1075

GEOLOGICAL ASSESSMENT REPORT

ON THE

VINE 1-4 CLAIMS

ATLIN MINING DIVISION

TATSAMENIE LAKE AREA, BRITISH COLUMBIA

NTS 104K/8 & 9

58° 30'N 132° 15'W

PREPARED FOR

TAHLTAN HOLDINGS LTD.

SUITE 13 - 1155 MELVILLE STREET

VANCOUVER, BRITISH COLUMBIA

V6E 4C4

PREPARED BY

STETSON RESOURCE MANAGEMENT CORP.

SUITE 13 - 1155 MELVILLE STREET

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V6E 4C4

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MARCH, 1988

SUMMARY

The Vine property comprises four claims, totalling 80 units, situated in the Atlin mining division in northwestern British Columbia. The nearest communities are Telegraph Creek, 80 air kilometres to the southeast and Dease Lake, 140 air kilometres to the east. The property is situated 80 kilometres east of the Pacific Coast on the lee side of the Coast Range Mountains. The region has a relatively dry climate. Most of the claims lie above the tree line, between 760 and 1800 metres above sea level.

The area presently covered by the Vine property was initially staked as the Vein claims by Chevron Minerals Ltd. in 1982. The Vein property was one of several staked by Chevron in the Tatsamenie Lake area following a regional heavy mineral stream sediment survey. One of Chevron's other properties, the Golden Bear, contains proven and probable reserves of 1.5 million tons grading 0.31 oz. gold per ton in a structurally controlled mesothermal deposit. Chevron and joint venture partner, North American Metals, plan to put the deposit into production once a road is constructed to the property.

Chevron discovered gold, silver, copper, lead, zinc, antimony and arsenic mineralization hosted by mesothermal quartz and carbonate veins at several locations on the Vein property in 1983. The property lapsed in 1986.

As a result of a research project, the ground was restaked in 1987 as the Vine claims and optioned to Waterford Resources Inc. On behalf of Waterford, Stetson Resource Management Corp. carried out an exploration program under the direction of the writer in 1987. A total of $62,000.00 was spent on geological mapping, prospecting, rock chip and soil sampling.

Two extensive zones and several showings host gold, silver, copper, lead, zinc, antimony and arsenic mineralization in structurally controlled quartz ± carbonate veins and associated alteration zones fitting a mesothermal description.

A two phase exploration program is recommended to test the economic potential of the Vine property.

TABLE OF CONTENTS

1. INTRODUCTION

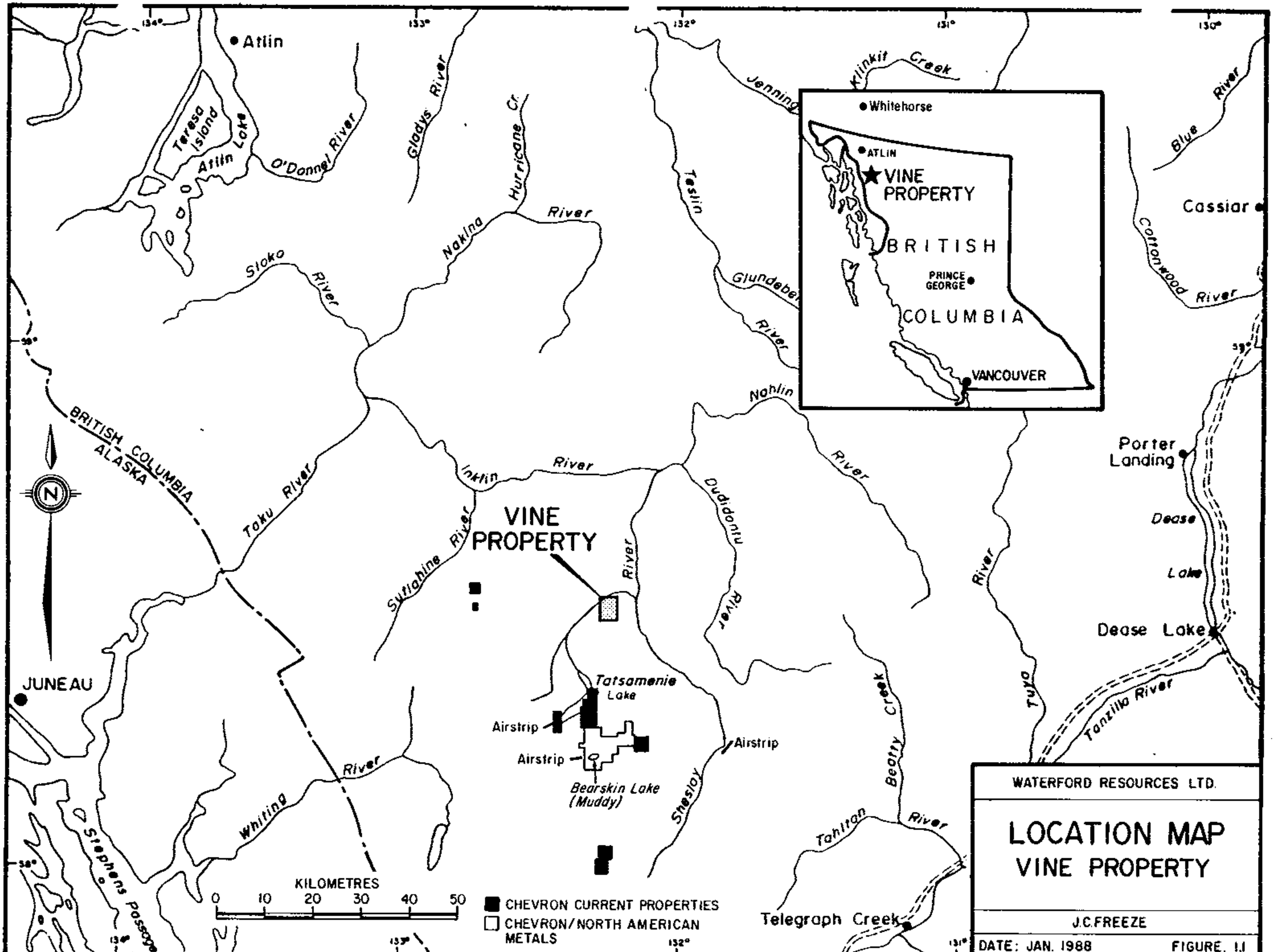
This report discusses the physiography, geology and economic potential of a precious metal prospect covered by the Vine property under option to Waterford Resources Ltd. This report is based on an exploration program carried out by Stetson Resource Management Corp. and public assessment reports discussing exploration work carried out by Chevron Canada Resources Limited. An exploration program is recommended to test the economic potential of these claims.

1.1 Location and Access

The Vine property is situated in the Atlin mining division in northwestern British Columbia, approximately 80 kilometres northwest of Telegraph Creek, 140 kilometres west of Dease Lake and 140 kilometres southeast of Atlin. The claim blocks cover a total area of 20 square kilometres centered at 58° 30' N and 132° 15' W (Figure 1.1).

The nearest highway to the property area is Highway 114, which extends from Dease Lake to Telegraph Creek. A winter tote road (bulldozer trail) extends 130 kilometres from the highway to Chevron's Golden Bear property, which is 30 kilometres south of the Vine property. Construction of an all-weather road is planned to access the Golden Bear property.

Air access by fixed wing aircraft is available to one of three gravel landing strips in the area. A strip on the Sheslay River allows up to DC-3 sized planes. A strip at Muddy (Bearskin) Lake handles airplanes up to Caribou size and a strip at the western end of Tatsamenie Lake allows airplanes the size of a Cessna 206 to land. Access to Tatsamenie Lake or Little Tats Lake is available by float plane from June until late October and by plane on skiis during winter months, except during freezing and break up periods. Helicopters must be used to travel from the lakes or strips to the property. Exploration can be carried out from a camp on the north shore of Little Tats Lake.



WATERFORD RESOURCES LTD.

LOCATION MAP VINE PROPERTY

J.C.FREEZE

DATE: JAN. 1988 FIGURE. 1.1

Groceries, fuel, lumber and general supplies are available, to a limited extent, in Atlin and Dease Lake. The remainder may be trucked from Whitehorse to Atlin or from Terrace to Dease Lake.

1.2 Property

The Vine property covers four claims comprised of 80 units as listed below. The claims are all owned by Tahltan Holdings Ltd. and are currently under option to Waterford Resources Inc.

TABLE 1.2

Vine Property

Claims	Record No.	Record Date	Expiry Date	No. Units
Vine 1	3064	July 10, 1987	1990	20
Vine 2	3065	July 10, 1987	1990	20
Vine 3	3066	July 10, 1987	1990	20
Vine 4	3077	July 10, 1987	1990	20

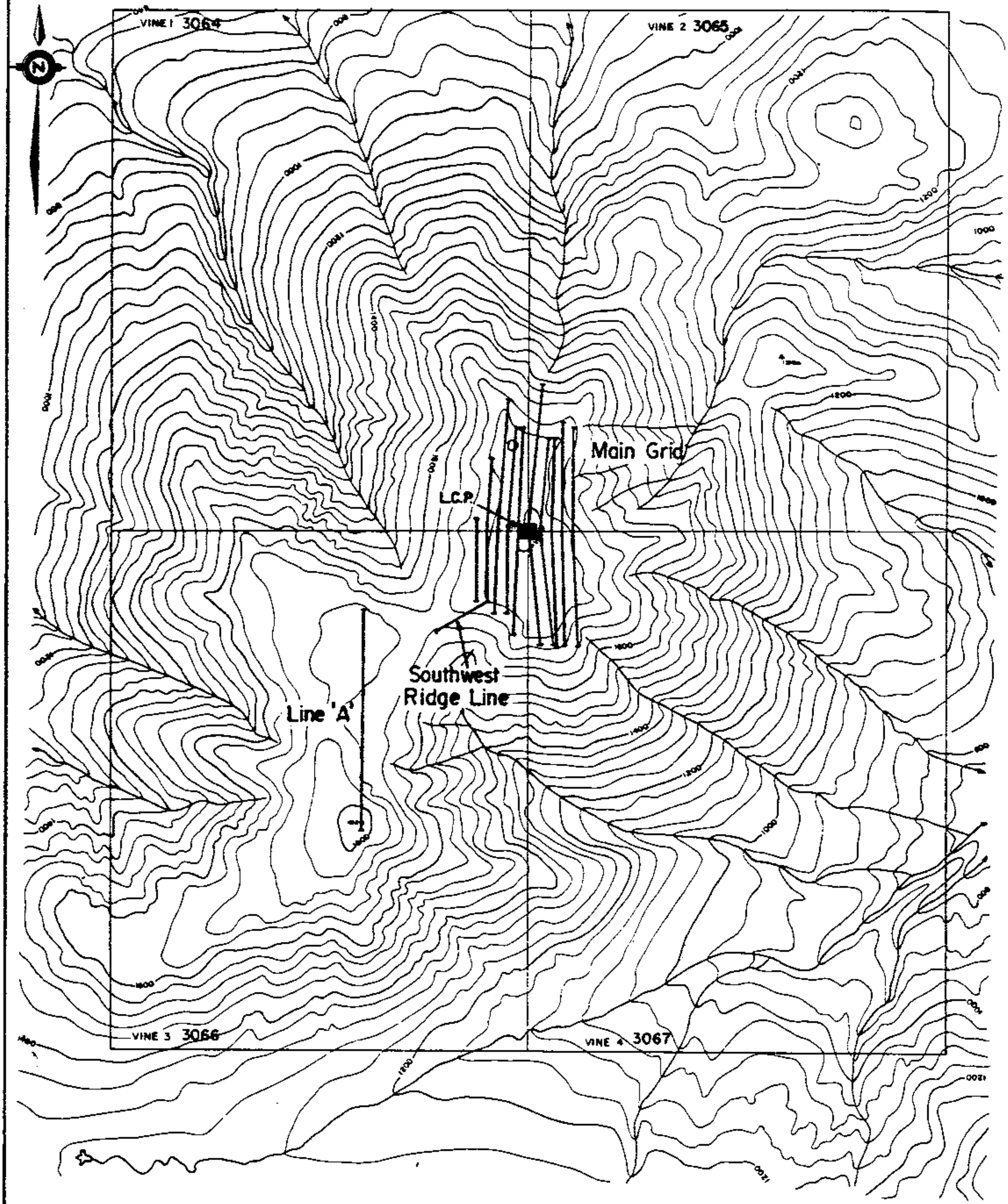
1.3 Physiography, Vegetation and Climate

The claims are situated on the lee side of the Coast Range Mountains, 80 kilometres east of the Pacific Coast. The region has a relatively dry climate; snow cover is moderate; snow flurries, rain and wind storms are common.

The property covers a rugged alpine to sub-alpine terrain. Elevations range from 760 metres (2,500 feet) to 1,811 metres (5,940 feet). Several slopes are extremely steep, some of which are unnavigable but most may be negotiated with care.

Vegetation is sparse; treeline is at an elevation of approximately 1,000 metres above which alpine tundra covers the property; shrubs and trees are restricted to valley bottoms. Engelmann spruce, alpine fir, lodgepole pine, white spruce and white bark pine trees characterize the vegetation.

Water and timber resources for exploration and development purposes are available in the creek valleys on the south portion of the claim block and from the Tatsatua River Valley north of the claim block. Several tributaries to these main creeks carry sufficient drilling water during most of the year.



TOPOGRAPHIC CONTOUR INTERVAL – 40 METRES

SOIL GRID LOCATION

VINE PROPERTY

ATLIN MINING DIVISION, B.C. NTS 94K/8,9

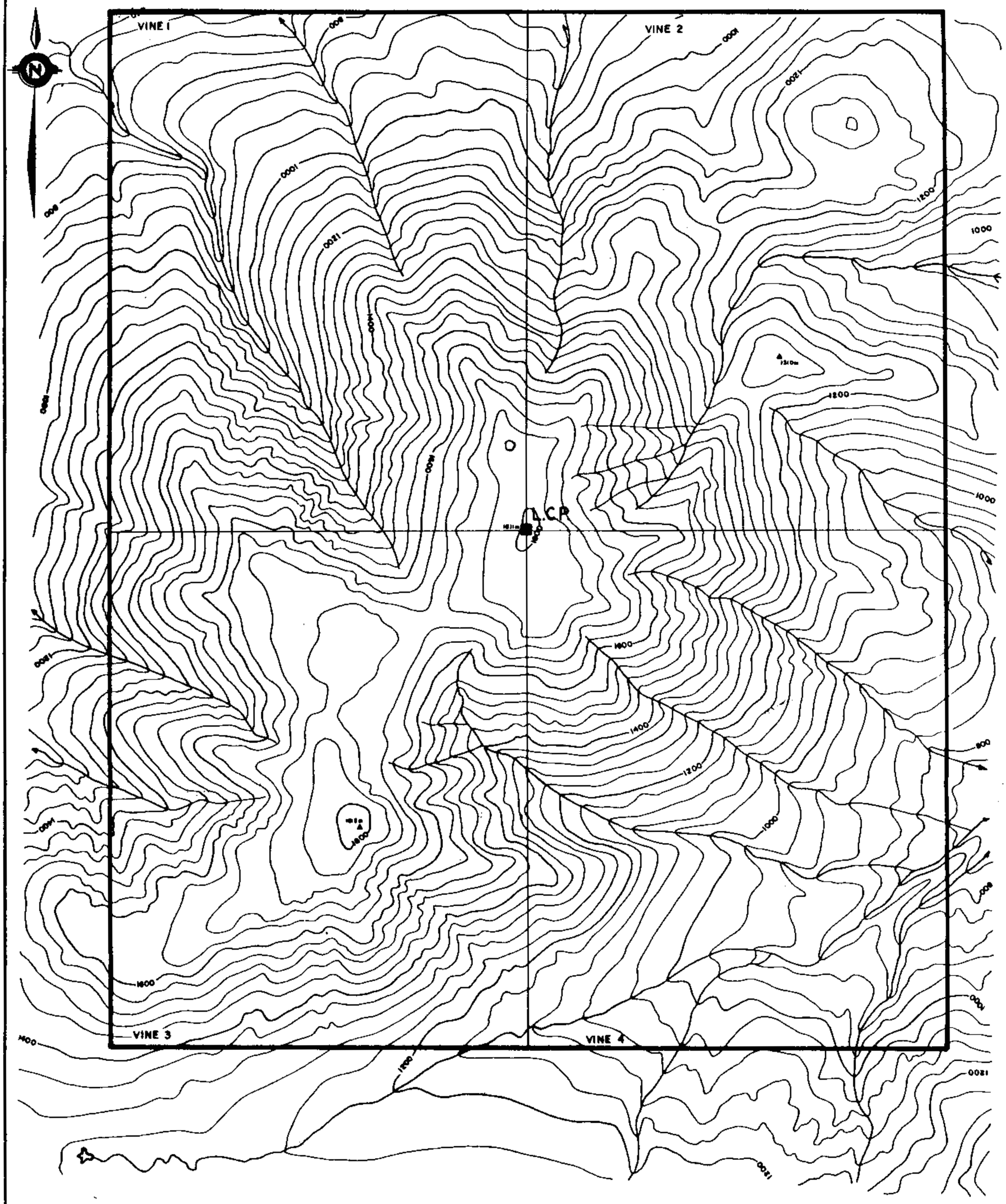
CLAIM MAP

SCALE 1: 25,000

DATE: JAN. 1988

BY:

FIGURE No. 1.2



TOPOGRAPHIC CONTOUR INTERVAL = 40 METRES

VINE PROPERTY

ATLIN MINING DIVISION, B.C. NTS 94K/9,9

CLAIM MAP

SCALE 1: 20,000

DATE: JAN. 1988
BY:

FIGURE No. 1.2

Prepared by: RWR MINERAL GRAPHICS LTD.

1.4 History

The Tatsamenie Lake area was initially explored in the fifties for its porphyry copper potential. Of several copper showings in the area; two have been classified as small porphyry copper type occurrences.

Chevron Canada Resources Limited initially explored the Tatsamenie Lake area in 1982. Chevron carried out a bulk heavy mineral stream sediment sampling program throughout the Tulsequah Map Sheet. The samples were separated by density, magnetics and size. The heavy non-magnetic, -60 +200 size fraction was analyzed for gold, silver, arsenic, antimony, bismuth, lead, nickel, cobalt, copper and molybdenum. Typical gold values obtained were 30 to 600 ppb. The area now covered by the Vine claims was one of the properties, called the Vein, staked by Chevron in 1982. Several of the other properties have been developed through to the diamond drilling stage.

The most advanced to date is the Golden Bear property on which North American Metals has, under a joint venture agreement with Chevron, developed proven and probable reserves of 1.5 million tons grading 0.31 oz. gold per ton.

The area covered by Chevron's Vein claims was explored by geological mapping and geochemical rock, soil, silt and talus sampling. In 1983 Chevron collected 549 soil samples and 71 rock samples. Soils were collected at 100 metre spacings on lines paralleling contours approximately 100 metres apart. Chevron concluded in 1983 that a gold bearing arsenopyrite-stibnite ± quartz-chalcopyrite-sphalerite-galena vein system crosscuts the Takwahoni Group and Jurassic stock. Values of up to 0.4 oz per ton gold were obtained from selected rock samples. The soil sampling program was considered to be too widely spaced to aid in delineating the moderately narrow zones. More detailed work was recommended to further delineate the mineralized zones.

Despite these encouraging results the property was allowed to lapse in 1986, most likely due to pressure created by the development of other Tatsamenie area properties, particularly the Golden Bear.

