROUP OF CLAIMS
LIES 7 KM. SOUTHEAST OF
ASPEN GROVE, B.C.
LAT. 45°53'; LONG. 120°
35'; N.T.S. 92H/15E

WRITTEN BY: MURRAY MORRISON

OWNER: MR. FRED GINGELL

OPERATOR: MR. FRED GINGELL

DATE STARTED: JUNE 5, 1981

DATE COMPLETED: JUNE 15, 1981

CURRENT DATE: JUNE 26, 1981
KELOWNA, B.C.

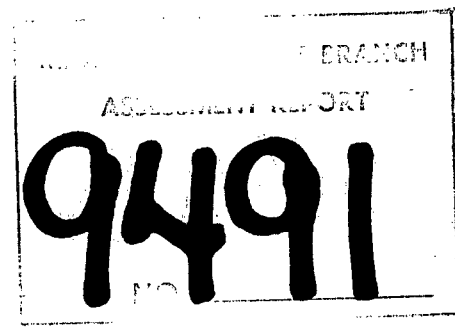


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GEOLOGY, MINERAL OCCURENCES, AND ROCK GEOCHEMISTRY FOR GOLD, SILVER AND COPPER. _ MAP BC-81-3	POCKET

SUMMARY

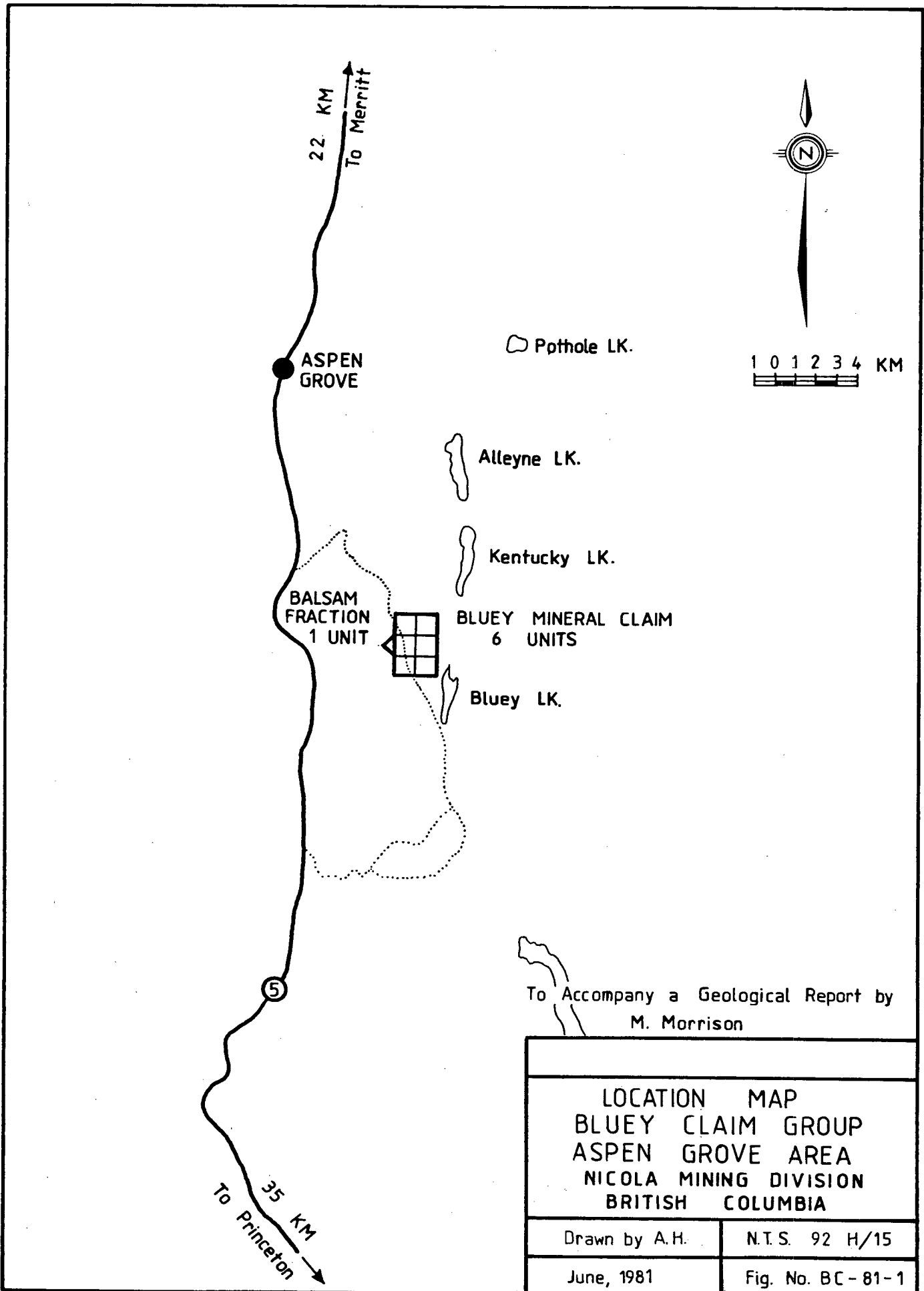
THE BLUEY GROUP OF CLAIMS MADE UP OF THE BLUEY MINERAL CLAIM (6 UNITS), AND THE BALSAM FRACTION (1 UNIT), SITUATED 7 KILOMETRES SOUTHEAST OF ASPEN GROVE, B.C., WAS EXAMINED BY THE WRITER JUNE 5-15, 1981. THE CLAIMS ARE OWNED BY MR. FRED GINGELL OF BURNABY, B.C. WHO REQUESTED THAT ASSESSMENT WORK BE DONE ON THE CLAIMS FOR THE YEAR 1981.

A STUDY WAS MADE OF PREVIOUS SURVEYS ON THE PROPERTY, AND AN EXAMINATION OF THE PROPERTY WAS CARRIED OUT WITH A FOCUS ON AREAS OF KNOWN COPPER MINERALIZATION AND COPPER AND SOIL GEOCHEMICAL ANOMALIES. DURING THIS YEAR'S PROGRAM, ROCK GEOCHEMICAL SAMPLES WERE COLLECTED AND ANALYZED FOR COPPER, SILVER, AND GOLD.

RESULTS OF THE COPPER ROCK GEOCHEMISTRY, COUPLED WITH FIELD OBSERVATIONS, SUGGEST THAT THE MAJOR NORTHWESTERLY-TRENDING FAULT RUNNING DIAGONALLY THROUGH THE PROPERTY, AND A SECONDARY PARALLEL FAULT 300 METRES TO THE NORTHEAST, MAY BE THE PRIME AREAS FOR COPPER MINERALIZATION ON THE PROPERTY. DRILL HOLES FROM THE 1960'S APPEAR TO HAVE BEEN DRILLED TOWARDS WEAKLY MINERALIZED OUTCROP EXPOSURES AWAY FROM THE FAULTS, AND THE FAULTS THEMSELVES, LARGELY COVERED BY OVERBURDEN, HAVE BEEN IGNORED BY PREVIOUS WORKERS.

