45. THE D-13984

ASSESSMENT REPORT GEOLOGICAL AND GEOCHEMICAL SURVEY MISTY 1, 2, SAM 1

ATLIN MINING DIVISION TATSAMENIE LAKE AREA, B. C.

N.T.S. 104K/TULSEQUAH SHEET

58°17'N

132°18'W

OWNER: CHEVRON MINERALS LTD. OPERATOR: CHEVRON CANADA RESOURCES LIMITED

AUTHOR: GODFREY WALTON

September 1985

GEOLOGICAL BRANCH ASSESSMENT REPORT

13,984

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LOCATION AND ACCESS

The SAM 1, MISTY 1 and 2 claims are located at 58°17'N and 132°18'W, about five km south of Tatsamenie Lake. Atlin, B.C. is approximately 160 km northwest of the claim block (Figure 1). A helicopter provided access to the property from the Bearskin Lake camp on the northern shore of the lake.

CLAIMS

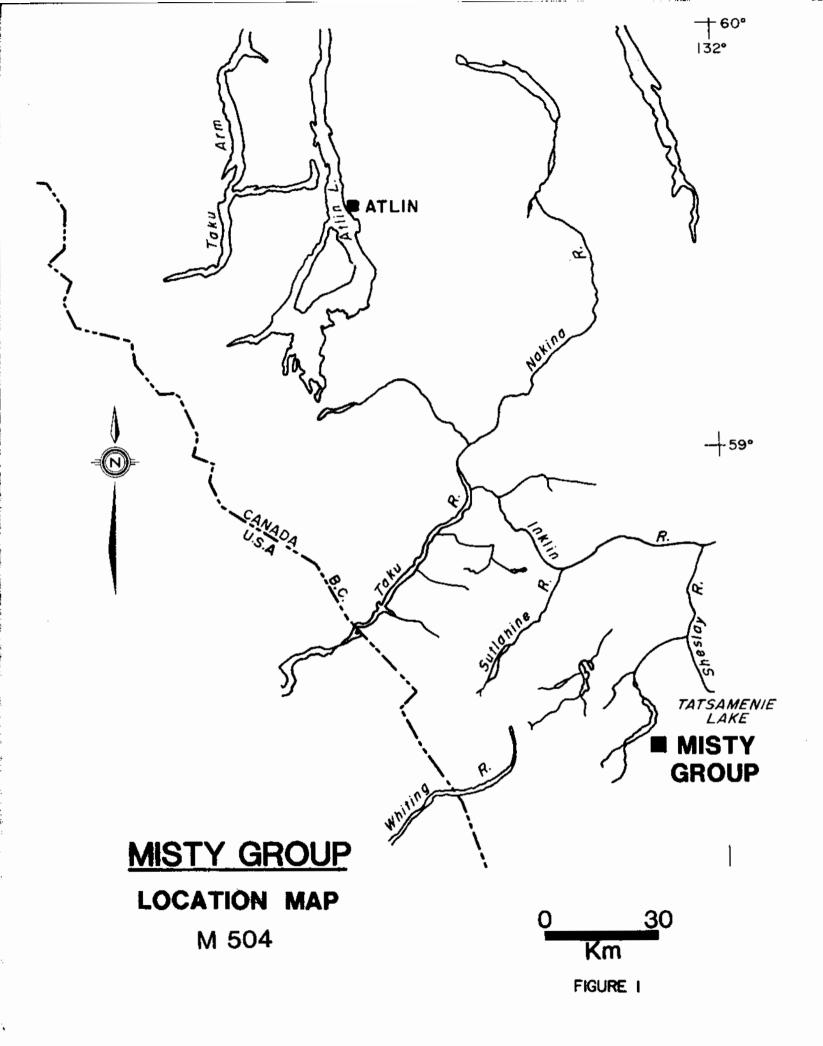
CLAIM	RECORD NUMBER	RECORD DATE	NUMBER OF UNITS
SAM I	1290	March 5, 1981	15
MISTY I	1484	August 21, 1981	20
MISTY 2	1485	August 21, 1981	20

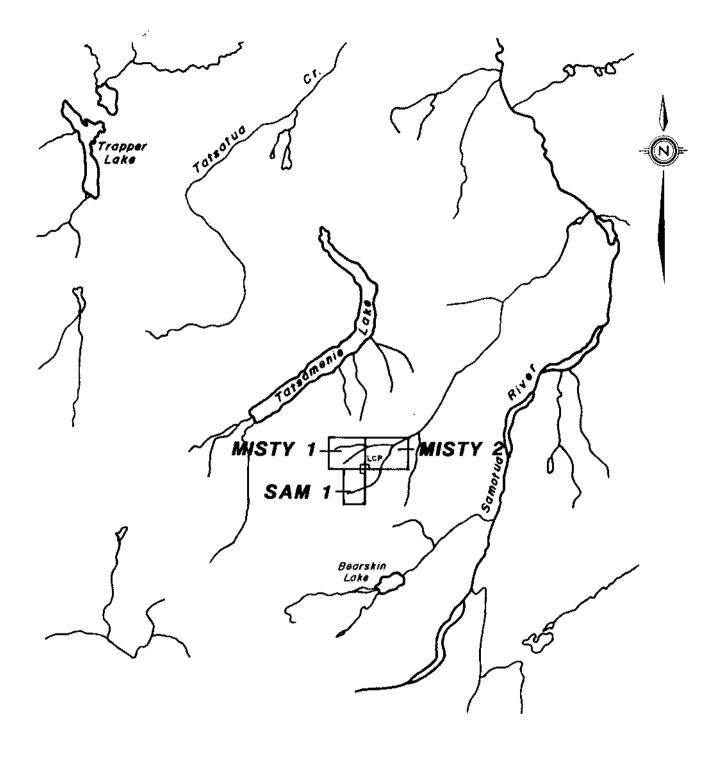
These claims cover previously unstaked ground. The claims are owned by Chevron Minerals Ltd. with Chevron Canada Resources Limited acting as the operator.