1.5 1987 Exploration Program

In 1987 an exploration program was undertaken by geologists, prospectors and field technicians employed by Stetson Resource Management Corp under the direction of J.C. Freeze of Stillwater Enterprises Ltd. A total of $62,000.00 was spent. The following surveys were carried out between August 17 and September 17:

1) Geological mapping was carried out over the centre portion of the property at a scale of 1:10,000 and at larger scales where mineralization was discovered (see Figures 2.2 and 2.2A-C);

2) Rock chip sampling of quartz and calcite veins, quartz-carbonate stockwork zones, hydrothermal alteration zones and all pyritic rocks was carried out (see Figure 3.2);

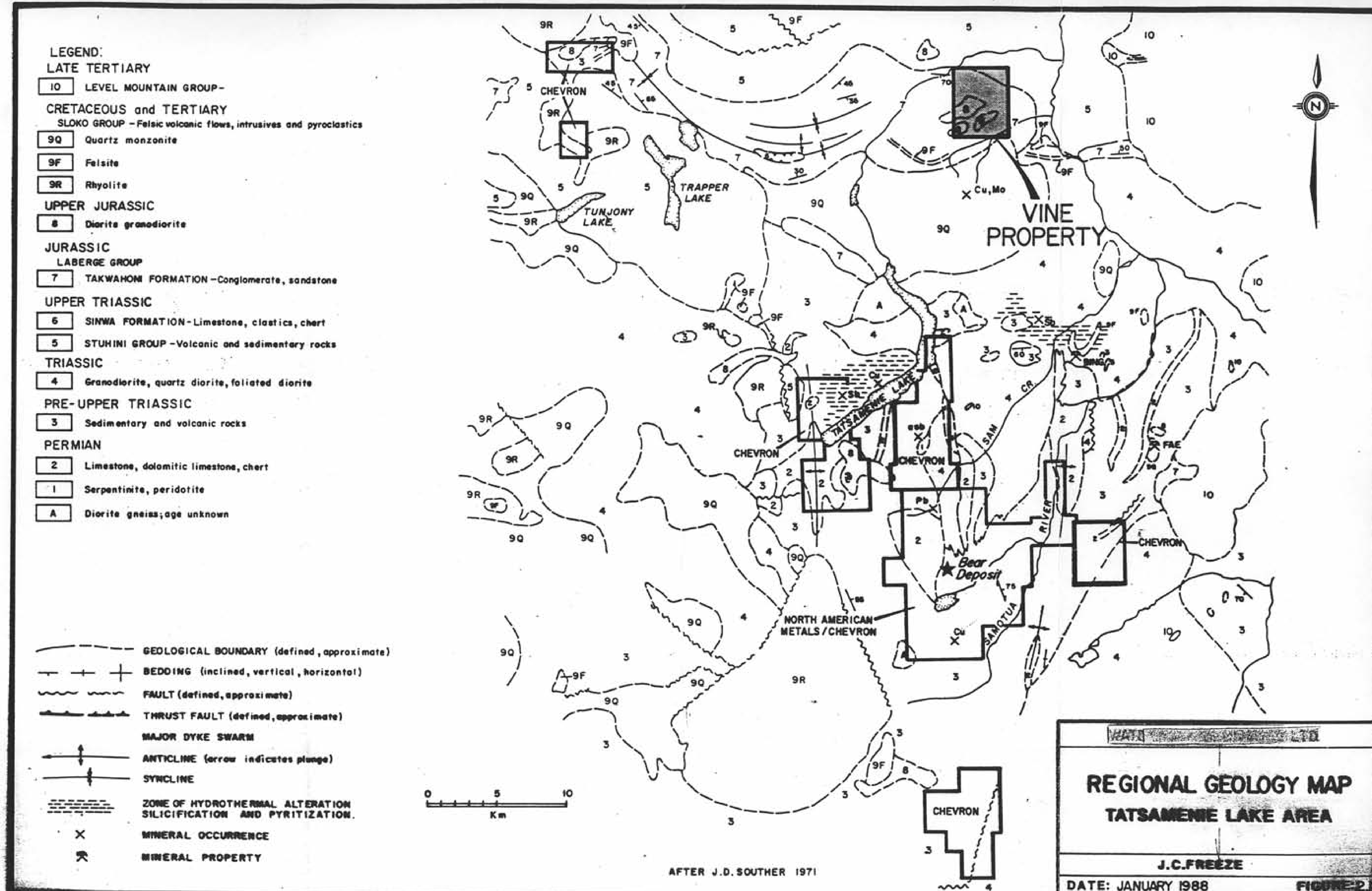
3) Grid preparation and 'B' horizon soil sampling was carried out over the centre of the claim block. A total of 401 samples were collected at 25 metre stations along north-south lines spaced 50 metres apart; 59 samples were collected on two other small grids (see Figure 1.2);

4) Stream sediment sampling was carried out at two localities on two creeks draining a mineralized zone called the Cold Creek showing on the Vine 3 claim (see Figure 3.2).

2. GEOLOGY

2.1 Regional Geology

The Tatsamenie Lake area was mapped as part of the Tulsequah map sheet by J.G. Souther of the Geological Survey of Canada in 1971 (Figure 2.1). The oldest unit in the area is a diorite gneiss of unknown age. Permian serpentinite and limestone units are overlain by Pre-Upper Triassic clastic sediments and volcanic rocks. The Permian and Pre-Upper Triassic rocks belong to the Stikine Terrane which is an


LEGEND:
LATE TERTIARY
10 LEVEL MOUNTAIN GROUP-
CRETACEOUS and TERTIARY
SLOKO GROUP - Felsic volcanic flows, intrusives and pyroclastics
9Q Quartz monzonite
9F Felsite
9R Rhyolite
UPPER JURASSIC
8 Diorite granodiorite
JURASSIC
LABERGE GROUP
7 TAKWAHONI FORMATION - Conglomerate, sandstone
UPPER TRIASSIC
6 SINWA FORMATION - Limestone, clastics, chert
5 STUHINI GROUP - Volcanic and sedimentary rocks
TRIASSIC
4 Granodiorite, quartz diorite, foliated diorite
PRE-UPPER TRIASSIC
3 Sedimentary and volcanic rocks
PERMIAN
2 Limestone, dolomitic limestone, chert
1 Serpentinite, peridotite
A Diorite gneiss; age unknown
GEOLOGICAL BOUNDARY (defined, approximate)
BEDDING (inclined, vertical, horizontal)
FAULT (defined, approximate)
THRUST FAULT (defined, approximate)
MAJOR DYKE SWARM
ANTICLINE (arrow indicates plunge)
SYNCLINE
ZONE OF HYDROTHERMAL ALTERATION SILICIFICATION AND PYRITIZATION.
MINERAL OCCURRENCE
MINERAL PROPERTY
0 5 10
Km
AFTER J.D. SOUTHER 1971
CHEVRON
TUNJONY LAKE
TRAPPER LAKE
Cu, Mo
VINE PROPERTY
TATSAMENIE LAKE
SAM CR
RIVER
Bear Deposit
SAMOTUA
NORTH AMERICAN METALS / CHEVRON
N
[redacted] LTD
REGIONAL GEOLOGY MAP
TATSAMENIE LAKE AREA
J.C. FREEZE
DATE: JANUARY 1988

allochthonous package accreted to the North American craton in latest Triassic to Middle Jurassic time (Monger, 1984). Sedimentary, volcanic and volcaniclastic rocks were deposited on the Stikine Terrane in Triassic to Jurassic time. Four igneous events have intruded these rocks; a Triassic granodiorite, a Jurassic diorite (part of the Coast Complex), a Cretaceous - Tertiary group of rhyolite dykes and porphyritic feldspar diorite and Late Tertiary - Pleistocene intermediate and felsic extrusive and intrusive rocks.

2.2 Regional Mineralization

The most significant precious metal mineralization discovered in the area to date is the Bear deposit on the Golden Bear property held by Chevron and North American Metals. The deposit is hosted by an extensive northerly trending structure called the West Wall fault. North trending vertical fault structures between limestone and tuff control gold mineralization and associated quartz-carbonate alteration. The gold is commonly associated with disseminations and fracture fillings of fine grained pyrite, predominantly along fault contacts. Accessory minerals include pyrrhotite, arsenopyrite, tetrahedrite and minor galena, sphalerite, chalcopyrite and tellurides. Most of the gold is submicron in size and not visible to the naked eye (Kenway, 1986). The mineralization is considered to fit Lindgren's (1933) mesothermal classification of ore deposits.

The basic model for mineralization at the Bear comprises:

1) Major structures acting as conduits for mineralizing fluids;

2) A heat source such as intrusive bodies creating hydrothermal convection cells;

3) Structural traps such as folds;

4) Host rocks which are either chemically or physically receptive to deposition of metallic mineralization.

2.3 Property Geology

The Vine property is underlain predominantly by Jurassic Takwahoni sediments which have been intruded by two igneous events. The first intrusion was a diorite stock in post middle Jurassic time. The second is the Cretaceous and Tertiary Sloko Group of felsic volcanic flows, intrusives and pyroclastics. The Sloko Group intrudes both the Takwahoni sediments and the Jurassic diorite (see Figure 2.2).

The Takwahoni sedimentary package comprises predominantly thinly intercalated quartzose sandstone, siltstone and shale. Minor limestone lenses, chert pebble conglomerate and granite boulder conglomerates occur within the sequence. Strong folding occurs in the sediments in the northern portion of the property. This may be caused by the Jurassic intrusion as evidenced by several beds dipping away from the batholith.

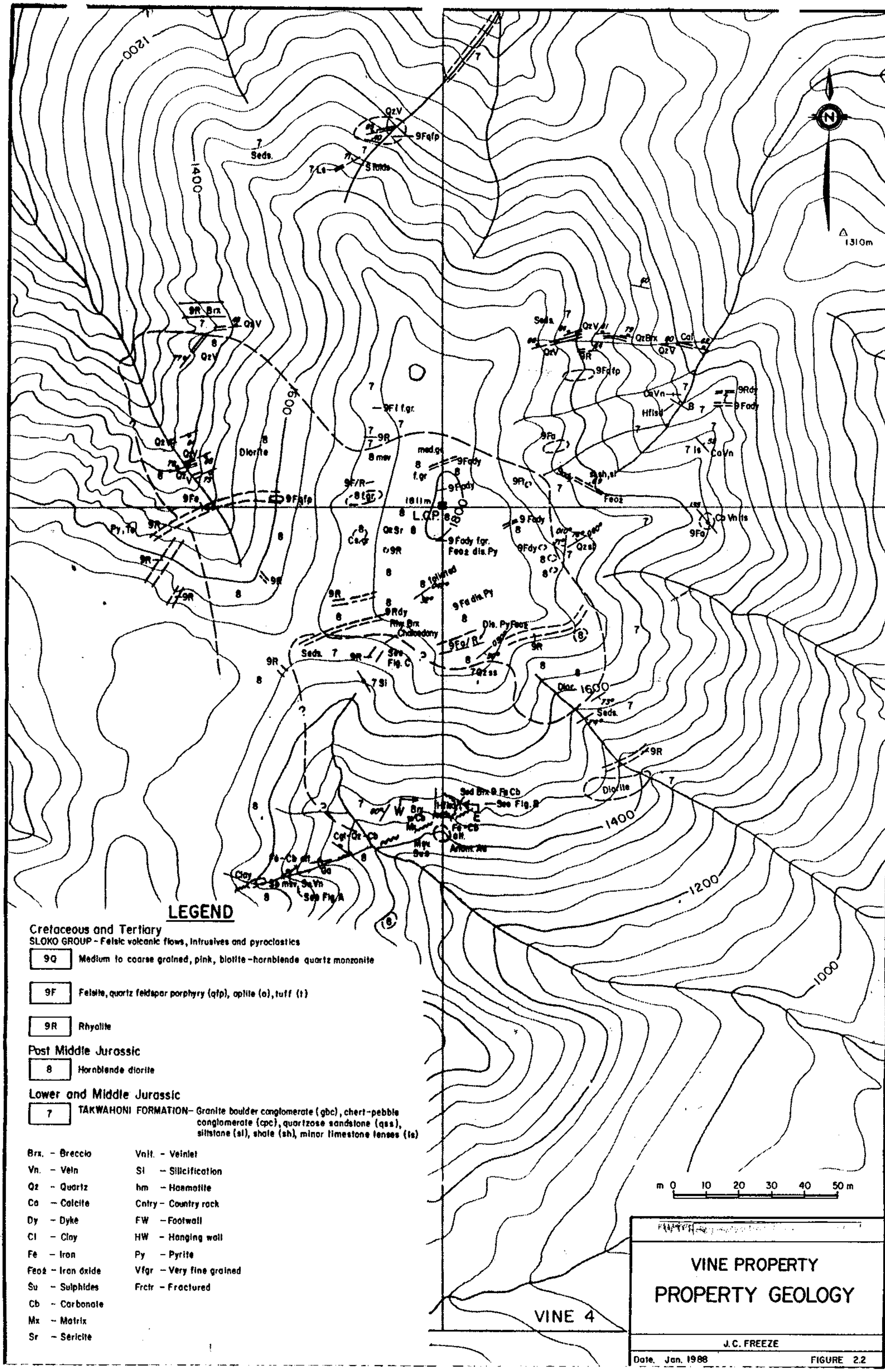
The Jurassic intrusive is a hornblende diorite stock outcropping in the centre of the property. The texture of the diorite varies from fine grained to coarse grained and occurs most commonly in massive form but is in part foliated. The foliation often occurs in the vicinity of the Sloko Group dykes.

On the Vine property the Cretaceous-Tertiary Sloko Group intrudes the diorite and sediments as felsite: aplite and quartz feldspar porphyry dykes and small stocks and tuffs; and as rhyolite dykes. The Sloko Group occurs as medium to coarse grained, pink biotite-hornblende quartz monzonite batholith south of the property.

Souther has mapped Upper Triassic Stikine Group volcanic and sedimentary rocks in the northeastern corner of the property. This area was not mapped in 1987.

2.4 Property Mineralization

Syngenetic pyrite occurs in beds and disseminations throughout the Takwahoni siltstones and shales. This mineralization does not appear to have any anomalous metal concentrations associated with it.



LEGEND

Cretaceous and Tertiary

SLOKO GROUP – Felsic volcanic flows, intrusives and pyroclastics

9Q	Medium to coarse grained, pink, biotite–hornblende quartz monzonite
9F	Felsite, quartz feldspar porphyry (qfp), aplite (a), tuff (t)
9R	Rhyolite

Post Middle Jurassic

8	Hornblende diorite

Lower and Middle Jurassic

7	TAKWAHONI FORMATION – Granite boulder conglomerate (gbc), chert-pebble conglomerate (cpc), quartzose sandstone (qss), siltstone (sl), shale (sh), minor limestone lenses (ls)

- Brx. – Breccia
- Vn. – Vein
- Qz – Quartz
- Ca – Calcite
- Dy – Dyke
- Cl – Clay
- Fe – Iron
- Feoż – Iron oxide
- Su – Sulphides
- Cb – Carbonate
- Mx – Matrix
- Sr – Sericite
- Vnlt. – Veinlet
- Si – Silicification
- hm – Haematite
- Cntry – Country rock
- FW – Footwall
- HW – Hanging wall
- Py – Pyrite
- Vfgr – Very fine grained
- Frctr – Fractured

VINE PROPERTY

PROPERTY GEOLOGY

J.C. FREEZE

Date. Jan. 1988 FIGURE 2.2

Precious and base metal mineralization occurs in epigenetic vein structures, shears and associated alteration halos in two main zones and several showings on the property.

2.4.1 Big Onion - Vein Zone

Gold - silver - copper - lead - zinc - antimony - arsenic mineralization occurs in quartz-calcite veins within an extensive geochemically anomalous zone across the centre of the property. Veins outcrop in both westerly and easterly flowing creeks, Big Onion Tributary and Vein Creek, one kilometre apart but apparently on strike. The veins strike easterly and dip steeply to the north. In Vein Creek alone three exposures indicate a 500 metre strike length to the vein structure. In Big Onion Tributary the quartz vein hosts fine grained sulphides. In Vein Creek the quartz gangue hosts pyrite, tetrahedrite, sphalerite, galena, stibnite and arsenopyrite.

Metal values reach 2720 ppb gold, 12.4 ppm silver, 3030 ppm copper, 142 ppm lead, 391 ppm zinc and 190 ppm arsenic over 20 cm in Big Onion Tributary, on the west side. On the east side, in Vein Creek, Stetson's sampling shows that metal values reach, 0.328 oz. per ton (11240 ppb) gold, 121 ppm silver, 9,517 ppm copper, over 10,000 ppm lead, 6964 ppm zinc, over 10,000 ppm antimony and 73,680 ppm arsenic, over 15 cm. Chevron reported an average of 0.22 oz. per ton gold over the Vein Zone in 1983.

A Sloko Group rhyolite dyke parallels the vein in the hanging wall on Big Onion Tributary and in the footwall on Vein Creek.

Anomalous levels of gold, copper, antimony and arsenic were found in "B" horizon soils covering the plateau between the main vein exposures. This anomalous zone suggests a possible east-west continuity to the mineralized zone.

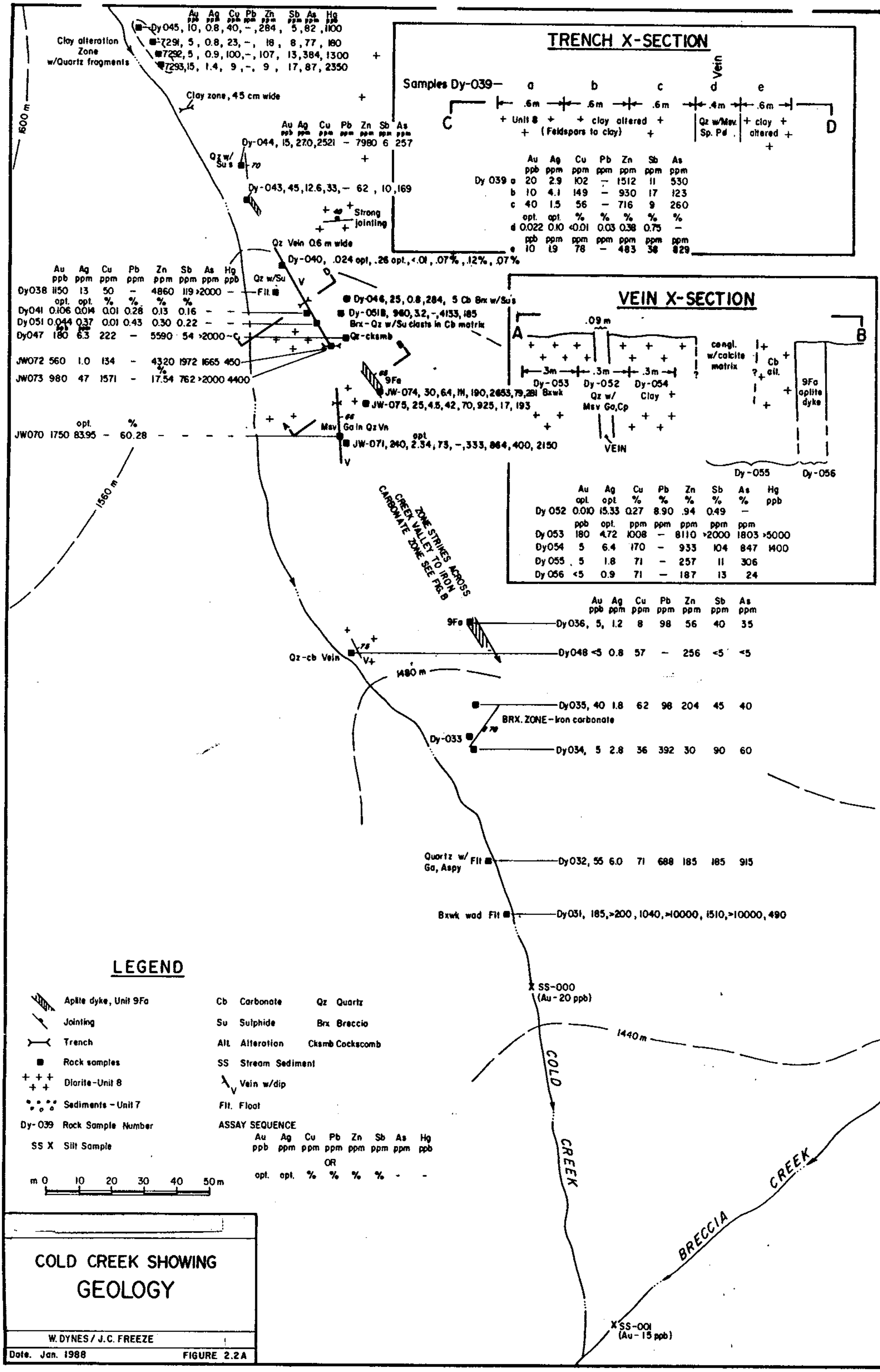
South of Vein Creek and Big Onion Tributary, several narrow gold - silver - copper - lead - zinc - antimony - arsenic bearing quartz-calcite veins have been found. The mineralization often occurs adjacent to Sloko rhyolite or felsic dykes. Most of these veins strike westerly; gold values are up to +10,000 ppb. These showings demonstrate that mineralization occurs over an area of 650 metres to the south of the main zone (see Figure 2.2 and 3.2).

2.4.2 Cold Creek Quartz-Carbonate Zone

Gold - silver - copper - lead - zinc - antimony - arsenic - mercury bearing quartz veins occur within an extensive quartz-carbonate alteration zone. The zone averages 2.8 metres in width over a strike length of at least 700 metres and trends northeasterly from the main exposure in Cold Creek. The zone crosscuts the Takwahoni sediments and the Jurassic stock indicating a Cretaceous or Tertiary age.

Within the alteration zone in Cold Creek a northeasterly striking quartz vein hosts massive sphalerite, galena, pyrrhotite, pyrite, stibnite and chalcopyrite blebs over a width of 40 to 60 cm and strike length of 30 m. The vein changes to a westerly strike hosting massive galena, tetrahedrite, chalcopyrite and pyrite over a 20 metre strike length. Metal values reach 0.106 oz. per ton (3.63 grams per tonne) gold, 0.14 oz. per ton (4.8 grams per tonne) silver, .28% lead, .13% zinc and .16% antimony over 60 cms in the Sphalerite Zone. A selected sample of the sphalerite zone contains 980 ppb gold, 47 ppm silver, 1571 ppm copper, 17.54% zinc, 4400 ppb mercury, 762 ppm antimony and 2000 ppm arsenic. The Galena Zone contains 1750 ppb gold, 83.95 oz. per ton (2876 grams per tonne) silver and 60.28% lead, 333 ppm zinc and 864 ppm antimony over 25 cm in the Galena Zone. A felsic Sloko Group dyke parallels the vein in the hanging wall of the Galena Zone (see Figure 2.2.A).

At the eastern end of the alteration zone, a crackle breccia zone comprised of quartz and massive pyrite contains 1800 ppb gold, over 200 ppm silver, over 10,000 ppm copper, 4010 ppm lead, 1235 ppm antimony and over 10,000 ppm arsenic in a selected sample (see Figure 2.2.B).