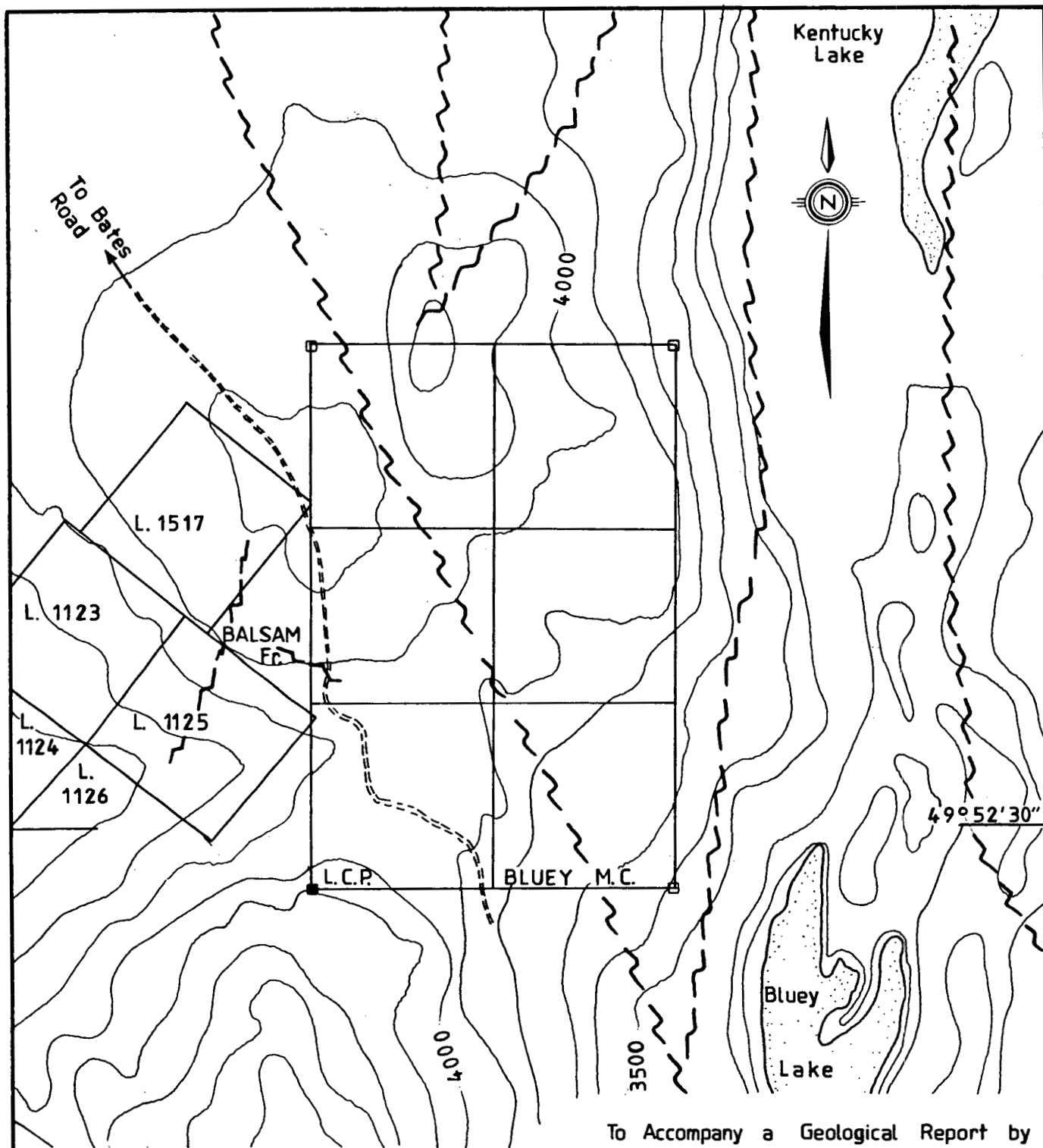
IT IS SUGGESTED THAT DETAILED GEOLOGICAL MAPPING, AND THE COLLECTION OF ROCK GEOCHEMICAL SAMPLES (TO BE ANALYZED FOR COPPER ONLY) IN AREAS ADJACENT, THE FAULTS MIGHT YIELD ENOUGH EVIDENCE TO SUPPORT A FUTURE DRILLING PROGRAM.

THE SILVER AND GOLD ROCK GEOCHEM VALUES FROM THIS YEAR'S SURVEY PROVED TO BE OF LITTLE USE IN APPRAISING THE PROPERTY.



To Accompany a Geological Report by
M. Morrison

LOCATION MAP BLUEY CLAIM GROUP ASPEN GROVE AREA NICOLA MINING DIVISION BRITISH COLUMBIA	
Drawn by A.H.	N.T.S. 92 H/15
June, 1981	Fig. No. BC-81-1



To Accompany a Geological Report by
M. Morrison

Note: Positions of Lots # 1123-1125
and 1517 plotted from N.T.S.
map 92 H/15. All other data
is from a map drawn by
R.W. Yorke-Hardy in a 1979
report.

0 5 1 KM

Inferred faults - 

CLAIM MAP
BLUEY CLAIM GROUP
ASPEN GROVE AREA
NICOLA MINING DIVISION
BRITISH COLUMBIA

Drawn by A.H.

N.T.S., 92 H/15

June, 1981,

Fig. No. BC-81-2

INTRODUCTION

THE BLUEY GROUP OF MINERAL CLAIMS, MADE UP OF THE BLUEY CLAIM (6 UNITS), AND THE BALSAM FRACTION (1 UNIT) IS SITUATED 7 KILOMETRES SOUTHEAST OF ASPEN GROVE, B.C. (LAT. 45°53'; LONG. 120°35', N.T.S. 92H/15E). THE CLAIMS ARE OWNED BY MR. FRED GINGELL, OF #325-6400 ROBERTS STREET, BURNABY, B.C., WHO REQUESTED THAT A WORK PROGRAM BE CARRIED OUT ON THE PROPERTY TO SATISFY ASSESSMENT WORK REQUIREMENTS FOR 1981.

A PROGRAM INVOLVING A GENERAL OVERALL ECONOMIC GEOLOGICAL APPRAISAL WAS CARRIED OUT ON THE COPPER PROPERTY BY THE WRITER FROM JUNE 5-15, 1981. WORK INCLUDED AN EXAMINATION OF KNOWN COPPER SHOWINGS ON THE PROPERTY COMBINED WITH A CAREFUL FOLLOW-UP STUDY OF COPPER AND SILVER SOIL GEOCHEMICAL ANOMALIES OUTLINED ON THE PROPERTY DURING 1976 AND 1979 SURVEYS. SEVERAL ROCK GEOCHEMICAL SAMPLES WERE COLLECTED THIS YEAR, AND ANALYZED FOR CU, AU AND AG CONTENT WITH THE HOPE THAT THESE SAMPLE ANALYSIS WOULD LEND MORE INSIGHT INTO THE ECONOMIC POTENTIAL OF THE PROPERTY.

A MAP SHOWING THE ROCK GEOCHEM SAMPLE SITES, AND MINERALIZED ZONES, AND THEIR RELATIONSHIP TO PROPERTY GEOLOGY ACCOMPANIES THIS REPORT. A DISCUSSION OF SOIL GEOCHEMISTRY, ROCK GEOCHEMISTRY, ECONOMIC GEOLOGY, ECONOMIC MINERALIZATION, AND GENESIS OF ECONOMIC MINERALIZATION IS ALSO PRESENTED IN THIS REPORT.

CLAIM STATUS

THE BLUEY GROUP OF CLAIMS IS OWNED BY MR. FRED GINGELL OF BURNABY, B.C., AND IS LOCATED IN THE NICOLA MINING DIVISION OF BRITISH COLUMBIA. THE CLAIMS INCLUDED IN THE BLUEY GROUP ARE AS FOLLOWS:

<u>CLAIM NAME</u>	<u>UNITS</u>	<u>RECORD #</u>	<u>DATE RECORDED</u>	<u>NEW EXPIRY DATE</u>
BLUEY	6	17	JUNE 16, 1975	JUNE 16, 1982
BALSAM FRACTION	1	16	JUNE 16, 1975	JUNE 16, 1982

LOCATION AND ACCESS - (AS PER R.W. YORKE-HARDY'S 1979 REPORT)

THE LEGAL CORNER POST OF THE BLUEY CLAIM IS LOCATED APPROXIMATELY 1.6 KILOMETRES DUE WEST OF THE NORTHERN END OF BLUEY LAKE AND ABOUT 8.0 KILOMETRES S 20° E OF ASPEN GROVE, B.C. THE GEOGRAPHICAL COORDINATES ARE 49°53'N LATITUDE AND 120°35'W LONGITUDE, AND CAN BE FOUND ON N.T.S. MAP 92H/15E.