PREVIOUS WORK

Work has been done on the Misty Claim Group by Chevron Canada Resources Limited during the 1982, 1983 and 1984 field seasons.

During 1982 the work consisted of reconnaissance mapping and rock sampling plus soil sampling. Thirty-seven rock and seventy-six soil samples were analyzed. Significant gold and silver values were found to be associated with narrow veins. A more detailed and larger soil grid was recommended as a result.





Claim Map: MISTY 1+2, SAM 1



The 1983 programme consisted of follow-up mapping, not of a detailed nature, and a larger soil survey. Results obtained verified and expanded those gained in the previous year. No further work was recommended due to the small size of the alteration zones and the limited size of the anomalies.

The 1984 programme consisted of detailed geological mapping at a scale of 1:10,000 on the MISTY claims and some rock sampling on the SAM claims. No further work was recommended and a comment was added if further work was planned drilling should be kept in mind despite the lack of encouraging surface samples.

REGIONAL GEOLOGY

The area south of Tatsamenie Lake and north of Sam Creek consists predominantly of pre-Upper Triassic volcanic rocks intercalated with sedimentary rocks (Souther, 1971). Phyllite and chlorite schists are common. Permian (?) ultramafic rocks (Souther, 1971) occur at the extreme eastern edge of the claims within a north-south fracture. A small area of Permian limestone is exposed in a fault bounded sliver within a major shear zone. The pre-Upper Traissic rocks are strongly folded and sheared.

Foliated hornblende diorite of Lower or Middle Triassic age (Souther, 1971) outcrops over a large part of the Claim Group. Dykes and stocks of non-foliated, post-Middle Jurassic diorite intrude the Pre-Triassic rock.

CLAIM GEOLOGY - SAM I

The geology summarized here primarily applies to the SAM 1 claim although many of the rocks found on this claim block are also found on the MISTY 1 and 2 claims. MISTY 1 and 2 were mapped in detail in 1984 and their geology is summarized in the assessment report by Shaw 1984.

Pre-Upper Triassic Rocks

There are three main units within the Pre-Upper Triassic: one, limestone; two, phyllite; and three, mafic volcanics. On the SAM I claim the major unit is the limestone which outcrops over 50 percent of the claim block. It is well bedded with beds being typically one foot in width. It consists of gray carbonaceous limestone, clear white and gray limestone. There is a pink banded limestone that elsewhere in the district is associated with the phyllite package. Since only the limestone outcrops at the bottom of Sam creek, it is difficult to determine if some of this limestone is interbedded with phyllites.

Overlying the sequence is phyllite with some volcanic units interbedded. The volcanics are tuffaceous and represent the beginning of the main volcanic episode. The phyllites are composed of schist and a silica rich siltstone. The siltstone may have a primary silica, i.e. it may be more of a quartzite or it may be secondary (hydrothermal) quartz. In the region this unit is fairly widespread which would suggest that either the silica is primary or silica is preferentially replacing certain stratigraphic horizons. At this time it is not clear which case is correct.

Overlying the phyllite is the mafic volcanic sequence which is primarily composed of tuffs, lapilli tuffs and agglomerates. The tuffs on the SAM 1 claim are primarily thinly bedded, fine grained ash tuffs. The tuffs are in fault contact with the phyllites and a diorite on this claim.

Triassic Diorite

A small fault bounded block of diorite occupies a portion of ridge just above the Sam glacier. It is medium grained, foliated with biotite and hornblende. The mafics are often altered to chlorite and epidote. The foliated diorite in the region has been designated as Triassic by Souther 1971.

Structural Geology

Regionally the SAM 1 claim is in the footwall of a fault that is being explored on other Chevron properties. It is on the fringe of what may be a large antiform although the amount of ice and snow causes proof of this to be inconclusive. Bedding attitudes are quite consistent throughout the claim as shown on Figure 3. Faults typically strike northerly and dip steeply to the east.

MINERALIZATION AND ALTERATION

The West Wall fault is the major locus of alteration and mineralization within the Claim Group. Zones of iron carbonate alteration, silica vein injection and silicification are recognized within the intensely sheared hangingwall rock, the footwall is less altered. Anomalous values of gold, silver, arsenic and antimony are encountered in narrow, intermitant zones along the structure.

Away from the major structures there are varying degrees of pervasive iron-carbonate alteration of the volcanics, particularly the tuffs. Within these alteration rocks there are occasional thin veins and small quartz sweats, some of which can host higher than background values of Au, Ag, As and Sb. No anomalous gold values have been obtained from the samples taken on the SAM 1 claim. One high value (9000 ppb Au) and several lower values have been obtained from the samples taken on the MISTY I and MISTY 2 claims. A further discussion of these samples is found in the geochemical survey portion of this report.