	Au	Ag	Cu	Pb	Zn	Sb	As	Hg
	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppb
Dy038	1150	13	50	-	4860	119	>2000	-
	opt.	opt.	%	%	%	%		
Dy041	0.106	0.014	0.01	0.28	0.13	0.16	-	-
Dy051	0.044	0.37	0.01	0.43	0.30	0.22	-	-
	ppb	ppm						
Dy047	180	6.3	222	-	5590	54	>2000	-
JW072	560	1.0	134	-	4320	1972	1665	450
					%			
JW073	980	47	1571	-	17.54	762	>2000	4400
	opt.		%					
JW070	1750	83.95	-	60.28				

	Au	Ag	Cu	Pb	Zn	Sb	As
	ppb	ppm	ppm	ppm	ppm	ppm	ppm
Dy 039 a	20	2.9	102	-	1512	11	530
b	10	4.1	149	-	930	17	123
c	40	1.5	56	-	716	9	260
	opt.	opt.	%	%	%	%	%
d	0.022	0.10	<0.01	0.03	0.38	0.75	-
	ppb	ppm	ppm	ppm	ppm	ppm	ppm
e	10	1.9	78	-	483	38	829

	Au	Ag	Cu	Pb	Zn	Sb	As	Hg
	opt.	opt	%	%	%	%	%	ppb
Dy 052	0.010	15.33	0.27	8.90	.94	0.49	-	
	ppb	opt.	ppm	ppm	ppm	ppm	ppm	
Dy 053	180	4.72	1008	-	8110	>2000	1803	>5000
Dy054	5	6.4	170	-	933	104	847	1400
Dy 055	5	1.8	71	-	257	11	306	
Dy 056	<5	0.9	71	-	187	13	24	

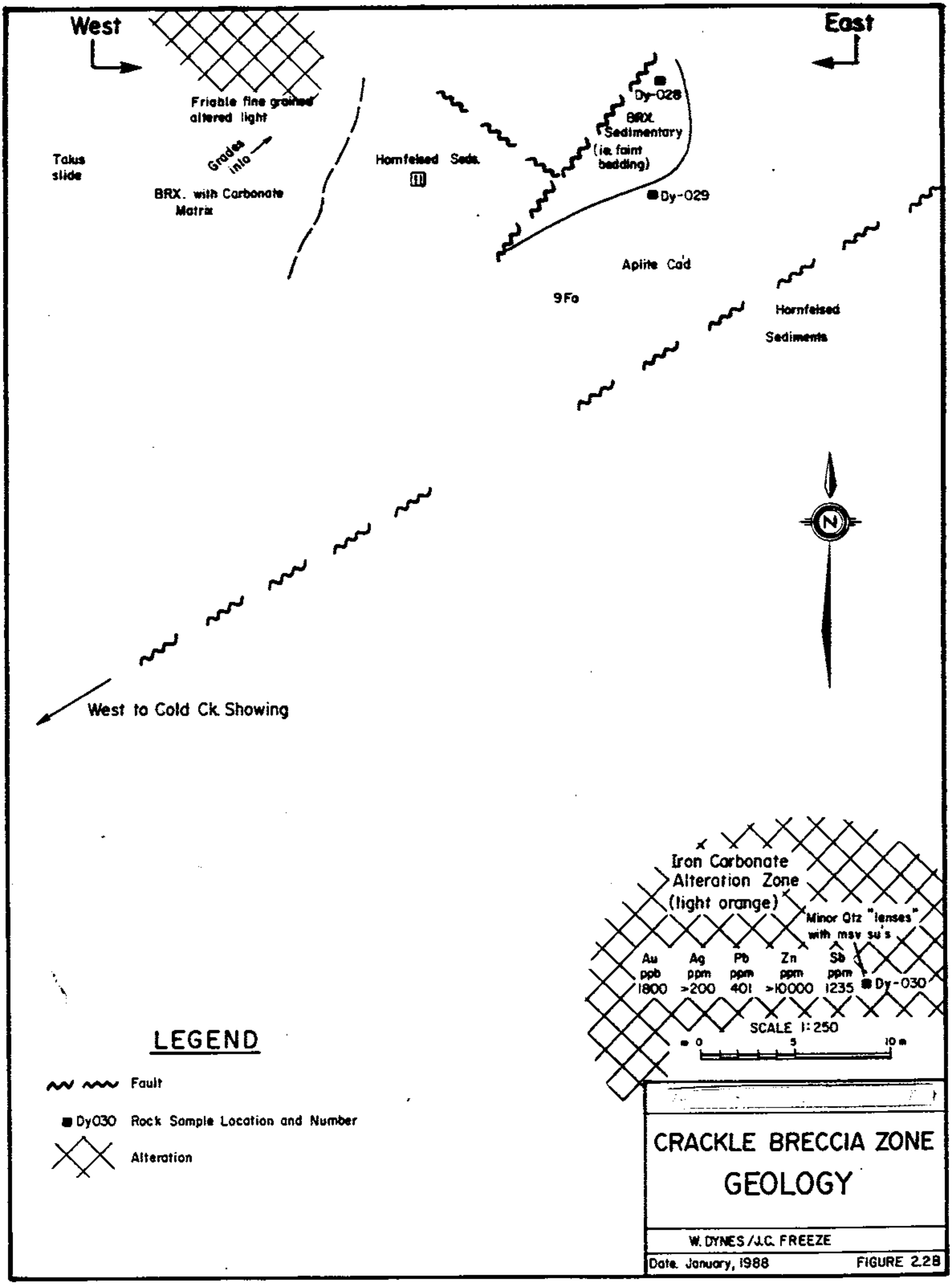
	Au	Ag	Cu	Pb	Zn	Sb	As
	ppb	ppm	ppm	ppm	ppm	ppm	ppm
Dy036	5	1.2	8	98	56	40	35
Dy048	<5	0.8	57	-	256	<5	<5
Dy035	40	1.8	62	98	204	45	40
Dy034	5	2.8	36	392	30	90	60
Dy032	55	6.0	71	688	185	185	915
Dy031	185	>200	1040	>10000	1510	>10000	490

COLD CREEK SHOWING

GEOLOGY

W. DYNES / J.C. FREEZE

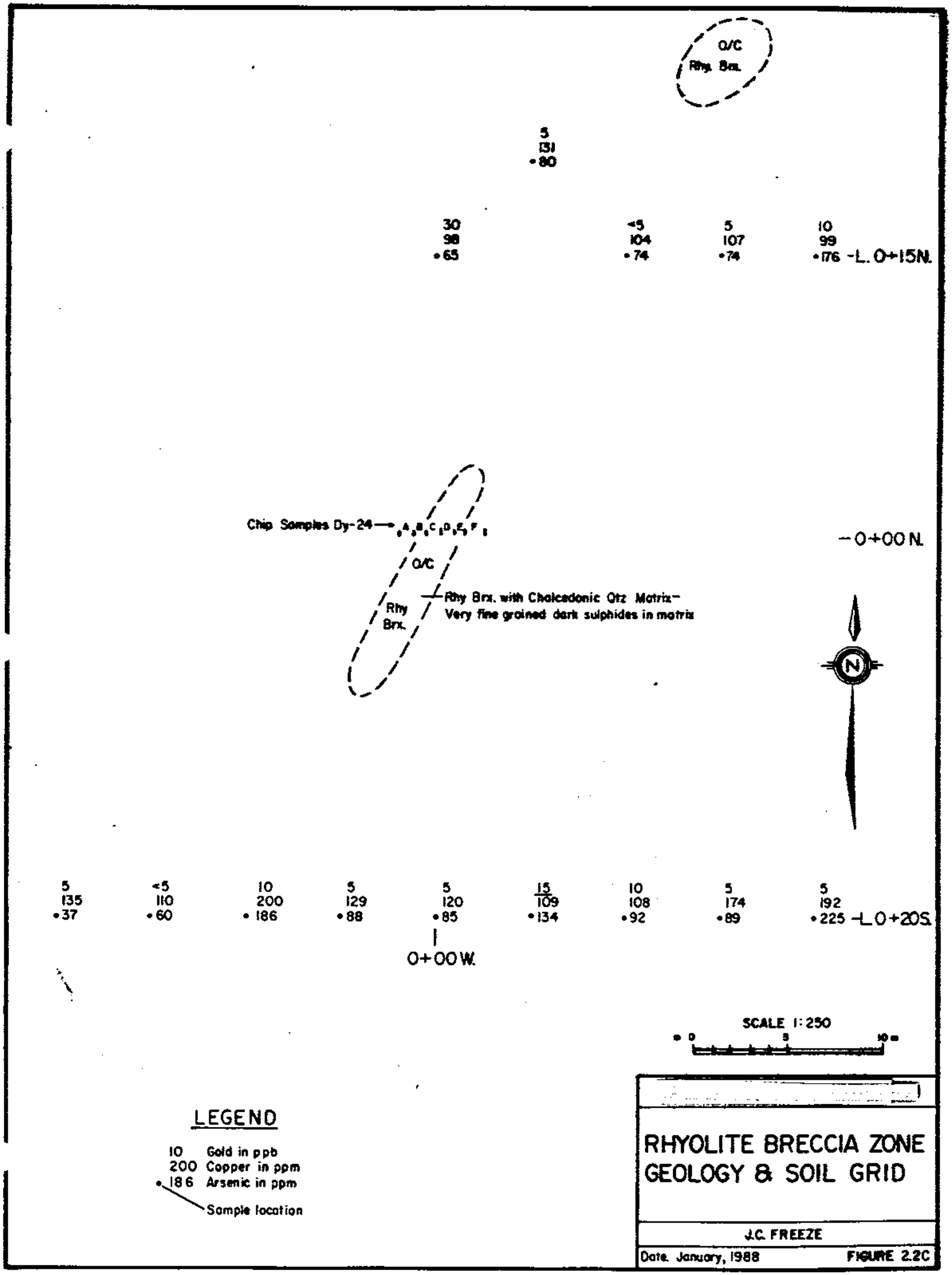
Date. Jan. 1988 FIGURE 2.2A



CRACKLE BRECCIA ZONE GEOLOGY

W. DYNES / J.C. FREEZE

Date. January, 1988 FIGURE 2.28


O/C
Rhy. Brx.
5
131
•80
30
98
•65
<5
104
•74
5
107
•74
10
99
•176
-L. 0+15N.
Chip Samples Dy-24
A B C D E F
O/C
Rhy
Brx.
Rhy Brx. with Chalcedonic Qtz Matrix–
Very fine grained dark sulphides in matrix
–0+00 N.
N
5
135
•37
<5
110
•60
10
200
•186
5
129
•88
5
120
•85
15
109
•134
10
108
•92
5
174
•89
5
192
•225
-L 0+20S.
0+00 W.
SCALE 1:250
0
5
10
LEGEND
10 Gold in ppb
200 Copper in ppm
•186 Arsenic in ppm
Sample location
RHYOLITE BRECCIA ZONE
GEOLOGY & SOIL GRID
J.C. FREEZE
Date. January, 1988
FIGURE 2.2C

3. GEOCHEMISTRY

3.1 Soil Sampling

3.1.1 Sampling, Sample Preparation and Analytical Procedures

On the Vine claims soil samples were collected on one main grid and three small grids. The main grid comprises 25 metre stations on lines trending 180° spaced 50 metres apart. This grid was tied in to the legal corner post on L0+00 at 0+00W. A line following the ridge southwest from L2+00W, 3+50S was also sampled at 25 metre stations. A third line trending 180° covering the southern plateau was also sampled at 25 metre stations. A fourth grid was positioned over a rhyolite breccia south of the legal corner post. Samples were collected at 5 metre stations on two east-west lines 35 metres apart. A total of 460 samples were collected from the "B" soil horizon with the aid of a lightweight mattock and were sent to Acme Analytical Laboratories Ltd. in Vancouver for analysis.

In the laboratory, samples were oven-dried at approximately 60°C. The dried samples were ring pulverized to minus 20 mesh and were analyzed for 30 elements by ICP (Inductively Coupled Plasma). To analyze for gold, the samples were ignited at 60°C, digested with hot concentrated nitric-aqua-regia, extracted by MIBK (organic solvent) and analyzed by graphite furnace AA (Atomic Absorption).

3.1.2 Treatment and Presentation of Results

In assessing the soil geochemical results, graphical statistical methods were used to separate background from anomalous metal concentrations. Threshold and anomalous levels were determined at the mean plus two standard deviations ($\bar{x}$+ 2s) and the mean plus three standard deviations ($\bar{x}$ + 3s), respectively, from logs probability plots prepared for each element. This data is given in Table 3.1.2 and Appendix I.

Sample locations and analytical results are shown on Figures 3.1.1 to 3.1.7. Results for each element have been contoured at threshold ($\bar{x}$ + 2s) and anomalous ($\bar{x}$ + 3s) levels.

TABLE 3.1.2

Statistical Data For Metal Values in "B" Horizon Soil Samples

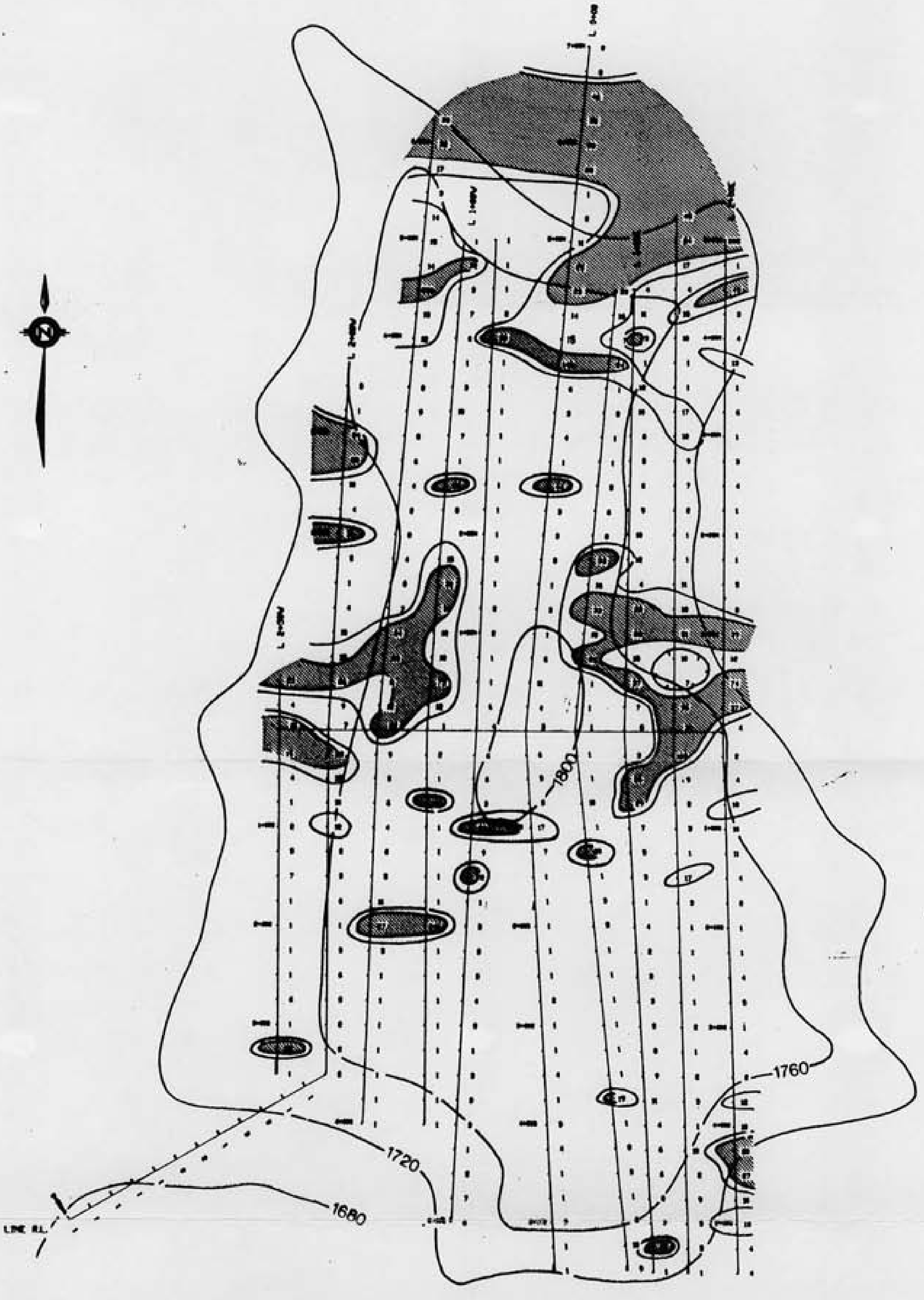
Metal	N	Mean ($\bar{x}$)	Threshold ($\bar{x}$ + 2s)	Anomalous ($\bar{x}$ + 3s)
Au	447	4.4 ppb	12 ppb	19 ppb
Ag	447	0.2 ppm	0.7 ppm	1.3 ppm
Cu	447	120 ppm	218 ppm	290 ppm
Pb	447	21 ppm	66 ppm	118 ppm
Sb	447	15.5 ppm	26 ppm	34 ppm
As	447	90 ppm	320 ppm	600 ppm

Highly anomalous levels of copper and arsenic occur in soils in several zones on the main grid. Anomalous gold values were also found covering most of the same zones. Although the gold values are not very high, anomalous zones are distinctive. Anomalous antimony values also occur within some of the copper-gold-arsenic zones. Gold shows a strong correlation with copper and arsenic and a moderate correlation with antimony.

Highly anomalous lead values occur predominantly in one main zone across the north-central area of the property. Three highly anomalous zones within the main zone and several scattered anomalies coincide with anomalous gold values.

Silver values are generally low; two zones of weakly anomalous values occur within anomalous gold zones (see Figures 3.1.1 to 6).

No anomalous metal concentrations were delineated on the Southwest Ridge Line and very few occur on the line covering the southern plateau (see Figure 3.1.7 for results). The detailed grid over the rhyolite breccia delineated a few anomalous copper, arsenic and gold values (see Figure 2.2.C for results).



LEGEND

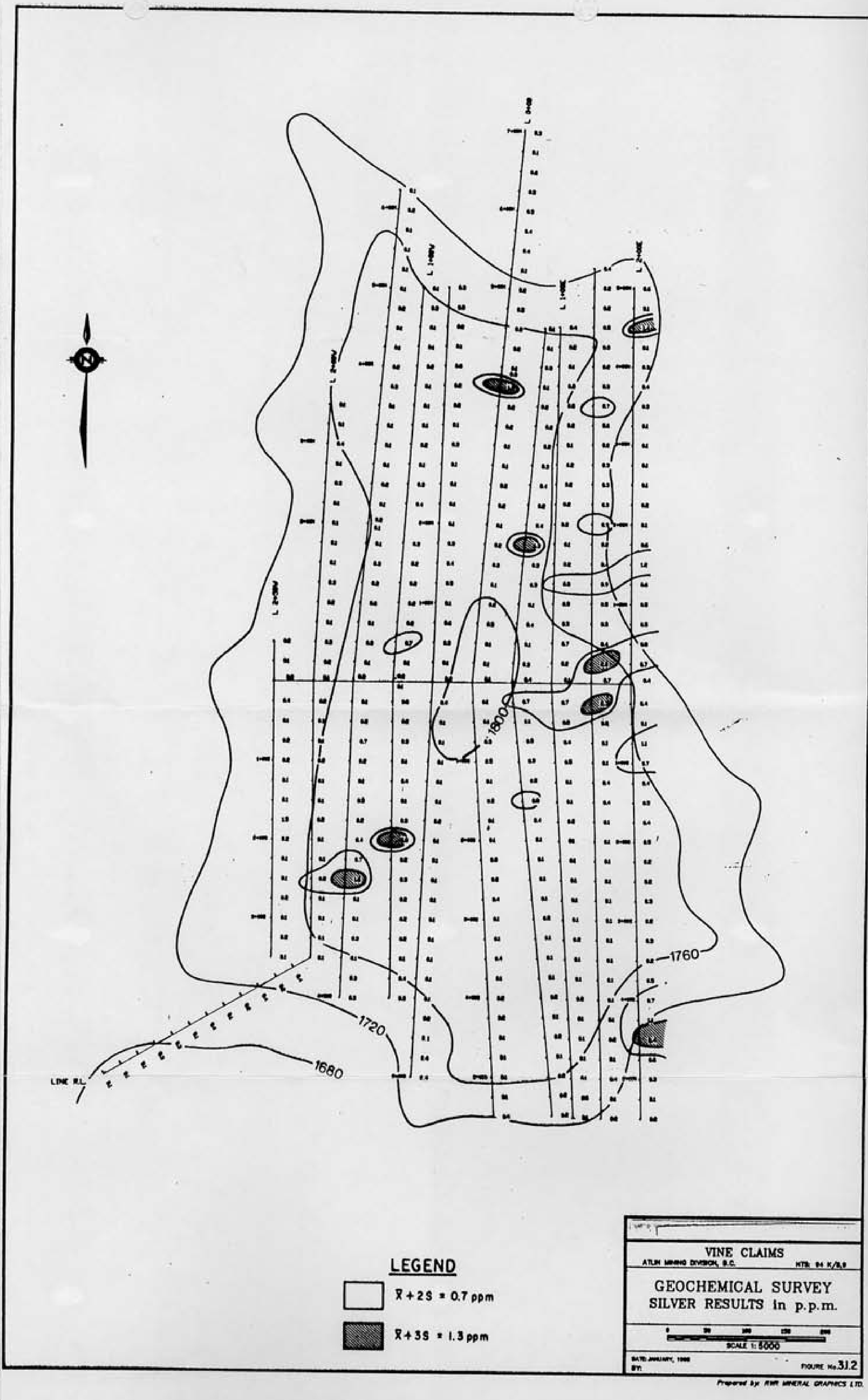
- $\bar{X}+2S$ = 12 ppb Au
- $\bar{X}+3S$ = 19 ppb Au

VINE CLAIMS

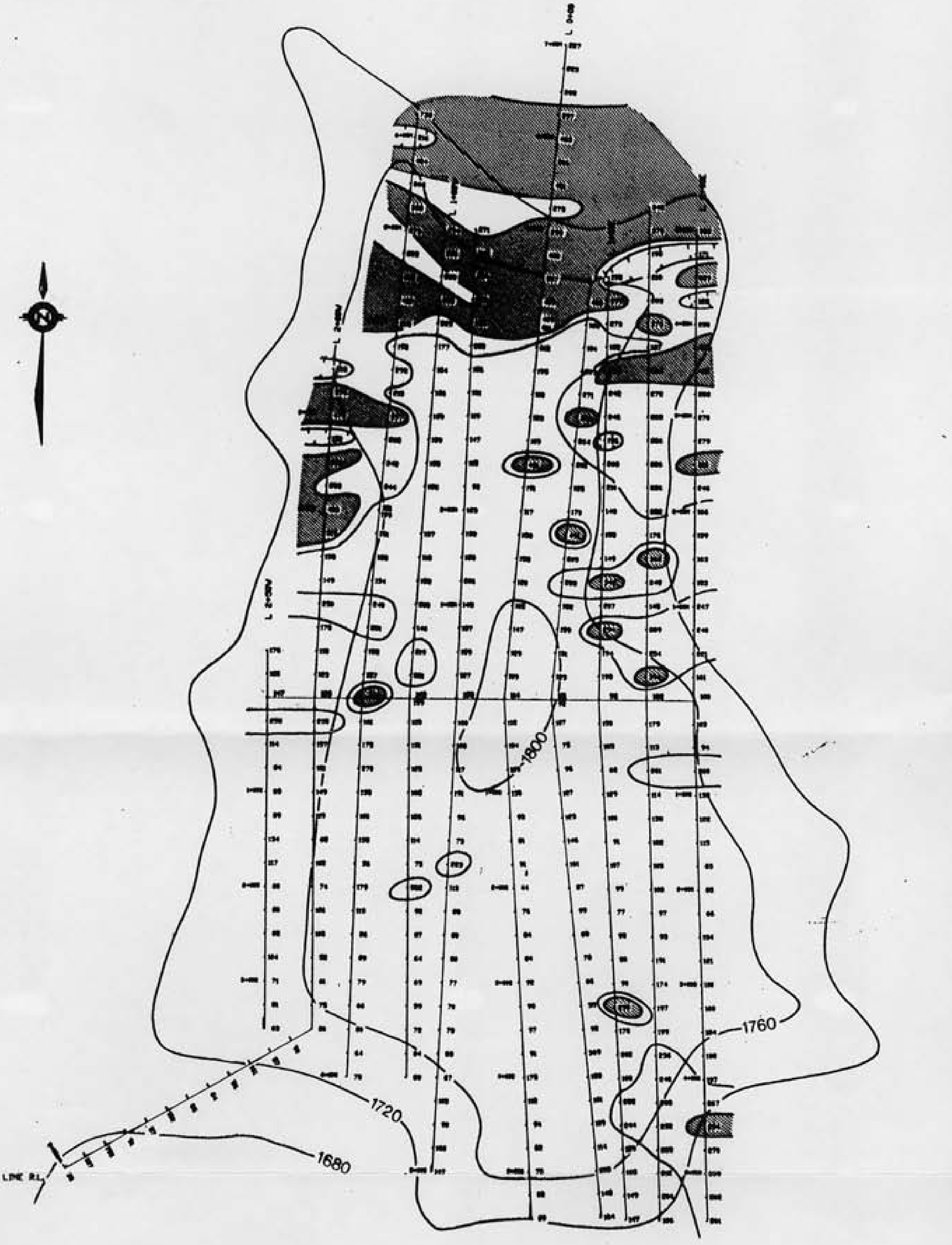
GEOCHEMICAL SURVEY
GOLD RESULTS in p.p.b.