THE CLAIMS CAN BE REACHED BY TRAVELLING ALONG HIGHWAY #5 FOR 30 KILOMETRES SOUTH OF MERRITT, B.C. (OR 4.7 KM. SOUTH OF ASPEN GROVE) AND THEN TURNING EAST ON BATES ROAD TOWARDS KENTUCKY LAKE. AT 1.8 KILOMETRES EAST ON THIS GRAVEL ROAD, A TURN IS MADE TO THE SOUTH, ON TO A DIRT ROAD WHICH LEADS TO THE BLUEY GROUP OF CLAIMS. THE CLAIMS ARE LOCATED APPROXIMATELY 3 KILOMETRES FROM THIS SECOND TURN. PLEASE SEE FIGURES BC-81-1 AND 2.

PHYSIOGRAPHY - (AS PER R.W. YORKE-HARDY'S 1979 REPORT)

THE BLUEY CLAIM GROUP LIES IN THE SOUTHERN PART OF THE PHYE-

SIOGRAPHIC DIVISION KNOWN AS THE THOMPSON PLATEAU WHICH IS IN TURN PART OF THE INTERIOR PLATEAU SYSTEM. THE TERRAIN VARIES FROM FLAT TO ROLLING HILLS OVER MOST OF THE PROPERTY, TO A STEEP SLOPE ON THE EASTERN MARGIN. ELEVATIONS VARY FROM 1100 METRES A.S.L. IN THE SOUTHEASTERN CORNER OF THE CLAIM TO 1300 METRES A.S.L. IN THE NORTHWESTERN CORNER.

A LARGE SWAMPY LAKE ON THE NORTHWEST CORNER OF THE BLUEY CLAIM IS THE ONLY MAIN WATER SOURCE WITHIN THE CLAIM BOUNDARIES. BLUEY LAKE IS LOCATED APPROXIMATELY 1000 METRES EAST OF THE SOUTHEASTERN CORNER OF THE CLAIM.

THE GENERAL TREND OF THE TOPOGRAPHY IS NORTH-SOUTH ALONG AN INDICATED FAULT WHICH EXTENDS SOUTH TOWARDS MISSEZULA LAKE AND NORTH TO ALLEYNE LAKE. AN OFF-SHOOTING NORTHWEST TRENDING FAULT CUTS DIAGONALLY ACROSS THE BLUEY MINERAL CLAIM. VEGETATION ON THE PROPERTY IS A MODERATELY DENSE FOREST COVER OF INTERIOR DOUGLAS FIR, LODGEPOLE PINE, AND ENGLEMAN SPRUCE.

HISTORY OF PREVIOUS WORK

SEVERAL SCATTERED PITS AND TRENCHES BLASTED IN ROCK OCCUR ON THE PROPERTY AND ARE BELIEVED TO PREDATE 1940. BULLDOZER TRENCHES AND DIAMOND DRILL HOLES WITHIN THE PROPERTY BOUNDARIES ARE BELIEVED TO DATE FROM THE 1960'S. RECENT WORK ON THE PROPERTY INCLUDES 1976 GEOCHEMICAL AND VLF-EM SURVEYS, AND A 1979 GEOCHEMICAL SURVEY. THE GEOCHEMICAL SURVEYS WERE CONDUCTED BY ROBERT W. YORKE-HARDY, WHILE THE GEOPHYSICS SURVEY WAS CONDUCTED BY GEOTRONICS SURVEYS LTD.

GEOLOGY - (AS PER KERR-DAWSON & ASSOCIATES LTD. AND
GEOTRONICS SURVEYS LTD.)

THE ASPEN GROVE AREA IS WITHIN A TERRAIN COMMONLY REFERRED TO AS THE NICOLA BELT OF UPPER TRIASSIC TO LOWER JURASSIC AGE. MASSIVE ANDESITIC FLOWS AND COARSE PYROCLASTIC ROCKS PREDOMINATE IN THE CENTRAL PART OF THE REGION AND A SEQUENCE OF LAYERED AND MASSIVE VOLCANOGENIC ROCKS OCCUR ALONG THE EASTERN MARGIN. THE SOUTHWESTERN SECTION OF THE REGION IS UNDERLAIN BY INTERCALATED VOLCANICLASTIC ROCKS, FLOWS AND CALCAREOUS SEDIMENTARY ROCKS THAT ARE PARTLY COVERED BY COARSE VOLCANIC BRECCIA. A SEQUENCE OF MASSIVE RED TO PURPLE AND GREEN AUGITE PORPHYRY FLOWS, COARSE VOLCANIC BRECCIA AND DIORITIZED VOLCANICS IS PRESENT IN THE CENTRAL PART OF THE REGION. THIS SEQUENCE MAY INDICATE THE EXISTENCE OF A CENTRAL ZONE OF PARTLY SUBAERIAL VOLCANIC CENTRES. INTRUSIVE ROCKS IN THE REGION ARE MAINLY DIORITIC AND APPEAR TO BE IN PART COMAGMATIC WITH THE NICOLA VOLCANIC ROCKS. SEVERAL SMALL AREAS OF MONZONITE AND/OR SYENITE ARE FOUND WITHIN THE BELT.

THE BLUEY PROPERTY IS UNDERLAIN BY RED AND GREEN INTERMEDIATE TO BASIC FLOWS, VOLCANIC FRAGMENTALS WITH VARYING AMOUNTS OF INTERCALATED CLASTIC SEDIMENTS AND CALCARIOUS ROCKS. THIS SEQUENCE IS INTRUDED BY A BODY OF "DIORITE" WHICH OCCUPIES THE NORTHEAST OF A DIAGONALLY TRANSECTING NORTHWESTERLY ORIENTED FAULT. PORTIONS OF THIS "DIORITE" MAY IN FACT BE ALTERED AND DIORITIZED FLOWS.

THE MAIN GEOLOGICAL STRUCTURE ON THE PROPERTY, AS PER PRETO, ET AL, IS THE ABOVE MENTIONED FAULT WHICH STRIKES FROM THE SOUTHEAST TO THE NORTHWEST CORNER OF THE BLUEY CLAIM (N25°W DIRECTION). IN ADDITION, TWO FAULTS STRIKING N20°E AND N60°W OCCUR ON THE BALSAM FRACTION.

1981 WORK PROGRAM

A. GENERAL

A QUICK STUDY WAS MADE OF THE GEOLOGY ON THE BLUEY GROUP OF CLAIMS ALONG WITH A STUDY OF THE SOIL GEOCHEMICAL ANOMALIES FOR COPPER AND SILVER THAT WERE OUTLINED DURING THE 1976 AND 1979 SOIL SURVEYS. ROCK GEOCHEMICAL SAMPLES WERE SELECTED FOR ANALYSES FROM 24 LOCATIONS ON THE PROPERTY, AND KNOWN AREAS OF MINERALIZATION WERE EXAMINED. A GRID THAT WAS MEASURED IN FEET DURING EARLIER STUDIES ON THE PROPERTY WAS USED TO ESTABLISH THIS YEAR'S GEOLOGICAL AND SAMPLE POSITIONS. CONVERSIONS FROM FEET TO METRES HAD TO BE MADE BEFORE PLOTTING LOCATIONS ON METRIC MAP BC-81-3, ACCOMPANYING THIS REPORT.

IT SHOULD BE NOTED THAT NUMBERS ON MANY OF THE GRID STAKES ARE NOW FADED, AND THAT THE GRID WILL HAVE TO BE REMEASURED FOR ANY FUTURE SURVEYS.

B. A STUDY OF KNOWN MINERALIZED AREAS

MINERALIZED AREAS PLOTTED ON OLDER MAPS WERE EXAMINED. OBSERVATIONS ARE NOTED UNDER THE "RESULTS OF THE 1981 WORK PROGRAM" SECTION OF THIS REPORT.