GEOCHEMICAL SURVEY

A total of 109 soil samples and 31 rock samples were collected on the MISTY 1 and MISTY 2 claims and 6 rock samples were collected on the SAM 1 claim. The soil samples were primarily collected from the B soil horizon but when this horizon was not available talus fine samples were taken. Samples were typically taken from a depth of 5 to 25 centimeters below the surface. The soil samples were air dried in camp and then shipped to Chemex laboratories in North Vancouver. Rock samples were crushed and pulverized in a preparatory lab in camp and then shipped to Chemex.

Previous work on these claims and others in the vicinity indicate a strong correlation between gold mineralization and faults. Geological mapping has outlined most of the faults and the sampling covered faulted areas with either rock samples or soil samples to provide better geochemical coverage.

In most cases little mineralization was located except for one rock sample which had a value of 9000 ppb Au. Near this rock sample a few other rocks were anomalous (100 - 300 ppb Au), but the majority are close to detection limit. The current sampling has not shown any areas that were not previously known.

CONCLUSIONS AND RECOMMENDATIONS

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The detailed sampling of both rock and soil medium near faulted areas has only confirmed the previously known mineralization. No new areas were located. The mineralization appears to be associated with sulphide veins near a major north-south lineament. The majority of the samples were not really anomalous.

Further work should concentrate on this one structure and explore the depth potential of the mineralization.

REFERENCES

Souther, J. G. (1971). Geology and mineral deposits of Tulsequah map-area, British Columbia. Geological Survey of Canada, Memoir 362, 84p.

Shaw, D. (1984). Assessment report; Geological, Geochemical and Geophysical Survey, MISTY Group, 11p.

MISTY I and 2

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STATEMENT OF COSTS

Personnel

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	Field Days	Office Days	
G. Walton	 4	2	
T. Zanger W. Hewgill	4 <u> </u>	_	
	6	2	
Field – 6 man days @\$150/man day		\$	900.00
Office – 2 man days @\$250/man day			500.00
Geochemical Analysis: - for Au, Ag, As, Sb			
Soils: 109 samples @\$16.20/sample			1,765.80
Rocks: 31 samples @\$15.50/sample			480.50
Camp Costs			
6 man days @\$50/man/day			300.00
Helicopter			
1.5 hrs x \$430/hr.			645.00
Drafting			
2 man days @\$150.00/man day			300.00
	Total	<u>\$</u>	4,891.30

SAM I

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STATEMENT OF COSTS

Personnel

	Field Days	Office Days	
G. Walton T. Zanger	4	Ι	
W. Hewgill	1 <u>1</u>	<u></u>	
	6	1	
Field - 6 man days @\$150/man day		\$	900.00
Office – I man day @\$250/man day			250.00
Geochemical Analysis:			
Rocks: 6 samples @\$15.50/sample			93.00
Camp Costs			
6 man days @\$50/man/day			300.00
Helicopter			
1.2 hrs x \$430/hr.			516.00
Drafting			
2 man days @\$150.00/man day			300.00
	Total	\$	2,359.00

STATEMENT OF QUALIFICATIONS

I, Godfrey Walton, have worked as a geologist since 1973 in Alberta, British Columbia, Yukon, Northwest Territories and Ontario. I graduated in 1974 with a B.Sc. (Hons) degree from the University of Alberta and was awarded a M.Sc degree from Queens University in January 1978. I have been employed by Chevron on a permanent basis since 1976.

I am a member in good standing with the Canadian Institute of Mining and Metallurgy, the Society of Exploration Geochemists and the Mineralogical Association of Canada.

The work done on the MISTY 1, 2 and SAM I was done by me and under my supervision.

GODFREY WALTON

APPENDIX A

GEOCHEMICAL PREPARATION AND ANALYTICAL PROCEDURES

- 1. Geochemical samples (soils, silts) are dried at 50°C for a period of 12 to 24 hours. The dried sample is sieved to -80 mesh fraction through a nylon and stainless steel sieve. Rock geochemical materials are crushed, dried and pulverized to -100 mesh.
- 2. A 1.00 gram portion of the sample is weighted into a calibrated test tube. The sample is digested using hot 70% HC104 and concentrated HN03. Digestion time = 2 hours.
- 3. Sample volume is adjusted to 25 mls. using demineralized water. Sample solutions are homogenized and allowed to settle before being analyzed by atomic absorption procedures.
- 4. Detection limits using Techtron A.A.5 atomic absorption unit.

Copper	-	l ppm
Molybdenum	-	l ppm
Zinc	-	l ppm
*Silver	-	0.2 ppm
*Lead	-	l ppm
*Nickel	-	l ppm
Chromium	-	5 ppm

*Ag, Pb & Ni are corrected for background absorption.

5. Elements present in concentrations below the detection limits are reported as one half the detection limit, i.e. Ag - 0.1 ppm.

PPM Antimony:

A 2.0 gm sample digested with conc. HCl in hot water bath. The iron is reduced to Fe +2 state and the Sb complexed with 1⁻⁻. The complex is extracted with TOPO-MIBK and analyzed via A.A. Correcting for background absorption 0.2 ppm ± 0.2.