SCALE 1: 5000

FIGURE No. 3.1.1



LEGEND
$\bar{X}$ + 2S = 0.7 ppm
$\bar{X}$ + 3S = 1.3 ppm
1680
1720
1760
1800
LINE R.L.
VINE CLAIMS
ATLIN MINING DIVISION, B.C.
GEOCHEMICAL SURVEY
SILVER RESULTS in p.p.m.
SCALE 1: 5000
FIGURE No. 3.1.2
Prepared by: RWR MINERAL GRAPHICS LTD.



LEGEND

Symbol	Threshold
(open)	$\bar{X}+2S = 218$ ppm
(shaded)	$\bar{X}+3S = 290$ ppm

VINE CLAIMS

ATLIN MINING DIVISION, B.C. NTS: 104 K/8,9

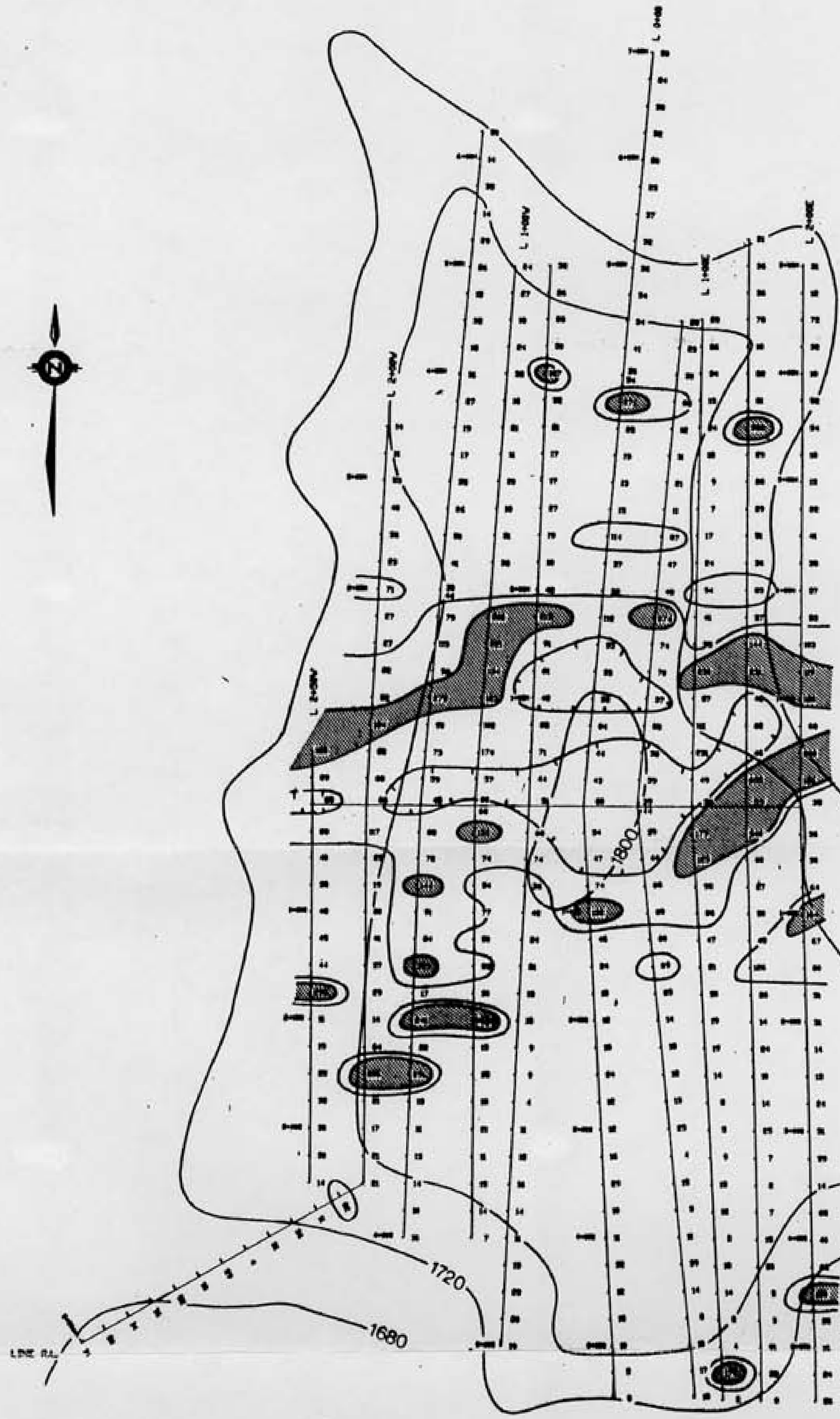
GEOCHEMICAL SURVEY
COPPER RESULTS in p.p.m.

0 50 100 150 200

SCALE 1:5000

FIGURE No. 3.1.3

Prepared by: RWR MINERAL GRAPHICS LTD.



LEGEND

(open)	$\bar{X} + 2S = 66$ ppm
(shaded)	$\bar{X} + 3S = 118$ ppm

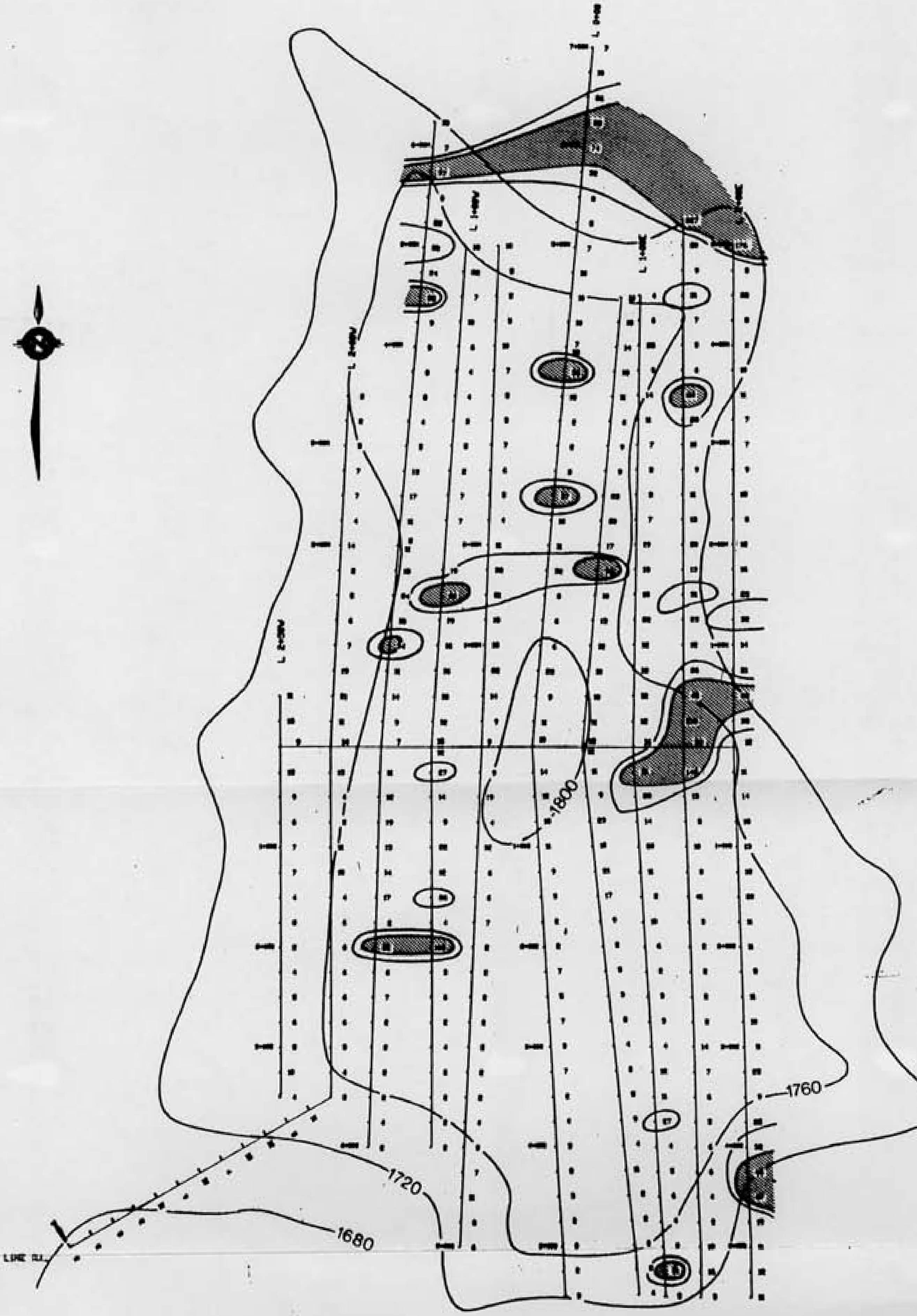
VINE CLAIMS
ATLIN MINING DIVISION, B.C.

GEOCHEMICAL SURVEY
LEAD RESULTS in p.p.m.

SCALE 1: 5000

FIGURE No. 31.4

Prepared by: RWR MINERAL GRAPHICS LTD.



LEGEND

(open)	$\bar{X}+2S$ = 26 ppm
(shaded)	$\bar{X}+3S$ = 34 ppm

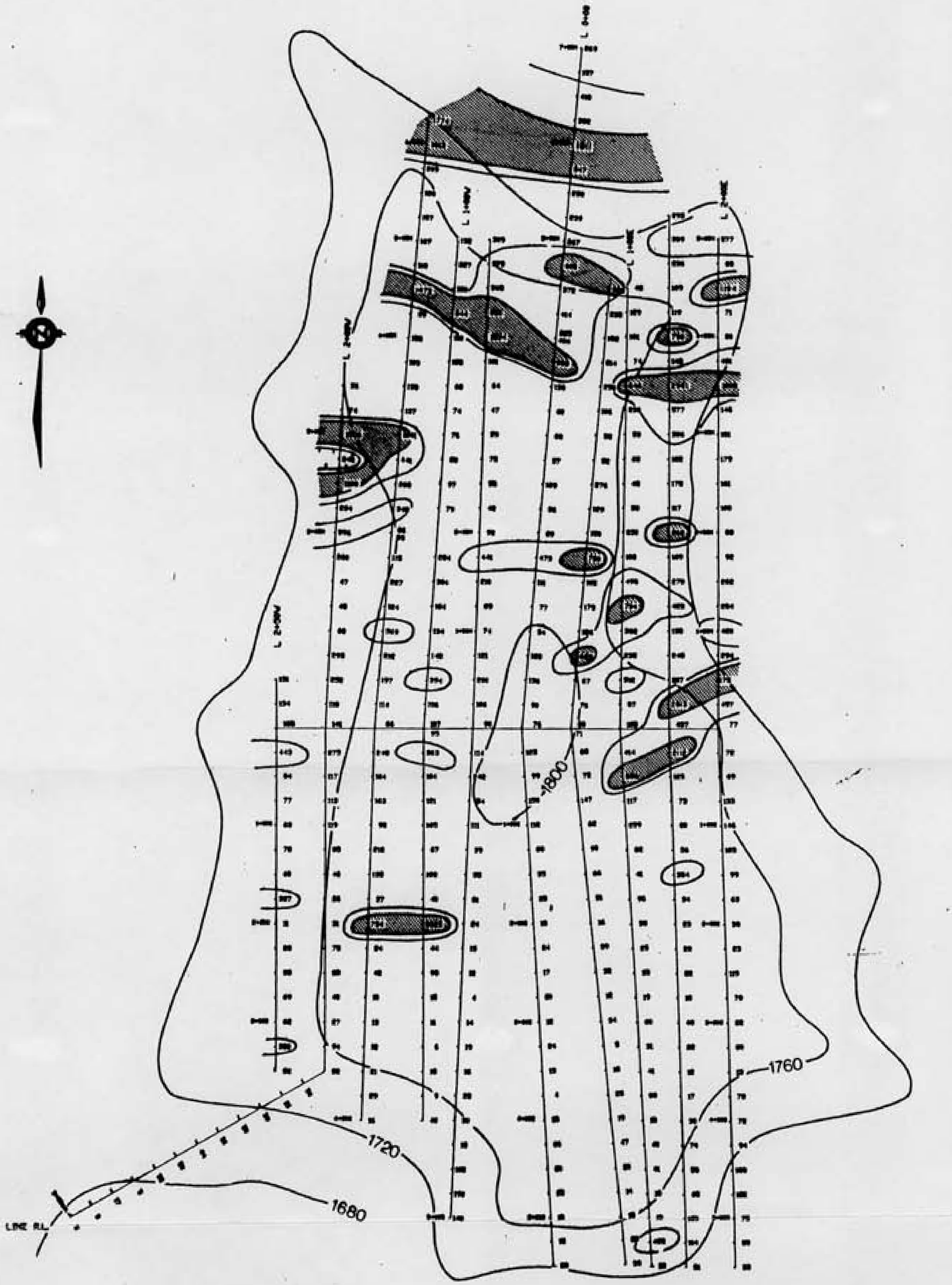
VINE CLAIMS

ATLIN MINING DIVISION, B.C.

GEOCHEMICAL SURVEY
ANTIMONY RESULTS in p.p.m.

SCALE 1: 5000

FIGURE No. 3.15



LEGEND

$\bar{X}+2S$ = 320 ppm

$\bar{X}+3S$ = 600 ppm

VINE CLAIMS

ATLIN MINING DIVISION, B.C.

GEOCHEMICAL SURVEY
ARSENIC RESULTS in p.p.m.

SCALE 1: 5000

BY:

FIGURE No. 3.1.6

Prepared by: RWR MINERAL GRAPHICS LTD.

Station	Au (p.p.b.)	Ag (p.p.m.)	As (p.p.m.)	Cu (p.p.m.)	Pb (p.p.m.)	Sb (p.p.m.)	Station
	1	0.1	133	63	36	8	
	2	0.1	45	74	41	8	
	1	0.2	38	76	30	4	
	12 (circled)	0.1	11	89	12	5	
	1	0.2	14	79	29	7	
10+00N	1	0.1	70	95	33	6	10+00N
	1	0.1	13	76	19	2	
	1	0.2	26	88	20	2	
	1	0.1	18	62	15	5	
	1	0.4	10	53	15	2	
	1	0.1	17	69	13	3	
	1	0.1	7	49	11	4	
	1	0.1	24	60	17	2	
	1	0.2	10	56	18	4	
	1	0.2	14	65	20	2	
	1	0.1	10	63	17	2	
	1	0.1	9	48	32	2	
	1	0.1	7	112	16	2	
	1	0.1	9	59	23	2	
	1	0.1	5	50	18	2	
	1	0.1	14	62	10	2	
	1	0.1	8	49	9	2	
	1	0.1	7	59	11	2	
	1	0.1	16	50	10	2	
	1	0.1	26	62	8	2	
5+00N	1	0.2	30	102	8	5	5+00N
	1	0.1	68	85	12	15	
	1	0.3	67	81	13	8	
	1	0.1	43	67	3	4	
	1	0.1	19	56	7	2	
	1	0.2	18	61	11	2	
	1	0.2	10	47	2	2	
	2	0.1	17	60	11	6	
	1	0.4	51	89	11	10	
	1	0.1	12	108	6	2	
	1	0.2	13	93	9	2	
	1	0.1	10	75	10	5	
	2	0.1	8	73	12	2	
	1	0.2	8	75	8	3	
	1	0.6	6	70	14	4	
	1	0.5	3	68	7	2	
	1	0.4	8	54	9	2	
	1	0.1	5	52	11	2	
	1	0.1	8	43	7	3	
	2	0.1	5	37	6	2	
0+00N	1	0.1	21	59	10	2	0+00N
	L 'A'	L 'A'	L 'A'	L 'A'	L 'A'	L 'A'	

See Figures 3.1.1 to 3.1.6 or Table 3.1 for anomalous levels

[illegible]

VINE CLAIMS

ATLIN MINING DIVISION, B.C. NTS: 94 K/8,9

GEOCHEMICAL SURVEY LINE 'A'

0 100 200 300 400

SCALE: 1:5000 (METRES)

DATE: JANUARY, 1988

BY: J.F./rwr

FIGURE No. 3.1.7

Prepared by: RWR MINERAL GRAPHICS LTD.

Anomalous Zones

A. This is an extensive copper - arsenic - gold zone with minor antimony -lead - silver anomalies. It occurs at the north end of the grid, at the headwaters of Vein Creek to the east, above Big Onion Tributary to the west and at the headwaters of North Creek to the north. It is positioned over the projection of strike of the mineralized veins in Vein Creek and Big Onion Tributary suggesting a possible continuity to these mineralized veins. The area covered by the anomalous zone has not been mapped in detail but appears to overlie the Takwahoni sediments. Anomalous copper and arsenic values are more pervasive than gold within this zone and in addition extend both to the southwest and southeast.

B. This is a gold - arsenic - copper - antimony - lead - silver zone occurring east and northeast of the legal corner post at the headwaters to Goat Creek. It is underlain by the diorite; several Sloko felsic dykes outcrop in the vicinity.

C. Northwest of the legal corner post a gold - arsenic - copper - antimony zone occurs over the diorite and some Sloko rhyolite dykes. Anomalous arsenic and antimony values are pervasive east-westerly connecting Anomaly C with B.

D. In the southeast corner of the grid a copper - gold - antimony - silver anomaly occurs at the headwaters of Diorite Creek. The zone is underlain by a large rhyolite dyke and diorite.

E. A gold - arsenic - copper zone with scattered anomalous lead values is delineated west of the legal corner post. The anomalous zones are not coincident as they extend uphill suggesting concentration of the elements by drainage.

F. Several scattered single or double station anomalies occur south of the legal corner post between zones B/E and D. These anomalies are considered more significant where more than one element coincides. These zones are made up of copper - arsenic - gold - lead - silver; gold - copper ± silver; arsenic - lead - gold - silver; gold - arsenic; lead - silver and arsenic - antimony.

3.2 Rock Chip Sampling

3.2.1 Sampling, Sample Preparation and Analytical Procedures

Rock chip samples were collected from all outcrops with visible mineralization, boxwork, iron staining or silicification, and from all quartz-carbonate stockwork and veins.

Selected samples were taken where the width of the zone of interest could not be determined. Chip samples were taken at regular intervals (according to the size of the unit) across the width of lenses and veins, wallrock to beds and veins and gossanous, siliceous or pyritic zones. A total of 141 rock samples were collected and 124 samples were sent for analysis.

The samples were placed in numbered plastic bags and sent to Bondar-Clegg in Whitehorse, Acme Analytical Laboratories Ltd. in Vancouver and Chemex Labs Ltd. in North Vancouver for analysis. In the laboratory, samples were put through primary and secondary crushers. A sub-sample of approximately 250 gm was then pulverized to minus 100, 140 or 150 mesh. The pulp was then analyzed for gold, silver and other elements according to visible or suspected mineralization (see Appendix II for specifics).

3.2.2 Presentation and Discussion of Results

Assay results, locations and descriptions of samples are given in Table 3.2 and shown on Map 3.2.

As discussed in section 2.4 two main zones of mineralization and several scattered showings have been delineated on the Vine property.