C. A STUDY OF 1976 AND 1979 COPPER AND SILVER SOIL GEO-CHEMICAL ANOMALIES

A STUDY WAS MADE OF THE MANY LINEAR ANOMALOUS AREAS OUTLINED IN THE 1976 AND 1979 COPPER AND SILVER SOIL GEOCHEMICAL SURVEYS. (THESE SURVEYS, BY R.W. YORKE-HARDY, HAVE BEEN FILED WITH THE DEPARTMENT OF MINES AS ASSESSMENT REPORTS). SPECIAL ATTENTION WAS GIVEN TO PEAK AREAS WITHIN OUTLINED ANOMALIES IN AN ATTEMPT TO DETERMINE:

- (A) IF THE ANOMALIES WERE CAUSED BY MINERALIZATION APPROACHING ECONOMIC CONCENTRATIONS IN NEARBY ROCK EXPOSURES.
- (B) IF THE ANOMALIES WERE CAUSED BY WIDESPREAD SUB-ECONOMIC MINERALIZATION IN NEARBY ROCK EXPOSURES.
- (C) IF THE ANOMALIES WERE CAUSED BY ORGANIC ENRICHMENT IN DRAINAGE BASINS OF A LOW GRADE MINERAL SOURCE.
- (D) IF THE ANOMALIES REPRESENTED A HIDDEN ZONE OF POSSIBLE ECONOMIC MINERALIZATION.

A DISCUSSION OF THE OUTCOME OF THIS STUDY IS GIVEN IN THE "RESULTS OF THE 1981 WORK PROGRAM" SECTION IN THIS REPORT.

D. COLLECTION OF ROCK GEOCHEMICAL SAMPLES

- SAMPLING PROCEDURE

ROCK GEOCHEMICAL SAMPLES WERE SELECTED FROM 24 SITES ON THE BLUEY CLAIM GROUP. THE SITES CHOSEN WERE OF TWO TYPES:

- (A) THOSE AREAS THAT GAVE A HIGH SOIL GEOCHEMICAL RESPONSE FOR COPPER IN THE 1976 AND 1979 SURVEYS (MAINLY ON THE EASTERN SIDE OF THE PROPERTY), AND
- (B) THOSE AREAS THAT SHOWED VISIBLE CARBONATE ALTERATION OF VOLCANIC ROCK (MAINLY ON THE WESTERN SIDE OF THE PROPERTY).

A 1.5 TO 2 KG. SAMPLE WAS COLLECTED AT EACH SITE BY BREAKING SEVERAL ROCK CHIPS OF 3 CM. SIZE FROM BEDROCK OVER A 100 SQUARE METRE AREA. AN ATTEMPT WAS MADE TO GET ROCK AS FRESH (UNWEATHERED) AS POSSIBLE. CHIPS SHOWING EPIDOTE OR CALCITE VEINING WERE NOT EXCLUDED FROM THE SAMPLES.

- TESTING PROCEDURE

THE SAMPLES WERE ANALYZED BY THE KAMLOOPS RESEARCH AND ASSAY

LABORATORY LTD., TRANS-CANADA HIGHWAY WEST, KAMLOOPS, B.C. THE SAMPLES TO BE TESTED FOR COPPER, SILVER AND GOLD WERE CRUSHED TO MINUS 80 MESH; THEN A MEASURED AMOUNT OF THE CRUSHED MATERIAL WAS DIGESTED IN A HOT ACID SOLUTION, IN THE CASE OF COPPER AND SILVER, OR SUBMITTED TO FIRE ASSAY, IN THE CASE OF GOLD. THE ELEMENTS WERE THEN QUANTITATIVELY DETERMINED BY ATOMIC ABSORPTION. VALUES REPORTED IN PARTS PER MILLION (PPM) FOR COPPER AND SILVER, AND PARTS PER BILLION (PPB) FOR GOLD ARE PLOTTED ON MAP BC-81-3. SOME COPPER VALUES IN SOILS IN PPM FROM EARLIER SURVEYS HAVE ALSO BEEN PLOTTED ON MAP BC-81-3 FOR COMPARATIVE PURPOSES.

RESULTS OF THE 1981 WORK PROGRAM

A. MINERALIZATION

FIVE ZONES OF NOTABLE MINERALIZATION WERE VISITED ON THE PROPERTY, AND HAVE BEEN PLOTTED AND NUMBERED ON MAP BC-81-3 ACCOMPANYING THIS REPORT. A BRIEF DESCRIPTION OF EACH ZONE FOLLOWS:

ZONE ONE:

NEAR THE SOUTHWEST CORNER OF THE PROPERTY, AN AREA OF CONSIDERABLE BULLDOZER TRENCHING (CARRIED OUT IN THE 60'S?) HAS EXPOSED COPPER MINERALIZATION. THE BEST COPPER MINERALIZATION (0.2% CHALCOPYRITE) APPEARS TO BE RESTRICTED TO THE UPPER 1 METRE THICK BRECCIATED SURFACE OF AN ANDESITE FLOW, WHICH IS OVERLAIN BY 30 TO 60 CM. OF LIMY-ANDESITIC VOLCANIC SANDSTONE (BEDDING $344^{\circ}/65$ NE). THIS ZONE OF MINERALIZATION IS EXPOSED OVER SEVERAL METRES IN A NORTHERLY STRIKING TRENCH. SOME COPPER MINERALIZATION, MALACHITE, IS ALSO ASSOCIATED WITH $335^{\circ}/50^{\circ}$ SW SHEARING IN THE ANDESITE 4 METRES BELOW THE SANDSTONE CONTACT.

WEAK TO MODERATE CARBONATE ALTERATION OF THE ANDESITE FLOW ROCKS EXTENDS 30 METRES SOUTH AND WEST OF THE MAIN NORTHERLY STRIKING TRENCH. ZONES OF CARBONATE ALTERATION HAVE 2% CALCITE AND QUARTZ VEINLETS FILLING OPEN FRACTURES. MINOR (LESS THAN 1%) CHALCOPYRITE AND GALENA MINERALIZATION IS ASSOCIATED WITH THE VEIN MINERALS.

ZONE TWO:

IN THE EAST-CENTRAL REGION OF THE PROPERTY, A 15 METRE LONG NORTHERLY STRIKING BULLDOZER TRENCH HAS EXPOSED AN AREA OF CHALCOCITE AND MALACHITE MINERALIZATION. THE ROCK IS A WELL-FRACTURED, AND FAULTED, FINE TO MEDIUM GRAINED CHLORITE ALTERED DIORITE. 3% EPIDOTE, CALCITE, AND QUARTZ VEINLETS UP TO 1 CM FILL TIGHT FRACTURES. HEMATITE IS COMMON ON SLICKENSIDE SURFACES. CHALCOCITE SHOWS A CLOSE ASSOCIATION WITH FRACTURING AND FAULTING, BUT EQUALS MUCH LESS THAN 1% OVERALL.

THE ZONE HAS APPARENTLY BEEN TESTED AT DEPTH BY TWO OLD DIAMOND DRILL HOLES (1960'S?), BOTH SET BACK 20 METRES FROM THE TRENCH, AND DRILLED AT MINUS 45 DEGREES TOWARDS IT. ONE HOLE WAS DRILLED FROM THE WEST, AND THE SECOND FROM THE SOUTH.

ZONE THREE:

ZONE THREE IS LOCATED 300 METRES NORTHWEST OF ZONE TWO, AND THE DIORITE AND NATURE OF THE CHALCOCITE MINERALIZATION ARE THE SAME. A BULLDOZER TRENCH HAS BEEN EXCAVATED TO EXPLORE THE DIORITE, AND AN OLD DIAMOND DRILL HOLE (1960'S?) IS REPORTED TO HAVE BEEN DRILLED AT MINUS 45 DEGREES IN A NORTHEAST DIRECTION INTO A BLUFF FROM THE TRENCH SITE. AN OLD SHALLOW PIT IN ROCK ON TOP OF THE BLUFF, AND OLD SHORT CUTS INTO THE SOUTH

SIDE OF THE BLUFF HAVE BEEN EXCAVATED (PRE 1940'S?) TO EXAMINE CHALCOHITE AND MALACHITE MINERALIZATION IN TIGHT, NORTH-STRIKING, SHEAR ZONES IN CHLORITE ALTERED DIORITE. THE BEST MINERALIZATION OCCURS AT SHEAR INTERSECTIONS, AND THE OVERALL COPPER MINERALIZATION IS LESS THAN 1%.