Detection limit: 0.2 ppm

PPM Arsenic:

A 1.0 gram sample is digested with a mixture of perchloric and nitric acid to strong fumes of perchloric acid. The digested solution is diluted to volume and mixed. An aliquot of the digest is acidified, reduced with Kl and mixed. A portion of the reduced solution is converted to arsine with NaBH₄ and the arsenic content determined using flameless atomic absorption.

Detection limit: | ppm

PPM Tungsten:

0.50 gm sample is fused with potassium bisulfate and leached with hydrochloric acid. The reduced form of tungsten is complexed with toluene 3,4 dithiol and extracted into an organic phase. The resulting colour is visually compared to similarly prepared standards.

Detection limit: 2 ppm W

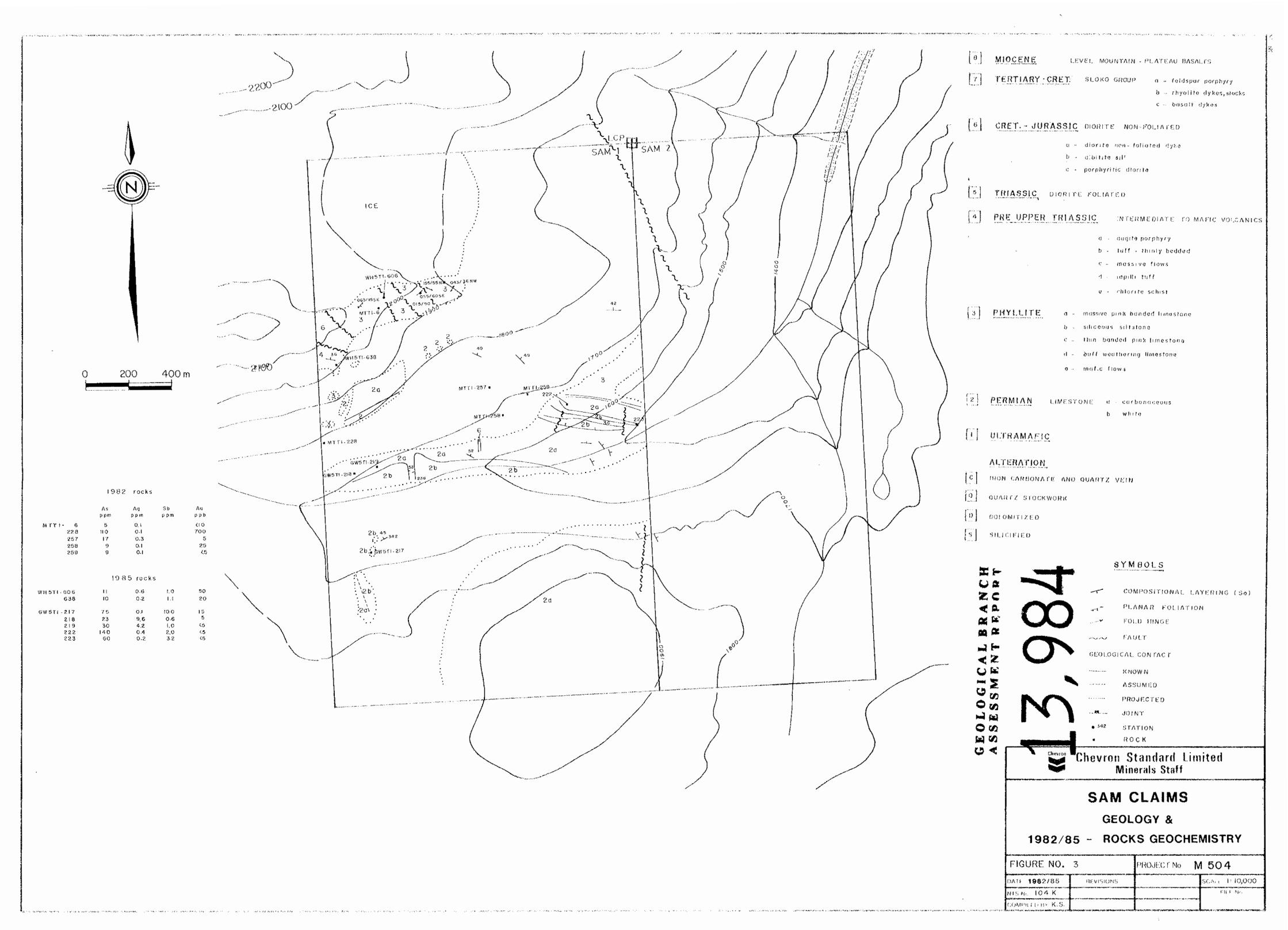
FIRE ASSAY METHOD - Silver & Gold

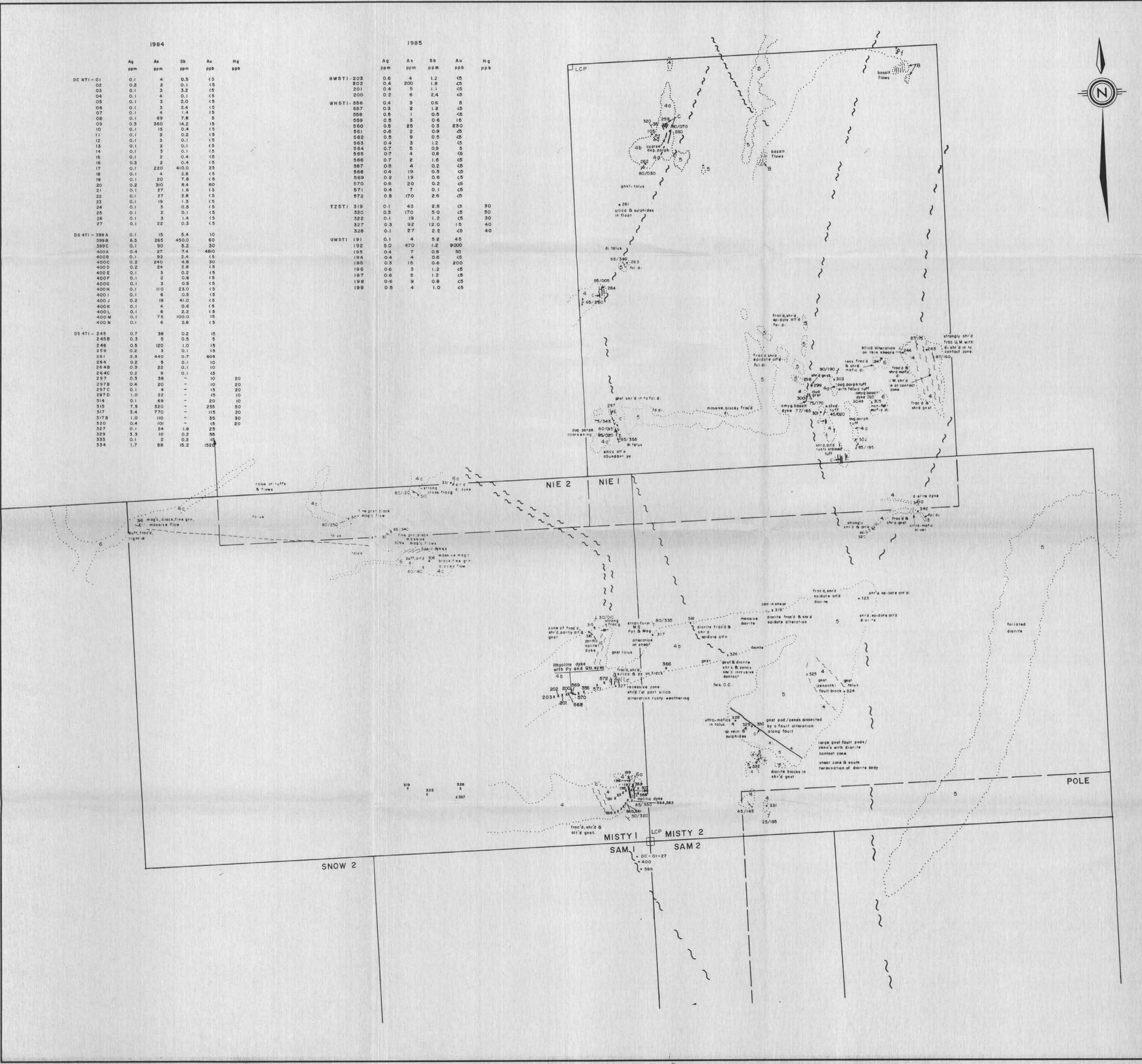
Silver and gold analyses are done by standard fire assay techniques. In the sample preparation stage the screens are checked for metallics which, if present, are assayed separately and calculated into the results obtained from the pulp assay.

0.5 assay ton sub samples are fused in litharge, carbonate and siliceous fluxes. The lead button containing the precious metals is cupelled in a muffle furnace. The combined Ag & Au is weighed on a microbalance, parted, annealed and again weighed as Au. The difference in the two weighings is Ag.