Veins occurring in the northernmost zone were sampled in Vein Creek and Big Onion Creek and Tributary. Sampling by Chevron in 1983 provided some higher gold values then Stetson's 1987 program. The reason for this is most likely that all sample locations were not identical (see Figure 3.2 and Table 3.2 for results).

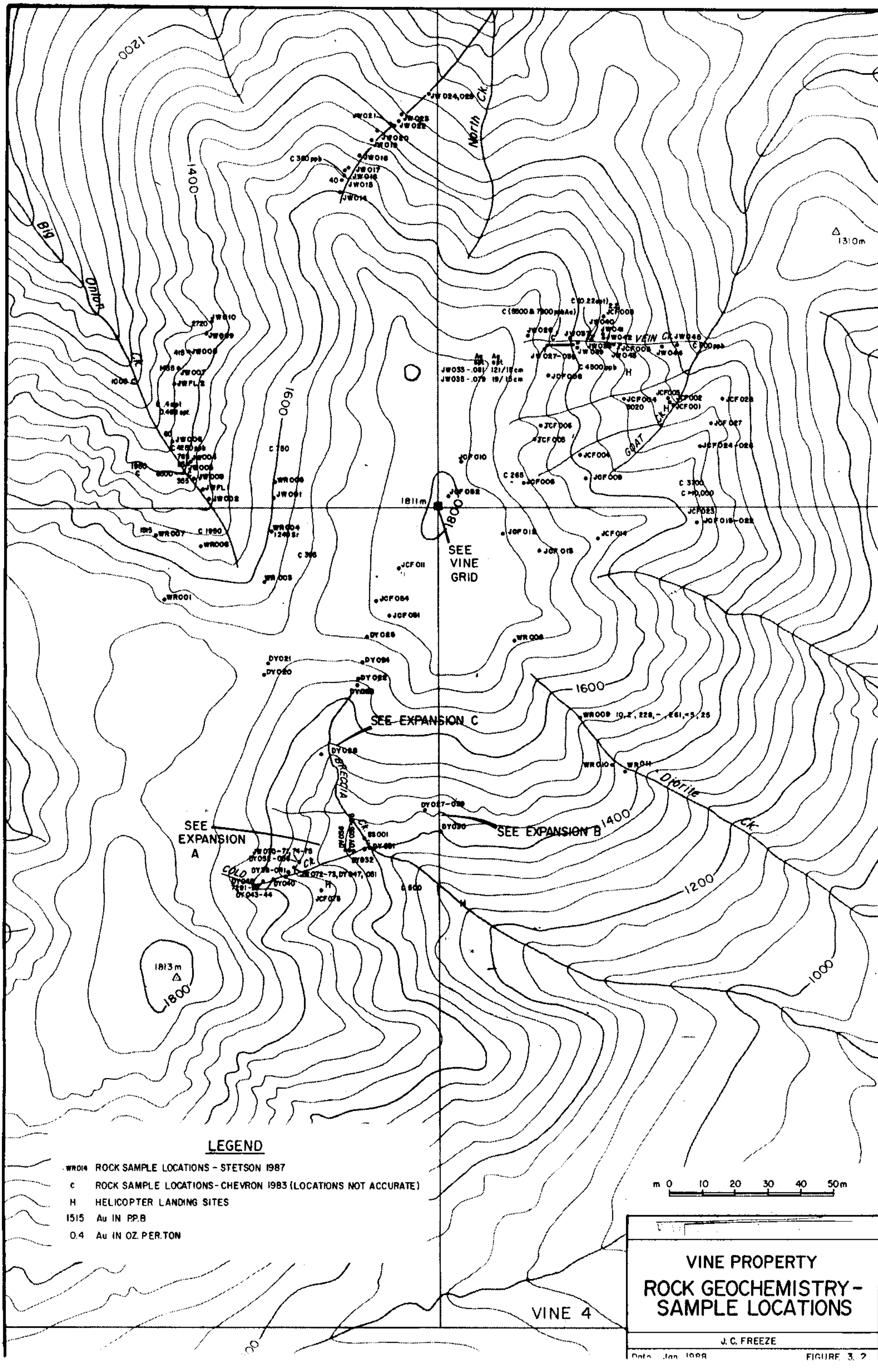

LEGEND
WR014 ROCK SAMPLE LOCATIONS - STETSON 1987
C ROCK SAMPLE LOCATIONS - CHEVRON 1983 (LOCATIONS NOT ACCURATE)
H HELICOPTER LANDING SITES
1515 Au IN P.P.B
0.4 Au IN OZ. PER TON
SEE VINE GRID
SEE EXPANSION A
SEE EXPANSION B
SEE EXPANSION C
VINE 4
VINE PROPERTY
ROCK GEOCHEMISTRY - SAMPLE LOCATIONS
J. C. FREEZE
FIGURE 3.2

TABLE 3.2
Rock Sample Descriptions and Results
VINE PROPERTY

Sample No.	Location	Rock Type with Mineralization	Width	Attd.	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Sb ppm	As ppm
DY 020	Top of Saddle	8m wide Rhy Dyke near contact w/ dior. & seds.	selected	± 0°							
DY 021	Top of Saddle	Si & Hornflsd Seds	"	-	-5	1.4	166	14	96	40	75
DY 022	170 m E of of Saddle	Si Seds	"	-	-5	0.6	45	24	60	10	30
DY 024	20m abv DY 022	Rhy Brx - Qz Mtrx	"	-	5	0.8	42	28	11	15	20
DY 024A	170m E of Saddle	Rhy Brx w/chlcdny Matrx (blk w/fn gr su's)	.3m	025±V	-5	1.7	28		63	27	9
DY 024B	W. Side of DY 024A	"	"	"	-5	1.4	23		37	5	15
DY 024C	W. beside DY 024B	"	"	"	-5	1.1	28		26	5	5
DY 024D	W. beside DY 024C	"	"	"	-5	1.1	28		18	9	28
DY 024E	W. beside DY 024D	"	"	"	-5	1.4	18		18	9	5
DY 024F	W. beside DY 024E	"	"	"	-5	0.7	18		21	10	42
DY 025	10m abv DY 024	Rhy Brx - No Mtrx (i.e. dry)	"	-	-5	0.6	62	8	22	15	25

VINE PROPERTY

Sample No.	Location	Rock Type with Mineralization	Width	Attd.	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Sb ppm	As ppm
DY 026	310m SW of DY 025	Brx'd Seds Fe-Cb	"	-	5	0.8	80	8	38	15	40
DY 027	200m E of Brx Crk 1,400 m ASL	Brx (bedding in clasts) Fe-Cb Mtrx	"	-							
DY 028	10m E DY 027	Conglomerate - Brx	"	-	5	1.0	56	-2	75	15	5
DY 029	Below DY 028	Aplite - Fe-Cb on weath. surface	"	$\pm$ 0°							
DY 030	35m below DY 029	Msv. Su Lnses in Fe-Cb	"	-	1800	+200	+10,000	4,010	+10,000	1,235	10,000
DY 031	Lower Cld Crk	Bxwk Wad - FeO_2 - Msv Ga	F/t	-	185	+200	1,040	+10,000	1,510	+10,000	490
DY 032	"	Flt-Qz w/Msv Ga. Aspy	"	-	55	6.0	71	688	185	185	915
DY 033	Lwr Cld Crk	F/W of Fe-Cb-Si Brx Vein	.6 m	125/70N							
DY 034	"	H/W " " "	"	"	5	2.8	36	392	30	90	60
DY 035	5m W of DY 034	Cb'd Seds (Bdng)	"		40	1.8	62	98	204	45	40
DY 036	20m W of DY 035	Aplite Dyke Fe-Cb			5	1.2	8	98	56	40	35
DY 038	Nr Waterfall Cold Creek	Vuggy Qz w/ to 5% Su's Aspy + Sp	.15m	Float	1,150	13.0	50		4,860	119	+2,000

VINE PROPERTY

Sample No.	Location	Rock Type with Mineralization	Width	Attd.	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Sb ppm	As ppm
DY 039A	Nr Watrfall Cld Crk-Trnch	Dior cly alt. Fldspr - S of Qz Vein - H/W?	.6m	062/±V	20	2.9	102		1,512	11	530
DY 039B	N. beside DY 039A	"	"	"	10	4.1	149		930	17	123
DY 039C	N. beside DY 039B	"	"	"	40	1.5	56		716	9	260
DY 039D	N. beside DY 039C	Qz-cryptoxln-w/to 10% Su's-Sp, Pø,Cp,Sb	.4m	"	.022 opt	.1 opt	.01%	.03%	.38%	.75%	
DY 039E	N. beside DY 039D	Dior Cly altrd Fldsprs	.6m	"	10	1.9	78		483	88	829
DY 040	20m above DY 039 on strike	as above up strike 20m includes .3m of alt. host	"	"	.024 opt	.26 opt	.01%	.07%	.12%	.07%	
DY 041	2m below DY 039 on strike	Qz-Cryptoxtln-w/Su's	"		.106	.14	-.01	.28	.13	.16	
DY 042	20m above DY 039	Aspy in Qz	selected		340	4.0	24		119	34	1,075
DY 043	30m W of DY 039 Trnch	Aplite-Sill? - Cb'd FeO_2 on wea. surf.	±15m		45	12.6	33		62	10	169
DY 044	40m W of DY 039 Trnch	Qz V - Su's	.04m	080/70N	15	27.0	2,521		7,890	6	257

VINE PROPERTY

Sample No.	Location	Rock Type with Mineralization	Width	Attd.	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Sb ppm	As ppm
DY 045	Cly zone Nr Top Cld Crk	Cly - blue, white & brown	slct	-	10	1.1	39	Hg-ppb 1100	62	5	63
DY 046	10m N of Trnch	Brx-Ca Mtrx-Su's	±.15m	Flt	25	0.8	40		284	5	82
DY 047	13m b/w DY 039+5m N	Qz - ccksmb - Cbalt	.2m	Flsmr	180	6.3	222		5,590	54	+2,000
DY 048	100 m E of DY 039	Qz-CbV-Dior Host	.07m	062/75N	-5	0.8	57		256	5	5
DY 050A (7291)	Cly Zone at Top of	White cly	.1m	140/30E	5	0.8	23	Hg-ppb 180	18	8	77
DY 050B (7292)	Cld Crk	Brown cly	.1m	"	5	0.9	100	1,300	107	13	384
DY 050C (7294)		White clay w Qz frct to .007m	.1m	"	15	1.4	9	2,350	9	17	87
DY 051	10m below DY 039 Trnch	Qz vn-crpxtln-Su's Pø, Sp	.2m	-	.044 opt	.37 opt	.01%	.43%	.30%	.22%	
DY 051B	10m N of DY 051	Brx multilithic (Qz-Sp-Py clasts) in Cb Mtrx	.15m	Flsmr	960	3.2	45	Pb	4,133	185	+2,000
DY 052	7m S of Stn 1+30m Bs/Ln	Qz Vuggy w/Msv Ga Cp Oreshoot Center of Vein	.3m	080/60N	.010 opt	15.33opt	.27%	8.90%	.94%	.49%	
DY 053	"	Bxwk w/Su's F/W of Vein	.3m	080/60N	180	4.72	1,008	Hg-ppb +5,000	8,110	+2,000	1,803

VINE PROPERTY

Sample No.	Location	Rock Type with Mineralization	Width	Attd.	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Sb ppm	As ppm
DY 054	7m S of Stn 1+30m Bs/Ln	Cly in H/W of Vein Brwn/White	.3m	080/60N	5	64	170	Hg ppb 1400	933	104	847
DY 055	8m N of DY 052 GaV	Brx to Cong. - mltilthc w/Ca (Blck) Mtrx	3.0m	080/60N	5	1.8	71		257	11	306
DY 056	10m N of DY 052 GaV	Aplite Dyke Fe-Cb	2.0m	050/65N	-5	0.9	71	<u>Pb</u>	187	13	24
JCF 001	Goat Crk 1,540m ASL	Ca veins #1 lenticular, Py in Si HW #2 1m N of #1	.30m chip	090°/80N 075°/77N 090°/45N	35	0.8	153	110	79	85	45
JCF 002	"	Ca vein in Hflsd seds Py appears syngenetic goe & he	.60m chip	086/84N							
JCF 003	" "	Qz + Ca Fw stkwk	selected								
JCF 004	1,600m	Qz + Msv Su Cp, Py, Te, Aspy	.10m chip	084/89N	3,020	22.6	9,850	2,470	765	3,410	+10,000
JCF 005	1,680m	Very fine grained felsic intrusive Py sub & euh									
JCF 006	1,680m	Lenticular Qz blob 1½' long, Cp in veinlet	.02m								
JCF 008	1,680m	Tuff									
JCF 009	1,680m	FeO_2 Aplite dyke in Si Slst and shale float		120/89N	25	1.2	91	76	31	15	185

VINE PROPERTY

Sample No.	Location	Rock Type with Mineralization	Width	Attd.	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Sb ppm	As ppm
JCF 010	1,760m Near LCP	Felsic dyke very fine grained to fine grained, Qz & feldspar FeO_2 blebs									
JCF 011	SW of LCP 1,780m	Felsic dyke Rhy to Aplite Su Py + Te Very fine grained			40	1.2	94	102	42	5	80
JCF 012	E of LCP 1,760m	Aplite dyke very fine grained felsic in Diorite		060°							
JCF 013	1,730m	Felsic dyke, Py bxwk + gry Su FeO_2									
JCF 014	1,660m	Ca vein in Aplite dyke 135°/29 frctr	01-02m	135/32w	5	0.8	31	24	45	5	35
JCF 016	1,575m	Ca vein in Aplite	.01m	170/72E	20	1.0	88	42	32	35	675
JCF 017	"	Calcite vein	.04m	066°/84	5	0.4	23	20	4	20	205
JCF 018	"	"	.01-.05m in 45m wide zone	173/87E	-5	0.4	15	12	16	20	90
JCF 019	"	"	.01m	in 45m wide zone 173/87E	-5	0.4	21	12	41	20	75
JCF 020	"	"	.01m	"	-5	0.4	21	12	41	20	75

VINE PROPERTY

Sample No.	Location	Rock Type with Mineralization	Width	Attd.	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Sb ppm	As ppm
JCF 021	1,575m	Calcite veinlet	.01-.02m		-5	0.4	17	22	28	15	70
JCF 022	"	Aplite Py			-5	0.6	43	18	31	5	40
JCF 023	above JCF 022	Qz vein in seds Py, Lim & Goet stain in frctr	.05m	122/61E 126/75E	-5	1.0	174	2	25	5	40
JCF 024	1,550m ASL	Calcite vein in Ls	selected	35/52N	-5	0.2	4	2	10	20	35
JCF 025	"	Si shale (argillite) W/Py	"		5	0.2	178	4	30	5	70
JCF 026	1,550m ASL	Pink Ca veinlets in andesite	"		-5	0.4	128	10	39	20	20
JCF 027	1,500m	Aplite dyke	selected								
JCF 051	1+50W 3+50S	Rhy w/diss grey Py	"		5	13.3					
JCF 052 (7282)	L0+00 0+50N	Rhy - Grey Qz w/ fine grained Su	"		"	28.5					
JCF 053	1+50W 2+05N	Takw seds Si dissem Py	"		5	.7					
JCF 054	2+00W 2+75S	Gry Rhy flsnmr fine grained Su Py 14m 187°	"		3	1.9					
7458	115m 062° Cold Ck shwg	Siliceous Breccia Sp Ga Py Ja	"		355	640					

VINE PROPERTY

Sample No.	Location	Rock Type with Mineralization	Width	Attd.	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Sb ppm	As ppm
7459	Cold Ck	float in ck Msv Sp			210	22.1					
7460	DY 044	Qz vein w/Su's	"		67	45.5					
7461	DY 050a	Clay alt w/Qz	selected		13	2					
JCF 075 7462	S of Cld Crk	Qz Cb stkwk			1	.2					
7463	Cold Crk	Float in crk Msv Ga Sp			1,640	234					
JW 001	Big Onion Crk 1600m	Qz feldspar porphyry Hem Lim no vis Su's	5m								
JW 002	" 1480m	Aplite dyke; Hem Lim Su's	8.3m	093/71S							
JW 003	Big Onion Crk 1440m	Qz vein .05m = altered HW & FW Ma in FW; Lim & He Py Cp Bø	.4m	068/73SE	355	11.0	2560	1250	2480	30	70
JW 004	" 1440m ↑	Qz vein - msv adj to HW Brx FW FeO_2 Su's	.2m	070/76N	765	3.6	247	1855	1655	565	+10,000
JW 005	10m apart	Qz stkwk truncated by vein in 004	.5m		115	16.2	1065	1590	849	55	365
JW 006	1360m	Qz stkwk Brx Lim, vuggy veinlets Su's	.2m chip	065/84S	60	2.6	2510	66	204	-5	75
JW 007	136m N of main ck	Shear zone w/intense Ma stain weathered no Su's	selected	062/45N	1435	29.0	8630	18	95	-5	15
JW 008	Tributary	Qz core, intense Ma stain, Su's	.1m	040/77W	415	17.0	+10000	48	391	5	15

VINE PROPERTY

Sample No.	Location	Rock Type with Mineralization	Width	Attd.	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Sb ppm	As ppm
JW 009	Big Onion Tributary 1360m	Qz vein - limonite stain	.1m	094/87N	Sample lost in gorge, should be resampled.						
JW 010	"	Qz vein msv vis Su	.2m chip	101/90	2,720	12.4	3,030	142	115	10	190
JW 014	North Crk Tributary 1600m	Calcite vein chlorite	.02-.05m	111/90							
JW 015	1560m	Dark grey limestone Su's	.14m	060/71W	40	0.6	200	46	125	35	1,775
JW 016	"	Dolomitic limestone Su's	1x3m	101/90	15	0.4	45	2	33	5	10
JW 017	"	Dolomitic limestone Su's	.6m	086/60S	2	0.3	48	24	97	2	5
JW 018	North Crk Tributary 1520m ASL	Very pyritic siltstone	1.5m O.C.	096/83S	3	0.2	173	25	89	2	2
JW 019	1480m	Qz Diorite Lim		090/40N							
JW 020	1450m	Feldspar dyke Lim Su's	30m	075/85N	1	0.1	23	16	31	2	28
JW 021	1400m	Feldspar dyke less weathered Lim Su's		075/85N	1	0.2	8	17	33	2	18
JW 022	1380m	Fibrous black calcite vein	.12m	075/60E	5	0.2	35	4	51	5	5
JW 023	1360m	Sparry calcite vein	.06m		5	0.2	5	4	4	5	15
JW 024	1310m	Aplite dyke									

VINE PROPERTY

Sample No.	Location	Rock Type with Mineralization	Width	Attd.	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Sb ppm	As ppm
JW 025	"	"			4	0.1	1	9	48	2	19
JW 026	Vein Ck 1690m	Fine grained seds									
JW 027	Vein Ck 1650m	Qz Te 5% Py	.15m	076/88N	4560	16.4	1937	5443	6964	6068	73,680
JW 028	10m spacing along strike	Qz Te vein Sp, Lim, Ga, Stib Su's	.05m	076/88N	5620 (.16 opt)	8.2	1696	229	73	266	72971
JW 029	"	"	.15m		3850	19.4	3171	319	102	351	73,293
JW 030	10m spacing	Qz Te vein Sp, Lim Ga, Stib, Su's	"								
JW 031	"	"	"		2210	45.5	9728	3052	2196	2527	73372
JW 032	"	"	"		11240 (.328 opt)	59.1	9517	1706	151	1785	72477
JW 033	Vein Ck 10m spacing	Qz Te vein Sp, Lim Ga, Stib, Su's	.15m		.081 opt	121.0	6,010	+10,000	1,940	+10,000	+10,000
JW 034	"	"	"								
JW 035	"	"	"		.079 opt	19.0	7,910	2,020	864	2,750	+10,000
JW 036	"	"	"		4905	74.9	19905	2248	633	954	73208
JW 037	"	Vuggy Qz Vein Lim Su's	.05m	065/84N	2780	367.1	38806	17293	744	5030	74054
JW 038	"	Qz Te 5% Py	.15m	076/88N	.069 opt	20.7	3954	2257	136	3787	95897

VINE PROPERTY

Sample No.	Location	Rock Type with Mineralization	Width	Attd.	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Sb ppm	As ppm
JW 039	Vein Ck 1600m	Qz Te 5% Py	.15m	076/88N							
JW 040	1560m	Shear zone	.15m	055/73N	.008	2.2	539	124	81	80	+10,000
JW 041	1535m	Qz calcite Breccia clay Su's	.3m	084/81N							
JW 042	"	"	.27m	089/87N							
JW 043	1500m	Qz Breccia Lim Su's	.7m	105/79N	.002	0.8	92	22	28	60	815
JW 044	1420m	Tetrahedrite Qz Vn, Clay, Su's	.15m	103/60N	.002	1.8	2,790	12	87	30	270
JW 045	1395m	Calcite vein some Lim	.2m	103/62N							
JW 070	Cold Ck 1,515m ASL	Msv Ga vein	.25m	080/66N	1,750	83.95 opt		60.28%			
JW 071	Trench	Hw of Ga vein Crimson Red			2.40	2.34	73	Hg ppb 2,150	333	864	400
JW 072	Cold Crk BL 115m	Qz vein chrty w/Sp, Py Cockade textures in Qz		061/83N	560	1.00	139	450	4,320	1,972	1,665
JW 073	115m on BL	Qz W/sp		selected	980	47	1,571	4,400	17.54%	762	2,000
JW 074	135m on BL	Ca vein Ribbon txt bndd Mafic Rk	.15m chip	072/90°	30	6.4	111	190	2,653	79	281
JW 075	135m on BL	Cb cemented Brx			25	4.5	42	70	925	17	193
WR 001	Big Onion Crk, 1650m	Rhyolite Py + Te	12m		75	0.2	25	Pb ppm 16	7	30	7,670

VINE PROPERTY

Sample No.	Location	Rock Type with Mineralization	Width	Attd.	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Sb ppm	As ppm
WR 003	1,640m	Rhyolite	10m		-5	0.4	32	26	51	5	45
WR 004	1,6200m	Rextl Ls - Qz infilling	selected	090°	-5	0.4	21	14	29	5	100
								Sr ppm 1,240			
WR 006	1,540m	Rhyolite Py & Te $Fe0_2$			5	0.8	41	20	10	15	20
WR 007	Cirque W of Ck	Rhyolite Py & Te pervasive	selected	Shear 2 002/84NW	1,515	21.4	137	3,140	2,800	255	8,710
WR 008	Diorite Ck 1,730 m	Rhyolite finely diss Py	15m		10	3.2	17	Hg ppm 120	127	5	53
WR 009	1,570m	Si siltstone Py		052/74N	10	2.0	228	15	261	5	25
WR 010	1,440m	Rhyolite Py diss	10m		10	1.3	7	10	95	5	5
WR 011	1,420m	Fine grained diorite Blebs of Py	10m								

South of the Big Onion - Vein Zone several scattered mineralized veins were sampled by Stetson in 1987 and Chevron in 1983 (see Figure 3.2 for results).

