83-#473 _ # 11408

ASSESSMENT REPORT

GEOLOGICAL AND GEOCHEMICAL SURVEY

MISTY GROUP

ATLIN MINING DIVISION

Tatsamenie Lake Area, B. C.

N.T.S. 104K/Tulsequah Sheet

58° 17' N

132° 18' W

GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,408

OWNER: CHEVRON CANADA LIMITED

OPERATOR: CHEVRON CANADA RESOURCES LIMITED

Authors: Derek Brown
Godfrey Walton

October 1983

LIST OF FIGURES

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LOCATION AND ACCESS

The MISTY Group (NIE #1 & #2 and MISTY 1 & 2 claims) is located at 132°18'W and 58°17'N about 5 km south of Tatsamenie Lake. Atlin, B. C. is approximately 160 km northwest of the MISTY Group (Figure 1). A helicopter provided access to the property from Muddy Lake, B. C., 10 km to the south.

CLAIMS

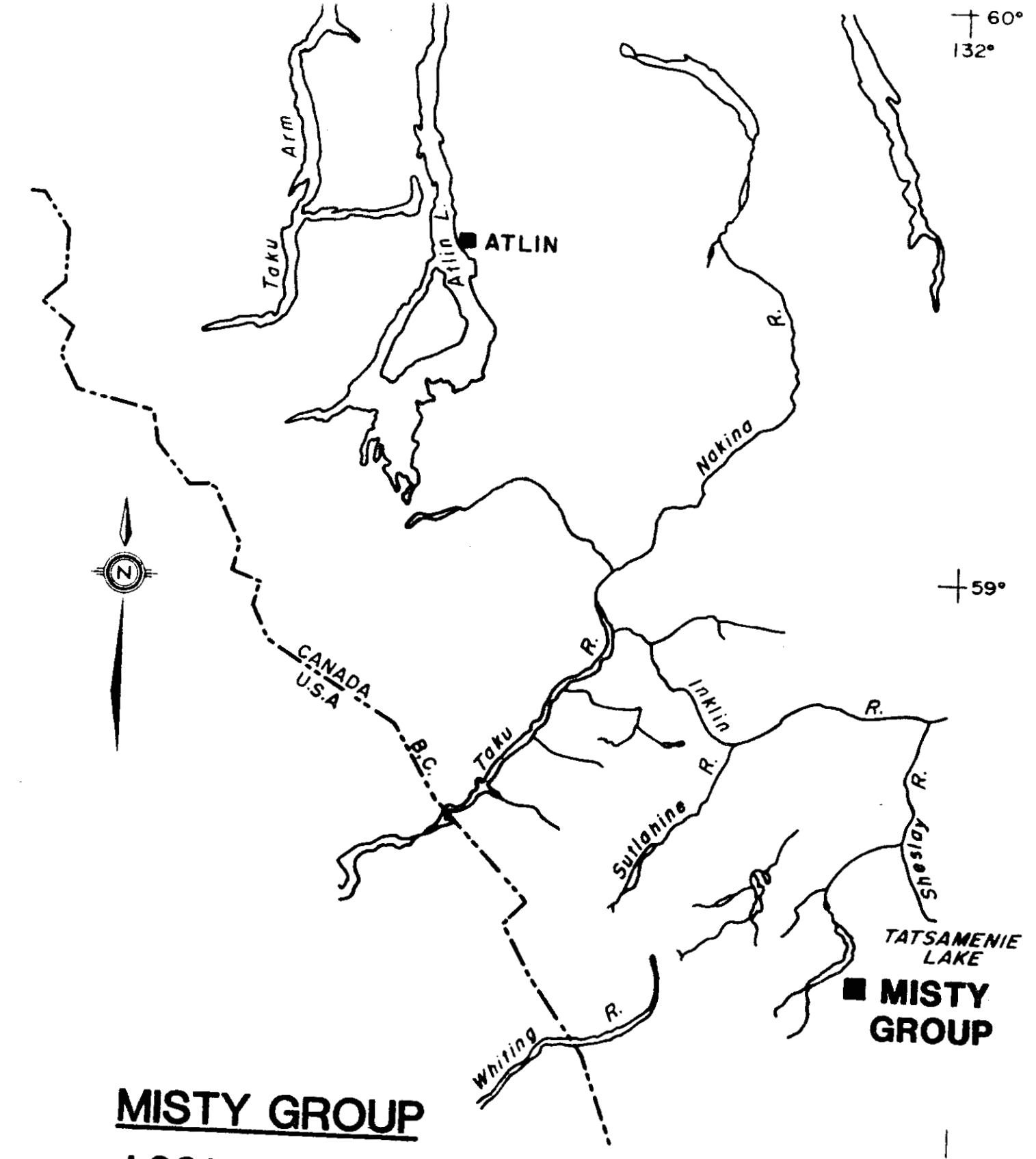
MISTY 1 and 2 were staked during August, 1981. NIE #1 and #2 were staked during September, 1981.