F.A. - A.A. GOLD COMBO METHOD

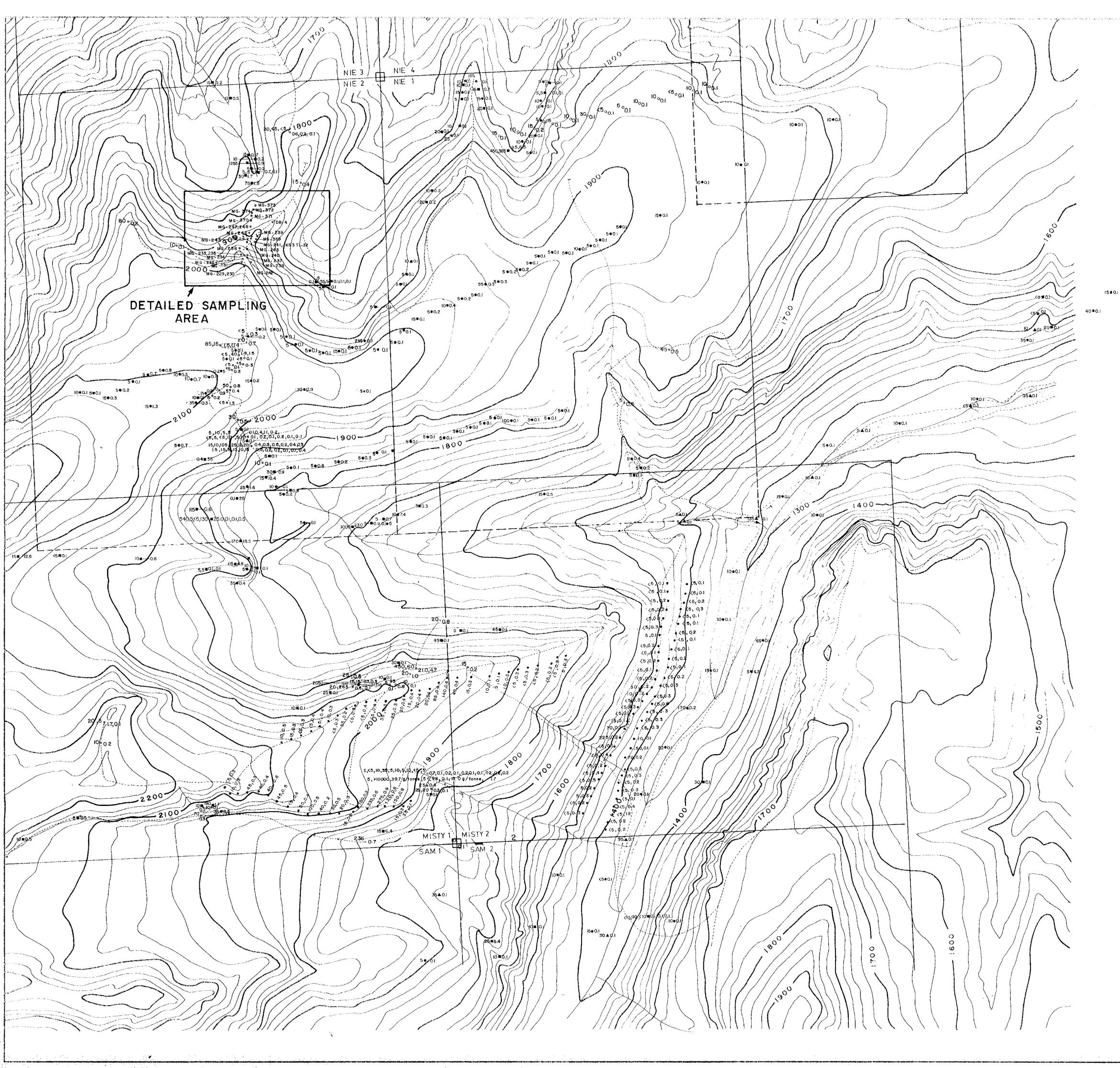
For low grade samples and geochemical materials 10 gram samples are fused with the addition of 10 mg of Au-free Ag metal and cupelled. The silver bead is parted with dilute HNO₃ and then treated with aqua regia. The salts are dissolved in dilute HC1 and analyzed for Au on an atomic absorption spectrophotometer to a detection of 5 ppb.





LEGEND

8	MIOCENE LEVEL MOUNTAIN - PLATEAU BASALTS				
7	TERTIARY-CRET. SLOKO GROUP a - feldspar porphyry b - rhyolite dykes,stocks				
	c - basalt dykes				
6	CRET JURASSIC DIORITE NON-FOLIATED				
0.2	a – diorite non-foliated dyke				
	b - albitite sill				
	c - porphyritic diorite				
5	TRIASSIC DIORITE FOLIATED				
4	PRE UPPER TRIASSIC INTERMEDIATE TO MAFIC VOLCANICS				
	a - augite porphyry				
	b - tuff - thinly bedded				
	c - massive flows d - lapilli tuff				
	e - chlorite schist				
3	PHYLLITE a - massive pink banded limestone b - siliceous siltstone				
	c - thin banded pink limestone				
	d - buff weathering limestone				
	e - matic flows				
2	PERMIAN LIMESTONE a - carbonaceous				
	b - white				
	ULTRAMAFIC				
	ALTERATION				
C	IRON CARBONATE AND QUARTZ VEIN				
0	QUARTZ STOCKWORK				
D	DOLOMITIZED				
S	SILICIFIED				
	SYMBOLS				
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DETAILED SAMPLING RESULTS

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		Αu	<5●0.1 (ppb)	Ag	(ppm)
	MG - 369	15		0.1	
	MG - 370	5●0.I <0•I	g/tonne	. 7.5	g/tonnø
	MG - 371	3850		1.7	
	MG - 372)≜0.I (5		0.1	
	MG - 373 ⊰5≜0.i	25		Q.1	
	MG - 374	710000		4.4	
	MG - 229	5		0.1	
	MG - 230	35		0.1	
	MG - 231	0.2	g/tonne	2,7	g/tonne
€0.I	MG - 232	0.2	g/tonne	5.5	g/tonne
	MG - 233	120		2.0	
	MG - 234	5		0.1	
	MG - 235	10		0,8	
	MG - 236	20		0.4	
	MG - 237	25		0.5	
	MG - 238	20		1,2	
	MG - 239	550		2.0	
	MG - 240	60		0.6	
	MG - 241	45		1.4	
	MG- 242	25		0.8	
	MG - 243	20		3.8	
	MG - 244	15		0.2	
	MG - 245	01		0.1	
	MG - 246	1.0	g/tonn@	3.4	g/tonne
	MG - 247	0.1	g/tonne	2.4	g/tonne
	MG - 248	0-1	g/tonne	3.4	g/tonne
	D8 - 3	40		2,0	
	DB - 4	15		0.1	
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LEGEND

٥	SOIL SAMPLE	1983	•1981,198 <u>;</u>
o	ROCK SAMPLE	1983	∎ 98 1,1 98
	1983		
3	15		

25 🛛 0.2

(ppb)°Ag (ppm)