The Cold Creek Quartz-Carbonate Zone was sampled in detail (see Figures 3.2 and 2.2.A for results).

The Crackle Breccia Zone in the eastern extent of the Cold Creek Quartz-Carbonate Zone was also sampled in detail (see Figure 2.2.B for results).

Above the Crackle Breccia Zone, a rhyolite breccia was sampled in detail. No anomalous metal values were found in the rock samples (see Figure 2.2.C for results).

3.3 Stream Sediment Sampling

3.3.1 Sampling

Two stream sediment samples were collected, one each from Cold Creek and Breccia Creek. Approximately 300 gm of fine sand to clay-sized material was sampled by hand and placed in numbered Kraft envelopes. The samples were sent to Bondar-Clegg in Whitehorse for analysis.

3.3.2 Sample Preparation and Analytical Procedure

The samples were oven-dried and sieved to minus 80 mesh. A 10 gram subsample was preconcentrated by fire assay and analyzed for gold by atomic absorption.

3.3.3 Results

Both samples contain slightly anomalous gold concentrations. Sampling of fine materials in the stream bed has not been very successful in delineating gold mineralization in the Tatsamenie area and is not recommended as an efficient exploration tool in this area (Chevron and North American Metals, pers. comm.).

CONCLUSIONS

Gold, silver, copper, lead, zinc, antimony, arsenic ± mercury mineralization occurs in two main zones and several showings on the property. The mineralization occurs in quartz ± calcite vein structures and in the surrounding stockwork and alteration halos.

These structures cross-cut both the Jurassic Takwahoni sediments and the Post-Middle Jurassic diorite stock suggesting a Cretaceous or Tertiary age for the mineralization.

The Cretaceous-Tertiary Sloko Group rhyolite and felsite dykes often occur proximal and usually parallel to the mineralized structures.

Comparing the mineralization discovered on the Vine property to the most economically significant property in the Tatsamenie Lake area, the following observations can be made:

Bear Deposit Model

1) Major structures acting as conduits for mineralizing fluids;
2) A heat source such as intrusive bodies creating hydrothermal convection cells;
3) Structural traps;
4) Host rocks that are either chemically or physically receptive to deposition of mineralization;

Vine Observations

1) The Big Onion - Vein Zone appears to be controlled by a major east-west structure as evidenced by mineralized easterly striking quartz veins outcropping one kilometre apart on strike and anomalous metal concentrations in the soils covering much of the area between the outcropping veins.

Both the Cold Creek Vein and Crackle Breccia Zone are hosted by a quartz -carbonate alteration zone which appears to be structurally controlled as it crosscuts lithologic units.

2) The Sloko Group dykes and stocks often outcrop proximal to the mineralized zones. These intrusive bodies and a deeper seated batholith may have provided the heat source necessary to create hydrothermal convection cells.

3) No structural traps have been identified yet but folding occurs in the sediments with an increased intensity towards the northern edge of the property.

4) Porosity, permeability and replacement by metasomation play an important role in the host rocks' ability to allow deposition of metallic mineralization. At the Bear Deposit, limestone and tuff units are excellent hosts for mineralization. On the Vine property, sediments and diorite host the mineralized structures.

Although the Takwahoni sediments are hornfelsed in places, silicification may not have interferred with metallic mineral deposition if it was a post or syn-mineralization process. A few limestone beds have been mapped within the Takwahoni sediments but they appear to be limited.

The diorite appears to be receptive to mineralization where altered by hydrothermal fluids.

As in the Bear Deposit, mineralization on the Vine property appears to fit Lindgren's (1933) mesothermal model for ore deposits. Quartz $\pm$ carbonate hosting pyrite, chalcopyrite, galena, sphalerite, tetrahedrite and arsenopyrite mineralization in smooth walled veins within regularly planar structures and associated quartz-carbonate alteration halos are described by Lindgren (1933) as mesothermal ore deposits.

In conclusion, the Vine property is believed to have excellent potential for hosting an economic mineral deposit.

RECOMMENDATIONS

Based on the conclusions stated, the following two phased exploration program is recommended. The decision to proceed with Phase II is contingent upon favourable results from Phase I.

Phase I

1) Detailed mapping and rock chip sampling of mineralized zones discovered to date. Both the strike and width extent of these zones should be investigated. Investigations should be prioritized as follows:

   a) Cold Creek Quartz-Carbonate Zone;
   b) Big Onion and Vein Zones;
   c) Scattered showings prioritized by highest gold values obtained to date.

2) Detailed mapping and rock chip sampling followed by trenching of zones of anomalous metal concentrations in soils.

   Investigation of these zones should be prioritized as follows:

   a) Anomaly A
   b) Anomaly B
   c) Anomaly C
   d) Anomaly D
   e) . Anomaly E
   f) Anomalies F according to highest values.

3) Soil sampling should be carried out on the ridges above the strike extension of the Cold Creek Quartz Carbonate Zone.

4) Prospecting should be carried out on portions of the property unexplored to date.

Phase II

Diamond drilling should be carried out on the best targets outlined by Phase I. Favourable structuresshould be tested for both strike ans depth extents.

Respectfully Submitted,Respectfully Submitted,
STETSON RESOURCE MANAGEMENT CORP.

W.J. DYNES, Prospector

J. F. WETHERILL, B.A.Sc.

W. ROBB, B.Sc.

GEOLOGICAL ASSOCIATION OF CANADA
J.C. FREEZE
FELLOW

J.C. FREEZE, F.G.A.C.
STILLWATER ENTERPRISES LTD.

COST STATEMENT FOR THE VINE AND SAL PROPERTIES

Project Preparation:

Printing			$ 54.16
Maps			612.63
Drafting			373.95
Personnel:			
J.C. Freeze	2	man days @ $300/day	600.00
J.F. Wetherill	10	man days @ $225/day	2,250.00
			===========
			$ 3,890.76

Field Personnel:

Geologists:			
J.C. Freeze	12	man days @ $300/day	$ 3,600.00
J.F. Wetherill	13	man days @ $225/day	2,925.00
W. Robb	7.5	man days @ $225/day	1,687.50
Prospectors:			
W.J. Dynes	10	man days @ $225/day	2,250.00
R. Prois	8	man days @ $200/day	1,600.00
Field Technicians:			
M. Pym	12	man days @ $200/day	2,400.00
C. Gjendem	13	man days @ $175/day	2,275.00
A. Wardwell	11	man days @ $175/day	1,925.00
L. Beaudin	9	man days @ $175/day	1,575.00
Cook and First Aid Attendant:			
W. Elliot	11	man days @ $200/day	2,200.00
			===========
		Total:	**$ 22,437.50**

Support:

Mobilization/Demobilization		
Truck Rental		$ 251.46
Freight		370.06
Fixed Wing		2,066.24
Flights		2,905.77
		===========
	Total:	**$** 5,593.53

Camp:		
Room	104.5 man days @ $25.00/mdy	$ 2,612.50
Groceries	104.5 man days @ $21.77/mdy	2,274.97
Grocery Flights	104.5 man days @ $ 5.02/mdy	524.59
Motel Accommodation		172.95
Restaurant Meals		309.16
Equipment Rental:		
Generator	104.5 man days @ $2.77/manday	$ 289.47
Chainsaw	104.5 man days @ $3.34/manday	349.03
Communications:		
SBX-11-Rental	104.5 man days @ $1.22/manday	127.49
Parts	104.5 man days @ $1.84/manday	192.28
Walkie Talkies	104.5 man days @ $3.23/manday	337.54
Long Distance		330.95
Expediting	104.5 man days @ $10.95/manday	1,144.28
	Total:	**$** 8,665.19

Supplies $ 5,112.57

Assays $10,551.60

Transportation:

Helicopter & Fuel - 31.77 hours @ $591.9/hour		$18,804.66
Fuel Flights		1,469.86
Courier & Taxis		412.99
	Total:	**$** 20,687.51

Sub Total $ 76,938.66

12% Overhead Administration: $ 9,232.64

TOTAL COSTS **$** 86,171.30

Allocation of costs to the Vine Property:
75.5 man days / 104.5 total man days = 72.25 %
72.25% of Total Costs $86,171.30 = **$62,258.76**

Allocation of Costs to the Sal Property:
29 man days / 104.5 total man days = 27.75 %
27.75% of Total Costs $86,171.30 = **$23,912.54**

REFERENCES

BROWN, D., WALTON, G., October, 1983	Assessment Report, Geological and Geochemical Survey - Vein Claims for Chevron Canada Resources Limited.
FREEZE, J.C., May, 1987	Report on the NORTHERN GOLD PROJECT, Atlin Mining Division for Lightning Creek Mines Ltd. and Diamet Minerals Ltd.
KENWAY, R.W., 1986	Golden Bear Project of North American Metals Corp. by Uma Engineering Ltd.
LINDGREN, W., 1933	Mineral Deposits, p. 529-534.
MONGER, J.W.H., 1984	Cordilleran Tectonics: a Canadian perspective; Societe Geologigue de France, Bulletin (7) + XXVI, No. 2 P.255-278.
SOUTHER, J.G., 1971	Geology and Mineral Deposits of Tulsequah Map Area, British Columbia; Geol. Surv. Can. Mem. 362.

STATEMENT OF QUALIFICATIONS

NAME:	Freeze, J.C., (nee Ridley), F.G.A.C.
PROFESSION:	Consulting Geologist
EDUCATION:	1981 B. Sc. Geology - University of British Columbia
	1978 B.A. Geography - University of Western Ontario
PROFESSIONAL ASSOCIATIONS:	Fellow of the Geological Association of Canada
EXPERIENCE:	1987 - Present: Consulting Geologist with Stillwater Enterprises Ltd. Directing exploration programs and reviewing properties in Canada and U.S.A.
	1985 - 1986: Project Coordinator - Geologist with White Geophysical Inc. Coordinating mineral exploration projects involving geology, geochemistry, geophysics and diamond drilling in B.C. and Yukon.
	1981 - 1985: Project Geologist with Mark Management Ltd. Hughes-Lang Group. Responsible for precious metals exploration programs involving geology, geochmistry, geophysics and diamond drilling in Western Canada.
	1979 - 1981: Summer and part-time Geologist involved with coal exploration in N.E. B.C. with Utah Mines Ltd.

STATEMENT OF QUALIFICATIONS

NAME:	Dynes, W. J.
PROFESSION:	Prospector
TRAINING:	1985 Exploration Geochemistry U.B.C.
	1983 B.C.D.M. Mineral Exploration Course
	1982 B.C. Yukon Chamber of Mines Prospectors Mining School
PROFESSIONAL ASSOCIATIONS:	Member of the Geological Association of Canada - Cordilleran Division
EXPERIENCE:	1987 - Present: Prospector with Stetson Resource Management Corp. Field Supervisor for exploration programs involving geology, geochemistry, and geophysics in B.C. and Yukon.
	1984 - 1987: Prospector and Manager of Geo P.C. Services Inc. Prospector involved with geological geochemical and geophysical aspects of exploration programs in B.C.
	1975 - 1978: Analytical Chemist with Noranda Mines Ltd., Boss Mountain Division

STATEMENT OF QUALIFICATIONS

NAME:	Wetherill, J. F.
PROFESSION:	Geologist - Engineer in Training
EDUCATION:	1987 B.A.Sc. Geology - University of British Columbia
EXPERIENCE:	1987 - Present: Geologist with Stetson Resource Management Corp. Field Supervisor for exploration programs involving geology, geochemistry, and geophysics in B.C. and Yukon.
	1986, June - August: Field Assistant - Geologist involved with geological, geochemical and geophysical aspects of exploration programs in B.C.

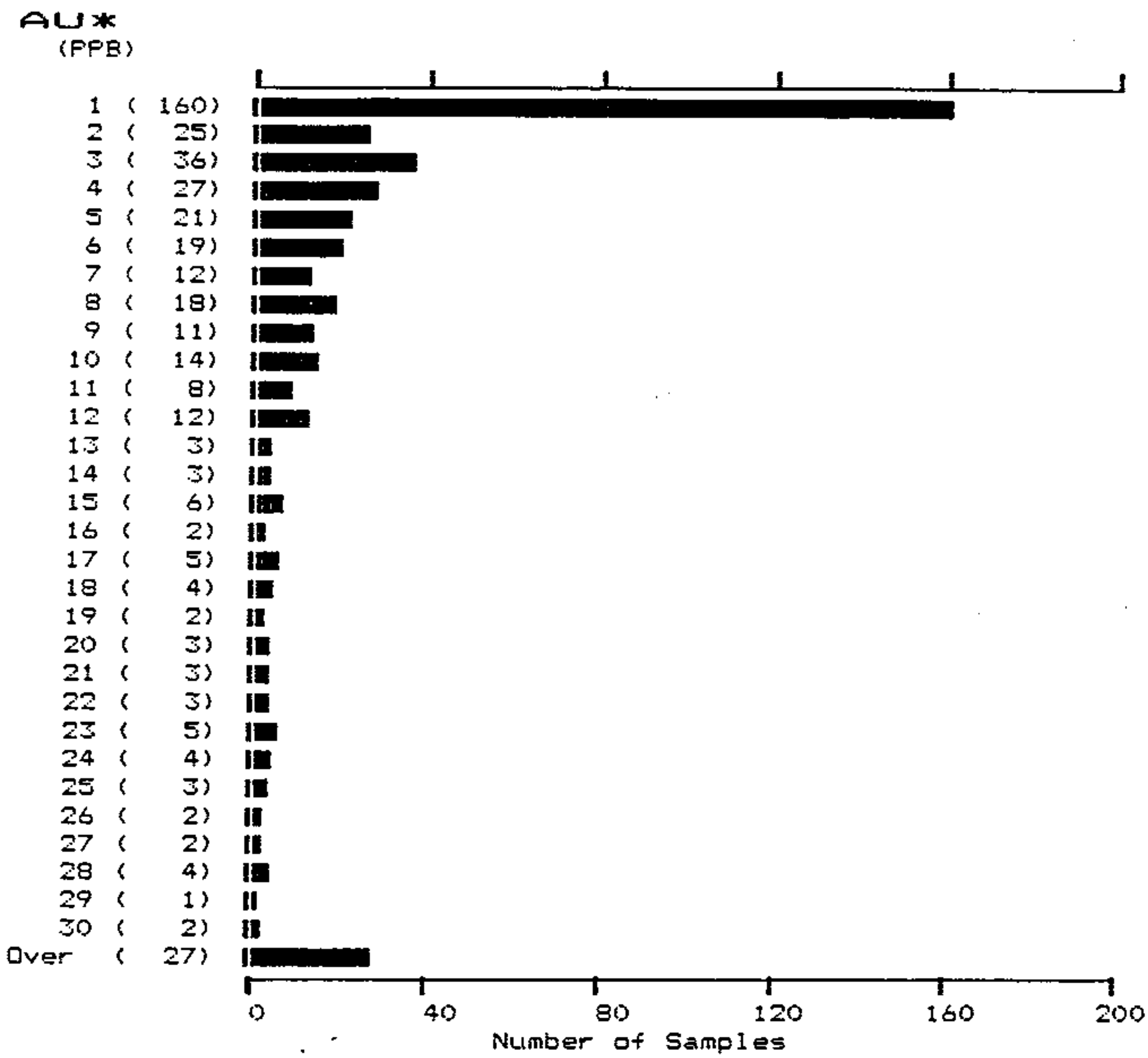
STATEMENT OF QUALIFICATIONS

NAME:	Robb, W.D.
PROFESSION:	Geologist
EDUCATION:	1987 B.Sc. Geology - University of British Columbia
EXPERIENCE:	1987 - Present: Geologist with Stetson Resource Management Corp. Field Supervisor for exploration programs involving geology, geochemistry, and geophysics in B.C. and Yukon.
	1986, June - August: Field Assistant - Geologist involved with geological, geochemical and geophysical aspects of exploration programs in B.C.
	1978 to 1982: Land Surveyor with Canadian National Railways, Edmonton, Alberta; British Columbia Railways, Tumbler Ridge; and Hargraves and Associates, Vancouver, B.C.

APPENDIX I

SOIL GEOCHEMISTRY RESULTS AND GRAPHICAL STATISTICS

HISTOGRAMS: STETSON RESOURCES



447 Samples

Maximum: 255
Minimum: 1

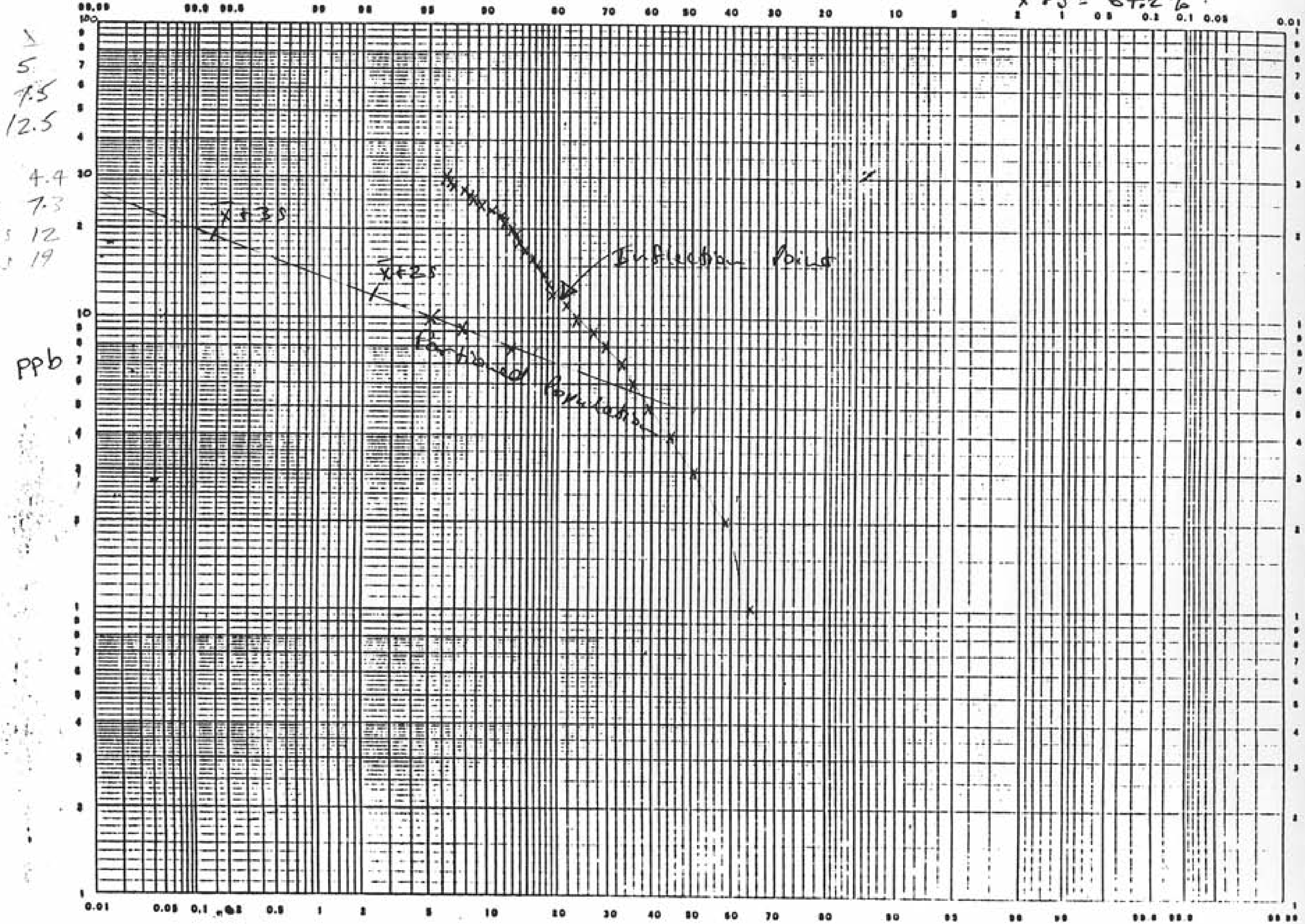
Mean: 10
Median: 4
Standard Deviation: 24