ZONE FOUR:

ZONE FOUR IS LOCATED 200 METRES DUE WEST OF ZONE THREE. AN OLD ROCK CUT IN RED ANDESITE BRECCIA AT N 60 E FOLLOWS N60E SHEAR ZONES, WHICH ARE CROSSCUT BY N30W SHEAR ZONES. EPIDOTE, CALCITE, AND HEMATITE, ALL 1%, COVER SHEAR AND FAULT SURFACES. THE BEST CHALCOHITE AND MALACHITE MINERALIZATION OCCURS IN 15 CM. ZONES AT SHEAR INTERSECTIONS, AND EQUALS LESS THAN 1% OVERALL.

ZONE FIVE:

NEAR THE NORTHERN SIDE OF THE PROPERTY, AND 500 METRES NORTH OF ZONE THREE, MALACHITE PAINTS TIGHT FRACTURES ON A BLUFF OF CHLORITE ALTERED DIORITE AT ZONE FIVE. THE OVERALL COPPER MINERALIZATION APPEARS TO EQUAL MUCH LESS THAN 1%, BUT THE ZONE HAS BEEN EXPLORED BY BULLDOZER TRENCHING. AN OLD DIAMOND DRILL HOLE (1960'S?) HAS ALSO BEEN DRILLED IN THE AREA, AND MOST PROBABLY WAS DRILLED TOWARDS THE BLUFF, ALTHOUGH THE COLLAR OF THE HOLE CAN NO LONGER BE FOUND.

IN ADDITION TO THE ABOVE 5 ZONES, WEAK MALACHITE MINERALIZATION WAS FOUND AT SEVERAL OTHER LOCATIONS ON THE PROPERTY, AND WAS NOT RESTRICTED TO ANY ONE ROCK TYPE. HOWEVER, THE MINERALIZATION DOES SHOW A CLOSE RELATIONSHIP TO FAULTING, AND EPIDOTE AND CALCITE VEINING.

B. DISCUSSION OF A FIELD EXAMINATION OF GEOCHEMICAL
SOIL ANOMALIES FOR COPPER AND SILVER FROM THE 1976
AND 1979 SURVEYS

A GOOD DEAL OF TIME WAS SPENT CLOSELY EXAMINING GEO-CHEMICAL SOIL ANOMALIES FOR COPPER AND SILVER FROM THE 1976 AND 1979 GEOCHEM SURVEYS. IT WAS FOUND THAT COPPER SOIL ANOMALIES ON THE NORTHEASTERN PORTION OF THE PROPERTY WERE CAUSED BY WIDESPREAD LOW GRADE (50-200 PPM) COPPER MINERALIZATION IN ROCK EXPOSURES. IT WAS NOTED THAT THERE IS POOR SOIL DEVELOPMENT IN MANY OF THE AREAS WHICH WERE SAMPLED, AND THAT THE SOIL SIMPLY REPRESENTS THE LOW GRADE COPPER CONTENT IN NEARBY ROCK. WHERE THE SOIL WAS DEVELOPED (0.5 TO 1 METRE DEEP), IT WAS NOTICED THAT THE SOIL GEOCHEMICAL VALUES WERE RARELY ANOMALOUS. IN OTHER WORDS, THE COPPER CONTENT IN SOILS MORE CLOSELY REPRESENTED THE CLOSENESS OF BEDROCK TO SURFACE THAN ANY OTHER PHENOMENON.

IT WAS FURTHER NOTED THAT SOME OF THE BEST ANOMALIES OVERLIE AREAS THAT HAVE ALREADY BEEN EXPLORED FOR COPPER (ZONES 1 TO 5 ON MAP BC-81-3). SOME ENRICHMENT IN SOIL GEOCHEM VALUES, OR CONTAMINATION, HAS PROBABLY RESULTED FROM THE EARLIER EXCAVATIONS.

SOME STRONG LINEAR ANOMALIES WERE NOTED TO CORRESPOND TO DRAINAGE AREAS WHERE THE CHEMISTRY OF ORGANIC-RICH SOIL IS LIKELY TO HAVE MULTIPLIED COPPER AND SILVER CONCENTRATIONS.

VIRTUALLY ALL OF THE 1976 AND 1979 SOIL ANOMALIES COULD BE EXPLAINED, AND ATTRIBUTED TO EITHER SUB-GRADE COPPER MINERALIZATION IN NEARBY OUTCROP, ENRICHMENT OR CONTAMINATION FROM OLD WORKINGS, OR ENRICHMENT BY THE CHEMISTRY OF ORGANIC SOIL IN DRAINAGE AREAS.

C. DISCUSSION OF ROCK GEOCHEMICAL RESULTS

THE RESULTS OF THIS YEAR'S ROCK GEOCHEM SAMPLES CANNOT BE TREATED STATISTICALLY, BECAUSE THE SAMPLES WERE SELECTED FROM SPECIFIC AREAS, MANY OF WHICH, WERE KNOWN IN ADVANCE TO HAVE COPPER MINERALIZATION. HOWEVER, THE FOLLOWING GENERAL OBSERVATIONS CAN BE MADE FROM THIS YEAR'S DATA:

- GOLD

THE TWO HIGHEST GOLD GEOCHEM VALUES OF OUR LIMITED SURVEY WERE FROM SITES 8114 (125 PPB AU), AND 8119 (150 PPB AU) WHICH HAD CORRESPONDINGLY HIGH COPPER VALUES OF 460 PPM EACH. HOWEVER, ELSEWHERE ON THE PROPERTY THERE WAS A MUCH POORER CORRELATION BETWEEN GOLD AND COPPER VALUES.

THE THIRD BEST GOLD VALUE OF 105 PPB WAS FROM SAMPLE SITE 8118. SAMPLING TO THE EAST OF THE SITE SHOWED LOW GOLD VALUES, WHILE TO THE WEST THERE WAS NO SAMPLING.

- SILVER

SILVER CONTENT IN ROCKS FROM THE NORTHEAST PORTION OF THE PROPERTY HAD A NARROW RANGE OF 0.7 TO 1.1 PPM, AND SILVER APPEARS NOT TO BE USEFUL IN DEFINING ORE ENVIRONMENTS IN THAT REGION OF THE PROPERTY. IN THE CARBONATE ZONES ON THE WESTERN SIDE OF THE PROPERTY, THERE IS AN ELEVATED (1.3 TO 2.0 PPM) SILVER CONTENT, BUT THE CARBONATE ZONES THEMSELVES ARE EASILY TRACEABLE, AND THE SILVER ROCK GEOCHEM ISN'T NECESSARY TO DEFINE THEM.

- COPPER

ROCK SAMPLES WERE SELECTED FROM AREAS OF KNOWN COPPER SOIL ANOMALIES ON THE EASTERN SIDE OF THE PROPERTY THAT ARE UNDERLAIN BY "DIORITE". THE RESULTS FROM THESE SAMPLES SHOWED THAT IN SOME PLACES, THE SOIL CONTAINS ONLY A SLIGHT ENRICHMENT OR DEPLETION OF COPPER WITH RESPECT TO COPPER IN ROCK. FROM 13 SAMPLES GATHERED IN THE AREA, IT IS NOTED THAT THE AVERAGE COPPER CONTENT IS 151 PPM IN SOIL, AND 170 PPM IN ROCK. IF SAMPLE 8115 (732 PPM CU IN ROCK, 1200 PPM CU IN SOIL) IS INCLUDED IN THE DATA, THEN THE AVERAGE COPPER CONTENT IN THE 14 SAMPLES IS GREATER IN SOIL (226 PPM) THAN IN ROCK (210 PPM). THE DATA WOULD INDICATE THAT MOST OF THE COPPER SOIL ANOMALIES ON THE NORTHEASTERN CORNER OF THE PROPERTY COULD BE EXPLAINED BY THE LOW GRADE COPPER CONTENT IN NEARBY SURFACE ROCKS. AN EXCEPTION TO THIS STATEMENT MAY BE REPRESENTED BY SAMPLES 8109 (234 PPM CU IN ROCK), AND 8115 (732 PPM CU IN ROCK) WHICH ARE LOCATED 50 TO 80 METRES EAST OF AN INFERRED FAULT SHOWN ON MAP BC-81-3. THIS INFERRED FAULT IS PARALLEL WITH THE MAJOR FAULT SHOWN ON THE MAP WHICH CROSSES THE PROPERTY DIAGONALLY FROM SE TO NW. THE COPPER ROCK GEOCHEMISTRY SUGGESTS THAT FURTHER WORK MIGHT BE WARRANTED IN THE AREA OF THE SECONDARY INFERRED FAULT.