Au (ppb) Ci_{Ag} (ppm)

1981,1982,1983

Au.ppb ●Ag ppm. Au.ppb ■Ag.ppm.	40 ●0. I 40 ■ 0.1
1985	
• Au, Ag	• <5,0.}
	<i>!</i>

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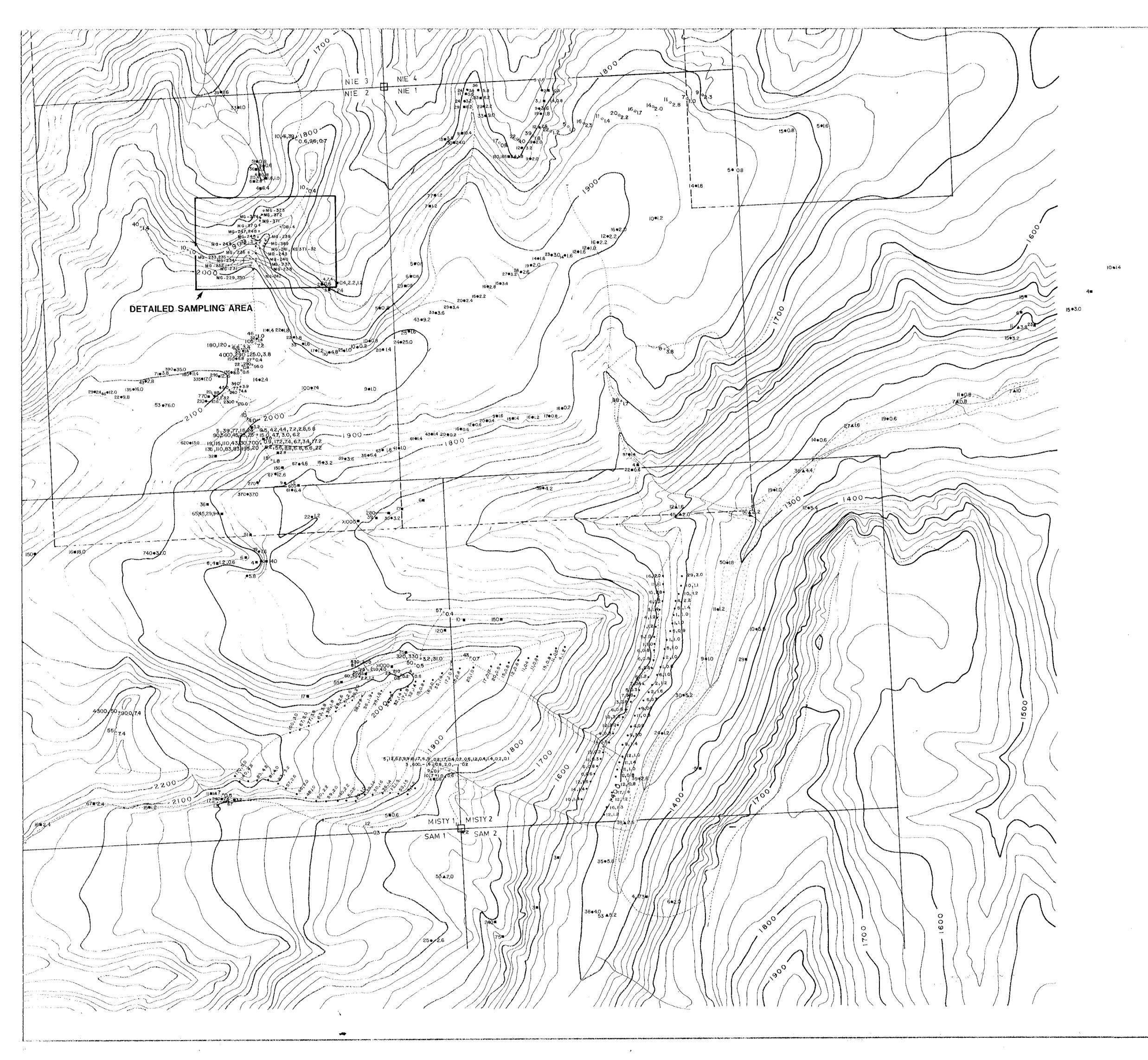


Chevron Standard Limited Minerals Staff

400m

MISTY GROUP

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DETAILED SAMPLING RESULTS

I0●1.8

			25• 0.8	
		A s	(ppm)	Sb (ppm)
	MG - 369	23		27.0
	MG - 370	(5 € 1.4		
	MG - 371 22.1	29		2.2
	20€L8 ²² ▲I MG - 372	15		2.0
	MG - 373 20▲0.8	16		1.4
	MG - 374	50		2.8
	MG - 229	1100		45.0
	MG - 230	45		4.8
10 - 2 - 2	MG - 231			
19 • 2.6	MG - 232			
	MG - 233	430		76.0
	MG - 234	53		7. Q
	MG - 235	73		5,6
	MG - 236	230		36.0
	MG - 237	140		17, 4
	MG - 238	150		23.0
	MG - 239	51		2.1
	MG - 240	(80		9,6
	MG - 241	17		5.8
	MG - 242 ·	73		4.8
	MG - 243	53		4.6
	MG - 244	53		6.8
	MG - 246	20		0.2
	MG - 246			
	MG - 247			
	MG - 248			·
	DB - 3	70		2,4
	DB - 4	45		Ι. Θ