Claim	Record No.	Record Date	No. of Units
MISTY 1	1484	August 12, 1981	20
MISTY 2	1485	August 12, 1981	20
NIE #1	1539	September 18, 1981	20
NIE #2	1540	September 18, 1981	20

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

REGIONAL GEOLOGY

The area south of Tatsamenie Lake consists predominantly of Pre-Upper Triassic volcanic rocks intercalated with sedimentary rocks (Souther, 1971). Phyllite and chlorite schist are common. Permian (?) ultramafic rocks (Souther, 1971) lie northeast of the claims along a major north-south fault. South and east of the MISTY Group Permian limestone is exposed. The Pre-Upper Triassic rocks are extensively deformed and sheared.



MISTY GROUP

LOCATION MAP

M 504

FIGURE 1

Hornblende diorite of Lower or Middle Triassic age (Souther, 1971) lies east of the claims. A Post-Middle Jurassic diorite stock intrudes the Pre-Triassic material on the west side of the Group.

GROUP GEOLOGY

Pre-Upper Triassic Rocks (Units 1 and 1a):

Pre-Upper Triassic rocks cover 60% of the MISTY Group. Their distribution and correlation are complicated by faulting, intrusions and the rapid changes in lithology and structural deformation. Primary bedding and textures are locally preserved; elsewhere deformation has produced a phyllitic to schistose texture. The package contains volcanic and sedimentary sections.

The volcanic rocks are more abundant. They consist of greenstone, phyllitic greenstone, chlorite schist, gabbroic augite porphyry, phyllitic augite gabbro, tuff and phyllitic tuff. The texture of the rock can drastically vary; for example, massive gabbroic augite porphyry can grade into chlorite-amphibole schist across a few centimeters. Therefore, rocks of similar composition and possibly parentage can look completely unrelated. Consequently, the stratigraphy is difficult to establish. The volcanic package weathers green to dark green. Rusty, pyritic patches are common and hematite staining is locally abundant.

On the claims sedimentary units are interbedded with volcanic rocks. Figure 2 indicates where exposures of siltstone, silty phyllite, tuff, black and grey limestone and chert are located. Skarns are common on the MISTY 1 claim. They may have formed during the intrusion of Unit 3. They are

composed of tremolite-actinolite, epidote, carbonate and silica with magnetite veinlets and patches.

Fold geometry varies with lithology; angular to rounded, tight to open folds are present. Sheared hinges and boudins were also observed. An early phase of isoclinal folds has been deformed by a younger deformation phase.

Lower or Middle Triassic Diorite (Unit 2):

Diorite of Lower or Middle Triassic age (Souther, 1971) cover about 30% of the NIE #1 and MISTY 2 claims. The diorite is medium to fine grained, greenish grey and variably altered. Hornblende and biotite phenocrysts are altered to chlorite and epidote. Feldspar weathers a chalky white colour suggesting it is saussuritized. The diorite is commonly well foliated; however, it is also massive in places.

The diorite-greenstone (Unit 1) contact is complex, consisting of both intrusive and fault contacts. The fault contacts found are commonly north-south trending. The foliation increases toward and generally parallels the contact. Chlorite schist is common in the contact zone. Yellowish brown weathering quartz-iron-carbonate alteration zones follow some of the fault contacts. Tertiary basalt dykes are intruded along the contact on the NIE #1 claim.

The intrusive contact is exposed on the MISTY 2 claim. Diorite dykes intrude the host greenstone within 100 meters of the main contact. Zenoliths of greenstone are found within the diorite along the contact

zone. Alternating layers of diorite and greenstone, believed to be an injection migmatite, exhibit a gneissose texture in places.

Post-Middle Jurassic Granodiorite (Unit 3):

A Post-Middle Jurassic granodiorite stock intrudes the greenstone of Unit 1. It is fine- to medium-grained, massive with well developed joints. At the contact the greenstone is partially silicified, with secondary biotite generated from contact metamorphism. Locally, there is a pyritic halo in the greenstone up to 50 meters wide as shown on Figure 2.