Log 3 Cycles x Probability

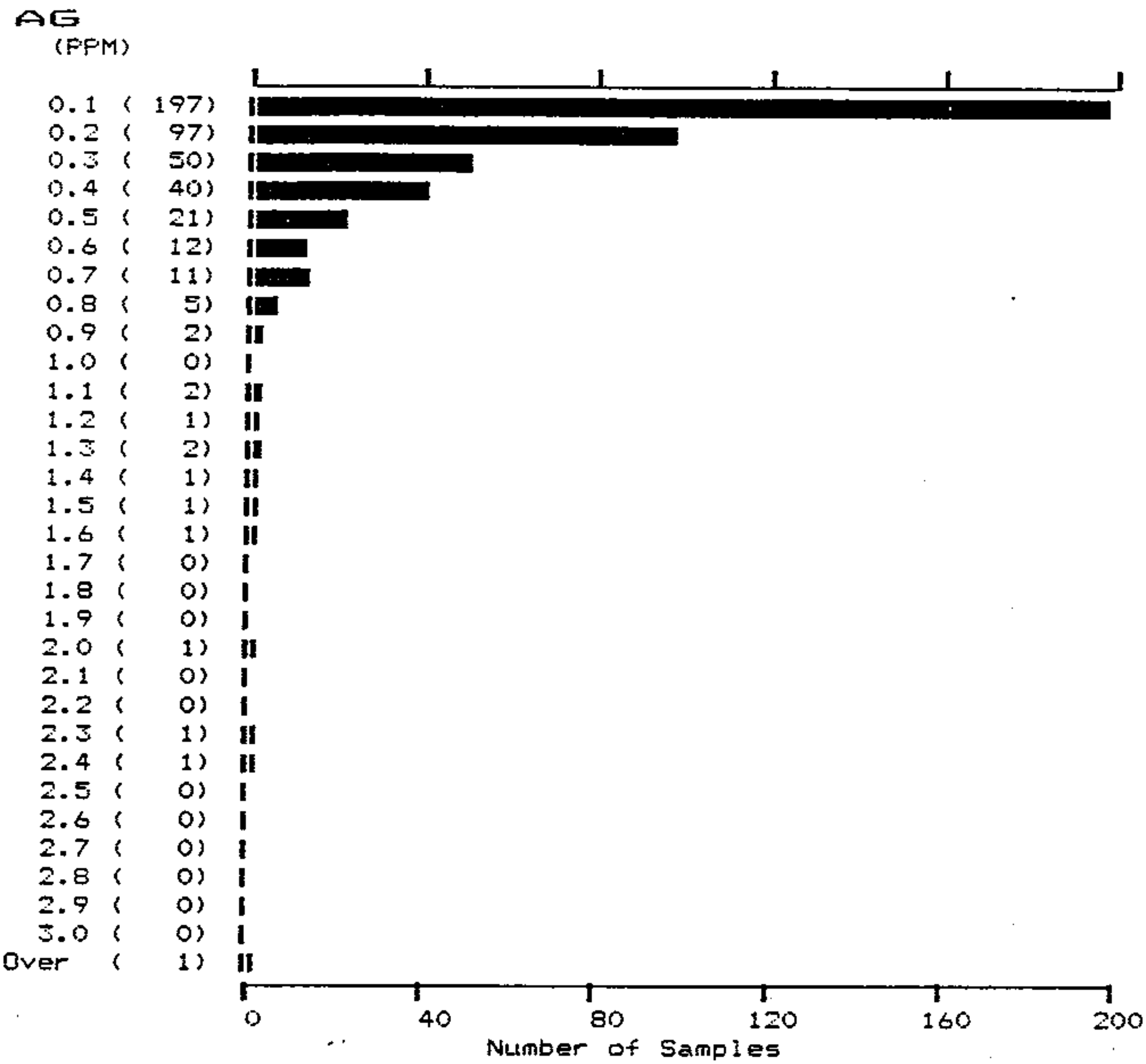
$X = \frac{A - 2c}{80}$ $X = \left(\frac{A - \text{Inflection Point}}{100 - \text{Inflection Point}}\right)$ X = Partitioned Values $\bar{X} + 3s = 99.865\%$ $\bar{X} + 2s = 97.73\%$ $\bar{X} + s = 84.2\%$

A	Δ
24	5
26	7.5
30	12.5

X	4.4
X+s	7.3
X+2s	12
X+3s	19



HISTOGRAMS: STETSON RESOURCES



447 Samples

Maximum: 5.8
Minimum: 0.1

Mean: 0.3
Median: 0.2
Standard Deviation: 0.4

A-2.0
97.2

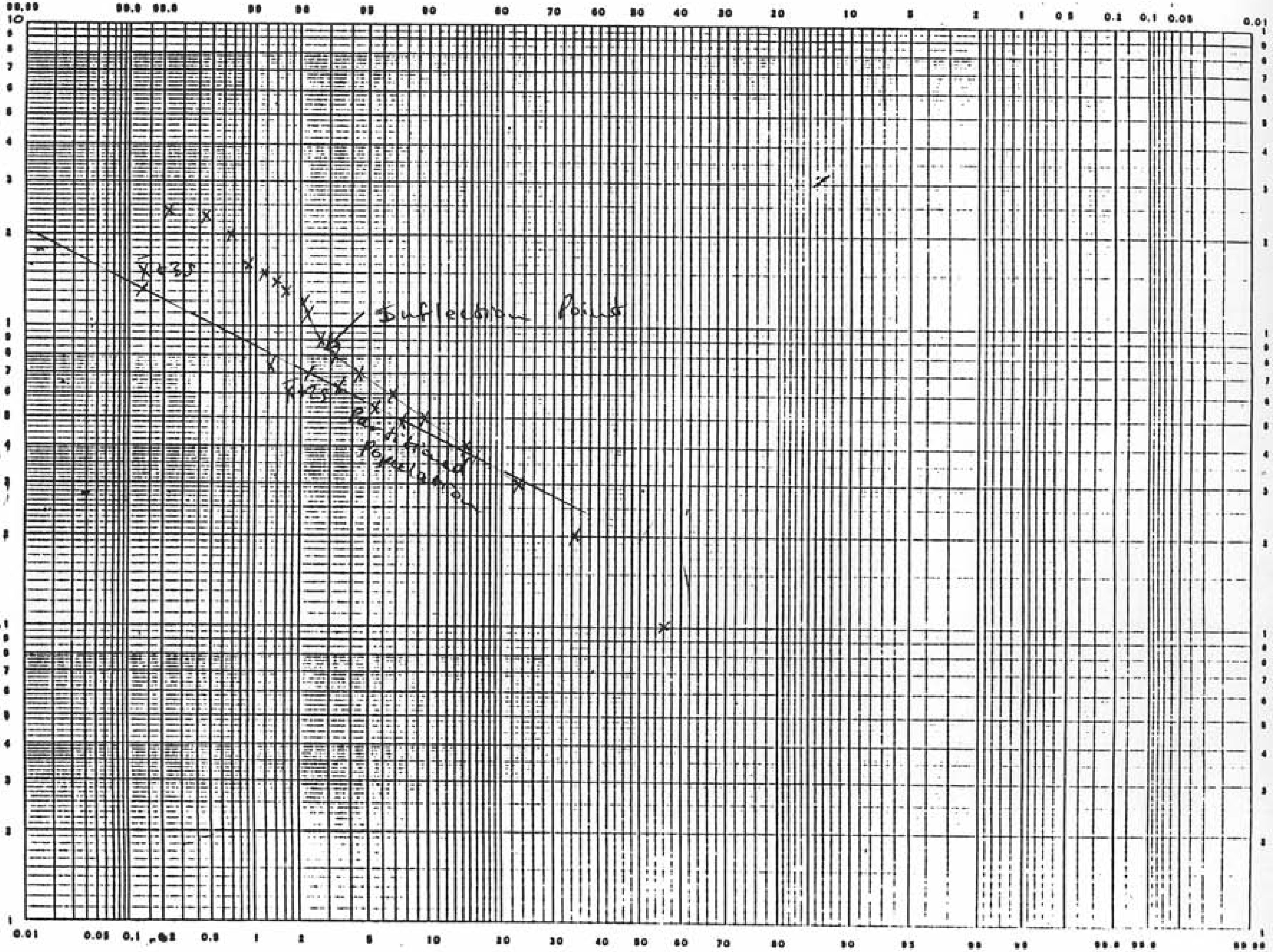
Ag

Log 3 Cycles x Probability

A	X
4	1.23
6	3.3
8	5.35
10	7.41

X	.2
X+s	.37
X+2s	.7
X+3s	1.3

PPM



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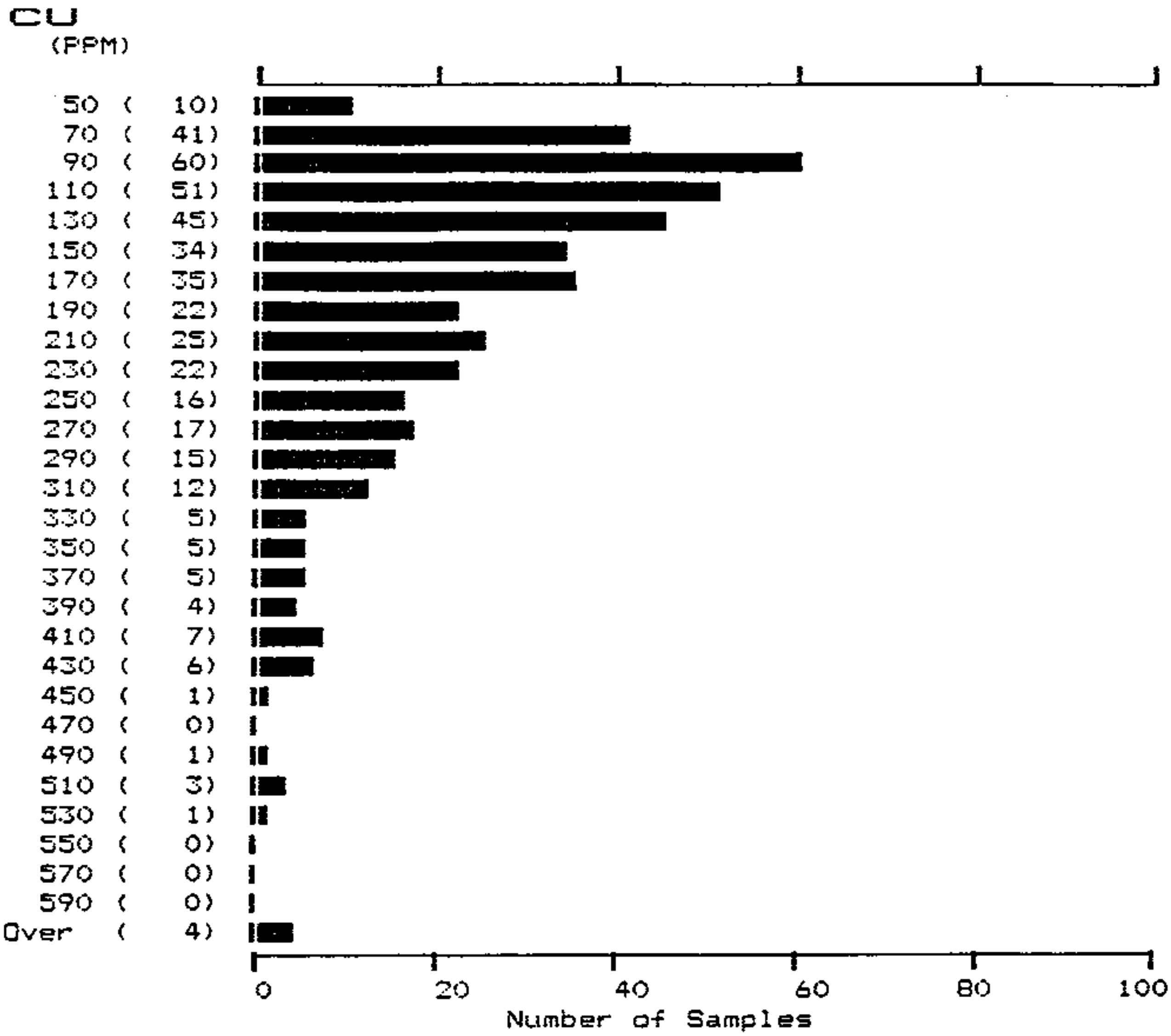


447 Samples

Maximum: 829
Minimum: 36

Mean: 171
Median: 139
Standard Deviation: 110

C

Log 3 Cycles x Probability

$X = \frac{[A - 27.73]}{100 - 27.73 \; (72.16)} \times 100$ $X' = \frac{[A - 30.5]}{69.5} \times 100$

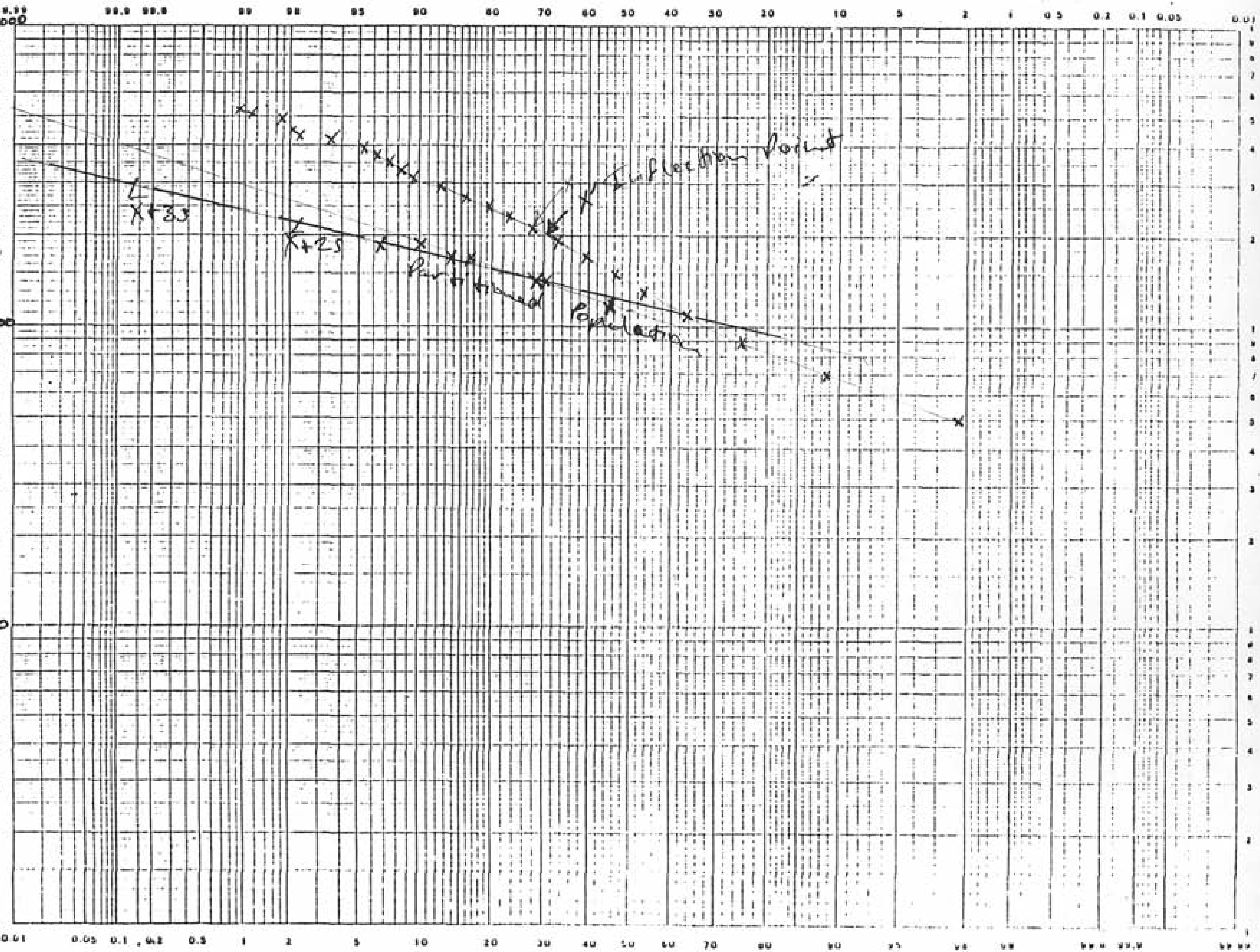
A	X
35	10.05
40	16.96
50	30.81
60	44.64

$\bar{X}$ 50%: 112
$\bar{X}$+S (84.2) = 170
$\bar{X}$+2S (97.73): 258
$\bar{X}$+3S (99.865): 390

A	X'
35	6.47
40	13.67
50	28.06
60	42.45

$\bar{X}'$ = 120
$\bar{X}'$+S = 160
$\bar{X}'$+2S = 218
$\bar{X}'$+3S = 290

PPM



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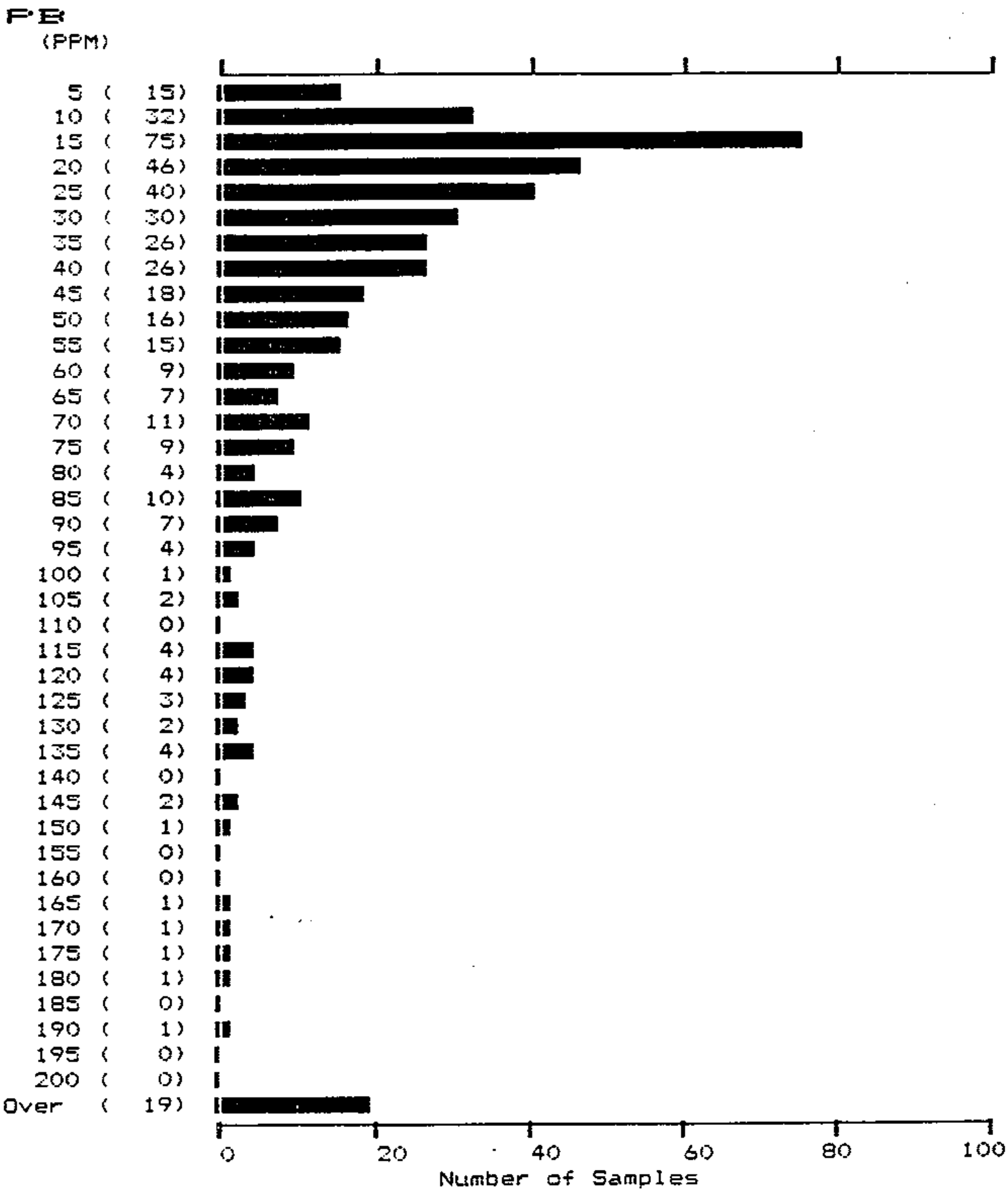