IT IS NOTED THAT THE COPPER CONTENT OF ROCK GEOCHEM SAMPLES 8101-02, 05-08, AND 10-12, TAKEN FROM AREAS UNDISTURBED BY EXPLORATION, COLLECTIVELY SHOW A GENERAL PATTERN OF INCREASING VALUES TOWARDS THE MAJOR NORTHWESTERLY TRENDING FAULT CUTTING THROUGH THE PROPERTY. THE RESULTS OF THE SAMPLING SUGGEST THAT THE MAJOR FAULT IS WORTHY OF MORE ATTENTION.

THE CARBONATE ZONES ON THE WESTERN SIDE OF THE PROPERTY SHOW HIGH ROCK GEOCHEM VALUES FOR COPPER (385, 475, AND 550), BUT THE ZONES HAVE A LIMITED EXTENT.

D. DISCUSSION OF MINERALIZATION AND ORE GENESIS

- DIORITE-ANDESITE INTERFACE MINERALIZATION

DURING THE WRITER'S EXAMINATION OF THE PROPERTY, IT WAS NOTED THAT PRETO'S (1974) ROCK UNIT 8D HAS SEVERAL FORMS. THE ROCK RANGES FROM A FINE TO MEDIUM GRAINED, FRESH, MASSIVE, "TRUE DIORITE" TO A FINE GRAINED CHLORITE ALTERED ROCK THAT SEEMS TO BE A HYBRID DIORITE-ANDESITE ROCK. THERE APPEARS TO BE A GRADATION FROM THE "TRUE DIORITE" TO THE HYBRID DIORITE IN BOTH LATERAL AND VERTICAL DIMENSIONS. THE "TRUE DIORITE" IS FOUND AT LOWER ELEVATIONS, AND PARTICULARLY AT THE NORTHEAST CORNER OF THE PROPERTY, WHEREAS THE HYBRID DIORITE IS MORE COMMON ON RIDGE TOPS AND TOWARDS THE MAJOR FAULT WHICH CUTS DIAGONALLY ACROSS THE CENTRE OF THE PROPERTY (SEE MAP BC-83-3)

THE WRITER FEELS THAT A DIORITE INTRUSIVE HAS INTRUDED A PILE OF NICOLA VOLCANICS ON THE PROPERTY, AND THAT SOME OF THE NICOLA VOLCANICS HAVE BEEN ASSIMILATED. THE PRESENT TOPOGRAPHY APPEARS TO CLOSELY REPRESENT THE INTRUSIVE-VOLCANIC INTERFACE. THE WRITER BELIEVES THAT COPPER CONTENT IN THE NICOLA VOLCANICS (WHICH IS KNOWN TO BE GENETICALLY HIGH) HAS BEEN REMOBILIZED TO SOME EXTENT BY THE INTRUDING DIORITE, AND THAT IT HAS MIGRATED TO THE INTRUSIVE-VOLCANIC INTERFACE. IT IS FELT THAT COPPER CONTENT MAY REACH HIGH VALUES LOCALLY WITHIN SHEAR ZONES IN THE INTERFACE HYBRID ROCKS, BUT THAT IT CAN NOT BE EXPECTED TO INCREASE WITH DEPTH IN

THE TRUE DIORITE. SOME OF THE DIAMOND DRILLING OF THE SIXTIES WAS DESIGNED TO TEST ROCK AT DEPTH BELOW SOME OF THE HYBRID DIORITE CHALCOCITE-MALACHITE ZONES (ZONES 2, 3 AND 5 ON MAP BC-81-3). IN THE WRITER'S OPINION, THESE ZONES LARGELY REPRESENT DIORITE-VOLCANIC "INTERFACE ENRICHMENT ZONES". ALTHOUGH THE RESULTS OF THIS DRILLING ARE UNAVAILABLE TO THE WRITER, IT IS EXPECTED THAT THE ROCK ENCOUNTERED IN THE DRILL HOLES WOULD BECOME MORE DIORITIC AND LESS FRACTURED AND MINERALIZED WITH DEPTH.

- MINERALIZATION RELATED TO FAULTING

ALL MINERALIZATION ON THE PROPERTY IS BY NO MEANS CONTROLLED BY DIORITE-VOLCANIC INTERFACES. FAULTING AND FRACTURING, WITH LATER IN FILLING OF FRACTURES BY EPIDOTE, CALCITE AND HEMATITE VEINING, IS COMMON ON THE PROPERTY. COPPER MINERALIZATION, MAINLY CHALCOCITE AND MALACHITE, SHOWS A CLOSE ASSOCIATION WITH THESE FEATURES. HOWEVER, FRACTURES AND FAULTS ARE GENERALLY TIGHT AND VEINLETS OF EPIDOTE, AND CALCITE ARE RARELY MORE THAN 1 CM. WIDE. THE OVERALL DEGREE OF COPPER MINERALIZATION IS ERRATIC AND LIMITED.

FAULT FEATURES AND RELATED EPIDOTE, CALCITE, AND HEMATITE VEINING DO INCREASE TOWARDS THE MAJOR NORTHWEST STRIKING FAULT SHOWN ON MAP BC-81-3. IT IS POSSIBLE THAT COPPER MINERALIZATION COULD REACH ECONOMIC PROPORTIONS TOWARDS THE FAULT. OLD DIAMOND DRILL HOLES AT ZONES 2 AND 3 (SEE MAP BC-81-3) HAVE BEEN DRILLED AWAY FROM THE MAJOR FAULT, WHEREAS THEY MAY HAVE HAD MORE SUCCESS IF THEY HAD BEEN DRILLED TOWARDS THE FAULT.

- MINERALIZATION ASSOCIATED WITH CARBONATE ALTERATION

WEAK TO MODERATE ZONES OF CARBONATE ALTERATION WERE NOTED AT SEVERAL PLACES ON THE WESTERN SIDE OF THE PROPERTY. CRUSTIFORM CALCITE AND QUARTZ VEINLETS UP TO 3% FILL FRACTURES WITHIN THE CARBONATE ALTERED ZONES. THE CARBONATE ALTERATION HAS A CLOSE SPACIAL RELATIONSHIP TO COPPER MINERALIZATION ON THE WESTERN SIDE OF THE PROPERTY (MOST NOTABLE AT ZONE 1), WHEREAS IT IS LACKING ON THE EASTERN SIDE OF THE PROPERTY. IT IS POSSIBLE THAT THE CARBONATE ALTERATION IS RELATED TO AN INTRUSIVE PHASE OF ROCK OTHER THAN THE DIORITE. THIS SECOND INTRUSIVE MAY HAVE A GENETIC RELATIONSHIP TO SOME OF THE COPPER MINERALIZATION SEEN ON THE PROPERTY.

CONCLUSIONS

LOW GRADE COPPER MINERALIZATION IN THE FORM OF CHALCO-CITE, CHALCOPYRITE, AND MALACHITE IS WIDESPREAD ON THE BLUEY CLAIM GROUP, BUT NOWHERE DOES THE SURFACE MINER-ALIZATION REACH ECONOMIC AMOUNTS.

THE EMPLACEMENT OF COPPER MINERALIZATION IN MOST AREAS IS FRACTURE CONTROLLED, AND THE BEST COPPER MINERALIZA-TION SHOWS A CLEAR ASSOCIATION WITH EPIDOTE AND CALCITE, FILLING FRACTURES. FRACTURING AND FAULTING ARE COMMON IN ALL ROCK TYPES ON THE PROPERTY, BUT THE FRACTURES ARE TIGHT (RARELY MORE THAT 1 CM. WIDE, AND OFTEN JUST 1 MM.).