Quartz-Fe-carbonate alteration (Unit 4):

Quartz-Fe-carbonate alteration and associated felsite dykes of probable Tertiary age are common on the claims. The alteration is restricted to fault zones and fractures. The host rocks are generally clay-carbonate altered and partially silicified. Quartz-pyrite veinlets are associated with these zones.

Tertiary Basalt Flows (Unit 5):

The Tertiary basalt flows, Level Mountain Group (Souther, 1971), exposed in the northeast corner of the Group, are subhorizontal. Basaltic flows are fine-grained, dark brown, vesicular and columnar jointed. They rest unconformibly on Pre-Upper Triassic greenstone and on diorite. At this unconformity there is a yellow-brown regolith.

Basalt dykes are found throughout the claims commonly within shear zones. Along the fault contact of diorite and greenstone on the eastern side of the NIE #1 claim, a 1 metre wide basalt dyke can be traced for over 750 metres.

GEOCHEMICAL ANALYSES OF CLAIMS

One hundred and three rock and twenty soil samples were collected throughout the MISTY Group. Soil samples were collected to aid prospecting in areas covered by overburden. B-horizon soil was used when possible, otherwise C-horizon soil was collected.

Soil samples were placed in kraft wet strength soil bags, air dried and shipped to Chemex Labs, North Vancouver, B. C. The samples were further dried and then sieved, with the -80 mesh portion being retained for analysis. Rock samples were crushed and then pulverized in a ring grinder to -100 mesh. For Au determination, a fire assay - atomic absorption technique is used with the fire assay bead being dissolved in HCl and HNO_3 then analyzed by conventional atomic absorption techniques. For Ag, a mixture of $HClO_4$ and HNO_3 is used to digest the sample, which is followed by atomic absorption spectrophotometry. The As analyses are done by standard colorometric techniques following an $HClO_4$ plus HNO_3 digestion. Antimony analyses are done by digesting the sample in HCl, then adding potassium iodide, extracting with TOPO - MIBK and then analyzing by atomic absorption spectrophotometry.

MINERALIZATION AND ALTERATION

The extent of mineralization and alteration is limited. Narrow quartz-carbonate alteration zones less than 5 m wide are shown on Figure 2. Pyrite, hematite, limonite, and trace pyrrhotite and malachite are associated with these zones.

Massive pyrite ± pyrrhotite veins (up to 8 cm wide) and lenses within quartz veins are exposed on the NIE #2 claim.

Small skarn outcrops contain layers and patches of magnetite. Minor malachite is associated with some greenstone.

In the northern part of the Group, there are sulfide veins containing pyrite, chalcopyrite, pyrrhotite and magnetite in some talus blocks.

GEOCHEMICAL RESULTS

The geochemical results are plotted on Figures 3 and 4.

A greater than 10,000 ppb gold anomaly with a correspondingly high silver value of 9.8 ppm came from a rusty altered greenstone pod within a chlorite schist shear zone. The pod measured about 75 cm long by 50 cm wide with limonite alteration.

Anomalous antimony results are probably due to stibnite crystals. They commonly correlate with high silver values suggested to be associated with tetrahedrite. The anomalies are probably related to narrow stibnite-tetrahedrite veinlets. The massive sulfide veins and the quartz-iron-carbonate zones have not yielded any anomalous geochemical values to date.

CONCLUSIONS

18-man days were spent mapping, prospecting and sampling the MISTY group. Alteration and mineralization is limited and geochemical anomalies are isolated and of little extent. The basic geology is outlined by Figure 2; however, more work is required to accurately plot contacts and alteration zones.

RECOMMENDATIONS

No further work is recommended due to the small size of the alteration zones and the lack of significant geochemical anomalies.

REFERENCE

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

1983 EXPLORATION PROGRAM
MISTY 1 and 2; NIE #1 and #2 CLAIMS
COST STATEMENT

PERIOD: July 1 to August 11, 1983

1. LABOUR:

	Position	Field Days	Office Days
M. Gray	Geologist	2	-
D. Brown	"	6.5	2
D. Shaw	"	1	-
M. Thicke	"	0.5	-
K. Shannon	Sampler	0.5	-
M. Woods	"	3	-
W. Hewgill	"	2.5	-
F. Wohlgemuth	"	0.5	-
D. Hodge	"	0.5	-
D. Day	"	1	-
	Total Man Days	18	
Average cost per field man day -		$100.00	$1,800.00
Average cost per office man day -		$150.00	300.00

2. ANALYSES

Rock: 103 samples @$17.65 each	1,817.95
Soils: 20 samples @$16.15 each	323.00

3. CAMP COSTS:

Total man days 18 @$60.00 per day	1,080.00

4. HELICOPTER:

4.3 hrs. @$500/hr. including fuel	2,166.67

5. DRAFTING:

1 man day at $100.00 per day	100.00
TOTAL	$7,587.62

STATEMENT OF QUALIFICATIONS

I, Derek Brown, graudated in May, 1981 with a B.Sc. (Hons. Geology) from Carleton University, Ontario. I have worked as a geologist since graduation and am presently employed on a temporary basis by Chevron Canada Resources Limited of Vancouver, B. C.