447 Samples

Maximum: 1438
Minimum: 2

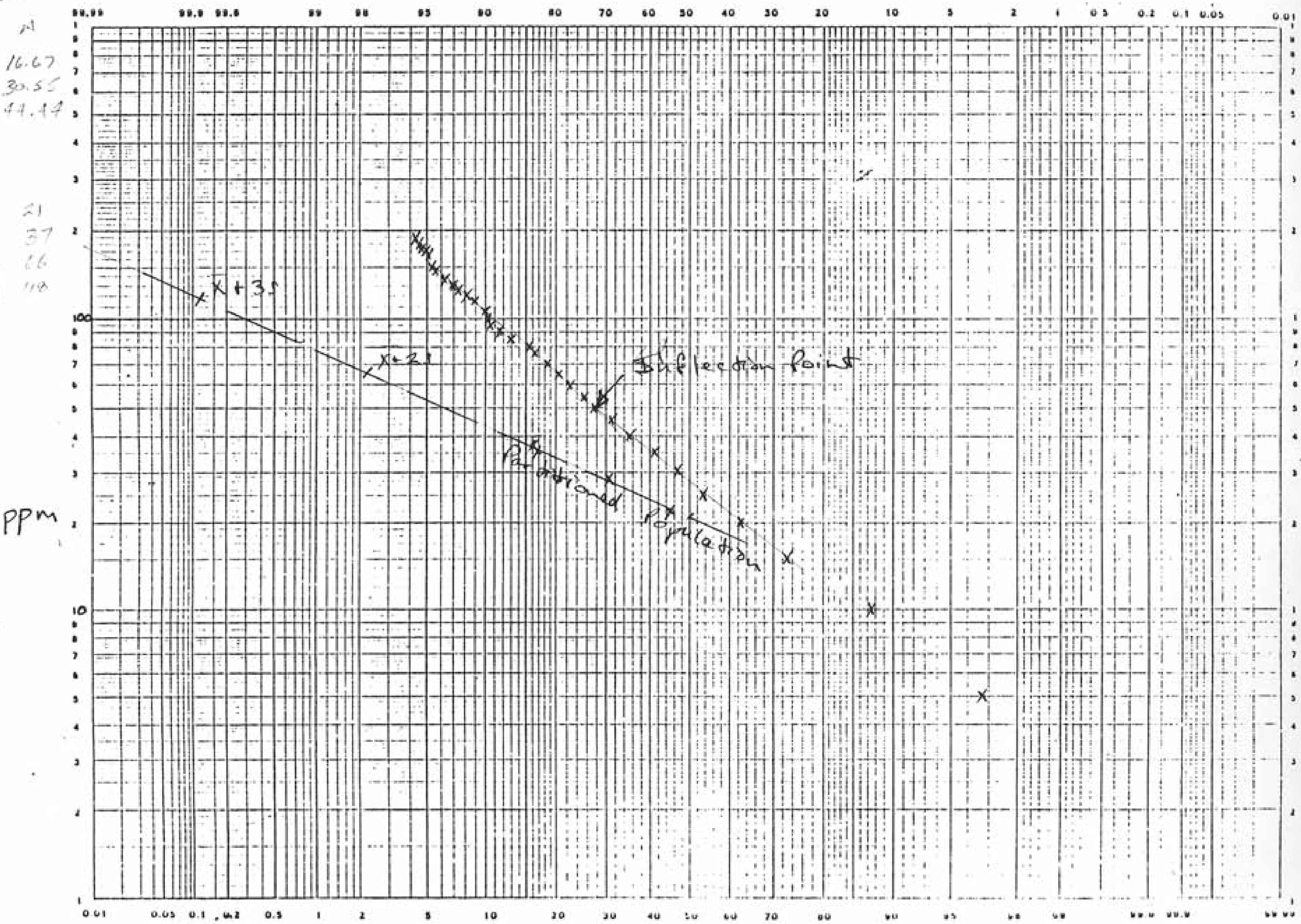
Mean: 53
Median: 29
Standard Deviation: 97

Log 3 Cycles x Probability

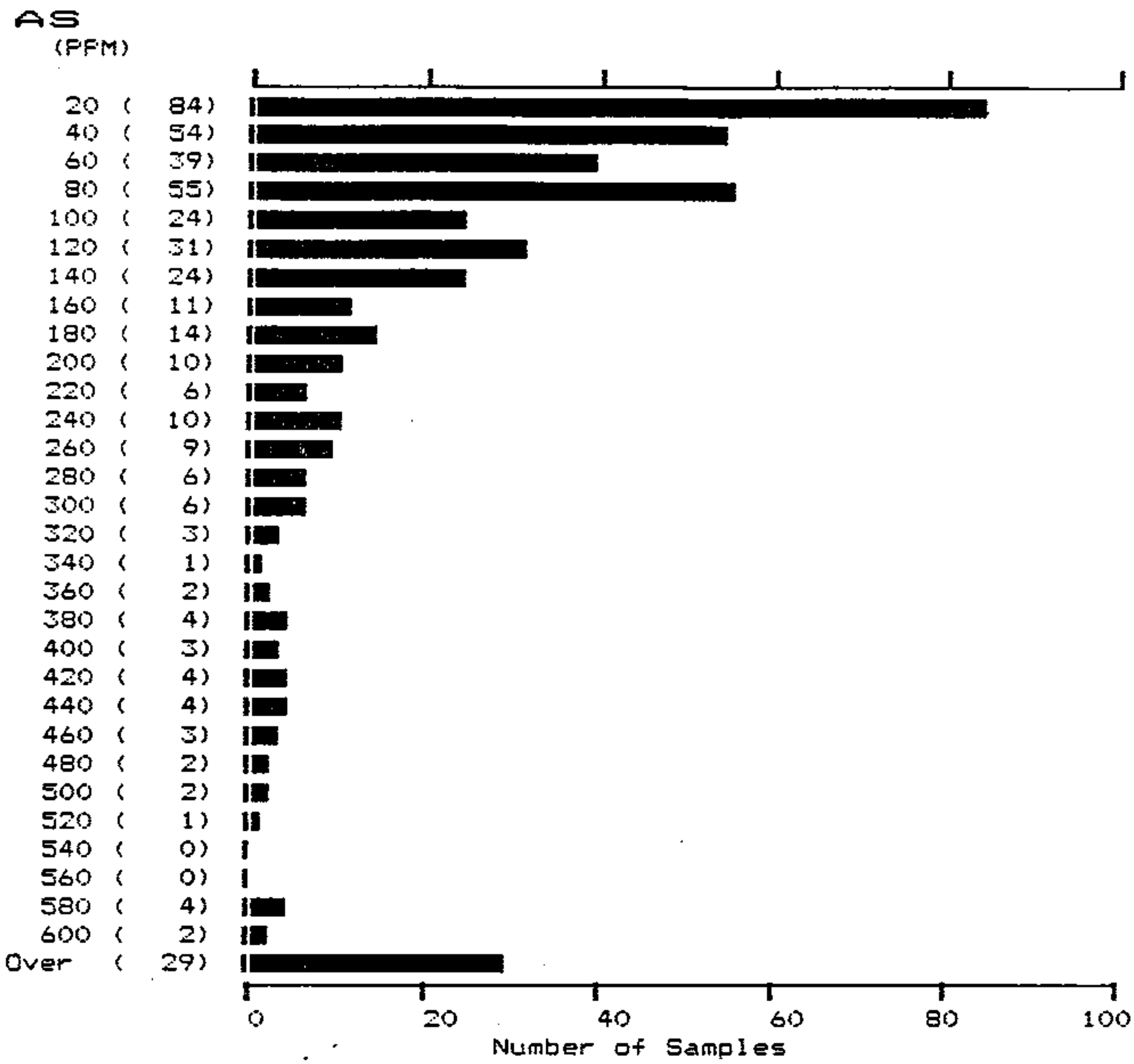
M-23 / 72

x	M
40	16.67
50	30.55
60	44.44

$\bar{x}$	21
x+s	37
x+2s	66
x+3s	118



HISTOGRAMS: STETSON RESOURCES



447 Samples

Maximum: 5325
Minimum: 3

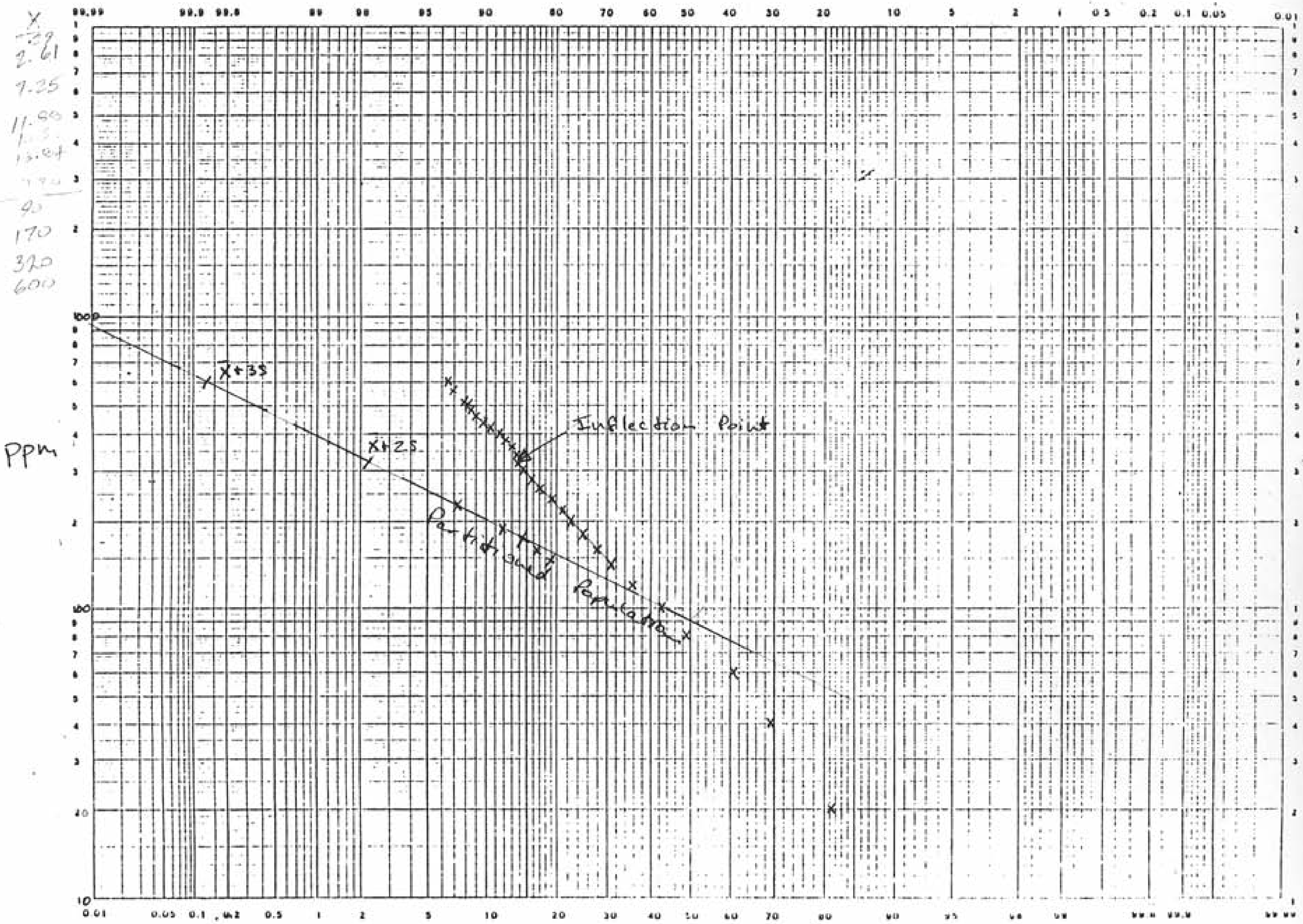
Mean: 194
Median: 78
Standard Deviation: 406

A-13.75

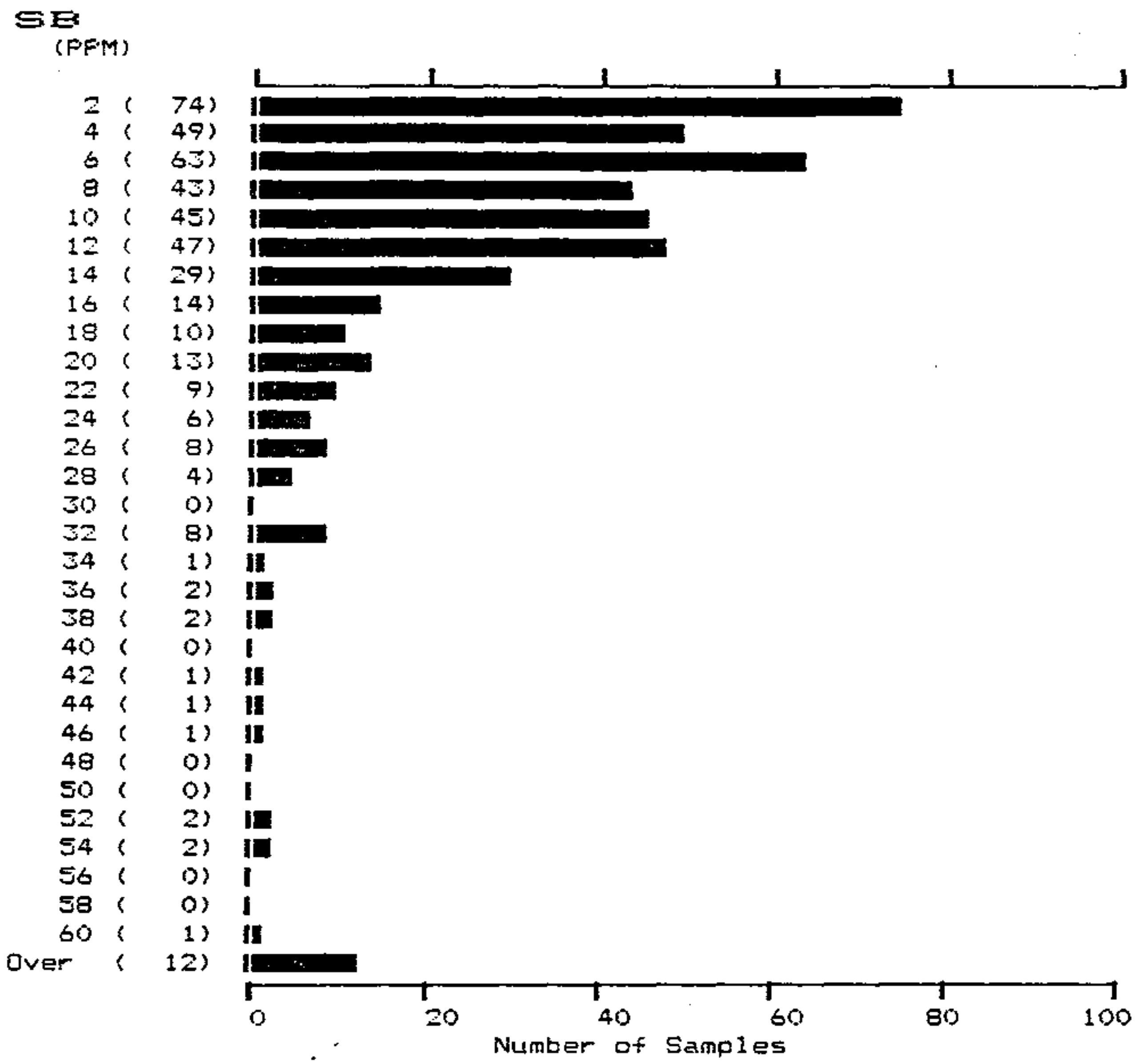
96

A	X
14	[illegible]
16	2.61
20	7.25
24	11.88
[illegible]	[illegible]
x̄	90
x+1s	170
x+2s	320
x+3s	600

As



HISTOGRAMS: STETSON RESOURCES



447 Samples

Maximum: 227
Minimum: 2

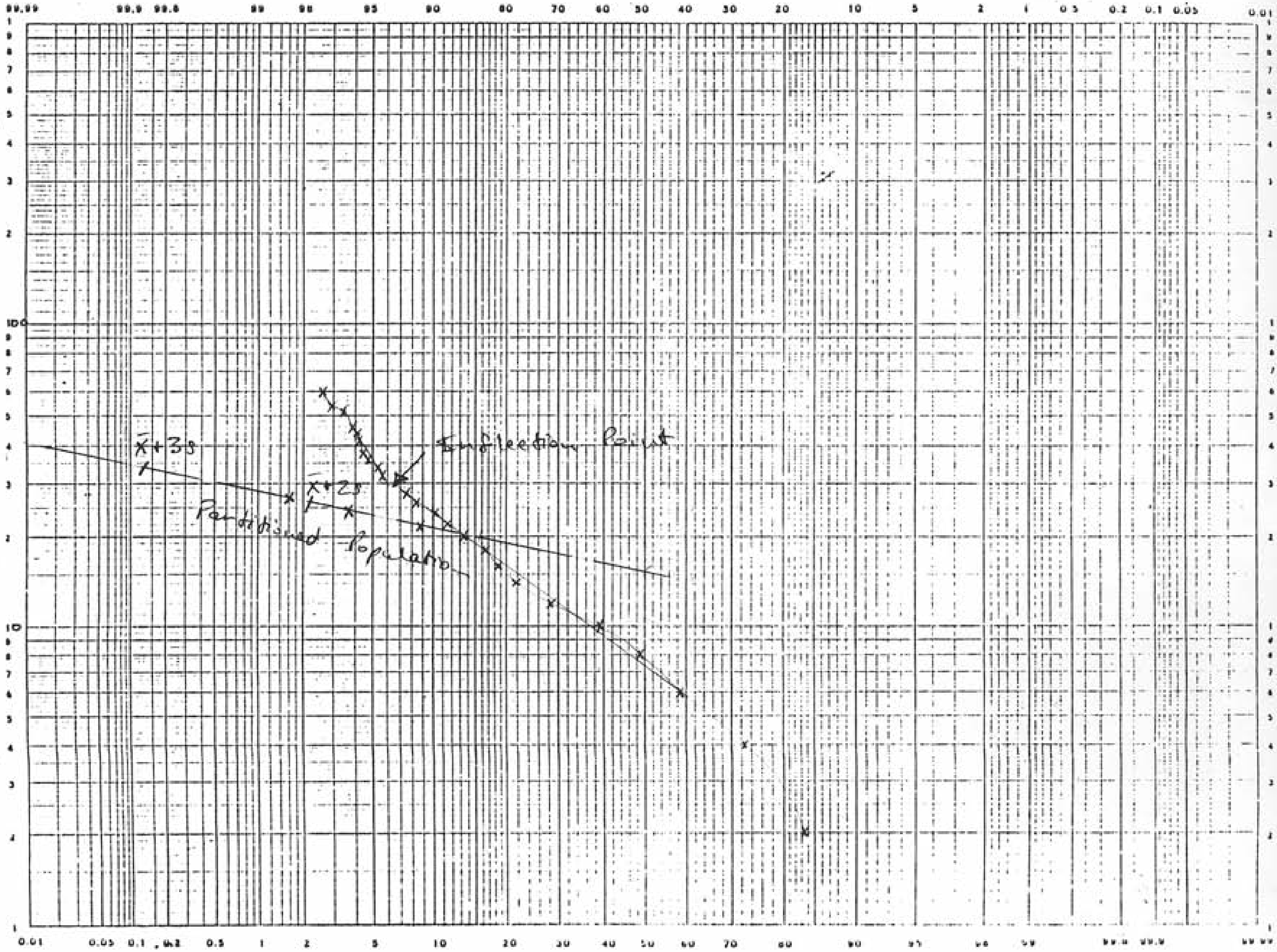
Mean: 13
Median: 8
Standard Deviation: 23

A - 6.5
93.5

A	X
8	1.6
10	3.74
12	5.98

X 15.5
X+σ 20
X+2σ 26
X+3σ 34

ppm



APPENDIX II

ROCK GEOCHEMISTRY RESULTS

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.
- SAMPLE TYPE: ROCK AU* ANALYSIS BY AA FROM 10 GRAM SAMPLE.

DATE RECEIVED: MAR 18 1988 DATE REPORT MAILED: Mar 25/88 ASSAYER. C. Leong .D.TOYE OR C.LEONG, CERTIFIED B.C. ASSAYERS

STETSON RESOURCE PROJECT-VINE File # 88-0796 Geo Dept.

SAMPLE#	MO PPM	CU PPM	PB PPM	ZN PPM	AG PPM	NI PPM	CO PPM	MN PPM	FE %	AS PPM	U PPM	AU PPM	TH PPM	SR PPM	CD PPM	SB PPM	BI PPM	V PPM	CA %	P %	LA PPM	CR PPM	MG %	BA PPM	TI %	B PPM	AL %	NA %	K %	W PPM	AU* PPB
JW-017	2	48	24	97	.3	11	4	932	1.47	5	13	ND	1	650	1	2	2	7	19.87	.044	3	4	.68	24	.06	3	2.09	.07	.03	1	2
JW-018	4	173	25	89	.2	40	21	751	6.14	2	5	ND	3	313	1	2	2	141	2.47	.082	4	49	2.18	43	.15	4	7.06	.58	1.36	1	3
JW-020	1	23	16	31	.1	4	4	284	1.50	28	5	ND	14	184	1	2	2	10	1.21	.042	24	3	.17	49	.01	4	.45	.05	.23	1	1
JW-021	1	8	17	33	.2	3	3	259	1.29	18	5	ND	11	51	1	2	2	7	1.91	.038	18	2	.24	51	.01	4	.71	.05	.22	1	1
JW-025	1	1	9	48	.1	7	12	796	4.34	19	5	ND	3	65	1	2	2	116	3.00	.070	13	15	1.67	75	.21	3	1.90	.08	.07	1	4
JW-027	2	1937	5443	6964	16.4	15	417	101	17.19	73680	9	5	3	5	38	6068	923	4	.04	.011	2	15	.04	13	.01	4	.20	.01	.09	1	4560
JW-028	3	1696	229	73	8.2	39	871	70	23.19	72971	6	6	4	2	1	266	2257	5	.03	.017	2	34	.04	12	.01	7	.23	.01	.13	1	5620
JW-029	3	3171	319	102	19.4	16	336	29	20.11	73293	7	4	4	5	1	351	1785	7	.01	.023	2	28	.03	17	.01	5	.34	.01	.13	1	3850
JW-031	3	9728	3052	2196	45.5	11	98	40	23.66	73372	5	3	3	4	19	2527	954	4	.01	.013	2	16	.02	11	.01	7	.16	.02	.07	1	2210
JW-032	4	9517	1706	151	59.1	29	705	10	28.65	72477	5	11	4	2	3	1743	5030	2	.02	.005	2	68	.02	9	.01	9	.09	.02	.06	796	11240
JW-036	2	19905	2248	633	74.9	19	38	31	25.13	73208	5	7	3	2	6	5208	983	5	.01	.013	2	16	.03	14	.01	12	.16	.02	.10	1	4905
JW-037	3	38806	17293	744	367.1	16	59	18	26.32	74054	5	2	3	16	8	3846	2361	6	.01	.033	4	36	.03	15	.01	18	.28	.01	.12	1	2780
STD C/AU-R	20	61	42	132	7.5	70	31	1050	4.00	41	19	8	40	52	19	17	20	59	.48	.088	41	61	.95	180	.07	31	1.81	.08	.13	13	520

- ASSAY REQUIRED FOR CORRECT RESULT - for Cu, Pb, As >10,000 PPM
Sb > 1000 PPM
Ag > 35 PPM.