THE EPIDOTE AND CALCITE FILLING FRACTURES ON MUCH OF THE PROPERTY EQUALS ONLY 1% OF THE ROCK, AND THE COPPER CONTENT IS VERY MUCH LESS THAT 0.1%. ONLY TOWARDS THE MAIN NORTHWESTERLY-TRENDING DIAGONAL FAULT ON THE PRO-PERTY DOES THE EPIDOTE AND CALCITE IN-FILLING OF FRAC-TURES REACH 2 TO 3% OF THE ROCK. THE COPPER CONTENT OF THE ROCK INCREASES ACCORDINGLY, BUT NEVER REACHES MUCH MORE THAN 0.1% OVER SMALL AREAS.

MUCH OF THE MAIN FAULT AREAS ARE COVERED BY OVERBURDEN, AND THERE IS A POSSIBILITY THAT COPPER OF ECONOMIC GRADE COULD BE FOUND WITHIN THE FAULT ZONES. ALL EARLIER DIAMOND DRILLING APPEARS TO HAVE BEEN DESIGNED TO IN-VESTIGATE MINERALIZED BLUFFY ROCK EXPOSURES IN A DIREC-TION OPPOSITE THE FAULTS.

ROCK GEOCHEMISTRY SHOWS INCREASING VALUES FOR COPPER TOWARDS THE MAJOR NORTHWESTERLY-TRENDING FAULT, AND TWO ROCK GEOCHEM SAMPLES ALSO POINT OUT THAT COPPER MAY BE

ASSOCIATED WITH A SECONDARY FAULT (INFERRED) 300 METRES NORTHEAST OF THE MAIN FAULT.

THE CARBONATE AREAS ON THE WESTERN SIDE OF THE PROPERTY CONTAIN ANOMALOUS AMOUNTS OF COPPER, BUT THEY ARE SMALL IN EXTENT. A "CONTACT TYPE" OF COPPER DEPOSIT MAY EXIST NEAR LIMESTONE BEDS, BUT MINERALIZED ZONES FOUND NEAR LIMESTONE TO DATE ARE SMALL AND NOT ENCOURAGING. IN MOST PLACES, THE LIMESTONE LENSES ARE SMALL, AND DIP FAIRLY STEEPLY. THESE FEATURES WOULD MAKE LIMESTONE CONTACT DEPOSITS DIFFICULT TARGETS TO EXPLORE.

COPPER ROCK GEOCHEMISTRY WORKED REASONABLY WELL ON THE PROPERTY, BUT SILVER PROVED TO BE OF NO USE, AND HIGH GOLD ROCK GEOCHEMICAL VALUES WERE COINCIDENT WITH HIGH COPPER ROCK GEOCHEMICAL VALUES. THE ANOMALOUS ENVIRONMENTS COULD ALL HAVE BEEN FOUND USING ONLY COPPER ANALYSES, AT A MUCH LOWER COST PER SAMPLE. OUR SURVEY DID SHOW A CORRELATION BETWEEN HIGH GOLD AND COPPER ROCK GEOCHEM VALUES, HOWEVER.


RECOMMENDATIONS

THE PROPERTY SHOULD BE GEOLOGICALLY MAPPED IN DETAIL (AT A SCALE OF AT LEAST 1:2,500), AND VERY SPECIAL ATTENTION SHOULD BE PAID TO FAULTS, AND FAULT RELATED FEATURES, SUCH AS EPIDOTE, CALCITE AND HEMATITE VEINING.

THE MAJOR NORTHWESTERLY-TRENDING FAULT, CUTTING DIAGONALLY ACROSS THE PROPERTY, AND THE SECONDARY INFERRED FAULT 300 METRES TO THE NORTHEAST SHOULD RECEIVE SPECIAL ATTENTION DURING MAPPING; THE MAPPING SHOULD BE DESIGNED TO TRY TO DETERMINE IF DRILLING INTO THESE FAULT AREAS IS WARRANTED. MORE ROCK GEOCHEMICAL SAMPLES COULD BE COLLECTED ADJACENT EACH FAULT, AND ANALYZED FOR COPPER. FURTHER ROCK GEOCHEMISTRY FOR SILVER OR GOLD IS NOT RECOMMENDED AT THIS STAGE.

A NEW METRIC GRID SHOULD BE ESTABLISHED ON THE PROPERTY TO FACILITATE GEOLOGICAL MAPPING. THE OLD GRID STATIONS ARE ALL BUT LOST ON THE PROPERTY.

JUNE 26, 1981



MURRAY MORRISON

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- YORKE-HARDY, R.W. GEOCHEMICAL REPORT COVERING THE BLUEY GROUP OF CLAIMS, ASPEN GROVE AREA, NICOLA M.D., B.C., JULY 27, 1979.

APPENDIX A

STATEMENT OF QUALIFICATIONS

I, MURRAY MORRISON, OF THE CITY OF KELOWNA, IN THE PROVINCE OF BRITISH COLUMBIA, DO HEREBY STATE THAT:

1. I GRADUATED FROM THE UNIVERSITY OF BRITISH COLUMBIA IN 1969 WITH A B.Sc. DEGREE IN GEOLOGY.
2. I HAVE BEEN WORKING IN ALL PHASES OF MINING EXPLORATION IN CANADA FOR THE PAST THIRTEEN YEARS.
3. DURING THE PAST TWELVE YEARS, I HAVE INTERMITTENTLY HELD RESPONSIBLE POSITIONS AS A GEOLOGIST WITH VARIOUS MINERAL EXPLORATION COMPANIES IN CANADA.
4. OVER THE PAST NINE YEARS, I HAVE EXAMINED MANY MINERAL PROPERTIES WITHIN THE NICOLA MINING DIVISION.
5. I PERSONALLY CARRIED OUT THE 1981 PROGRAM OUTLINED IN THIS REPORT.
6. I HAVE NO DIRECT OR INDIRECT INTEREST IN THE BLUEY CLAIM GROUP, NOR DO I EXPECT TO RECEIVE ANY INTEREST THEREIN.

JUNE 26, 1981
KELOWNA, B.C.



MURRAY MORRISON

APPENDIX B

STATEMENT OF EXPENDITURES - BLUEY CLAIM GROUP

STATEMENT OF EXPENDITURES IN CONNECTION WITH THE GEOLOGICAL EXAMINATION CARRIED OUT ON THE BLUEY CLAIM, AND BALSAM FRACTION, N.T.S. 92H/15, ASPEN GROVE AREA, B.C. FOR THE YEAR 1981.

FIELD WORK - GEOLOGICAL EXAMINATION OF THE PROPERTY, AND COLLECTION OF ROCK GEOCHEM SAMPLES

GEOLOGIST 4 DAYS @ \$150/DAY	\$ 600.00
MEALS AND LODGING 4 DAYS FOR 1 MAN @ \$40/DAY	160.00
TRUCK(4 X 4, INCL. GASOLINE) 4 DAYS @ \$55/DAY	220.00
MATERIALS (FLAGGING, BELT CHAIN THREAD, ETC.)	<u>20.00</u>
	\$1,000.00

LABORATORY COSTS

24 ROCK GEOCHEM SAMPLES ANALYZED FOR AU, AG, AND CU @ \$10.25/SAMPLE	\$ 246.00
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REPORT PREPARATION

GEOLOGIST 3 DAYS @ \$150.00/DAY	450.00
DRAFTING 3 DAYS @ \$100.00/DAY	300.00
TYPING	98.00
COPYING MAPS AND REPORTS (TWO COPIES)	<u>20.00</u>
	\$ 868.00

TOTAL OF SUB-TOTALS: \$2,114.00

I HEREBY CERTIFY THAT THE ABOVE STATEMENT IS A TRUE STATEMENT OF MONIES EXPENDED IN CONNECTION WITH THE GEOLOGICAL EXAMINATION CARRIED OUT JUNE 5-15, 1981