LEGEND

0	SOIL SAMPLE	1983	♦ 1981,1982
o	ROCK SAMPLE	1983	= 1981,1982
	1983		

2,3

As (ppm-}≎ Sb (ppm)

As (ppm) ^D Sb 230 ₀ 36.0 (ppm)

1981, 1982, 1983

As.ppm= Sb.ppm. = 212= 40.2 As. ppm= Sb. ppm. = 212=40.2

> 1985 • As, Sb = • 29, 2.0

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400m Chevron Standard Limited Minerals Staff

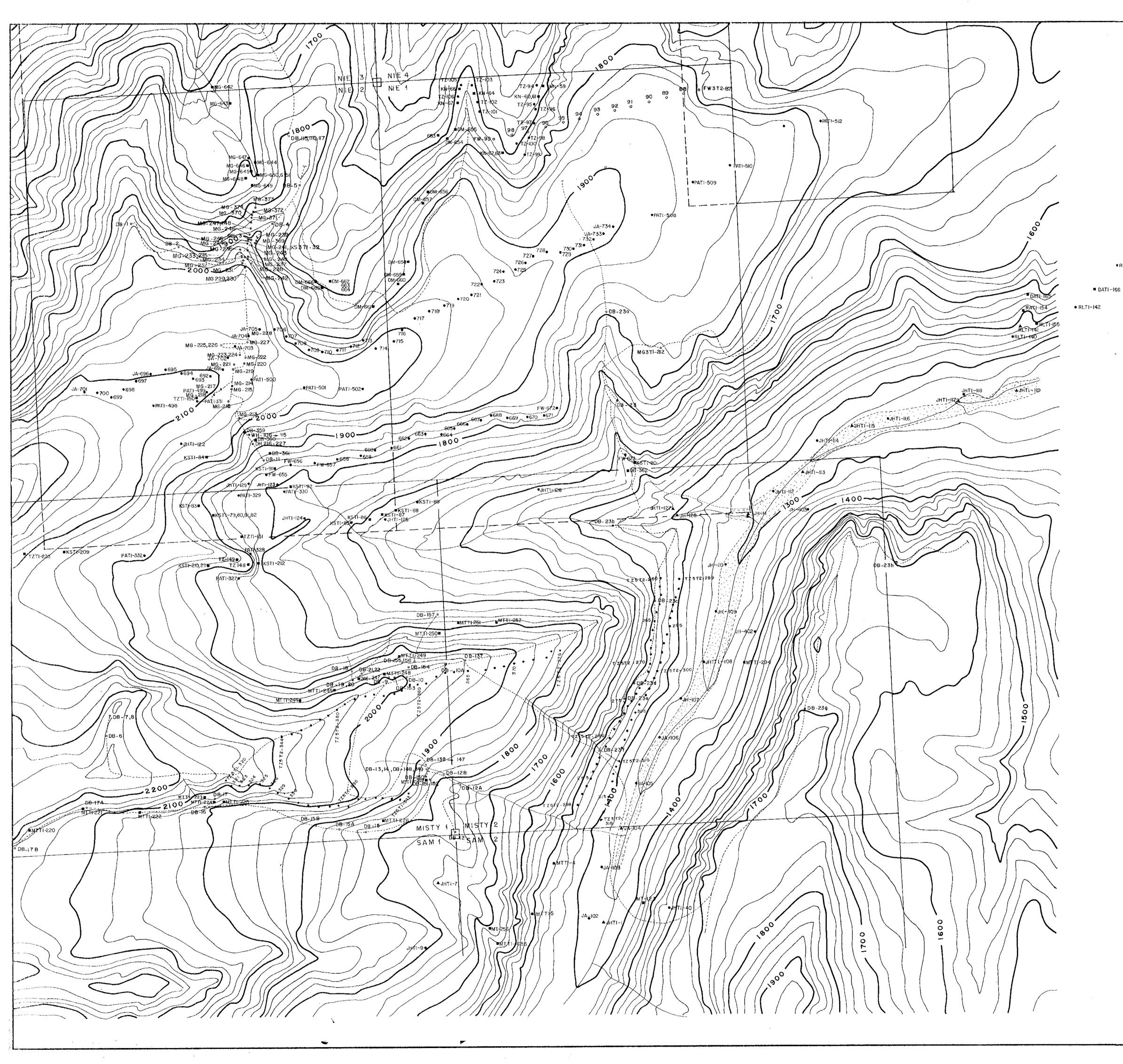
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MISTY GROUP

ROCK & SOIL GEOCHEMISTRY

As (ppm), Sb (ppm)

FIGURE No 6	یرد می بردند. مربق این	PROJECT No M	-504	
CA'E 1982,83,85	REVISIONS		SCALF : 10,000	
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SAMPLE LOCATIONS PROJECT No. M-504 FIGURE No. 7 DATE 1982,83,85 REVISIONS SCALE : 10,00 NTS NO COMPLED BY **D. B.** FILE No 1981-1982 ADDED

LEGEND

ROCK SAMPLE LOCATION 1983 SOLL SAMPLE LOCATION 1983

• TZ 5T2-119 1985 SAMPLE LOCATIONS

----- TRAVERSE ROUTE

■1981-1982 ●1981-1982

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MISTY GROUP

ROCK & SOIL

400m