Derek Brown

Derek Brown

STATEMENT OF QUALIFICATIONS

I, Godfrey Walton, have worked as a geologist in British Columbia, Yukon, Northwest Territories, Alberta and Ontario since 1973. A B.Sc. (Hons. Geology) was received in 1974 from the University of Alberta and followed by a M.Sc. degree in geology from Queen's University in 1978. I am currently employed as a geologist with Chevron Canada Resources Limited of Vancouver, B. C.

I am a member of the Canadian Institute of Mining and Metallurgy, Exploration Geochemists and Mineralogical Association of Canada.

Godfrey Walton

GODFREY WALTON

NIE 3 | NIE 4
NIE 2 | NIE 1

MISTY 1 | MISTY 2

LEGEND

- ROCK SAMPLE LOCATION
- SOIL SAMPLE LOCATION
- ------- TRAVERSE ROUTE

N

0 400m

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MISTY GROUP

ROCK & SOIL SAMPLE LOCATIONS

FIGURE No. 3		PROJECT No. M-504	
DATE OCT/83	REVISIONS		SCALE 1:10,000
NTS No.			FILE No.
COMPILED BY D. B.			

NIE 3 | NIE 4
NIE 2 | NIE 1

DETAILED SAMPLING AREA

MISTY 1 | MISTY 2

DETAILED SAMPLING RESULTS

	Au (ppb)		Ag (ppm)	
MG - 369	15		0.1	
MG - 370	<0.1	g/tonne	7.5	g/tonne
MG - 371	3850		1.7	
MG - 372	15		0.1	
MG - 373	25		0.1	
MG - 374	>10000		4.4	
MG - 229	5		0.1	
MG - 230	35		0.1	
MG - 231	0.2	g/tonne	2.7	g/tonne
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	10		0.1	
MG - 246	0.1	g/tonne	3.4	g/tonne
MG - 247	0.1	g/tonne	2.4	g/tonne
MG - 248	0.1	g/tonne	3.4	g/tonne
DB - 3	40		2.0	
DB - 4	15		0.1	

LEGEND

- SOIL SAMPLE
- ROCK SAMPLE

Au (ppb) ● Ag (ppm) 15 ● 0.1

Au (ppb) ■ Ag (ppm) 25 ■ 0.2

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N

0 400m

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MISTY GROUP

ROCK & SOIL GEOCHEMISTRY

Au (ppb), Ag (ppm)

FIGURE No 4		PROJECT No M-504	
DATE OCT/83	REVISIONS		SCALE 1:10,000
NTS			
COMPILED D.B.			

NIE 3 | NIE 4
NIE 2 | NIE 1

DETAILED SAMPLING AREA

MISTY 1 | MISTY 2

DETAILED SAMPLING RESULTS

	As (ppm)	Sb (ppm)
MG - 369	23	27.0
MG - 370	—	—
MG - 371	29	2.2
MG - 372	15	2.0
MG - 373	16	1.4
MG - 374	50	2.8
MG - 229	1100	45.0
MG - 230	45	4.8
MG - 231	—	—
MG - 232	—	—
MG - 233	430	76.0
MG - 234	53	7.0
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	180	9.6
MG - 241	17	5.8
MG - 242	73	4.8
MG - 243	53	4.6
MG - 244	53	6.8
MG - 245	20	0.2
MG - 246	—	—
MG - 247	—	—
MG - 248	—	—
DB - 3	70	2.4
DB - 4	45	1.8

LEGEND

- ● SOIL SAMPLE
- ■ ROCK SAMPLE

As (ppm) ● Sb (ppm) 9 ● 2.3

As (ppm) ■ Sb (ppm) 230 ■ 36.0

N

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0 400m

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MISTY GROUP

ROCK & SOIL GEOCHEMISTRY

As (ppm), Sb (ppm)

FIGURE No. 5		PROJECT No. M-504	
DATE OCT/83	REVISIONS		SCALE 1:10,000
DRAWN			
COMPILED BY D.B.			