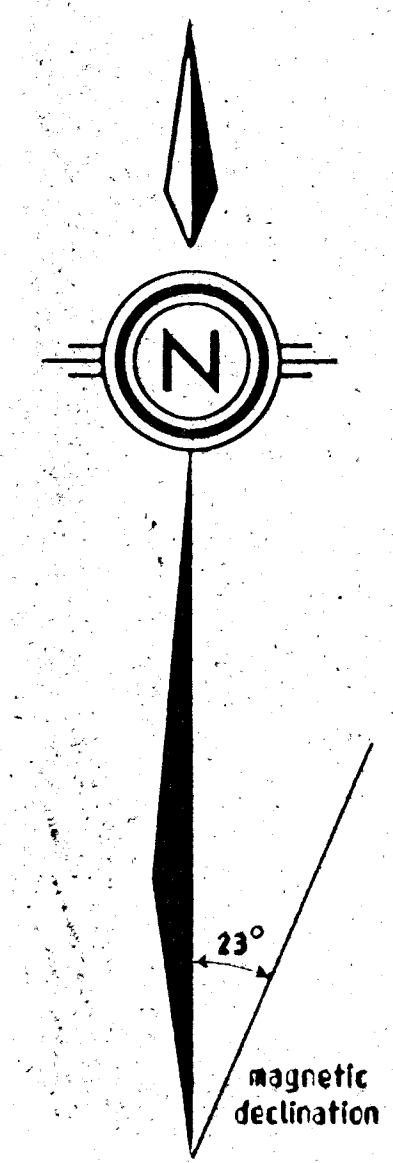
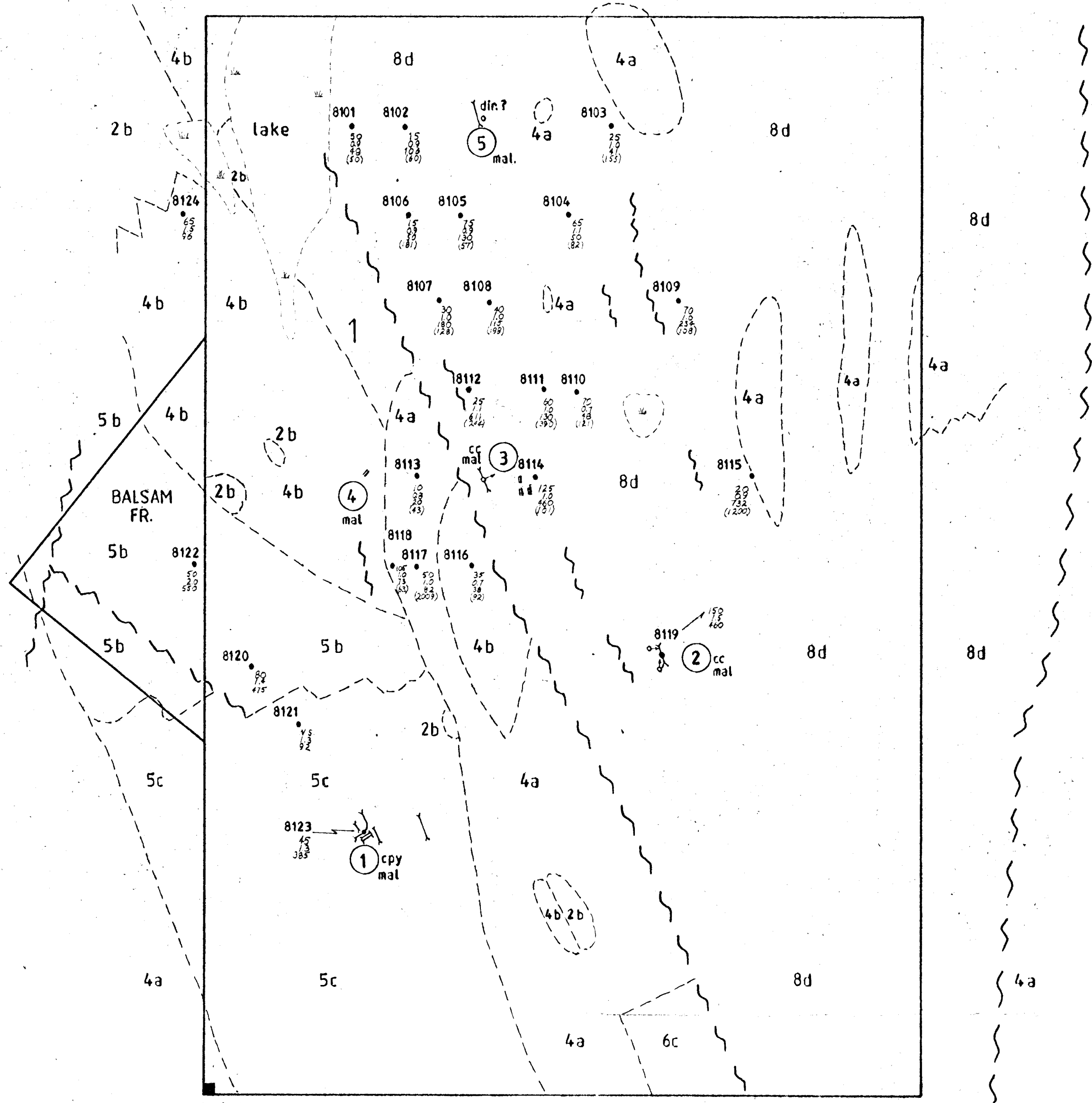
JUNE 26, 1981


MURRAY MORRISON - GEOLOGIST

12 W 8 W 4 W 0 E 4 E 8 E 12 E 16 E 20 E 24 E 28 E 32 E

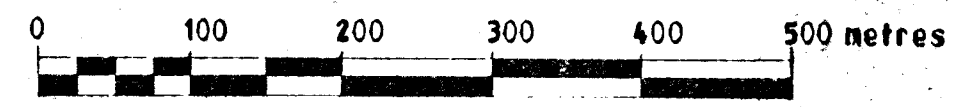
Grid in feet.
Established during earlier surveys.

0 N/S
4 S
8 S
12 S
16 S
20 S
24 S
28 S
32 S
36 S
40 S
44 S
48 S



← Geology →
(After V.A. Preto, et al.)

- Upper Triassic to Lower Jurassic
8d— Fine-Grained Chlorite—in Part Possibly Recrystallized Volcanic Rocks.
- Nicola Group
Upper Triassic to Lower Jurassic
6c— Reddish to Greenish Grey Crystal, Lithic, and Lapilli Tuff.
5b— Massive Green Augite Andesite to Basalt Porphyry.
5c— Massive Greenish Grey to Grey Augite-Plagioclase Andesite Porphyry, Extensively Autobrecciated.
4a— Volcanic Breccia and Lahar Deposits, Red Sequence, Mostly Massive.
4b— Volcanic Breccia and Lahar Deposits, Green Sequence, Mostly Massive.
2b— Grey to Dark Grey Reefold Limestone.
1— Undivided Sedimentary Rocks - Siltstone, Sandstone, and Argillite.



L.C.P. BLUEY CLAIM

— Legend —

- fault
- geological contact: approximate.
- swampy lake
- old cuts and pits in rock
- bulldozer trenches
- old diamond drill holes
- 8102— rock geochem sample no. 8102
15 ppb Au in rock
0.9 ppm Ag in rock
106 ppm Cu in rock
160 ppm Cu in soil (earlier surveys)
- ② mineral occurrence described in accompanying report.
- mal malachite
cc chalcocite
cpy chalcopyrite

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
9491
NO.

To Accompany a Geological Report by M. Morrison.

BLUEY CLAIM GROUP		
ASPEN GROVE AREA, NICOLA M.D., B.C.		
GEOLOGY, MINERAL OCCURRENCES, AND ROCK GEOCHEMISTRY FOR GOLD, SILVER & COPPER.		
Drawn by M. M.	June 1981	N.T.S. 92 H/15
Drafted by A. H.	Scale 1:5000	Map BC-81-3